APPENDIX E

Traffic Impact Analysis

LINSCOTT
LAW &
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engineers

TRAFFIC IMPACT ANALYSIS REPORT

FULLERTON COLLEGE MASTER PLAN

Fullerton, California
May 24, 2017

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TRAFFIC IMPACT ANALYSIS REPORT

FULLERTON COLLEGE MASTER PLAN

Fullerton, California
May 24, 2017

1.0 INTRODUCTION

This Traffic Impact Analysis report addresses the potential traffic impacts associated with the proposed Fullerton College Master Plan (hereinafter referred to as Project). The approximately 70-acre project site is generally bounded by residential uses located along Berkeley Avenue to the north and east, Chapman Avenue to the south, Lemon Street to the west, and has an address of 321 E. Chapman Avenue, in the City of Fullerton, California. Fullerton Union High School also borders Fullerton College to the west along Lemon Street. Fullerton College recently purchased two additional properties, located at 416 and 429 E. Chapman Avenue, which are also considered part of the Project site. The proposed Project will generally consist of the construction of new campus facilities and the renovation of existing campus facilities to meet the District's instructional needs as set forth by the 10-year planning period. It will also accommodate growth in the student body over that planning horizon and beyond. In addition to the new and/or renovated instructional space, the proposed Project will also consist of the construction of new parking areas to augment the existing parking supply.

1.1 Scope of Work

This traffic report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential impacts associated with the proposed Project. The traffic analysis evaluates the operating conditions at thirty-two (32) key study locations within the project vicinity, estimates the trip generation potential of the proposed Project, superimposes the project-related traffic volumes on the circulation system as it currently exists, and forecasts future operating conditions without and with the proposed Project. Where necessary, intersection improvements/mitigation measures are identified.

The project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing peak hour traffic information has been collected at thirty-two (32) key study locations on a "typical" weekday for use in the preparation of intersection level of service calculations. A "typical" weekday constitutes a Tuesday, Wednesday or Thursday and refers to a non-holiday condition when the college and other local schools are in session.

This traffic report satisfies the traffic impact requirements of the City of Fullerton and is consistent with the most current *Congestion Management Program (CMP) for Orange County*. The Fullerton College Master Plan Project has a 10-year planning period, resulting in a project completion year of Year 2026. Given that the expected project completion year is within a few years of the City's Year 2030 Buildout traffic projections, it was recommended by City of Fullerton staff to utilize the Year 2030 Buildout traffic projections to provide a conservative analysis. This traffic report analyzes existing and future weekday AM peak hour and PM peak hour traffic conditions for a Year 2030

Buildout traffic setting following completion of the proposed Project. Year 2030 AM peak hour and PM peak hour background traffic volumes were forecast based on application of growth rates provided by the City of Fullerton to existing traffic volumes, and further adding traffic volumes from all future cumulative projects (i.e. buildout of the City). A 10% total growth was applied to existing traffic volumes for all major through movements at key intersections, and for any major turn movements as identified by City of Fullerton staff. A 5% total growth was applied to existing traffic volumes for all of the remaining intersection movements, which are considered to be minor movements. The City of Fullerton provided volumes for all cumulative projects under Year 2030 traffic conditions.

1.2 Study Area

A total of thirty-two (32) locations have been selected for evaluation based on discussions with City of Fullerton staff, and based on review of the existing transportation system surrounding the proposed Project site. The thirty-two (32) locations listed below provide regional and local access to the study area and define the extent of the boundaries for this traffic impact investigation.

Key Study Intersections

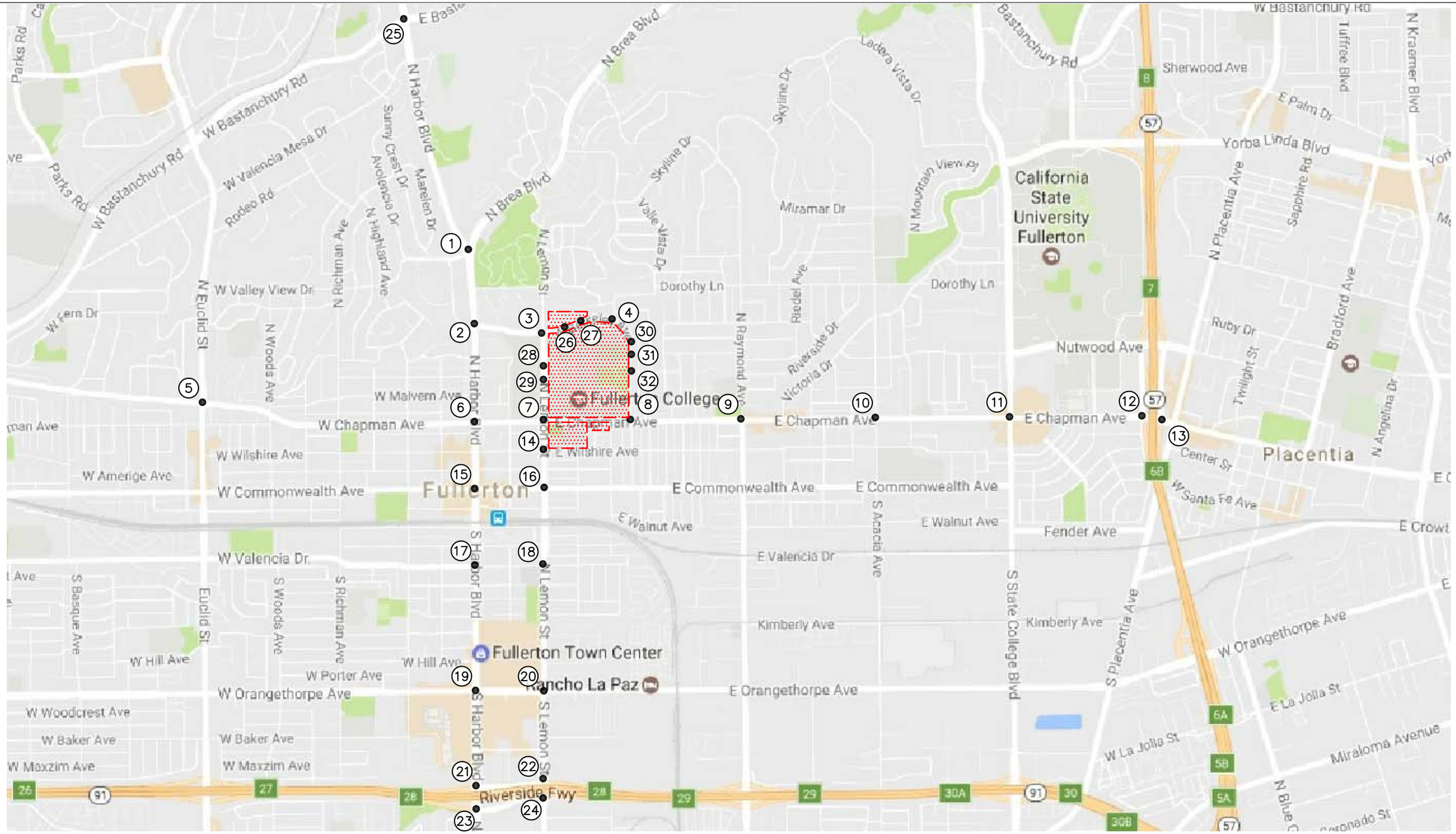
1. Harbor Boulevard at Valley View Dr/Brea Blvd
2. Harbor Boulevard at Berkeley Avenue
3. Lemon Street at Berkeley Avenue
4. Hornet Way at Berkeley Avenue
5. Euclid Street at Malvern Avenue
6. Harbor Boulevard at Chapman Avenue
7. Lemon Street at Chapman Avenue
8. Berkeley Avenue at Chapman Avenue
9. Raymond Avenue at Chapman Avenue
10. Acacia Avenue at Chapman Avenue
11. State College Boulevard at Chapman Avenue
12. SR-57 SB Ramps at Chapman Avenue
13. SR-57 NB Ramps at Chapman Avenue
14. Lemon Street at Wilshire Avenue
15. Harbor Boulevard at Commonwealth Avenue
16. Lemon Street at Commonwealth Avenue
17. Harbor Boulevard at Valencia Drive
18. Lemon Street at Valencia Drive
19. Harbor Boulevard at Orangethorpe Avenue[1]
20. Lemon Street at Orangethorpe Avenue
21. Harbor Boulevard at SR-91 WB Ramps[1]
22. Lemon Street at SR-91 WB Ramps
23. Harbor Boulevard at SR-91 EB Ramps[1]
24. Lemon Street at SR-91 EB Ramps
25. Harbor Boulevard at Bastanchury Road
26. College Driveway No. 1 at Berkeley Avenue
27. Centennial Way at Berkeley Avenue
28. Lemon Street at Parking Structure
29. Lemon Street at Fullerton College Drive
30. Berkeley Avenue at College Driveway No. 2
31. Berkeley Avenue at College Driveway No. 3
32. Berkeley Avenue at Brookdale Place

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the Project and depicts the study locations and surrounding street system. The Level of Service (LOS) investigations at these key locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects, and the proposed Project. When necessary, this report recommends intersection improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service, and/or mitigate the impact of the project.

[1] Orange County Congestion Management Program (CMP) intersection.

Included in this Traffic Impact Analysis are:

- Existing traffic counts,
- Estimated Project traffic generation/distribution/assignment,
- Estimated cumulative project traffic generation/distribution/assignment,
- AM and PM peak hour capacity analyses for Existing conditions,
- AM and PM peak hour capacity analyses for Existing plus Project conditions,
- AM and PM peak hour capacity analyses for Year 2030 Buildout traffic conditions without and with the proposed Project,
- Caltrans Evaluation at applicable locations,
- Recommended Improvements, and
- Special Issues.



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SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1-1

VICINITY MAP

FULLERTON COLLEGE MASTER PLAN, FULLERTON

2.0 PROJECT DESCRIPTION

The approximately 70-acre project site is generally bounded by residential uses located along Berkeley Avenue to the north and east, Chapman Avenue to the south, and Lemon Street to the west. The college address is 321 E. Chapman Avenue, in the City of Fullerton, California. Fullerton Union High School also borders Fullerton College to the west along Lemon Street. Fullerton College recently purchased two additional properties, located at 416 and 429 E. Chapman Avenue, which are also considered part of the Project site. ***Figure 2-1*** presents an aerial depiction of the existing site.

Figure 2-2 presents the proposed site plan for the proposed Project, which shows the locations of the proposed renovations and new construction. As shown, the proposed Project will generally consist of the construction of new campus facilities and the renovation of existing campus facilities to meet the District's instructional needs as set forth by the 10-year planning period. The Project will accommodate growth in the student body over the planning horizon and beyond. In addition to the new and/or renovated instructional space, the proposed Project will also consist of the construction of new parking areas to augment the existing parking supply.

Fullerton College has a current baseline student enrollment of 24,512 students. As stated above, the demolition of old campus facilities, renovation of existing campus facilities, and the construction of new campus facilities, including the construction of new parking areas are required to meet the District's instructional needs and to accommodate growth in the student body. At completion of the Master Plan in the Year 2026, Fullerton College is projected to accommodate a future student enrollment of 27,701 students, resulting in a net increase of 3,189 students over the existing student enrollment.

As discussed previously, the Fullerton College Master Plan Project has a 10-year planning period, resulting in a project completion year of Year 2026. Given that the expected project completion year is within a few years of the City's Year 2030 Buildout traffic projections, it was recommended by City of Fullerton staff to utilize the Year 2030 Buildout traffic projections to provide a conservative analysis.

2.1 Site Access

Vehicular access to the campus would continue to be provided from Lemon Street, Berkeley Avenue, Chapman Avenue and Wilshire Avenue. Lemon Street currently provides and will continue to provide primary access to the site via one right-turn in/right-turn out only unsignalized driveway (i.e. key study intersection #28; see *Figure 1-1* for locational detailing) and via one full access signalized driveway (i.e. key study intersection #29). Berkeley Avenue currently provides and will continue to provide primary access to the site via three (3) full access unsignalized driveways (i.e. key study intersections #26, #30, and #31) and one left-turn in/right-turn in/right-turn out only unsignalized driveway (i.e. key study intersection #27). It should be noted that as part of the proposed master plan project, key study intersection #31 (i.e. Berkeley Avenue/College Driveway No. 3) will only provide egress movements from the project site. Please note that there are several

additional driveways that provide access to Fullerton College along Lemon Street, Berkeley Avenue, Chapman Avenue and Wilshire Avenue, but they have not been selected for evaluation because these driveways are minor and will not serve as the main access points for the increased student enrollment.

2.2 Pedestrian Circulation

Pedestrian circulation would continue to be provided via existing public sidewalks along Chapman Avenue, Lemon Street, Berkeley Avenue and Wilshire Avenue within the vicinity of the project frontage, which will connect to the Project's internal walkways. The existing sidewalk system within the project vicinity provides direct connectivity to the major thoroughfares including Harbor Boulevard and Chapman Avenue.

Chapman Avenue, Lemon Street and Berkeley Avenue currently provide sidewalks on both sides of the street. Project-generated students who need to cross either of these streets in order to access the Project site could do so at the intersections of Lemon Street/Berkeley Avenue, Hornet Way/Berkeley Avenue, Lemon Street/Chapman Avenue, Fullerton College Drive/Lemon Street or Berkeley Avenue/Chapman Avenue. Each of these key study intersections provide crosswalks for pedestrians to cross in any direction. Further, an additional midblock crosswalk exists at the intersection of Lawrence Avenue/Chapman Avenue.

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KEY

= PROJECT SITE

= BUS STOP LOCATION

FIGURE 2-1

EXISTING SITE AERIAL

FULLERTON COLLEGE MASTER PLAN, FULLERTON

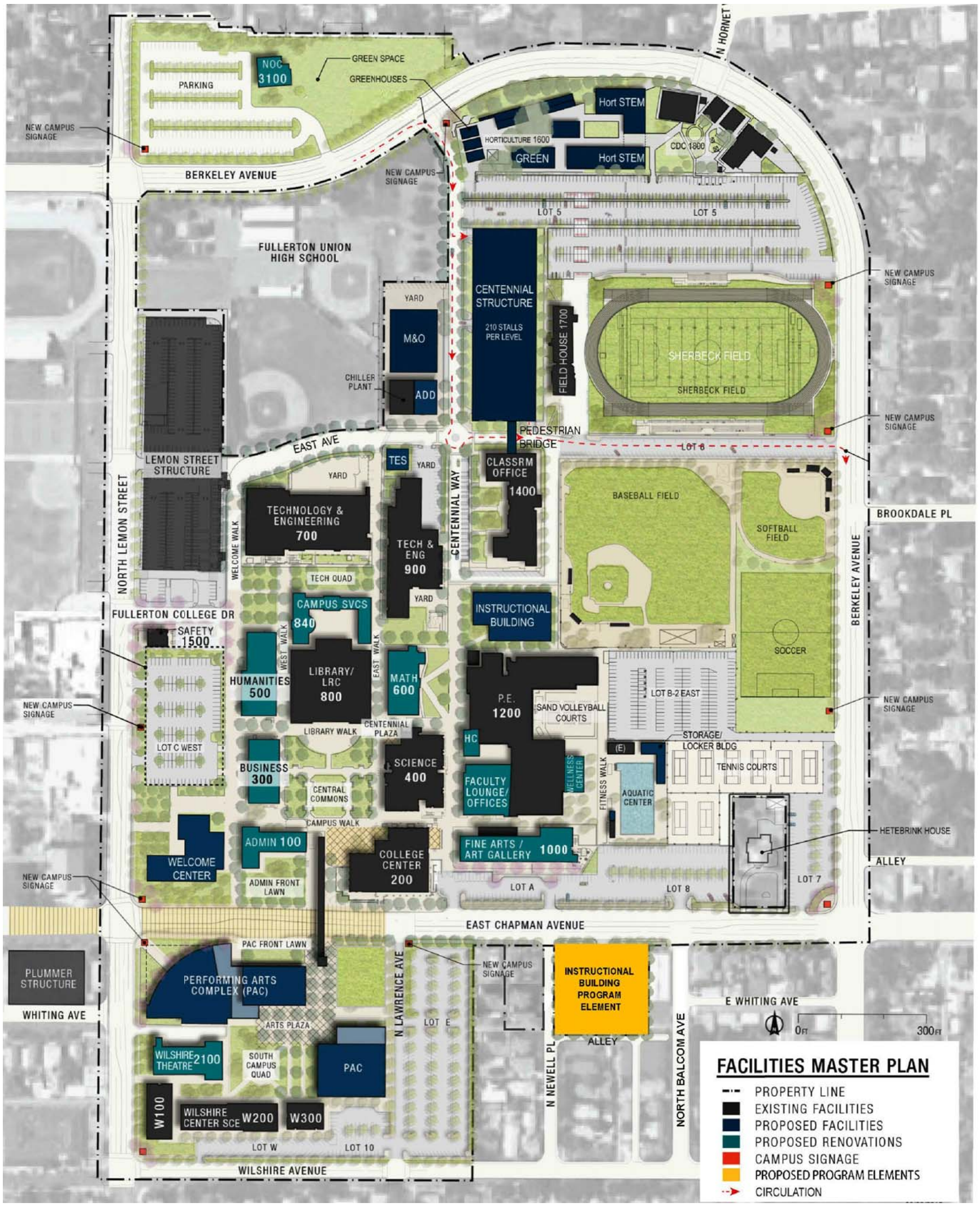

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FIGURE 2–2

PROPOSED SITE PLAN

FULLERTON COLLEGE MASTER PLAN, FULLERTON

3.0 EXISTING CONDITIONS

3.1 Existing Street System

The principal local network of streets serving the project site are Berkeley Avenue, Harbor Boulevard, Lemon Street and Chapman Avenue. The following discussion provides a brief synopsis of these key area streets. The descriptions are based on an inventory of existing roadway conditions.

Berkeley Avenue is generally a two-lane, divided roadway, oriented in both the east-west and north-south directions. Berkeley Avenue generally borders Fullerton College to the north/east and currently provides access to the site via several unsignalized driveways. The posted speed limit on Berkeley Avenue is 35 miles per hour (mph). On-street parking is generally permitted along this roadway in the vicinity of Fullerton College. Traffic signals control the study intersections of Berkeley Avenue at Harbor Boulevard, Lemon Street, Hornet Way and Chapman Avenue. The study intersections of Berkeley Avenue at College Driveway No. 1, Centennial Way, College Driveway No. 2, College Driveway No. 3 and Brookdale Place are stop controlled.

Lemon Street is a two-lane, undivided roadway north of Berkeley Avenue and a four-lane, divided roadway south of Berkeley Avenue, oriented in the north-south direction. Lemon Street borders Fullerton College to the west and currently provides access via several unsignalized driveways and via Lemon Street/Fullerton College Drive (signalized intersection). The posted speed limit on Lemon Street is 25 mph north of Berkeley Avenue, 30 mph between Berkeley Avenue and Chapman Avenue, and 40 mph south of Chapman Avenue. On-street parking is generally not permitted along this roadway in the vicinity of Fullerton College. Traffic signals control the study intersections of Lemon Street at Berkeley Avenue, Fullerton College Drive, Chapman Avenue, Wilshire Avenue, Commonwealth Avenue, Valencia Drive, Orangethorpe Avenue, SR-91 Westbound Ramps, and SR-91 Eastbound Ramps.

Harbor Boulevard is a six-lane, divided roadway north of Brea Boulevard, a four-lane, divided roadway between Brea Boulevard and Orangethorpe Avenue and a six-lane, divided roadway south of Orangethorpe Avenue. Harbor Boulevard is oriented in the north-south direction. The posted speed limit on Harbor Boulevard is 50 mph north of Brea Boulevard, 35 mph between Brea Boulevard and Valencia Drive, and 40 mph south of Valencia Drive. On-street parking is generally not permitted along this roadway in the vicinity of Fullerton College. Traffic signals control the study intersections of Harbor Boulevard at Bastanchury Road, Brea Boulevard/Valley View Drive, Berkeley Avenue, Chapman Avenue, Commonwealth Avenue, Valencia Drive, Orangethorpe Avenue, SR-91 Westbound Ramps, and SR-91 Eastbound Ramps.

Chapman Avenue is generally a four-lane, divided roadway oriented in the east-west direction. Chapman Avenue borders the project site to the south and currently provides access to the site via several unsignalized driveways, and via Chapman Avenue/Lawrence Avenue (signalized intersection). The posted speed limit on Chapman Avenue is 40 mph between Euclid Street and Harbor Boulevard, 30 mph between Harbor Boulevard and Raymond Avenue, and 40 mph east of Raymond Avenue. On-street parking is generally not permitted along this roadway in the vicinity of

Fullerton College, except on the south side of the street between Lawrence Avenue and Balcom Avenue. Traffic signals control the study intersections of Chapman Avenue at Euclid Street, Harbor Boulevard, Lemon Street, Berkeley Avenue, Raymond Avenue, Acacia Avenue, State College Boulevard, SR-57 Southbound Ramps, and SR-57 Northbound Ramps.

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. This figure identifies the number of travel lanes for key arterials, as well as intersection configurations and controls for the key area study intersections. ***Figure 3-2*** shows roadway classifications within the City of Fullerton as shown on the City's General Plan Circulation Element.

3.2 Existing Bicycle Network

The City of Fullerton promotes bicycling as a means of mobility and a way in which to improve the quality of life within its community. The Bicycle Master Plan recognizes the needs of bicycle users and aims to create a complete and safe bicycle network throughout the City. The Existing Bikeways Network is shown on ***Figure 3-3***. As shown in *Figure 3-3*, a Class II bike lane is currently provided along Berkeley Avenue in both directions between Chapman Avenue and Lemon Street.

3.3 Existing Public Transit

Public transit bus service is provided in the Project area by the Orange County Transportation Authority (OCTA). The OCTA Bus System Map is shown in ***Figure 3-4.*** Four (4) OCTA Bus Routes operate within the vicinity of the Project site either along Chapman Avenue or Lemon Street and consist of the following:

- OCTA Bus Route 24
- OCTA Express Bus Route 103B
- OCTA Bus Route 143
- OCTA Bus Route 213/A

Five (5) bus stops are located along Lemon Street between Berkeley Avenue and Wilshire Avenue, west of the Project site. Four (4) bus stops are located along Chapman Avenue between Lemon Street and Berkeley Avenue, south of the Project site.

3.4 Existing Traffic Volumes

Thirty-two (32) key study intersections have been identified as the locations at which to evaluate existing and future traffic operating conditions. Some portion of potential project-related traffic will pass through each of these intersections and their analysis will reveal the expected relative impacts of the project. Existing AM peak hour and PM peak hour traffic volumes for the locations evaluated in this report were obtained from manual peak hour turning movement counts conducted by Transportation Studies Inc. in November 2016, March 2017 and April 2017. The existing traffic counts for key study intersection #25 were collected in March 2017 and the existing traffic counts for key study intersection #26 were collected in April 2017. Existing traffic count data for all other key study locations were collected in November 2016.

Figures 3-5 and ***3-6*** illustrate the existing AM and PM peak hour traffic volumes at the key study intersections evaluated in this report, respectively. ***Appendix A*** contains the detailed peak hour count sheets for the key intersections evaluated in this report.

3.5 Existing Intersection Conditions

In conformance with City of Fullerton requirements, existing AM and PM peak hour operating conditions for the key study intersections were evaluated using the methodology outlined in *Chapter 19 of the Highway Capacity Manual 6 (HCM 6)* for signalized intersections, the methodology outlined in *Chapter 20 of the HCM 6* for two-way stop-controlled intersections and the methodology outlined in *Chapter 21 of the HCM 6* for all-way stop-controlled intersections.

3.5.1 *Highway Capacity Manual 6 (HCM 6) Method of Analysis (Signalized Intersections)*

Based on the HCM operations method of analysis, level of service for signalized intersections and approaches is defined in terms of control delay, which is a measure of the increase in travel time due to traffic signal control, driver discomfort, and fuel consumption. Control delay includes the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed. LOS criteria for traffic signals are stated in terms of the control delay in seconds per vehicle. The LOS thresholds established for the automobile mode at a signalized intersection are shown in ***Table 3-1***.

3.5.2 *Highway Capacity Manual 6 (HCM 6) Method of Analysis (Unsignalized Intersections)*

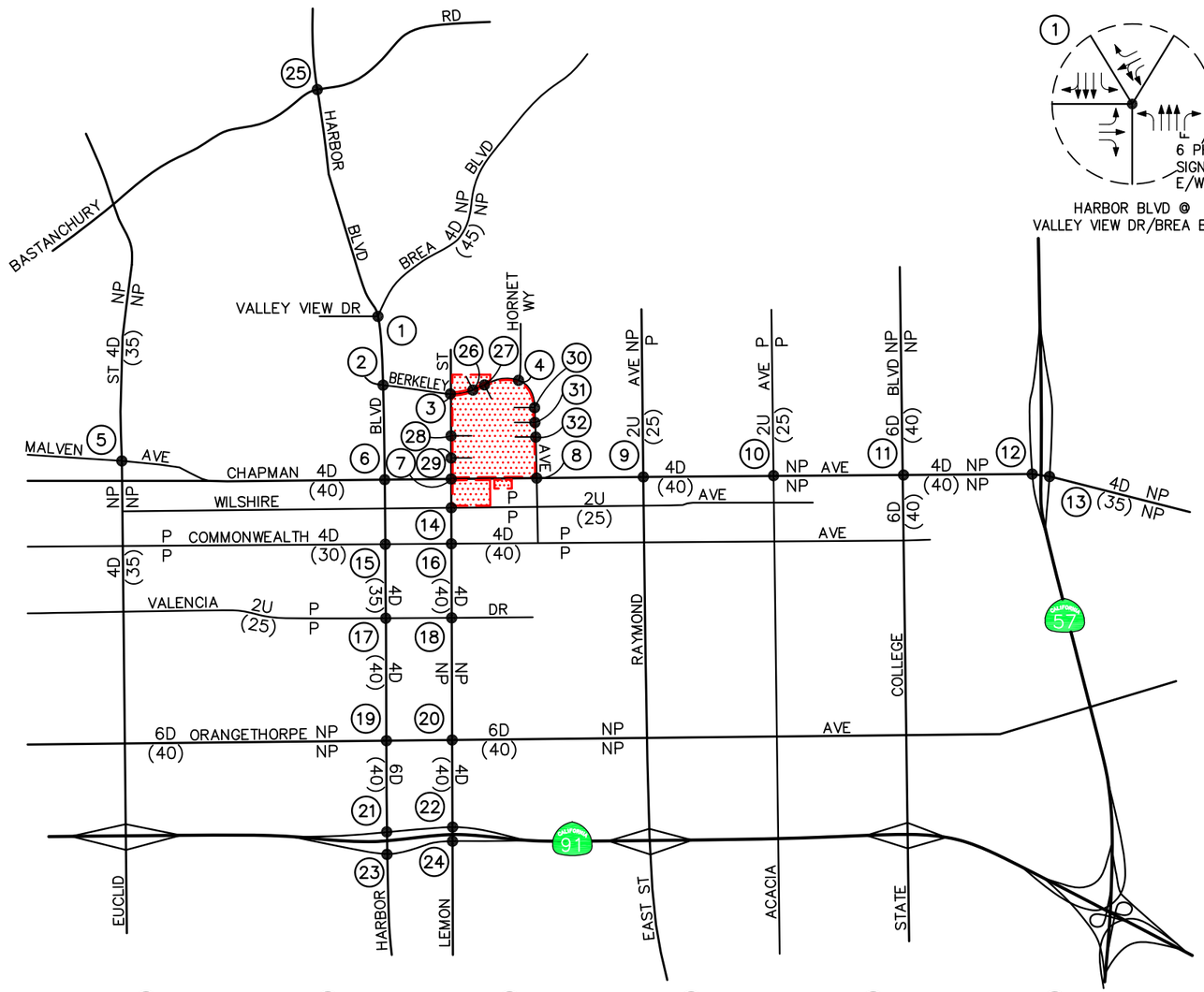
The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

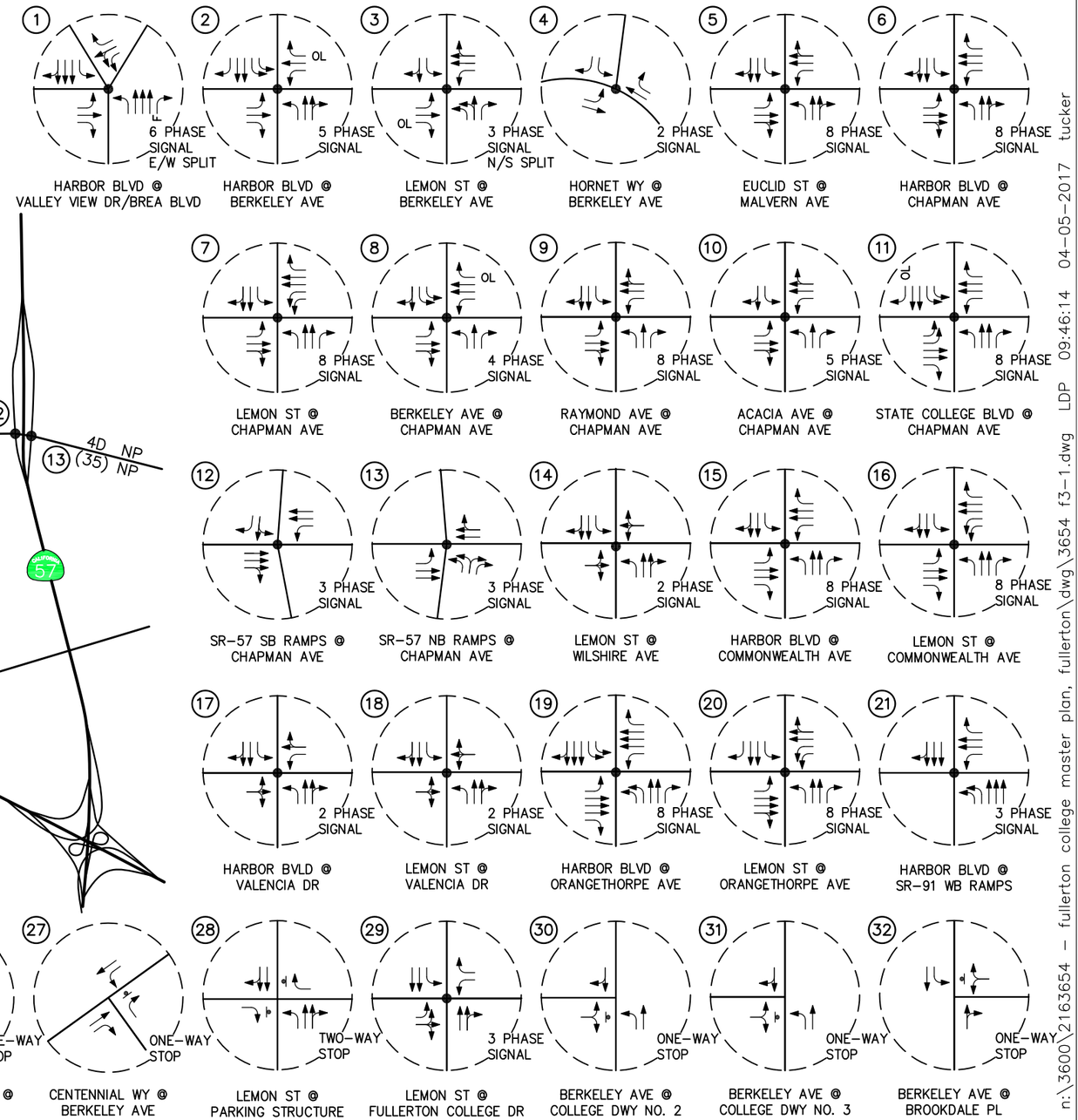
3.5.2.1 *Two-Way Stop-Controlled Intersections*

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value range for two-way stop-controlled intersections are shown in ***Table 3-2***.

3.5.2.2 *All-Way Stop-Controlled Intersections*

All-way stop-controlled intersections require every vehicle to stop at the intersection before proceeding. Because each driver must stop, the decision to proceed into the intersection is a function of traffic conditions on the other approaches. The time between subsequent vehicle departures





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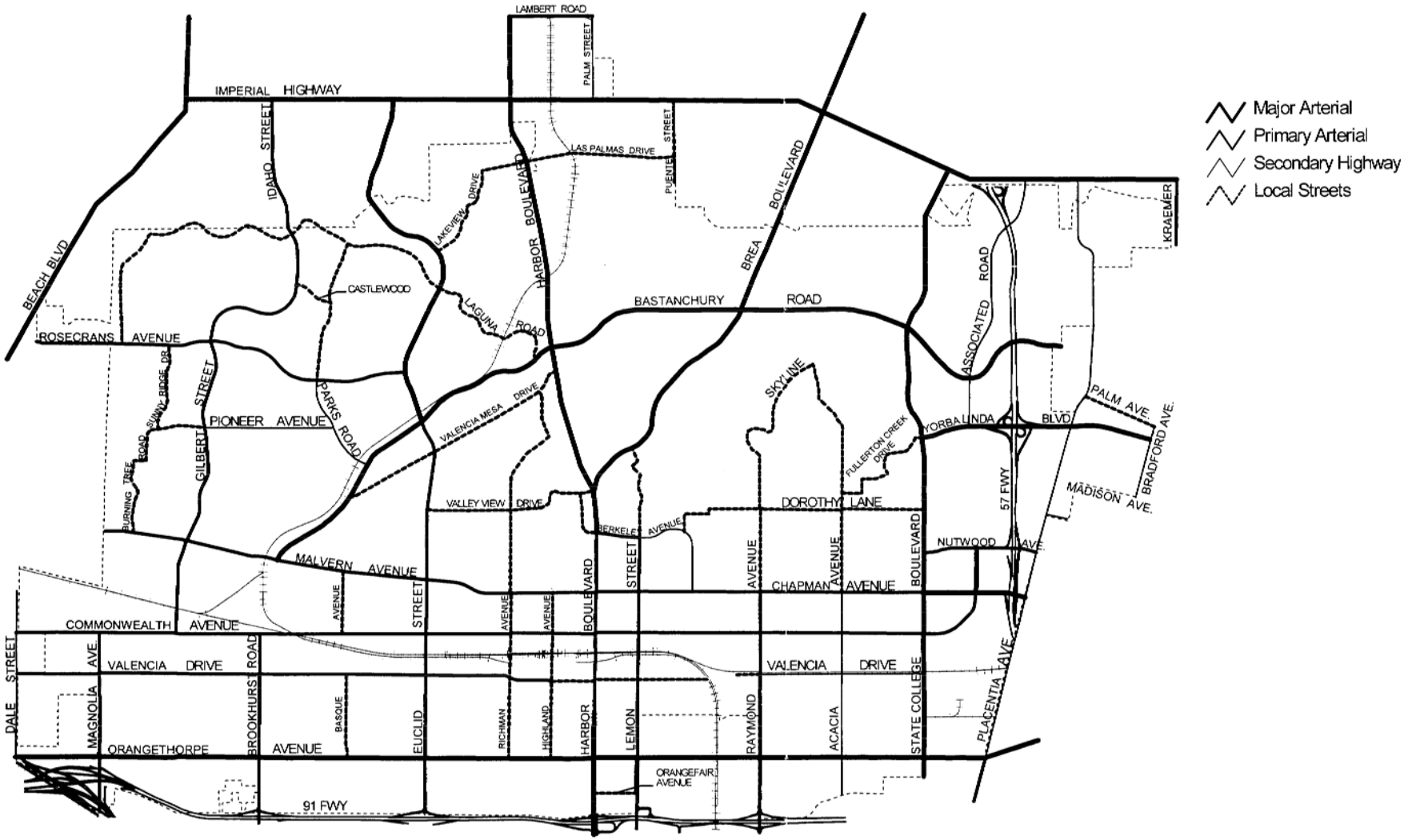
KEY

← = APPROACH LANE ASSIGNMENT
● = TRAFFIC SIGNAL, ⊤ = STOP SIGN
P = PARKING, NP = NO PARKING
U = UNDIVIDED, D = DIVIDED
OL = OVERLAP, F = FREE RIGHT
2 = NUMBER OF TRAVEL LANES
(XX)= POSTED SPEED LIMIT (MPH)
▒ = PROJECT SITE

FIGURE 3–1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

FULLERTON COLLEGE MASTER PLAN, FULLERTON



SOURCE: CITY OF FULLERTON

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FIGURE 3-2

ROADWAY CLASSIFICATIONS

FULLERTON COLLEGE MASTER PLAN, FULLERTON

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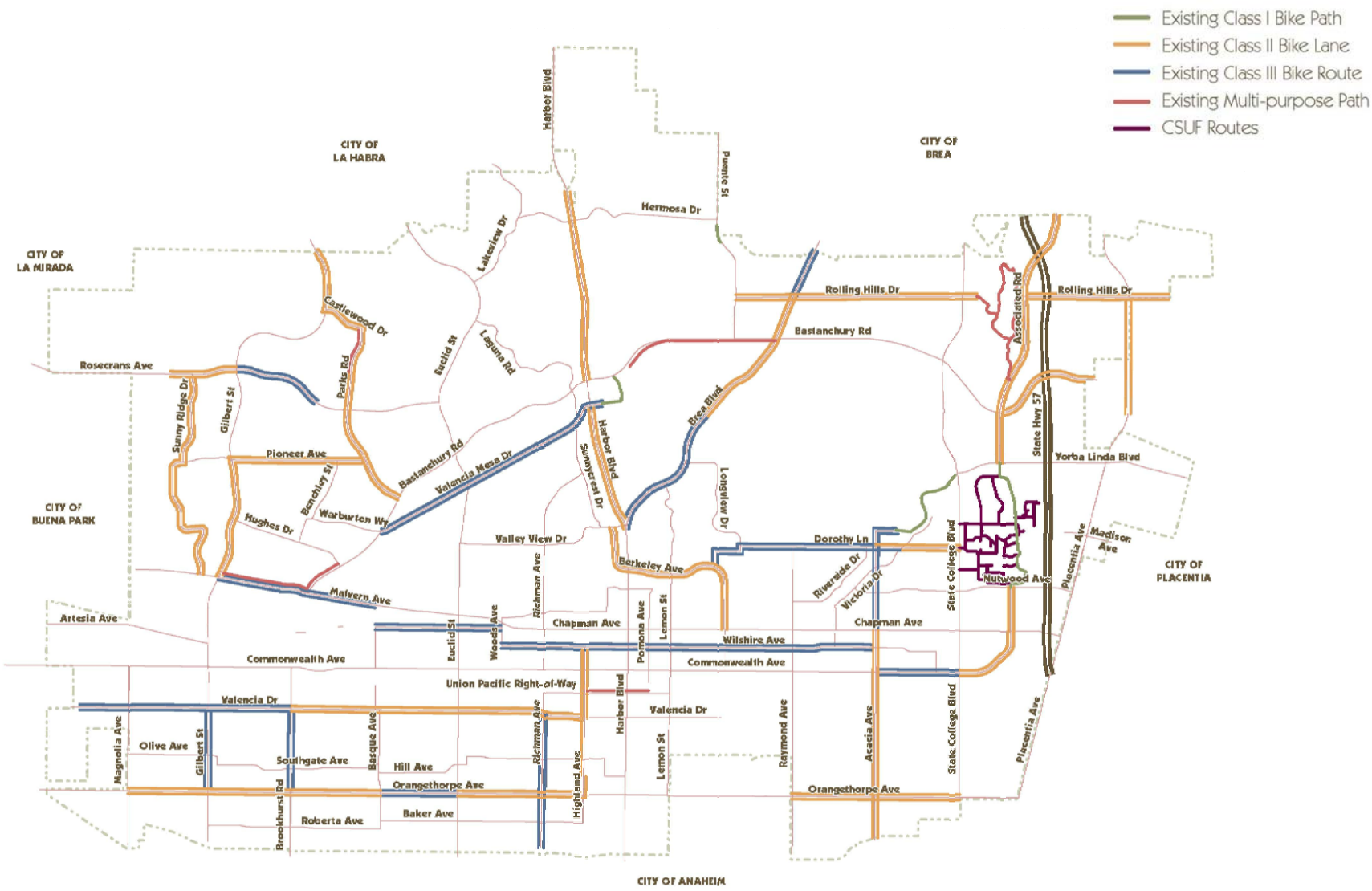

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SOURCE: CITY OF FULLERTON

FIGURE 3-3

BIKEWAYS NETWORK

FULLERTON COLLEGE MASTER PLAN, FULLERTON

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SOURCE: ORANGE COUNTY TRANSPORTATION AUTHORITY

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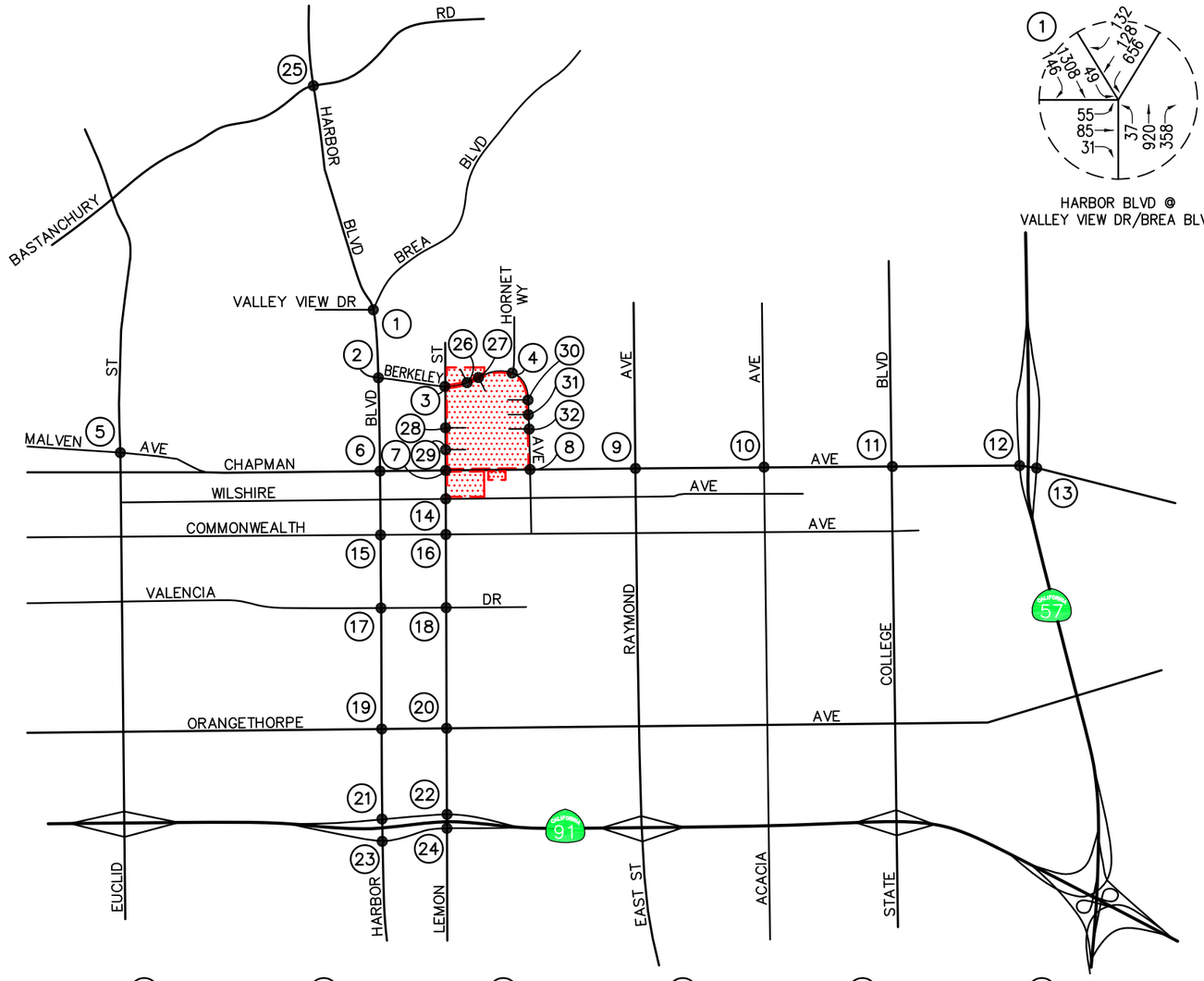
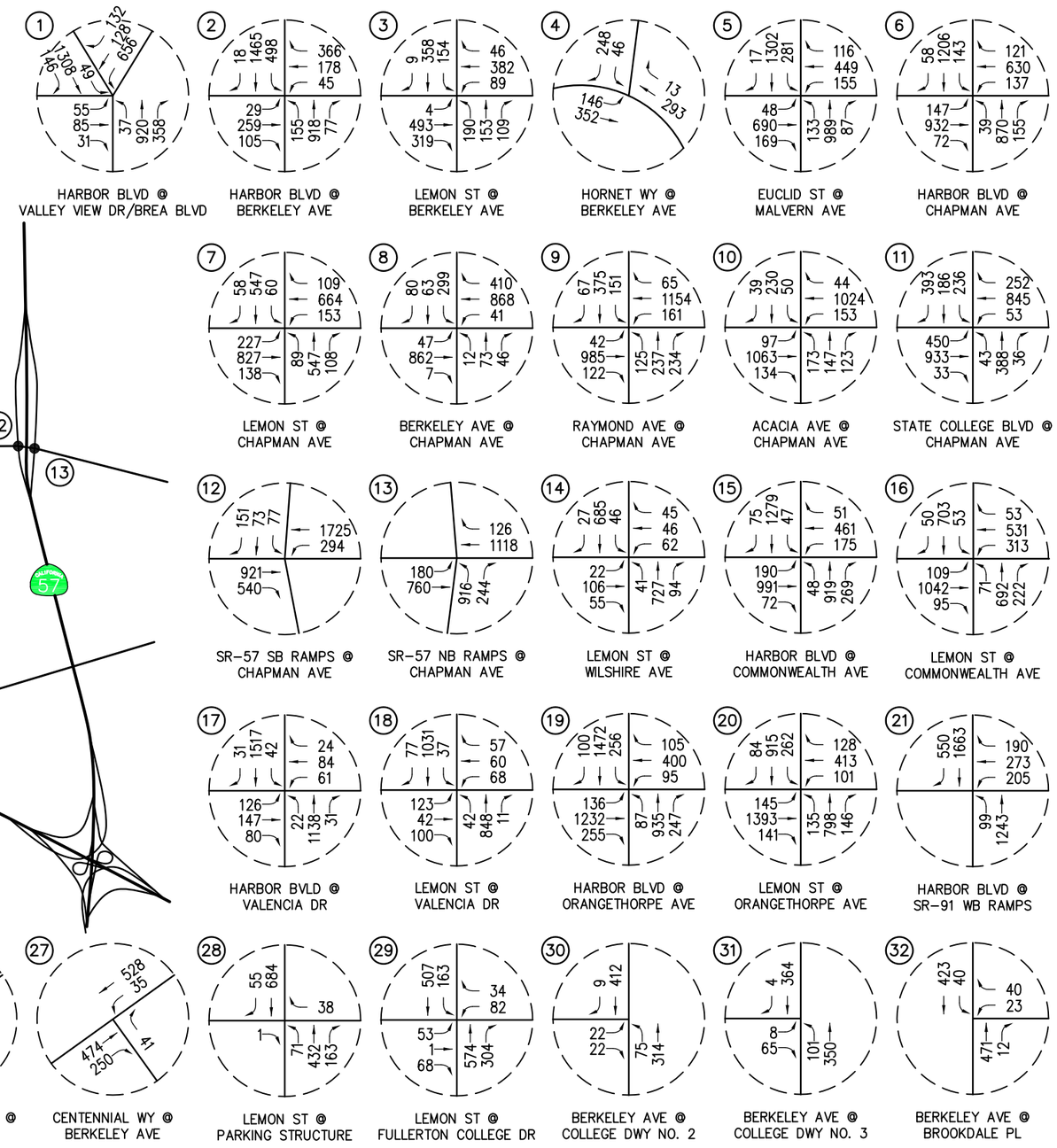
FIGURE 3-4

OCTA BUS SYSTEM MAP
FULLERTON COLLEGE MASTER PLAN, FULLERTON





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KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 3-5

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

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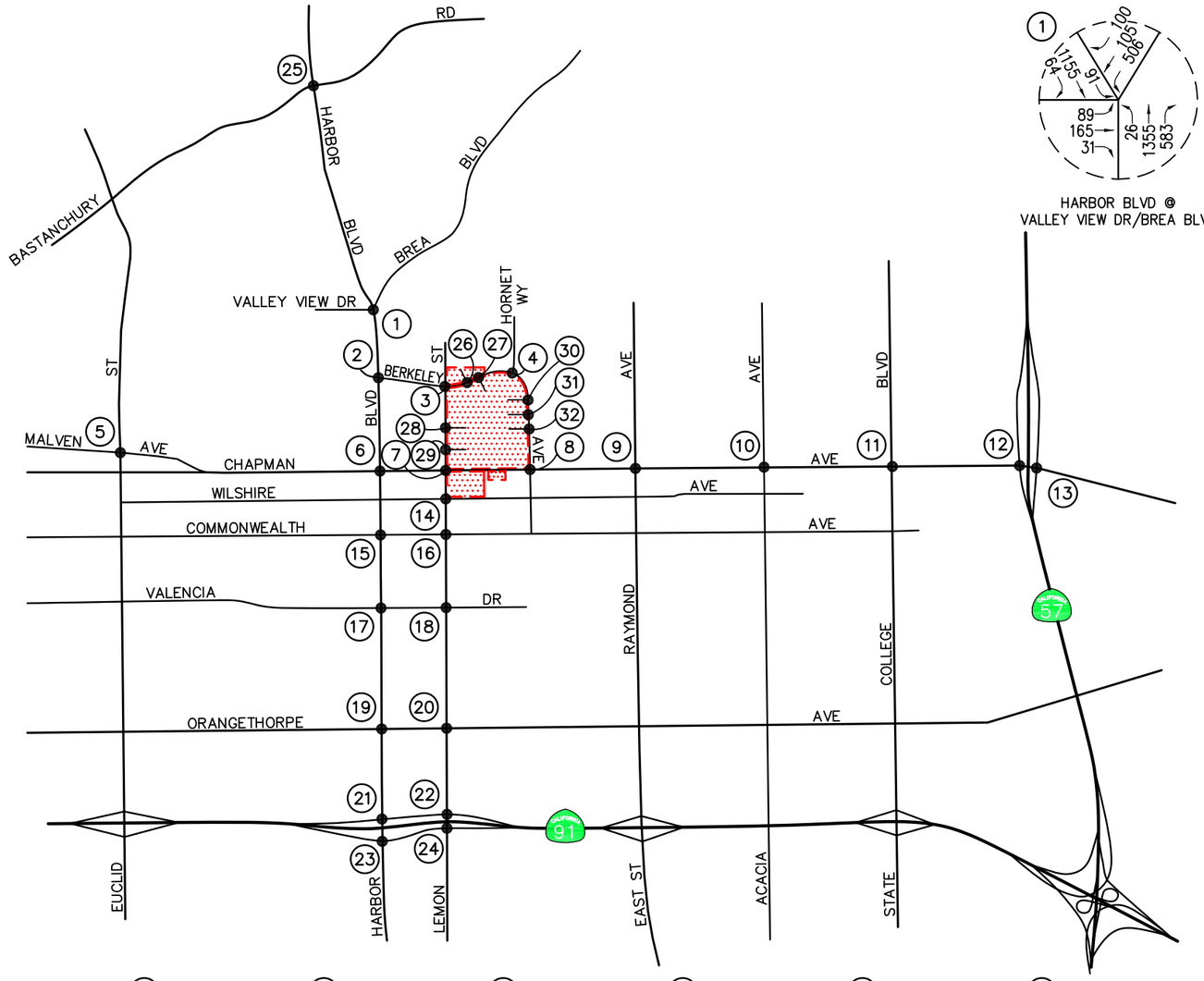

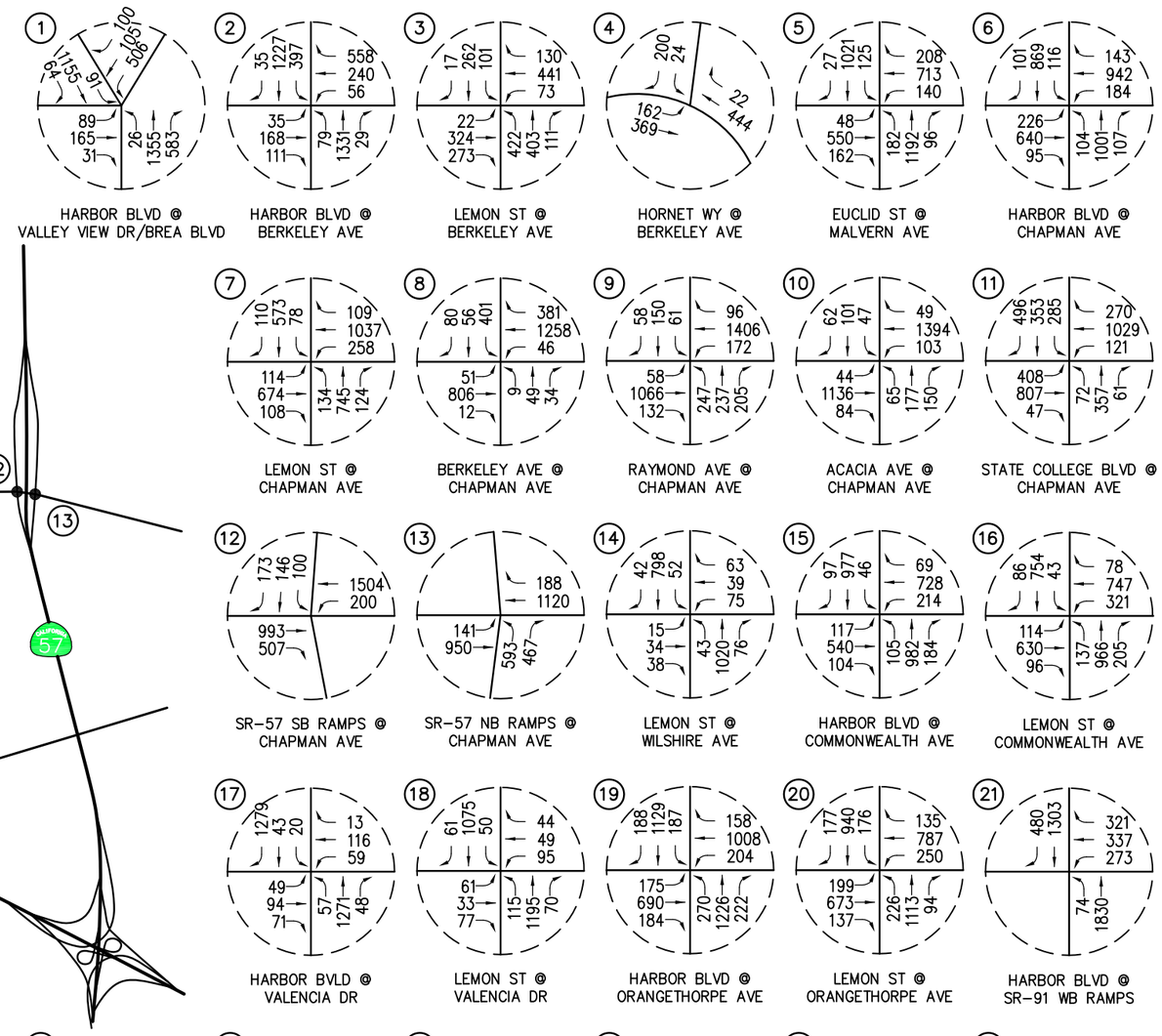

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KEY
(#) = STUDY INTERSECTION
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FIGURE 3-6

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

FULLERTON COLLEGE MASTER PLAN, FULLERTON

depends on the degree of conflict that results between the vehicles and vehicles on the other approaches. This methodology determines the control delay for each lane on the approach, computes a weighted average for the whole approach, and computes a weighted average for the intersection as a whole. Level of service (LOS) at the approach and intersection levels is based solely on control delay. The HCM control delay value range for all-way stop-controlled intersections are shown in *Table 3-2*.

3.6 Level of Service Criteria

According to the City of Fullerton, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours. It should be noted that although the City standard is LOS D, there are two intersections located in the Historic Downtown area where LOS E is deemed acceptable to the City because of the fully developed character of the downtown area, the presence of historic properties and the great expense and hardship that would be caused by attempting to secure right-of-way required to improve LOS. The two intersections where LOS E is considered acceptable are: Harbor Boulevard/Chapman Avenue (i.e. key study intersection #6) and Harbor Boulevard/Commonwealth Avenue (i.e. key study intersection #15).

3.7 Level of Service Input Parameters

Per City Staff, the following values were applied in the level of service analyses, which have been conducted using the Vistro software (HCM 6 Methodology):

- **Base Saturation Flow Rate:** 1800 passenger cars per hour per lane (pc/hr/ln) [left and right turn movement], 3500 pc/hr/ln (dual left turn movement) and 1900 pc/hr/ln (through movement)
- **Cycle Length:** based on existing timings as provided by City staff
- **Loss Time:** 2 seconds per critical phase
- **Minimum Pedestrian Crossing Time:** calculated by using the minimum pedestrian crossing time equation
- **Analysis Time Period:** 0.25 hour
- **Peak Hour Factor:** based on existing counts

3.8 Existing Level of Service Results

Table 3-3 summarizes the existing peak hour service level calculations for the key study intersections based on existing traffic volumes and current street geometrics. Review of *Table 3-3* indicates that thirty-one (31) of the thirty-two (32) key study intersections currently operate at an acceptable service level during the AM and PM peak hours. The intersection of Harbor Boulevard at Bastanchury Road (i.e. key study intersection #25) currently operates at LOS F during the AM peak hour and LOS E during the PM peak hour.

Appendix B presents the HCM/LOS calculation worksheets for the key study intersections for the AM peak hour and PM peak hour.

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM 6 METHODOLOGY)[2]

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	≤ 10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and ≤ 35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	Very long traffic delays This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high *v/c* ratios. Individual cycle failures are frequent occurrences.
F	≥ 80.0	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

[2] Source: *Highway Capacity Manual 6*, Chapter 19: Signalized Intersections.

TABLE 3-2

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 6 METHODOLOGY)[3,4]

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

3 Source: *Highway Capacity Manual 6*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

4 Source: *Highway Capacity Manual 6*, Chapter 21: All-Way Stop-Controlled Intersections. For approaches and intersection-wide assessment, LOS is defined solely by control delay.

TABLE 3-3

EXISTING PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection		Minimum Acceptable LOS	Time Period	Control Type	HCM	LOS
1.	Harbor Boulevard at Valley View Drive/Brea Boulevard	D	AM PM	6∅ Traffic Signal	29.2 s/v 29.9 s/v	C C
2.	Harbor Boulevard at Berkeley Avenue	D	AM PM	5∅ Traffic Signal	27.8 s/v 30.7 s/v	C C
3.	Lemon Street at Berkeley Avenue	D	AM PM	3∅ Traffic Signal	48.7 s/v 38.6 s/v	D D
4.	Hornet Way at Berkeley Avenue	D	AM PM	2∅ Traffic Signal	16.4 s/v 13.4 s/v	B B
5.	Euclid Street at Malvern Avenue	D	AM PM	8∅ Traffic Signal	32.6 s/v 33.8 s/v	C C
6.	Harbor Boulevard at Chapman Avenue	E	AM PM	8∅ Traffic Signal	32.9 s/v 31.6 s/v	C C
7.	Lemon Street at Chapman Avenue	D	AM PM	8∅ Traffic Signal	35.7 s/v 34.0 s/v	D C
8.	Berkeley Avenue at Chapman Avenue	D	AM PM	4∅ Traffic Signal	16.7 s/v 18.0 s/v	B B
9.	Raymond Avenue at Chapman Avenue	D	AM PM	8∅ Traffic Signal	28.0 s/v 26.1 s/v	C C
10.	Acacia Avenue at Chapman Avenue	D	AM PM	5∅ Traffic Signal	52.3 s/v 18.0 s/v	D B
11.	State College Boulevard at Chapman Avenue	D	AM PM	8∅ Traffic Signal	34.8 s/v 35.7 s/v	C D
12.	SR-57 SB Ramps at Chapman Avenue	D	AM PM	3∅ Traffic Signal	17.4 s/v 18.1 s/v	B B
13.	SR-57 NB Ramps at Chapman Avenue	D	AM PM	3∅ Traffic Signal	31.0 s/v 26.4 s/v	C C
14.	Lemon Street at Wilshire Avenue	D	AM PM	2∅ Traffic Signal	12.8 s/v 10.3 s/v	B B
15.	Harbor Boulevard at Commonwealth Avenue	E	AM PM	8∅ Traffic Signal	35.1 s/v 30.8 s/v	D C

Notes:

- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle
- ∅ = phase; referring to operation phasing of a traffic signal

TABLE 3-3 (CONTINUED)
EXISTING PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection		Minimum Acceptable LOS	Time Period	Control Type	HCM	LOS
16.	Lemon Street at Commonwealth Avenue	D	AM PM	8∅ Traffic Signal	35.0 s/v 33.9 s/v	D C
17.	Harbor Boulevard at Valencia Drive	D	AM PM	2∅ Traffic Signal	16.2 s/v 26.2 s/v	B C
18.	Lemon Street at Valencia Drive	D	AM PM	2∅ Traffic Signal	14.7 s/v 10.1 s/v	B B
19.	Harbor Boulevard at Orangethorpe Avenue	E	AM PM	8∅ Traffic Signal	34.9 s/v 38.6 s/v	C D
20.	Lemon Street at Orangethorpe Avenue	D	AM PM	8∅ Traffic Signal	34.1 s/v 38.1 s/v	C D
21.	Harbor Boulevard at SR-91 WB Ramps	D	AM PM	3∅ Traffic Signal	14.4 s/v 17.2 s/v	B B
22.	Lemon Street at SR-91 WB Ramps	D	AM PM	3∅ Traffic Signal	24.0 s/v 24.4 s/v	C C
23.	Harbor Boulevard at SR-91 EB Ramps	D	AM PM	3∅ Traffic Signal	19.1 s/v 19.6 s/v	B B
24.	Lemon Street at SR-91 EB Ramps	D	AM PM	3∅ Traffic Signal	26.0 s/v 23.0 s/v	C C
25.	Harbor Boulevard at Bastanchury Road	D	AM PM	8∅ Traffic Signal	**103.6 s/v** **57.0 s/v**	**F** **E**
26.	College Driveway No. 1 at Berkeley Avenue	D	AM PM	One-Way Stop	14.7 s/v 13.5 s/v	B B
27.	Centennial Way at Berkeley Avenue	D	AM PM	One-Way Stop	12.5 s/v 12.4 s/v	B B
28.	Lemon Street at Parking Structure	D	AM PM	Two-Way Stop	11.3 s/v 16.2 s/v	B C
29.	Lemon Street at Fullerton College Drive	D	AM PM	3∅ Traffic Signal	22.7 s/v 21.3 s/v	C C
30.	Berkeley Avenue at College Driveway No. 2	D	AM PM	One-Way Stop	13.9 s/v 12.8 s/v	B B

Notes:

- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle
- ∅ = phase; referring to operation phasing of a traffic signal

TABLE 3-3 (CONTINUED)

EXISTING PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection	Minimum Acceptable LOS	Time Period	Control Type	HCM	LOS
31. Berkeley Avenue at College Driveway No. 3	D	AM PM	One-Way Stop	12.0 s/v 12.3 s/v	B B
32. Berkeley Avenue at Brookdale Place	D	AM PM	One-Way Stop	13.9 s/v 13.9 s/v	B B

Notes:

- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle
- ∅ = phase; referring to operation phasing of a traffic signal

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the proposed Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the proposed project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the project's impacts identified.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are typically found in the 9th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2012].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project (i.e. student growth, net increase of 3,189 students) and presents the proposed Project's forecast peak hour and daily traffic volumes. As shown, the trip generation potential of the Project was estimated using ITE Land Use 540: Junior/Community College trip rates. Review of *Table 5-1* shows that the proposed Project (i.e. net increase of 3,189 students) is forecast to generate 3,922 daily trips, with 383 trips (322 inbound, 61 outbound) forecast during the AM peak hour and 383 trips (241 inbound and 142 outbound) forecast during the PM peak hour on a typical weekday.

5.2 Project Traffic Distribution and Assignment

Figure 5-1 presents the general traffic distribution pattern for the proposed Project. Project traffic volumes both entering and exiting the project site have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers (i.e. Lemon Street, Chapman Avenue, Harbor Boulevard, SR-57 Freeway, SR-91 Freeway, etc.),
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals,
- review of existing peak hour traffic volumes,
- locations of additional parking spaces (i.e. Centennial Parking Structure, Building 3100 Parking Lot, Parking Lot 8, Parking Lot 11, Parking Lot B-2 East and Parking Lot C West), and
- ingress/egress availability at the project site.

It should be noted that as part of the proposed master plan project, key study intersection #31 (i.e. Berkeley Avenue/College Driveway No. 3) will only provide egress movements from the project site.

The anticipated AM and PM peak hour project traffic volumes associated with the Project are presented in ***Figures 5-2*** and ***5-3***, respectively. The traffic volume assignments presented in *Figures 5-2* and *5-3* reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in *Table 5-1*.

Appendix C presents the detailed project site traffic distribution patterns for the additional parking areas (i.e. Centennial Parking Structure, Building 3100 Parking Lot, Parking Lot 8, Parking Lot 11, Parking Lot B-2 East and Parking Lot C West).

5.3 Existing Plus Project Traffic Conditions

The Existing plus Project traffic conditions have been developed based upon existing conditions and the estimated Project traffic. These forecast traffic conditions have been prepared pursuant to the California Environmental Quality Act (CEQA) guidelines, which require that the potential impacts of a Project be evaluated upon the circulation system as it currently exists. This traffic volume scenario and the related intersection capacity analyses will identify the roadway improvements necessary to mitigate the direct traffic impacts of the Project, if any.

Figures 5-4 and ***5-5*** present projected AM and PM peak hour traffic volumes at the thirty-two (32) key study locations with the addition of the trips generated by the proposed Project to existing traffic volumes, respectively.

As previously mentioned in Section 5.2, as part of the proposed master plan project, key study intersection #31 (i.e. Berkeley Avenue/College Driveway No. 3) will only provide egress movements from the project site. As a result existing inbound movements at this location have been re-routed to key study intersection #30 (i.e. Berkeley Avenue/College Driveway No. 3).

TABLE 5-1

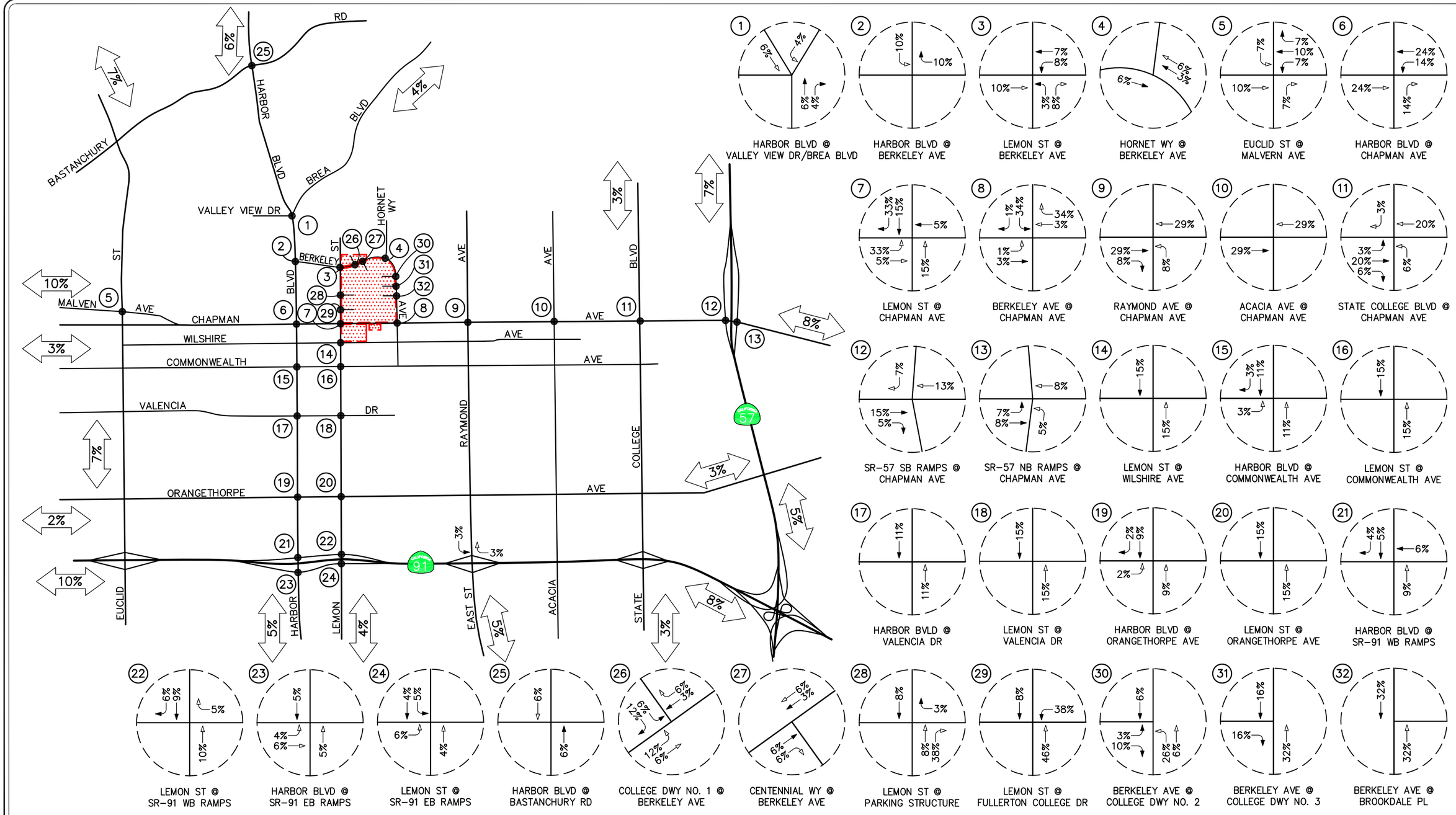
PROJECT TRAFFIC GENERATION FORECAST[5]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Factors:							
▪ 540: Junior/Community College (TE/Student)	1.23	84%	16%	0.12	63%	37%	0.12
Generation Forecasts:							
▪ Fullerton College Master Plan Project (Net Increase 3,189 Students)	3,922	322	61	383	241	142	383

Notes:

- TE/Student = Trip ends per student

[5] Source*: Trip Generation, 9th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2012)].



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NO SCALE

KEY
= INBOUND PERCENTAGE
= OUTBOUND PERCENTAGE
= PROJECT SITE

FIGURE 5-1

PROJECT TRAFFIC DISTRIBUTION PATTERN

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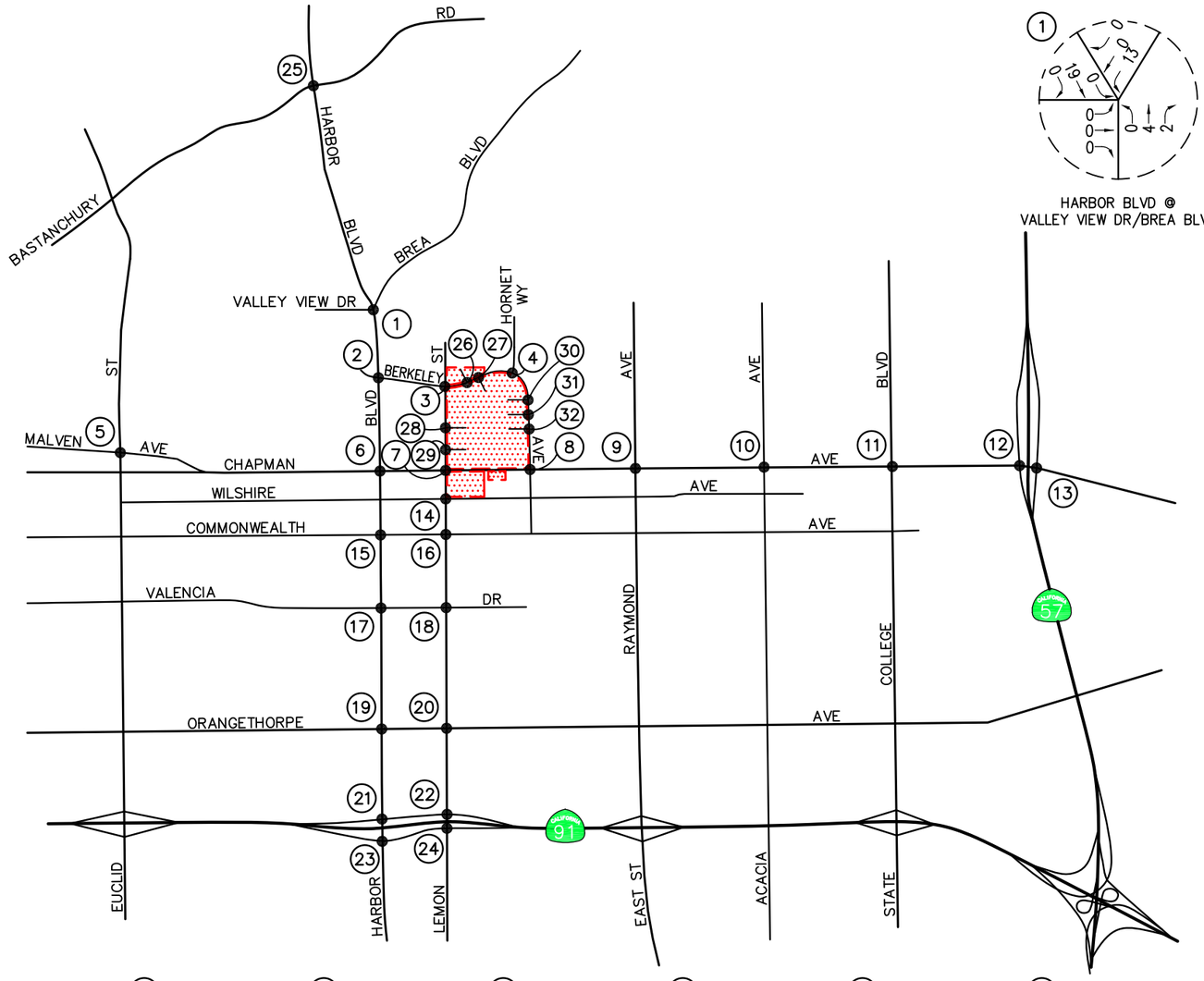

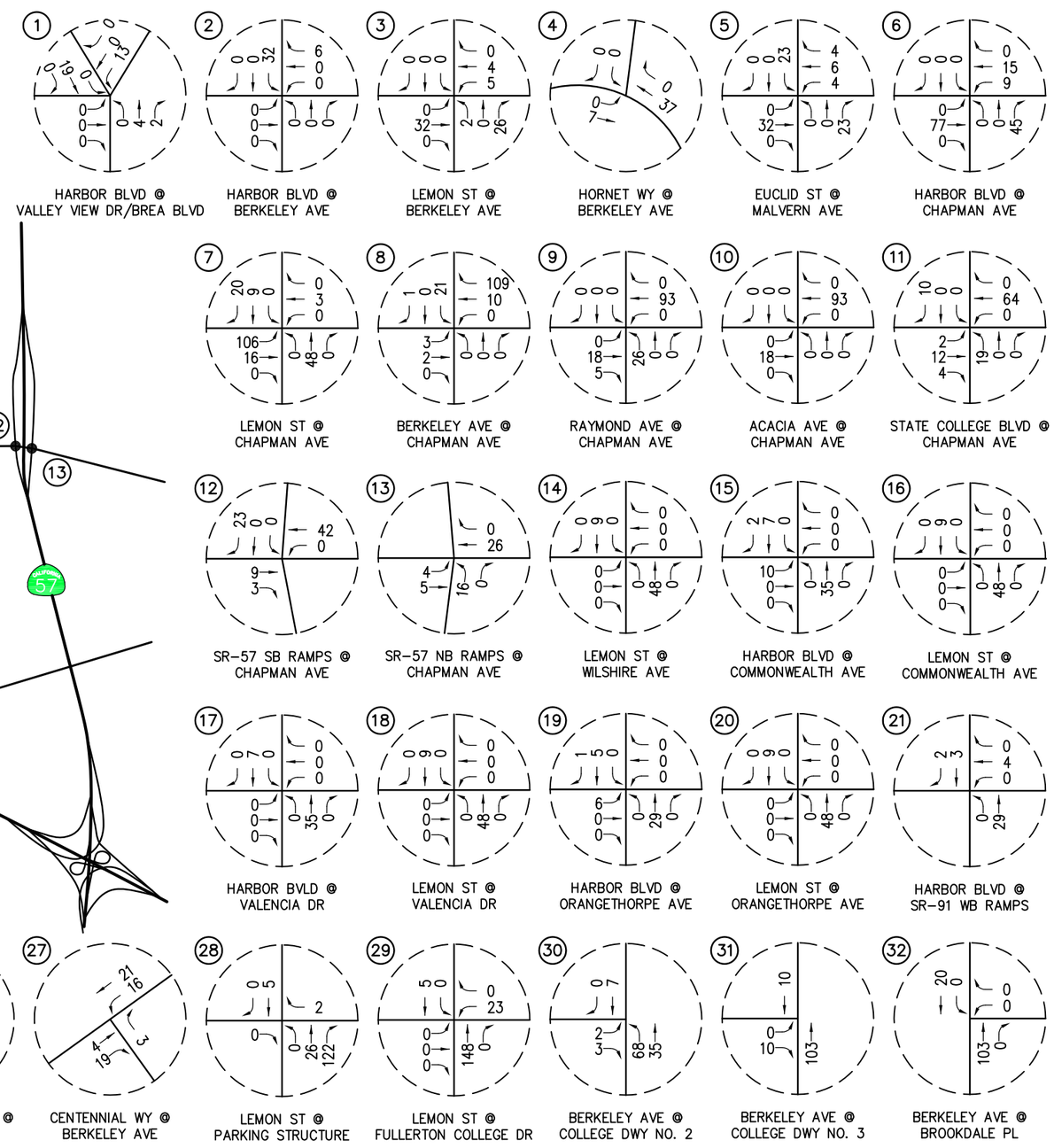

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FIGURE 5-2

AM PEAK HOUR PROJECT TRAFFIC VOLUMES

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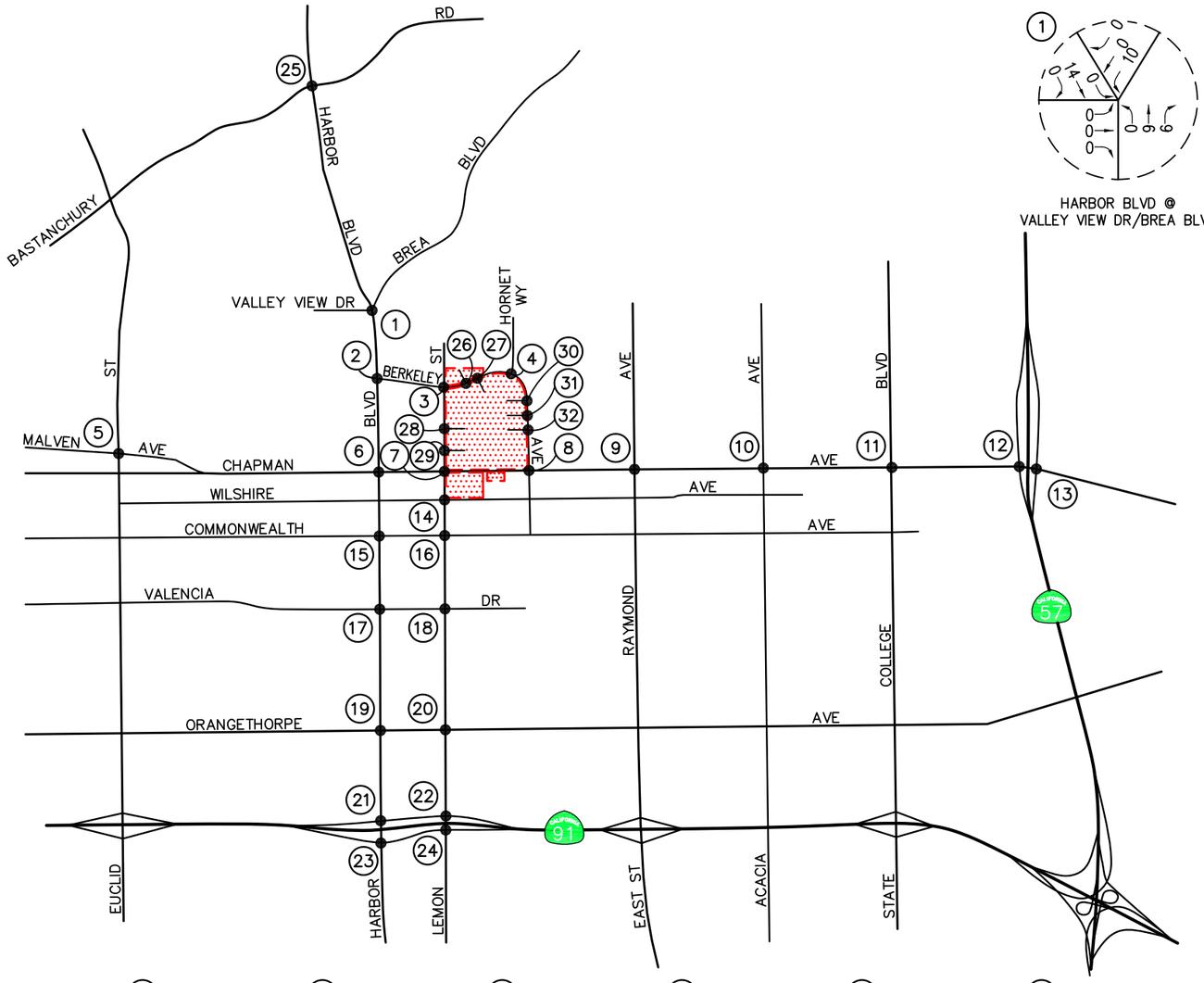

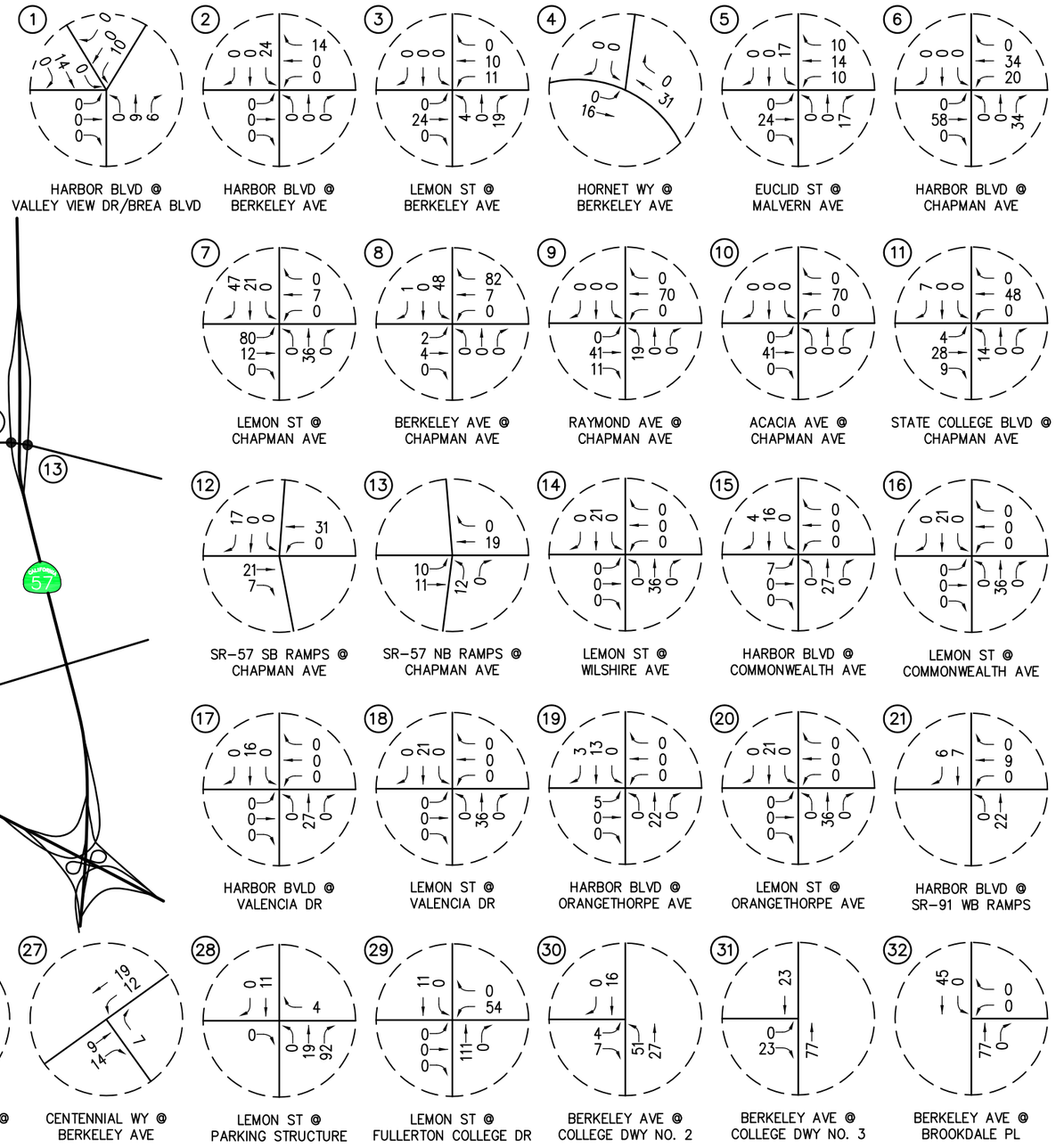

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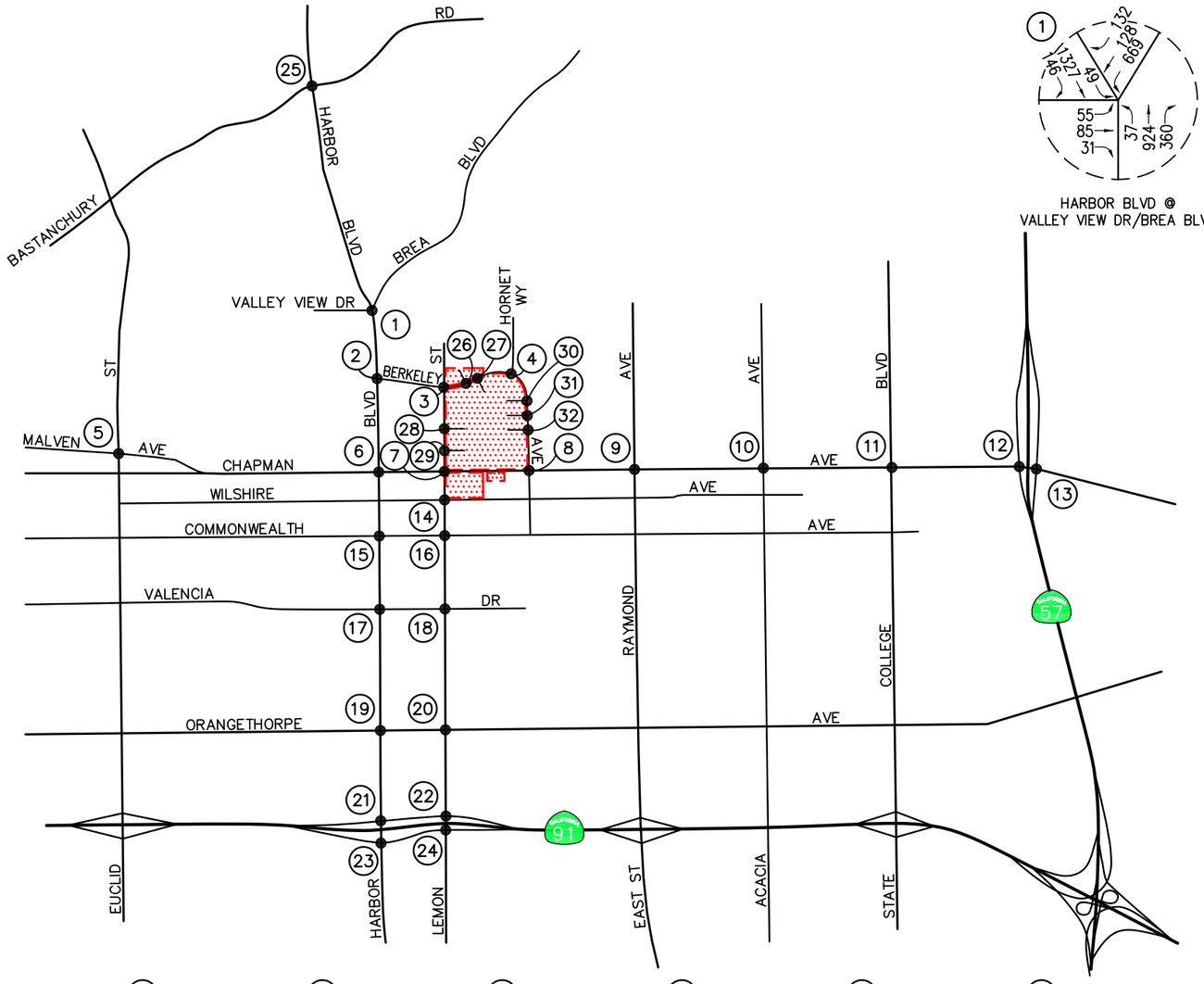
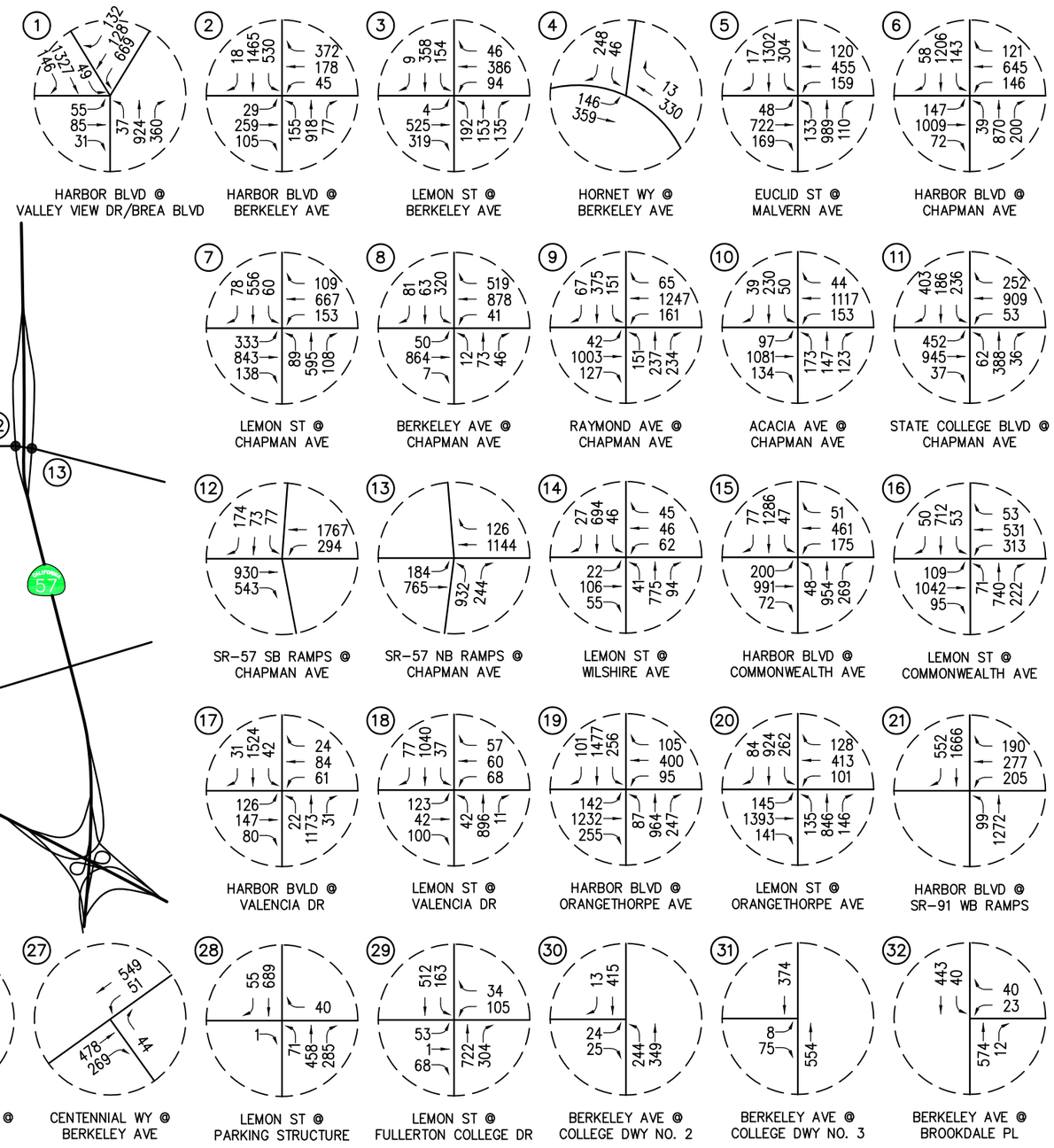
= PROJECT SITE

FIGURE 5-3

PM PEAK HOUR PROJECT TRAFFIC VOLUMES

FULLERTON COLLEGE MASTER PLAN, FULLERTON





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(#) = STUDY INTERSECTION

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FIGURE 5-4

EXISTING PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES

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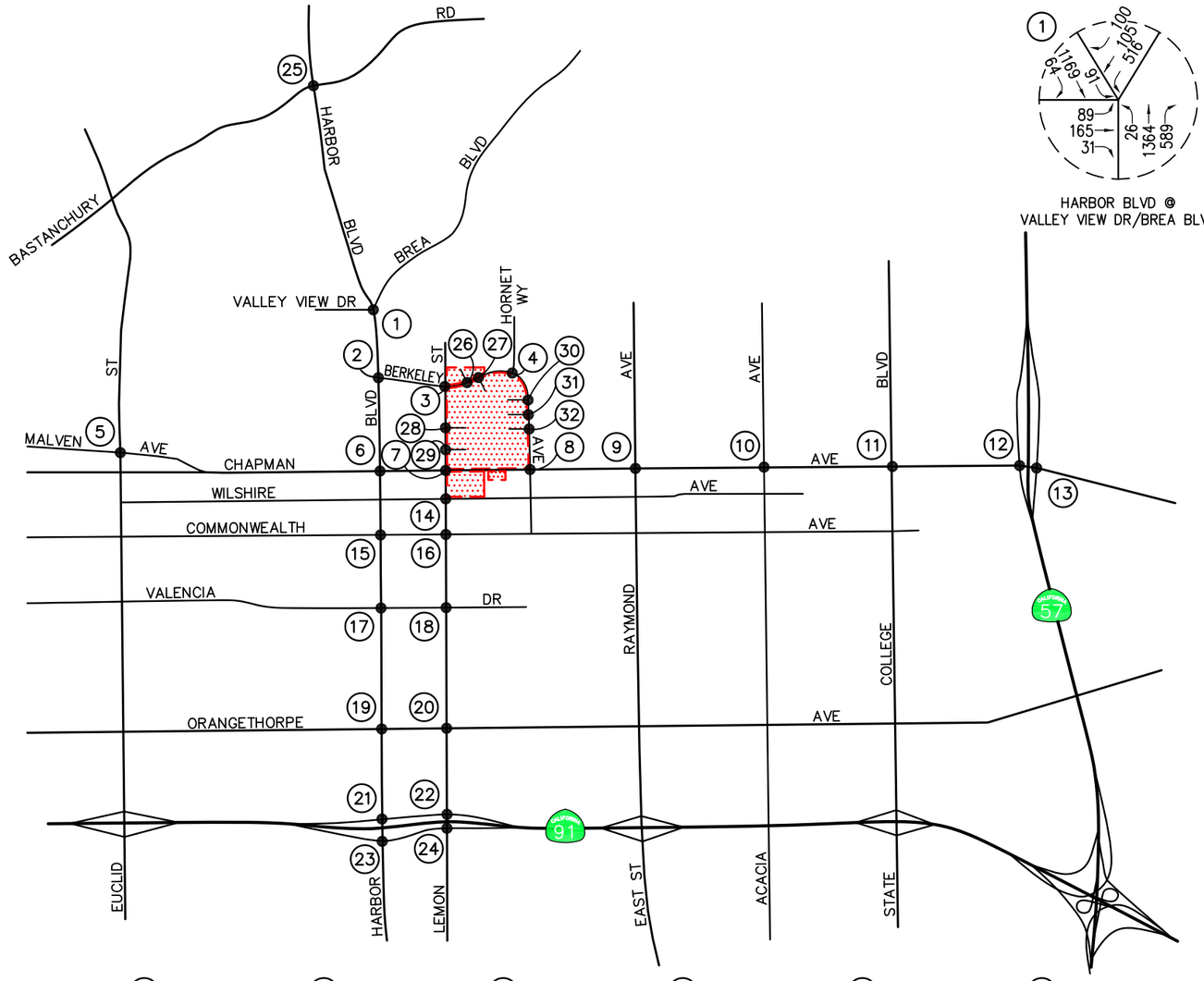

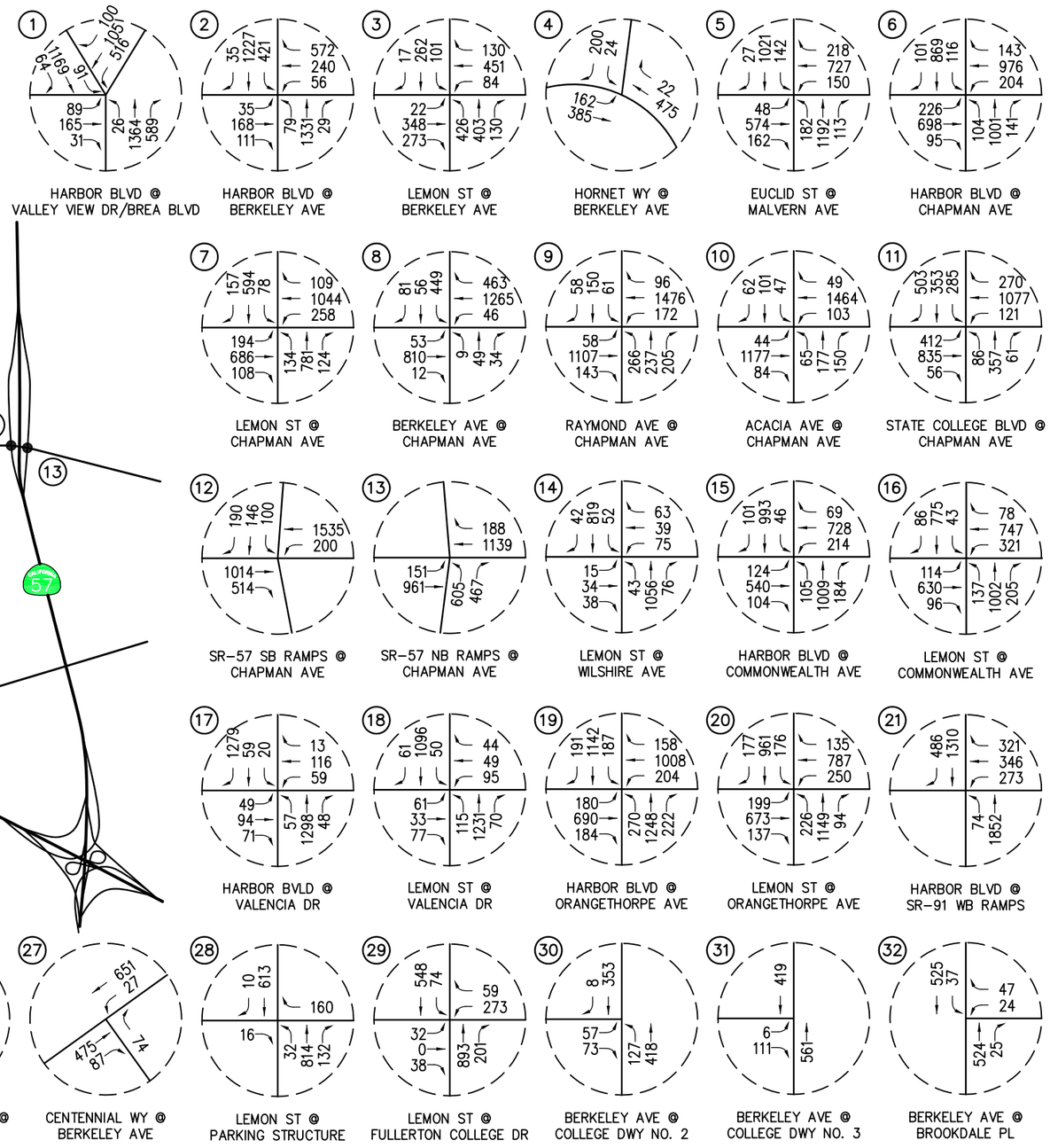

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KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 5-5

EXISTING PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES
FULLERTON COLLEGE MASTER PLAN, FULLERTON

6.0 FUTURE TRAFFIC CONDITIONS

As discussed previously, the Fullerton College Master Plan Project has a 10-year planning period, resulting in a project completion year of Year 2026. Given that the expected project completion year is within a few years of the City's Year 2030 Buildout traffic projections, it was recommended by City of Fullerton staff to utilize the Year 2030 Buildout traffic projections to provide a conservative analysis. The following describes the methodology utilized to develop Year 2030 Buildout traffic volumes.

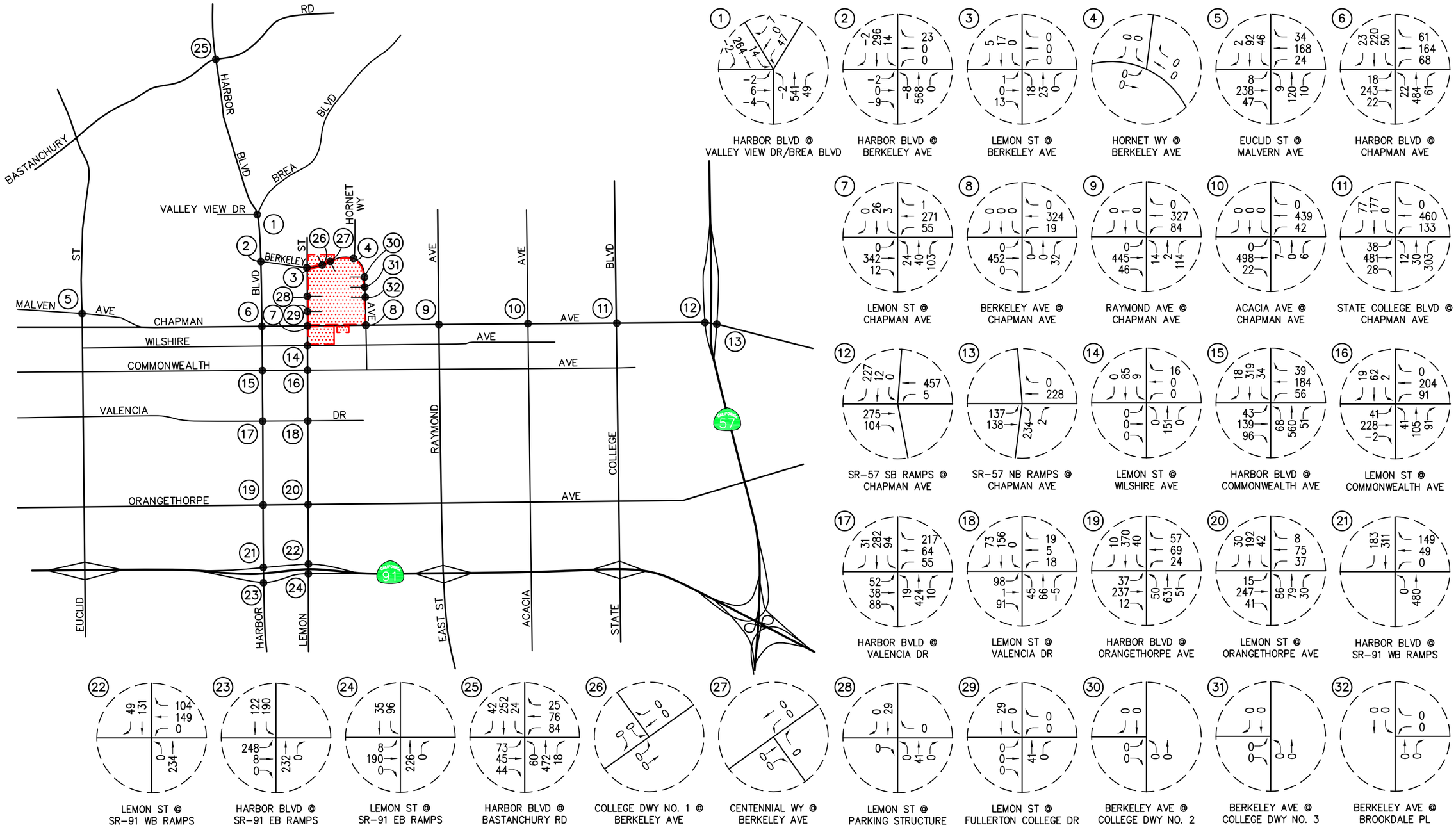
6.1 Year 2030 Buildout Traffic Volumes

Year 2030 AM peak hour and PM peak hour background traffic volumes were forecast based on application of growth rates provided by the City of Fullerton to existing traffic volumes, and by further adding traffic volumes from all future cumulative projects (i.e. buildout of the City). A 10% total growth was applied to existing traffic volumes at key study intersections for all major through movements, and for any major turn movements, as identified by City of Fullerton staff. A 5% total growth was applied to existing traffic volumes for all of the remaining key intersection movements, which are considered to be minor movements. The City of Fullerton provided volumes for all cumulative projects related to Year 2030 traffic conditions. The additive AM and PM peak hour traffic volumes associated with the cumulative projects in the Year 2030 are presented in ***Figures 6-1*** and ***6-2***, respectively.

Figures 6-3 and ***6-4*** present the Year 2030 AM and PM peak hour buildout traffic volumes at the key study intersections, respectively. Please note that the buildout traffic volumes represent the accumulation of existing traffic, ambient growth traffic, and cumulative projects traffic.

Figures 6-5 and ***6-6*** illustrate the Year 2030 total forecast AM and PM peak hour traffic volumes, with the inclusion of the trips generated by the proposed Project, respectively.

Appendix D contains the Year 2030 AM peak hour and PM peak hour cumulative project traffic volumes for the thirty-two (32) key study intersections as provided by the City of Fullerton.



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(#) = STUDY INTERSECTION

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FIGURE 6-1

AM PEAK HOUR CUMULATIVE PROJECT TRAFFIC VOLUMES

FULLERTON COLLEGE MASTER PLAN, FULLERTON

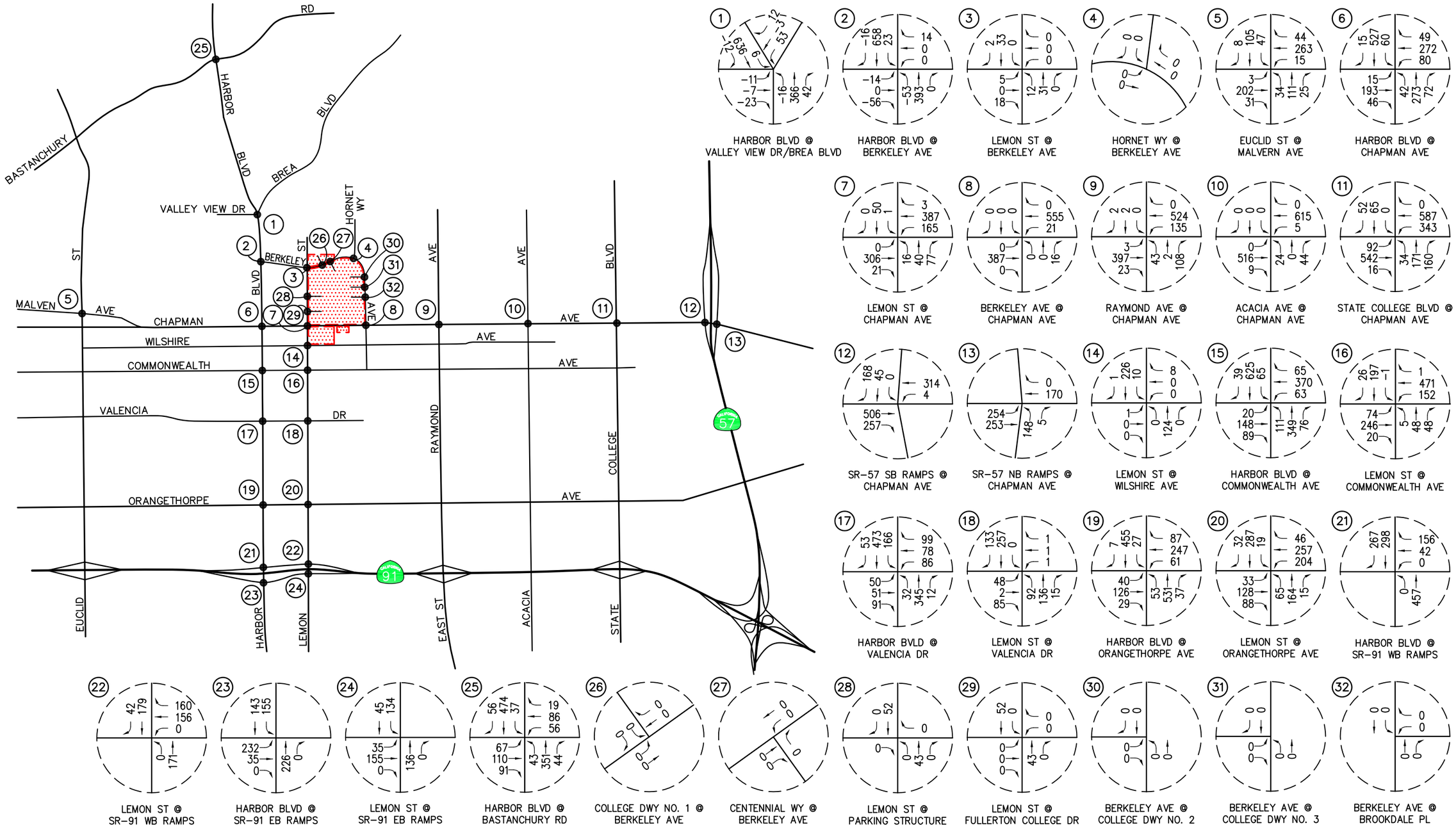

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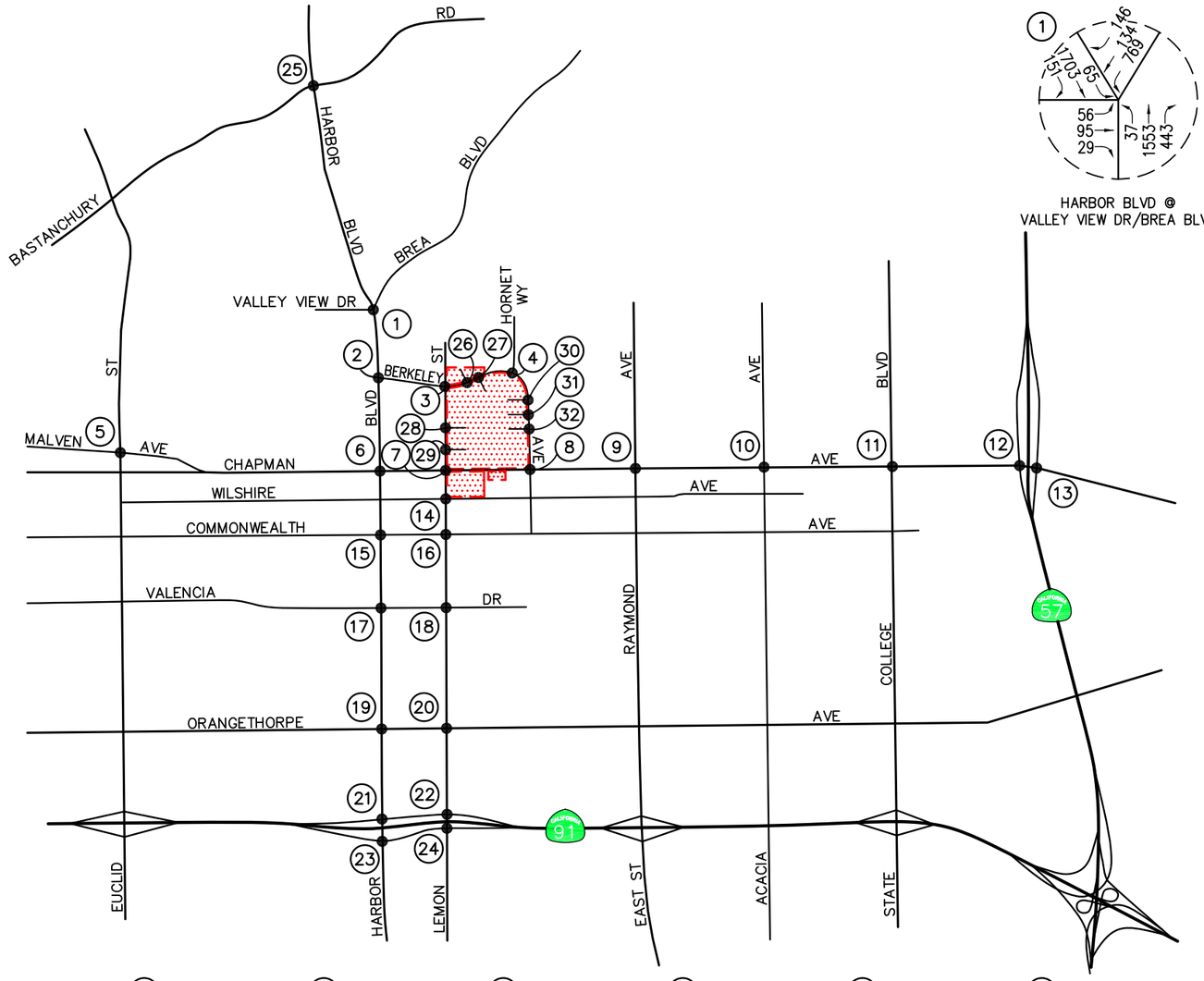
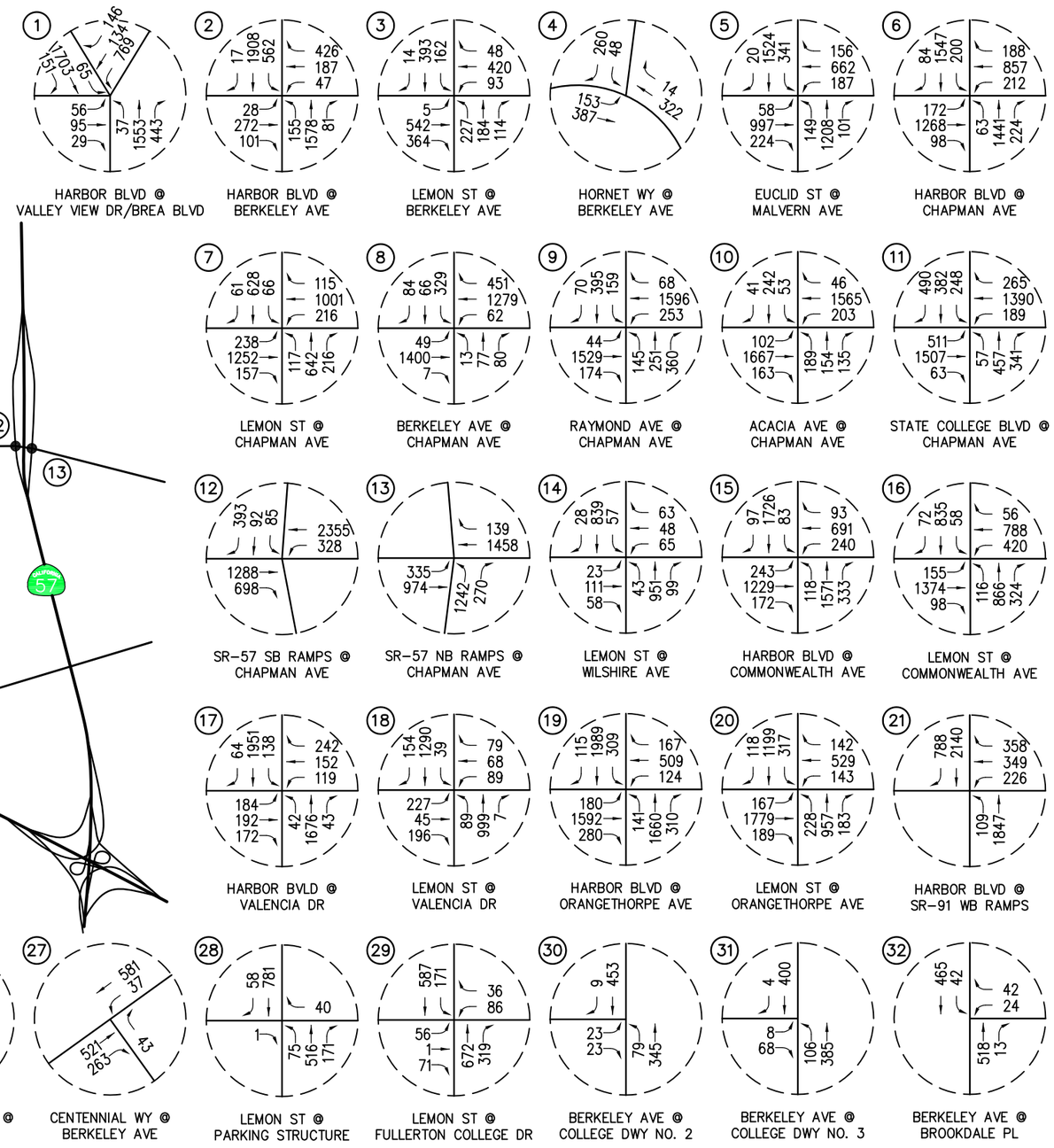
FIGURE 6-2

PM PEAK HOUR CUMULATIVE PROJECT TRAFFIC VOLUMES

FULLERTON COLLEGE MASTER PLAN, FULLERTON





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LINSCOTT LAW & GREENSPAN engineers

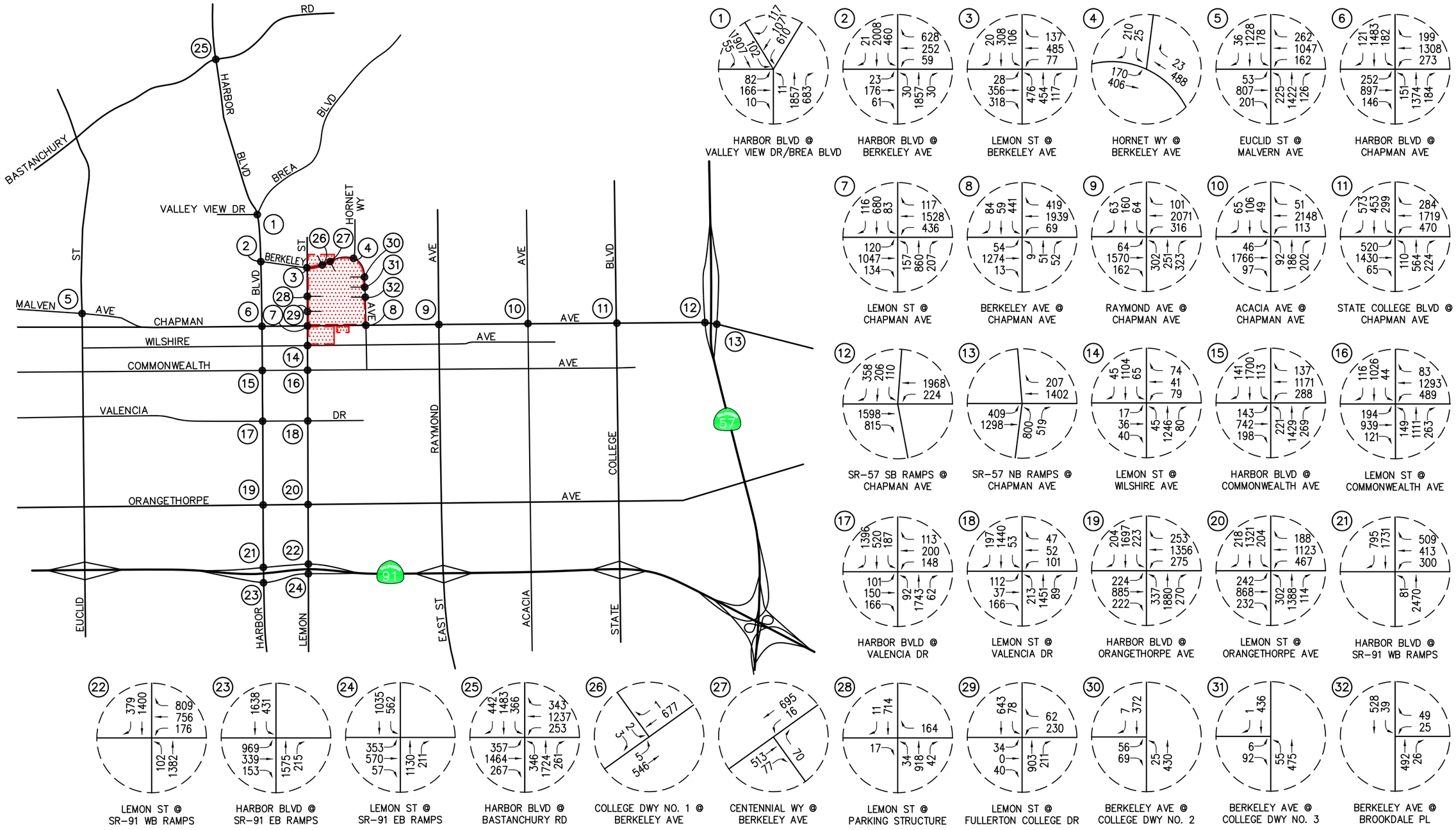
N NO SCALE

KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-3

YEAR 2030 BUILDOUT AM PEAK HOUR TRAFFIC VOLUMES

FULLERTON COLLEGE MASTER PLAN, FULLERTON



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NO SCALE

KEY

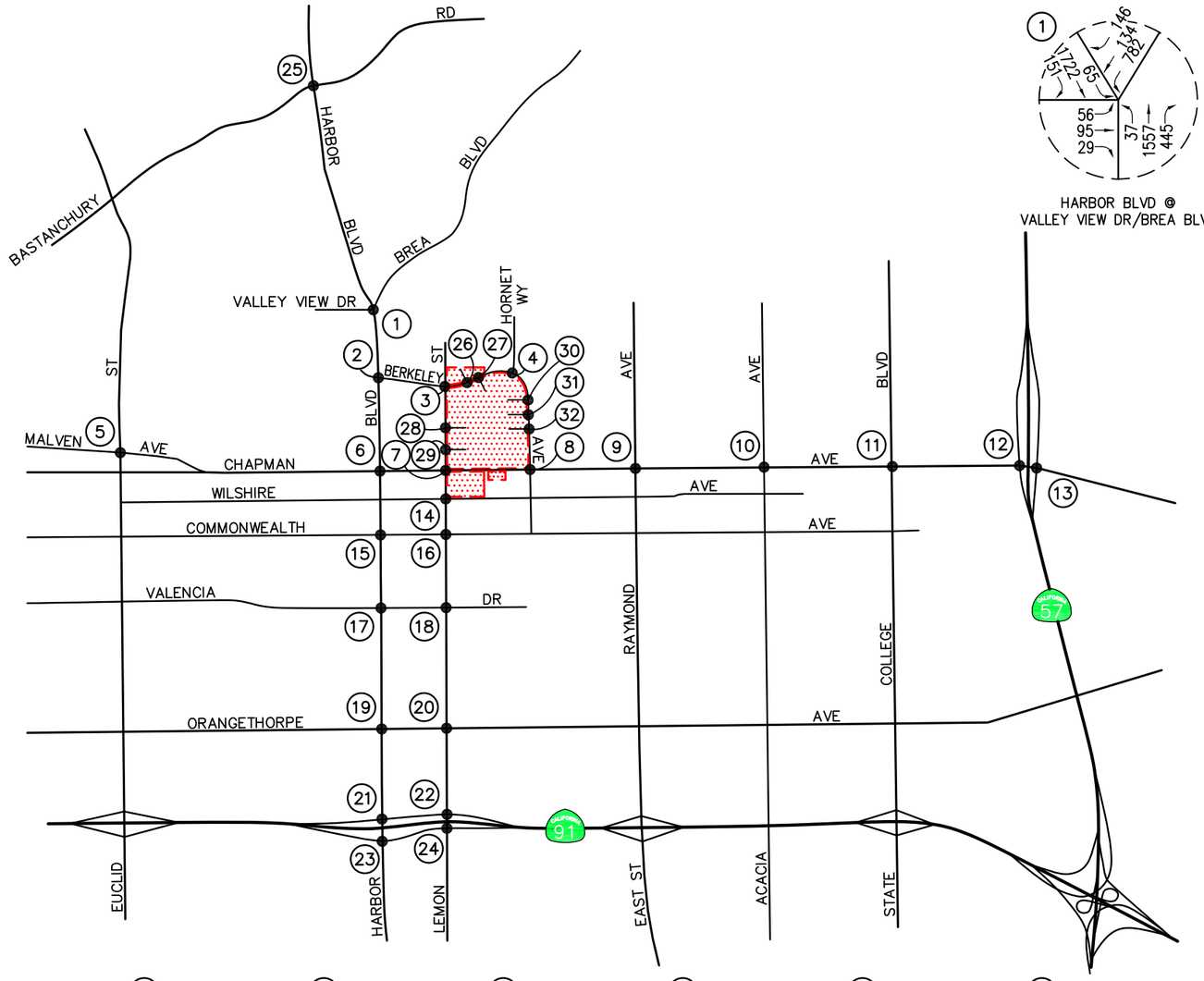
(#) = STUDY INTERSECTION

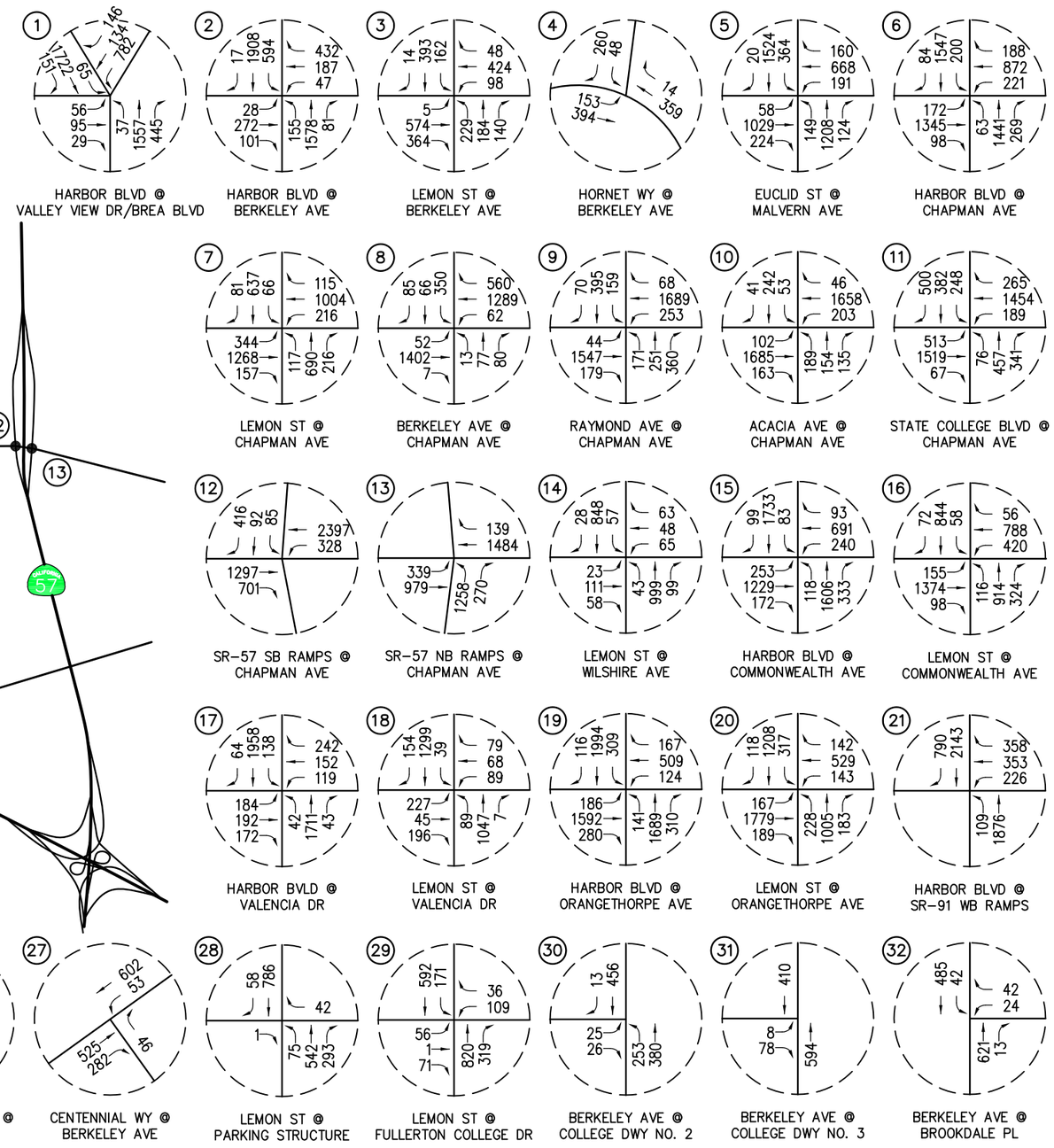
= PROJECT SITE

FIGURE 6-4

YEAR 2030 BUILDOUT PM PEAK HOUR TRAFFIC VOLUMES

FULLERTON COLLEGE MASTER PLAN, FULLERTON





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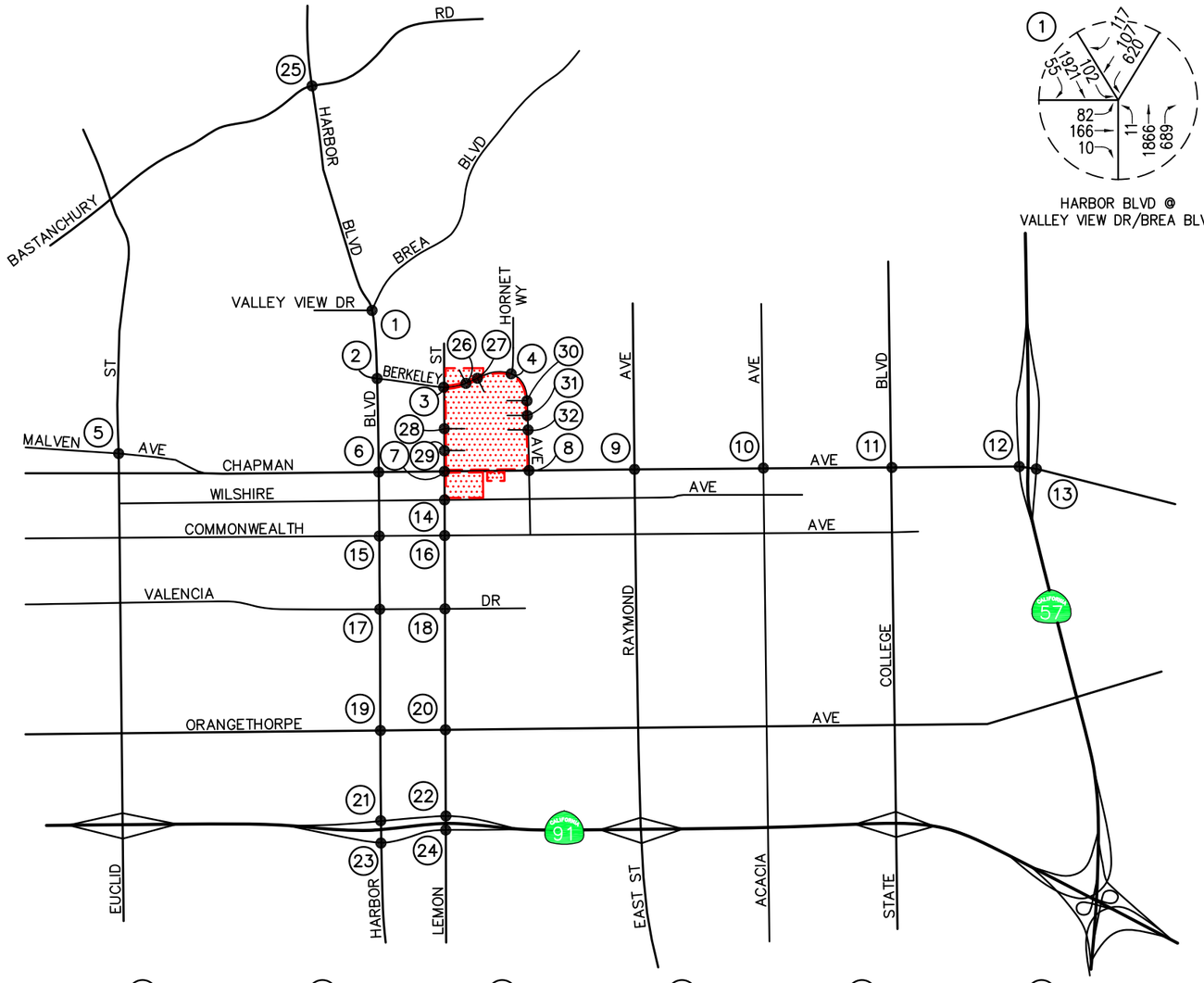
N NO SCALE

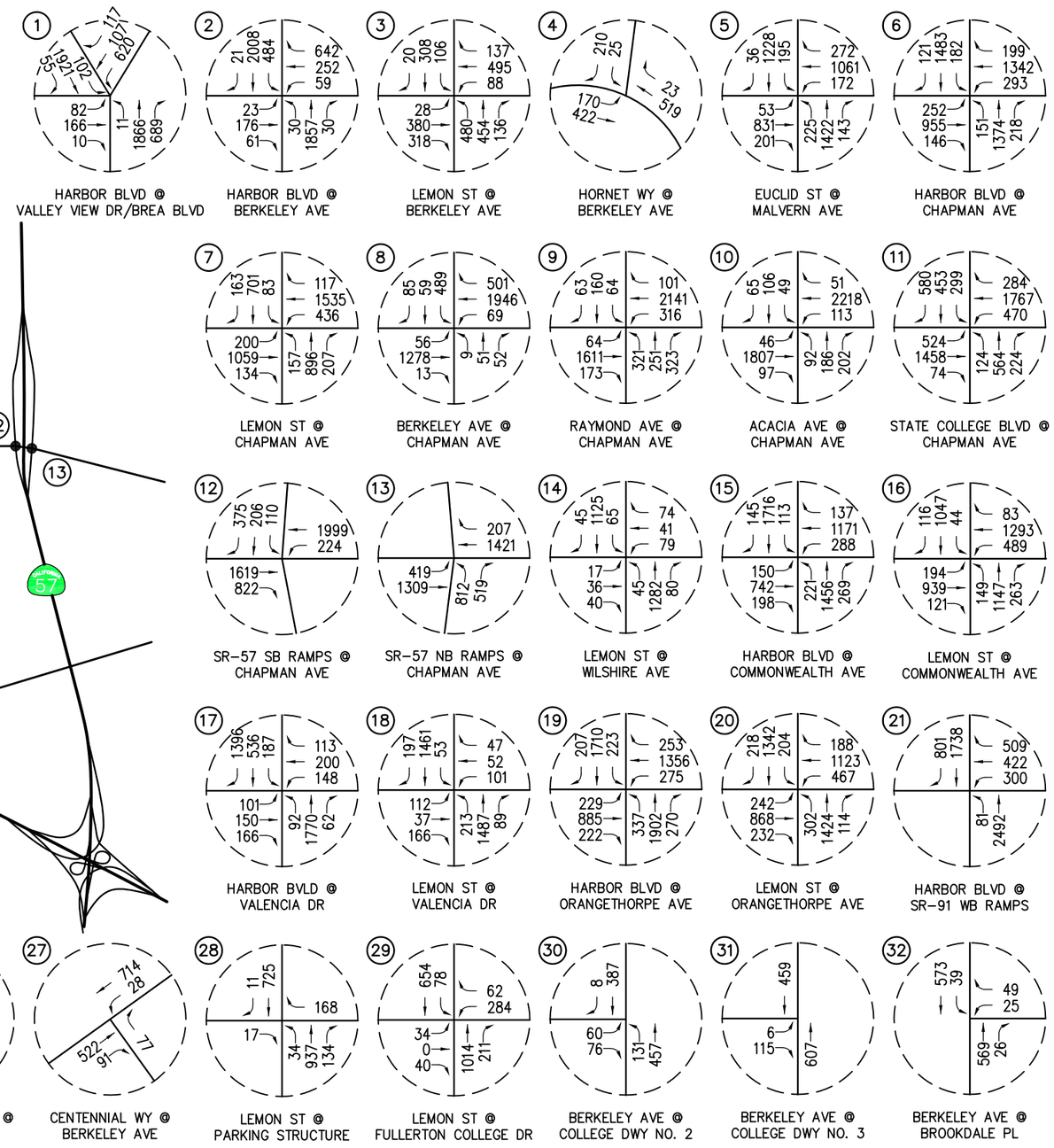
KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-5

YEAR 2030 BUILDOUT PLUS PROJECT AM PEAK HOUR TRAFFIC VOLUMES

FULLERTON COLLEGE MASTER PLAN, FULLERTON





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-6

YEAR 2030 BUILDOUT PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES
FULLERTON COLLEGE MASTER PLAN, FULLERTON

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

The relative impact of the proposed Project during the AM peak hour and PM peak hour was evaluated based on analysis of future operating conditions at the thirty-two (32) key study intersections, without, then with, the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future delay/volume-to-capacity relationships and service level characteristics at each study intersection utilizing the Vistro software and HCM 6 Methodology. The significance of the potential impacts of the Project at each key signalized intersection was then evaluated using the following traffic impact criteria.

7.1 Significant Impact Criteria

In order to provide a quantitative basis for determining the significant traffic impact at a specific location, it was necessary to establish the criteria to be used in the analysis of intersections for this study. Based on the City of Fullerton traffic study guidelines, a project is considered to have a significant impact at a signalized intersection if the following criteria are met:

- *For signalized intersections, an impact is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F.*

- *For unsignalized intersections, an impact is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F. However, unsignalized intersection LOS is based on the control delay, but that delay is only assessed for those traffic movements that are stopped or must yield to through traffic. Some movements, including cross traffic on the minor street or left turns onto the major street may be acceptable with relatively long delays, when through traffic and right turns from a major street do not experience any delays at stopped intersections. When delay for cross traffic is severe (LOS F), the intersection should be further evaluated for possible improvement with traffic signals. In some cases, this analysis determines that the delay is being experienced by a very low number of vehicles and traffic signals are not warranted. For this condition, the intersection does not need to be considered impacted, but measures to reduce delay may be considered, if appropriate. In other cases, the number of stopped vehicles is substantial and traffic signals may be justified as a mitigation measure. Therefore, the following significance criteria for unsignalized intersection are used:*

    - *An unsignalized intersection impact is considered to be significant if the project causes an intersection at LOS D or better to degrade to LOS E or F, and the traffic signal warrant analysis determines that a signal is justified.*

It should be noted that although the City standard is LOS D, there are two intersections located in the Historic Downtown area where LOS E is deemed acceptable to the City because of the fully developed character of the downtown area, the presence of historic properties, and the great expense and hardship that would be caused by attempting to secure right-of-way required to improve LOS. The two intersections where LOS E is considered acceptable are: Harbor Boulevard/Chapman Avenue (i.e. key study intersection #6) and Harbor Boulevard/Commonwealth Avenue (i.e. key study intersection #15).

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which LOS calculations have been performed at the thirty-two (32) key study intersections for Existing plus Project and Year 2030 Buildout traffic conditions:

A. Existing Traffic Conditions;
B. Existing Plus Project Traffic Conditions;
C. Scenario (B) with Improvements, if necessary;
D. Year 2030 Buildout Traffic Conditions,
E. Year 2030 Buildout Plus Project Traffic Conditions; and
F. Scenario (E) with Improvements, if necessary.

8.0 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

8.1 Existing Plus Project Analysis

Table 8-1 summarizes the peak hour Level of Service results at the thirty-two (32) key study intersections for Existing plus Project traffic conditions. The first column (1) of HCM/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-3*). The second column (2) lists Existing plus Project traffic conditions. The third column (3) shows the increase in the HCM value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report. The fourth column (4) of *Table 8-1* indicates the anticipated operating conditions with implementation of improvements planned and/or recommended to mitigate Project traffic and/or achieve an acceptable Level of Service.

8.1.1 *Existing Plus Project Traffic Conditions*

Review of Columns 2 and 3 of *Table 8-1* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the thirty-two (32) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. Although the intersection of Harbor Boulevard/Bastanchury Road is forecast to operate at unacceptable LOS F during the AM peak hour and unacceptable LOS E during the PM peak hour with the addition of project traffic, the addition of Project trips is not anticipated to worsen or further degrade the service level and therefore is considered less than significant based on the LOS standards and impact criteria detailed in **Section 7.1**. The remaining thirty-one (31) key study intersections currently operate and are forecast to continue to operate at an acceptable service level during the AM and PM peak hours with the addition of Project generated traffic to existing traffic.

Appendix B presents the Existing plus Project HCM/LOS calculations for the thirty-two (32) key study intersections.

8.2 Year 2030 Traffic Conditions

Table 8-2 summarizes the peak hour Level of Service results at the thirty-two (32) key study intersections for the Year 2030 buildout year. The first column (1) of HCM/LOS values in *Table 8-2* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Tables 3-3* and *8-1*). The second column (2) lists projected Year 2030 buildout traffic conditions (existing plus ambient growth plus cumulative projects traffic) based on existing intersection geometry, but without any traffic generated from the proposed Project. The third column (3) presents forecast Year 2030 buildout traffic conditions with the addition of Project traffic. The fourth column (4) shows the increase in the HCM value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and significant impact criteria defined in this report. The fifth column (5) of *Table 8-2* indicates the anticipated operating conditions with implementation of improvements planned and/or recommended to mitigate Project traffic and/or achieve an acceptable Level of Service.

8.2.1 *Year 2030 Buildout Traffic Conditions (Without Project)*

An analysis of future (Year 2030) buildout traffic conditions indicates that the addition of ambient growth and cumulative projects traffic will cumulatively impact twelve (12) of the thirty-two (32) key study intersections. The remaining twenty (20) key study intersections are forecast to operate at an acceptable service level during the AM and PM peak hours with the addition of ambient traffic growth and cumulative projects traffic. The intersections forecast to operate adversely in the Year 2030 consist of the following:

	AM Peak Hour		PM Peak Hour	
Key Intersection	HCM	LOS	HCM	LOS
2. Harbor Boulevard at Berkeley Avenue	--	--	63.9 s/v	E
3. Lemon Street at Berkeley Avenue	58.6 s/v	E	--	--
5. Euclid Street at Malvern Avenue	56.3 s/v	E	67.5 s/v	E
6. Harbor Boulevard at Chapman Avenue	84.6 s/v	F	--	--
9. Raymond Avenue at Chapman Avenue	--	--	70.1 s/v	E
10. Acacia Avenue at Chapman Avenue	56.0 s/v	E	--	--
11. State College Boulevard at Chapman Avenue	60.5 s/v	E	119.1 s/v	F
13. SR-57 NB Ramps at Chapman Avenue	102.9 s/v	F	81.8 s/v	F
17. Harbor Boulevard at Valencia Drive	--	--	78.1 s/v	E
19. Harbor Boulevard at Orangethorpe Avenue	83.4 s/v	F	112.6 s/v	F
20. Lemon Street at Orangethorpe Avenue	--	--	88.6 s/v	F
25. Harbor Boulevard at Bastanchury Road	144.2 s/v	F	88.7 s/v	F

8.2.2 *Year 2030 Buildout Plus Project Conditions*

Review of Columns 3 and 4 of *Table 8-2* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the thirty-two (32) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The same twelve (12) intersections named above (i.e. Harbor Boulevard/Berkeley Avenue, Lemon Street/Berkeley Avenue, Euclid Street/Malvern Avenue, Harbor Boulevard/Chapman Avenue, Raymond Avenue/Chapman Avenue, Acacia Avenue/Chapman Avenue, State College Boulevard/Chapman Avenue, SR-57 NB Ramps/Chapman Avenue, Harbor Boulevard/Valencia Drive, Harbor Boulevard/Orangethorpe Avenue, Lemon Street/Orangethorpe Avenue and Harbor Boulevard/Bastanchury Road) are forecast to operate at unacceptable LOS E or LOS F during the AM and/or PM peak hours with the addition of project traffic. However, the addition of Project trips is not anticipated to worsen or further degrade the service level at any of these twelve (12) intersections. The information in Column 4 of *Table 8-2* indicates that the project traffic increments at these 12 intersections are concluded to be less than significant based on the LOS standards and impact criteria detailed in **Section 7.1**. The remaining twenty (20) key study intersections are forecast to continue to operate at an acceptable LOS with the addition of Project generated traffic under Year 2030 Buildout traffic conditions. *Appendix B* also presents the Year 2030 Buildout plus Project HCM/LOS calculations for the thirty-two (32) key study intersections.

TABLE 8-1
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact		(4) Existing Plus Project With Improvements	
			HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
1. Harbor Boulevard at Valley View Dr/Brea Blvd	D	AM	29.2 s/v	C	29.5 s/v	C	0.3 s/v	No	--	--
		PM	29.9 s/v	C	30.1 s/v	C	0.2 s/v	No	--	--
2. Harbor Boulevard at Berkeley Avenue	D	AM	27.8 s/v	C	28.0 s/v	C	0.2 s/v	No	--	--
		PM	30.7 s/v	C	31.3 s/v	C	0.6 s/v	No	--	--
3. Lemon Street at Berkeley Avenue	D	AM	48.7 s/v	D	54.7 s/v	D	6.0 s/v	No	--	--
		PM	38.6 s/v	D	39.4 s/v	D	0.8 s/v	No	--	--
4. Hornet Way at Berkeley Avenue	D	AM	16.4 s/v	B	16.7 s/v	B	0.3 s/v	No	--	--
		PM	13.4 s/v	B	13.2 s/v	B	0.0 s/v	No	--	--
5. Euclid Street at Malvern Avenue	D	AM	32.6 s/v	C	33.6 s/v	C	1.0 s/v	No	--	--
		PM	33.8 s/v	C	34.6 s/v	C	0.8 s/v	No	--	--
6. Harbor Boulevard at Chapman Avenue	E	AM	32.9 s/v	C	34.9 s/v	C	2.0 s/v	No	--	--
		PM	31.6 s/v	C	32.4 s/v	C	0.8 s/v	No	--	--
7. Lemon Street at Chapman Avenue	D	AM	35.7 s/v	D	35.9 s/v	D	0.2 s/v	No	--	--
		PM	34.0 s/v	C	43.1 s/v	D	9.1 s/v	No	--	--
8. Berkeley Avenue at Chapman Avenue	D	AM	16.7 s/v	B	16.9 s/v	B	0.2 s/v	No	--	--
		PM	18.0 s/v	B	18.6 s/v	B	0.6 s/v	No	--	--
9. Raymond Avenue at Chapman Avenue	D	AM	28.0 s/v	C	28.5 s/v	C	0.5 s/v	No	--	--
		PM	26.1 s/v	C	26.8 s/v	C	0.7 s/v	No	--	--
10. Acacia Avenue at Chapman Avenue	D	AM	52.3 s/v	D	53.5 s/v	D	1.2 s/v	No	--	--
		PM	18.0 s/v	B	18.1 s/v	B	0.1 s/v	No	--	--
11. State College Boulevard at Chapman Avenue	D	AM	34.8 s/v	C	34.8 s/v	C	0.0 s/v	No	--	--
		PM	35.7 s/v	D	36.1 s/v	D	0.4 s/v	No	--	--
12. SR-57 SB Ramps at Chapman Avenue	D	AM	17.4 s/v	B	18.1 s/v	B	0.7 s/v	No	--	--
		PM	18.1 s/v	B	18.3 s/v	B	0.2 s/v	No	--	--
13. SR-57 NB Ramps at Chapman Avenue	D	AM	31.0 s/v	C	31.9 s/v	C	0.9 s/v	No	--	--
		PM	26.4 s/v	C	26.9 s/v	C	0.5 s/v	No	--	--
14. Lemon Street at Wilshire Avenue	D	AM	12.8 s/v	B	12.6 s/v	B	0.0 s/v	No	--	--
		PM	10.3 s/v	B	10.3 s/v	B	0.0 s/v	No	--	--

Notes:
- **Bold HCM/LOS** values indicate adverse service levels
- sec/veh = seconds per vehicle

TABLE 8-1 (CONTINUED)

EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact		(4) Existing Plus Project With Improvements	
			HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
15. Harbor Boulevard at Commonwealth Avenue	E	AM	35.1 s/v	D	35.4 s/v	D	0.3 s/v	No	--	--
		PM	30.8 s/v	C	31.0 s/v	C	0.2 s/v	No	--	--
16. Lemon Street at Commonwealth Avenue	D	AM	35.0 s/v	D	35.3 s/v	D	0.3 s/v	No	--	--
		PM	33.9 s/v	C	33.9 s/v	C	0.0 s/v	No	--	--
17. Harbor Boulevard at Valencia Drive	D	AM	16.2 s/v	B	16.3 s/v	B	0.1 s/v	No	--	--
		PM	26.2 s/v	C	26.1 s/v	C	0.0 s/v	No	--	--
18. Lemon Street at Valencia Drive	D	AM	14.7 s/v	B	14.7 s/v	B	0.0 s/v	No	--	--
		PM	10.1 s/v	B	10.1 s/v	B	0.0 s/v	No	--	--
19. Harbor Boulevard at Orangethorpe Avenue	D	AM	34.9 s/v	C	35.0 s/v	D	0.1 s/v	No	--	--
		PM	38.6 s/v	D	39.2 s/v	D	0.6 s/v	No	--	--
20. Lemon Street at Orangethorpe Avenue	D	AM	34.1 s/v	C	34.4 s/v	C	0.3 s/v	No	--	--
		PM	38.1 s/v	D	38.5 s/v	D	0.4 s/v	No	--	--
21. Harbor Boulevard at SR-91 WB Ramps	D	AM	14.4 s/v	B	14.4 s/v	B	0.0 s/v	No	--	--
		PM	17.2 s/v	B	17.2 s/v	B	0.0 s/v	No	--	--
22. Lemon Street at SR-91 WB Ramps	D	AM	24.0 s/v	C	24.4 s/v	C	0.4 s/v	No	--	--
		PM	24.4 s/v	C	24.8 s/v	C	0.4 s/v	No	--	--
23. Harbor Boulevard at SR-91 EB Ramps	D	AM	19.1 s/v	B	19.3 s/v	B	0.2 s/v	No	--	--
		PM	19.6 s/v	B	19.8 s/v	B	0.2 s/v	No	--	--
24. Lemon Street at SR-91 EB Ramps	D	AM	26.0 s/v	C	26.2 s/v	C	0.2 s/v	No	--	--
		PM	23.0 s/v	C	23.2 s/v	C	0.2 s/v	No	--	--
25. Harbor Boulevard at Bastanchury Road	D	AM	**103.6 s/v**	**F**	**104.1 s/v**	**F**	**0.5 s/v**	No	--	--
		PM	**57.0 s/v**	**E**	**57.0 s/v**	**E**	**0.0 s/v**	No	--	--
26. College Driveway No. 1 at Berkeley Avenue	D	AM	14.7 s/v	B	15.4 s/v	C	0.7 s/v	No	--	--
		PM	13.5 s/v	B	14.4 s/v	B	0.9 s/v	No	--	--
27. Centennial Way at Berkeley Avenue	D	AM	12.5 s/v	B	12.6 s/v	B	0.1 s/v	No	--	--
		PM	12.4 s/v	B	12.7 s/v	B	0.3 s/v	No	--	--
28. Lemon Street at Parking Structure	D	AM	11.3 s/v	B	12.2 s/v	B	0.9 s/v	No	--	--
		PM	16.2 s/v	C	18.2 s/v	C	2.0 s/v	No	--	--

Notes:

- **Bold HCM/LOS** values indicate adverse service levels
- sec/veh = seconds per vehicle

TABLE 8-1 (CONTINUED)

EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Significant Impact		(4) Existing Plus Project With Improvements	
			HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
29. Lemon Street at Fullerton College Drive	D	AM	22.7 s/v	C	24.2 s/v	C	1.5 s/v	No	--	--
		PM	21.3 s/v	C	23.8 s/v	C	2.5 s/v	No	--	--
30. Berkeley Avenue at College Driveway No. 2	D	AM	13.9 s/v	B	18.7 s/v	C	4.8 s/v	No	--	--
		PM	12.8 s/v	B	15.3 s/v	C	2.5 s/v	No	--	--
31. Berkeley Avenue at College Driveway No. 3	D	AM	12.0 s/v	B	12.1 s/v	B	0.1 s/v	No	--	--
		PM	12.3 s/v	B	12.8 s/v	B	0.5 s/v	No	--	--
32. Berkeley Avenue at Brookdale Place	D	AM	13.9 s/v	B	15.2 s/v	C	1.3 s/v	No	--	--
		PM	13.9 s/v	B	15.0 s/v	C	1.1 s/v	No	--	--

Notes:

- **Bold HCM/LOS** values indicate adverse service levels
- sec/veh = seconds per vehicle

TABLE 8-2

YEAR 2030 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2030 Buildout Traffic Conditions		(3) Year 2030 Buildout Plus Project Traffic Conditions		(4) Significant Impact		(5) Year 2030 Buildout Plus Project With Improvements	
			HCM	LOS	HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
1. Harbor Boulevard at Valley View Drive/Brea Blvd	D	AM	29.2 s/v	C	36.3 s/v	D	37.1 s/v	D	0.8 s/v	No	--	--
		PM	29.9 s/v	C	35.9 s/v	D	36.3 s/v	D	0.4 s/v	No	--	--
2. Harbor Boulevard at Berkeley Avenue	D	AM	27.8 s/v	C	41.1 s/v	D	44.3 s/v	D	3.2 s/v	No	--	--
		PM	30.7 s/v	C	**63.9 s/v**	**E**	**66.0 s/v**	**E**	**2.1 s/v**	No	--	--
3. Lemon Street at Berkeley Avenue	D	AM	48.7 s/v	D	**58.6 s/v**	**E**	**66.3 s/v**	**E**	**7.7 s/v**	No	--	--
		PM	38.6 s/v	D	41.2 s/v	D	41.9 s/v	D	0.7 s/v	No	--	--
4. Hornet Way at Berkeley Avenue	D	AM	16.4 s/v	B	16.5 s/v	B	16.9 s/v	B	0.4 s/v	No	--	--
		PM	13.4 s/v	B	13.4 s/v	B	13.2 s/v	B	0.0 s/v	No	--	--
5. Euclid Street at Malvern Avenue	D	AM	32.6 s/v	C	**56.3 s/v**	**E**	**59.3 s/v**	**E**	**3.0 s/v**	No	--	--
		PM	33.8 s/v	C	**67.5 s/v**	**E**	**70.3 s/v**	**E**	**2.8 s/v**	No	--	--
6. Harbor Boulevard at Chapman Avenue	E	AM	32.9 s/v	C	**84.6 s/v**	**F**	**93.8 s/v**	**F**	**9.2 s/v**	No	--	--
		PM	31.6 s/v	C	71.3 s/v	E	78.2 s/v	E	6.9 s/v	No	--	--
7. Lemon Street at Chapman Avenue	D	AM	35.7 s/v	D	40.6 s/v	D	42.6 s/v	D	2.0 s/v	No	--	--
		PM	34.0 s/v	C	46.8 s/v	D	53.6 s/v	D	6.8 s/v	No	--	--
8. Berkeley Avenue at Chapman Avenue	D	AM	16.7 s/v	B	18.4 s/v	B	19.3 s/v	B	0.9 s/v	No	--	--
		PM	18.0 s/v	B	23.2 s/v	C	24.4 s/v	C	1.2 s/v	No	--	--

Notes:
- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle

TABLE 8-2 (CONTINUED)

YEAR 2030 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2030 Buildout Traffic Conditions		(3) Year 2030 Buildout Plus Project Traffic Conditions		(4) Significant Impact		(5) Year 2030 Buildout Plus Project With Improvements	
			HCM	LOS	HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
9. Raymond Avenue at Chapman Avenue	D	AM	28.0 s/v	C	44.8 s/v	D	48.9 s/v	D	4.1 s/v	No	--	--
		PM	26.1 s/v	C	**70.1 s/v**	**E**	**79.0 s/v**	**E**	**8.9 s/v**	No	--	--
10. Acacia Avenue at Chapman Avenue	D	AM	52.3 s/v	D	**56.0 s/v**	**E**	**56.2 s/v**	**E**	**0.2 s/v**	No	--	--
		PM	18.0 s/v	B	27.2 s/v	C	29.4 s/v	C	2.2 s/v	No	--	--
11. State College Boulevard at Chapman Avenue	D	AM	34.8 s/v	C	**60.5 s/v**	**E**	**66.6 s/v**	**E**	**6.1 s/v**	No	--	--
		PM	35.7 s/v	D	**119.1 s/v**	**F**	**127.0 s/v**	**F**	**7.9 s/v**	No	--	--
12. SR-57 SB Ramps at Chapman Avenue	D	AM	17.4 s/v	B	40.4 s/v	D	42.7 s/v	D	2.3 s/v	No	--	--
		PM	18.1 s/v	B	29.0 s/v	C	30.0 s/v	C	1.0 s/v	No	--	--
13. SR-57 NB Ramps at Chapman Avenue	D	AM	31.0 s/v	C	**102.9 s/v**	**F**	**108.8 s/v**	**F**	**5.9 s/v**	No	--	--
		PM	26.4 s/v	C	**81.8 s/v**	**F**	**86.6 s/v**	**F**	**4.8 s/v**	No	--	--
14. Lemon Street at Wilshire Avenue	D	AM	12.8 s/v	B	12.5 s/v	B	12.5 s/v	B	0.0 s/v	No	--	--
		PM	10.3 s/v	B	10.6 s/v	B	10.6 s/v	B	0.0 s/v	No	--	--
15. Harbor Boulevard at Commonwealth Avenue	E	AM	35.1 s/v	D	68.7 s/v	E	70.4 s/v	E	1.7 s/v	No	--	--
		PM	30.8 s/v	C	60.2 s/v	E	61.4 s/v	E	1.2 s/v	No	--	--
16. Lemon Street at Commonwealth Avenue	D	AM	35.0 s/v	D	52.2 s/v	D	52.8 s/v	D	0.6 s/v	No	--	--
		PM	33.9 s/v	C	51.7 s/v	D	52.8 s/v	D	1.1 s/v	No	--	--

Notes:

- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle

TABLE 8-2 (CONTINUED)

YEAR 2030 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2030 Buildout Traffic Conditions		(3) Year 2030 Buildout Plus Project Traffic Conditions		(4) Significant Impact		(5) Year 2030 Buildout Plus Project With Improvements	
			HCM	LOS	HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
17. Harbor Boulevard at Valencia Drive	D	AM	16.2 s/v	B	41.7 s/v	D	42.3 s/v	D	0.6 s/v	No	--	--
		PM	26.2 s/v	C	**78.1 s/v**	**E**	**78.4 s/v**	**E**	**0.3 s/v**	No	--	--
18. Lemon Street at Valencia Drive	D	AM	14.7 s/v	B	21.2 s/v	C	21.2 s/v	C	0.0 s/v	No	--	--
		PM	10.1 s/v	B	14.8 s/v	B	15.0 s/v	B	0.2 s/v	No	--	--
19. Harbor Boulevard at Orangethorpe Avenue	D	AM	34.9 s/v	C	**83.4 s/v**	**F**	**86.4 s/v**	**F**	**3.0 s/v**	No	--	--
		PM	38.6 s/v	D	**112.6 s/v**	**F**	**115.5 s/v**	**F**	**2.9 s/v**	No	--	--
20. Lemon Street at Orangethorpe Avenue	D	AM	34.1 s/v	C	50.4 s/v	D	51.5 s/v	D	1.1 s/v	No	--	--
		PM	38.1 s/v	D	**88.6 s/v**	**F**	**93.1 s/v**	**F**	**4.5 s/v**	No	--	--
21. Harbor Boulevard at SR-91 WB Ramps	D	AM	14.4 s/v	B	23.3 s/v	C	23.3 s/v	C	0.0 s/v	No	--	--
		PM	17.2 s/v	B	29.8 s/v	C	30.1 s/v	C	0.3 s/v	No	--	--
22. Lemon Street at SR-91 WB Ramps	D	AM	24.0 s/v	C	34.3 s/v	C	35.5 s/v	D	1.2 s/v	No	--	--
		PM	24.4 s/v	C	38.9 s/v	D	40.3 s/v	D	1.4 s/v	No	--	--
23. Harbor Boulevard at SR-91 EB Ramps	D	AM	19.1 s/v	B	25.0 s/v	C	25.1 s/v	C	0.1 s/v	No	--	--
		PM	19.6 s/v	B	25.3 s/v	C	25.5 s/v	C	0.2 s/v	No	--	--
24. Lemon Street at SR-91 EB Ramps	D	AM	26.0 s/v	C	32.7 s/v	C	33.4 s/v	C	0.7 s/v	No	--	--
		PM	23.0 s/v	C	28.6 s/v	C	29.0 s/v	C	0.4 s/v	No	--	--

Notes:
- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle

TABLE 8-2 (CONTINUED)

YEAR 2030 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2030 Buildout Traffic Conditions		(3) Year 2030 Buildout Plus Project Traffic Conditions		(4) Significant Impact		(5) Year 2030 Buildout Plus Project With Improvements	
			HCM	LOS	HCM	LOS	HCM	LOS	Increase	Yes/No	HCM	LOS
25. Harbor Boulevard at	D	AM	**103.6 s/v**	**F**	**144.2 s/v**	**F**	**144.9 s/v**	**F**	**0.7 s/v**	No	--	--
Bastanchury Road		PM	**57.0 s/v**	**E**	**88.7 s/v**	**F**	**89.2 s/v**	**F**	**0.5 s/v**	No	--	--
26. College Driveway No. 1 at	D	AM	14.7 s/v	B	15.8 s/v	C	16.6 s/v	C	0.8 s/v	No	--	--
Berkeley Avenue		PM	13.5 s/v	B	14.3 s/v	B	15.4 s/v	C	1.1 s/v	No	--	--
27. Centennial Way at	D	AM	12.5 s/v	B	13.2 s/v	B	13.3 s/v	B	0.1 s/v	No	--	--
Berkeley Avenue		PM	12.4 s/v	B	13.1 s/v	B	13.4 s/v	B	0.3 s/v	No	--	--
28. Lemon Street at	D	AM	11.3 s/v	B	12.0 s/v	B	13.0 s/v	B	1.0 s/v	No	--	--
Parking Structure		PM	16.2 s/v	C	19.0 s/v	C	21.9 s/v	C	2.9 s/v	No	--	--
29. Lemon Street at	D	AM	22.7 s/v	C	23.5 s/v	C	25.4 s/v	C	1.9 s/v	No	--	--
Fullerton College Drive		PM	21.3 s/v	C	22.2 s/v	C	25.2 s/v	C	3.0 s/v	No	--	--
30. Berkeley Avenue at	D	AM	13.9 s/v	B	14.7 s/v	B	20.6 s/v	C	5.9 s/v	No	--	--
College Driveway No. 2		PM	12.8 s/v	B	13.5 s/v	B	16.4 s/v	C	2.9 s/v	No	--	--
31. Berkeley Avenue at	D	AM	12.0 s/v	B	12.6 s/v	B	12.6 s/v	B	0.0 s/v	No	--	--
College Driveway No. 3		PM	12.3 s/v	B	12.9 s/v	B	13.5 s/v	B	0.6 s/v	No	--	--
32. Berkeley Avenue at	D	AM	13.9 s/v	B	14.8 s/v	B	16.3 s/v	C	1.5 s/v	No	--	--
Brookdale Place		PM	13.9 s/v	B	14.9 s/v	B	16.1 s/v	C	1.2 s/v	No	--	--

Notes:
- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle

9.0 STATE OF CALIFORNIA (CALTRANS) METHODOLOGY

In conformance with the current Caltrans *Guide for the Preparation of Traffic Impact Studies*, existing and projected AM and PM peak hour operating conditions at the six (6) state-controlled study intersections within the study area have been evaluated using the *Highway Capacity Manual* operations method of analysis. These state-controlled locations include the following six of thirty-two key study intersections:

12. SR-57 SB Ramps at Chapman Avenue
13. SR-57 NB Ramps at Chapman Avenue
21. Harbor Boulevard at SR-91 WB Ramps
22. Lemon Street at SR-91 WB Ramps
23. Harbor Boulevard at SR-91 EB Ramps
24. Lemon Street at SR-91 EB Ramps

Caltrans "endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities"; it does not require that LOS "D" (shall) be maintained. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. For this analysis, LOS D is the target level of service standard and will be utilized to assess the project impacts at the state-controlled study intersections.

9.1 Existing Plus Project Traffic Conditions

Table 9-1 summarizes the peak hour HCM level of service results at the six (6) state-controlled study intersections within the study area for Existing plus Project traffic conditions. The first column (1) of HCM/LOS values in *Table 9-1* presents a summary of existing traffic conditions. The second column (2) presents Existing plus Project traffic conditions based on existing intersection geometry. The third column (3) indicates whether added peak hour Project trips will have a significant impact based on the significant impact criteria defined in this report. The fourth column (4) indicates the anticipated level of service with planned and/or recommended improvements.

9.1.1 *Existing Traffic Conditions*

Review of Column 1 of *Table 9-1* indicates that all six (6) state-controlled study intersections currently operate at an acceptable LOS during the AM and PM peak hours.

9.1.2 *Existing Plus Project Traffic Conditions*

Review of Columns 2 and 3 of *Table 9-1* indicates that traffic associated with the proposed Project ***will not*** significantly impact any of the six (6) state-controlled study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The six (6) state-controlled study intersections are forecast to operate at acceptable service levels during the AM and/or PM peak hours with the addition of project traffic to existing traffic.

9.2 Year 2030 Buildout Plus Project Traffic Conditions

Table 9-2 summarizes the peak hour HCM level of service results at the six (6) state-controlled study intersections within the study area for Year 2030 Buildout plus Project traffic conditions. The first column (1) of HCM/LOS values in *Table 9-2* presents Year 2030 Buildout traffic conditions based on existing intersection geometry, but without any Project generated traffic. The second column (2) presents future Year 2030 Buildout traffic conditions with the addition of project traffic. The third column (3) indicates whether added peak hour Project trips will have a significant impact based on the significant impact criteria defined in this report. The fourth column (4) indicates the anticipated level of service with planned and/or recommended improvements.

9.2.1 *Year 2030 Buildout Traffic Conditions*

An analysis of future (Year 2030) buildout traffic conditions indicates that the addition of ambient traffic growth and cumulative projects traffic will adversely impact one (1) of the six (6) state controlled study intersections. The state-controlled study intersection of the SR-57 NB Ramps/Chapman Avenue is forecast to operate at unacceptable LOS F during the AM and PM peak hours. The remaining five state-controlled study intersections are forecast to operate at acceptable LOS D or better during the AM and PM peak hours with the addition of ambient traffic growth and cumulative projects traffic in the Year 2030.

9.2.2 *Year 2030 Buildout Plus Project Traffic Conditions*

Review of Columns 2 and 3 of *Table 9-2* indicates that traffic associated with the proposed Project will cumulatively impact one of the six (6) state-controlled study intersections, when compared to the LOS standards specified in this report. The remaining five state-controlled study intersections are forecast to continue to operate at acceptable LOS D or better with the addition of project generated traffic in the Year 2030.

As shown in Column 4 of *Table 9-2*, the implementation of improvements at the impacted state-controlled intersection of the SR-57 NB Ramps/Chapman Avenue completely offsets the impact of the proposed project. The impacted state-controlled key study intersection of the SR-57 NB Ramps/Chapman Avenue is forecast to operate at an acceptable LOS during the AM and PM peak hours with implementation of improvements.

Appendix E presents the existing plus project and Year 2030 plus project HCM/LOS calculations for the six (6) state-controlled study intersections.

TABLE 9-1

EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS – CALTRANS

Key Intersections		Min. Acc. LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing Plus Project Traffic Conditions		(3) Impact	(4) Existing Plus Project With Improvements	
				HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
12.	SR-57 SB Ramps at Chapman Avenue	D	AM	17.4 s/v	B	18.1 s/v	B	No	--	--
			PM	18.1 s/v	B	18.3 s/v	B	No	--	--
13.	SR-57 NB Ramps at Chapman Avenue	D	AM	31.0 s/v	C	31.9 s/v	C	No	--	--
			PM	26.4 s/v	C	26.9 s/v	C	No	--	--
21.	Harbor Boulevard at SR-91 WB Ramps	D	AM	14.4 s/v	B	14.4 s/v	B	No	--	--
			PM	17.2 s/v	B	17.2 s/v	B	No	--	--
22.	Lemon Street at SR-91 WB Ramps	D	AM	24.0 s/v	C	24.4 s/v	C	No	--	--
			PM	24.4 s/v	C	24.8 s/v	C	No	--	--
23.	Harbor Boulevard at SR-91 EB Ramps	D	AM	19.1 s/v	B	19.3 s/v	B	No	--	--
			PM	19.6 s/v	B	19.8 s/v	B	No	--	--
24.	Lemon Street at SR-91 EB Ramps	D	AM	26.0 s/v	C	26.2 s/v	C	No	--	--
			PM	23.0 s/v	C	23.2 s/v	C	No	--	--

Notes:
- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle

TABLE 9-2

YEAR 2030 PEAK HOUR INTERSECTION CAPACITY ANALYSIS – CALTRANS

Key Intersections		Min. Acc. LOS	Time Period	(1) Year 2030 Buildout Traffic Conditions		(2) Year 2030 Buildout Plus Project Traffic Conditions		(3) Impact	(4) Year 2030 Buildout Plus Project With Improvements	
				HCM	LOS	HCM	LOS	Yes/No	HCM	LOS
12.	SR-57 SB Ramps at Chapman Avenue	D	AM	40.4 s/v	D	42.7 s/v	D	No	--	--
			PM	29.0 s/v	C	30.0 s/v	C	No	--	--
13.	SR-57 NB Ramps at Chapman Avenue	D	AM	**102.9 s/v**	**F**	**108.8 s/v**	**F**	**Yes**	53.1 s/v	D
			PM	**81.8 s/v**	**F**	**86.6 s/v**	**F**	**Yes**	37.0 s/v	D
21.	Harbor Boulevard at SR-91 WB Ramps	D	AM	23.3 s/v	C	23.3 s/v	C	No	--	--
			PM	29.8 s/v	C	30.1 s/v	C	No	--	--
22.	Lemon Street at SR-91 WB Ramps	D	AM	34.3 s/v	C	35.5 s/v	D	No	--	--
			PM	38.9 s/v	D	40.3 s/v	D	No	--	--
23.	Harbor Boulevard at SR-91 EB Ramps	D	AM	25.0 s/v	C	25.1 s/v	C	No	--	--
			PM	25.3 s/v	C	25.5 s/v	C	No	--	--
24.	Lemon Street at SR-91 EB Ramps	D	AM	32.7 s/v	C	33.4 s/v	C	No	--	--
			PM	28.6 s/v	C	29.0 s/v	C	No	--	--

Notes:

- **Bold HCM/LOS** values indicate adverse service levels
- s/v = seconds per vehicle

10.0 AREA-WIDE TRAFFIC IMPROVEMENTS

For those intersections where, based on City criteria, projected traffic volumes are expected to result in significant impacts, this report identifies roadway improvements that change the intersection geometry to increase capacity. These capacity improvements involve roadway widening and/or restriping to reconfigure (add lanes) to specific approaches of an intersection. The identified improvements are expected to:

- mitigate the impact of existing traffic, Project traffic and future non-project (ambient traffic growth and cumulative project) traffic and
- improve Levels of Service to an acceptable range and/or to pre-project conditions.

10.1 Existing Plus Project Recommended Improvements

The results of the intersection capacity analysis presented previously in *Table 8-1* show that the proposed Project will not significantly impact any of the thirty-two (32) key study intersections under the "Existing Plus Project" traffic scenario. Given that there are no significant project impacts, no improvements are required to address this traffic scenario.

10.2 Year 2030 Buildout Plus Project Recommended Improvements

The results of the intersection capacity analysis presented previously in *Table 8-2* show that the proposed Project will not significantly impact any of the thirty-two (32) key study intersections under the "Year 2030 Buildout Plus Project" traffic scenario. Given that there are no significant project impacts, no improvements are required to address this traffic scenario.

10.3 Recommended Improvements – Caltrans Methodology

10.3.1 *Existing Plus Project Recommended Improvements*

The results of the intersection capacity analysis presented previously in *Table 9-1* show that the proposed Project will not significantly impact any of the six (6) state-controlled study intersections under the "Existing Plus Project" traffic scenario (Caltrans Methodology). Given that there are no significant project impacts, no improvements are required to address this traffic scenario.

10.3.2 *Year 2030 Buildout Plus Project Recommended Improvements*

The following improvements listed below have been identified to mitigate the Year 2030 Buildout plus Project traffic impacts (Caltrans methodology) at the following intersection:

- **No. 13 – SR-57 NB Ramps at Chapman Avenue:** Widen and/or restripe the westbound approach of Chapman Avenue to provide a 3rd westbound through lane. Modify the existing traffic signal as necessary. Right-of-way acquisition will be required. The installation of these improvements is subject to the approval of Caltrans and the City of Fullerton. Since the proposed Project cannot guarantee that these improvements that are located in the City of Fullerton and/or also under the jurisdiction of Caltrans will be implemented, a statement of overriding considerations will be required for this location. Source: *CollegeTown Draft Environmental Impact Report (DEIR).*

Figure 10-1 graphically illustrates the Year 2030 recommended improvements at the key study intersection of the SR-57 NB Ramps/Chapman Avenue.

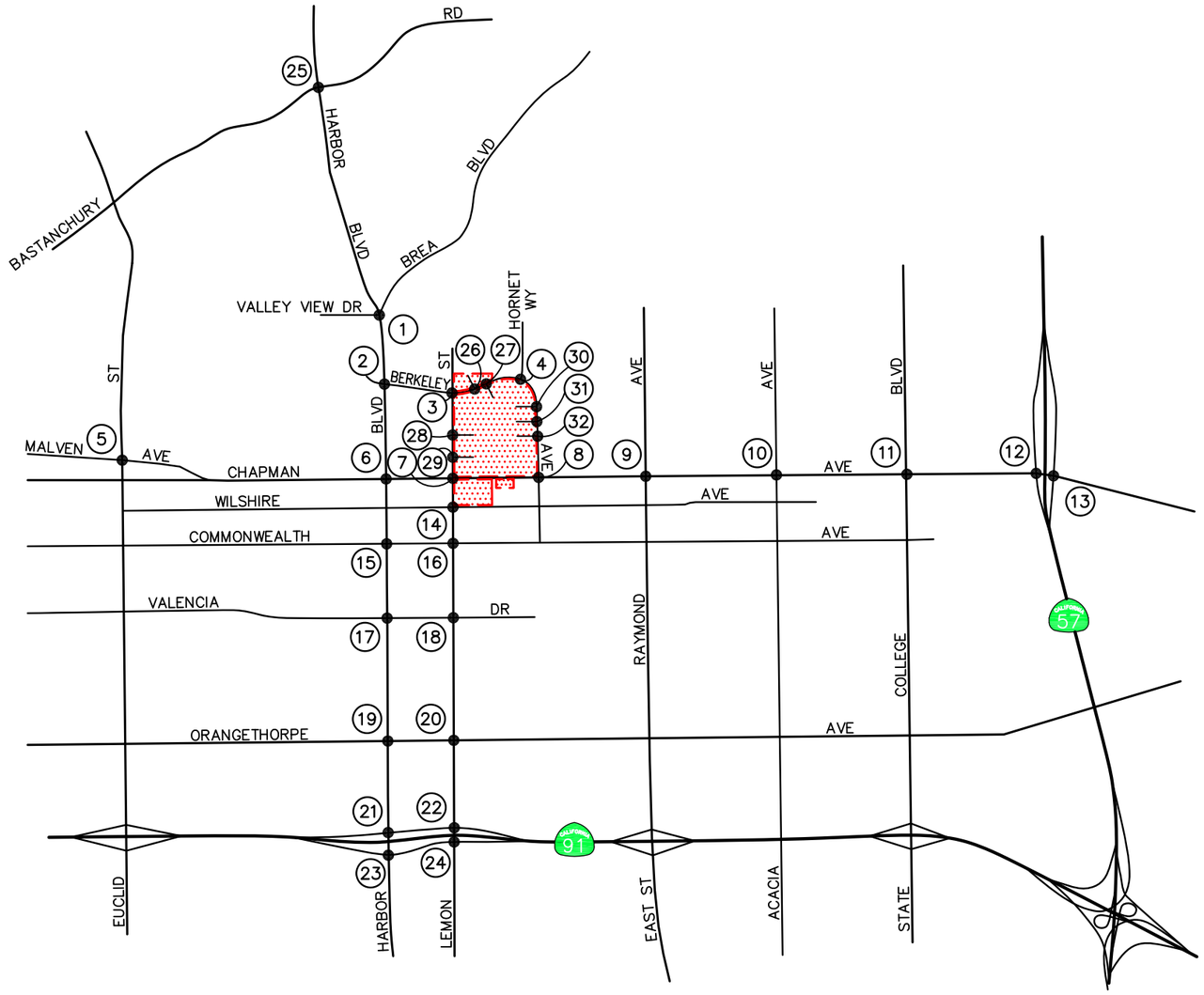
10.4 Project-Related Fair Share Percentage Contribution

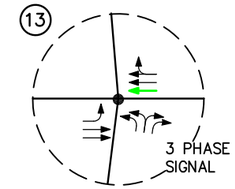
The transportation impacts associated with the development of the proposed Project were determined based on the buildout (Year 2030) analysis. As summarized in *Table 9-2*, the development of the proposed Project is anticipated to create a significant cumulative impact at one (1) key study intersection. It should be noted that the intersection of SR-57 NB Ramps/Chapman Avenue is only impacted under the Caltrans methodology. As such, the proposed Project can be expected to pay a proportional "fair-share" of the improvement costs of the impacted intersection to mitigate the project's traffic impacts.

10.4.1 *Year 2030 Buildout Project-Related Fair Share Contribution*

Table 10-1 presents the percentage of net traffic impact at the study intersection impacted by the proposed Project for Year 2030 buildout traffic conditions. As presented in this table, the first column (1) presents a total of all movements for existing conditions. The second column (2) presents future Year 2030 buildout traffic conditions. The third column (3) presents future Year 2030 buildout traffic conditions with project traffic. The fourth column (4) represents what percentage of total intersection traffic is project-related traffic.

Review of *Table 10-1* shows that the Project's fair share contribution to offset the Year 2030 project impact is 4.5%.





SR-57 NB RAMPS @
CHAPMAN AVE

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= APPROACH LANE ASSIGNMENT
= YEAR 2030 RECOMMENDED IMPROVEMENTS – CALTRANS IMPACT ONLY
= TRAFFIC SIGNAL, = STOP SIGN
= PROJECT SITE

FIGURE 10-1

RECOMMENDED IMPROVEMENTS

FULLERTON COLLEGE MASTER PLAN, FULLERTON

TABLE 10-1

YEAR 2030 BUILDOUT PROJECT FAIR SHARE PERCENTAGE CONTRIBUTION

Key Intersection	Impacted Time Period	(1) Existing Traffic	(2) Year 2030 Buildout Traffic	(3) Year 2030 Buildout Plus Project Traffic	(4) Project Percentage Share
13. SR-57 NB Ramps at Chapman Avenue	AM	3,344	4,418	4,469	**4.5%**
	PM	3,459	4,635	4,687	4.2%

Notes:
Project Percentage Share (4) = [Column (3) – Column (2)] / [Column (3) – Column (1)]

11.0 SPECIAL ISSUES

Although not typically addressed at the Master Plan level, this section of the report discusses various special issues identified by the City of Fullerton during the proposed Project's Notice of Preparation (NOP). A follow-up meeting to further discuss/define the potential issue areas was held with the project team and City of Fullerton staff in February 2017. Based on the February 2017 follow-up meeting, the City of Fullerton concerns have been distilled to the following seven (7) issue areas for discussion/qualitative analysis:

1) Potential rework of the pedestrian crossing at the signalized intersection of Lawrence Avenue/Chapman Avenue.
2) The potential consolidation of Lot E / Lot W / Lot 10 project access points along Wilshire Avenue.
3) Participation in improvements to the Lemon Street/Wilshire Avenue intersection (#14) and to the Lemon Street/Chapman Avenue intersection (#7).
4) The potential consolidation of project access points along Chapman Avenue serving Parking Lots A and 8.
5) The possibility of eliminating the project access point along Chapman Avenue serving Parking Lot 7 to reduce traffic conflicts at the intersection of Berkeley Avenue/Chapman Avenue (#8).
6) The evaluation of the potential relocation of the 3100 Building driveway on Berkeley Avenue (i.e. key study intersection #26) to become a fourth leg of the intersection of Centennial Way/Berkeley Avenue (i.e. key study intersection #27). The City suggested that such a realignment might improve vehicular and pedestrian safety.
7) Because the proposed Project is proposing that the intersection of Berkeley Avenue/College Driveway No. 3 (i.e. key study intersection #31) provides egress-only movements from the proposed Centennial Structure, a thorough analysis of the intersection of Berkeley Avenue/Brookdale Place (#32) should be conducted.

11.1 Special Issues Discussion and Analysis

The following summarizes the results/findings of the special issues analysis for the aforementioned seven (7) issue areas. *Figure 2-2*, presented previously, provides context for each of these issue areas.

11.1.1 *Special Issue #1: Lawrence Avenue/Chapman Avenue*

AM and PM peak hour pedestrian traffic counts were conducted at the intersection of Lawrence Avenue/Chapman Avenue to determine the existing level of pedestrian activity across Chapman Avenue. The pedestrian traffic counts revealed the following existing AM and PM peak hour information.

- Crosswalk on the west leg of the intersection = 261 AM peak hour pedestrians and 211 PM peak hour pedestrians

- Crosswalk on the east leg of the intersection = 56 AM peak hour pedestrians and 86 PM peak hour pedestrians

The crossings of the west leg are clearly more dominant, noting further that the college's pedestrian overcrossing of Chapman Avenue lies approximately 150 feet west of the west crosswalk.

Based on review of the above pedestrian data, the Lawrence Avenue/Chapman Avenue pedestrian crossing is significantly utilized. Since this location is signalized with pedestrian indications, and vehicle turning traffic to/from Lawrence Avenue is restricted to only northbound right-turns and eastbound right-turns, vehicular-pedestrian conflicts are considered minimal. It should be noted that the proposed Master Plan project currently has no plans to change the design or operation of this location.

11.1.2 *Special Issue #2: Wilshire Avenue Driveways*

Based on a review of existing conditions, there are currently three (3) driveways along Wilshire Avenue that provide access to Parking Lots E, W and 10 (see *Figure 2-2*). As part of the proposed Master Plan Project, the middle existing driveway will be eliminated and access to Parking Lots E, W and 10 from Wilshire Avenue will be provided via two driveways. It should be noted that any work completed on Wilshire Avenue along project frontage is expected to be coordinated with the City improvements identified as part of the Wilshire Avenue Bike Boulevard Project.

11.1.3 *Special Issue #3: Lemon Avenue Intersection with Wilshire Avenue and Chapman Avenue*

<u>Lemon Street at Wilshire Avenue</u>

As presented previously in *Tables 8-1* and *8-2*, the proposed Project will not have a significant impact at the key study intersection of Lemon Street/Wilshire Avenue (i.e. key study intersection #14). The intersection of Lemon Street/Wilshire Avenue is forecast to operate at acceptable LOS B during the AM and PM peak hours under existing plus project traffic conditions as well as under Year 2030 buildout plus project traffic conditions. Therefore, improvements at this location are not required as part of the Fullerton College Master Plan Project. However, it is expected that any master plan implementation activity along the Wilshire Avenue or Lemon Street project frontages will consider the City improvements identified as part of the Wilshire Avenue Bike Boulevard Project or will be coordinated with any other future City identified improvement.

<u>Lemon Street at Chapman Avenue</u>

As presented previously in *Tables 8-1* and *8-2*, the proposed Project will not have a significant impact at the key study intersection of Lemon Street/Chapman Avenue (i.e. key study intersection #7). The intersection of Lemon Street/Chapman Avenue is forecast to operate at acceptable LOS D during the AM and PM peak hours under existing plus project traffic conditions as well as under Year 2030 buildout plus project traffic conditions. Therefore, improvements at this location are not required as part of the Fullerton College Master Plan Project.

Although project mitigation improvements are not required at the intersection of Lemon Street/Chapman Avenue, the City of Fullerton suggested consideration of two potential future improvements at the project's February 2017 follow-up meeting. These conceptual future improvements are expected to require the acquisition of additional right-of-way, but would allow for the provision of an exclusive southbound right-turn lane and an exclusive eastbound right-turn lane at the intersection. Due to existing heavy pedestrian crossing activity at the intersection, these improvements were theorized to help traffic flow through the intersection by removing from through lanes the southbound and eastbound right-turning traffic. The southbound and eastbound right turning vehicles must yield to pedestrian crossings at the intersection as they complete their turn, and therefore have the potential to intermittently block through traffic in the curb lane.

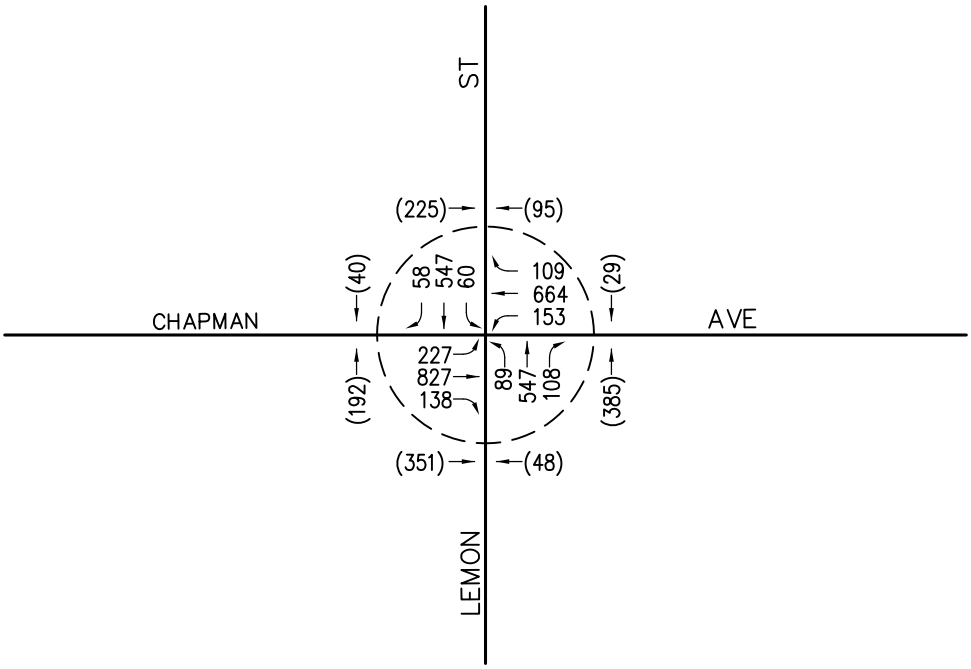
Figure 11-1 illustrates existing AM and PM peak hour vehicular and pedestrian traffic volumes at the intersection of Lemon Street and Chapman Avenue. These volumes were used to test for any potential improvement in delay or level of service due to these conceptual right-turn lane additions.

Starting from *Figure 11-1* data, the potential implications/benefit of adding the two right-turn lanes were tested with supplemental existing plus project level of service calculations prepared for the following scenarios: 1) with only the addition of the southbound right-turn lane, 2) with only the addition of the eastbound right-turn lane and 3) with the addition of both right-turn lanes. It should be noted that the location of each conceptual improvement does not adjoin Fullerton College property. It should be further noted that the HCM level of service calculations account for pedestrian crossing times and the reported intersection delay accounts for a pedestrian activation during every cycle.

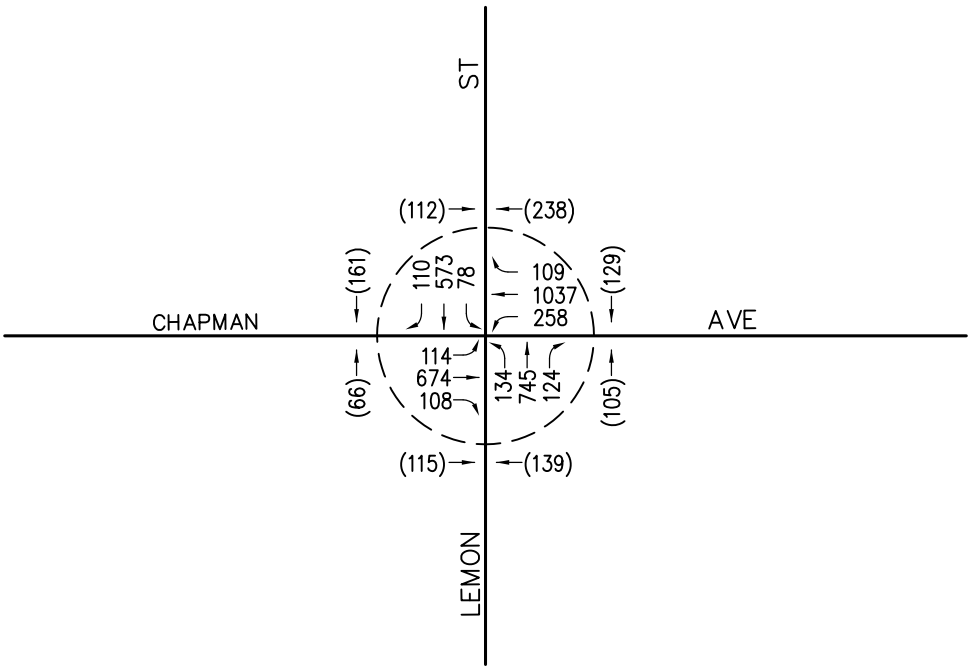
Table 11-1 summarizes the peak hour Level of Service results at the intersection of Lemon Street/Chapman Avenue for Existing plus Project traffic conditions with these conceptual future improvements. The first column (1) of HCM/LOS values in *Table 11-1* presents Existing plus Project traffic conditions (which were presented previously in *Table 8-1*). The second column (2) presents Existing plus Project traffic conditions with the addition of the southbound right-turn lane. The third column (3) presents Existing plus Project traffic conditions with the addition of the eastbound right-turn lane. The fourth column (4) presents Existing plus Project traffic conditions with the addition of both right-turn lanes.

Review of *Table 11-1* indicates that the delay at the intersection of Lemon Street/Chapman Avenue improves incrementally under each improvement scenario. It is also noted that delay values for only the southbound right-turn lane alone or the eastbound right-turn lane alone achieve a very similar delay reduction to that calculated based on the addition of both turning lanes.

Although the intersection delay only slightly improves, the theorized improvements would shift vehicular turning traffic out of the through travel lanes, thus potentially improving the motorists experience at the intersection. In conclusion, although the proposed Project does not have a significant impact at the intersection necessitating the improvements, it is recommended that Fullerton College staff coordinate with the City of Fullerton should the City choose to pursue these or similar improvements.



AM PEAK HOUR



PM PEAK HOUR

n:\3600\2163654 - fullerton college master plan, fullerton\dwg\3654 f11-1.dwg LDP 15:17:35 05-24-2017 tucker

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

XX → = VEHICULAR VOLUMES
(XX) → = PEDESTRIAN CROSSING VOLUMES

FIGURE 11-1

EXISTING AM AND PM PEAK HOUR VEHICULAR AND PEDESTRIAN TRAFFIC VOLUMES

FULLERTON COLLEGE MASTER PLAN, FULLERTON

TABLE 11-1

EXISTING PLUS PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS

WITH POTENTIAL FUTURE IMPROVEMENTS

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Plus Project Traffic Conditions		(2) Existing Plus Project Traffic Conditions With SBR		(3) Existing Plus Project Traffic Conditions With EBR		(4) Existing Plus Project Traffic Conditions With SBR/EBR	
			HCM	LOS	HCM	LOS	HCM	LOS	HCM	LOS
7. Lemon Street at Chapman Avenue	D	AM	35.9 s/v	D	35.5 s/v	D	33.6 s/v	C	34.4 s/v	C
		PM	43.1 s/v	D	36.9 s/v	D	36.4 s/v	D	35.4 s/v	D

Notes:

- **Bold HCM/LOS** values indicate adverse service levels
- sec/veh = seconds per vehicle

11.1.4 *Special Issue #4: Chapman Avenue Driveways (Lots A and 8)*

Based on a review of existing conditions, there are currently two (2) driveways along the north side of Chapman Avenue, west of Berkeley Avenue, that provide direct access for staff parking only to Parking Lots A and 8. An existing visitor lot is cordoned off in the extreme western portion of Lot A, adjoining the College Center building, and is served by its own driveway pair on the north side of Chapman Avenue. The *Figure 2-2* detailing suggests this driveway pair will be consolidated to a single driveway as part of master plan implementation.

As shown previously in *Figure 2-2*, these two Lot A / Lot 8 driveways remain unchanged as part of the proposed Master Plan Project. Based on our evaluation, two access driveways along Chapman Avenue are required to provide adequate access to staff parking in Parking Lots A and 8, and efficient circulation within these two parking lots.

11.1.5 *Special Issue #5: Lot 7 Access*

AM and PM peak hour traffic counts were conducted at the existing driveway along Chapman Avenue serving Parking Lot 7 to determine the amount of vehicular traffic currently utilizing the existing driveway. The traffic counts revealed the following existing AM and PM peak hour turning movements at the driveway.

- Exiting southbound left-turn = 0 AM peak hour vehicles and 4 PM peak hour vehicles
- Exiting southbound right-turn = 7 AM peak hour vehicles and 9 PM peak hour vehicles
- Entering eastbound left-turn = 6 AM peak hour vehicles and 7 PM peak hour vehicles
- Entering westbound right-turn = 9 AM peak hour vehicles and 10 PM peak hour vehicles

Based on a review of this existing peak hour traffic data, turning volumes at the existing driveway on Chapman Avenue serving Parking Lot 7 are extremely small. However, due to the close proximity of this driveway to the intersection of Berkeley Avenue/Chapman Avenue, it is recommended that outbound movements at this driveway be restricted to right-turn-only movements as part of the Master Plan Project. With this restriction, vehicles desiring to travel eastbound on Chapman Avenue will be required to exit Parking Lot 7 from the existing driveway on Berkeley Avenue, travel south on Berkeley Avenue and make a southbound left-turn at the intersection of Berkeley Avenue/Chapman Avenue.

In the abstract, entering eastbound left-turns at Lot 7's Chapman Avenue driveway might be problematic due to the driveway's close proximity to the Berkeley Avenue/Chapman Avenue intersection. Given the very low volume now making this movement, it is concluded that this entering left-turn could remain a permitted movement, but that it be monitored for possible future prohibition. Such a prohibition would result in only right-turn-in/right-turn-out movements at this Lot 7 Chapman Avenue driveway.

11.1.6 *Special Issue #6: 3100 Building Access on Berkeley*

Based on existing constraints located on the north side of Berkeley Avenue (i.e. existing slopes, grades, utilities), it is not feasible to realign the driveway on Berkeley Avenue (i.e. key study intersection #26) serving the 3100 Building with the intersection of Centennial Way/Berkeley Avenue (i.e. key study intersection #27). However, based on a review of the existing traffic data collected for the intersection of Centennial Way/Berkeley Avenue, there are 16 AM peak hour vehicles and 40 PM peak hour vehicles that currently make a northbound left-turn from the campus onto Berkeley Avenue, even though that movement has serious sight distance limitations and is prohibited by signage on the northbound approach.

In order to restrict these northbound left-turn movements, it is recommended that the northbound approach of Centennial Way be retrofitted with a "pork chop" island to force northbound exiting vehicles to turn right onto Berkeley Avenue. It should be noted that the traffic analysis re-routed all existing illegal northbound left turns to a substitute movement, which is at the intersection of Berkeley Avenue/College Driveway No. 2 (i.e. key study intersection #30).

11.1.7 *Special Issue #7: Berkeley Avenue at College Driveway #3*

As presented previously in *Tables 8-1* and *8-2*, the proposed Project will not have an impact at the key study intersection of Berkeley Avenue/Brookdale Place (i.e. key study intersection #32). The intersection of Berkeley Avenue/Brookdale Place is forecast to operate at acceptable LOS C during the AM and PM peak hours under existing plus project traffic conditions as well as Year 2030 buildout plus project traffic conditions. Further, the elimination of inbound turning movements at the intersection of Berkeley Avenue/College Driveway No. 3 (i.e. key study intersection #31) will eliminate the existing left-turn conflicts between the two intersections (i.e. northbound left-turn at key study intersection #31 and southbound left-turn at key study intersection #32).

Appendix F presents the AM peak hour/PM peak hour traffic and pedestrian counts collected for the special issues.

12.0 SUMMARY OF FINDINGS AND CONCLUSIONS

- ***Project Description*** – The approximately 70-acre project site is generally bounded by residential uses located along Berkeley Avenue to the north and east, Chapman Avenue to the south, and Lemon Street to the west. The college address is 321 E. Chapman Avenue, in the City of Fullerton, California. Fullerton Union High School also borders Fullerton College to the west along Lemon Street. Fullerton College recently purchased two additional properties, located at 416 and 429 E. Chapman Avenue, which are also considered part of the Project site. The proposed Project will generally consist of the construction of new campus facilities and the renovation of existing campus facilities to meet the District's instructional needs as set forth by the 10-year planning period. The Project will accommodate growth in the student body over the planning horizon and beyond. In addition to the new and/or renovated instructional space, the proposed Project will also consist of the construction of new parking areas to augment the existing parking supply.

  Fullerton College has a current baseline student enrollment of 24,512 students. As stated above, the demolition of old campus facilities, renovation of existing campus facilities, and the construction of new campus facilities, including the construction of new parking areas are required to meet the District's instructional needs and to accommodate growth in the student body. At completion of the Master Plan in the Year 2026, Fullerton College is projected to accommodate a future student enrollment of 27,701 students, resulting in a net increase of 3,189 students over the existing student enrollment. The Fullerton College Master Plan Project has a 10-year planning period, resulting in a project completion year of Year 2026. Given that the expected project completion year is within a few years of the City's Year 2030 Buildout traffic projections, it was recommended by City of Fullerton staff to utilize the Year 2030 Buildout traffic projections to provide a conservative analysis.

  Vehicular access to the campus would continue to be provided from Lemon Street, Berkeley Avenue, Chapman Avenue and Wilshire Avenue. Lemon Street currently provides and will continue to provide primary access to the site via one right-turn in/right-turn out only unsignalized driveway (i.e. key study intersection #28) and via one full access signalized driveway (i.e. key study intersection #29). Berkeley Avenue currently provides and will continue to provide primary access to the site via three (3) full access unsignalized driveways (i.e. key study intersections #26, #30, and #31) and one left-turn in/right-turn in/right-turn out only unsignalized driveway (i.e. key study intersection #27). It should be noted that as part of the proposed master plan project, key study intersection #31 (i.e. Berkeley Avenue/College Driveway No. 3) will only provide egress movements from the project site. Please note that there are several additional driveways that provide access to Fullerton College along Lemon Street, Berkeley Avenue, Chapman Avenue and Wilshire Avenue, but they have not been selected for evaluation because these driveways are minor and will not serve as the main access points for the increased student enrollment.

- ***Study Scope*** – The following thirty-two (32) key study locations were selected for detailed peak hour level of service analyses under Existing Traffic Conditions, Existing Plus Project Traffic Conditions, Year 2030 Buildout Traffic Conditions and Year 2030 Buildout plus Project Traffic Conditions.

Key Study Intersections

1. Harbor Boulevard at Valley View Dr/Brea Blvd
2. Harbor Boulevard at Berkeley Avenue
3. Lemon Street at Berkeley Avenue
4. Hornet Way at Berkeley Avenue
5. Euclid Street at Malvern Avenue
6. Harbor Boulevard at Chapman Avenue
7. Lemon Street at Chapman Avenue
8. Berkeley Avenue at Chapman Avenue
9. Raymond Avenue at Chapman Avenue
10. Acacia Avenue at Chapman Avenue
11. State College Boulevard at Chapman Avenue
12. SR-57 SB Ramps at Chapman Avenue
13. SR-57 NB Ramps at Chapman Avenue
14. Lemon Street at Wilshire Avenue
15. Harbor Boulevard at Commonwealth Avenue
16. Lemon Street at Commonwealth Avenue
17. Harbor Boulevard at Valencia Drive
18. Lemon Street at Valencia Drive
19. Harbor Boulevard at Orangethorpe Avenue[6]
20. Lemon Street at Orangethorpe Avenue
21. Harbor Boulevard at SR-91 WB Ramps[6]
22. Lemon Street at SR-91 WB Ramps
23. Harbor Boulevard at SR-91 EB Ramps[6]
24. Lemon Street at SR-91 EB Ramps
25. Harbor Boulevard at Bastanchury Road
26. College Driveway No. 1 at Berkeley Avenue
27. Centennial Way at Berkeley Avenue
28. Lemon Street at Parking Structure
29. Lemon Street at Fullerton College Drive
30. Berkeley Avenue at College Driveway No. 2
31. Berkeley Avenue at College Driveway No. 3
32. Berkeley Avenue at Brookdale Place

- ***Existing Traffic Conditions*** – Thirty-one (31) of the thirty-two (32) key study intersections currently operate at an acceptable service level during the AM and PM peak hours. The intersection of Harbor Boulevard at Bastanchury Road (i.e. key study intersection #25) currently operates at LOS F during the AM peak hour and LOS E during the PM peak hour.

- ***Project Trip Generation*** – The proposed Project (i.e. net increase of 3,189 students) is forecast to generate 3,922 daily trips, with 383 trips (322 inbound, 61 outbound) forecast during the AM peak hour and 383 trips (241 inbound and 142 outbound) forecast during the PM peak hour on a typical weekday.

- ***Year 2030 Buildout Traffic Characteristics –*** Year 2030 AM peak hour and PM peak hour background traffic volumes were forecast based on application of growth rates provided by the City of Fullerton to existing traffic volumes, and by further adding traffic volumes from all future cumulative projects (i.e. buildout of the City). A 10% total growth was applied to existing traffic volumes at key study intersections for all major through movements, and for any major turn movements, as identified by City of Fullerton staff. A 5% total growth was applied to existing traffic volumes for all of the remaining key intersection movements, which are considered to be minor movements. The City of Fullerton provided volumes for all cumulative projects related to Year 2030 traffic conditions.

[6] Orange County Congestion Management Program (CMP) intersection.

- ***Existing Plus Project Traffic Conditions*** – The proposed Project ***will not*** significantly impact any of the thirty-two (32) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. Although the intersection of Harbor Boulevard/Bastanchury Road is forecast to operate at unacceptable LOS F during the AM peak hour and unacceptable LOS E during the PM peak hour with the addition of project traffic, the addition of Project trips is not anticipated to worsen or further degrade the service level and therefore is considered less than significant based on the LOS standards and impact criteria detailed in **Section 7.1**. The remaining thirty-one (31) key study intersections currently operate and are forecast to continue to operate at an acceptable service level during the AM and PM peak hours with the addition of Project generated traffic to existing traffic.

- ***Year 2030 Buildout Plus Project Traffic Conditions*** – The proposed Project ***will not*** significantly impact any of the thirty-two (32) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The same twelve (12) intersections named above (i.e. Harbor Boulevard/Berkeley Avenue, Lemon Street/Berkeley Avenue, Euclid Street/Malvern Avenue, Harbor Boulevard/Chapman Avenue, Raymond Avenue/Chapman Avenue, Acacia Avenue/Chapman Avenue, State College Boulevard/Chapman Avenue, SR-57 NB Ramps/Chapman Avenue, Harbor Boulevard/Valencia Drive, Harbor Boulevard/Orangethorpe Avenue, Lemon Street/Orangethorpe Avenue and Harbor Boulevard/Bastanchury Road) are forecast to operate at unacceptable LOS E or LOS F during the AM and/or PM peak hours with the addition of project traffic. However, the addition of Project trips is not anticipated to worsen or further degrade the service level at any of these twelve (12) intersections. The information in Column 4 of *Table 8-2* indicates that the project traffic increments at these 12 intersections are concluded to be less than significant based on the LOS standards and impact criteria detailed in **Section 7.1**. The remaining twenty (20) key study intersections are forecast to continue to operate at an acceptable LOS with the addition of Project generated traffic under Year 2030 Buildout traffic conditions.

- ***State of California (Caltrans) Methodology*** – The results of the "Existing Plus Project" traffic analysis using the State of California (Caltrans) Methodology indicates that the proposed Project ***will not*** significantly impact the six (6) state-controlled study intersections. As there are no significant impacts, no traffic mitigation measures are required or recommended for the six (6) state-controlled study intersections. The six (6) state-controlled study intersections are forecast to operate at acceptable service levels during the AM and/or PM peak hours with the addition of project traffic to existing traffic.

  The results of the "Year 2030 Plus Project" traffic analysis using the State of California (Caltrans) Methodology indicates that the proposed Project will cumulatively impact one of the six (6) state-controlled study intersections, when compared to the LOS standards specified in this report. The remaining five state-controlled study intersections are forecast to continue to operate at acceptable LOS D or better with the addition of project generated traffic in the Year 2030. The implementation of improvements at the impacted state-controlled intersection of the SR-57 NB Ramps/Chapman Avenue completely offsets the impact of the proposed project. The impacted state-controlled key study intersection of the SR-57 NB Ramps/Chapman Avenue is

forecast to operate at an acceptable LOS during the AM and PM peak hours with implementation of improvements.

- ***Recommended Existing Plus Project Improvements –*** The results of the intersection capacity analysis presented previously in *Table 8-1* show that the proposed Project will not significantly impact any of the thirty-two (32) key study intersections under the "Existing Plus Project" traffic scenario. Given that there are no significant project impacts, no improvements are required to address this traffic scenario.

- ***Recommended Year 2030 Plus Project Improvements –*** The results of the intersection capacity analysis presented previously in *Table 8-2* show that the proposed Project will not significantly impact any of the thirty-two (32) key study intersections under the "Year 2030 Buildout Plus Project" traffic scenario. Given that there are no significant project impacts, no improvements are required to address this traffic scenario.

- ***Recommended Existing Plus Project Improvements (Caltrans) –*** The results of the Caltrans intersection capacity analysis presented previously in *Table 9-1* show that the proposed Project will not significantly impact any of the six (6) state-controlled study intersections under the "Existing Plus Project" traffic scenario. Given that there are no significant project impacts, no improvements are required under this traffic scenario.

- ***Recommended Year 2030 Plus Project Improvements (Caltrans) –*** The results of the Caltrans intersection capacity analysis presented previously in *Table 9-2* show that the proposed Project will cumulatively impact one of the six (6) state-controlled study intersections under the "Year 2030 Plus Project" traffic scenario. The following improvements listed below have been identified to mitigate the Year 2030 plus project Caltrans impact at the state-controlled study intersection of the SR-57 NB Ramps at Chapman Avenue. Per Caltrans requirements, the proposed Project can be expected to pay a proportional "fair-share" of the improvement costs of the impacted intersection to mitigate the project's traffic impacts.

  - **No. 13 – SR-57 NB Ramps at Chapman Avenue:** Widen and/or restripe the westbound approach of Chapman Avenue to provide a 3rd westbound through lane. Modify the existing traffic signal as necessary. Right-of-way acquisition will be required. The installation of these improvements is subject to the approval of Caltrans and the City of Fullerton. Since the proposed Project cannot guarantee that these improvements that are located in the City of Fullerton and/or also under the jurisdiction of Caltrans will be implemented, a statement of overriding considerations will be required for this location. Source: *CollegeTown Draft Environmental Impact Report (DEIR).*

    The Project's fair share contribution to offset the Year 2030 project impact is 4.5%.

- ***Special Issues –*** Refer to Section 11.0 for discussion and analysis of the identified special issues.

APPENDIX A

EXISTING TRAFFIC COUNT DATA

APPENDIX A-I

INTERSECTION COUNTS

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: VALLEY VIEW/BREA BLVD

File Name : H1611002
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

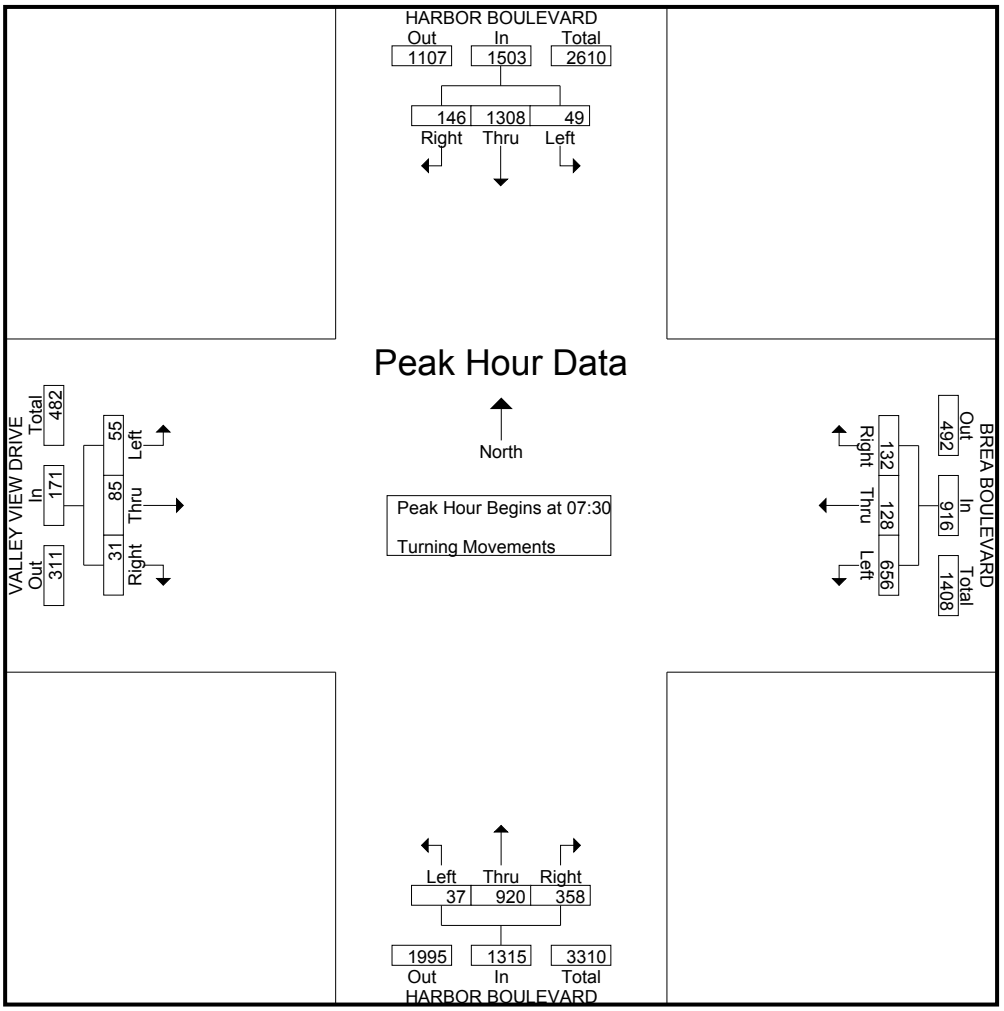
	HARBOR BOULEVARD Southbound			BREA BOULEVARD Westbound			HARBOR BOULEVARD Northbound			VALLEY VIEW DRIVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	17	343	0	21	19	163	58	165	4	0	18	7	815
07:15	24	318	5	29	26	189	88	159	5	2	28	6	879
07:30	32	346	11	36	23	181	93	220	5	8	23	11	989
07:45	39	319	10	35	33	159	87	255	12	4	20	16	989
Total	112	1326	26	121	101	692	326	799	26	14	89	40	3672
08:00	39	320	11	31	43	162	92	224	9	9	19	11	970
08:15	36	323	17	30	29	154	86	221	11	10	23	17	957
08:30	32	298	8	24	30	153	95	199	15	2	28	12	896
08:45	19	278	16	23	35	138	98	190	14	10	36	16	873
Total	126	1219	52	108	137	607	371	834	49	31	106	56	3696
*** BREAK ***													
16:00	15	268	24	12	33	105	126	308	7	8	29	34	969
16:15	20	257	24	29	32	122	127	331	7	15	35	16	1015
16:30	14	241	22	31	29	117	119	329	10	12	40	29	993
16:45	20	291	20	26	28	122	144	324	6	8	38	27	1054
Total	69	1057	90	98	122	466	516	1292	30	43	142	106	4031
17:00	19	294	22	26	27	112	155	332	4	13	48	21	1073
17:15	15	308	26	25	26	141	132	352	5	4	35	16	1085
17:30	10	262	23	23	24	131	152	347	11	6	44	25	1058
17:45	8	239	13	17	25	117	169	295	5	4	32	14	938
Total	52	1103	84	91	102	501	608	1326	25	27	159	76	4154
Grand Total	359	4705	252	418	462	2266	1821	4251	130	115	496	278	15553
Apprch %	6.8	88.5	4.7	13.3	14.7	72	29.4	68.5	2.1	12.9	55.8	31.3	
Total %	2.3	30.3	1.6	2.7	3	14.6	11.7	27.3	0.8	0.7	3.2	1.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: VALLEY VIEW/BREA BLVD

File Name : H1611002
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	HARBOR BOULEVARD Southbound				BREA BOULEVARD Westbound				HARBOR BOULEVARD Northbound				VALLEY VIEW DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	32	**346**	11	**389**	**36**	23	**181**	**240**	**93**	220	5	318	8	**23**	11	42	**989**
07:45	**39**	319	10	368	35	33	159	227	87	**255**	**12**	**354**	4	20	16	40	989
08:00	39	320	11	370	31	**43**	162	236	92	224	9	325	9	19	11	39	970
08:15	36	323	**17**	376	30	29	154	213	86	221	11	318	**10**	23	**17**	**50**	957
Total Volume	146	1308	49	1503	132	128	656	916	358	920	37	1315	31	85	55	171	3905
% App. Total	9.7	87	3.3		14.4	14	71.6		27.2	70	2.8		18.1	49.7	32.2		
PHF	.936	.945	.721	.966	.917	.744	.906	.954	.962	.902	.771	.929	.775	.924	.809	.855	.987

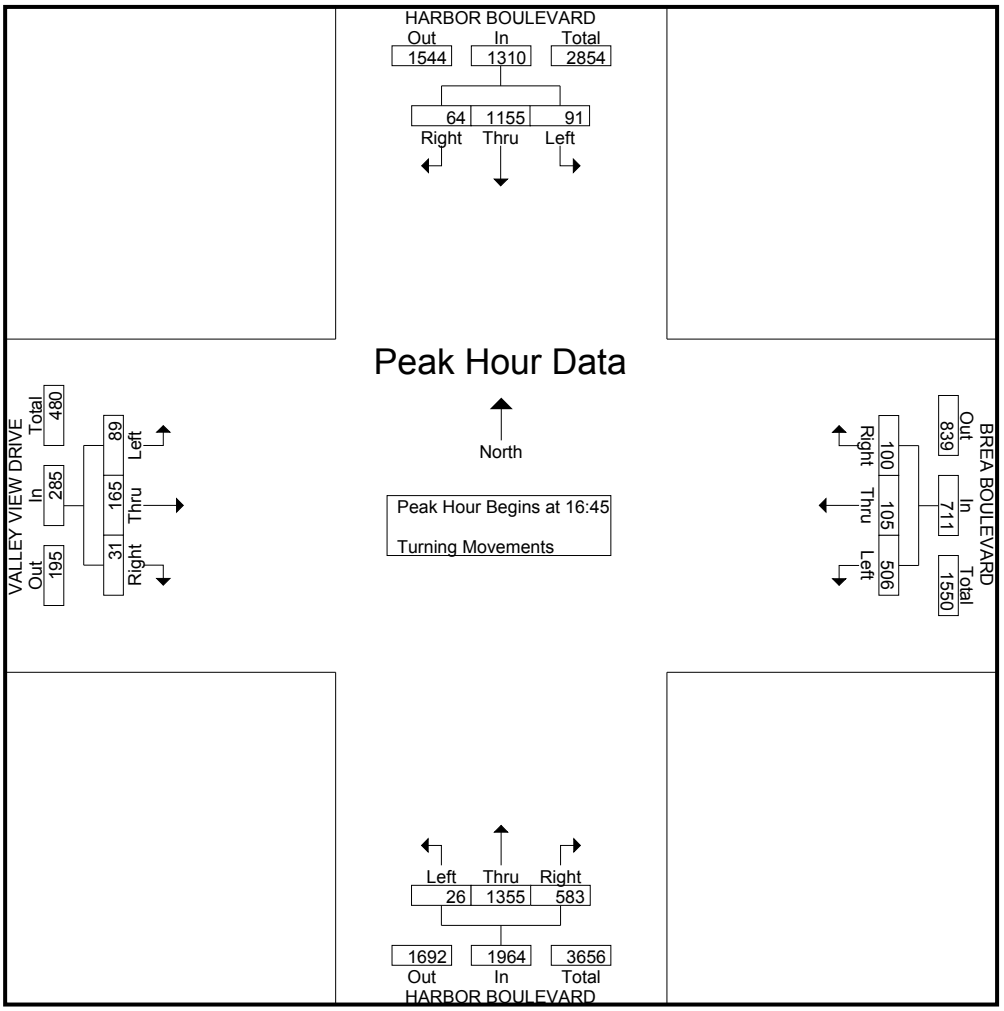


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: VALLEY VIEW/BREA BLVD

File Name : H1611002
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	HARBOR BOULEVARD Southbound				BREA BOULEVARD Westbound				HARBOR BOULEVARD Northbound				VALLEY VIEW DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	**20**	291	20	331	**26**	**28**	122	176	144	324	6	474	8	38	**27**	73	1054
17:00	19	294	22	335	26	27	112	165	**155**	332	4	491	**13**	**48**	21	**82**	1073
17:15	15	**308**	**26**	**349**	25	26	**141**	**192**	132	**352**	5	489	4	35	16	55	**1085**
17:30	10	262	23	295	23	24	131	178	152	347	**11**	**510**	6	44	25	75	1058
Total Volume	64	1155	91	1310	100	105	506	711	583	1355	26	1964	31	165	89	285	4270
% App. Total	4.9	88.2	6.9		14.1	14.8	71.2		29.7	69	1.3		10.9	57.9	31.2		
PHF	.800	.938	.875	.938	.962	.938	.897	.926	.940	.962	.591	.963	.596	.859	.824	.869	.984



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: BERKELEY AVENUE

File Name : h1611003
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

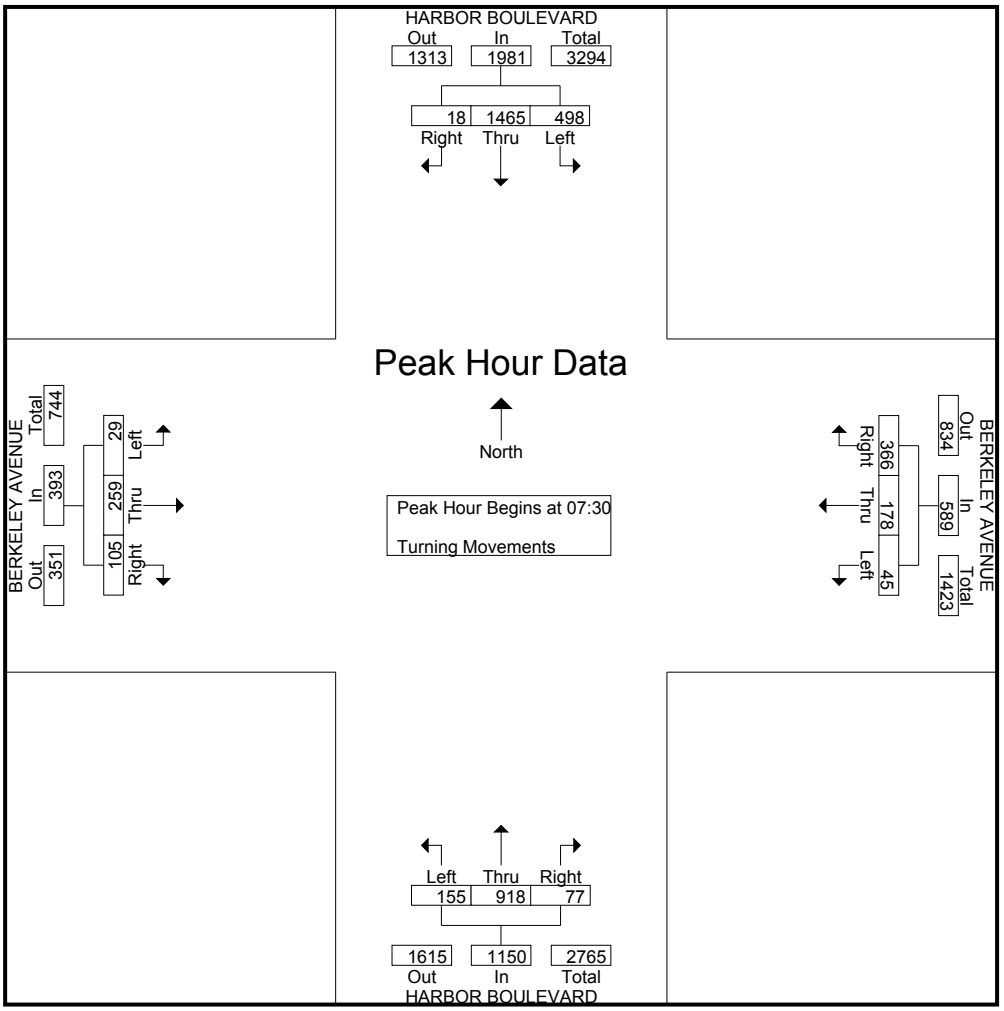
	HARBOR BOULEVARD Southbound			BERKELEY AVENUE Westbound			HARBOR BOULEVARD Northbound			BERKELEY AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	8	399	122	81	38	8	13	139	12	11	42	8	881
07:15	6	356	105	48	33	5	22	184	18	15	56	5	853
07:30	5	387	118	90	40	12	22	230	31	29	72	10	1046
07:45	6	376	120	91	42	6	27	247	34	19	89	8	1065
Total	25	1518	465	310	153	31	84	800	95	74	259	31	3845
08:00	5	335	136	95	52	15	12	226	38	23	51	5	993
08:15	2	367	124	90	44	12	16	215	52	34	47	6	1009
08:30	9	346	89	55	35	3	17	246	42	20	32	8	902
08:45	5	342	75	76	44	8	10	216	38	25	34	1	874
Total	21	1390	424	316	175	38	55	903	170	102	164	20	3778
*** BREAK ***													
16:00	9	294	84	124	57	14	10	313	17	24	40	12	998
16:15	6	297	77	133	54	14	15	322	24	36	39	7	1024
16:30	11	274	89	132	58	13	9	325	17	34	47	8	1017
16:45	9	313	113	138	56	12	5	334	20	29	40	11	1080
Total	35	1178	363	527	225	53	39	1294	78	123	166	38	4119
17:00	6	315	87	141	60	13	9	332	18	28	44	10	1063
17:15	9	325	108	147	66	18	6	340	24	20	37	6	1106
17:30	7	293	92	135	43	17	11	347	14	16	33	9	1017
17:45	8	322	68	140	40	14	7	346	14	16	30	9	1014
Total	30	1255	355	563	209	62	33	1365	70	80	144	34	4200
Grand Total	111	5341	1607	1716	762	184	211	4362	413	379	733	123	15942
Apprch %	1.6	75.7	22.8	64.5	28.6	6.9	4.2	87.5	8.3	30.7	59.4	10	
Total %	0.7	33.5	10.1	10.8	4.8	1.2	1.3	27.4	2.6	2.4	4.6	0.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: BERKELEY AVENUE

File Name : h1611003
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	HARBOR BOULEVARD Southbound				BERKELEY AVENUE Westbound				HARBOR BOULEVARD Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	5	**387**	118	**510**	90	40	12	142	22	230	31	283	29	72	**10**	111	1046
07:45	**6**	376	120	502	91	42	6	139	**27**	**247**	34	**308**	19	**89**	8	**116**	**1065**
08:00	5	335	**136**	476	**95**	**52**	**15**	**162**	12	226	38	276	23	51	5	79	993
08:15	2	367	124	493	90	44	12	146	16	215	**52**	283	**34**	47	6	87	1009
Total Volume	18	1465	498	1981	366	178	45	589	77	918	155	1150	105	259	29	393	4113
% App. Total	0.9	74	25.1		62.1	30.2	7.6		6.7	79.8	13.5		26.7	65.9	7.4		
PHF	.750	.946	.915	.971	.963	.856	.750	.909	.713	.929	.745	.933	.772	.728	.725	.847	.965

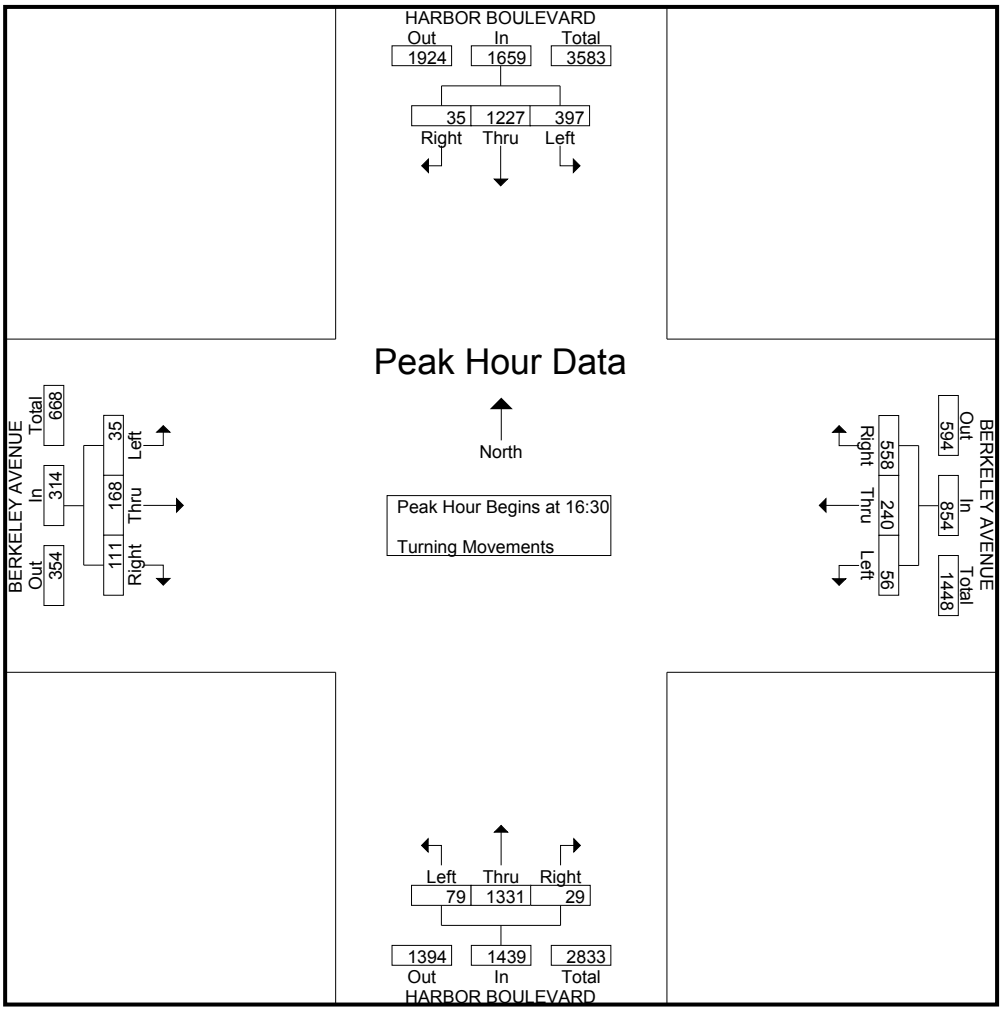


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: BERKELEY AVENUE

File Name : h1611003
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	HARBOR BOULEVARD Southbound				BERKELEY AVENUE Westbound				HARBOR BOULEVARD Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	**11**	274	89	374	132	58	13	203	**9**	325	17	351	**34**	**47**	8	**89**	1017
16:45	9	313	**113**	435	138	56	12	206	5	334	20	359	29	40	**11**	80	1080
17:00	6	315	87	408	141	60	13	214	9	332	18	359	28	44	10	82	1063
17:15	9	**325**	108	**442**	**147**	**66**	**18**	**231**	6	**340**	**24**	**370**	20	37	6	63	**1106**
Total Volume	35	1227	397	1659	558	240	56	854	29	1331	79	1439	111	168	35	314	4266
% App. Total	2.1	74	23.9		65.3	28.1	6.6		2	92.5	5.5		35.4	53.5	11.1		
PHF	.795	.944	.878	.938	.949	.909	.778	.924	.806	.979	.823	.972	.816	.894	.795	.882	.964



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: BERKELEY AVENUE

File Name : H1611004
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

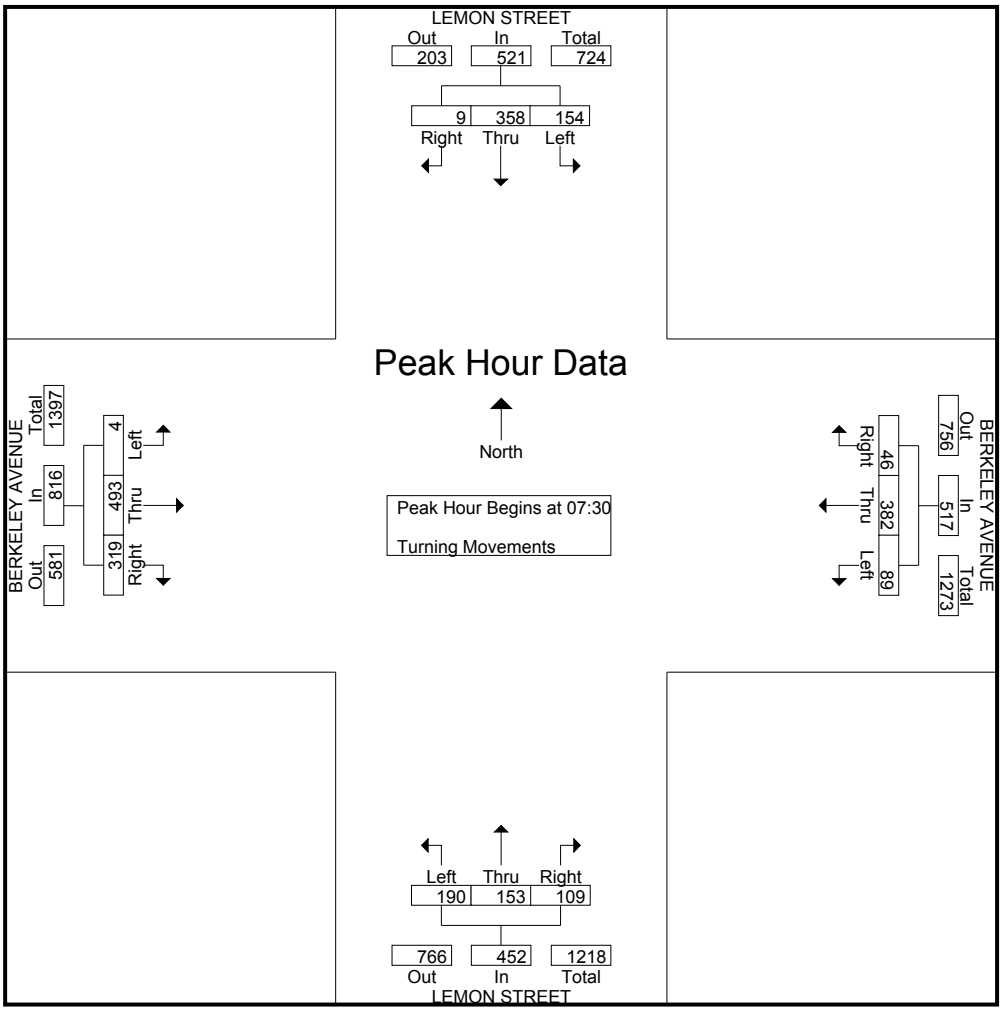
	LEMON STREET Southbound			BERKELEY AVENUE Westbound			LEMON STREET Northbound			BERKELEY AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	1	78	37	7	88	10	21	22	31	71	97	1	464
07:15	0	104	39	6	69	15	8	25	30	75	101	1	473
07:30	3	97	23	8	97	24	26	41	38	90	132	0	579
07:45	0	92	46	12	100	21	20	52	43	78	144	1	609
Total	4	371	145	33	354	70	75	140	142	314	474	3	2125
08:00	1	89	45	13	107	23	28	24	54	76	118	0	578
08:15	5	80	40	13	78	21	35	36	55	75	99	3	540
08:30	1	61	22	7	65	13	24	41	38	49	86	0	407
08:45	4	68	34	16	68	15	14	41	61	56	67	1	445
Total	11	298	141	49	318	72	101	142	208	256	370	4	1970
*** BREAK ***													
16:00	1	56	25	26	91	20	22	86	81	51	70	3	532
16:15	4	50	32	15	108	12	18	87	87	52	87	2	554
16:30	3	49	20	42	118	18	36	96	114	65	80	4	645
16:45	5	76	19	23	102	15	17	97	99	75	82	6	616
Total	13	231	96	106	419	65	93	366	381	243	319	15	2347
17:00	5	73	29	28	113	18	32	112	93	59	85	7	654
17:15	4	64	33	37	108	22	26	98	116	74	77	5	664
17:30	7	57	33	33	103	16	24	104	97	47	77	6	604
17:45	4	49	17	37	100	12	22	82	88	38	61	2	512
Total	20	243	112	135	424	68	104	396	394	218	300	20	2434
Grand Total	48	1143	494	323	1515	275	373	1044	1125	1031	1463	42	8876
Apprch %	2.8	67.8	29.3	15.3	71.7	13	14.7	41.1	44.3	40.7	57.7	1.7	
Total %	0.5	12.9	5.6	3.6	17.1	3.1	4.2	11.8	12.7	11.6	16.5	0.5	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: BERKELEY AVENUE

File Name : H1611004
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	LEMON STREET Southbound				BERKELEY AVENUE Westbound				LEMON STREET Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	3	**97**	23	123	8	97	**24**	129	26	41	38	105	**90**	132	0	222	579
07:45	0	92	**46**	**138**	12	100	21	133	20	**52**	43	115	78	**144**	1	**223**	**609**
08:00	1	89	45	135	**13**	**107**	23	**143**	28	24	54	106	76	118	0	194	578
08:15	**5**	80	40	125	13	78	21	112	**35**	36	**55**	**126**	75	99	**3**	177	540
Total Volume	9	358	154	521	46	382	89	517	109	153	190	452	319	493	4	816	2306
% App. Total	1.7	68.7	29.6		8.9	73.9	17.2		24.1	33.8	42		39.1	60.4	0.5		
PHF	.450	.923	.837	.944	.885	.893	.927	.904	.779	.736	.864	.897	.886	.856	.333	.915	.947

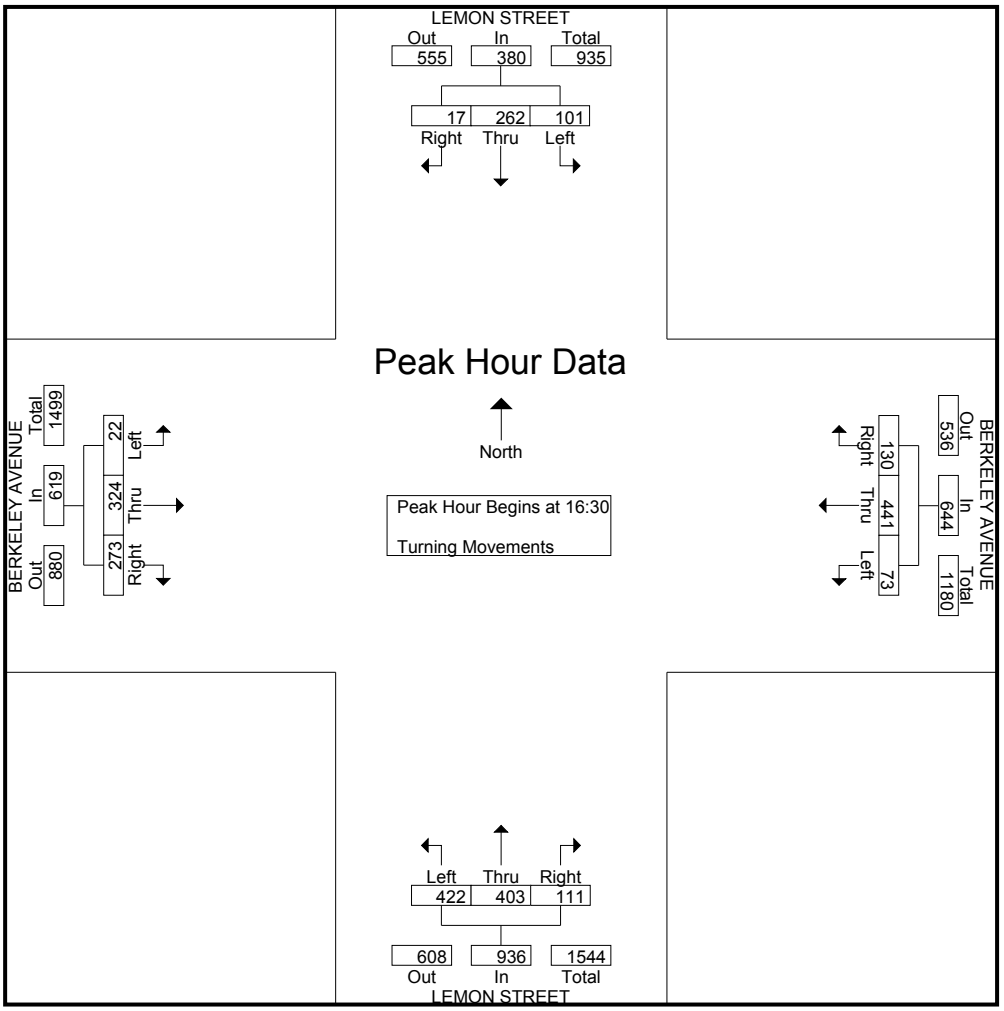


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: BERKELEY AVENUE

File Name : H1611004
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	LEMON STREET Southbound				BERKELEY AVENUE Westbound				LEMON STREET Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	3	49	20	72	**42**	**118**	18	**178**	**36**	96	114	**246**	65	80	4	149	645
16:45	**5**	**76**	19	100	23	102	15	140	17	97	99	213	**75**	82	6	**163**	616
17:00	5	73	29	**107**	28	113	18	159	32	**112**	93	237	59	**85**	**7**	151	654
17:15	4	64	**33**	101	37	108	**22**	167	26	98	**116**	240	74	77	5	156	**664**
Total Volume	17	262	101	380	130	441	73	644	111	403	422	936	273	324	22	619	2579
% App. Total	4.5	68.9	26.6		20.2	68.5	11.3		11.9	43.1	45.1		44.1	52.3	3.6		
PHF	.850	.862	.765	.888	.774	.934	.830	.904	.771	.900	.909	.951	.910	.953	.786	.949	.971



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HORNET WAY
E-W Direction: BERKELEY AVENUE

File Name : H1611005
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

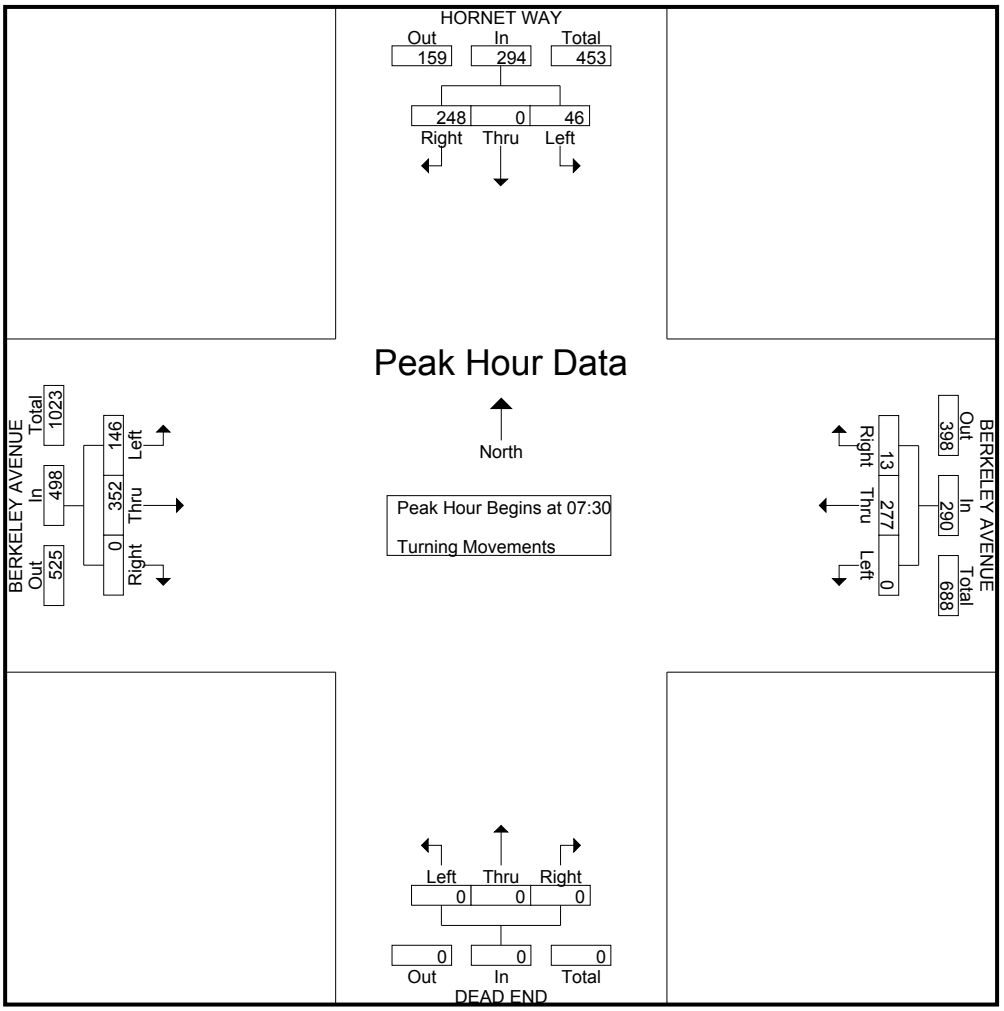
	HORNET WAY Southbound			BERKELEY AVENUE Westbound			DEAD END Northbound			BERKELEY AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	69	0	7	1	54	0	0	0	0	0	48	16	195
07:15	39	0	9	2	58	0	0	0	0	0	69	30	207
07:30	66	0	9	1	83	0	0	0	0	0	85	53	297
07:45	58	0	17	6	56	0	0	0	0	0	99	37	273
Total	232	0	42	10	251	0	0	0	0	0	301	136	972
08:00	68	0	14	5	75	0	0	0	0	0	88	28	278
08:15	56	0	6	1	63	0	0	0	0	0	80	28	234
08:30	43	0	6	6	46	0	0	0	0	0	61	30	192
08:45	35	0	6	5	66	0	0	0	0	0	70	21	203
Total	202	0	32	17	250	0	0	0	0	0	299	107	907
*** BREAK ***													
16:00	40	0	5	14	96	0	0	0	0	0	73	42	270
16:15	47	0	8	6	92	0	0	0	0	0	76	38	267
16:30	49	0	10	6	104	0	0	0	0	0	90	48	307
16:45	34	0	5	4	100	0	0	0	0	0	76	36	255
Total	170	0	28	30	392	0	0	0	0	0	315	164	1099
17:00	58	0	7	6	103	0	0	0	0	0	98	46	318
17:15	59	0	2	6	97	0	0	0	0	0	105	32	301
17:30	49	0	0	10	107	0	0	0	0	0	89	51	306
17:45	30	0	2	8	94	0	0	0	0	0	57	23	214
Total	196	0	11	30	401	0	0	0	0	0	349	152	1139
Grand Total	800	0	113	87	1294	0	0	0	0	0	1264	559	4117
Apprch %	87.6	0	12.4	6.3	93.7	0	0	0	0	0	69.3	30.7	
Total %	19.4	0	2.7	2.1	31.4	0	0	0	0	0	30.7	13.6	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HORNET WAY
E-W Direction: BERKELEY AVENUE

File Name : H1611005
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	HORNET WAY Southbound				BERKELEY AVENUE Westbound				DEAD END Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	66	0	9	75	1	**83**	0	**84**	0	0	0	0	0	85	**53**	**138**	**297**
07:45	58	0	**17**	75	**6**	56	0	62	0	0	0	0	0	**99**	37	136	273
08:00	**68**	0	14	**82**	5	75	0	80	0	0	0	0	0	88	28	116	278
08:15	56	0	6	62	1	63	0	64	0	0	0	0	0	80	28	108	234
Total Volume	248	0	46	294	13	277	0	290	0	0	0	0	0	352	146	498	1082
% App. Total	84.4	0	15.6		4.5	95.5	0		0	0	0		0	70.7	29.3		
PHF	.912	.000	.676	.896	.542	.834	.000	.863	.000	.000	.000	.000	.000	.889	.689	.902	.911



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HORNET WAY
E-W Direction: BERKELEY AVENUE

File Name : H1611005
Site Code : 00000000
Start Date : 11/15/2016
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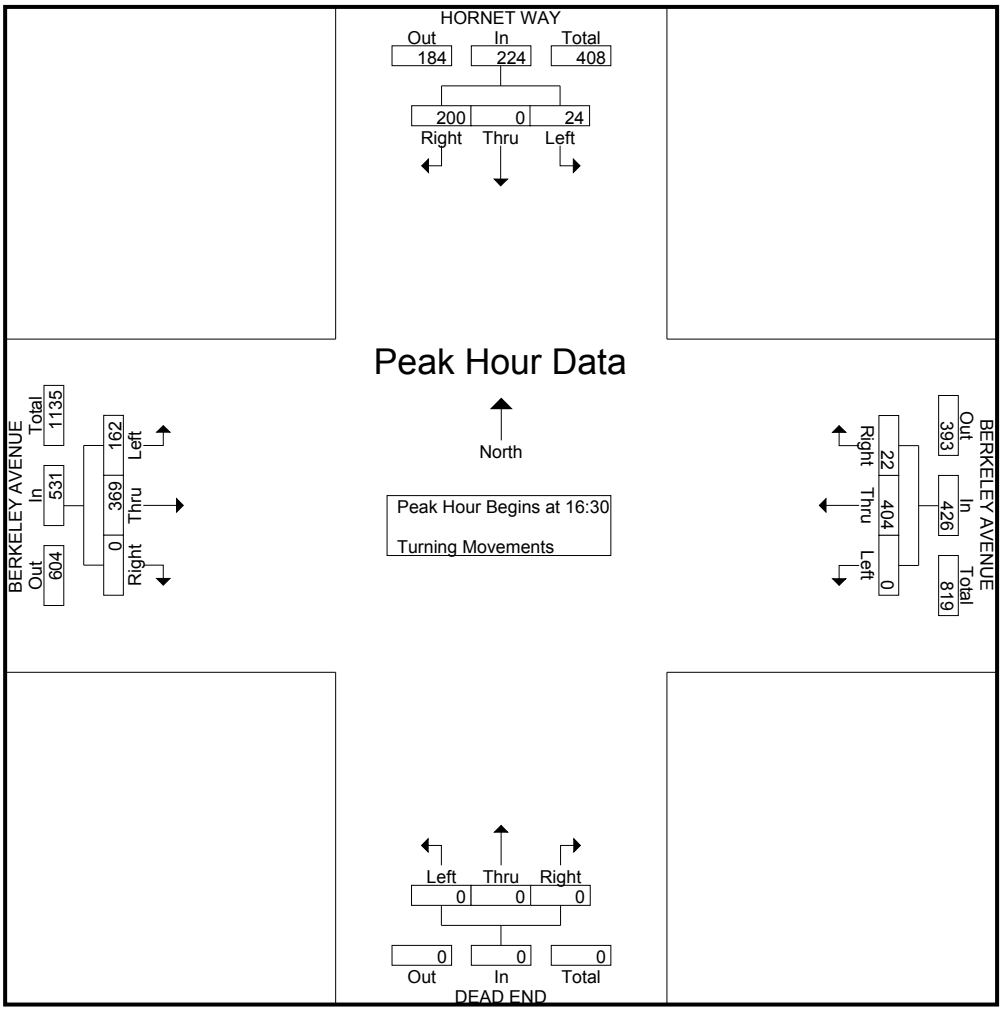
	HORNET WAY Southbound				BERKELEY AVENUE Westbound				DEAD END Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	49	0	**10**	59	**6**	**104**	0	**110**	0	0	0	0	0	90	**48**	138	307
16:45	34	0	5	39	4	100	0	104	0	0	0	0	0	76	36	112	255
17:00	58	0	7	**65**	6	103	0	109	0	0	0	0	0	98	46	**144**	**318**
17:15	**59**	0	2	61	6	97	0	103	0	0	0	0	0	**105**	32	137	301
Total Volume	200	0	24	224	22	404	0	426	0	0	0	0	0	369	162	531	1181
% App. Total	89.3	0	10.7		5.2	94.8	0		0	0	0		0	69.5	30.5		
PHF	.847	.000	.600	.862	.917	.971	.000	.968	.000	.000	.000	.000	.000	.879	.844	.922	.928



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: EUCLID STREET
E-W Direction: MALVERN AVENUE

File Name : H1611006
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

	EUCLID STREET Southbound			MALVERN AVENUE Westbound			EUCLID STREET Northbound			MALVERN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	1	341	50	22	127	42	18	176	20	33	173	9	1012
07:15	2	320	58	30	117	32	33	234	38	33	169	3	1069
07:30	3	347	71	31	109	36	26	246	26	38	181	4	1118
07:45	4	326	78	23	118	50	20	236	33	40	179	9	1116
Total	10	1334	257	106	471	160	97	892	117	144	702	25	4315
08:00	3	326	67	33	121	32	30	242	36	58	159	9	1116
08:15	7	303	65	29	101	37	11	265	38	33	171	26	1086
08:30	7	312	53	28	103	43	21	216	29	61	143	19	1035
08:45	8	283	42	19	61	24	35	178	20	39	129	12	850
Total	25	1224	227	109	386	136	97	901	123	191	602	66	4087
*** BREAK ***													
16:00	2	249	30	34	176	36	26	275	46	44	114	2	1034
16:15	14	252	22	36	160	39	32	287	37	25	139	13	1056
16:30	10	244	23	48	186	39	18	297	38	42	129	7	1081
16:45	10	264	25	45	169	41	25	291	48	42	134	13	1107
Total	36	1009	100	163	691	155	101	1150	169	153	516	35	4278
17:00	6	260	32	48	177	41	27	294	42	40	149	15	1131
17:15	6	275	37	55	163	24	14	317	48	44	130	10	1123
17:30	5	222	31	60	204	34	30	290	44	36	137	10	1103
17:45	4	215	29	47	212	39	24	287	36	40	132	4	1069
Total	21	972	129	210	756	138	95	1188	170	160	548	39	4426
Grand Total	92	4539	713	588	2304	589	390	4131	579	648	2368	165	17106
Apprch %	1.7	84.9	13.3	16.9	66.2	16.9	7.6	81	11.4	20.4	74.4	5.2	
Total %	0.5	26.5	4.2	3.4	13.5	3.4	2.3	24.1	3.4	3.8	13.8	1	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: EUCLID STREET
E-W Direction: MALVERN AVENUE

File Name : H1611006
Site Code : 00000000
Start Date : 11/15/2016
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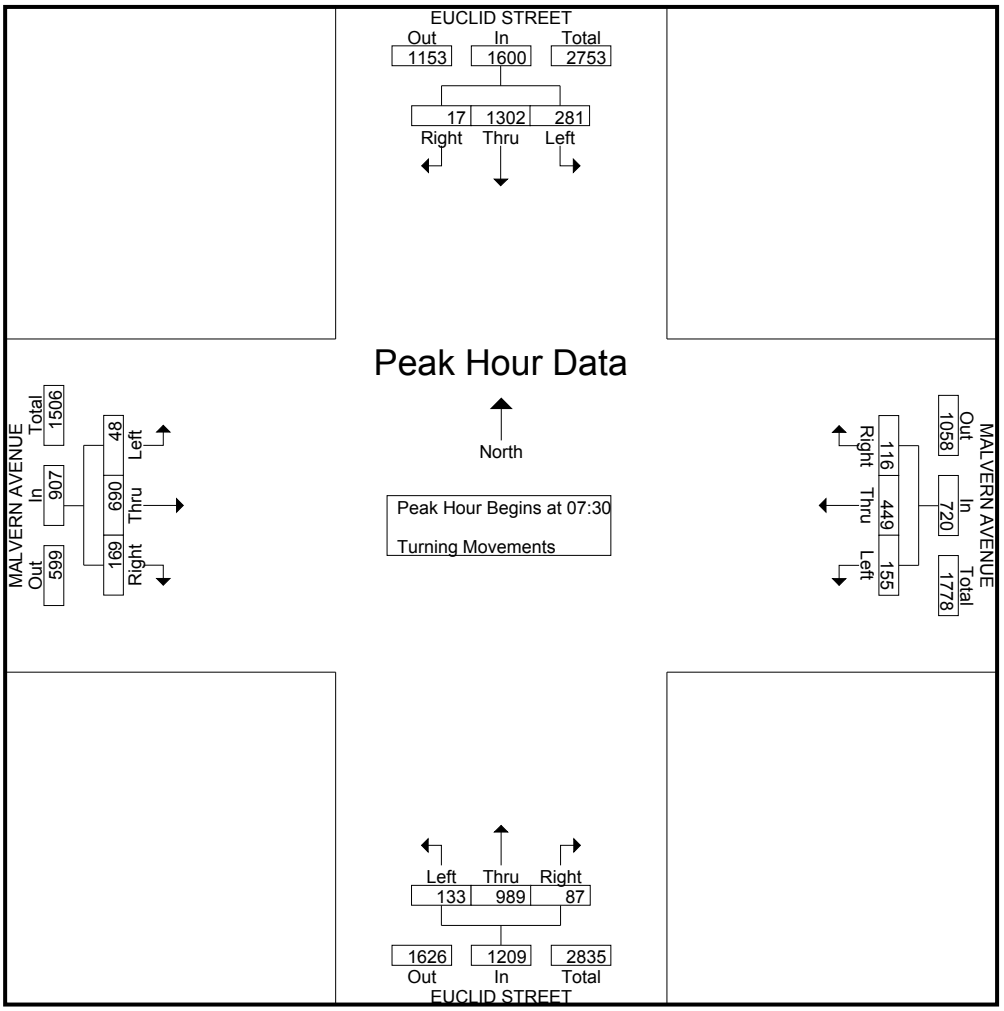
	EUCLID STREET Southbound				MALVERN AVENUE Westbound				EUCLID STREET Northbound				MALVERN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	3	**347**	71	**421**	31	109	36	176	26	246	26	298	38	**181**	4	223	**1118**
07:45	4	326	**78**	408	23	118	**50**	**191**	20	236	33	289	40	179	9	228	1116
08:00	3	326	67	396	**33**	**121**	32	186	**30**	242	36	308	**58**	159	9	226	1116
08:15	**7**	303	65	375	29	101	37	167	11	**265**	**38**	**314**	33	171	**26**	**230**	1086
Total Volume	17	1302	281	1600	116	449	155	720	87	989	133	1209	169	690	48	907	4436
% App. Total	1.1	81.4	17.6		16.1	62.4	21.5		7.2	81.8	11		18.6	76.1	5.3		
PHF	.607	.938	.901	.950	.879	.928	.775	.942	.725	.933	.875	.963	.728	.953	.462	.986	.992

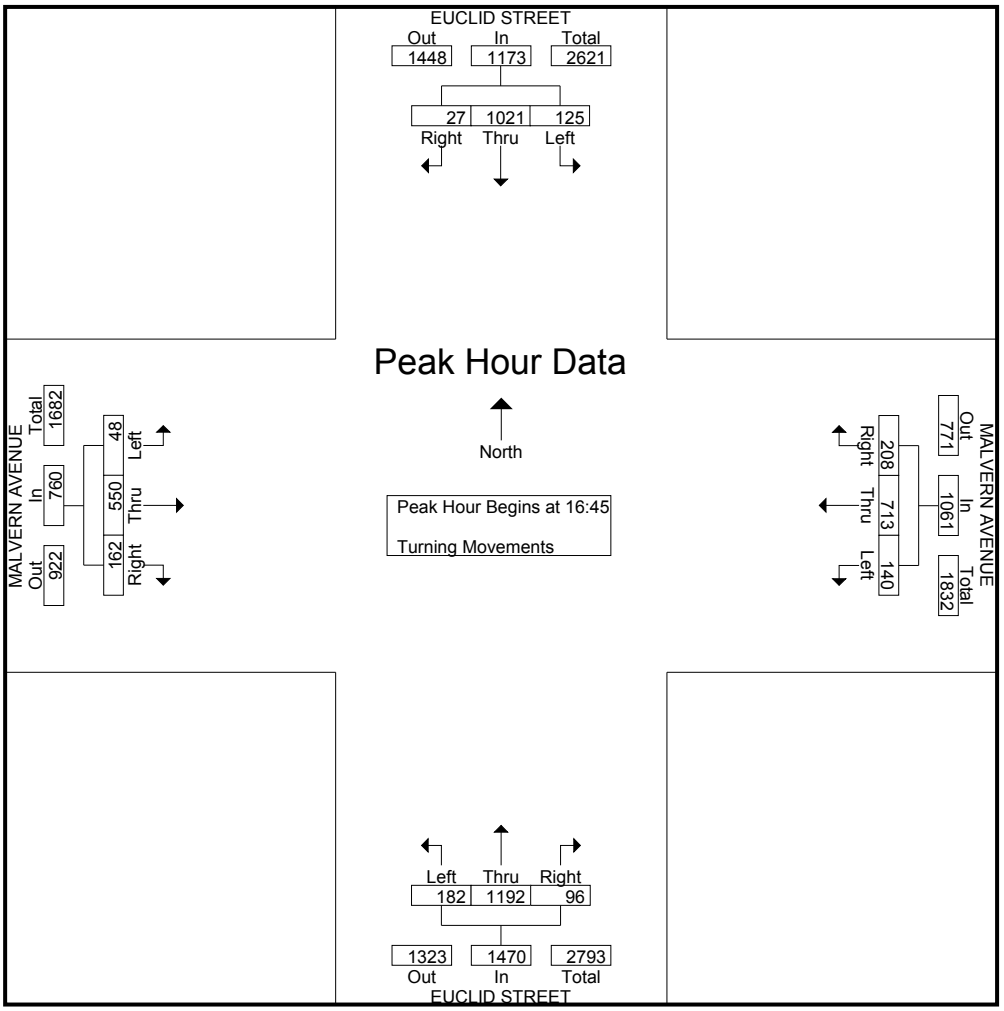


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: EUCLID STREET
E-W Direction: MALVERN AVENUE

File Name : H1611006
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	EUCLID STREET Southbound				MALVERN AVENUE Westbound				EUCLID STREET Northbound				MALVERN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	**10**	264	25	299	45	169	**41**	255	25	291	**48**	364	42	134	13	189	1107
17:00	6	260	32	298	48	177	41	266	27	294	42	363	40	**149**	**15**	**204**	**1131**
17:15	6	**275**	**37**	**318**	55	163	24	242	14	**317**	48	**379**	**44**	130	10	184	1123
17:30	5	222	31	258	**60**	**204**	34	**298**	**30**	290	44	364	36	137	10	183	1103
Total Volume	27	1021	125	1173	208	713	140	1061	96	1192	182	1470	162	550	48	760	4464
% App. Total	2.3	87	10.7		19.6	67.2	13.2		6.5	81.1	12.4		21.3	72.4	6.3		
PHF	.675	.928	.845	.922	.867	.874	.854	.890	.800	.940	.948	.970	.920	.923	.800	.931	.987



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: CHAPMAN AVENUE

File Name : H1611007
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

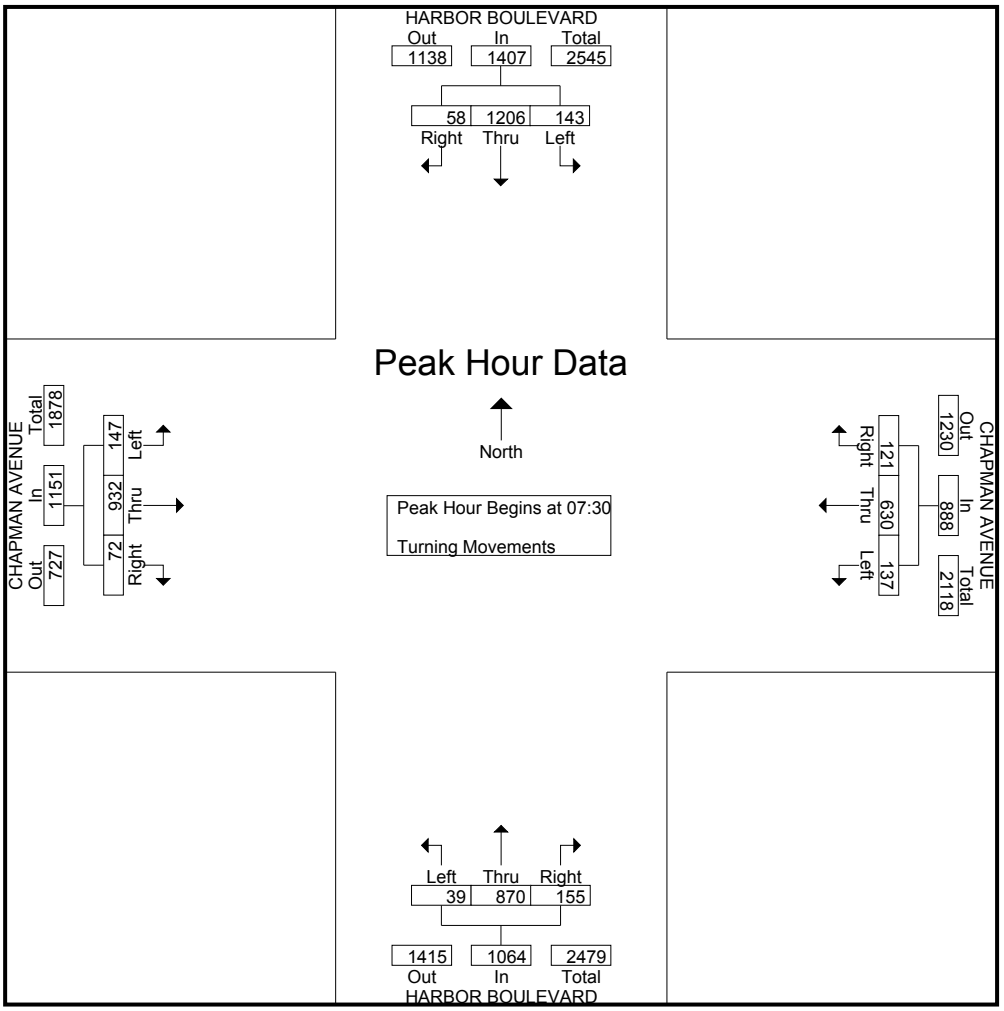
	HARBOR BOULEVARD Southbound			CHAPMAN AVENUE Westbound			HARBOR BOULEVARD Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	6	338	28	20	133	37	36	130	13	35	189	31	996
07:15	6	326	35	20	133	27	34	150	11	18	235	41	1036
07:30	12	314	33	27	178	44	47	243	3	8	242	40	1191
07:45	11	295	34	36	175	38	44	219	11	21	238	33	1155
Total	35	1273	130	103	619	146	161	742	38	82	904	145	4378
08:00	17	312	32	28	136	29	32	199	12	22	237	35	1091
08:15	18	285	44	30	141	26	32	209	13	21	215	39	1073
08:30	29	302	24	34	111	30	35	212	10	23	196	48	1054
08:45	19	300	32	24	86	28	22	196	9	27	170	38	951
Total	83	1199	132	116	474	113	121	816	44	93	818	160	4169
*** BREAK ***													
16:00	24	226	35	39	236	51	24	229	25	18	149	41	1097
16:15	27	221	26	38	211	57	29	254	23	22	165	55	1128
16:30	20	225	31	39	222	43	27	236	24	25	144	51	1087
16:45	26	230	25	38	209	47	31	262	28	35	140	49	1120
Total	97	902	117	154	878	198	111	981	100	100	598	196	4432
17:00	29	212	33	30	232	42	25	251	28	17	182	59	1140
17:15	22	209	33	45	248	46	21	240	36	19	163	57	1139
17:30	24	218	25	30	253	49	30	248	12	24	155	61	1129
17:45	35	230	36	33	209	38	30	258	28	29	141	48	1115
Total	110	869	127	138	942	175	106	997	104	89	641	225	4523
Grand Total	325	4243	506	511	2913	632	499	3536	286	364	2961	726	17502
Apprch %	6.4	83.6	10	12.6	71.8	15.6	11.5	81.8	6.6	9	73.1	17.9	
Total %	1.9	24.2	2.9	2.9	16.6	3.6	2.9	20.2	1.6	2.1	16.9	4.1	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: CHAPMAN AVENUE

File Name : H1611007
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	HARBOR BOULEVARD Southbound				CHAPMAN AVENUE Westbound				HARBOR BOULEVARD Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	12	**314**	33	359	27	**178**	**44**	**249**	**47**	**243**	3	**293**	8	**242**	**40**	290	**1191**
07:45	11	295	34	340	**36**	175	38	249	44	219	11	274	21	238	33	292	1155
08:00	17	312	32	**361**	28	136	29	193	32	199	12	243	**22**	237	35	**294**	1091
08:15	**18**	285	**44**	347	30	141	26	197	32	209	**13**	254	21	215	39	275	1073
Total Volume	58	1206	143	1407	121	630	137	888	155	870	39	1064	72	932	147	1151	4510
% App. Total	4.1	85.7	10.2		13.6	70.9	15.4		14.6	81.8	3.7		6.3	81	12.8		
PHF	.806	.960	.813	.974	.840	.885	.778	.892	.824	.895	.750	.908	.818	.963	.919	.979	.947

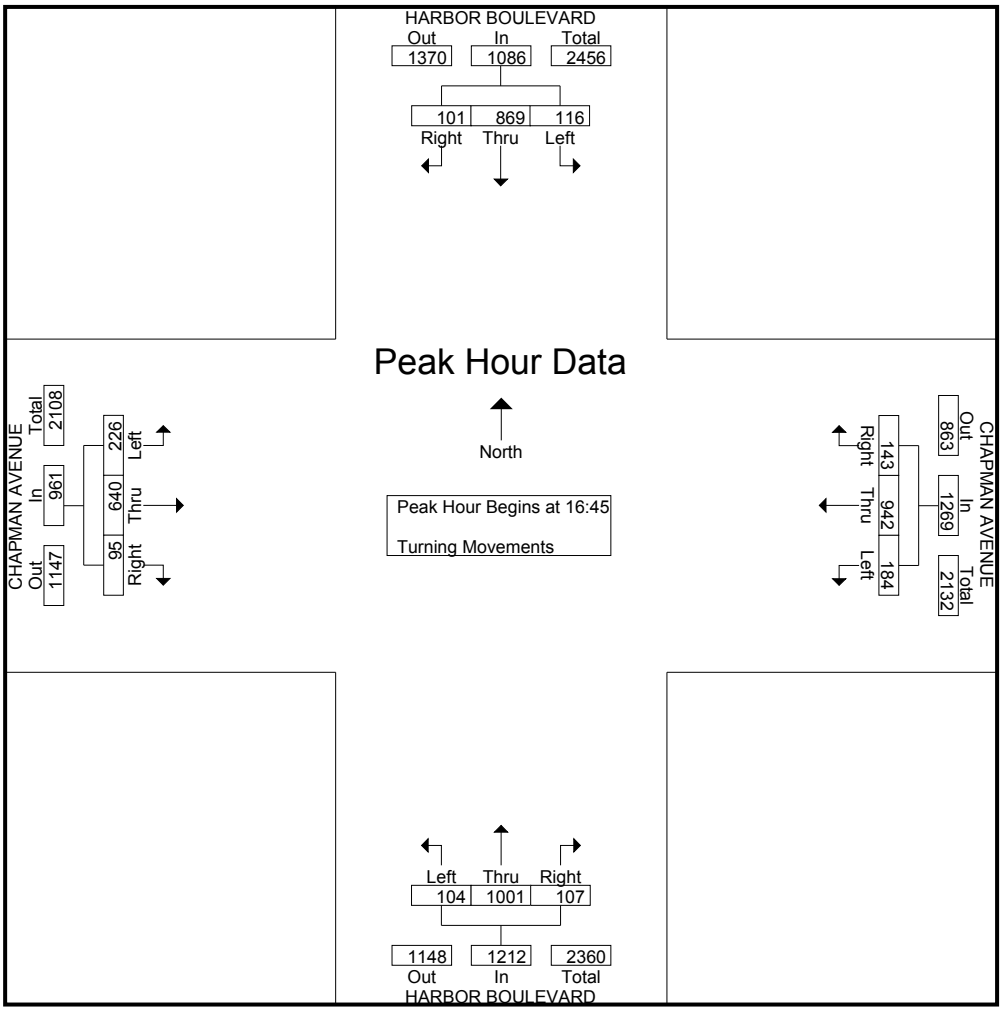


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: CHAPMAN AVENUE

File Name : H1611007
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	HARBOR BOULEVARD Southbound				CHAPMAN AVENUE Westbound				HARBOR BOULEVARD Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	26	**230**	25	**281**	38	209	47	294	**31**	**262**	28	**321**	**35**	140	49	224	1120
17:00	**29**	212	**33**	274	30	232	42	304	25	251	28	304	17	**182**	59	**258**	**1140**
17:15	22	209	33	264	**45**	248	46	**339**	21	240	**36**	297	19	163	57	239	1139
17:30	24	218	25	267	30	**253**	**49**	332	30	248	12	290	24	155	**61**	240	1129
Total Volume	101	869	116	1086	143	942	184	1269	107	1001	104	1212	95	640	226	961	4528
% App. Total	9.3	80	10.7		11.3	74.2	14.5		8.8	82.6	8.6		9.9	66.6	23.5		
PHF	.871	.945	.879	.966	.794	.931	.939	.936	.863	.955	.722	.944	.679	.879	.926	.931	.993



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: CHAPMAN AVENUE

File Name : H1611008
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

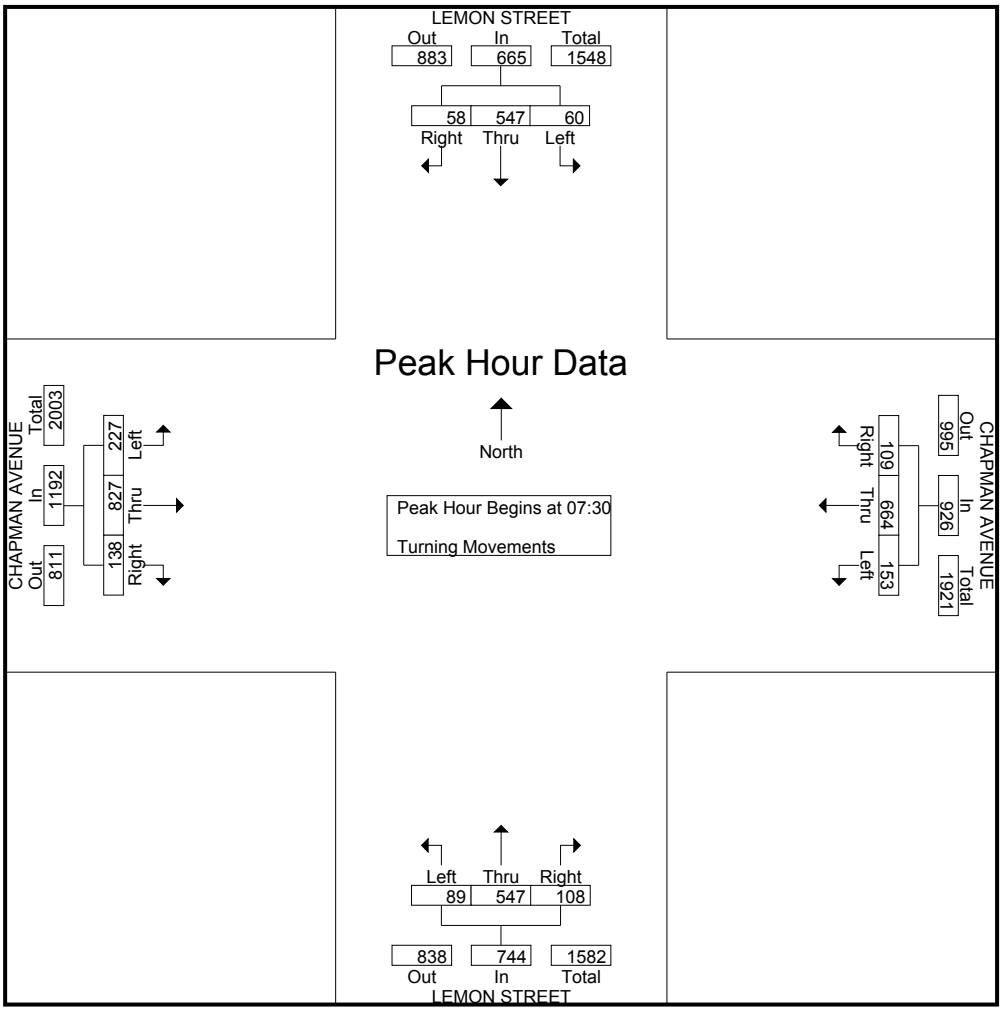
	LEMON STREET Southbound			CHAPMAN AVENUE Westbound			LEMON STREET Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	15	127	10	25	156	43	22	90	10	27	160	58	743
07:15	16	143	4	23	145	31	14	96	20	40	194	42	768
07:30	17	126	23	28	162	36	19	127	27	34	225	50	874
07:45	17	138	16	27	168	37	27	151	20	43	219	63	926
Total	65	534	53	103	631	147	82	464	77	144	798	213	3311
08:00	9	148	12	35	179	52	34	140	17	38	192	66	922
08:15	15	135	9	19	155	28	28	129	25	23	191	48	805
08:30	13	102	12	27	135	41	23	98	32	30	170	48	731
08:45	12	111	9	18	106	34	12	105	18	40	161	32	658
Total	49	496	42	99	575	155	97	472	92	131	714	194	3116
*** BREAK ***													
16:00	34	135	18	19	240	63	28	153	37	23	153	29	932
16:15	31	107	10	24	233	47	34	171	31	22	163	47	920
16:30	39	135	29	28	237	53	25	184	39	27	162	26	984
16:45	28	146	17	24	215	51	32	167	38	31	153	24	926
Total	132	523	74	95	925	214	119	675	145	103	631	126	3762
17:00	26	132	31	22	258	68	36	186	26	26	197	34	1042
17:15	24	163	12	31	293	58	27	213	40	34	165	26	1086
17:30	32	132	18	32	271	81	29	179	30	17	159	30	1010
17:45	16	103	11	34	218	60	24	162	28	31	155	25	867
Total	98	530	72	119	1040	267	116	740	124	108	676	115	4005
Grand Total	344	2083	241	416	3171	783	414	2351	438	486	2819	648	14194
Apprch %	12.9	78.1	9	9.5	72.6	17.9	12.9	73.4	13.7	12.3	71.3	16.4	
Total %	2.4	14.7	1.7	2.9	22.3	5.5	2.9	16.6	3.1	3.4	19.9	4.6	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: CHAPMAN AVENUE

File Name : H1611008
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	LEMON STREET Southbound				CHAPMAN AVENUE Westbound				LEMON STREET Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**17**	126	**23**	166	28	162	36	226	19	127	**27**	173	34	**225**	50	309	874
07:45	17	138	16	**171**	27	168	37	232	27	**151**	20	**198**	**43**	219	63	**325**	**926**
08:00	9	**148**	12	169	**35**	**179**	**52**	**266**	**34**	140	17	191	38	192	**66**	296	922
08:15	15	135	9	159	19	155	28	202	28	129	25	182	23	191	48	262	805
Total Volume	58	547	60	665	109	664	153	926	108	547	89	744	138	827	227	1192	3527
% App. Total	8.7	82.3	9		11.8	71.7	16.5		14.5	73.5	12		11.6	69.4	19		
PHF	.853	.924	.652	.972	.779	.927	.736	.870	.794	.906	.824	.939	.802	.919	.860	.917	.952

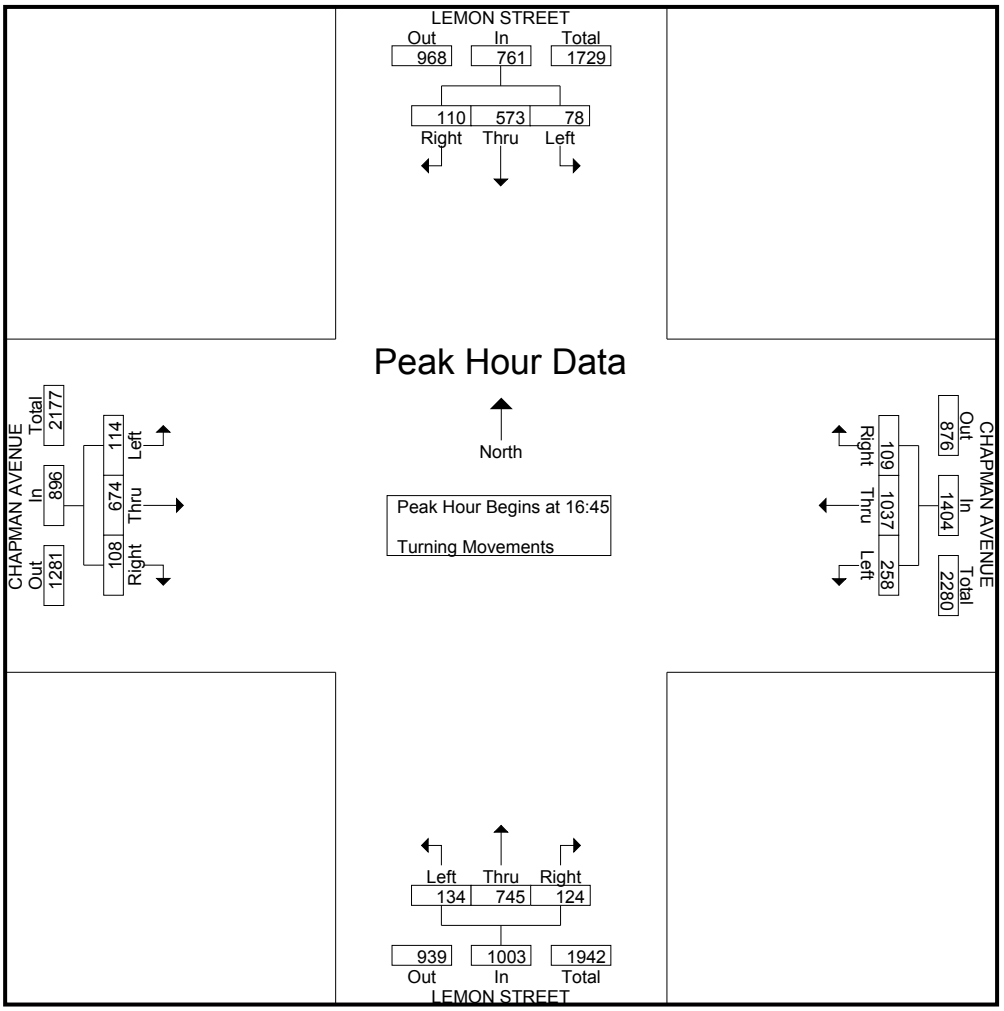


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: CHAPMAN AVENUE

File Name : H1611008
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	LEMON STREET Southbound				CHAPMAN AVENUE Westbound				LEMON STREET Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	28	146	17	191	24	215	51	290	32	167	38	237	31	153	24	208	926
17:00	26	132	**31**	189	22	258	68	348	**36**	186	26	248	26	**197**	**34**	**257**	1042
17:15	24	**163**	12	**199**	31	**293**	58	382	27	**213**	**40**	**280**	**34**	165	26	225	**1086**
17:30	**32**	132	18	182	**32**	271	**81**	**384**	29	179	30	238	17	159	30	206	1010
Total Volume	110	573	78	761	109	1037	258	1404	124	745	134	1003	108	674	114	896	4064
% App. Total	14.5	75.3	10.2		7.8	73.9	18.4		12.4	74.3	13.4		12.1	75.2	12.7		
PHF	.859	.879	.629	.956	.852	.885	.796	.914	.861	.874	.838	.896	.794	.855	.838	.872	.936



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611009
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

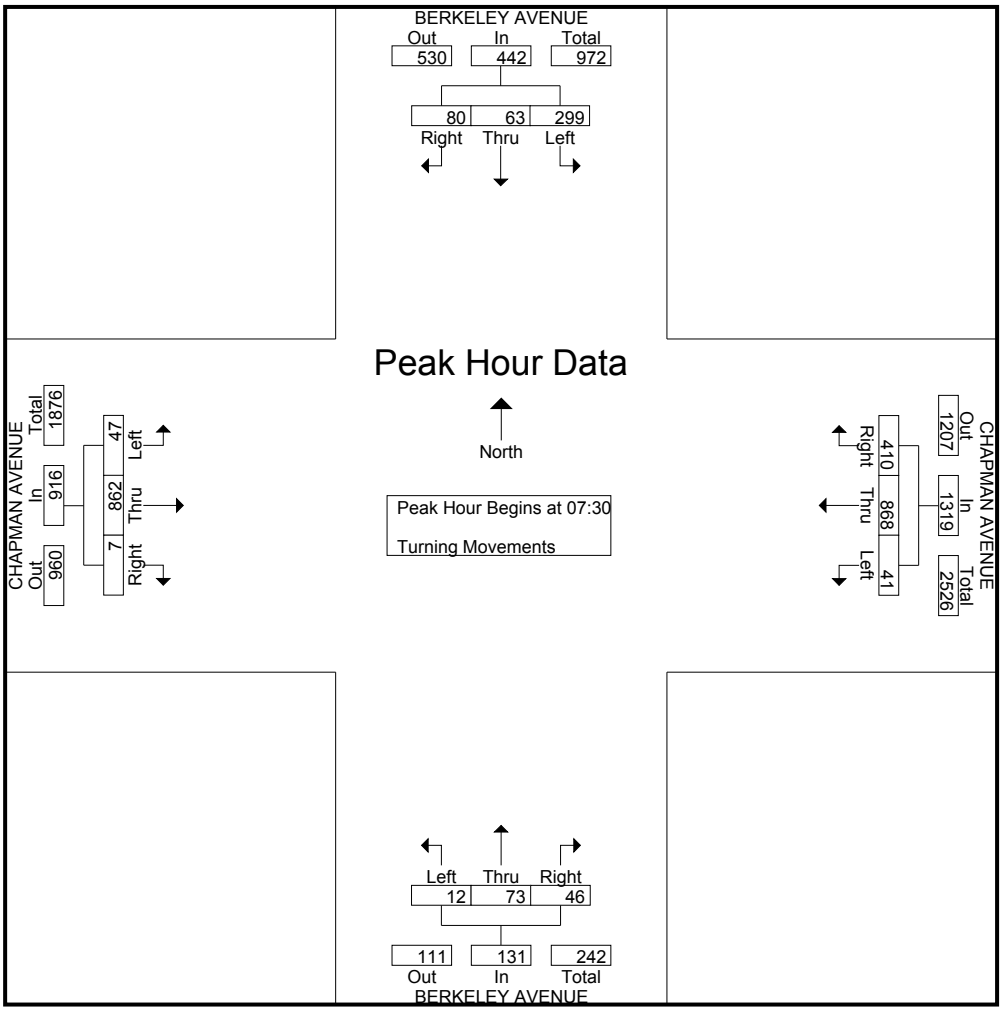
	BERKELEY AVENUE Southbound			CHAPMAN AVENUE Westbound			BERKELEY AVENUE Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	10	7	46	83	206	5	4	11	2	0	160	10	544
07:15	7	11	59	73	207	6	4	10	3	3	178	9	570
07:30	14	15	67	102	219	7	16	18	5	0	244	12	719
07:45	22	19	83	116	224	13	17	24	1	3	219	13	754
Total	53	52	255	374	856	31	41	63	11	6	801	44	2587
08:00	19	20	68	114	244	17	4	18	2	1	210	6	723
08:15	25	9	81	78	181	4	9	13	4	3	189	16	612
08:30	15	9	51	82	172	7	6	10	1	5	193	4	555
08:45	11	10	65	85	155	11	4	12	6	1	162	8	530
Total	70	48	265	359	752	39	23	53	13	10	754	34	2420
*** BREAK ***													
16:00	22	25	77	87	298	9	7	15	3	1	174	14	732
16:15	15	8	76	107	265	10	7	16	1	2	201	14	722
16:30	25	10	95	95	273	8	7	11	8	0	200	16	748
16:45	20	7	95	91	268	7	9	11	1	4	198	9	720
Total	82	50	343	380	1104	34	30	53	13	7	773	53	2922
17:00	21	16	101	79	314	10	5	10	1	3	228	11	799
17:15	20	18	108	100	361	14	10	14	5	1	186	21	858
17:30	19	15	97	111	315	15	10	14	2	4	194	10	806
17:45	23	6	66	100	286	5	1	11	2	2	166	13	681
Total	83	55	372	390	1276	44	26	49	10	10	774	55	3144
Grand Total	288	205	1235	1503	3988	148	120	218	47	33	3102	186	11073
Apprch %	16.7	11.9	71.5	26.7	70.7	2.6	31.2	56.6	12.2	1	93.4	5.6	
Total %	2.6	1.9	11.2	13.6	36	1.3	1.1	2	0.4	0.3	28	1.7	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611009
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	BERKELEY AVENUE Southbound				CHAPMAN AVENUE Westbound				BERKELEY AVENUE Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	14	15	67	96	102	219	7	328	16	18	**5**	39	0	**244**	12	**256**	719
07:45	22	19	**83**	**124**	**116**	224	13	353	**17**	**24**	1	**42**	**3**	219	13	235	**754**
08:00	19	**20**	68	107	114	**244**	**17**	**375**	4	18	2	24	1	210	6	217	723
08:15	**25**	9	81	115	78	181	4	263	9	13	4	26	3	189	**16**	208	612
Total Volume	80	63	299	442	410	868	41	1319	46	73	12	131	7	862	47	916	2808
% App. Total	18.1	14.3	67.6		31.1	65.8	3.1		35.1	55.7	9.2		0.8	94.1	5.1		
PHF	.800	.788	.901	.891	.884	.889	.603	.879	.676	.760	.600	.780	.583	.883	.734	.895	.931



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611009
Site Code : 00000000
Start Date : 11/15/2016
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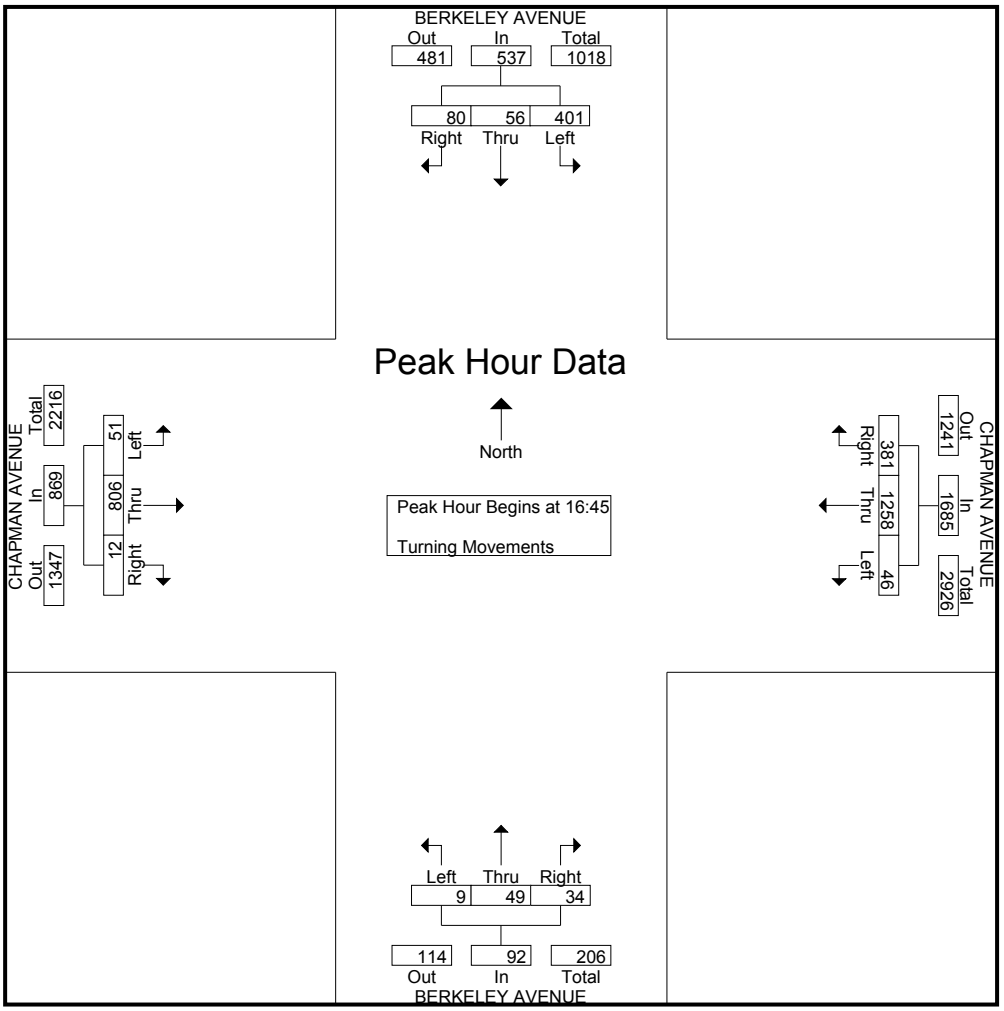
	BERKELEY AVENUE Southbound				CHAPMAN AVENUE Westbound				BERKELEY AVENUE Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	20	7	95	122	91	268	7	366	9	11	1	21	**4**	198	9	211	720
17:00	**21**	16	101	138	79	314	10	403	5	10	1	16	3	**228**	11	**242**	799
17:15	20	**18**	**108**	**146**	100	**361**	14	**475**	**10**	**14**	**5**	**29**	1	186	**21**	208	**858**
17:30	19	15	97	131	**111**	315	**15**	441	10	14	2	26	4	194	10	208	806
Total Volume	80	56	401	537	381	1258	46	1685	34	49	9	92	12	806	51	869	3183
% App. Total	14.9	10.4	74.7		22.6	74.7	2.7		37	53.3	9.8		1.4	92.8	5.9		
PHF	.952	.778	.928	.920	.858	.871	.767	.887	.850	.875	.450	.793	.750	.884	.607	.898	.927



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: RAYMOND AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611010
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

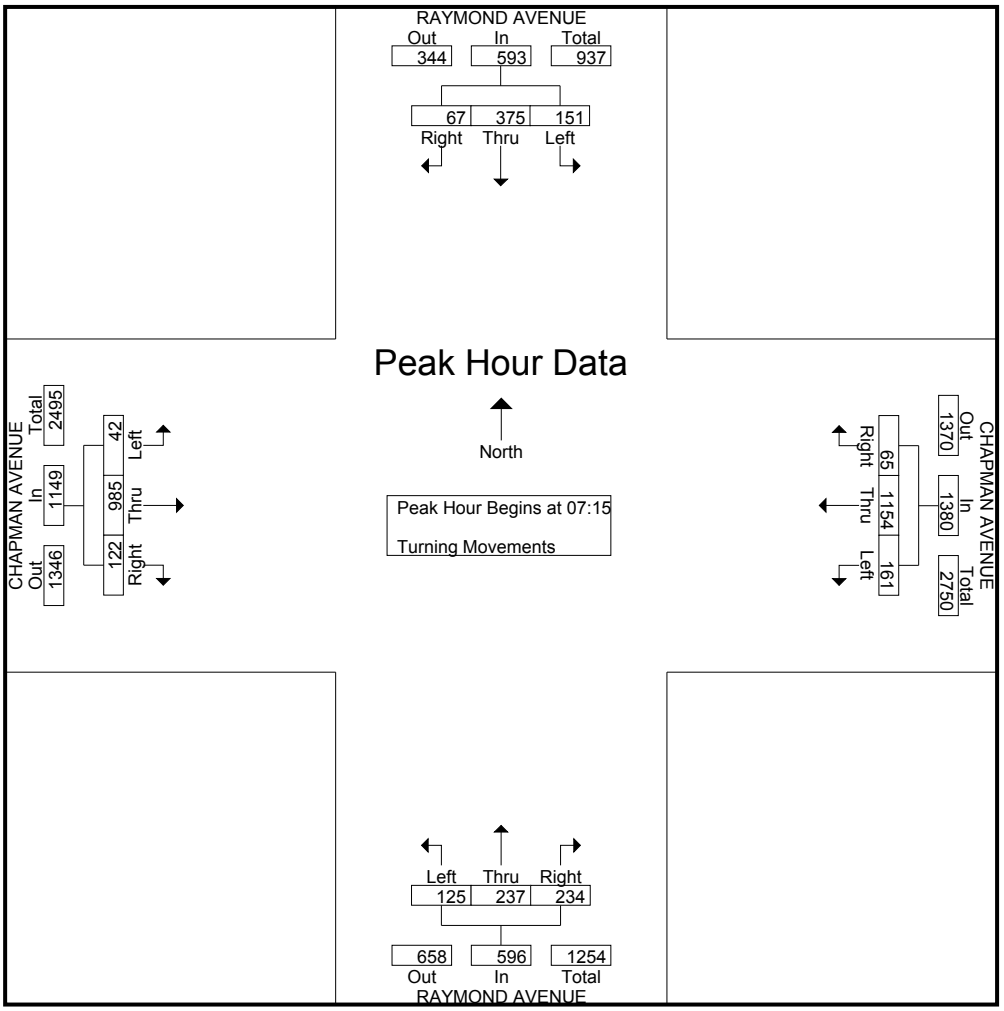
	RAYMOND AVENUE Southbound			CHAPMAN AVENUE Westbound			RAYMOND AVENUE Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	14	58	30	4	258	58	26	15	21	30	172	9	695
07:15	12	58	22	7	247	42	56	43	24	38	188	10	747
07:30	15	105	41	21	283	34	61	77	28	28	278	11	982
07:45	22	129	40	25	312	41	47	83	28	19	293	10	1049
Total	63	350	133	57	1100	175	190	218	101	115	931	40	3473
08:00	18	83	48	12	312	44	70	34	45	37	226	11	940
08:15	10	36	16	8	227	38	46	23	36	40	242	12	734
08:30	8	34	8	4	232	54	39	18	25	38	203	10	673
08:45	5	31	9	8	228	32	42	30	31	18	207	3	644
Total	41	184	81	32	999	168	197	105	137	133	878	36	2991
*** BREAK ***													
16:00	13	25	18	21	350	42	53	43	51	22	235	9	882
16:15	10	26	19	15	333	45	44	52	51	25	261	9	890
16:30	5	36	17	17	306	43	59	55	75	32	254	15	914
16:45	10	37	18	18	301	40	49	65	44	30	268	13	893
Total	38	124	72	71	1290	170	205	215	221	109	1018	46	3579
17:00	14	42	11	31	334	41	52	67	75	41	259	17	984
17:15	22	34	16	21	393	44	58	49	73	30	272	11	1023
17:30	12	37	16	26	378	47	46	56	55	31	267	17	988
17:45	9	40	12	19	345	39	41	45	64	40	183	14	851
Total	57	153	55	97	1450	171	197	217	267	142	981	59	3846
Grand Total	199	811	341	257	4839	684	789	755	726	499	3808	181	13889
Apprch %	14.7	60	25.2	4.4	83.7	11.8	34.8	33.3	32	11.1	84.8	4	
Total %	1.4	5.8	2.5	1.9	34.8	4.9	5.7	5.4	5.2	3.6	27.4	1.3	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: RAYMOND AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611010
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	RAYMOND AVENUE Southbound				CHAPMAN AVENUE Westbound				RAYMOND AVENUE Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	12	58	22	92	7	247	42	296	56	43	24	123	**38**	188	10	236	747
07:30	15	105	41	161	21	283	34	338	61	77	28	**166**	28	278	**11**	317	982
07:45	**22**	**129**	40	**191**	**25**	**312**	41	**378**	47	**83**	28	158	19	**293**	10	**322**	**1049**
08:00	18	83	**48**	149	12	312	**44**	368	**70**	34	**45**	149	37	226	11	274	940
Total Volume	67	375	151	593	65	1154	161	1380	234	237	125	596	122	985	42	1149	3718
% App. Total	11.3	63.2	25.5		4.7	83.6	11.7		39.3	39.8	21		10.6	85.7	3.7		
PHF	.761	.727	.786	.776	.650	.925	.915	.913	.836	.714	.694	.898	.803	.840	.955	.892	.886

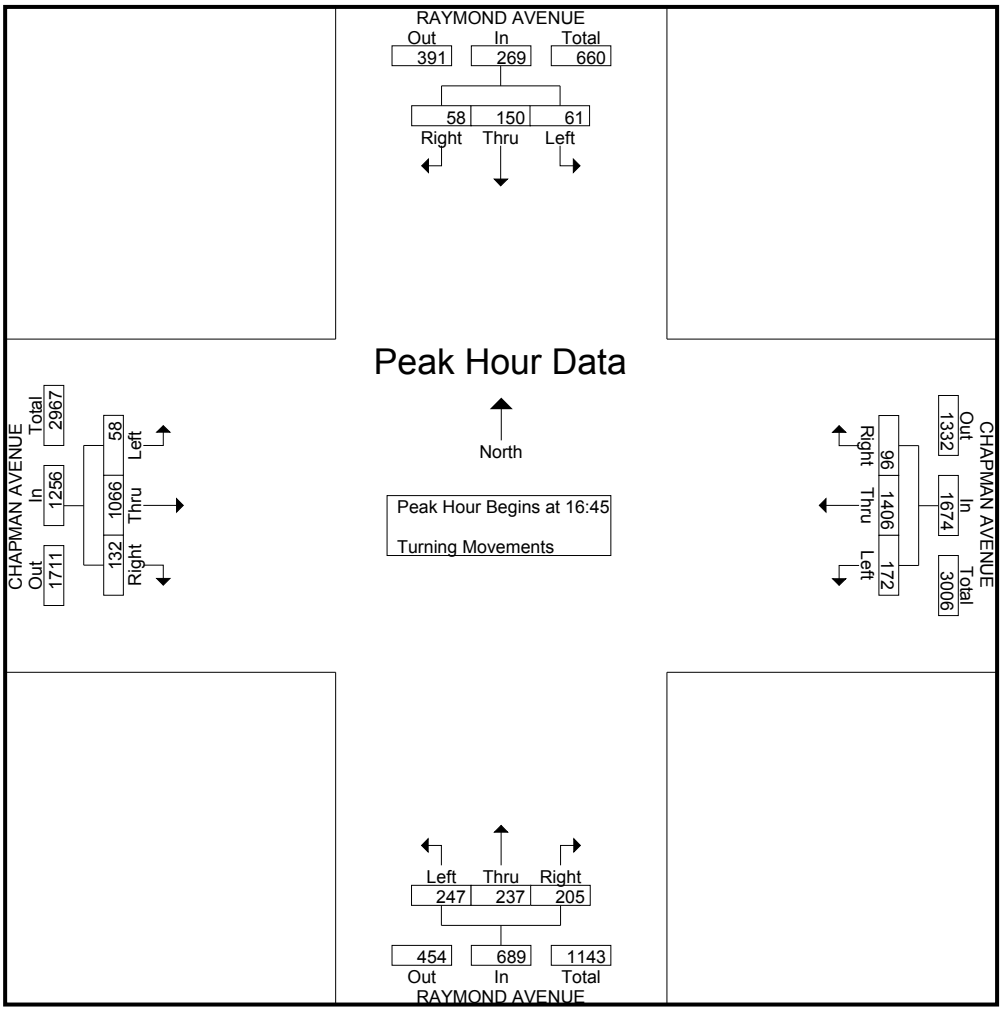


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: RAYMOND AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611010
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	RAYMOND AVENUE Southbound				CHAPMAN AVENUE Westbound				RAYMOND AVENUE Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	10	37	**18**	65	18	301	40	359	49	65	44	158	30	268	13	311	893
17:00	14	**42**	11	67	**31**	334	41	406	52	**67**	**75**	**194**	**41**	259	**17**	**317**	984
17:15	**22**	34	16	**72**	21	**393**	44	**458**	**58**	49	73	180	30	**272**	11	313	**1023**
17:30	12	37	16	65	26	378	**47**	451	46	56	55	157	31	267	17	315	988
Total Volume	58	150	61	269	96	1406	172	1674	205	237	247	689	132	1066	58	1256	3888
% App. Total	21.6	55.8	22.7		5.7	84	10.3		29.8	34.4	35.8		10.5	84.9	4.6		
PHF	.659	.893	.847	.934	.774	.894	.915	.914	.884	.884	.823	.888	.805	.980	.853	.991	.950



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: ACACIA AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611011
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

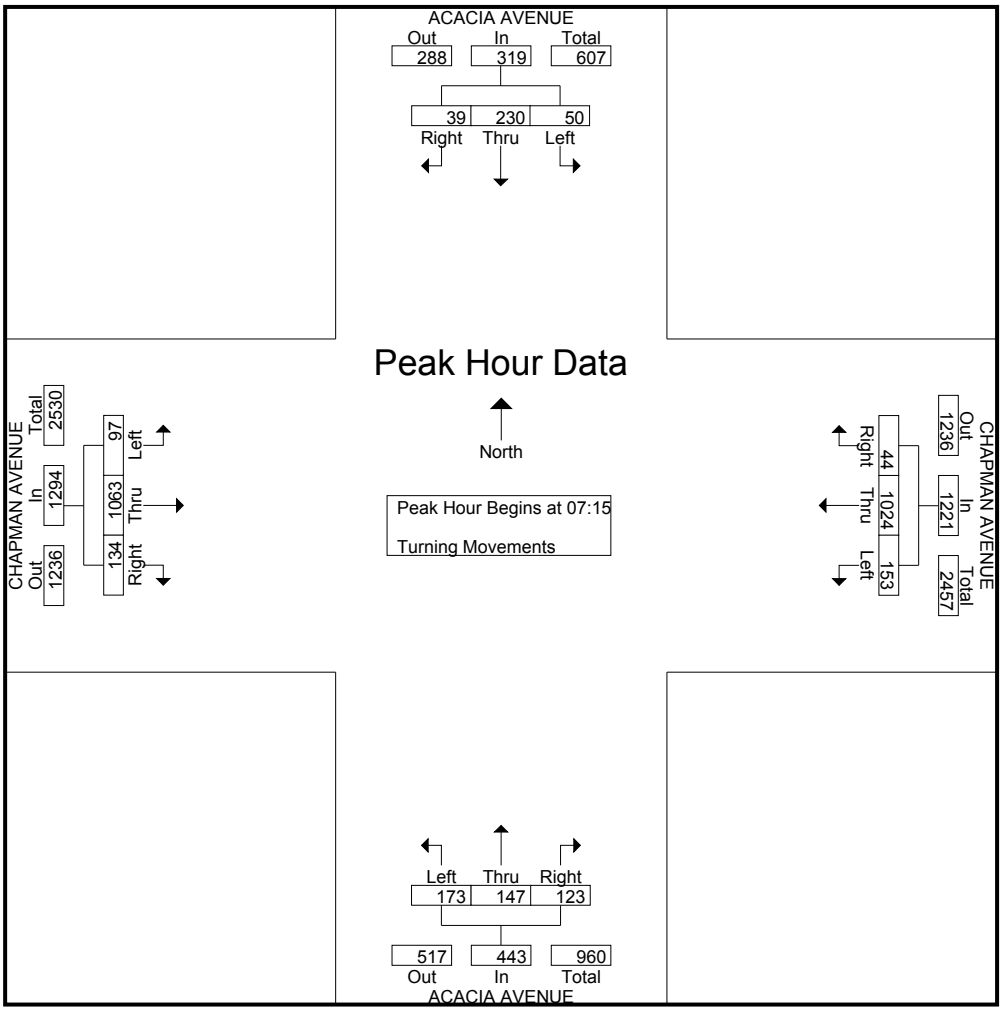
	ACACIA AVENUE Southbound			CHAPMAN AVENUE Westbound			ACACIA AVENUE Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	11	26	12	5	237	41	22	47	18	17	193	7	636
07:15	3	33	9	14	239	48	37	34	38	27	200	15	697
07:30	11	58	13	10	257	34	32	38	48	29	280	29	839
07:45	11	80	12	10	275	29	23	36	34	35	282	32	859
Total	36	197	46	39	1008	152	114	155	138	108	955	83	3031
08:00	14	59	16	10	253	42	31	39	53	43	301	21	882
08:15	12	24	11	12	233	30	28	27	29	19	260	12	697
08:30	11	28	14	14	221	18	34	22	33	8	220	9	632
08:45	12	19	15	16	228	26	38	19	28	17	191	9	618
Total	49	130	56	52	935	116	131	107	143	87	972	51	2829
*** BREAK ***													
16:00	26	59	18	19	341	31	28	17	11	25	246	10	831
16:15	13	28	14	9	310	26	18	33	19	25	277	10	782
16:30	6	22	13	20	296	27	28	79	17	13	257	15	793
16:45	12	24	13	11	302	20	40	75	15	24	273	12	821
Total	57	133	58	59	1249	104	114	204	62	87	1053	47	3227
17:00	18	23	15	14	336	27	54	55	24	17	261	15	859
17:15	21	28	12	14	379	25	27	27	14	19	317	11	894
17:30	11	26	7	10	377	31	29	20	12	24	285	6	838
17:45	9	22	5	11	325	36	17	12	19	14	199	4	673
Total	59	99	39	49	1417	119	127	114	69	74	1062	36	3264
Grand Total	201	559	199	199	4609	491	486	580	412	356	4042	217	12351
Apprch %	21	58.3	20.8	3.8	87	9.3	32.9	39.2	27.9	7.7	87.6	4.7	
Total %	1.6	4.5	1.6	1.6	37.3	4	3.9	4.7	3.3	2.9	32.7	1.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: ACACIA AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611011
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	ACACIA AVENUE Southbound				CHAPMAN AVENUE Westbound				ACACIA AVENUE Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	3	33	9	45	**14**	239	**48**	301	**37**	34	38	109	27	200	15	242	697
07:30	11	58	13	82	10	257	34	301	32	38	48	118	29	280	29	338	839
07:45	11	**80**	12	**103**	10	**275**	29	**314**	23	36	34	93	35	282	**32**	349	859
08:00	**14**	59	**16**	89	10	253	42	305	31	**39**	**53**	**123**	**43**	**301**	21	**365**	**882**
Total Volume	39	230	50	319	44	1024	153	1221	123	147	173	443	134	1063	97	1294	3277
% App. Total	12.2	72.1	15.7		3.6	83.9	12.5		27.8	33.2	39.1		10.4	82.1	7.5		
PHF	.696	.719	.781	.774	.786	.931	.797	.972	.831	.942	.816	.900	.779	.883	.758	.886	.929

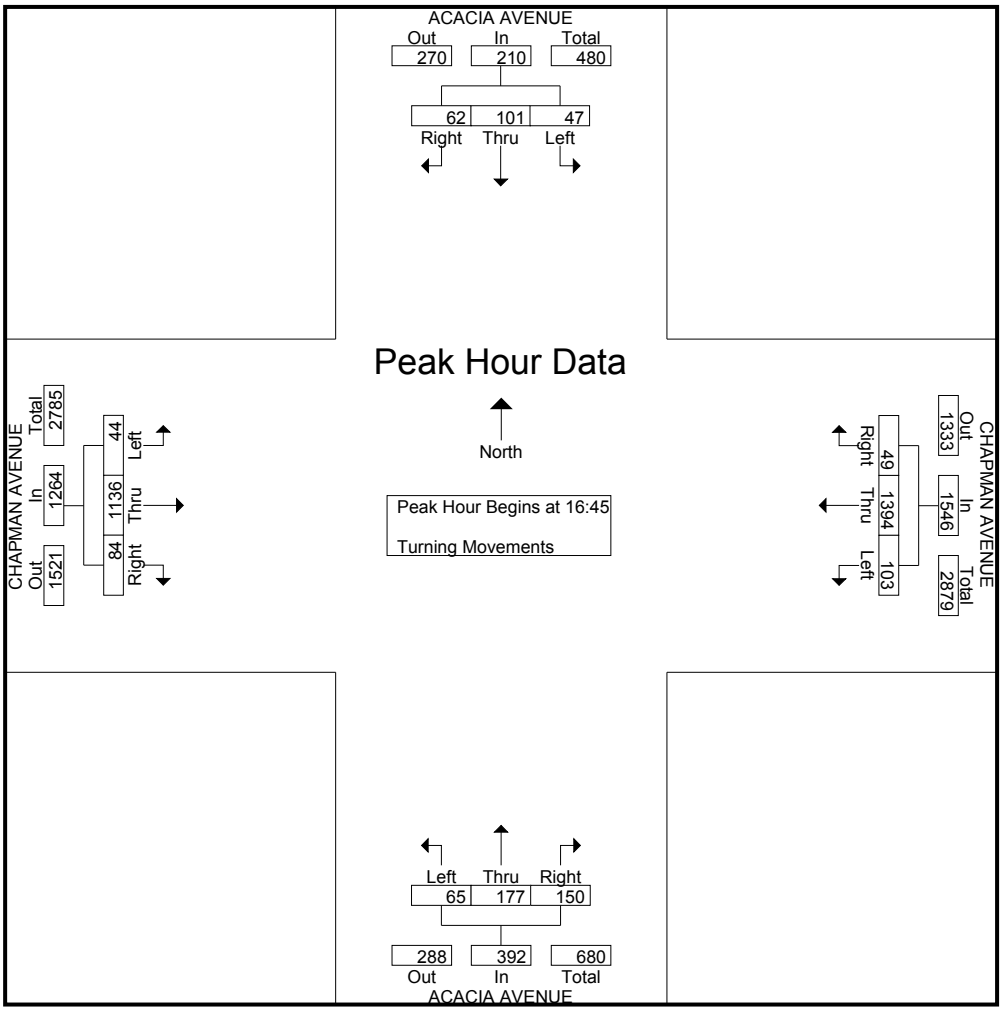


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: ACACIA AVENUE
E-W Direction: CHAPMAN AVENUE

File Name : H1611011
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	ACACIA AVENUE Southbound				CHAPMAN AVENUE Westbound				ACACIA AVENUE Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	12	24	13	49	11	302	20	333	40	**75**	15	130	**24**	273	12	309	821
17:00	18	23	**15**	56	**14**	336	27	377	**54**	55	**24**	**133**	17	261	**15**	293	859
17:15	**21**	**28**	12	**61**	14	**379**	25	**418**	27	27	14	68	19	**317**	11	**347**	**894**
17:30	11	26	7	44	10	377	**31**	418	29	20	12	61	24	285	6	315	838
Total Volume	62	101	47	210	49	1394	103	1546	150	177	65	392	84	1136	44	1264	3412
% App. Total	29.5	48.1	22.4		3.2	90.2	6.7		38.3	45.2	16.6		6.6	89.9	3.5		
PHF	.738	.902	.783	.861	.875	.920	.831	.925	.694	.590	.677	.737	.875	.896	.733	.911	.954



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: STATE COLLEGE BOULEVARD
E-W Direction: CHAPMAN AVENUE

File Name : H1611019
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

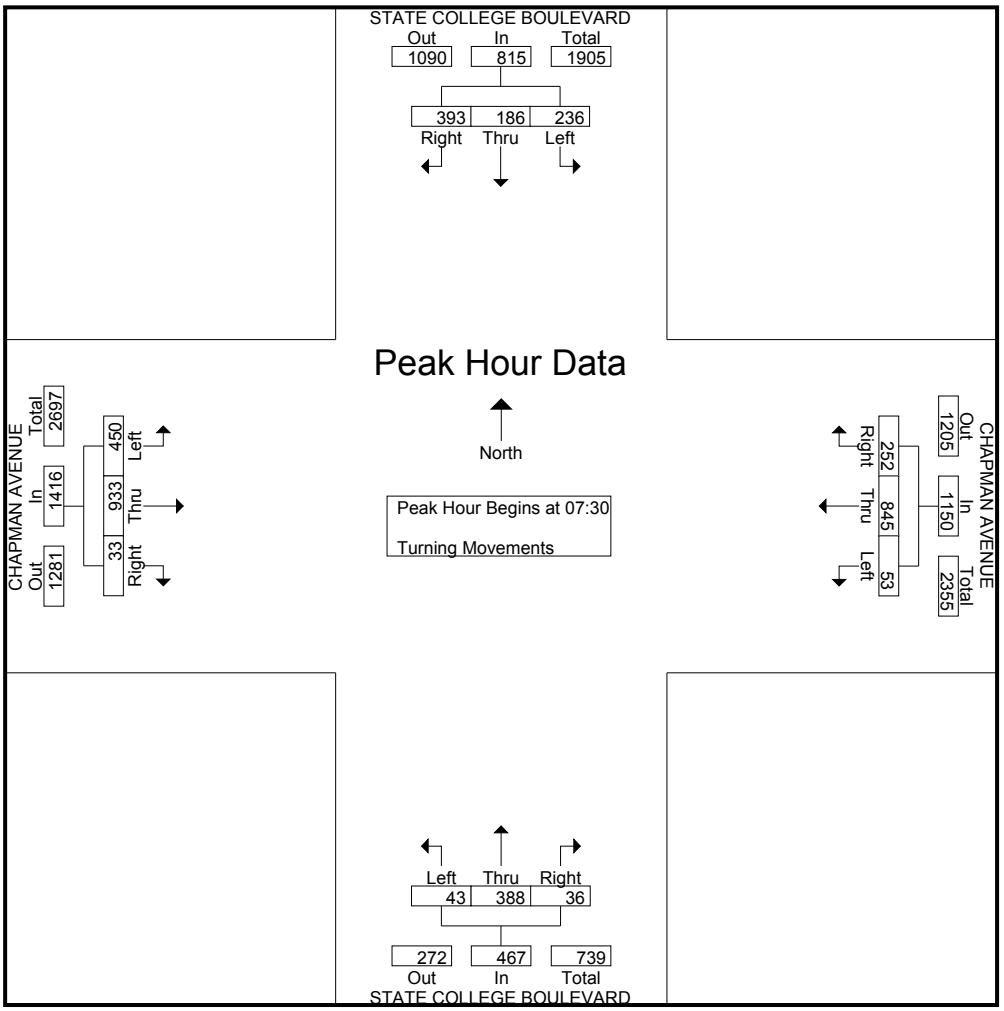
	STATE COLLEGE BOULEVARD Southbound			CHAPMAN AVENUE Westbound			STATE COLLEGE BOULEVARD Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	102	52	56	32	188	7	8	45	5	6	186	48	735
07:15	92	55	49	46	168	10	6	58	9	7	170	77	747
07:30	93	40	56	75	214	13	8	83	8	6	220	101	917
07:45	96	59	61	64	194	15	2	104	14	6	198	119	932
Total	383	206	222	217	764	45	24	290	36	25	774	345	3331
08:00	124	54	65	61	195	12	10	107	7	12	255	112	1014
08:15	80	33	54	52	242	13	16	94	14	9	260	118	985
08:30	78	39	39	48	118	15	11	70	12	2	191	93	716
08:45	86	43	54	42	209	14	5	44	5	6	187	70	765
Total	368	169	212	203	764	54	42	315	38	29	893	393	3480
*** BREAK ***													
16:00	120	110	129	52	231	30	27	56	30	13	206	70	1074
16:15	111	72	64	51	248	32	18	88	21	22	224	92	1043
16:30	107	86	48	48	204	41	11	81	24	13	224	70	957
16:45	111	79	43	42	260	38	14	80	12	14	230	89	1012
Total	449	347	284	193	943	141	70	305	87	62	884	321	4086
17:00	127	97	66	50	262	38	21	99	17	9	225	104	1115
17:15	118	95	96	71	259	29	13	90	20	11	200	95	1097
17:30	139	91	75	75	260	25	14	77	18	14	191	96	1075
17:45	112	70	48	74	248	29	13	91	17	13	191	113	1019
Total	496	353	285	270	1029	121	61	357	72	47	807	408	4306
Grand Total	1696	1075	1003	883	3500	361	197	1267	233	163	3358	1467	15203
Apprch %	44.9	28.5	26.6	18.6	73.8	7.6	11.6	74.7	13.7	3.3	67.3	29.4	
Total %	11.2	7.1	6.6	5.8	23	2.4	1.3	8.3	1.5	1.1	22.1	9.6	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: STATE COLLEGE BOULEVARD
E-W Direction: CHAPMAN AVENUE

File Name : H1611019
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	STATE COLLEGE BOULEVARD Southbound				CHAPMAN AVENUE Westbound				STATE COLLEGE BOULEVARD Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	93	40	56	189	**75**	214	13	302	8	83	8	99	6	220	101	327	917
07:45	96	**59**	61	216	64	194	**15**	273	2	104	**14**	120	6	198	**119**	323	932
08:00	**124**	54	**65**	**243**	61	195	12	268	10	**107**	7	**124**	**12**	255	112	379	**1014**
08:15	80	33	54	167	52	**242**	13	**307**	**16**	94	14	124	9	**260**	118	**387**	985
Total Volume	393	186	236	815	252	845	53	1150	36	388	43	467	33	933	450	1416	3848
% App. Total	48.2	22.8	29		21.9	73.5	4.6		7.7	83.1	9.2		2.3	65.9	31.8		
PHF	.792	.788	.908	.838	.840	.873	.883	.936	.563	.907	.768	.942	.688	.897	.945	.915	.949

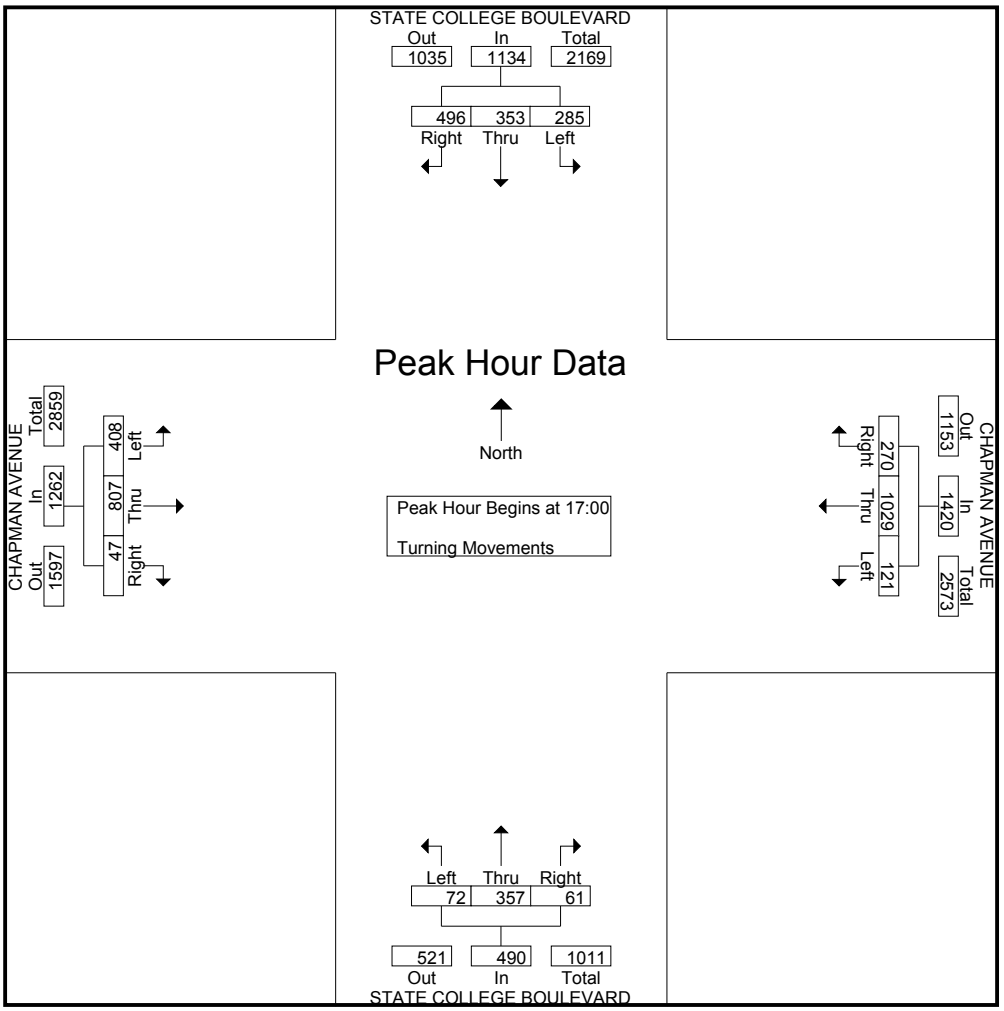


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: STATE COLLEGE BOULEVARD
E-W Direction: CHAPMAN AVENUE

File Name : H1611019
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	STATE COLLEGE BOULEVARD Southbound				CHAPMAN AVENUE Westbound				STATE COLLEGE BOULEVARD Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	127	**97**	66	290	50	**262**	**38**	350	**21**	**99**	17	**137**	9	**225**	104	**338**	**1115**
17:15	118	95	**96**	**309**	71	259	29	359	13	90	**20**	123	11	200	95	306	1097
17:30	**139**	91	75	305	**75**	260	25	**360**	14	77	18	109	**14**	191	96	301	1075
17:45	112	70	48	230	74	248	29	351	13	91	17	121	13	191	**113**	317	1019
Total Volume	496	353	285	1134	270	1029	121	1420	61	357	72	490	47	807	408	1262	4306
% App. Total	43.7	31.1	25.1		19	72.5	8.5		12.4	72.9	14.7		3.7	63.9	32.3		
PHF	.892	.910	.742	.917	.900	.982	.796	.986	.726	.902	.900	.894	.839	.897	.903	.933	.965



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: SR-57 SB RAMPS
E-W Direction: CHAPMAN AVENUE

File Name : H1611020
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

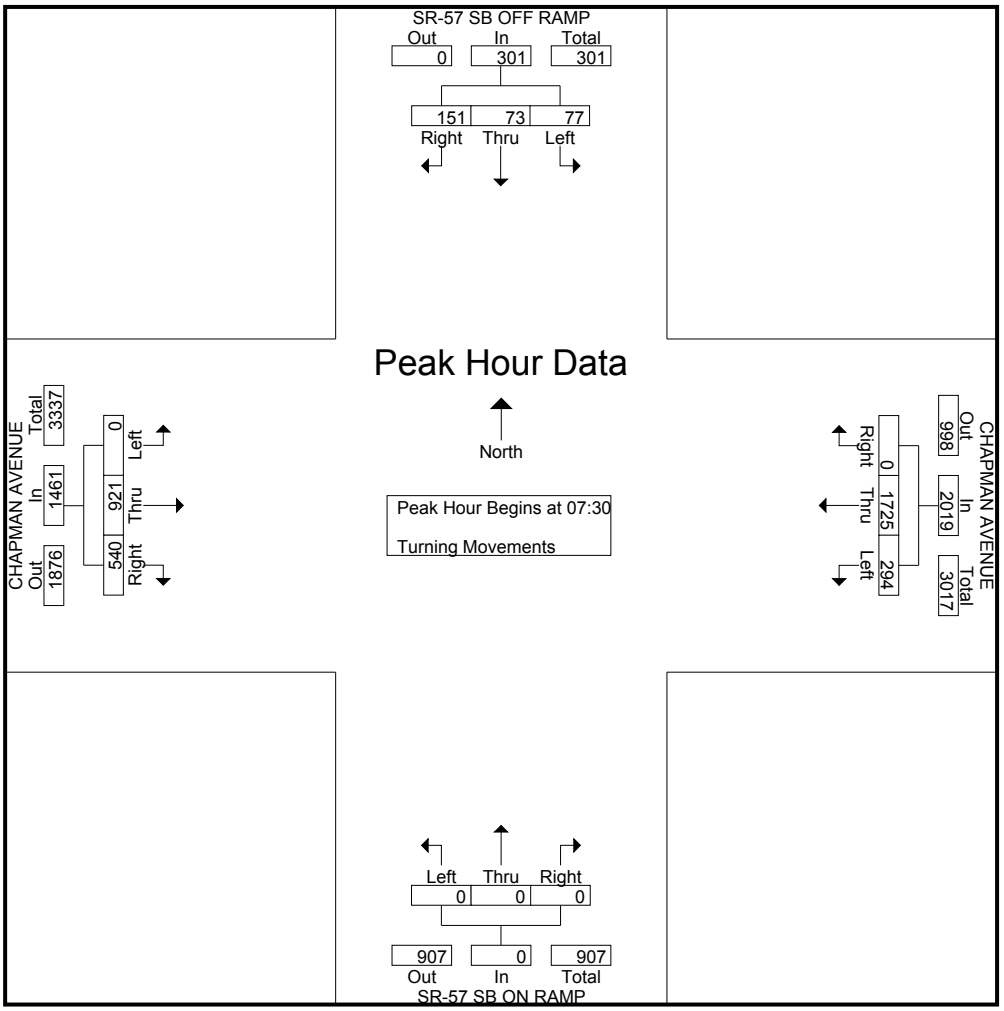
	SR-57 SB OFF RAMP Southbound			CHAPMAN AVENUE Westbound			SR-57 SB ON RAMP Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	19	32	8	0	301	96	0	0	0	159	148	0	763
07:15	16	18	14	0	319	84	0	0	0	148	155	0	754
07:30	31	17	23	0	422	79	0	0	0	144	194	0	910
07:45	46	21	24	0	429	81	0	0	0	111	189	0	901
Total	112	88	69	0	1471	340	0	0	0	562	686	0	3328
08:00	43	21	13	0	462	63	0	0	0	153	201	0	956
08:15	31	14	17	0	412	71	0	0	0	132	337	0	1014
08:30	19	20	14	0	348	68	0	0	0	120	173	0	762
08:45	25	6	16	0	345	67	0	0	0	119	143	0	721
Total	118	61	60	0	1567	269	0	0	0	524	854	0	3453
*** BREAK ***													
16:00	44	59	21	0	330	49	0	0	0	174	208	0	885
16:15	32	26	19	0	343	75	0	0	0	152	215	0	862
16:30	31	12	21	0	340	49	0	0	0	138	232	0	823
16:45	26	13	14	0	380	47	0	0	0	110	242	0	832
Total	133	110	75	0	1393	220	0	0	0	574	897	0	3402
17:00	38	21	23	0	373	53	0	0	0	139	238	0	885
17:15	36	61	27	0	382	55	0	0	0	127	251	0	939
17:30	47	49	26	0	368	46	0	0	0	123	258	0	917
17:45	52	15	24	0	381	46	0	0	0	118	246	0	882
Total	173	146	100	0	1504	200	0	0	0	507	993	0	3623
Grand Total	536	405	304	0	5935	1029	0	0	0	2167	3430	0	13806
Apprch %	43.1	32.5	24.4	0	85.2	14.8	0	0	0	38.7	61.3	0	
Total %	3.9	2.9	2.2	0	43	7.5	0	0	0	15.7	24.8	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: SR-57 SB RAMPS
E-W Direction: CHAPMAN AVENUE

File Name : H1611020
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	SR-57 SB OFF RAMP Southbound				CHAPMAN AVENUE Westbound				SR-57 SB ON RAMP Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	31	17	23	71	0	422	79	501	0	0	0	0	144	194	0	338	910
07:45	**46**	**21**	**24**	**91**	0	429	**81**	510	0	0	0	0	111	189	0	300	901
08:00	43	21	13	77	0	**462**	63	**525**	0	0	0	0	**153**	201	0	354	956
08:15	31	14	17	62	0	412	71	483	0	0	0	0	132	**337**	0	**469**	**1014**
Total Volume	151	73	77	301	0	1725	294	2019	0	0	0	0	540	921	0	1461	3781
% App. Total	50.2	24.3	25.6		0	85.4	14.6		0	0	0		37	63	0		
PHF	.821	.869	.802	.827	.000	.933	.907	.961	.000	.000	.000	.000	.882	.683	.000	.779	.932

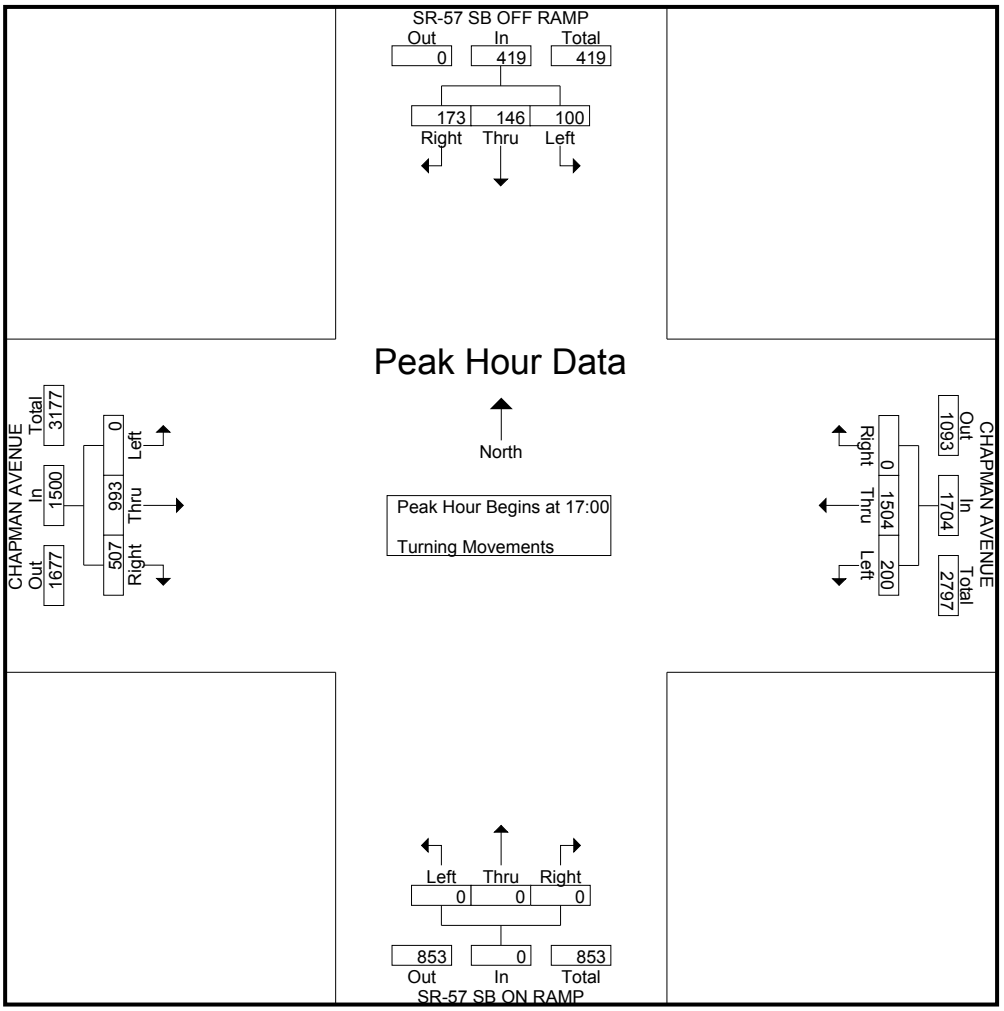


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: SR-57 SB RAMPS
E-W Direction: CHAPMAN AVENUE

File Name : H1611020
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	SR-57 SB OFF RAMP Southbound				CHAPMAN AVENUE Westbound				SR-57 SB ON RAMP Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	38	21	23	82	0	373	53	426	0	0	0	0	**139**	238	0	377	885
17:15	36	**61**	**27**	**124**	0	**382**	**55**	**437**	0	0	0	0	127	251	0	378	**939**
17:30	47	49	26	122	0	368	46	414	0	0	0	0	123	**258**	0	**381**	917
17:45	**52**	15	24	91	0	381	46	427	0	0	0	0	118	246	0	364	882
Total Volume	173	146	100	419	0	1504	200	1704	0	0	0	0	507	993	0	1500	3623
% App. Total	41.3	34.8	23.9		0	88.3	11.7		0	0	0		33.8	66.2	0		
PHF	.832	.598	.926	.845	.000	.984	.909	.975	.000	.000	.000	.000	.912	.962	.000	.984	.965



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: SR-57 NB RAMPS
E-W Direction: CHAPMAN AVENUE

File Name : H1611021
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Truning Movements

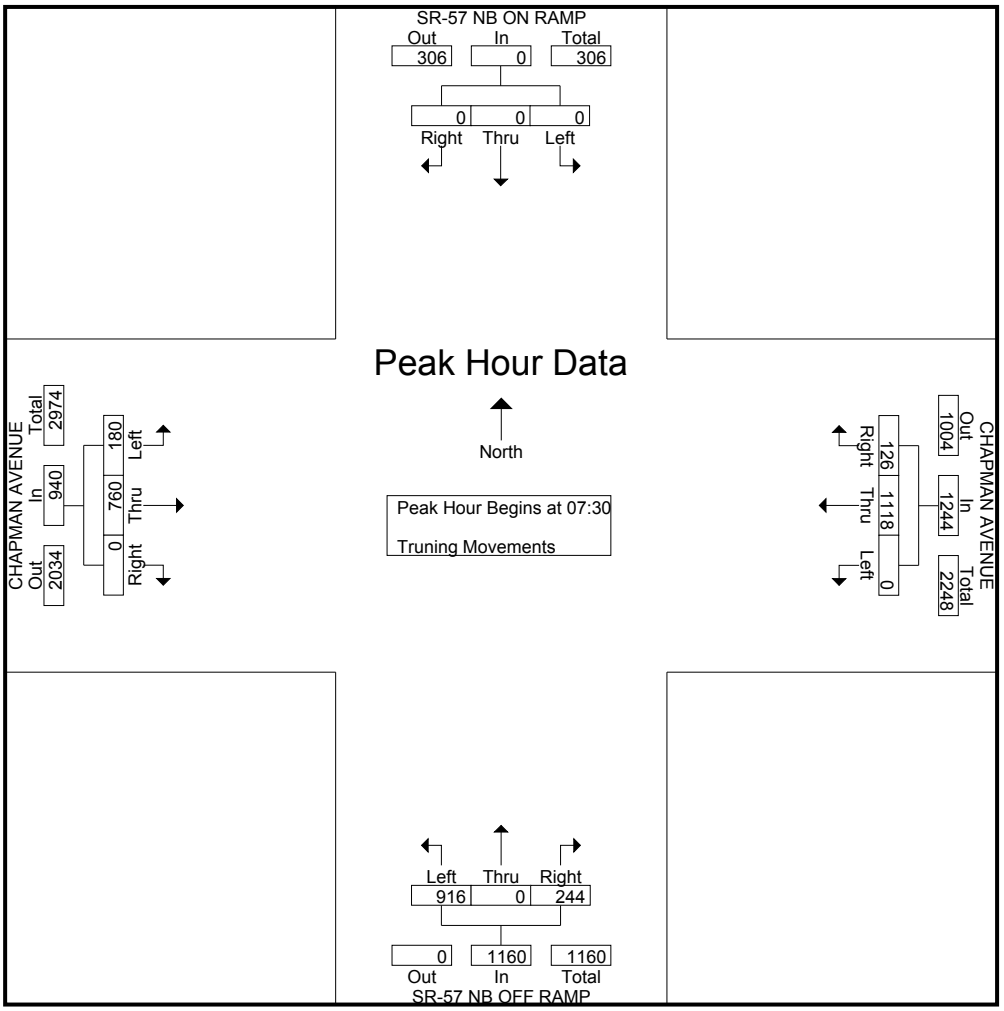
	SR-57 NB ON RAMP Southbound			CHAPMAN AVENUE Westbound			SR-57 NB OFF RAMP Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	24	235	0	49	0	144	0	130	36	618
07:15	0	0	0	47	218	0	55	0	188	0	137	41	686
07:30	0	0	0	29	277	0	71	0	232	0	167	42	818
07:45	0	0	0	35	291	0	53	0	226	0	172	33	810
Total	0	0	0	135	1021	0	228	0	790	0	606	152	2932
08:00	0	0	0	27	282	0	66	0	233	0	185	50	843
08:15	0	0	0	35	268	0	54	0	225	0	236	55	873
08:30	0	0	0	34	234	0	66	0	185	0	145	48	712
08:45	0	0	0	26	233	0	62	0	171	0	161	33	686
Total	0	0	0	122	1017	0	248	0	814	0	727	186	3114
*** BREAK ***													
16:00	0	0	0	55	251	0	120	0	146	0	184	40	796
16:15	0	0	0	40	263	0	115	0	135	0	215	26	794
16:30	0	0	0	49	229	0	94	0	154	0	220	38	784
16:45	0	0	0	28	274	0	129	0	153	0	225	32	841
Total	0	0	0	172	1017	0	458	0	588	0	844	136	3215
17:00	0	0	0	42	277	0	108	0	157	0	227	38	849
17:15	0	0	0	57	297	0	125	0	133	0	245	33	890
17:30	0	0	0	47	277	0	117	0	159	0	242	33	875
17:45	0	0	0	42	269	0	117	0	144	0	236	37	845
Total	0	0	0	188	1120	0	467	0	593	0	950	141	3459
Grand Total	0	0	0	617	4175	0	1401	0	2785	0	3127	615	12720
Apprch %	0	0	0	12.9	87.1	0	33.5	0	66.5	0	83.6	16.4	
Total %	0	0	0	4.9	32.8	0	11	0	21.9	0	24.6	4.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: SR-57 NB RAMPS
E-W Direction: CHAPMAN AVENUE

File Name : H1611021
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	SR-57 NB ON RAMP Southbound				CHAPMAN AVENUE Westbound				SR-57 NB OFF RAMP Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	29	277	0	306	**71**	0	232	**303**	0	167	42	209	818
07:45	0	0	0	0	**35**	**291**	0	**326**	53	0	226	279	0	172	33	205	810
08:00	0	0	0	0	27	282	0	309	66	0	**233**	299	0	185	50	235	843
08:15	0	0	0	0	35	268	0	303	54	0	225	279	0	**236**	**55**	**291**	**873**
Total Volume	0	0	0	0	126	1118	0	1244	244	0	916	1160	0	760	180	940	3344
% App. Total	0	0	0		10.1	89.9	0		21	0	79		0	80.9	19.1		
PHF	.000	.000	.000	.000	.900	.960	.000	.954	.859	.000	.983	.957	.000	.805	.818	.808	.958

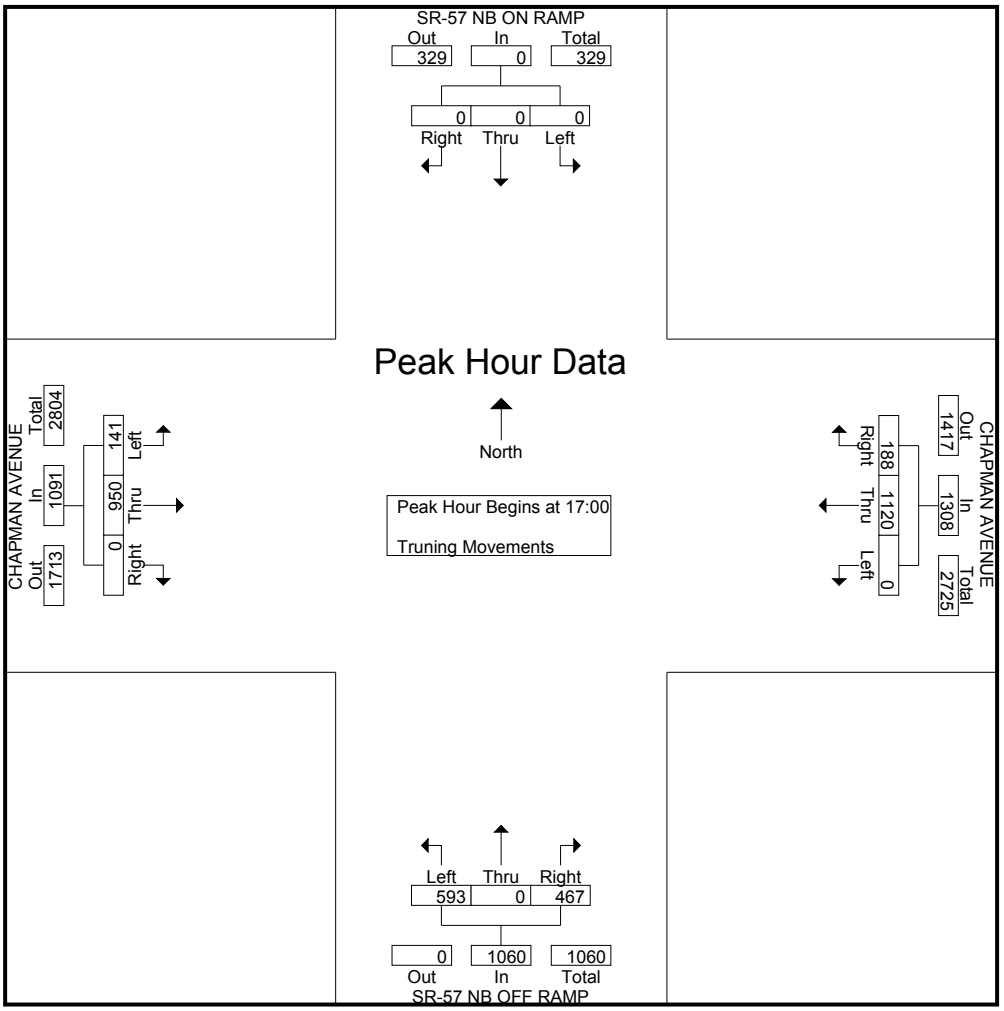


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: SR-57 NB RAMPS
E-W Direction: CHAPMAN AVENUE

File Name : H1611021
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	SR-57 NB ON RAMP Southbound				CHAPMAN AVENUE Westbound				SR-57 NB OFF RAMP Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	0	0	0	42	277	0	319	108	0	157	265	0	227	**38**	265	849
17:15	0	0	0	0	**57**	**297**	0	**354**	**125**	0	133	258	0	**245**	33	**278**	**890**
17:30	0	0	0	0	47	277	0	324	117	0	**159**	**276**	0	242	33	275	875
17:45	0	0	0	0	42	269	0	311	117	0	144	261	0	236	37	273	845
Total Volume	0	0	0	0	188	1120	0	1308	467	0	593	1060	0	950	141	1091	3459
% App. Total	0	0	0		14.4	85.6	0		44.1	0	55.9		0	87.1	12.9		
PHF	.000	.000	.000	.000	.825	.943	.000	.924	.934	.000	.932	.960	.000	.969	.928	.981	.972



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: WILSHIRE AVENUE

File Name : H1611022
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

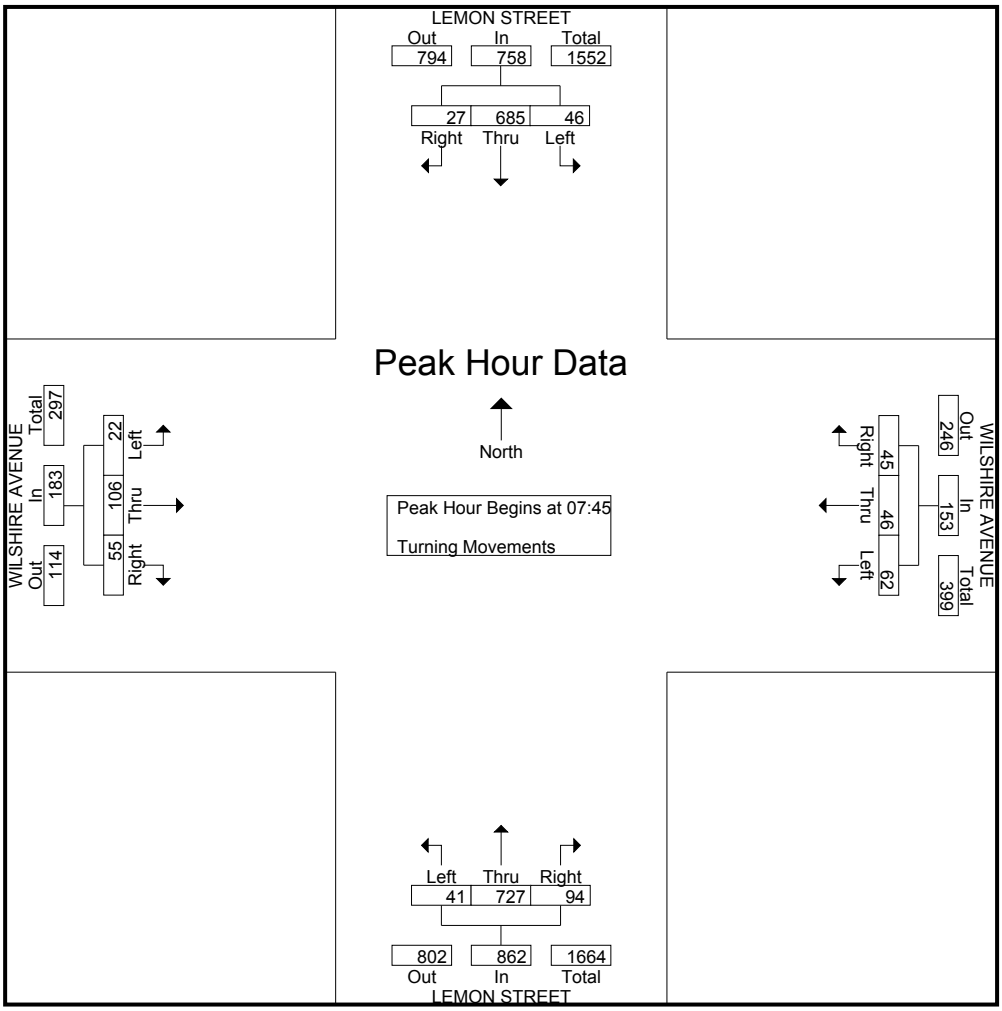
	LEMON STREET Southbound			WILSHIRE AVENUE Westbound			LEMON STREET Northbound			WILSHIRE AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	7	180	7	5	10	8	32	170	5	13	15	1	453
07:15	4	213	6	4	5	7	22	131	3	7	10	1	413
07:30	11	178	23	16	5	5	16	188	8	10	24	5	489
07:45	13	203	11	10	10	14	27	189	12	11	39	10	549
Total	35	774	47	35	30	34	97	678	28	41	88	17	1904
08:00	4	159	5	9	14	16	18	154	6	14	35	7	441
08:15	3	166	13	7	13	8	19	192	13	5	17	3	459
08:30	7	157	17	19	9	24	30	192	10	25	15	2	507
08:45	4	155	8	5	10	14	28	122	12	10	7	2	377
Total	18	637	43	40	46	62	95	660	41	54	74	14	1784
*** BREAK ***													
16:00	7	205	6	18	13	22	22	210	13	9	18	5	548
16:15	10	217	13	14	24	25	22	241	9	9	9	6	599
16:30	6	202	8	12	8	20	17	240	6	5	6	6	536
16:45	13	180	14	7	7	12	27	258	11	8	7	1	545
Total	36	804	41	51	52	79	88	949	39	31	40	18	2228
17:00	8	200	15	22	6	24	16	246	14	14	9	5	579
17:15	15	216	15	22	18	19	16	276	12	11	12	3	635
17:30	7	184	5	14	7	12	19	225	14	8	7	5	507
17:45	5	173	6	9	12	22	21	264	11	8	5	6	542
Total	35	773	41	67	43	77	72	1011	51	41	33	19	2263
Grand Total	124	2988	172	193	171	252	352	3298	159	167	235	68	8179
Apprch %	3.8	91	5.2	31.3	27.8	40.9	9.2	86.6	4.2	35.5	50	14.5	
Total %	1.5	36.5	2.1	2.4	2.1	3.1	4.3	40.3	1.9	2	2.9	0.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: WILSHIRE AVENUE

File Name : H1611022
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	LEMON STREET Southbound				WILSHIRE AVENUE Westbound				LEMON STREET Northbound				WILSHIRE AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	**13**	**203**	11	**227**	10	10	14	34	27	189	12	228	11	**39**	**10**	**60**	**549**
08:00	4	159	5	168	9	**14**	16	39	18	154	6	178	14	35	7	56	441
08:15	3	166	13	182	7	13	8	28	19	**192**	**13**	224	5	17	3	25	459
08:30	7	157	**17**	181	**19**	9	**24**	**52**	**30**	192	10	**232**	**25**	15	2	42	507
Total Volume	27	685	46	758	45	46	62	153	94	727	41	862	55	106	22	183	1956
% App. Total	3.6	90.4	6.1		29.4	30.1	40.5		10.9	84.3	4.8		30.1	57.9	12		
PHF	.519	.844	.676	.835	.592	.821	.646	.736	.783	.947	.788	.929	.550	.679	.550	.763	.891

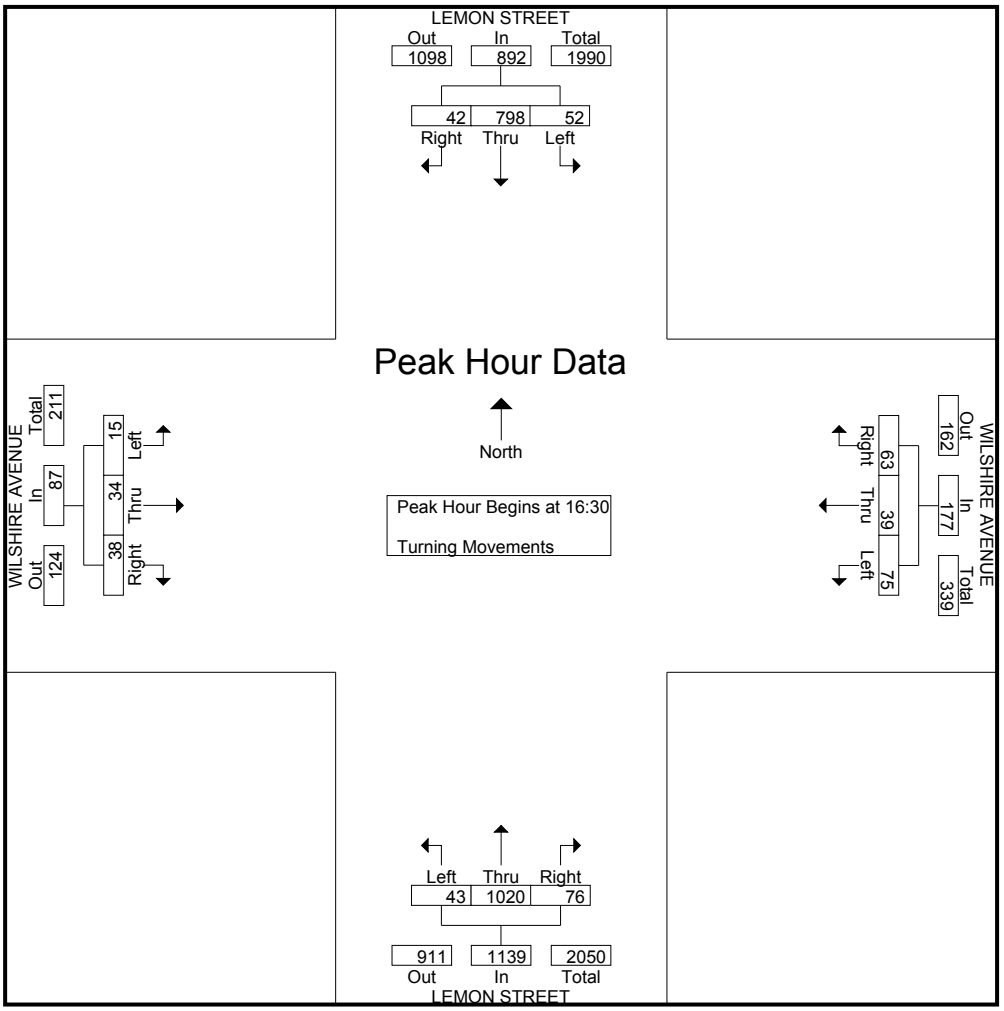


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: WILSHIRE AVENUE

File Name : H1611022
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	LEMON STREET Southbound				WILSHIRE AVENUE Westbound				LEMON STREET Northbound				WILSHIRE AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	6	202	8	216	12	8	20	40	17	240	6	263	5	6	**6**	17	536
16:45	13	180	14	207	7	7	12	26	**27**	258	11	296	8	7	1	16	545
17:00	8	200	**15**	223	**22**	6	**24**	52	16	246	**14**	276	**14**	9	5	**28**	579
17:15	**15**	**216**	15	**246**	22	**18**	19	**59**	16	**276**	12	**304**	11	**12**	3	26	**635**
Total Volume	42	798	52	892	63	39	75	177	76	1020	43	1139	38	34	15	87	2295
% App. Total	4.7	89.5	5.8		35.6	22	42.4		6.7	89.6	3.8		43.7	39.1	17.2		
PHF	.700	.924	.867	.907	.716	.542	.781	.750	.704	.924	.768	.937	.679	.708	.625	.777	.904



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: COMMONWEALTH AVENUE

File Name : H1611023
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

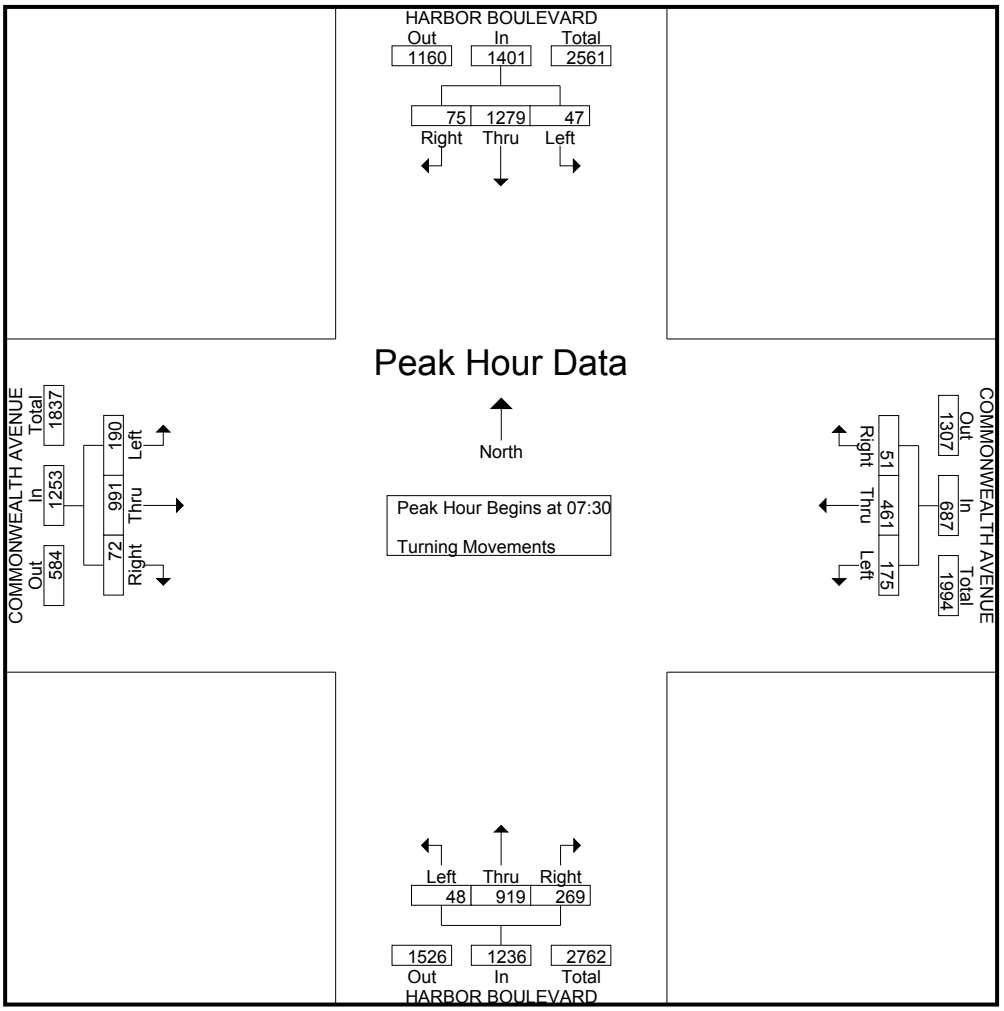
	HARBOR BOULEVARD Southbound			COMMONWEALTH AVENUE Westbound			HARBOR BOULEVARD Northbound			COMMONWEALTH AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	8	359	13	10	67	36	47	132	7	20	179	37	915
07:15	11	354	11	9	88	33	33	171	5	31	225	52	1023
07:30	17	340	11	11	104	53	68	210	7	18	245	44	1128
07:45	13	300	14	12	119	43	84	202	9	12	262	41	1111
Total	49	1353	49	42	378	165	232	715	28	81	911	174	4177
08:00	16	326	15	19	133	44	59	237	13	16	245	47	1170
08:15	29	313	7	9	105	35	58	270	19	26	239	58	1168
08:30	18	294	17	10	99	32	51	218	25	25	216	57	1062
08:45	18	270	25	9	78	43	37	165	18	22	119	44	848
Total	81	1203	64	47	415	154	205	890	75	89	819	206	4248
*** BREAK ***													
16:00	20	269	14	9	156	57	39	248	23	33	131	40	1039
16:15	21	253	7	22	174	63	54	237	15	24	130	38	1038
16:30	22	229	14	23	188	47	50	238	23	22	108	29	993
16:45	29	250	9	11	184	55	39	244	28	29	135	29	1042
Total	92	1001	44	65	702	222	182	967	89	108	504	136	4112
17:00	24	247	6	19	174	61	44	242	24	23	158	29	1051
17:15	22	251	17	16	182	51	51	258	30	30	139	30	1077
17:30	22	217	19	12	190	55	45	230	26	22	122	33	993
17:45	23	230	15	16	175	51	35	217	29	39	146	44	1020
Total	91	945	57	63	721	218	175	947	109	114	565	136	4141
Grand Total	313	4502	214	217	2216	759	794	3519	301	392	2799	652	16678
Apprch %	6.2	89.5	4.3	6.8	69.4	23.8	17.2	76.3	6.5	10.2	72.8	17	
Total %	1.9	27	1.3	1.3	13.3	4.6	4.8	21.1	1.8	2.4	16.8	3.9	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: COMMONWEALTH AVENUE

File Name : H1611023
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	HARBOR BOULEVARD Southbound				COMMONWEALTH AVENUE Westbound				HARBOR BOULEVARD Northbound				COMMONWEALTH AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	17	**340**	11	**368**	11	104	**53**	168	68	210	7	285	18	245	44	307	1128
07:45	13	300	14	327	12	119	43	174	**84**	202	9	295	12	**262**	41	315	1111
08:00	16	326	**15**	357	**19**	**133**	44	**196**	59	237	13	309	16	245	47	308	**1170**
08:15	**29**	313	7	349	9	105	35	149	58	**270**	**19**	**347**	**26**	239	**58**	**323**	1168
Total Volume	75	1279	47	1401	51	461	175	687	269	919	48	1236	72	991	190	1253	4577
% App. Total	5.4	91.3	3.4		7.4	67.1	25.5		21.8	74.4	3.9		5.7	79.1	15.2		
PHF	.647	.940	.783	.952	.671	.867	.825	.876	.801	.851	.632	.890	.692	.946	.819	.970	.978

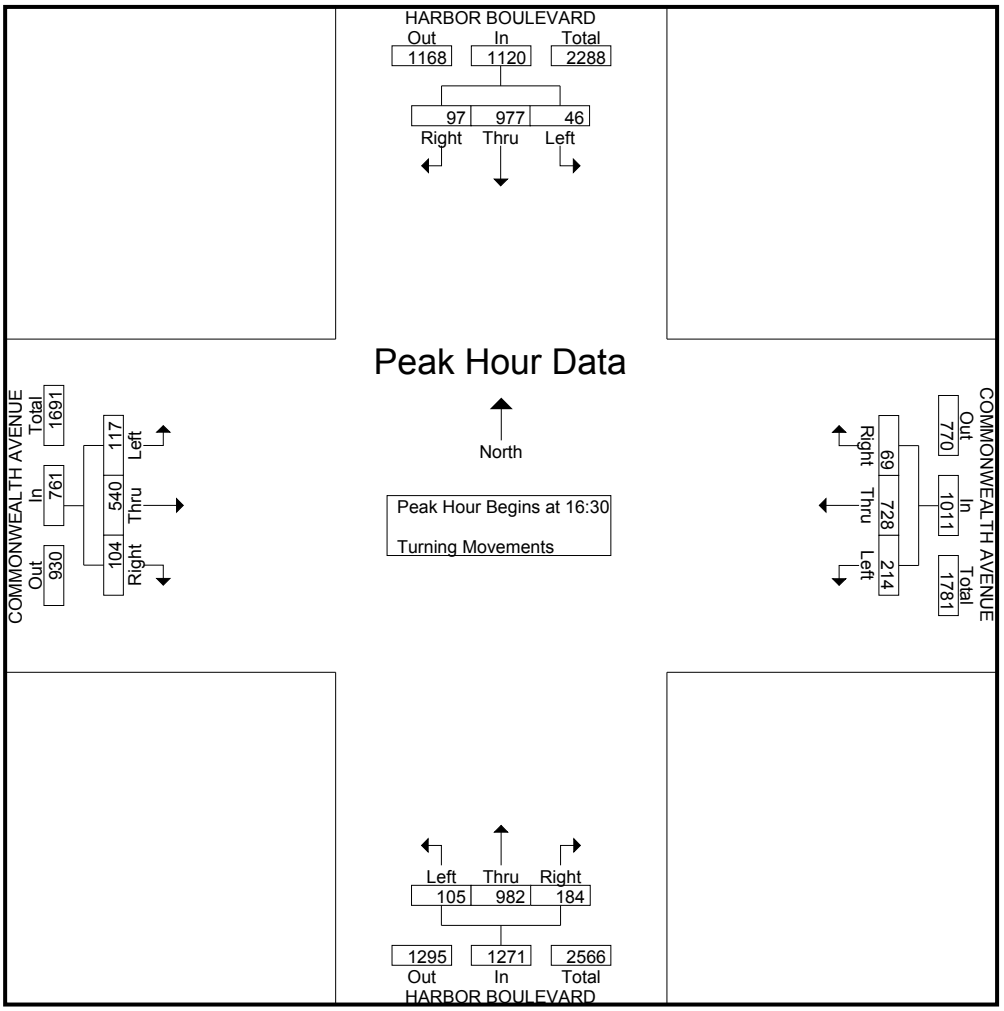


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: COMMONWEALTH AVENUE

File Name : H1611023
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	HARBOR BOULEVARD Southbound				COMMONWEALTH AVENUE Westbound				HARBOR BOULEVARD Northbound				COMMONWEALTH AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	22	229	14	265	**23**	**188**	47	**258**	50	238	23	311	22	108	29	159	993
16:45	**29**	250	9	288	11	184	55	250	39	244	28	311	29	135	29	193	1042
17:00	24	247	6	277	19	174	**61**	254	44	242	24	310	23	**158**	29	**210**	1051
17:15	22	**251**	**17**	**290**	16	182	51	249	**51**	**258**	**30**	**339**	**30**	139	**30**	199	**1077**
Total Volume	97	977	46	1120	69	728	214	1011	184	982	105	1271	104	540	117	761	4163
% App. Total	8.7	87.2	4.1		6.8	72	21.2		14.5	77.3	8.3		13.7	71	15.4		
PHF	.836	.973	.676	.966	.750	.968	.877	.980	.902	.952	.875	.937	.867	.854	.975	.906	.966



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: COMMONWEALTH AVENUE

File Name : H1611024
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

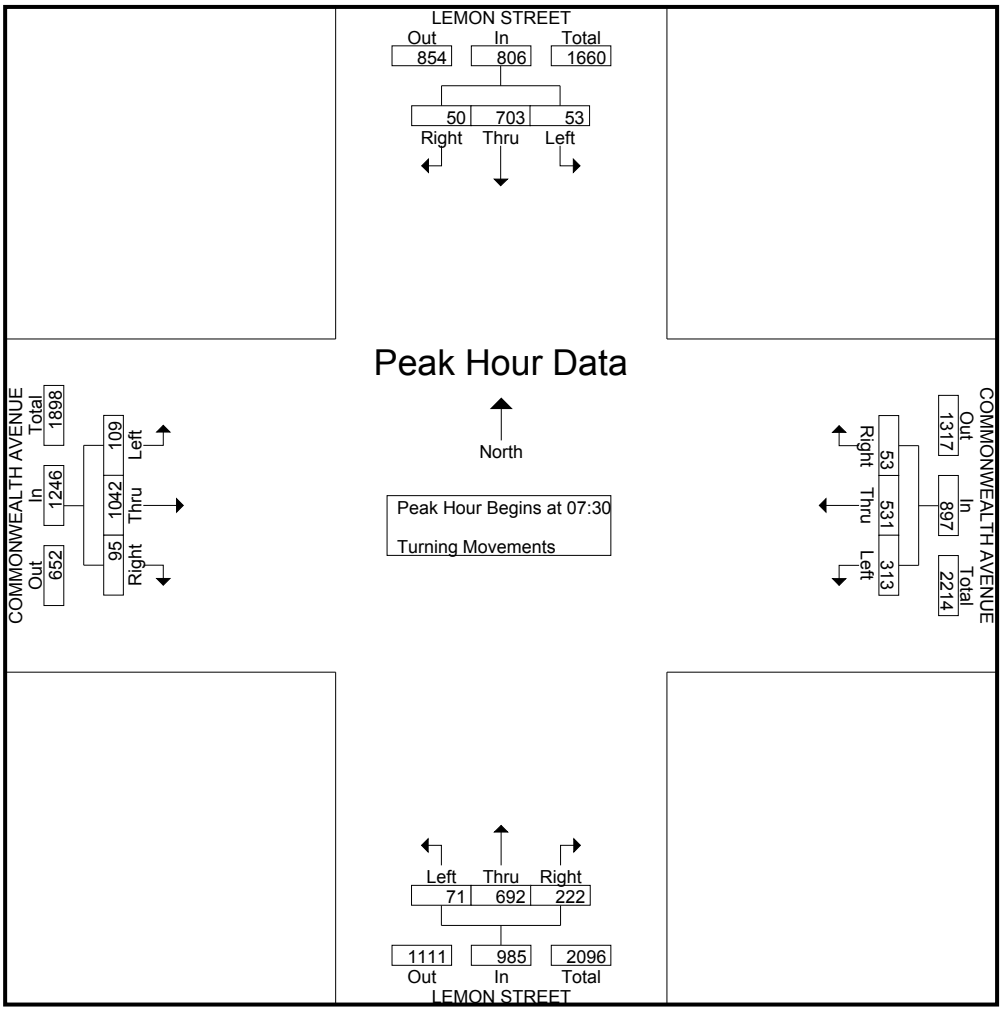
	LEMON STREET Southbound			COMMONWEALTH AVENUE Westbound			LEMON STREET Northbound			COMMONWEALTH AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	7	189	10	11	101	51	25	159	8	49	155	27	792
07:15	10	194	6	10	93	66	31	123	19	34	196	20	802
07:30	7	164	14	14	120	70	50	169	20	27	260	27	942
07:45	15	203	15	19	139	78	66	194	17	14	268	28	1056
Total	39	750	45	54	453	265	172	645	64	124	879	102	3592
08:00	12	174	12	9	155	95	64	146	17	25	287	31	1027
08:15	16	162	12	11	117	70	42	183	17	29	227	23	909
08:30	10	167	9	6	103	54	45	201	19	33	161	37	845
08:45	19	155	13	13	100	58	60	169	18	33	112	20	770
Total	57	658	46	39	475	277	211	699	71	120	787	111	3551
*** BREAK ***													
16:00	21	200	11	16	168	82	69	211	28	32	143	23	1004
16:15	28	220	12	11	158	76	61	216	33	22	138	32	1007
16:30	30	199	7	15	157	61	57	241	44	21	123	21	976
16:45	22	181	9	12	180	80	53	257	35	17	140	26	1012
Total	101	800	39	54	663	299	240	925	140	92	544	102	3999
17:00	30	183	15	14	185	66	51	242	33	27	161	25	1032
17:15	11	210	13	21	203	89	49	260	28	29	158	26	1097
17:30	21	192	6	16	191	79	55	223	34	25	157	28	1027
17:45	24	169	9	27	168	87	50	241	42	15	154	35	1021
Total	86	754	43	78	747	321	205	966	137	96	630	114	4177
Grand Total	283	2962	173	225	2338	1162	828	3235	412	432	2840	429	15319
Apprch %	8.3	86.7	5.1	6	62.8	31.2	18.5	72.3	9.2	11.7	76.7	11.6	
Total %	1.8	19.3	1.1	1.5	15.3	7.6	5.4	21.1	2.7	2.8	18.5	2.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: COMMONWEALTH AVENUE

File Name : H1611024
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	LEMON STREET Southbound				COMMONWEALTH AVENUE Westbound				LEMON STREET Northbound				COMMONWEALTH AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	7	164	14	185	14	120	70	204	50	169	**20**	239	27	260	27	314	942
07:45	15	**203**	**15**	**233**	**19**	139	78	236	**66**	**194**	17	**277**	14	268	28	310	**1056**
08:00	12	174	12	198	9	**155**	**95**	**259**	64	146	17	227	25	**287**	**31**	**343**	1027
08:15	**16**	162	12	190	11	117	70	198	42	183	17	242	**29**	227	23	279	909
Total Volume	50	703	53	806	53	531	313	897	222	692	71	985	95	1042	109	1246	3934
% App. Total	6.2	87.2	6.6		5.9	59.2	34.9		22.5	70.3	7.2		7.6	83.6	8.7		
PHF	.781	.866	.883	.865	.697	.856	.824	.866	.841	.892	.888	.889	.819	.908	.879	.908	.931

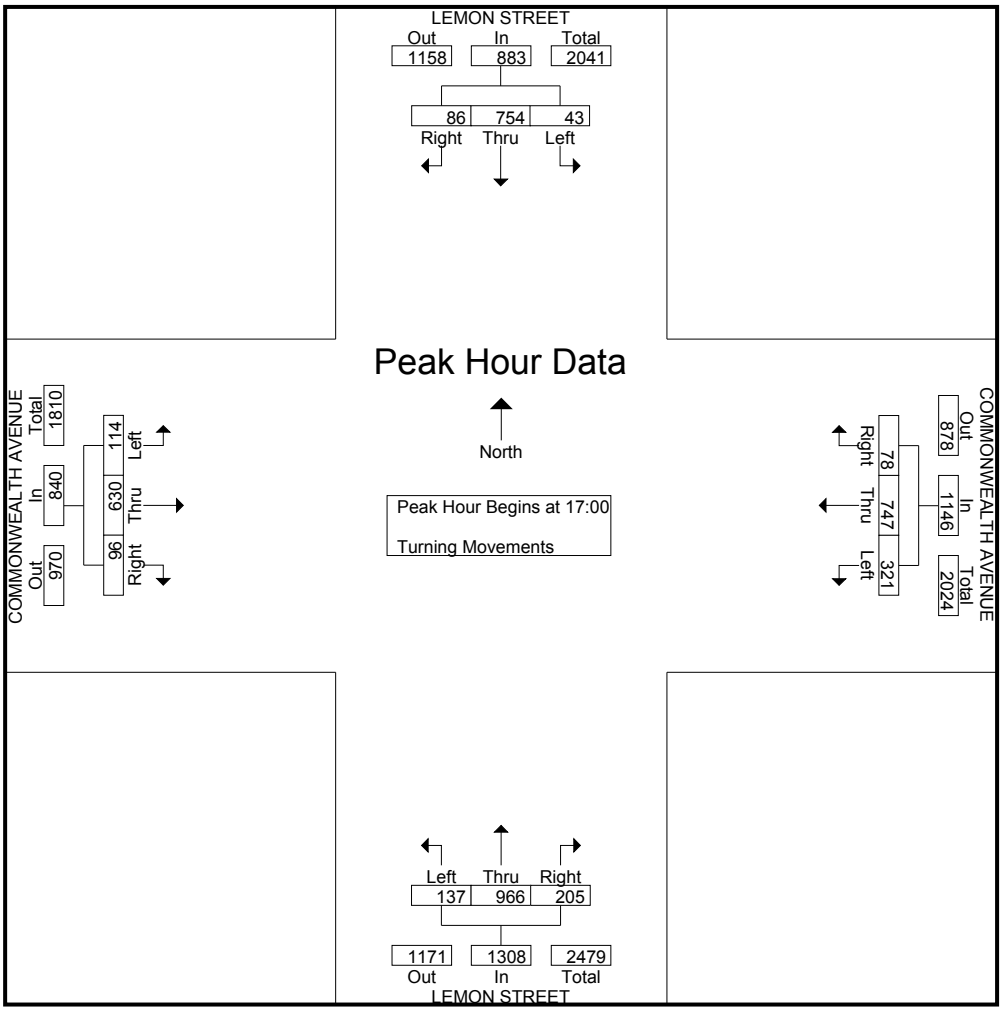


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: COMMONWEALTH AVENUE

File Name : H1611024
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	LEMON STREET Southbound				COMMONWEALTH AVENUE Westbound				LEMON STREET Northbound				COMMONWEALTH AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	**30**	183	**15**	228	14	185	66	265	51	242	33	326	27	**161**	25	**213**	1032
17:15	11	**210**	13	**234**	21	**203**	**89**	**313**	49	**260**	28	**337**	**29**	158	26	213	**1097**
17:30	21	192	6	219	16	191	79	286	**55**	223	34	312	25	157	28	210	1027
17:45	24	169	9	202	**27**	168	87	282	50	241	**42**	333	15	154	**35**	204	1021
Total Volume	86	754	43	883	78	747	321	1146	205	966	137	1308	96	630	114	840	4177
% App. Total	9.7	85.4	4.9		6.8	65.2	28		15.7	73.9	10.5		11.4	75	13.6		
PHF	.717	.898	.717	.943	.722	.920	.902	.915	.932	.929	.815	.970	.828	.978	.814	.986	.952



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: VALENCIA DRIVE

File Name : H1611025
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

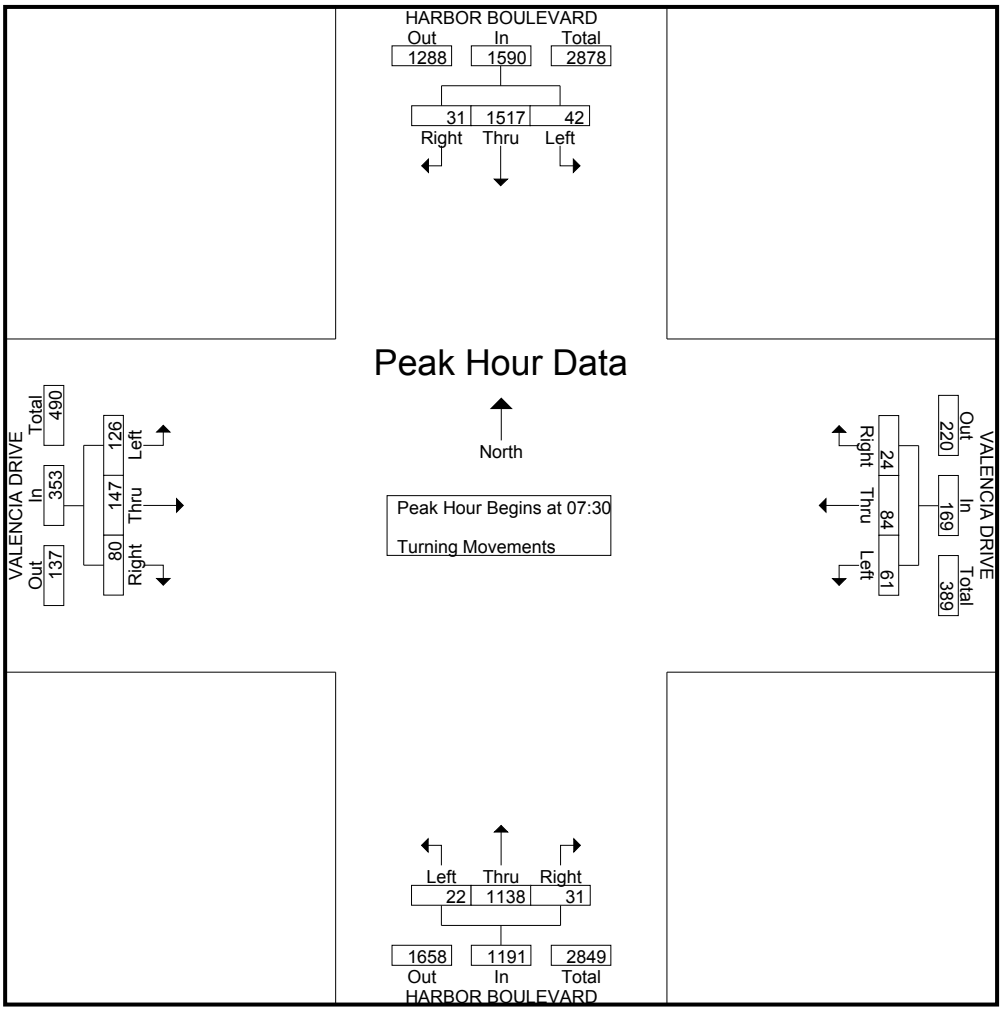
	HARBOR BOULEVARD Southbound			VALENCIA DRIVE Westbound			HARBOR BOULEVARD Northbound			VALENCIA DRIVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	2	429	2	4	11	15	4	185	5	10	12	9	688
07:15	6	412	5	1	17	16	9	186	2	6	23	18	701
07:30	11	389	13	5	17	16	9	252	4	18	34	32	800
07:45	8	370	16	8	31	15	11	265	8	20	42	31	825
Total	27	1600	36	18	76	62	33	888	19	54	111	90	3014
08:00	6	383	8	8	21	23	4	296	5	20	42	23	839
08:15	6	375	5	3	15	7	7	325	5	22	29	40	839
08:30	6	344	7	4	20	9	3	275	7	10	17	4	706
08:45	12	325	5	4	14	12	8	207	8	12	20	8	635
Total	30	1427	25	19	70	51	22	1103	25	64	108	75	3019
*** BREAK ***													
16:00	4	366	8	4	33	13	10	304	15	19	18	16	810
16:15	6	343	3	5	32	11	3	304	13	14	23	15	772
16:30	6	301	6	3	26	11	9	332	12	10	14	11	741
16:45	12	314	11	2	28	12	10	304	16	21	16	11	757
Total	28	1324	28	14	119	47	32	1244	56	64	71	53	3080
17:00	9	335	5	1	25	18	15	331	9	18	26	9	801
17:15	16	342	4	5	31	17	13	318	9	14	23	11	803
17:30	7	297	4	4	26	13	10	296	17	22	27	16	739
17:45	11	305	7	3	34	11	10	326	22	17	18	13	777
Total	43	1279	20	13	116	59	48	1271	57	71	94	49	3120
Grand Total	128	5630	109	64	381	219	135	4506	157	253	384	267	12233
Apprch %	2.2	96	1.9	9.6	57.4	33	2.8	93.9	3.3	28	42.5	29.5	
Total %	1	46	0.9	0.5	3.1	1.8	1.1	36.8	1.3	2.1	3.1	2.2	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: VALENCIA DRIVE

File Name : H1611025
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	HARBOR BOULEVARD Southbound				VALENCIA DRIVE Westbound				HARBOR BOULEVARD Northbound				VALENCIA DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**11**	**389**	13	**413**	5	17	16	38	9	252	4	265	18	34	32	84	800
07:45	8	370	**16**	394	**8**	**31**	15	**54**	**11**	265	**8**	284	20	**42**	31	**93**	825
08:00	6	383	8	397	8	21	**23**	52	4	296	5	305	20	42	23	85	**839**
08:15	6	375	5	386	3	15	7	25	7	**325**	5	**337**	**22**	29	**40**	91	839
Total Volume	31	1517	42	1590	24	84	61	169	31	1138	22	1191	80	147	126	353	3303
% App. Total	1.9	95.4	2.6		14.2	49.7	36.1		2.6	95.5	1.8		22.7	41.6	35.7		
PHF	.705	.975	.656	.962	.750	.677	.663	.782	.705	.875	.688	.884	.909	.875	.788	.949	.984

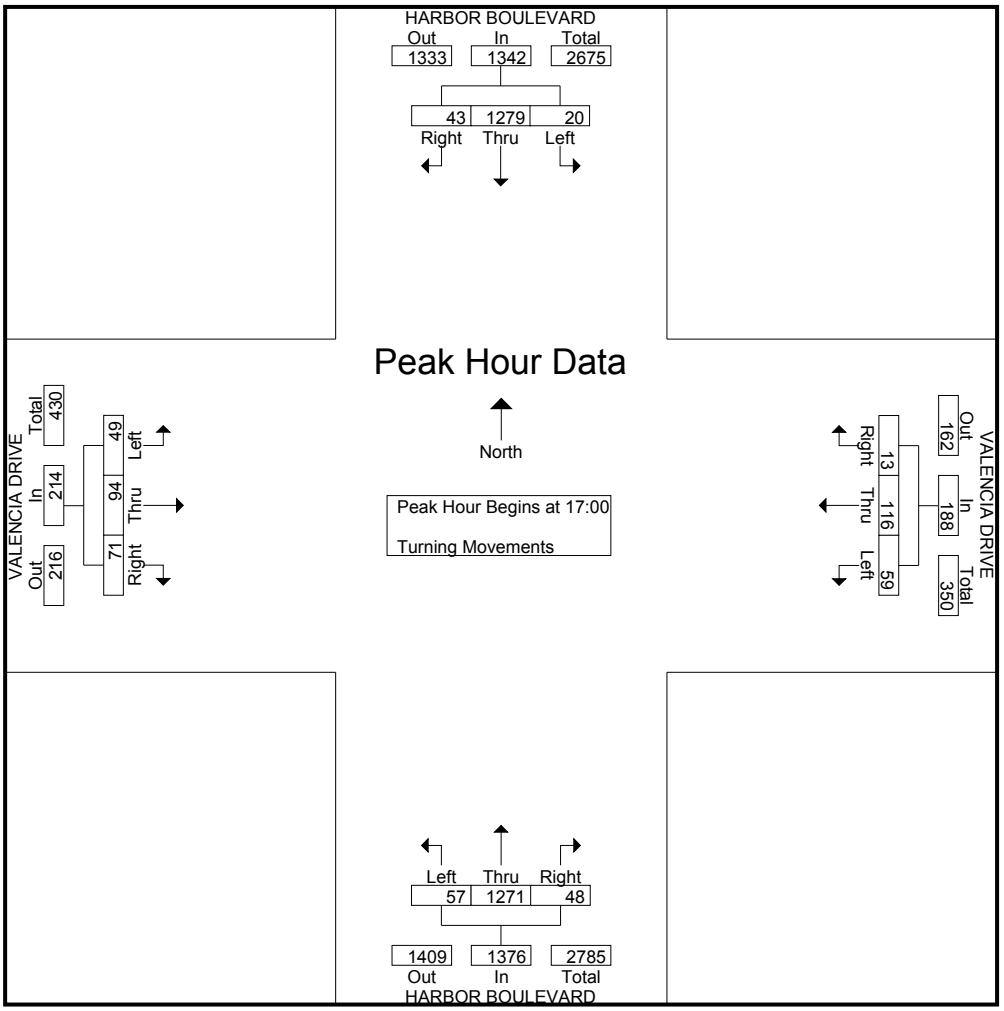


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: VALENCIA DRIVE

File Name : H1611025
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	HARBOR BOULEVARD Southbound				VALENCIA DRIVE Westbound				HARBOR BOULEVARD Northbound				VALENCIA DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	9	335	5	349	1	25	**18**	44	**15**	**331**	9	355	18	26	9	53	801
17:15	**16**	**342**	4	**362**	**5**	31	17	**53**	13	318	9	340	14	23	11	48	**803**
17:30	7	297	4	308	4	26	13	43	10	296	17	323	**22**	**27**	**16**	**65**	739
17:45	11	305	**7**	323	3	**34**	11	48	10	326	**22**	**358**	17	18	13	48	777
Total Volume	43	1279	20	1342	13	116	59	188	48	1271	57	1376	71	94	49	214	3120
% App. Total	3.2	95.3	1.5		6.9	61.7	31.4		3.5	92.4	4.1		33.2	43.9	22.9		
PHF	.672	.935	.714	.927	.650	.853	.819	.887	.800	.960	.648	.961	.807	.870	.766	.823	.971



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: VALENCIA AVENUE

File Name : H1611026
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

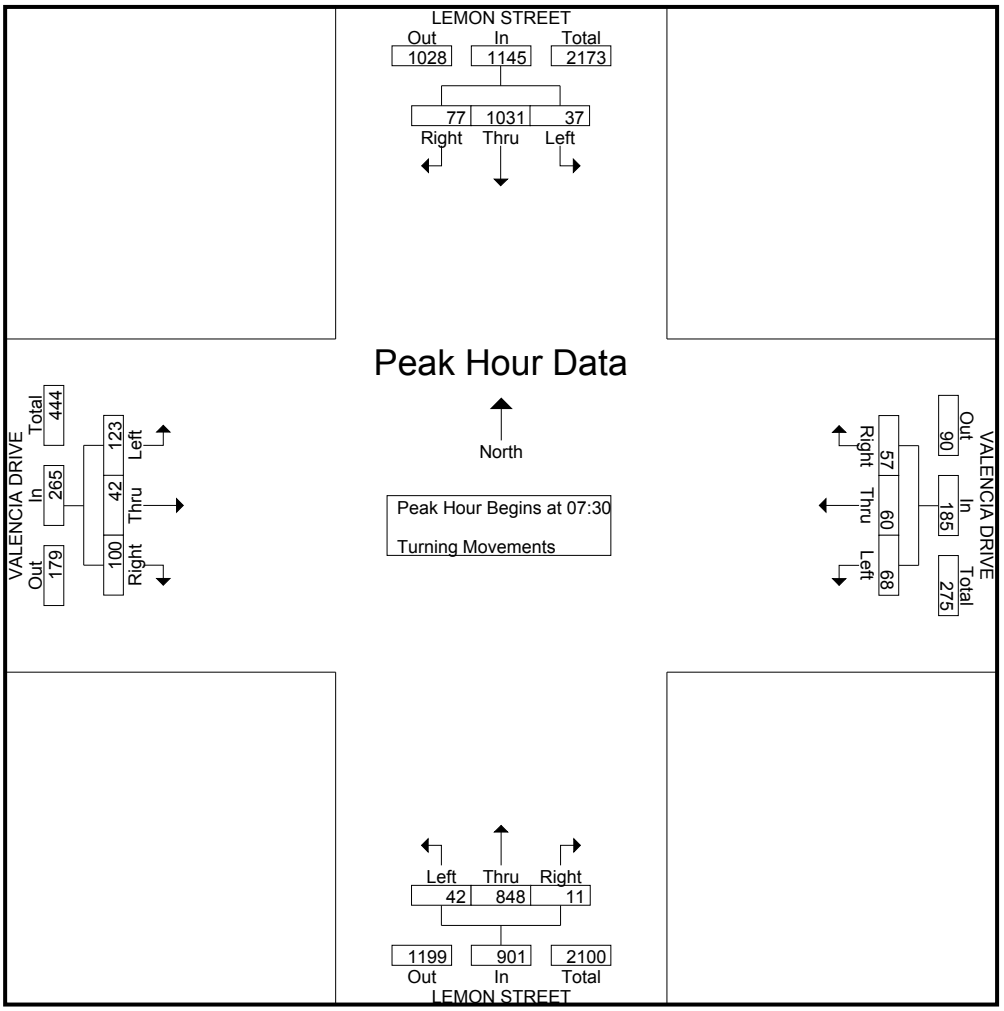
	LEMON STREET Southbound			VALENCIA DRIVE Westbound			LEMON STREET Northbound			VALENCIA DRIVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	7	262	0	7	10	23	8	184	8	25	4	7	545
07:15	17	284	3	9	12	24	2	153	6	22	7	21	560
07:30	17	239	3	18	22	21	5	196	9	21	14	32	597
07:45	19	279	10	13	27	13	2	219	13	23	10	52	680
Total	60	1064	16	47	71	81	17	752	36	91	35	112	2382
08:00	23	279	16	17	6	21	2	204	11	30	10	20	639
08:15	18	234	8	9	5	13	2	229	9	26	8	19	580
08:30	14	238	8	16	5	13	3	242	13	17	4	16	589
08:45	9	225	4	9	9	16	5	203	12	27	11	14	544
Total	64	976	36	51	25	63	12	878	45	100	33	69	2352
*** BREAK ***													
16:00	17	304	9	15	10	14	10	268	19	6	10	15	697
16:15	11	275	21	30	11	12	12	303	21	17	8	12	733
16:30	21	249	13	11	10	12	23	316	25	13	11	13	717
16:45	16	244	17	14	6	17	15	324	20	17	15	10	715
Total	65	1072	60	70	37	55	60	1211	85	53	44	50	2862
17:00	18	258	10	12	15	22	17	288	23	17	8	7	695
17:15	14	297	17	9	8	29	14	306	25	17	7	23	766
17:30	11	282	11	10	14	23	21	283	32	24	10	17	738
17:45	18	238	12	13	12	21	18	318	35	19	8	14	726
Total	61	1075	50	44	49	95	70	1195	115	77	33	61	2925
Grand Total	250	4187	162	212	182	294	159	4036	281	321	145	292	10521
Apprch %	5.4	91	3.5	30.8	26.5	42.7	3.6	90.2	6.3	42.3	19.1	38.5	
Total %	2.4	39.8	1.5	2	1.7	2.8	1.5	38.4	2.7	3.1	1.4	2.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: VALENCIA AVENUE

File Name : H1611026
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	LEMON STREET Southbound				VALENCIA DRIVE Westbound				LEMON STREET Northbound				VALENCIA DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	17	239	3	259	**18**	22	**21**	**61**	**5**	196	9	210	21	**14**	32	67	597
07:45	19	**279**	10	308	13	**27**	13	53	2	219	**13**	234	23	10	**52**	**85**	**680**
08:00	**23**	279	**16**	**318**	17	6	21	44	2	204	11	217	**30**	10	20	60	639
08:15	18	234	8	260	9	5	13	27	2	**229**	9	**240**	26	8	19	53	580
Total Volume	77	1031	37	1145	57	60	68	185	11	848	42	901	100	42	123	265	2496
% App. Total	6.7	90	3.2		30.8	32.4	36.8		1.2	94.1	4.7		37.7	15.8	46.4		
PHF	.837	.924	.578	.900	.792	.556	.810	.758	.550	.926	.808	.939	.833	.750	.591	.779	.918

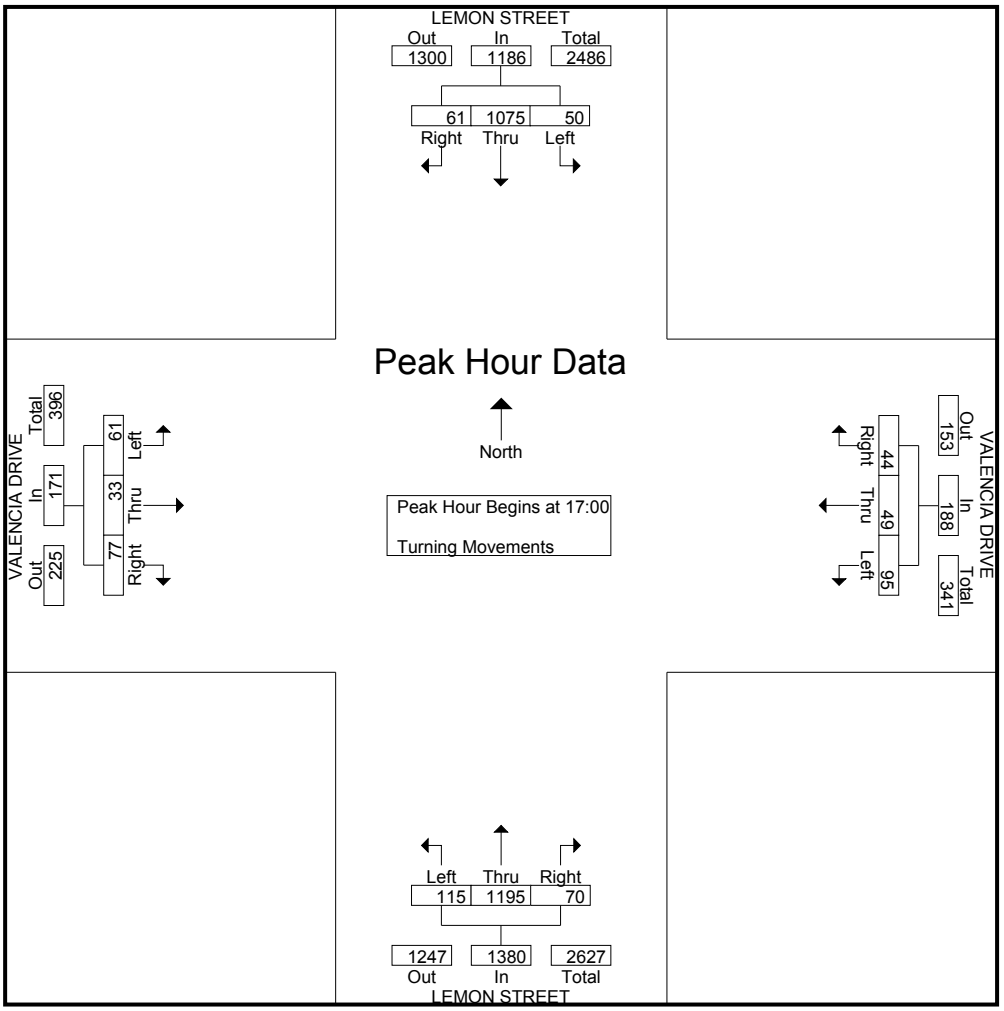


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: VALENCIA AVENUE

File Name : H1611026
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	LEMON STREET Southbound				VALENCIA DRIVE Westbound				LEMON STREET Northbound				VALENCIA DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	**18**	258	10	286	12	**15**	22	**49**	17	288	23	328	17	8	7	32	695
17:15	14	**297**	**17**	**328**	9	8	**29**	46	14	306	25	345	17	7	**23**	47	**766**
17:30	11	282	11	304	10	14	23	47	**21**	283	32	336	**24**	**10**	17	**51**	738
17:45	18	238	12	268	**13**	12	21	46	18	**318**	**35**	**371**	19	8	14	41	726
Total Volume	61	1075	50	1186	44	49	95	188	70	1195	115	1380	77	33	61	171	2925
% App. Total	5.1	90.6	4.2		23.4	26.1	50.5		5.1	86.6	8.3		45	19.3	35.7		
PHF	.847	.905	.735	.904	.846	.817	.819	.959	.833	.939	.821	.930	.802	.825	.663	.838	.955



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: ORANGETHORPE AVENUE

File Name : H1611027
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

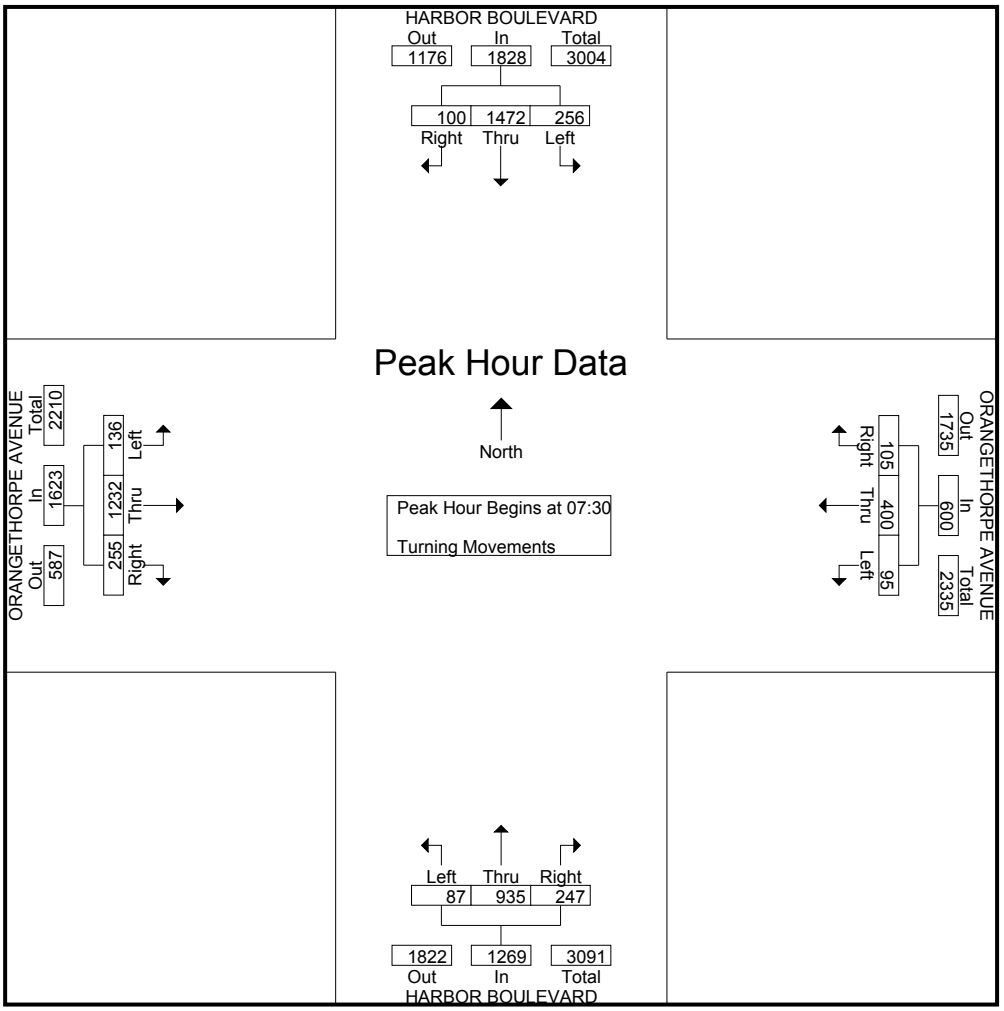
	HARBOR BOULEVARD Southbound			ORANGETHORPE AVENUE Westbound			HARBOR BOULEVARD Northbound			ORANGETHORPE AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	16	419	35	25	81	18	31	141	16	85	300	32	1199
07:15	18	405	57	17	81	16	36	155	22	98	340	35	1280
07:30	16	390	62	32	107	24	36	177	25	80	326	32	1307
07:45	26	359	76	22	107	24	55	223	24	55	320	26	1317
Total	76	1573	230	96	376	82	158	696	87	318	1286	125	5103
08:00	29	368	54	24	99	22	79	251	20	55	296	33	1330
08:15	29	355	64	27	87	25	77	284	18	65	290	45	1366
08:30	28	329	35	25	106	24	48	230	17	48	306	45	1241
08:45	27	305	32	21	101	24	32	181	27	45	184	36	1015
Total	113	1357	185	97	393	95	236	946	82	213	1076	159	4952
*** BREAK ***													
16:00	50	301	52	48	205	54	50	293	55	47	179	43	1377
16:15	55	299	45	42	210	39	54	276	57	38	157	38	1310
16:30	50	257	44	41	225	49	53	301	60	33	179	44	1336
16:45	57	277	45	43	215	41	50	295	56	49	149	48	1325
Total	212	1134	186	174	855	183	207	1165	228	167	664	173	5348
17:00	43	290	47	36	237	56	41	306	64	49	185	47	1401
17:15	50	287	43	31	252	53	56	313	73	42	157	39	1396
17:30	47	289	46	49	268	40	65	296	66	51	164	47	1428
17:45	48	263	51	42	251	55	60	311	67	42	184	42	1416
Total	188	1129	187	158	1008	204	222	1226	270	184	690	175	5641
Grand Total	589	5193	788	525	2632	564	823	4033	667	882	3716	632	21044
Apprch %	9	79	12	14.1	70.7	15.2	14.9	73	12.1	16.9	71.1	12.1	
Total %	2.8	24.7	3.7	2.5	12.5	2.7	3.9	19.2	3.2	4.2	17.7	3	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: ORANGETHORPE AVENUE

File Name : H1611027
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	HARBOR BOULEVARD Southbound				ORANGETHORPE AVENUE Westbound				HARBOR BOULEVARD Northbound				ORANGETHORPE AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	16	**390**	62	**468**	**32**	**107**	24	**163**	36	177	**25**	238	**80**	**326**	32	**438**	1307
07:45	26	359	**76**	461	22	107	24	153	55	223	24	302	55	320	26	401	1317
08:00	**29**	368	54	451	24	99	22	145	**79**	251	20	350	55	296	33	384	1330
08:15	29	355	64	448	27	87	**25**	139	77	**284**	18	**379**	65	290	**45**	400	**1366**
Total Volume	100	1472	256	1828	105	400	95	600	247	935	87	1269	255	1232	136	1623	5320
% App. Total	5.5	80.5	14		17.5	66.7	15.8		19.5	73.7	6.9		15.7	75.9	8.4		
PHF	.862	.944	.842	.976	.820	.935	.950	.920	.782	.823	.870	.837	.797	.945	.756	.926	.974



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: ORANGETHORPE AVENUE

File Name : H1611027
Site Code : 00000000
Start Date : 11/16/2016
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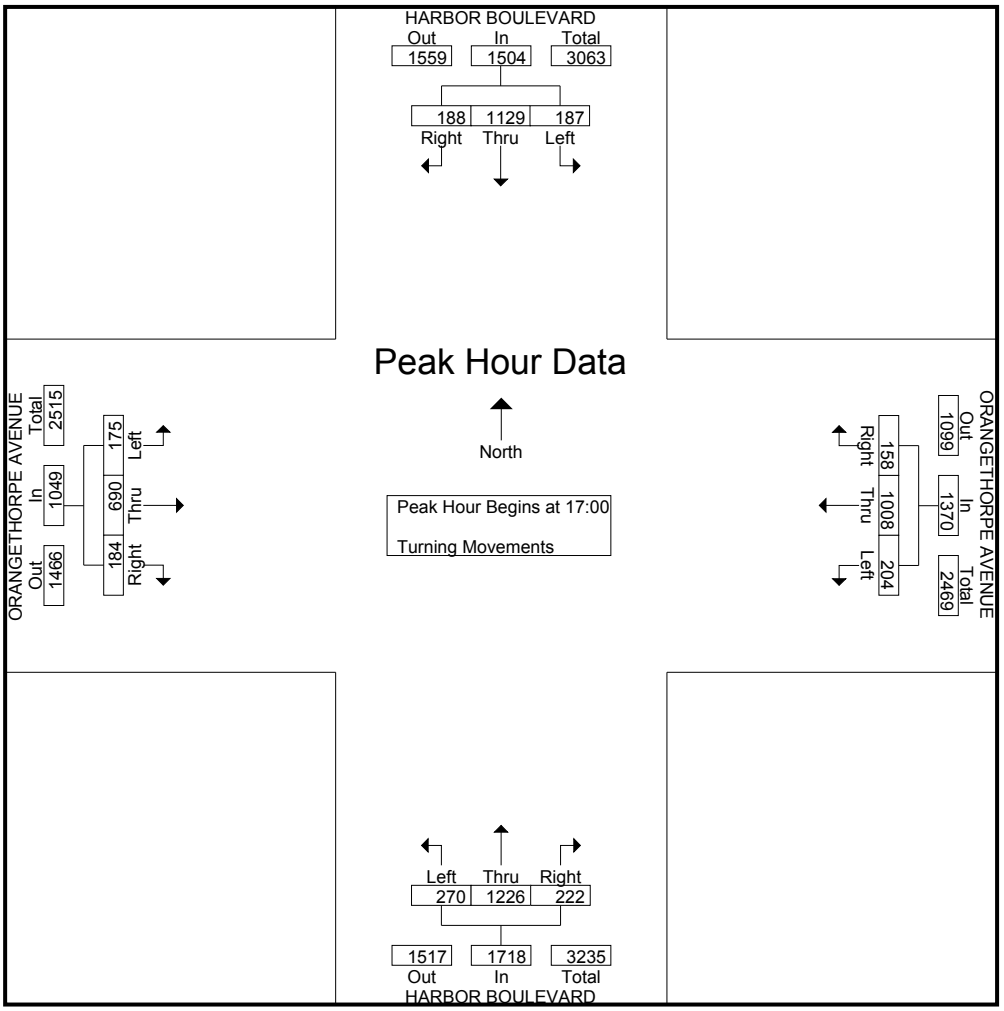
	HARBOR BOULEVARD Southbound				ORANGETHORPE AVENUE Westbound				HARBOR BOULEVARD Northbound				ORANGETHORPE AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	43	**290**	47	380	36	237	**56**	329	41	306	64	411	49	**185**	**47**	**281**	1401
17:15	**50**	287	43	380	31	252	53	336	56	**313**	**73**	**442**	42	157	39	238	1396
17:30	47	289	46	**382**	**49**	**268**	40	**357**	**65**	296	66	427	**51**	164	47	262	**1428**
17:45	48	263	**51**	362	42	251	55	348	60	311	67	438	42	184	42	268	1416
Total Volume	188	1129	187	1504	158	1008	204	1370	222	1226	270	1718	184	690	175	1049	5641
% App. Total	12.5	75.1	12.4		11.5	73.6	14.9		12.9	71.4	15.7		17.5	65.8	16.7		
PHF	.940	.973	.917	.984	.806	.940	.911	.959	.854	.979	.925	.972	.902	.932	.931	.933	.988



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: ORANGETHORPE AVENUE

File Name : H1611028
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

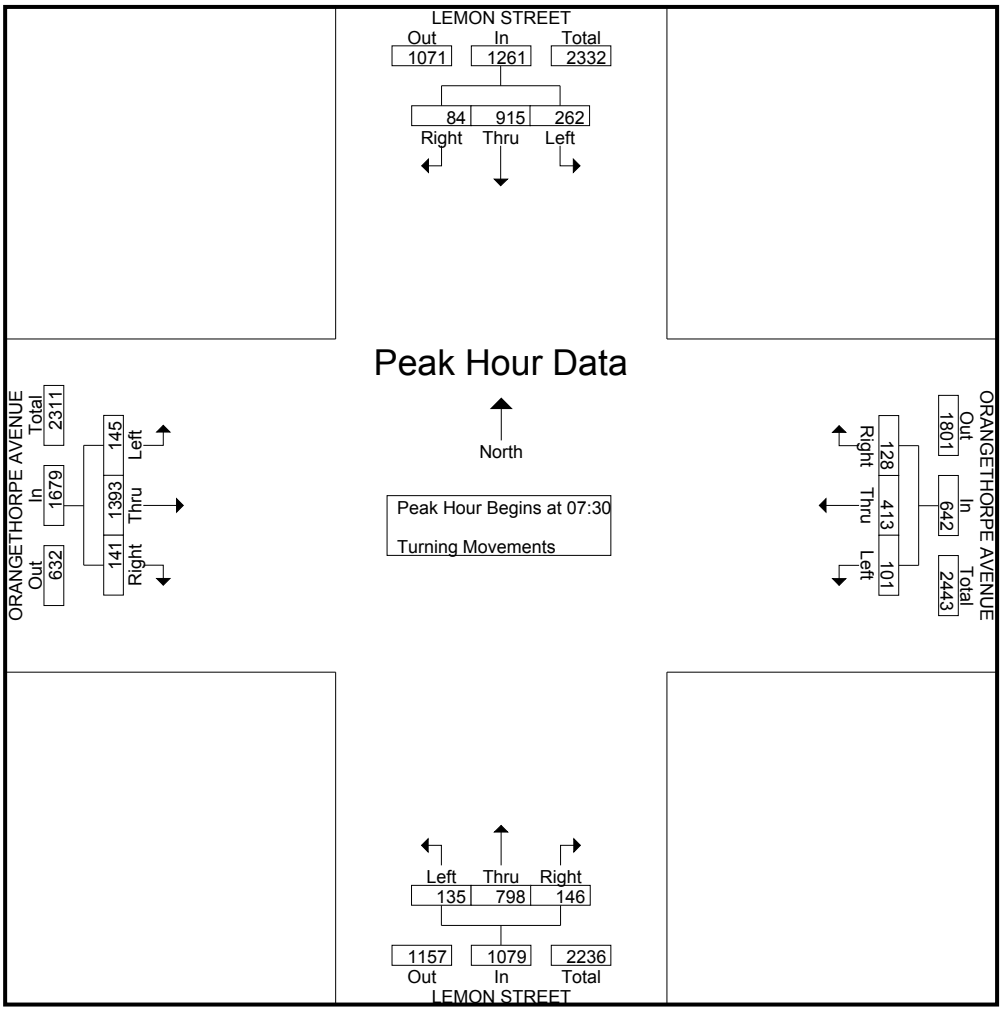
	LEMON STREET Southbound			ORANGETHORPE AVENUE Westbound			LEMON STREET Northbound			ORANGETHORPE AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	16	270	44	24	85	16	21	161	18	41	267	41	1004
07:15	17	282	45	23	65	19	27	150	25	64	312	28	1057
07:30	14	234	53	35	112	24	30	205	46	45	354	35	1187
07:45	27	232	65	34	108	24	35	215	28	41	373	30	1212
Total	74	1018	207	116	370	83	113	731	117	191	1306	134	4460
08:00	19	249	77	35	103	23	44	181	28	25	336	28	1148
08:15	24	200	67	24	90	30	37	197	33	30	330	52	1114
08:30	25	205	35	14	98	40	34	208	31	27	317	66	1100
08:45	17	210	44	31	95	32	31	180	33	32	198	45	948
Total	85	864	223	104	386	125	146	766	125	114	1181	191	4310
*** BREAK ***													
16:00	36	269	45	44	183	59	22	245	47	35	193	53	1231
16:15	48	231	36	42	189	51	21	272	48	37	181	50	1206
16:30	31	248	34	48	178	53	31	293	63	23	182	47	1231
16:45	37	223	47	46	181	37	33	271	60	38	165	51	1189
Total	152	971	162	180	731	200	107	1081	218	133	721	201	4857
17:00	34	225	38	37	200	60	22	248	54	31	180	53	1182
17:15	53	241	41	29	194	74	24	288	54	38	171	48	1255
17:30	41	232	44	29	199	65	26	296	62	29	156	43	1222
17:45	49	242	53	40	194	51	22	281	56	39	166	55	1248
Total	177	940	176	135	787	250	94	1113	226	137	673	199	4907
Grand Total	488	3793	768	535	2274	658	460	3691	686	575	3881	725	18534
Apprch %	9.7	75.1	15.2	15.4	65.6	19	9.5	76.3	14.2	11.1	74.9	14	
Total %	2.6	20.5	4.1	2.9	12.3	3.6	2.5	19.9	3.7	3.1	20.9	3.9	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: ORANGETHORPE AVENUE

File Name : H1611028
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	LEMON STREET Southbound				ORANGETHORPE AVENUE Westbound				LEMON STREET Northbound				ORANGETHORPE AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	14	234	53	301	**35**	**112**	24	**171**	30	205	**46**	**281**	**45**	354	35	434	1187
07:45	**27**	232	65	324	34	108	24	166	35	**215**	28	278	41	**373**	30	**444**	**1212**
08:00	19	**249**	**77**	**345**	35	103	23	161	**44**	181	28	253	25	336	28	389	1148
08:15	24	200	67	291	24	90	**30**	144	37	197	33	267	30	330	**52**	412	1114
Total Volume	84	915	262	1261	128	413	101	642	146	798	135	1079	141	1393	145	1679	4661
% App. Total	6.7	72.6	20.8		19.9	64.3	15.7		13.5	74	12.5		8.4	83	8.6		
PHF	.778	.919	.851	.914	.914	.922	.842	.939	.830	.928	.734	.960	.783	.934	.697	.945	.961



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: ORANGETHORPE AVENUE

File Name : H1611028
Site Code : 00000000
Start Date : 11/16/2016
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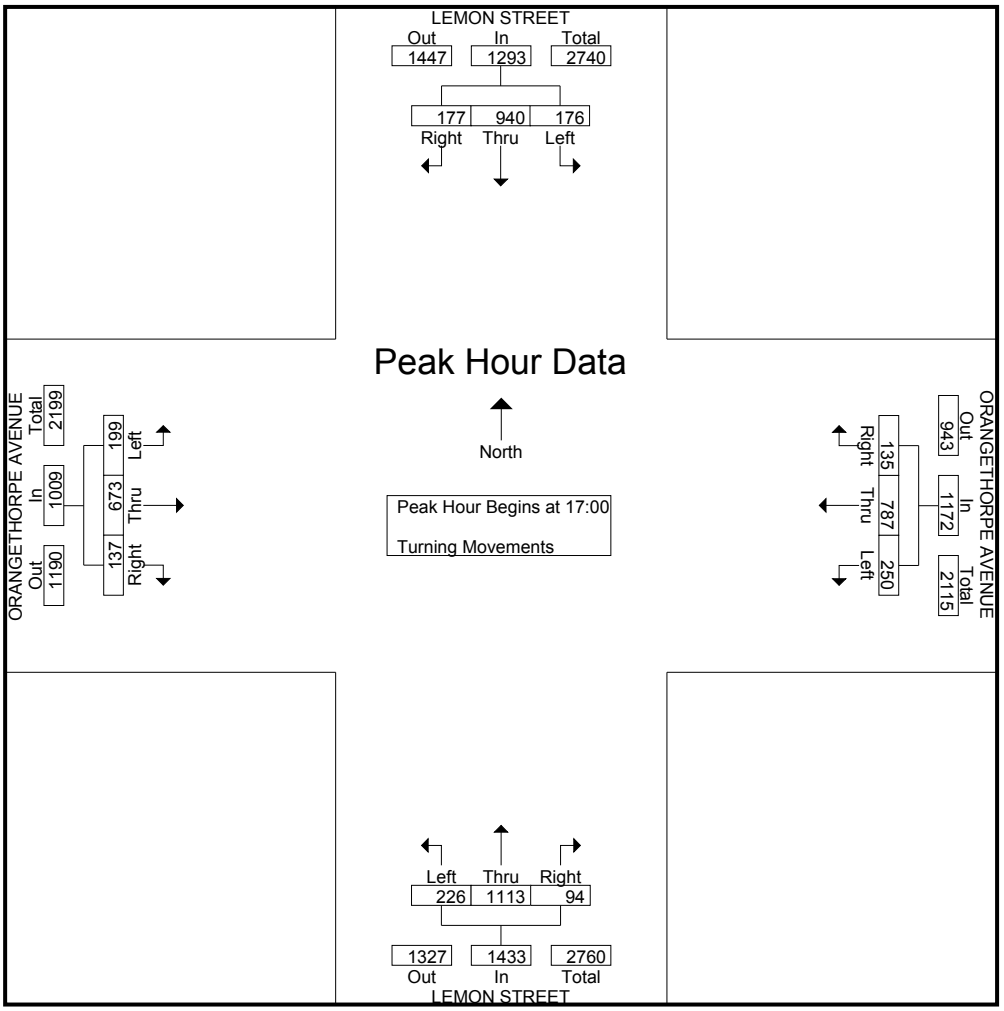
	LEMON STREET Southbound				ORANGETHORPE AVENUE Westbound				LEMON STREET Northbound				ORANGETHORPE AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	34	225	38	297	37	**200**	60	**297**	22	248	54	324	31	**180**	53	**264**	1182
17:15	**53**	241	41	335	29	194	**74**	297	24	288	54	366	38	171	48	257	**1255**
17:30	41	232	44	317	29	199	65	293	**26**	**296**	**62**	**384**	29	156	43	228	1222
17:45	49	**242**	**53**	**344**	**40**	194	51	285	22	281	56	359	**39**	166	**55**	260	1248
Total Volume	177	940	176	1293	135	787	250	1172	94	1113	226	1433	137	673	199	1009	4907
% App. Total	13.7	72.7	13.6		11.5	67.2	21.3		6.6	77.7	15.8		13.6	66.7	19.7		
PHF	.835	.971	.830	.940	.844	.984	.845	.987	.904	.940	.911	.933	.878	.935	.905	.955	.977



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: SR-91 WB RAMPS

File Name : H1611029
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

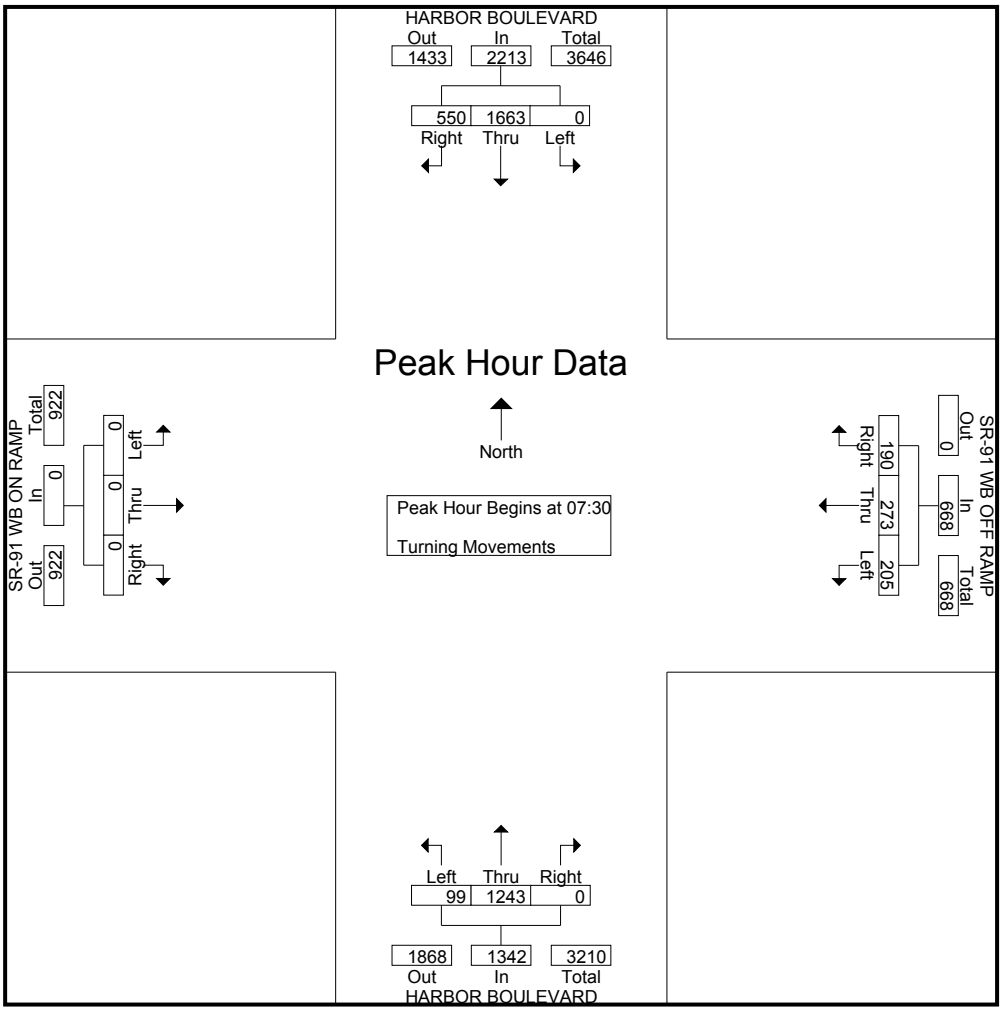
	HARBOR BOULEVARD Southbound			SR-91 WB OFF RAMP Westbound			HARBOR BOULEVARD Northbound			SR-91 WB ON RAMP Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	159	394	0	35	83	37	0	184	25	0	0	0	917
07:15	146	408	0	36	81	36	0	183	25	0	0	0	915
07:30	147	435	0	45	65	50	0	214	22	0	0	0	978
07:45	138	421	0	46	68	60	0	293	24	0	0	0	1050
Total	590	1658	0	162	297	183	0	874	96	0	0	0	3860
08:00	119	407	0	43	65	53	0	375	23	0	0	0	1085
08:15	146	400	0	56	75	42	0	361	30	0	0	0	1110
08:30	118	326	0	46	75	44	0	288	18	0	0	0	915
08:45	117	252	0	46	90	48	0	220	13	0	0	0	786
Total	500	1385	0	191	305	187	0	1244	84	0	0	0	3896
*** BREAK ***													
16:00	126	320	0	65	117	57	0	399	22	0	0	0	1106
16:15	123	342	0	58	111	52	0	414	28	0	0	0	1128
16:30	105	304	0	60	120	59	0	433	27	0	0	0	1108
16:45	106	305	0	69	98	75	0	415	21	0	0	0	1089
Total	460	1271	0	252	446	243	0	1661	98	0	0	0	4431
17:00	133	318	0	73	78	58	0	453	22	0	0	0	1135
17:15	113	357	0	78	88	63	0	465	27	0	0	0	1191
17:30	122	351	0	75	86	71	0	480	10	0	0	0	1195
17:45	112	277	0	95	85	81	0	432	15	0	0	0	1097
Total	480	1303	0	321	337	273	0	1830	74	0	0	0	4618
Grand Total	2030	5617	0	926	1385	886	0	5609	352	0	0	0	16805
Apprch %	26.5	73.5	0	29	43.3	27.7	0	94.1	5.9	0	0	0	
Total %	12.1	33.4	0	5.5	8.2	5.3	0	33.4	2.1	0	0	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: SR-91 WB RAMPS

File Name : H1611029
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	HARBOR BOULEVARD Southbound				SR-91 WB OFF RAMP Westbound				HARBOR BOULEVARD Northbound				SR-91 WB ON RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**147**	**435**	0	**582**	45	65	50	160	0	214	22	236	0	0	0	0	978
07:45	138	421	0	559	46	68	**60**	**174**	0	293	24	317	0	0	0	0	1050
08:00	119	407	0	526	43	65	53	161	0	**375**	23	**398**	0	0	0	0	1085
08:15	146	400	0	546	**56**	**75**	42	173	0	361	**30**	391	0	0	0	0	**1110**
Total Volume	550	1663	0	2213	190	273	205	668	0	1243	99	1342	0	0	0	0	4223
% App. Total	24.9	75.1	0		28.4	40.9	30.7		0	92.6	7.4		0	0	0		
PHF	.935	.956	.000	.951	.848	.910	.854	.960	.000	.829	.825	.843	.000	.000	.000	.000	.951



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: SR-91 WB RAMPS

File Name : H1611029
Site Code : 00000000
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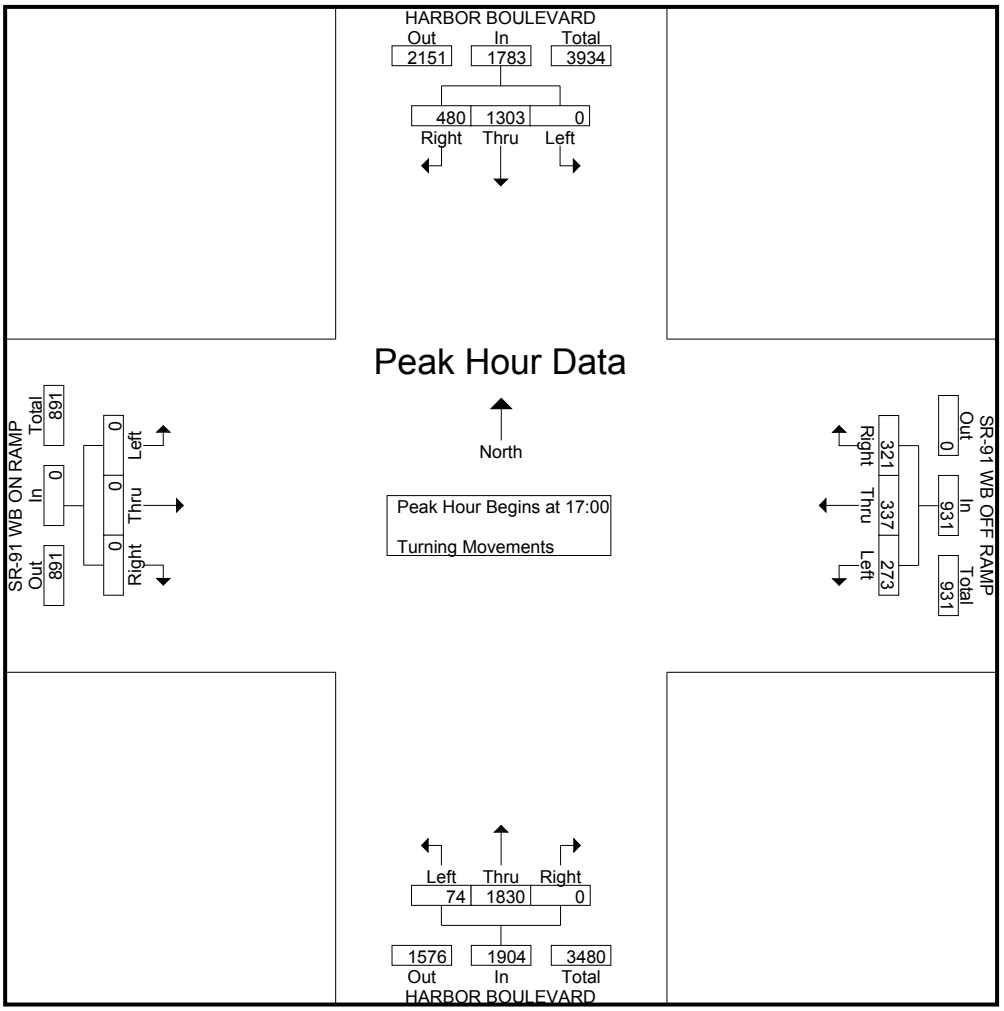
	HARBOR BOULEVARD Southbound				SR-91 WB OFF RAMP Westbound				HARBOR BOULEVARD Northbound				SR-91 WB ON RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	**133**	318	0	451	73	78	58	209	0	453	22	475	0	0	0	0	1135
17:15	113	**357**	0	470	78	**88**	63	229	0	465	**27**	**492**	0	0	0	0	1191
17:30	122	351	0	**473**	75	86	71	232	0	**480**	10	490	0	0	0	0	**1195**
17:45	112	277	0	389	**95**	85	**81**	**261**	0	432	15	447	0	0	0	0	1097
Total Volume	480	1303	0	1783	321	337	273	931	0	1830	74	1904	0	0	0	0	4618
% App. Total	26.9	73.1	0		34.5	36.2	29.3		0	96.1	3.9		0	0	0		
PHF	.902	.912	.000	.942	.845	.957	.843	.892	.000	.953	.685	.967	.000	.000	.000	.000	.966



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: SR-91 WB RAMPS

File Name : H1611030
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

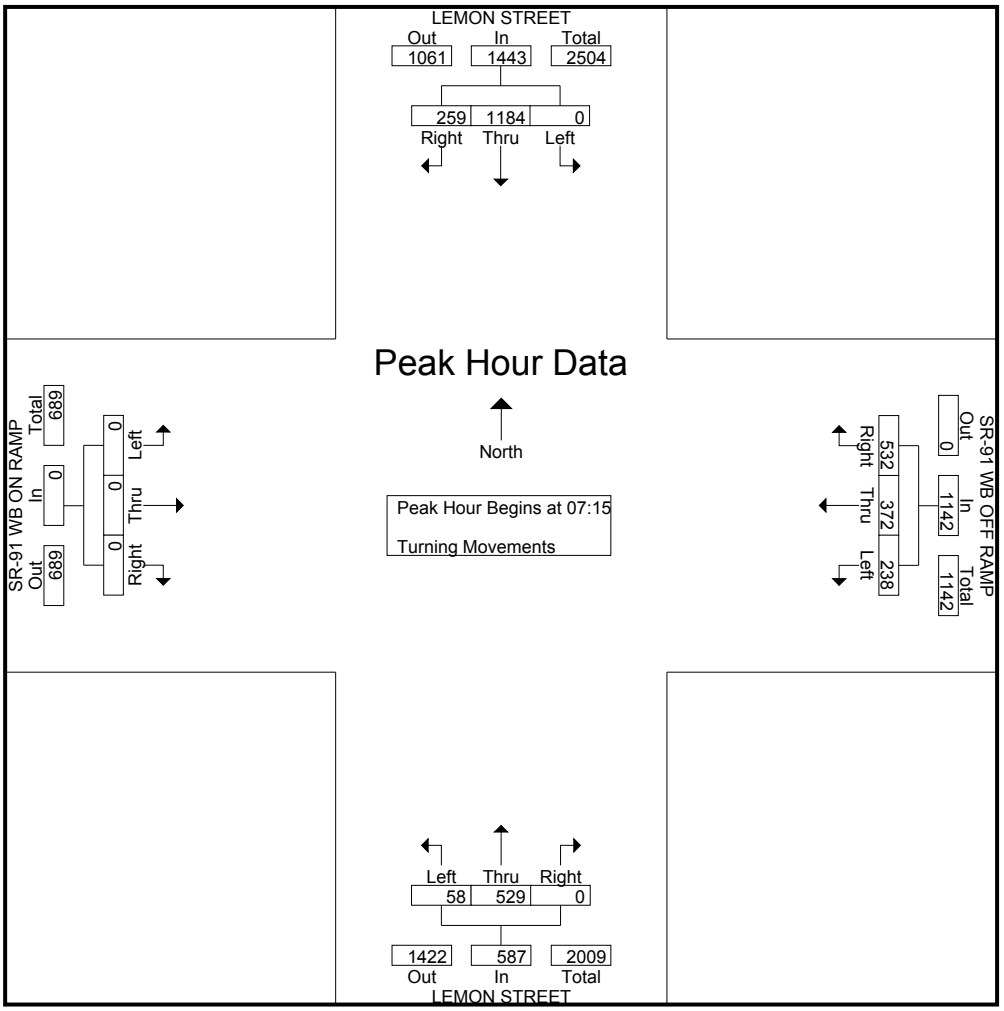
	LEMON STREET Southbound			SR-91 WB OFF RAMP Westbound			LEMON STREET Northbound			SR-91 WB ON RAMP Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	73	260	0	119	71	53	0	104	17	0	0	0	697
07:15	83	312	0	131	83	50	0	108	14	0	0	0	781
07:30	55	302	0	121	105	64	0	156	15	0	0	0	818
07:45	59	301	0	163	104	57	0	150	17	0	0	0	851
Total	270	1175	0	534	363	224	0	518	63	0	0	0	3147
08:00	62	269	0	117	80	67	0	115	12	0	0	0	722
08:15	70	228	0	121	96	55	0	165	19	0	0	0	754
08:30	69	215	0	130	89	61	0	156	8	0	0	0	728
08:45	74	191	0	119	108	53	0	159	19	0	0	0	723
Total	275	903	0	487	373	236	0	595	58	0	0	0	2927
*** BREAK ***													
16:00	108	270	0	138	102	38	0	225	26	0	0	0	907
16:15	80	279	0	146	108	51	0	240	34	0	0	0	938
16:30	97	253	0	160	109	36	0	268	32	0	0	0	955
16:45	86	259	0	139	124	46	0	275	21	0	0	0	950
Total	371	1061	0	583	443	171	0	1008	113	0	0	0	3750
17:00	63	252	0	156	127	38	0	238	30	0	0	0	904
17:15	86	300	0	150	134	33	0	288	26	0	0	0	1017
17:30	77	263	0	142	132	48	0	307	18	0	0	0	987
17:45	80	295	0	142	152	41	0	268	19	0	0	0	997
Total	306	1110	0	590	545	160	0	1101	93	0	0	0	3905
Grand Total	1222	4249	0	2194	1724	791	0	3222	327	0	0	0	13729
Apprch %	22.3	77.7	0	46.6	36.6	16.8	0	90.8	9.2	0	0	0	
Total %	8.9	30.9	0	16	12.6	5.8	0	23.5	2.4	0	0	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: SR-91 WB RAMPS

File Name : H1611030
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	LEMON STREET Southbound				SR-91 WB OFF RAMP Westbound				LEMON STREET Northbound				SR-91 WB ON RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	**83**	**312**	0	**395**	131	83	50	264	0	108	14	122	0	0	0	0	781
07:30	55	302	0	357	121	**105**	64	290	0	**156**	15	**171**	0	0	0	0	818
07:45	59	301	0	360	**163**	104	57	**324**	0	150	**17**	167	0	0	0	0	**851**
08:00	62	269	0	331	117	80	**67**	264	0	115	12	127	0	0	0	0	722
Total Volume	259	1184	0	1443	532	372	238	1142	0	529	58	587	0	0	0	0	3172
% App. Total	17.9	82.1	0		46.6	32.6	20.8		0	90.1	9.9		0	0	0		
PHF	.780	.949	.000	.913	.816	.886	.888	.881	.000	.848	.853	.858	.000	.000	.000	.000	.932

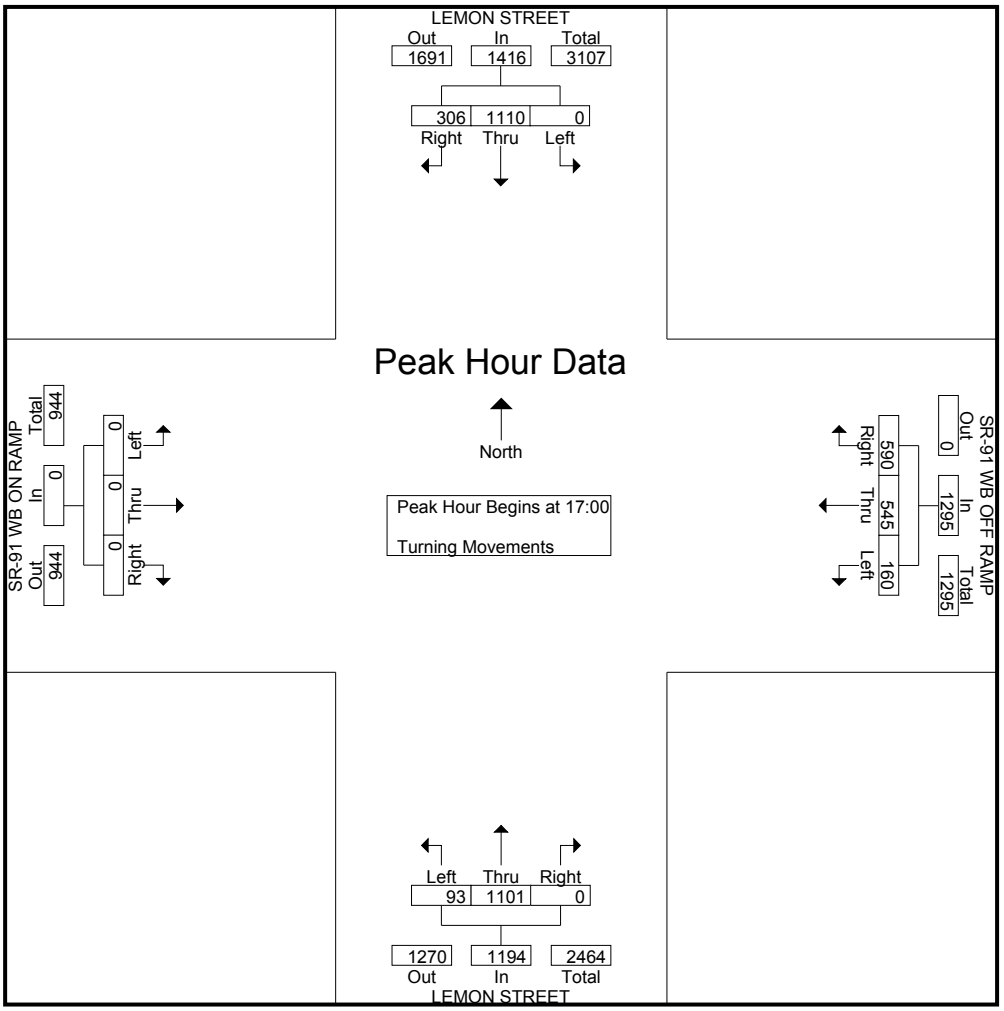


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: SR-91 WB RAMPS

File Name : H1611030
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	LEMON STREET Southbound				SR-91 WB OFF RAMP Westbound				LEMON STREET Northbound				SR-91 WB ON RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	63	252	0	315	**156**	127	38	321	0	238	**30**	268	0	0	0	0	904
17:15	**86**	**300**	0	**386**	150	134	33	317	0	288	26	314	0	0	0	0	**1017**
17:30	77	263	0	340	142	132	**48**	322	0	**307**	18	**325**	0	0	0	0	987
17:45	80	295	0	375	142	**152**	41	**335**	0	268	19	287	0	0	0	0	997
Total Volume	306	1110	0	1416	590	545	160	1295	0	1101	93	1194	0	0	0	0	3905
% App. Total	21.6	78.4	0		45.6	42.1	12.4		0	92.2	7.8		0	0	0		
PHF	.890	.925	.000	.917	.946	.896	.833	.966	.000	.897	.775	.918	.000	.000	.000	.000	.960



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: SR-91 EB RAMPS

File Name : H1611031
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

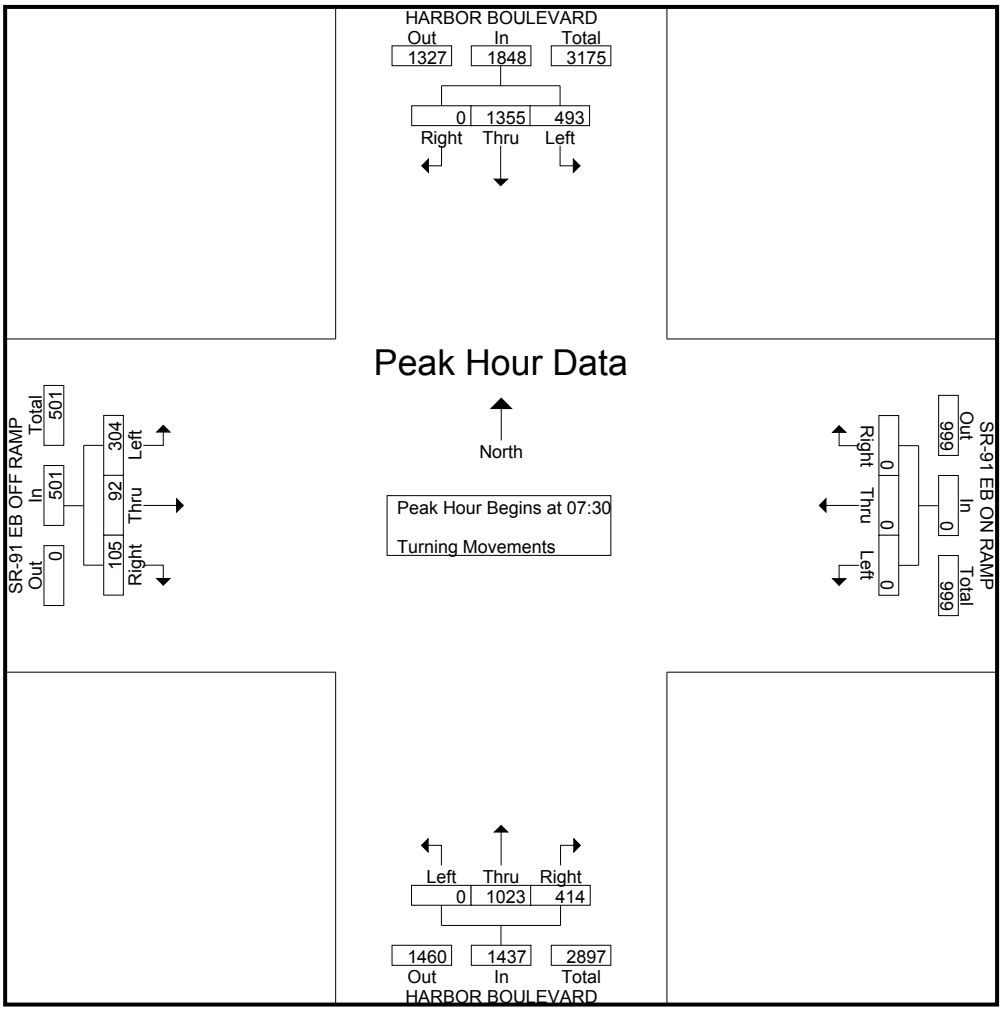
	HARBOR BOULEVARD Southbound			SR-91 EB ON RAMP Westbound			HARBOR BOULEVARD Northbound			SR-91 EB OFF RAMP Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	343	86	0	0	0	91	186	0	12	18	18	754
07:15	0	327	138	0	0	0	122	192	0	8	11	20	818
07:30	0	317	163	0	0	0	147	219	0	11	9	20	886
07:45	0	341	136	0	0	0	122	263	0	23	27	57	969
Total	0	1328	523	0	0	0	482	860	0	54	65	115	3427
08:00	0	361	97	0	0	0	75	286	0	35	24	108	986
08:15	0	336	97	0	0	0	70	255	0	36	32	119	945
08:30	0	279	80	0	0	0	55	188	0	32	51	108	793
08:45	0	257	45	0	0	0	44	169	0	34	71	87	707
Total	0	1233	319	0	0	0	244	898	0	137	178	422	3431
*** BREAK ***													
16:00	0	310	68	0	0	0	69	256	0	37	65	145	950
16:15	0	328	68	0	0	0	68	312	0	34	75	140	1025
16:30	0	317	59	0	0	0	57	286	0	29	72	150	970
16:45	0	314	57	0	0	0	42	300	0	29	63	156	961
Total	0	1269	252	0	0	0	236	1154	0	129	275	591	3906
17:00	0	315	67	0	0	0	45	321	0	36	58	167	1009
17:15	0	363	64	0	0	0	62	325	0	39	71	172	1096
17:30	0	372	62	0	0	0	40	284	0	34	68	171	1031
17:45	0	309	58	0	0	0	48	296	0	30	79	160	980
Total	0	1359	251	0	0	0	195	1226	0	139	276	670	4116
Grand Total	0	5189	1345	0	0	0	1157	4138	0	459	794	1798	14880
Apprch %	0	79.4	20.6	0	0	0	21.9	78.1	0	15	26	58.9	
Total %	0	34.9	9	0	0	0	7.8	27.8	0	3.1	5.3	12.1	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: SR-91 EB RAMPS

File Name : H1611031
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	HARBOR BOULEVARD Southbound				SR-91 EB ON RAMP Westbound				HARBOR BOULEVARD Northbound				SR-91 EB OFF RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	317	**163**	**480**	0	0	0	0	**147**	219	0	366	11	9	20	40	886
07:45	0	341	136	477	0	0	0	0	122	263	0	**385**	23	27	57	107	969
08:00	0	**361**	97	458	0	0	0	0	75	**286**	0	361	35	24	108	167	**986**
08:15	0	336	97	433	0	0	0	0	70	255	0	325	**36**	**32**	**119**	**187**	945
Total Volume	0	1355	493	1848	0	0	0	0	414	1023	0	1437	105	92	304	501	3786
% App. Total	0	73.3	26.7		0	0	0		28.8	71.2	0		21	18.4	60.7		
PHF	.000	.938	.756	.963	.000	.000	.000	.000	.704	.894	.000	.933	.729	.719	.639	.670	.960

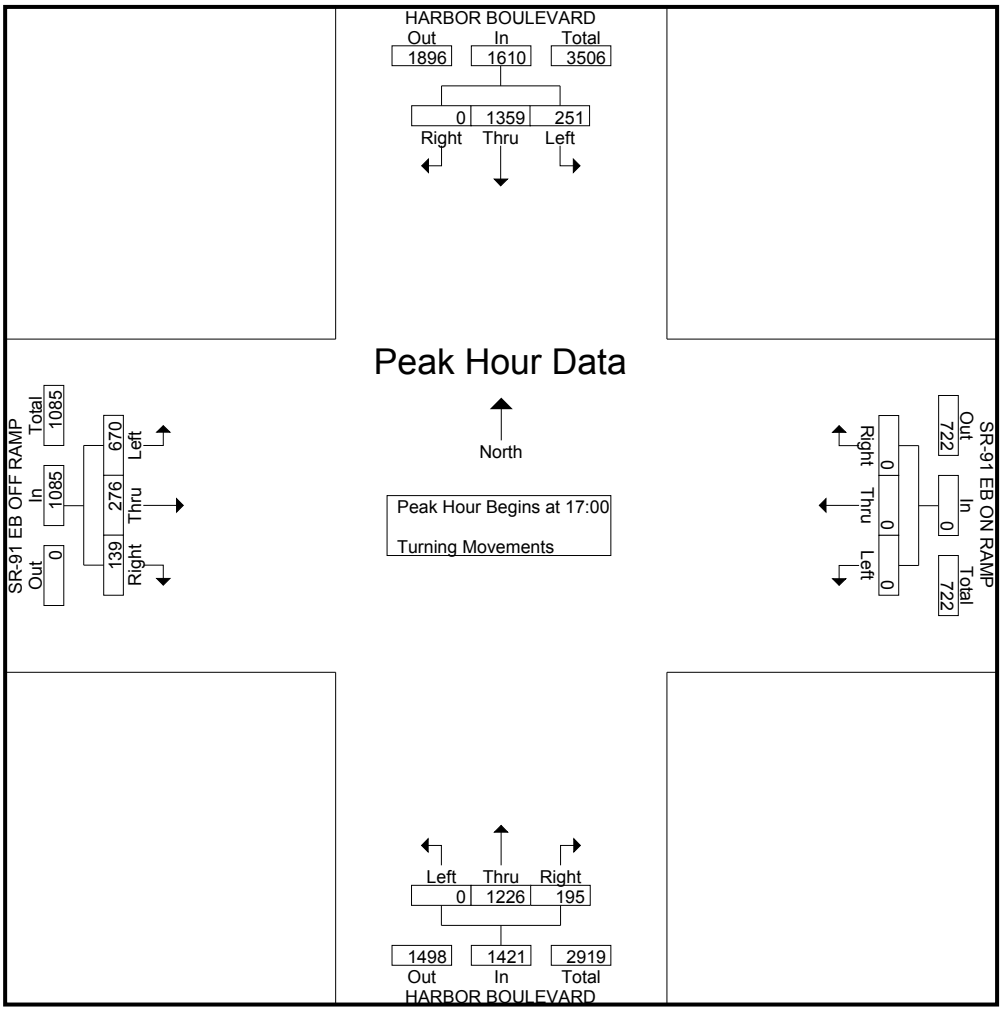


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: HARBOR BOULEVARD
E-W Direction: SR-91 EB RAMPS

File Name : H1611031
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	HARBOR BOULEVARD Southbound				SR-91 EB ON RAMP Westbound				HARBOR BOULEVARD Northbound				SR-91 EB OFF RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	315	**67**	382	0	0	0	0	45	321	0	366	36	58	167	261	1009
17:15	0	363	64	427	0	0	0	0	**62**	**325**	0	**387**	**39**	71	**172**	**282**	**1096**
17:30	0	**372**	62	**434**	0	0	0	0	40	284	0	324	34	68	171	273	1031
17:45	0	309	58	367	0	0	0	0	48	296	0	344	30	**79**	160	269	980
Total Volume	0	1359	251	1610	0	0	0	0	195	1226	0	1421	139	276	670	1085	4116
% App. Total	0	84.4	15.6		0	0	0		13.7	86.3	0		12.8	25.4	61.8		
PHF	.000	.913	.937	.927	.000	.000	.000	.000	.786	.943	.000	.918	.891	.873	.974	.962	.939



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: SR-91 EB RAMPS

File Name : H1611032
Site Code : 00000000
Start Date : 11/16/2016
Page No : 1

Groups Printed- Turning Movements

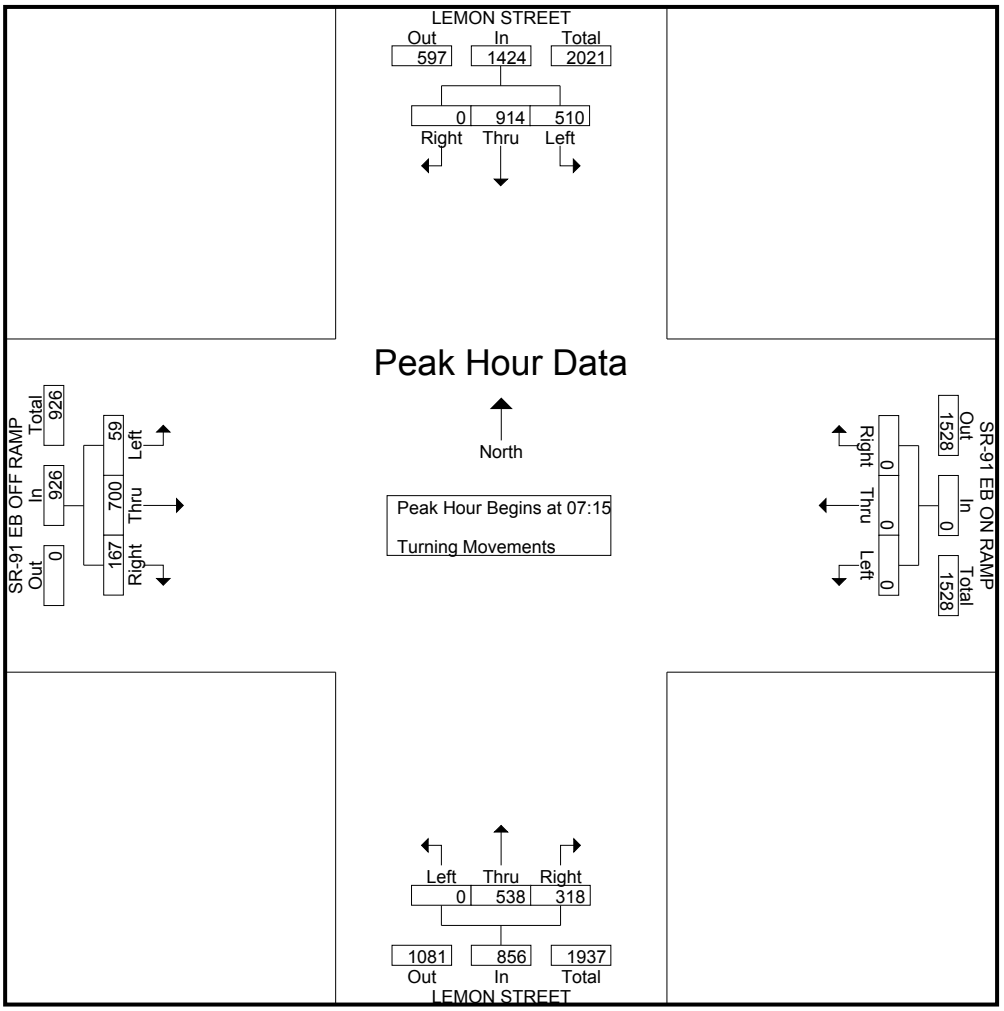
	LEMON STREET Southbound			SR-91 EB ON RAMP Westbound			LEMON STREET Northbound			SR-91 EB OFF RAMP Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	188	122	0	0	0	43	98	0	15	147	23	636
07:15	0	217	149	0	0	0	77	102	0	7	212	17	781
07:30	0	224	145	0	0	0	95	159	0	24	232	11	890
07:45	0	240	114	0	0	0	92	161	0	63	163	14	847
Total	0	869	530	0	0	0	307	520	0	109	754	65	3154
08:00	0	233	102	0	0	0	54	116	0	73	93	17	688
08:15	0	181	92	0	0	0	64	172	0	95	115	15	734
08:30	0	179	93	0	0	0	52	127	0	63	143	38	695
08:45	0	179	81	0	0	0	44	117	0	34	93	56	604
Total	0	772	368	0	0	0	214	532	0	265	444	126	2721
*** BREAK ***													
16:00	0	213	97	0	0	0	61	192	0	17	126	61	767
16:15	0	225	114	0	0	0	51	201	0	31	101	67	790
16:30	0	191	100	0	0	0	49	228	0	17	102	77	764
16:45	0	223	78	0	0	0	51	219	0	12	87	72	742
Total	0	852	389	0	0	0	212	840	0	77	416	277	3063
17:00	0	221	88	0	0	0	59	202	0	10	93	67	740
17:15	0	229	95	0	0	0	51	246	0	18	106	72	817
17:30	0	215	105	0	0	0	40	240	0	7	92	74	773
17:45	0	235	101	0	0	0	42	216	0	17	86	76	773
Total	0	900	389	0	0	0	192	904	0	52	377	289	3103
Grand Total	0	3393	1676	0	0	0	925	2796	0	503	1991	757	12041
Apprch %	0	66.9	33.1	0	0	0	24.9	75.1	0	15.5	61.2	23.3	
Total %	0	28.2	13.9	0	0	0	7.7	23.2	0	4.2	16.5	6.3	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: SR-91 EB RAMPS

File Name : H1611032
Site Code : 00000000
Start Date : 11/16/2016
Page No : 2

	LEMON STREET Southbound				SR-91 EB ON RAMP Westbound				LEMON STREET Northbound				SR-91 EB OFF RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	217	**149**	366	0	0	0	0	77	102	0	179	7	212	**17**	236	781
07:30	0	224	145	**369**	0	0	0	0	**95**	159	0	**254**	24	**232**	11	**267**	**890**
07:45	0	**240**	114	354	0	0	0	0	92	**161**	0	253	63	163	14	240	847
08:00	0	233	102	335	0	0	0	0	54	116	0	170	**73**	93	17	183	688
Total Volume	0	914	510	1424	0	0	0	0	318	538	0	856	167	700	59	926	3206
% App. Total	0	64.2	35.8		0	0	0		37.1	62.9	0		18	75.6	6.4		
PHF	.000	.952	.856	.965	.000	.000	.000	.000	.837	.835	.000	.843	.572	.754	.868	.867	.901

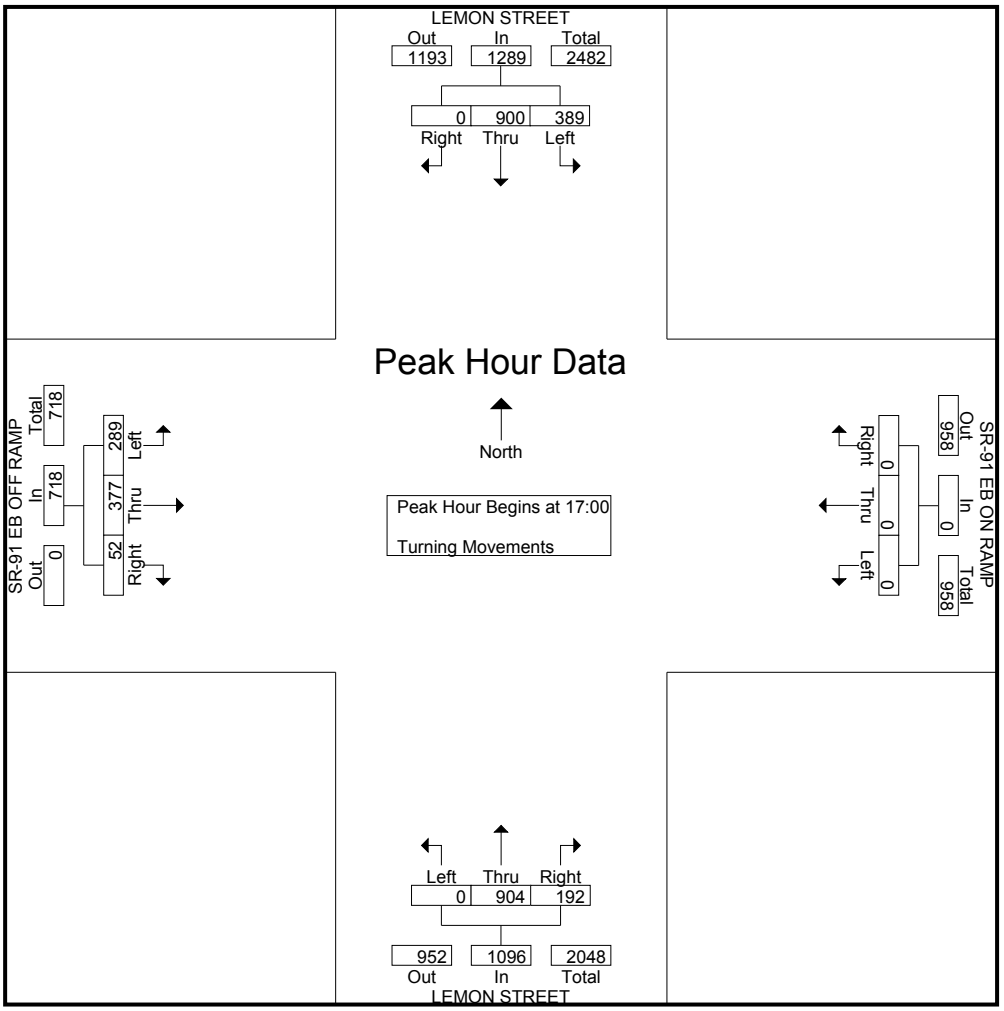


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: SR-91 EB RAMPS

File Name : H1611032
Site Code : 00000000
Start Date : 11/16/2016
Page No : 3

	LEMON STREET Southbound				SR-91 EB ON RAMP Westbound				LEMON STREET Northbound				SR-91 EB OFF RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	221	88	309	0	0	0	0	**59**	202	0	261	10	93	67	170	740
17:15	0	229	95	324	0	0	0	0	51	**246**	0	**297**	**18**	**106**	72	**196**	**817**
17:30	0	215	**105**	320	0	0	0	0	40	240	0	280	7	92	74	173	773
17:45	0	**235**	101	**336**	0	0	0	0	42	216	0	258	17	86	**76**	179	773
Total Volume	0	900	389	1289	0	0	0	0	192	904	0	1096	52	377	289	718	3103
% App. Total	0	69.8	30.2		0	0	0		17.5	82.5	0		7.2	52.5	40.3		
PHF	.000	.957	.926	.959	.000	.000	.000	.000	.814	.919	.000	.923	.722	.889	.951	.916	.950



ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

Harbor Blvd and Bastanchury Rd , Fullerton

Date:	3/7/2017
Day:	Tuesday

Project #:	17-1047-004
City:	Fullerton

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Peak Hour Summary

Southbound Approach (Harbor Blvd)

	Lanes 0	3	2		
AM	309	1376	523	1121	AM
NOON	0	0	0	0	NOON
PM	368	917	313	1833	PM

Eastbound Approach (Bastanchury Rd)

Lanes	AM	NOON	PM
	1530	0	1703
1	312	0	276
2.5	1223	0	1231
0.5	229	0	168

Westbound Approach

AM	NOON	PM	Lanes
213	0	309	1
1057	0	1046	3
241	0	179	2
1838	0	1751	

Northbound Approach

	2	3	1	Lanes
AM	164	596	92	AM
NOON	0	0	0	NOON
PM	289	1248	207	PM

	AM	NOON	PM
AM	1846		
NOON	0		
PM	1264		

CONTROL

Signalized

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs

	North Leg		
	2208	1121	AM
	0	0	NOON
	1598	1833	PM

West Leg AM	NOON	PM	East Leg AM	NOON	PM
1530	0	1703	1511	0	1534
1764	0	1675	1838	0	1751

	South Leg	
AM	1846	852
NOON	0	0
PM	1264	1744

Total Volume Per Leg

	North Leg
AM	3329
NOON	0
PM	3431

West Leg AM	NOON	PM	East Leg AM	NOON	PM
3294	0	3378	3349	0	3285

	South Leg
AM	2698
NOON	0
PM	3008

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-1047-004 **Day:** Tuesday

City: Fullerton **Date:** 3/7/2017

AM

NS/EW Streets:	Harbor Blvd			Harbor Blvd			Bastanchury Rd			Bastanchury Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	3	1	2	3	0	1	2.5	0.5	2	3	1	
7:00 AM	37	124	20	107	338	71	56	176	28	48	246	52	1303
7:15 AM	40	143	20	138	354	71	63	251	47	46	257	47	1477
7:30 AM	33	129	21	135	341	76	86	337	76	43	257	71	1605
7:45 AM	47	177	28	140	346	73	81	344	43	77	263	45	1664
8:00 AM	35	128	26	128	343	83	75	320	52	61	286	42	1579
8:15 AM	49	162	17	120	346	77	70	222	58	60	251	55	1487
8:30 AM	36	196	38	99	315	92	83	227	54	90	228	68	1526
8:45 AM	43	168	32	81	266	75	71	227	43	67	215	52	1340
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	320	1227	202	948	2649	618	585	2104	401	492	2003	432	11981
APPROACH %'s :	18.30%	70.15%	11.55%	22.49%	62.85%	14.66%	18.93%	68.09%	12.98%	16.81%	68.43%	14.76%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	164	596	92	523	1376	309	312	1223	229	241	1057	213	6335
PEAK HR FACTOR :		0.845			0.987			0.884			0.971		0.952

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 17-1047-004 **Day:** Tuesday

City: Fullerton **Date:** 3/7/2017

PM

NS/EW Streets:	Harbor Blvd			Harbor Blvd			Bastanchury Rd			Bastanchury Rd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	2	3	1	2	3	0	1	2.5	0.5	2	3	1	
4:00 PM	52	298	48	91	214	78	67	276	37	56	249	90	1556
4:15 PM	75	313	47	83	202	60	69	296	61	49	250	85	1590
4:30 PM	59	303	48	74	250	80	79	289	48	43	253	84	1610
4:45 PM	66	340	41	81	204	85	73	291	52	49	262	71	1615
5:00 PM	78	290	65	73	229	97	68	313	46	29	263	61	1612
5:15 PM	76	311	39	84	246	95	56	310	39	42	261	86	1645
5:30 PM	69	307	62	75	238	91	79	317	31	59	260	91	1679
5:45 PM	58	290	49	90	206	80	71	302	30	51	260	61	1548
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	533	2452	399	651	1789	666	562	2394	344	378	2058	629	12855
APPROACH %'s :	15.75%	72.46%	11.79%	20.96%	57.60%	21.44%	17.03%	72.55%	10.42%	12.33%	67.15%	20.52%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	289	1248	207	313	917	368	276	1231	168	179	1046	309	6551
PEAK HR FACTOR :		0.975			0.940			0.981			0.935		0.975

CONTROL : Signalized

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: DRIVEWAY
E-W Direction: BERKELEY AVENUE

File Name : H1704004
Site Code : 00005054
Start Date : 4/5/2017
Page No : 1

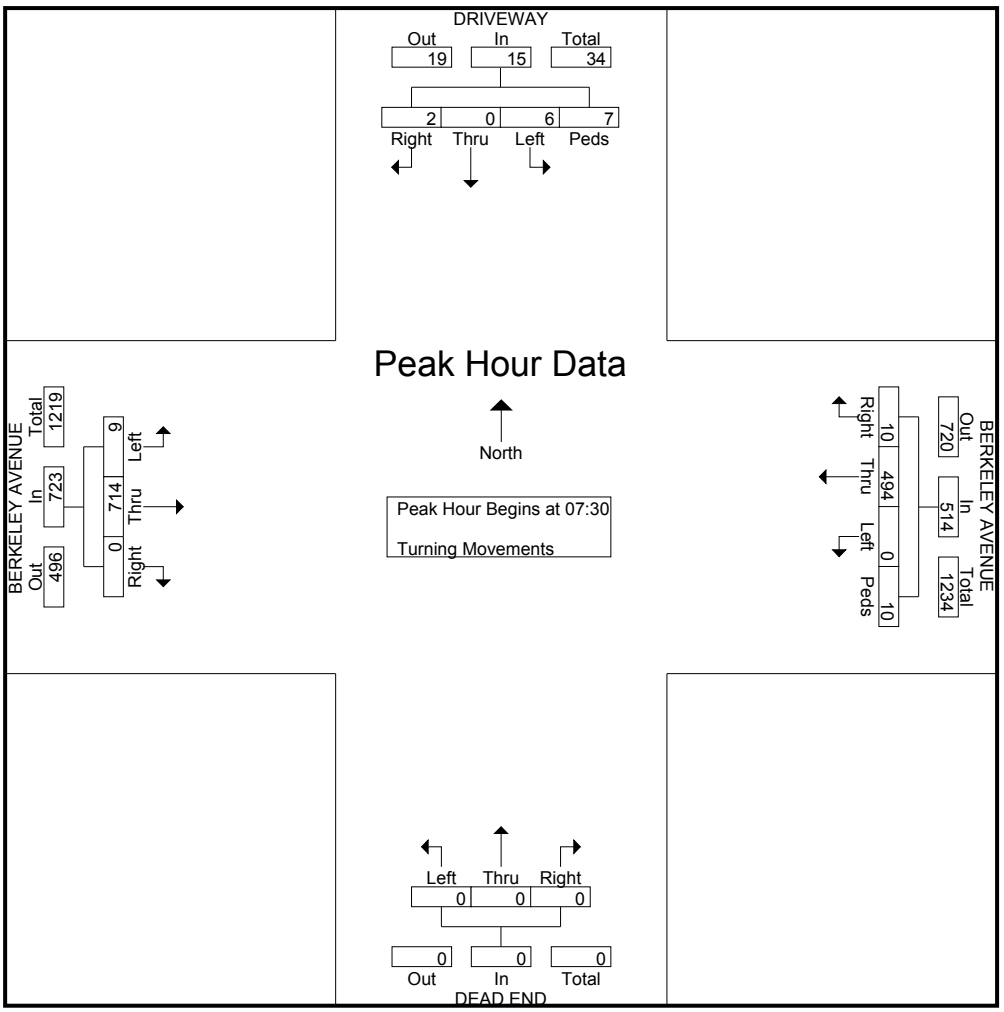
Groups Printed- Turning Movements

	DRIVEWAY Southbound				BERKELEY AVENUE Westbound				DEAD END Northbound			BERKELEY AVENUE Eastbound			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	1	0	2	4	2	106	0	2	0	0	0	0	144	6	267
07:15	2	0	2	2	2	80	0	1	0	0	0	0	137	4	230
07:30	2	0	3	2	3	106	0	2	0	0	0	0	163	0	281
07:45	0	0	1	0	2	139	0	1	0	0	0	0	204	2	349
Total	5	0	8	8	9	431	0	6	0	0	0	0	648	12	1127
08:00	0	0	2	3	2	121	0	3	0	0	0	0	185	3	319
08:15	0	0	0	2	3	128	0	4	0	0	0	0	162	4	303
08:30	5	0	4	3	2	91	0	7	0	0	0	0	143	8	263
08:45	2	0	0	1	5	80	0	0	0	0	0	0	104	4	196
Total	7	0	6	9	12	420	0	14	0	0	0	0	594	19	1081
16:00	3	0	7	2	0	131	0	1	0	0	0	0	112	1	257
16:15	4	0	0	3	0	152	0	2	0	0	0	0	121	3	285
16:30	3	0	1	3	0	142	0	1	0	0	0	0	107	4	261
16:45	0	0	1	1	0	138	0	1	0	0	0	0	124	1	266
Total	10	0	9	9	0	563	0	5	0	0	0	0	464	9	1069
17:00	1	0	0	0	0	154	0	0	0	0	0	0	104	0	259
17:15	0	0	2	1	0	167	0	1	0	0	0	0	140	1	312
17:30	0	0	0	0	1	148	0	0	0	0	0	0	133	1	283
17:45	2	0	0	1	0	146	0	0	0	0	0	0	119	3	271
Total	3	0	2	2	1	615	0	1	0	0	0	0	496	5	1125
Grand Total	25	0	25	28	22	2029	0	26	0	0	0	0	2202	45	4402
Apprch %	32.1	0	32.1	35.9	1.1	97.7	0	1.3	0	0	0	0	98	2	
Total %	0.6	0	0.6	0.6	0.5	46.1	0	0.6	0	0	0	0	50	1	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1704004
Site Code : 00005054
Start Date : 4/5/2017
Page No : 2

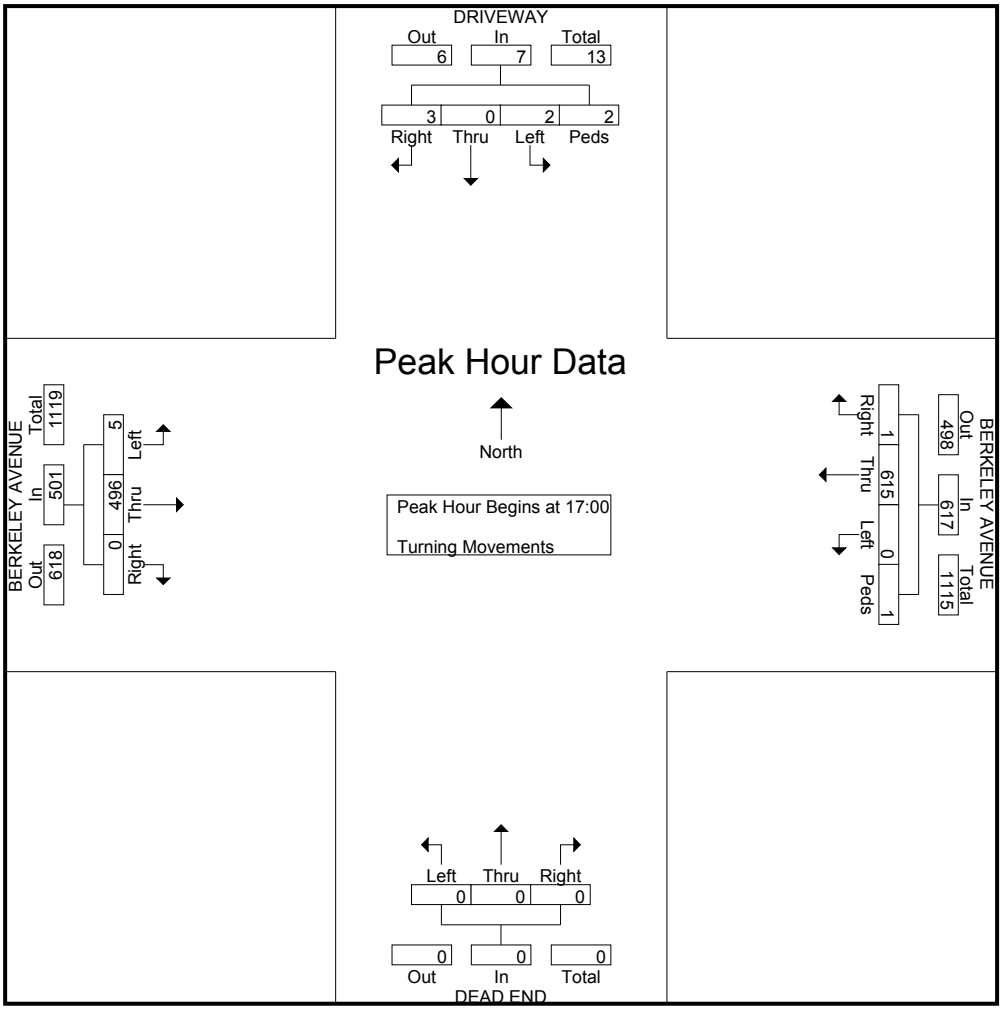
	DRIVEWAY Southbound					BERKELEY AVENUE Westbound					DEAD END Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 07:30																			
07:30	2		3		7	3	106	0	2	111	0	0	0	0	0	163	0	163	281
07:45	0	0	1	0	1	2	139			142						204		206	349
08:00	0	0	2	3															
08:15	0	0	0	2	2	3	128	0	4	135	0	0	0	0	0	162	4	166	303
Total Volume	2	0	6	7	15	10	494	0	10	514	0	0	0	0	0	714	9	723	1252
% App. Total	13.3	0	40	46.7		1.9	96.1	0	1.9		0	0	0		0	98.8	1.2		
PHF	.250	.000	.500	.583	.536	.833	.888	.000	.625	.905	.000	.000	.000	.000	.000	.875	.563	.877	.897



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1704004
Site Code : 00005054
Start Date : 4/5/2017
Page No : 3

	DRIVEWAY Southbound					BERKELEY AVENUE Westbound					DEAD END Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 17:00																			
17:00	1	0	0	0	1	0	154	0	0	154	0	0	0	0	0	104	0	104	259
17:15	0	0	2	1	3		167		1	168						140		141	312
17:30	0	0	0	0	0	1	148	0	0	149	0	0	0	0	0	133	1	134	283
17:45	2																3		
Total Volume	3	0	2	2	7	1	615	0	1	617	0	0	0	0	0	496	5	501	1125
% App. Total	42.9	0	28.6	28.6		0.2	99.7	0	0.2		0	0	0		0	99	1		
PHF	.375	.000	.250	.500	.583	.250	.921	.000	.250	.918	.000	.000	.000	.000	.000	.886	.417	.888	.901



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: COLLEGE DRIVEWAY 1
E-W Direction: BERKELEY AVENUE

File Name : H1611015
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

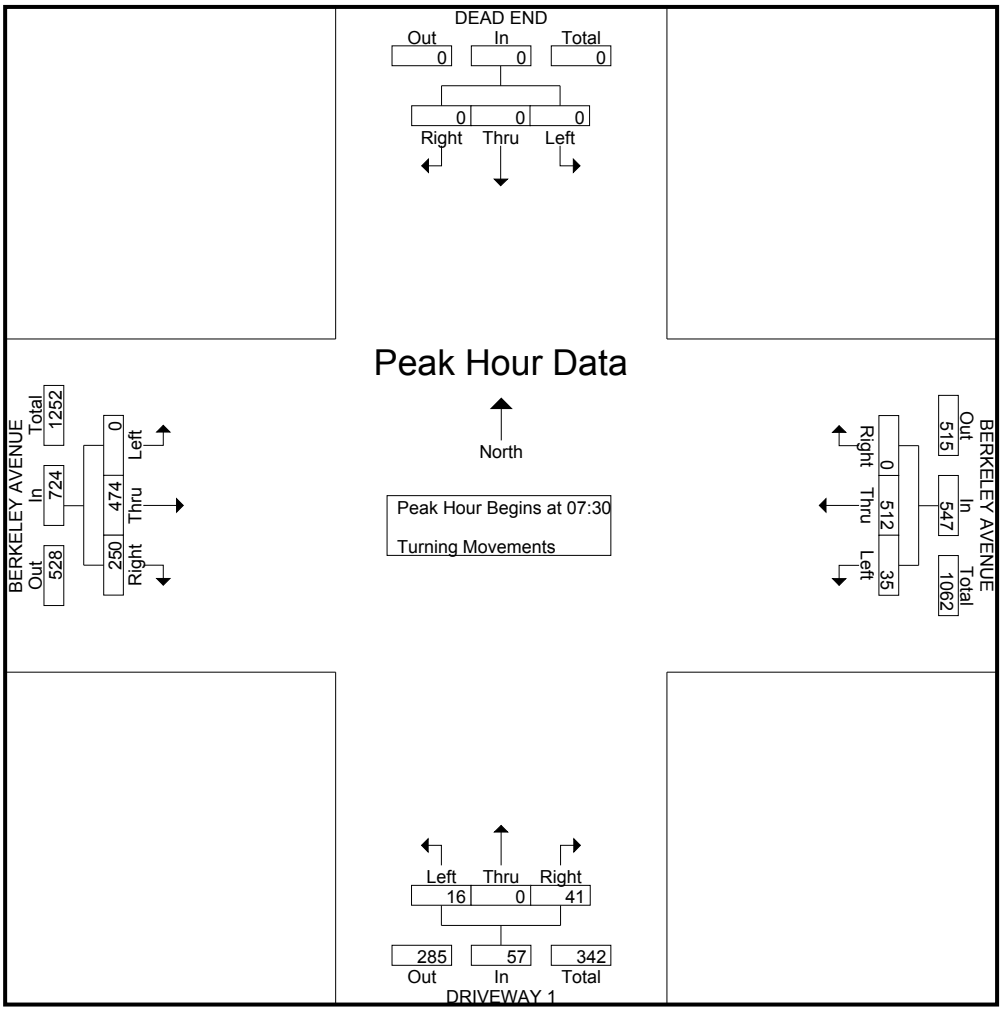
	DEAD END Southbound			BERKELEY AVENUE Westbound			DRIVEWAY 1 Northbound			BERKELEY AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	0	109	13	5	0	1	78	66	0	272
07:15	0	0	0	0	87	5	0	0	0	49	104	0	245
07:30	0	0	0	0	143	10	7	0	0	36	139	0	335
07:45	0	0	0	0	131	10	6	0	4	65	137	0	353
Total	0	0	0	0	470	38	18	0	5	228	446	0	1205
08:00	0	0	0	0	131	6	8	0	7	57	111	0	320
08:15	0	0	0	0	107	9	20	0	5	92	87	0	320
08:30	0	0	0	0	77	13	6	0	3	38	84	0	221
08:45	0	0	0	0	98	6	4	0	3	25	86	0	222
Total	0	0	0	0	413	34	38	0	18	212	368	0	1083
*** BREAK ***													
16:00	0	0	0	0	127	6	14	0	12	20	97	0	276
16:15	0	0	0	0	126	11	8	0	4	21	110	0	280
16:30	0	0	0	0	156	1	15	0	16	16	121	0	325
16:45	0	0	0	0	127	4	13	0	11	11	100	0	266
Total	0	0	0	0	536	22	50	0	43	68	428	0	1147
17:00	0	0	0	0	159	3	19	0	4	23	125	0	333
17:15	0	0	0	0	150	7	20	0	9	23	120	0	329
17:30	0	0	0	0	146	5	18	0	12	17	121	0	319
17:45	0	0	0	0	126	2	12	0	10	12	77	0	239
Total	0	0	0	0	581	17	69	0	35	75	443	0	1220
Grand Total	0	0	0	0	2000	111	175	0	101	583	1685	0	4655
Apprch %	0	0	0	0	94.7	5.3	63.4	0	36.6	25.7	74.3	0	
Total %	0	0	0	0	43	2.4	3.8	0	2.2	12.5	36.2	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: COLLEGE DRIVEWAY 1
E-W Direction: BERKELEY AVENUE

File Name : H1611015
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	DEAD END Southbound				BERKELEY AVENUE Westbound				DRIVEWAY 1 Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	**143**	**10**	**153**	7	0	0	7	36	**139**	0	175	335
07:45	0	0	0	0	0	131	10	141	6	0	4	10	65	137	0	**202**	**353**
08:00	0	0	0	0	0	131	6	137	8	0	**7**	15	57	111	0	168	320
08:15	0	0	0	0	0	107	9	116	**20**	0	5	**25**	**92**	87	0	179	320
Total Volume	0	0	0	0	0	512	35	547	41	0	16	57	250	474	0	724	1328
% App. Total	0	0	0		0	93.6	6.4		71.9	0	28.1		34.5	65.5	0		
PHF	.000	.000	.000	.000	.000	.895	.875	.894	.513	.000	.571	.570	.679	.853	.000	.896	.941

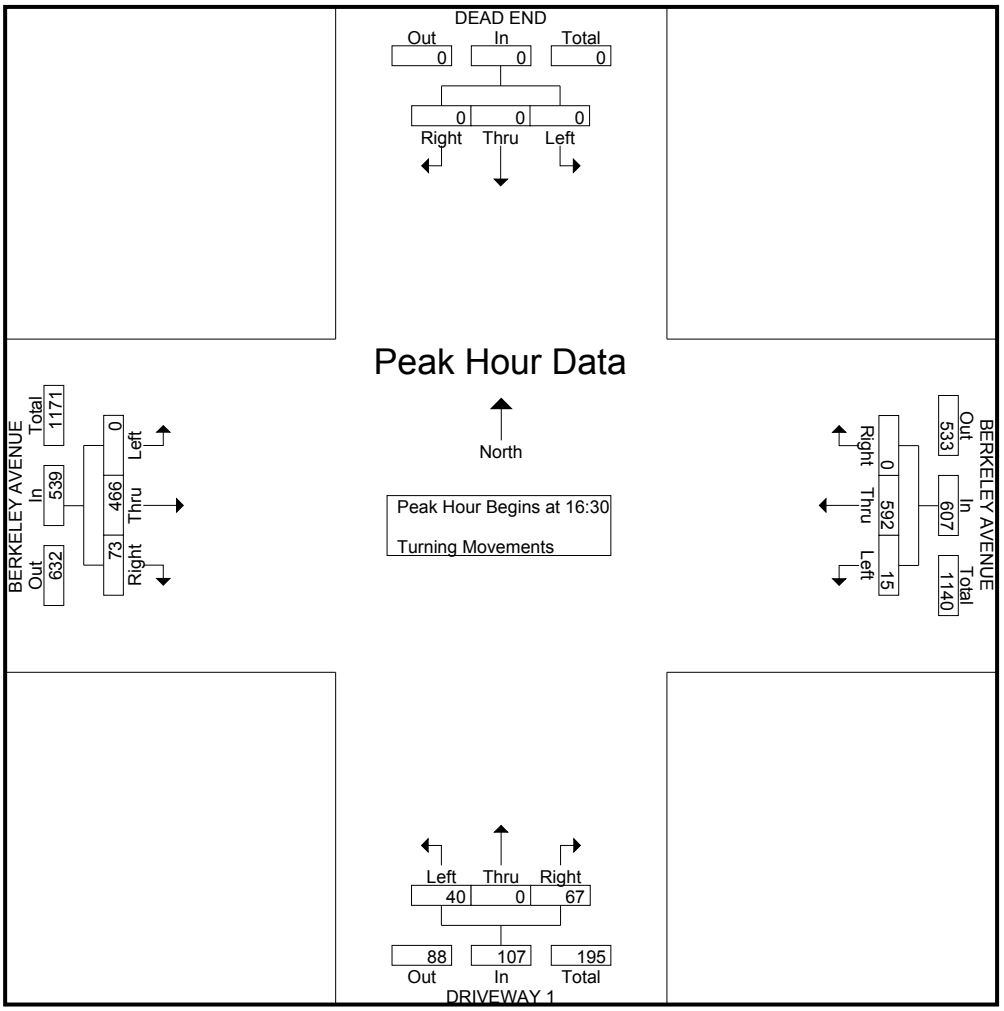


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: COLLEGE DRIVEWAY 1
E-W Direction: BERKELEY AVENUE

File Name : H1611015
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	DEAD END Southbound				BERKELEY AVENUE Westbound				DRIVEWAY 1 Northbound				BERKELEY AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	0	0	0	0	156	1	157	15	0	**16**	**31**	16	121	0	137	325
16:45	0	0	0	0	0	127	4	131	13	0	11	24	11	100	0	111	266
17:00	0	0	0	0	0	**159**	3	**162**	19	0	4	23	**23**	**125**	0	**148**	**333**
17:15	0	0	0	0	0	150	**7**	157	**20**	0	9	29	23	120	0	143	329
Total Volume	0	0	0	0	0	592	15	607	67	0	40	107	73	466	0	539	1253
% App. Total	0	0	0		0	97.5	2.5		62.6	0	37.4		13.5	86.5	0		
PHF	.000	.000	.000	.000	.000	.931	.536	.937	.838	.000	.625	.863	.793	.932	.000	.910	.941



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: PARKING STRUCTURE

File Name : H1611014
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

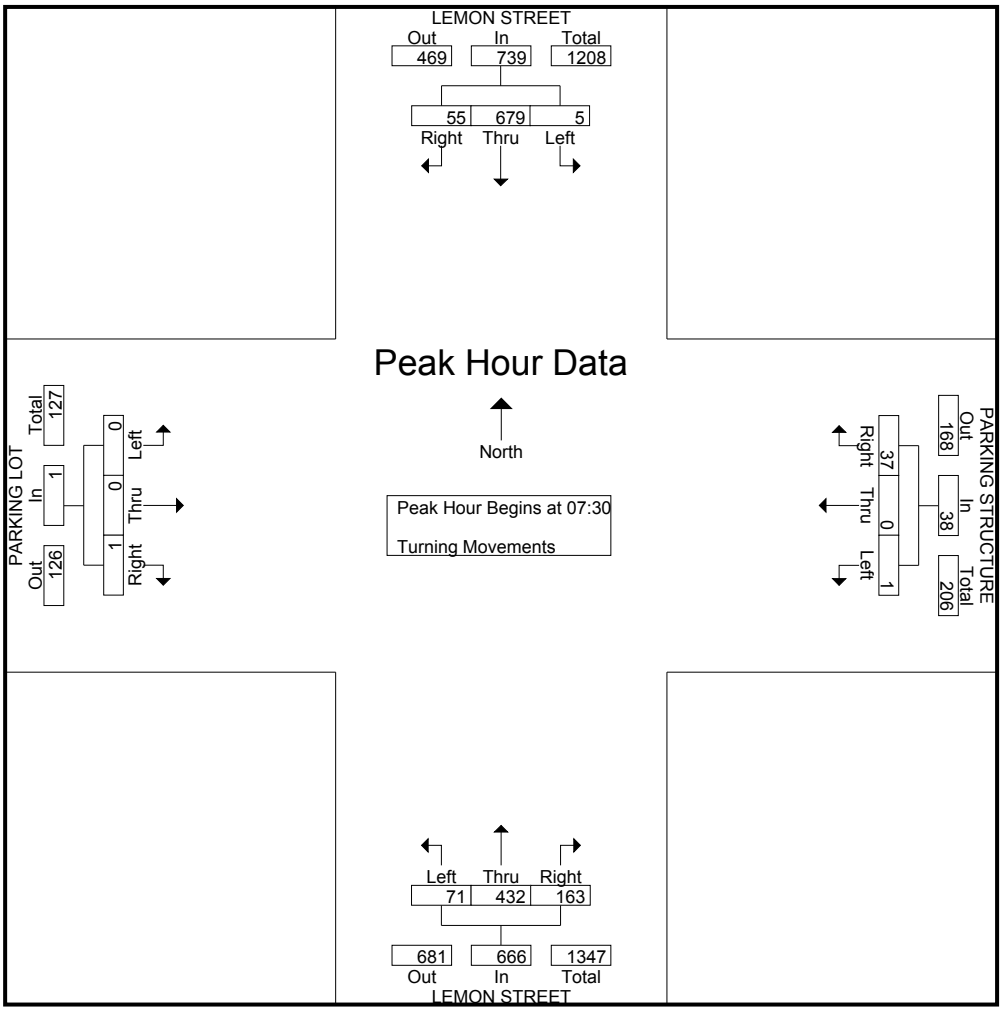
	LEMON STREET Southbound			PARKING STRUCTURE Westbound			LEMON STREET Northbound			PARKING LOT Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	2	156	0	13	0	0	37	61	12	3	0	0	284
07:15	18	170	0	5	0	0	29	58	22	2	0	0	304
07:30	39	150	0	8	0	0	25	113	40	1	0	0	376
07:45	14	171	2	2	0	0	46	118	24	0	0	0	377
Total	73	647	2	28	0	0	137	350	98	6	0	0	1341
08:00	1	190	2	5	0	0	48	99	3	0	0	0	348
08:15	1	168	1	22	0	1	44	102	4	0	0	0	343
08:30	1	131	1	9	0	0	18	96	3	0	0	0	259
08:45	4	133	0	8	0	0	13	110	5	4	0	0	277
Total	7	622	4	44	0	1	123	407	15	4	0	0	1227
*** BREAK ***													
16:00	1	131	0	37	0	1	10	150	8	2	0	0	340
16:15	1	105	0	25	0	1	14	177	10	3	0	0	336
16:30	1	131	0	63	0	0	12	190	15	7	0	0	419
16:45	5	165	0	25	0	1	5	191	9	2	0	0	403
Total	8	532	0	150	0	3	41	708	42	14	0	0	1498
17:00	3	149	1	25	0	0	12	202	6	1	0	0	399
17:15	1	156	0	42	0	0	11	212	2	6	0	0	430
17:30	1	120	0	29	0	1	11	191	4	1	0	0	358
17:45	0	100	0	20	0	0	11	173	7	2	0	0	313
Total	5	525	1	116	0	1	45	778	19	10	0	0	1500
Grand Total	93	2326	7	338	0	5	346	2243	174	34	0	0	5566
Apprch %	3.8	95.9	0.3	98.5	0	1.5	12.5	81.2	6.3	100	0	0	
Total %	1.7	41.8	0.1	6.1	0	0.1	6.2	40.3	3.1	0.6	0	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: PARKING STRUCTURE

File Name : H1611014
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	LEMON STREET Southbound				PARKING STRUCTURE Westbound				LEMON STREET Northbound				PARKING LOT Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	**39**	150	0	189	8	0	0	8	25	113	**40**	178	**1**	0	0	**1**	376
07:45	14	171	**2**	187	2	0	0	2	46	**118**	24	**188**	0	0	0	0	**377**
08:00	1	**190**	2	**193**	5	0	0	5	**48**	99	3	150	0	0	0	0	348
08:15	1	168	1	170	**22**	0	**1**	**23**	44	102	4	150	0	0	0	0	343
Total Volume	55	679	5	739	37	0	1	38	163	432	71	666	1	0	0	1	1444
% App. Total	7.4	91.9	0.7		97.4	0	2.6		24.5	64.9	10.7		100	0	0		
PHF	.353	.893	.625	.957	.420	.000	.250	.413	.849	.915	.444	.886	.250	.000	.000	.250	.958

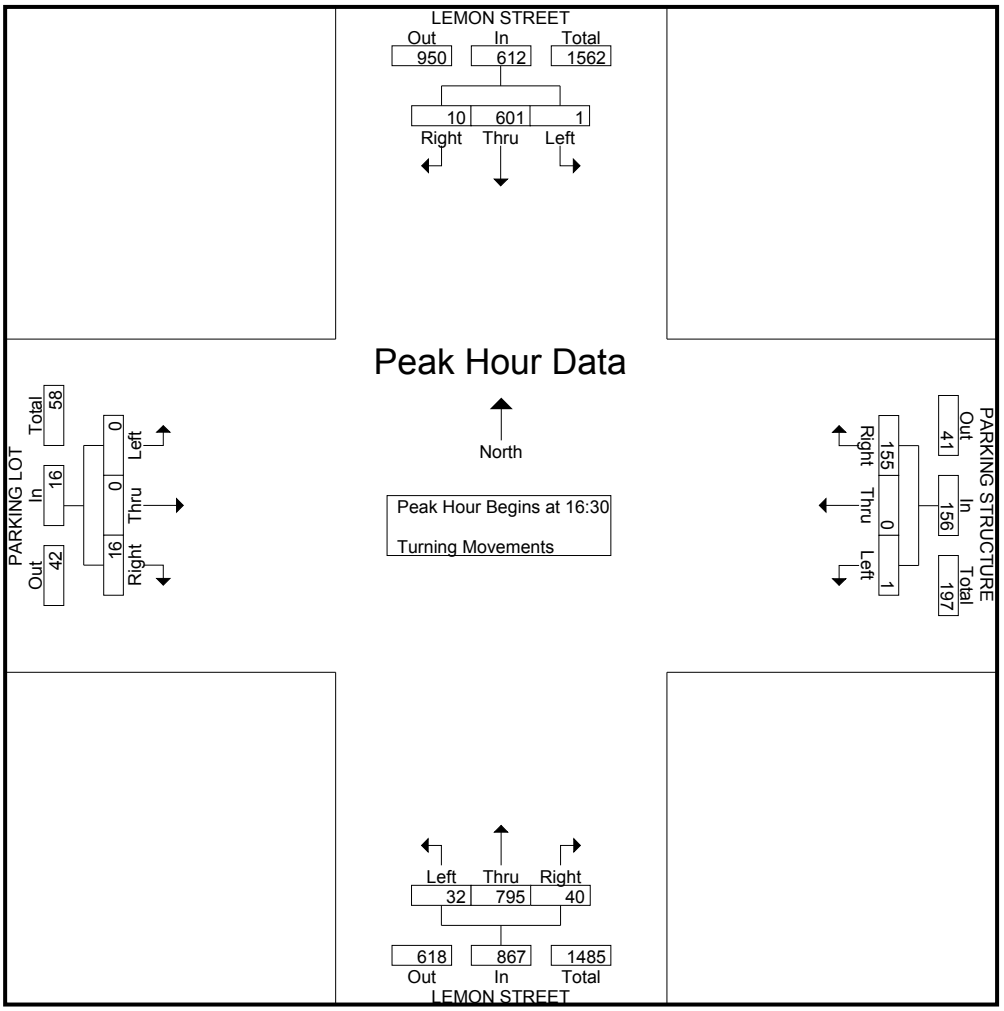


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: PARKING STRUCTURE

File Name : H1611014
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	LEMON STREET Southbound				PARKING STRUCTURE Westbound				LEMON STREET Northbound				PARKING LOT Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	1	131	0	132	**63**	0	0	**63**	**12**	190	**15**	217	**7**	0	0	**7**	419
16:45	**5**	**165**	0	**170**	25	0	**1**	26	5	191	9	205	2	0	0	2	403
17:00	3	149	**1**	153	25	0	0	25	12	202	6	220	1	0	0	1	399
17:15	1	156	0	157	42	0	0	42	11	**212**	2	**225**	6	0	0	6	**430**
Total Volume	10	601	1	612	155	0	1	156	40	795	32	867	16	0	0	16	1651
% App. Total	1.6	98.2	0.2		99.4	0	0.6		4.6	91.7	3.7		100	0	0		
PHF	.500	.911	.250	.900	.615	.000	.250	.619	.833	.938	.533	.963	.571	.000	.000	.571	.960



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: FULLERTON COLLEGE DRIVE

File Name : H1611013
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

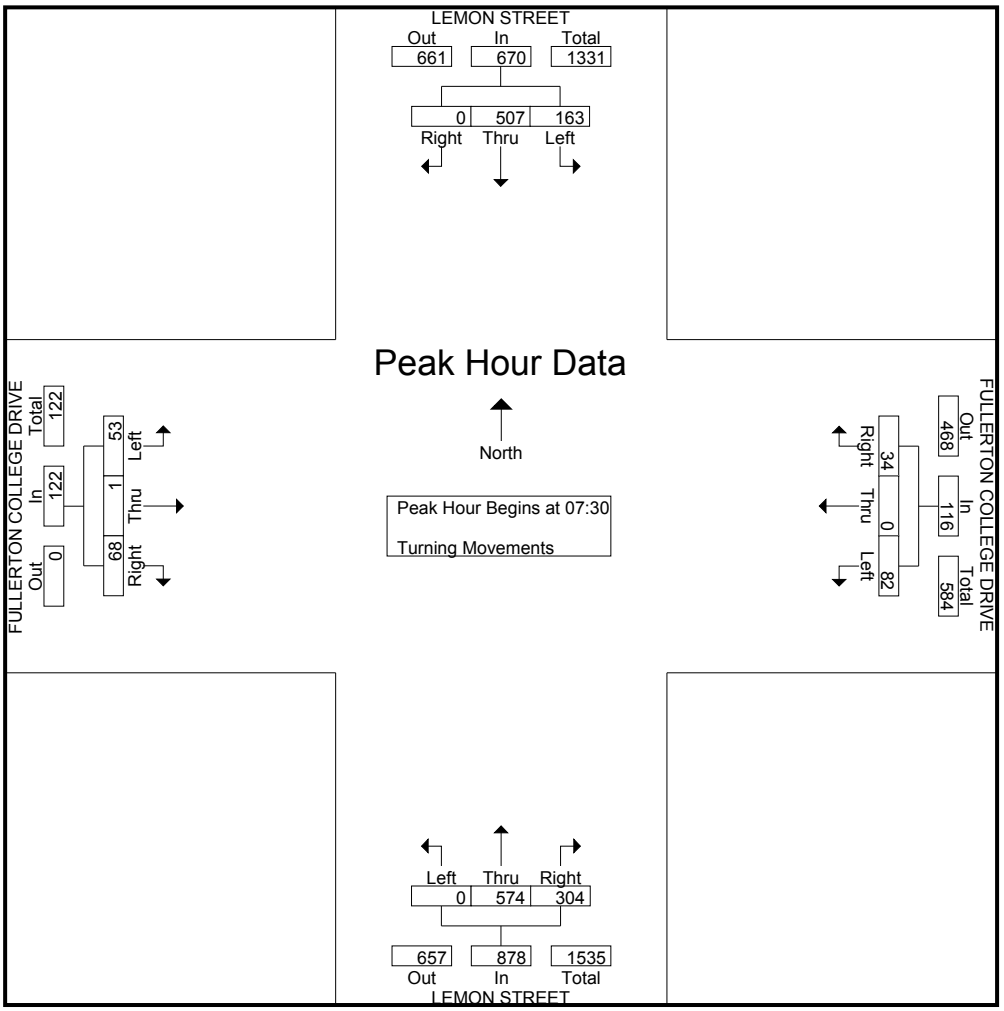
	LEMON STREET Southbound			FULLERTON COLLEGE DRIVE Westbound			LEMON STREET Northbound			FULLERTON COLLEGE DRIVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	131	31	6	0	15	64	101	0	2	0	2	352
07:15	0	137	23	3	0	8	60	98	0	17	0	8	354
07:30	0	128	27	4	0	8	62	143	0	38	0	29	439
07:45	0	120	43	6	0	14	85	161	0	28	0	20	477
Total	0	516	124	19	0	45	271	503	0	85	0	59	1622
08:00	0	146	44	10	0	23	95	137	0	2	0	1	458
08:15	0	113	49	14	0	37	62	133	0	0	1	3	412
08:30	0	95	34	4	0	33	78	116	0	1	1	2	364
08:45	0	110	24	8	0	27	43	111	0	4	0	1	328
Total	0	464	151	36	0	120	278	497	0	7	2	7	1562
*** BREAK ***													
16:00	0	114	20	5	0	61	42	157	1	10	0	5	415
16:15	0	93	19	18	0	47	61	170	0	10	1	11	430
16:30	0	113	19	16	0	70	49	195	0	19	0	6	487
16:45	0	143	21	11	0	45	47	182	0	11	0	13	473
Total	0	463	79	50	0	223	199	704	1	50	1	35	1805
17:00	0	129	20	18	0	49	48	191	0	5	0	8	468
17:15	0	152	14	14	0	55	57	214	0	3	0	5	514
17:30	0	104	11	9	0	48	43	187	0	5	0	3	410
17:45	0	95	15	8	0	35	43	179	0	5	0	2	382
Total	0	480	60	49	0	187	191	771	0	18	0	18	1774
Grand Total	0	1923	414	154	0	575	939	2475	1	160	3	119	6763
Apprch %	0	82.3	17.7	21.1	0	78.9	27.5	72.5	0	56.7	1.1	42.2	
Total %	0	28.4	6.1	2.3	0	8.5	13.9	36.6	0	2.4	0	1.8	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: FULLERTON COLLEGE DRIVE

File Name : H1611013
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	LEMON STREET Southbound				FULLERTON COLLEGE DRIVE Westbound				LEMON STREET Northbound				FULLERTON COLLEGE DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	128	27	155	4	0	8	12	62	143	0	205	**38**	0	**29**	**67**	439
07:45	0	120	43	163	6	0	14	20	85	**161**	0	**246**	28	0	20	48	**477**
08:00	0	**146**	44	**190**	10	0	23	33	**95**	137	0	232	2	0	1	3	458
08:15	0	113	**49**	162	**14**	0	**37**	**51**	62	133	0	195	0	**1**	3	4	412
Total Volume	0	507	163	670	34	0	82	116	304	574	0	878	68	1	53	122	1786
% App. Total	0	75.7	24.3		29.3	0	70.7		34.6	65.4	0		55.7	0.8	43.4		
PHF	.000	.868	.832	.882	.607	.000	.554	.569	.800	.891	.000	.892	.447	.250	.457	.455	.936

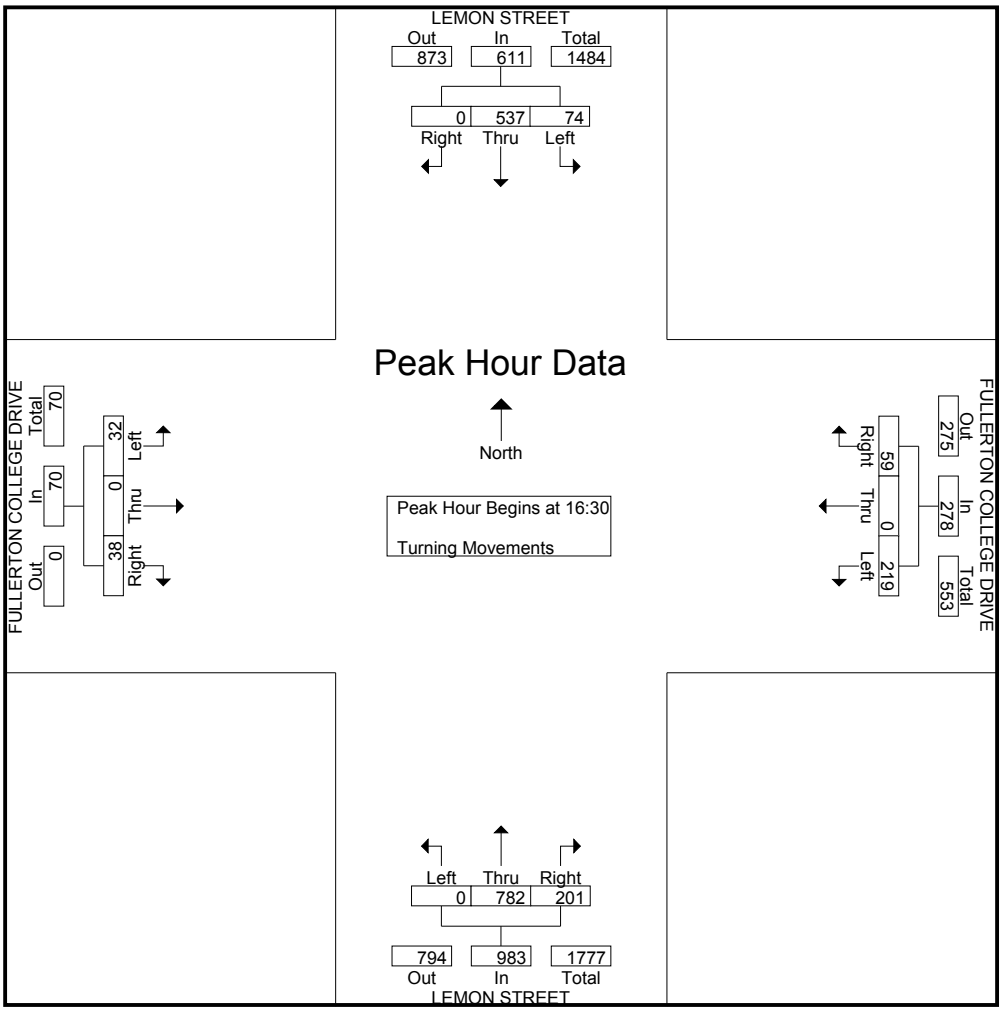


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: LEMON STREET
E-W Direction: FULLERTON COLLEGE DRIVE

File Name : H1611013
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	LEMON STREET Southbound				FULLERTON COLLEGE DRIVE Westbound				LEMON STREET Northbound				FULLERTON COLLEGE DRIVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	113	19	132	16	0	**70**	**86**	49	195	0	244	**19**	0	6	**25**	487
16:45	0	143	**21**	164	11	0	45	56	47	182	0	229	11	0	**13**	24	473
17:00	0	129	20	149	**18**	0	49	67	48	191	0	239	5	0	8	13	468
17:15	0	**152**	14	**166**	14	0	55	69	**57**	**214**	0	**271**	3	0	5	8	**514**
Total Volume	0	537	74	611	59	0	219	278	201	782	0	983	38	0	32	70	1942
% App. Total	0	87.9	12.1		21.2	0	78.8		20.4	79.6	0		54.3	0	45.7		
PHF	.000	.883	.881	.920	.819	.000	.782	.808	.882	.914	.000	.907	.500	.000	.615	.700	.945



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: DRIVEWAY 2 N/O FOOTBALL

File Name : H1611016
Site Code : 00001944
Start Date : 11/15/2016
Page No : 1

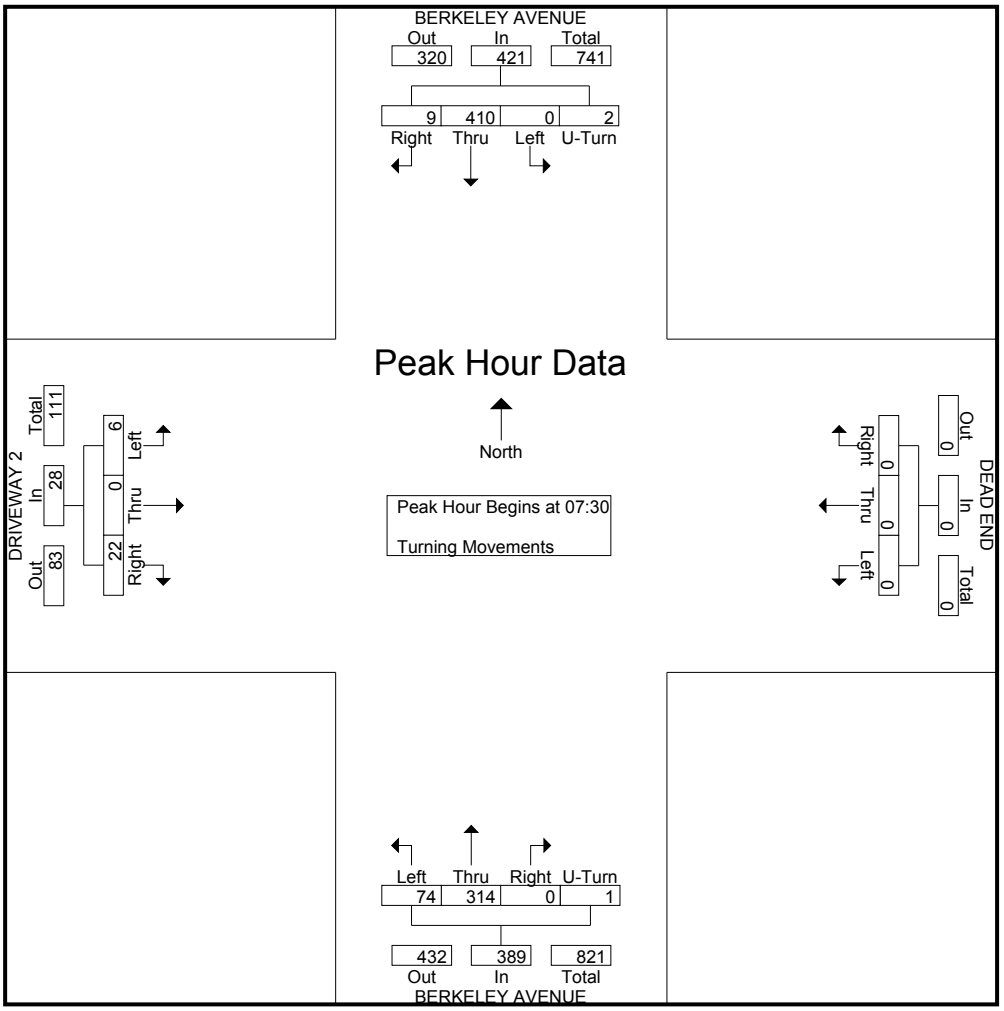
Groups Printed- Turning Movements

	BERKELEY AVENUE Southbound				DEAD END Westbound			BERKELEY AVENUE Northbound				DRIVEWAY 2 Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	Right	Thru	Left	U-Turn	Right	Thru	Left	Int. Total
07:00	2	59	0	1	0	0	0	0	47	13	0	4	0	1	127
07:15	6	70	0	1	0	0	0	0	55	8	0	1	0	0	141
07:30	2	104	0	0	0	0	0	0	73	9	0	3	0	1	192
07:45	2	122	0	1	0	0	0	0	85	15	0	1	0	0	226
Total	12	355	0	3	0	0	0	0	260	45	0	9	0	2	686
08:00	1	96	0	0	0	0	0	0	74	20	0	7	0	2	200
08:15	4	88	0	1	0	0	0	0	82	30	1	11	0	3	220
08:30	2	78	0	0	0	0	0	0	64	15	1	14	0	3	177
08:45	4	68	0	0	0	0	0	0	46	13	0	5	0	1	137
Total	11	330	0	1	0	0	0	0	266	78	2	37	0	9	734
16:00	4	84	0	0	0	0	0	0	78	3	0	18	0	5	192
16:15	2	86	0	0	0	0	0	0	106	10	0	19	0	4	227
16:30	1	85	0	0	0	0	0	0	94	7	0	15	0	1	203
16:45	0	83	0	0	0	0	0	0	113	3	1	14	0	3	217
Total	7	338	0	0	0	0	0	0	391	23	1	66	0	13	839
17:00	0	81	0	0	0	0	0	0	92	6	1	11	0	0	191
17:15	2	106	0	0	0	0	0	0	100	5	1	6	0	0	220
17:30	1	85	0	0	0	0	0	0	109	2	0	7	0	1	205
17:45	1	68	0	0	0	0	0	0	114	3	1	9	0	7	203
Total	4	340	0	0	0	0	0	0	415	16	3	33	0	8	819
Grand Total	34	1363	0	4	0	0	0	0	1332	162	6	145	0	32	3078
Apprch %	2.4	97.3	0	0.3	0	0	0	0	88.8	10.8	0.4	81.9	0	18.1	
Total %	1.1	44.3	0	0.1	0	0	0	0	43.3	5.3	0.2	4.7	0	1	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1611016
Site Code : 00001944
Start Date : 11/15/2016
Page No : 2

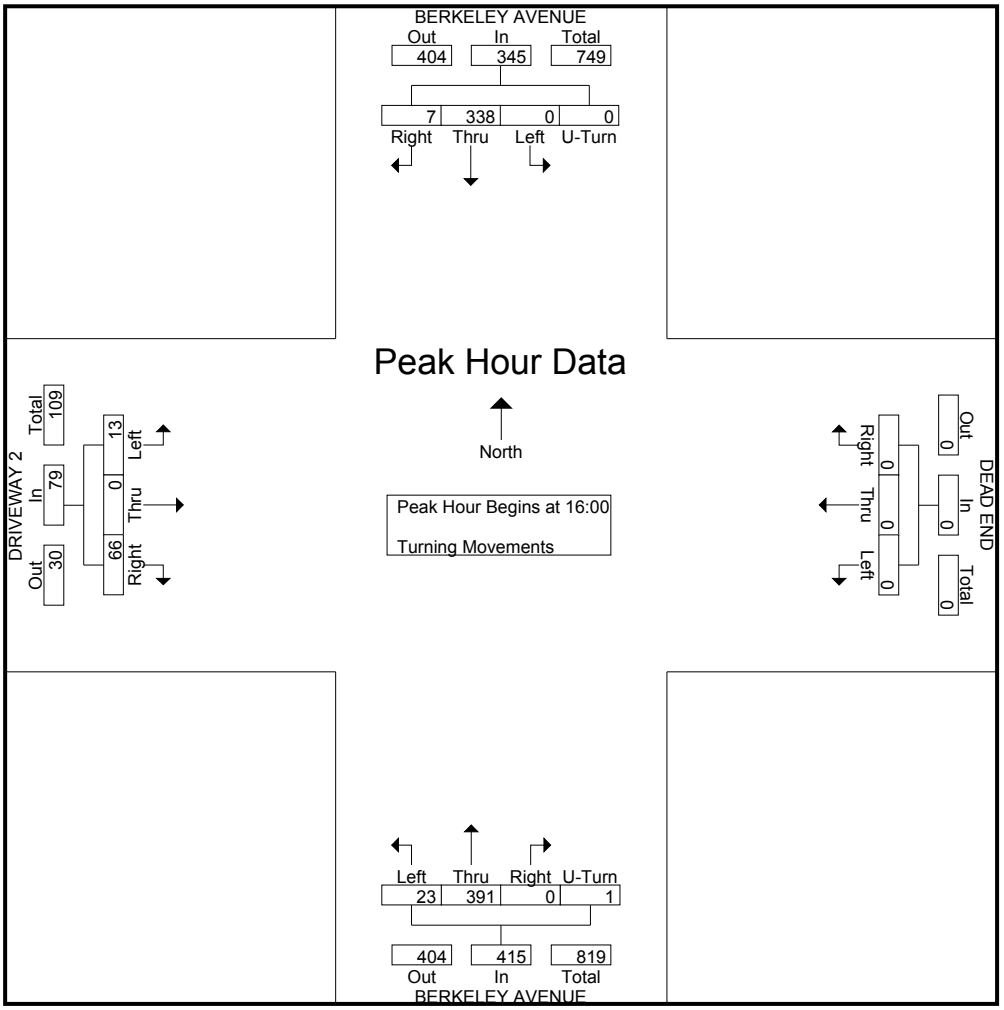
	BERKELEY AVENUE Southbound					DEAD END Westbound				BERKELEY AVENUE Northbound					DRIVEWAY 2 Eastbound				
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 07:30																			
07:30	2	104	0	0	106	0	0	0	0	0	73	9	0	82	3	0	1	4	192
07:45	2	122		1	125						85								226
08:00	1	96	0	0	97	0	0	0	0	0	74	20	0	94	7	0	2	9	200
08:15	4											30	1	113	11		3	14	220
Total Volume	9	410	0	2	421	0	0	0	0	0	314	74	1	389	22	0	6	28	838
% App. Total	2.1	97.4	0	0.5		0	0	0		0	80.7	19	0.3		78.6	0	21.4		
PHF	.563	.840	.000	.500	.842	.000	.000	.000	.000	.000	.924	.617	.250	.861	.500	.000	.500	.500	.927



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1611016
Site Code : 00001944
Start Date : 11/15/2016
Page No : 3

	BERKELEY AVENUE Southbound					DEAD END Westbound				BERKELEY AVENUE Northbound					DRIVEWAY 2 Eastbound				
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 16:00																			
16:00	**4**	84	0	0	**88**	0	0	0	0	0	78	3	0	81	18	0	**5**	**23**	**192**
16:15	**2**	**86**										**10**			**19**				**227**
16:30	**1**	**85**	**0**	**0**	**86**	**0**	**0**	**0**	**0**	**0**	**94**	**7**	**0**	**101**	**15**	**0**	**1**	**16**	**203**
16:45	**0**	**83**	**0**	**0**	**83**	**0**	**0**	**0**	**0**	**0**	**113**		**1**	**117**					
Total Volume	7	338	0	0	345	0	0	0	0	0	391	23	1	415	66	0	13	79	839
% App. Total	2	98	0	0		0	0	0		0	94.2	5.5	0.2		83.5	0	16.5		
PHF	.438	.983	.000	.000	.980	.000	.000	.000	.000	.000	.865	.575	.250	.887	.868	.000	.650	.859	.924



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: COLLEGE DRIVEWAY 3

File Name : H1611017
Site Code : 00005061
Start Date : 11/15/2016
Page No : 1

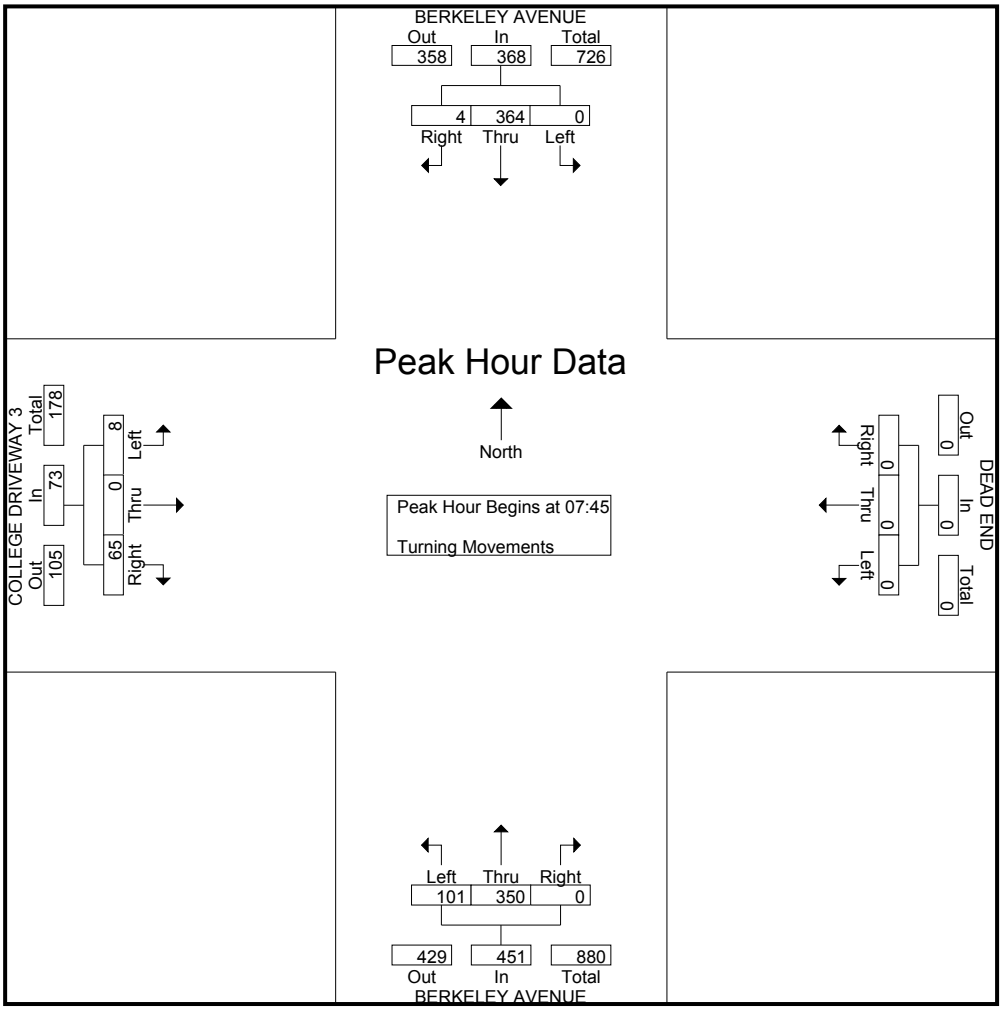
Groups Printed- Turning Movements

	BERKELEY AVENUE Southbound			DEAD END Westbound			BERKELEY AVENUE Northbound			COLLEGE DRIVEWAY 3 Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	4	95	0	0	0	0	0	66	47	13	0	1	226
07:15	3	82	0	0	0	0	0	62	34	8	0	3	192
07:30	1	78	0	0	0	0	0	65	22	6	0	0	172
07:45	1	83	0	0	0	0	0	104	22	12	0	1	223
Total	9	338	0	0	0	0	0	297	125	39	0	5	813
08:00	1	87	0	0	0	0	0	80	28	10	0	4	210
08:15	0	99	0	0	0	0	0	75	23	20	0	0	217
08:30	2	95	0	0	0	0	0	91	28	23	0	3	242
08:45	0	72	0	0	0	0	0	73	26	12	0	1	184
Total	3	353	0	0	0	0	0	319	105	65	0	8	853
16:00	2	80	0	0	0	0	0	79	8	19	0	1	189
16:15	2	94	0	0	0	0	0	87	12	17	0	2	214
16:30	0	89	0	0	0	0	0	100	22	24	0	3	238
16:45	0	107	0	0	0	0	0	118	11	21	0	1	258
Total	4	370	0	0	0	0	0	384	53	81	0	7	899
17:00	0	83	0	0	0	0	0	108	13	16	0	1	221
17:15	0	102	0	0	0	0	0	104	13	27	0	2	248
17:30	1	104	0	0	0	0	0	102	15	24	0	2	248
17:45	0	75	0	0	0	0	0	98	17	10	0	1	201
Total	1	364	0	0	0	0	0	412	58	77	0	6	918
Grand Total	17	1425	0	0	0	0	0	1412	341	262	0	26	3483
Apprch %	1.2	98.8	0	0	0	0	0	80.5	19.5	91	0	9	
Total %	0.5	40.9	0	0	0	0	0	40.5	9.8	7.5	0	0.7	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1611017
Site Code : 00005061
Start Date : 11/15/2016
Page No : 2

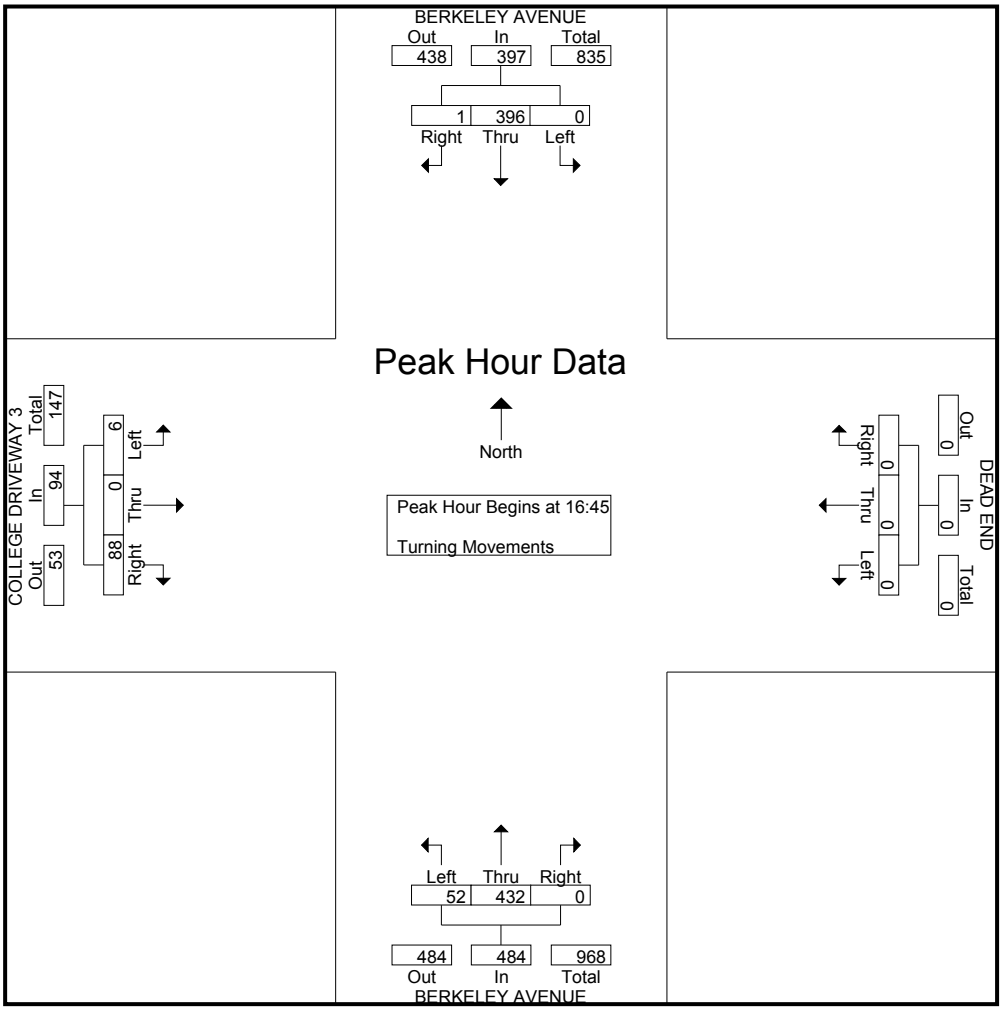
	BERKELEY AVENUE Southbound				DEAD END Westbound				BERKELEY AVENUE Northbound				COLLEGE DRIVEWAY 3 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	1	83	0	84	0	0	0	0	0	**104**	22	**126**	12	0	1	13	223
08:00	1	87	0	88	0	0	0	0	0	80	**28**	108	10	0	**4**	14	210
08:15	0	**99**	0	**99**	0	0	0	0	0	75	23	98	20	0	0	20	217
08:30	**2**	95	0	97	0	0	0	0	0	91	28	119	**23**	0	3	**26**	**242**
Total Volume	4	364	0	368	0	0	0	0	0	350	101	451	65	0	8	73	892
% App. Total	1.1	98.9	0		0	0	0		0	77.6	22.4		89	0	11		
PHF	.500	.919	.000	.929	.000	.000	.000	.000	.000	.841	.902	.895	.707	.000	.500	.702	.921



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1611017
Site Code : 00005061
Start Date : 11/15/2016
Page No : 3

	BERKELEY AVENUE Southbound				DEAD END Westbound				BERKELEY AVENUE Northbound				COLLEGE DRIVEWAY 3 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	0	**107**	0	**107**	0	0	0	0	0	**118**	11	**129**	21	0	1	22	**258**
17:00	0	83	0	83	0	0	0	0	0	108	13	121	16	0	1	17	221
17:15	0	102	0	102	0	0	0	0	0	104	13	117	**27**	0	**2**	**29**	248
17:30	**1**	104	0	105	0	0	0	0	0	102	**15**	117	24	0	2	26	248
Total Volume	1	396	0	397	0	0	0	0	0	432	52	484	88	0	6	94	975
% App. Total	0.3	99.7	0		0	0	0		0	89.3	10.7		93.6	0	6.4		
PHF	.250	.925	.000	.928	.000	.000	.000	.000	.000	.915	.867	.938	.815	.000	.750	.810	.945



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: BROOKDALE PLACE

File Name : h1611018
Site Code : 00000000
Start Date : 11/15/2016
Page No : 1

Groups Printed- Turning Movements

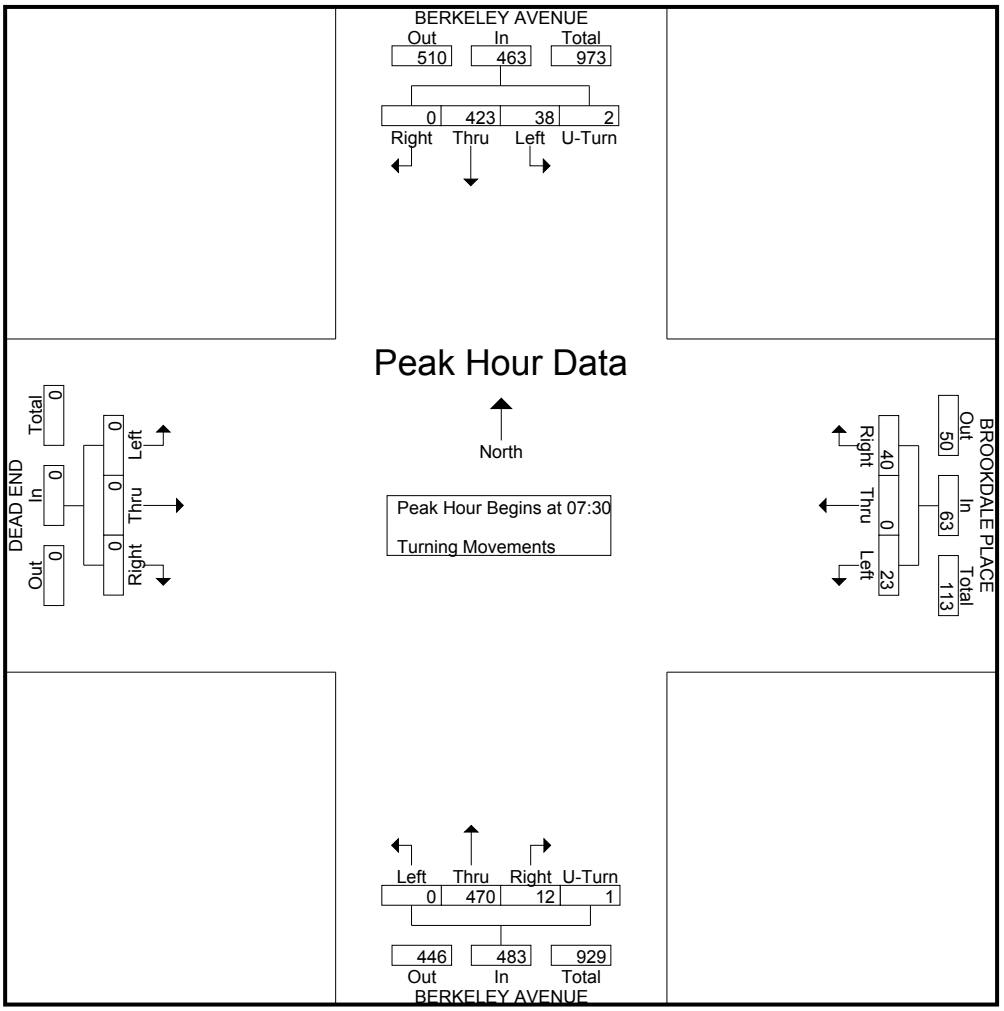
	BERKELEY AVENUE Southbound				BROOKDALE PLACE Westbound			BERKELEY AVENUE Northbound				DEAD END Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	Right	Thru	Left	U-Turn	Right	Thru	Left	Int. Total
07:00	0	59	2	0	7	0	7	2	80	0	0	0	0	0	157
07:15	0	78	2	1	6	0	5	4	78	0	0	0	0	0	174
07:30	0	93	6	0	11	0	9	3	112	0	0	0	0	0	234
07:45	0	115	10	0	12	0	3	3	138	0	0	0	0	0	281
Total	0	345	20	1	36	0	24	12	408	0	0	0	0	0	846
08:00	0	105	10	0	11	0	6	4	119	0	1	0	0	0	256
08:15	0	110	12	2	6	0	5	2	101	0	0	0	0	0	238
08:30	0	69	7	1	4	0	4	3	84	0	0	0	0	0	172
08:45	0	84	2	1	4	0	3	4	95	0	0	0	0	0	193
Total	0	368	31	4	25	0	18	13	399	0	1	0	0	0	859
*** BREAK ***															
16:00	0	108	14	0	11	0	4	4	114	0	0	0	0	0	255
16:15	0	100	13	0	10	0	1	5	121	0	0	0	0	0	250
16:30	0	120	9	0	10	0	4	6	121	0	0	0	0	0	270
16:45	0	104	9	0	11	0	7	4	108	0	0	0	0	0	243
Total	0	432	45	0	42	0	16	19	464	0	0	0	0	0	1018
17:00	0	120	7	0	15	0	8	4	96	0	0	0	0	0	250
17:15	0	136	12	0	11	0	5	11	121	0	1	0	0	0	297
17:30	0	109	11	0	3	0	6	6	133	0	0	0	0	0	268
17:45	0	81	6	0	2	0	7	7	108	0	0	0	0	0	211
Total	0	446	36	0	31	0	26	28	458	0	1	0	0	0	1026
Grand Total	0	1591	132	5	134	0	84	72	1729	0	2	0	0	0	3749
Apprch %	0	92.1	7.6	0.3	61.5	0	38.5	4	95.9	0	0.1	0	0	0	
Total %	0	42.4	3.5	0.1	3.6	0	2.2	1.9	46.1	0	0.1	0	0	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: BROOKDALE PLACE

File Name : h1611018
Site Code : 00000000
Start Date : 11/15/2016
Page No : 2

	BERKELEY AVENUE Southbound					BROOKDALE PLACE Westbound				BERKELEY AVENUE Northbound					DEAD END Eastbound				
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 07:30																			
07:30	0	93	6	0	99	11	0	**9**	**20**	3	112	0	0	115	0	0	0	0	234
07:45	0	**115**	10	0	**125**	**12**	0	3	15	3	**138**	0	0	**141**	0	0	0	0	**281**
08:00	0	105	10	0	115	11	0	6	17	**4**			**1**	124	0	0	0	0	256
08:15	0	110	**12**	**2**	124	6	0	5	11	2	101	0	0	103	0	0	0	0	238
Total Volume	0	423	38	2	463	40	0	23	63	12	470	0	1	483	0	0	0	0	1009
% App. Total	0	91.4	8.2	0.4		63.5	0	36.5		2.5	97.3	0	0.2		0	0	0		
PHF	.000	.920	.792	.250	.926	.833	.000	.639	.788	.750	.851	.000	.250	.856	.000	.000	.000	.000	.898

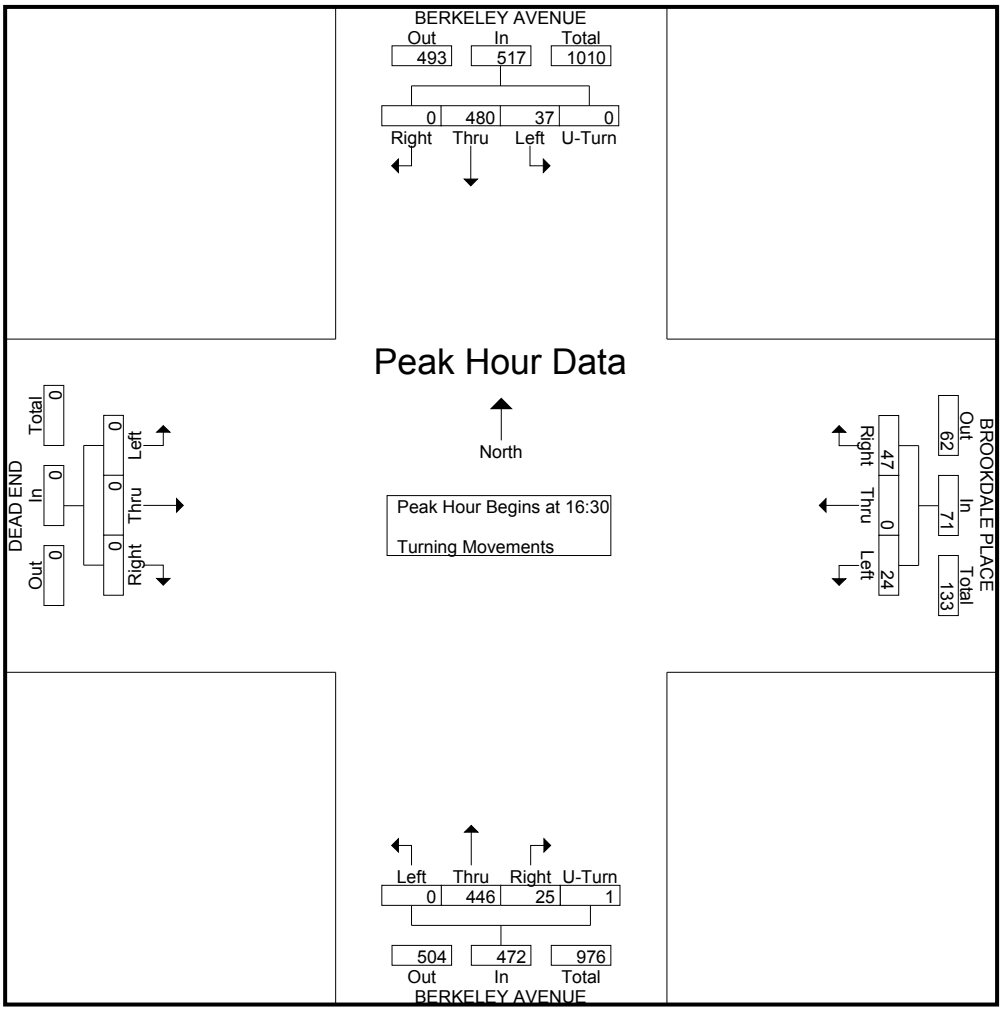


Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: BROOKDALE PLACE

File Name : h1611018
Site Code : 00000000
Start Date : 11/15/2016
Page No : 3

	BERKELEY AVENUE Southbound					BROOKDALE PLACE Westbound				BERKELEY AVENUE Northbound					DEAD END Eastbound				
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																			
Peak Hour for Entire Intersection Begins at 16:30																			
16:30	0	120	9	0	129	10	0	4	14	6	**121**	0	0	127	0	0	0	0	270
16:45	0	104	9	0	113	11	0	7	18	4	108	0	0	112	0	0	0	0	243
17:00	0	120	7	0	127	**15**	0	**8**	**23**	4	96	0	0	100	0	0	0	0	250
17:15	0	**136**	**12**	0	**148**	11	0	5	16	**11**			**1**	**133**	0	0	0	0	**297**
Total Volume	0	480	37	0	517	47	0	24	71	25	446	0	1	472	0	0	0	0	1060
% App. Total	0	92.8	7.2	0		66.2	0	33.8		5.3	94.5	0	0.2		0	0	0		
PHF	.000	.882	.771	.000	.873	.783	.000	.750	.772	.568	.921	.000	.250	.887	.000	.000	.000	.000	.892



APPENDIX B

INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX B-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Harbor Boulevard at Valley View Drive/Brea Boulevard

Control Type:	Signalized	Delay (sec / veh):	29.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.733

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Base Volume Input [veh/h]	40	990	385	51	1354	151	64	99	36	688	134	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	990	385	51	1354	151	64	99	36	688	134	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	248	96	13	339	38	16	25	9	172	34	0
Total Analysis Volume [veh/h]	40	990	385	51	1354	151	64	99	36	688	134	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	31	0	10	31	0	0	10	0	0	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	20	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	53	5	53	53	8	8	8	28	28
g / C, Green / Cycle	0.04	0.48	0.04	0.48	0.48	0.07	0.07	0.07	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.02	0.17	0.03	0.32	0.15	0.04	0.05	0.02	0.23	0.23
s, saturation flow rate [veh/h]	1800	5700	1800	3800	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	71	2728	79	1836	870	132	140	132	465	465
d1, Uniform Delay [s]	51.94	18.11	51.78	21.72	17.40	48.99	49.85	48.21	39.17	39.27
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.81	0.38	8.41	1.95	0.97	2.72	6.44	1.09	5.54	5.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.36	0.64	0.67	0.32	0.48	0.71	0.27	0.88	0.89
d, Delay for Lane Group [s/veh]	58.75	18.49	60.19	23.66	18.37	51.71	56.29	49.31	44.71	45.15
Lane Group LOS	E	B	E	C	B	D	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.22	5.30	1.57	12.16	4.48	1.79	2.91	0.98	11.20	11.36
50th-Percentile Queue Length [ft]	30.46	132.40	39.21	304.06	112.04	44.72	72.70	24.38	279.99	283.93
95th-Percentile Queue Length [veh]	2.19	9.07	2.82	17.88	7.95	3.22	5.23	1.76	16.69	16.88
95th-Percentile Queue Length [ft]	54.82	226.76	70.58	447.04	198.83	80.49	130.86	43.88	417.20	422.10

Movement, Approach, & Intersection Results

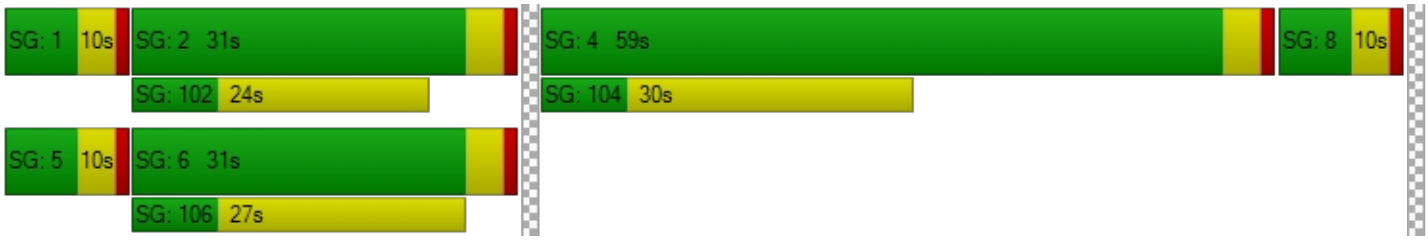
d_M, Delay for Movement [s/veh]	58.75	18.49	0.00	60.19	23.17	18.37	51.71	56.29	49.31	44.89	45.15	0.00
Movement LOS	E	B		E	C	B	D	E	D	D	D	
d_A, Approach Delay [s/veh]	20.05			23.91			53.55			44.93		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.24											
Intersection LOS	C											
Intersection V/C	0.733											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.058	2.268	2.266
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	491	109	1000
d_b, Bicycle Delay [s]	31.31	31.31	49.16	13.75
I_b,int, Bicycle LOS Score for Intersection	2.126	2.415	1.888	2.916
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Harbor Boulevard at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	27.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	166	984	83	513	1509	19	34	306	124	50	196	403
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	984	83	513	1509	19	34	306	124	50	196	403
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	246	21	128	377	5	9	77	31	13	49	101
Total Analysis Volume [veh/h]	166	984	83	513	1509	19	34	306	124	50	196	403
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	5	2	0	1	6	0	0	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	6
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
Split [s]	40	43	0	30	33	0	0	37	0	0	37	37
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	21	0	0	22	0	0	18	0	0	26	26
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No	No		No	No			No			No	No
Maximum Recall	No	No		No	No			No			No	No
Pedestrian Recall	No	No		No	No			No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	12	55	55	22	64	64	22	22	22	22	22	47
g / C, Green / Cycle	0.11	0.50	0.50	0.20	0.58	0.58	0.20	0.20	0.20	0.20	0.20	0.43
(v / s)_i Volume / Saturation Flow Rate	0.09	0.29	0.28	0.15	0.40	0.01	0.02	0.16	0.07	0.03	0.10	0.22
s, saturation flow rate [veh/h]	1800	1900	1800	3500	3800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	201	946	896	691	2216	1050	223	372	352	112	372	773
d1, Uniform Delay [s]	47.73	19.58	19.38	41.46	15.83	9.65	36.22	42.36	38.17	36.55	39.63	23.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.32
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.20	2.67	2.65	1.60	1.71	0.03	0.31	4.77	0.60	2.75	1.16	1.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.59	0.57	0.74	0.68	0.02	0.15	0.82	0.35	0.45	0.53	0.52
d, Delay for Lane Group [s/veh]	55.94	22.25	22.02	43.06	17.54	9.68	36.54	47.13	38.77	39.31	40.79	24.64
Lane Group LOS	E	C	C	D	B	A	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	4.89	10.47	9.58	6.65	12.83	0.20	0.77	8.40	2.94	1.20	4.86	7.89
50th-Percentile Queue Length [ft]	122.35	261.75	239.48	166.30	320.78	4.95	19.26	209.93	73.61	30.01	121.40	197.20
95th-Percentile Queue Length [veh]	8.52	15.78	14.65	10.88	18.71	0.36	1.39	13.15	5.30	2.16	8.47	12.49
95th-Percentile Queue Length [ft]	213.06	394.41	366.37	272.05	467.65	8.91	34.67	328.74	132.51	54.02	211.74	312.35

Movement, Approach, & Intersection Results

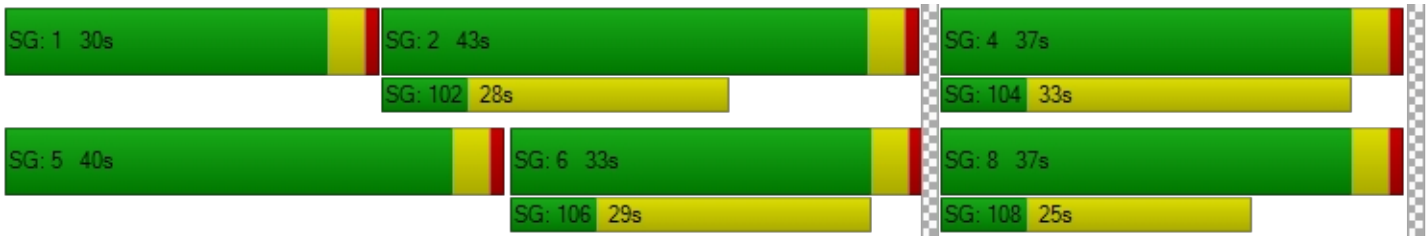
d_M, Delay for Movement [s/veh]	55.94	22.15	22.02	43.06	17.54	9.68	36.54	47.13	38.77	39.31	40.79	24.64
Movement LOS	E	C	C	D	B	A	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	26.69			23.88			44.12			30.64		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	27.81											
Intersection LOS	C											
Intersection V/C	0.746											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.949	3.134	2.347	2.612
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	709	527	600	600
d_b, Bicycle Delay [s]	22.91	29.82	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	2.577	3.243	2.325	2.630
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Lemon Street at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	48.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	212	171	122	163	379	10	4	539	349	98	423	51
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	212	171	122	163	379	10	4	539	349	98	423	51
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	43	31	41	95	3	1	135	87	25	106	13
Total Analysis Volume [veh/h]	212	171	122	163	379	10	4	539	349	98	423	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	6	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	31	0	0	30	0	0	49	49	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	19	0	0	16	16	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		No	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	34	34	34	30	30	68	30	30	30
g / C, Green / Cycle	0.31	0.31	0.31	0.31	0.31	0.27	0.27	0.62	0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.10	0.11	0.07	0.09	0.22	0.00	0.28	0.19	0.05	0.13	0.13
s, saturation flow rate [veh/h]	1800	1800	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	556	556	556	556	556	339	519	1113	75	519	491
d1, Uniform Delay [s]	29.26	29.41	28.12	28.82	33.44	29.07	39.90	9.92	30.26	33.35	33.19
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.48	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.64	1.75	0.91	1.34	7.16	0.01	49.30	0.74	160.92	0.68	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.35	0.22	0.29	0.70	0.01	1.04	0.31	1.31	0.48	0.46
d, Delay for Lane Group [s/veh]	30.90	31.15	29.02	30.16	40.60	29.09	89.20	10.66	191.19	34.03	33.87
Lane Group LOS	C	C	C	C	D	C	F	B	F	C	C
Critical Lane Group	No	Yes	No	No	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	4.06	4.26	2.52	3.47	10.14	0.08	20.87	4.02	4.83	5.59	5.10
50th-Percentile Queue Length [ft]	101.55	106.61	63.07	86.74	253.52	1.97	521.81	100.60	120.82	139.66	127.55
95th-Percentile Queue Length [veh]	7.31	7.65	4.54	6.25	15.36	0.14	29.06	7.24	8.70	9.46	8.81
95th-Percentile Queue Length [ft]	182.79	191.27	113.53	156.13	384.09	3.54	726.55	181.09	217.47	236.57	220.16

Movement, Approach, & Intersection Results

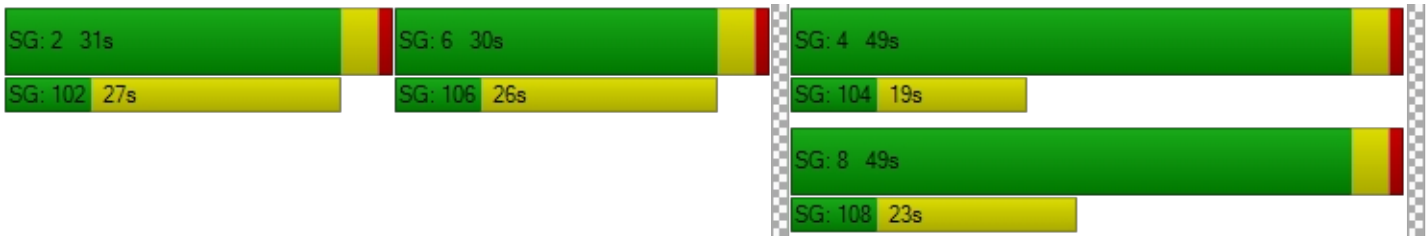
d_M, Delay for Movement [s/veh]	30.92	31.15	29.02	30.16	40.60	40.60	29.09	89.20	10.66	191.19	33.96	33.87
Movement LOS	C	C	C	C	D	D	C	F	B	F	C	C
d_A, Approach Delay [s/veh]	30.54			37.52			58.20			60.89		
Approach LOS	C			D			E			E		
d_I, Intersection Delay [s/veh]	48.74											
Intersection LOS	D											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.604	2.208	2.911	2.713
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	473	818	818
d_b, Bicycle Delay [s]	31.31	32.07	19.20	19.20
I_b,int, Bicycle LOS Score for Intersection	2.393	2.470	3.031	2.032
Bicycle LOS	B	B	C	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Hornet Way at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.387

Intersection Setup

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	51	277	162	390	349	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	277	162	390	349	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	69	41	98	87	4
Total Analysis Volume [veh/h]	51	277	162	390	349	15
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	8	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	6	6	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	72	0	0	38	38	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	19	0	0	0	14	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	19	83	83	83	83
g / C, Green / Cycle	0.18	0.18	0.75	0.75	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.03	0.15	0.09	0.21	0.18	0.01
s, saturation flow rate [veh/h]	1800	1800	1800	1900	1900	1800
c, Capacity [veh/h]	316	316	1276	1428	1428	1353
d1, Uniform Delay [s]	38.43	44.13	3.72	4.26	4.15	3.41
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	7.72	0.20	0.47	0.41	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.88	0.13	0.27	0.24	0.01
d, Delay for Lane Group [s/veh]	38.67	51.85	3.92	4.73	4.55	3.43
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.19	7.97	0.91	2.50	2.17	0.08
50th-Percentile Queue Length [ft]	29.76	199.28	22.76	62.43	54.34	1.92
95th-Percentile Queue Length [veh]	2.14	12.60	1.64	4.49	3.91	0.14
95th-Percentile Queue Length [ft]	53.56	315.04	40.97	112.37	97.81	3.46

Movement, Approach, & Intersection Results

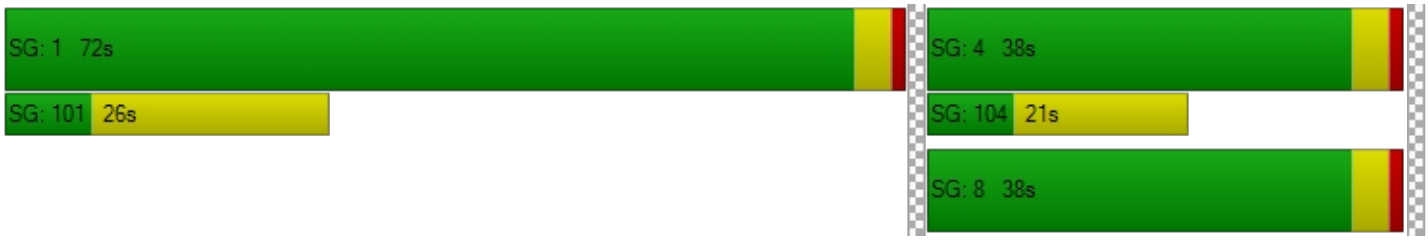
d_M, Delay for Movement [s/veh]	38.67	51.85	3.92	4.73	4.55	3.43
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	49.80		4.49		4.51	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	16.44					
Intersection LOS	B					
Intersection V/C	0.387					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	34.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	26.25
I_p,int, Pedestrian LOS Score for Intersection	2.344	2.333	2.263
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	55.00	55.00	55.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.043	4.733
Bicycle LOS	D	F	E

Sequence

Ring 1	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Euclid Street at Malvern Avenue

Control Type:	Signalized	Delay (sec / veh):	32.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.847

Intersection Setup

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Base Volume Input [veh/h]	138	1027	90	296	1371	18	49	700	171	165	477	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	1027	90	296	1371	18	49	700	171	165	477	123
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	257	23	74	343	5	12	175	43	41	119	31
Total Analysis Volume [veh/h]	138	1027	90	296	1371	18	49	700	171	165	477	123
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	14	34	0	11	55	0	11	55	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	61	47	47	61	51	51	41	30	30	41	32	32
g / C, Green / Cycle	0.55	0.43	0.43	0.55	0.46	0.46	0.37	0.27	0.27	0.37	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.08	0.31	0.30	0.16	0.38	0.37	0.03	0.24	0.23	0.09	0.17	0.16
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	492	807	765	624	876	830	516	520	493	353	560	531
d1, Uniform Delay [s]	11.92	26.22	25.92	13.17	25.61	25.57	22.14	38.38	37.55	23.71	32.89	32.44
k, delay calibration	0.50	0.50	0.50	0.16	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.42	5.48	5.30	0.83	8.23	8.56	0.08	5.70	3.64	0.97	0.91	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.72	0.70	0.47	0.81	0.81	0.09	0.89	0.83	0.47	0.57	0.53
d, Delay for Lane Group [s/veh]	13.34	31.70	31.22	14.00	33.84	34.14	22.22	44.08	41.19	24.68	33.80	33.27
Lane Group LOS	B	C	C	B	C	C	C	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.80	13.51	12.32	3.96	17.51	16.62	0.83	12.64	10.70	3.05	7.29	6.35
50th-Percentile Queue Length [ft]	45.08	337.68	307.98	98.95	437.82	415.41	20.75	316.10	267.56	76.19	182.37	158.67
95th-Percentile Queue Length [veh]	3.25	19.53	18.08	7.12	24.38	23.30	1.49	18.48	16.07	5.49	11.72	10.48
95th-Percentile Queue Length [ft]	81.15	488.37	451.89	178.12	609.40	582.54	37.36	461.89	401.69	137.14	293.11	261.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.34	31.49	31.22	14.00	33.98	34.14	22.22	43.10	41.19	24.68	33.63	33.27
Movement LOS	B	C	C	B	C	C	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	29.48			30.47			41.64			31.64		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	32.62											
Intersection LOS	C											
Intersection V/C	0.847											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.955	2.894	2.707	2.857
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	545	927	927
d_b, Bicycle Delay [s]	32.07	29.09	15.82	15.82
I_b,int, Bicycle LOS Score for Intersection	2.595	2.950	2.319	2.191
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Harbor Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	32.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.823

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	43	958	171	147	1238	60	150	952	74	154	706	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	958	171	147	1238	60	150	952	74	154	706	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	240	43	37	310	15	38	238	19	39	177	34
Total Analysis Volume [veh/h]	43	958	171	147	1238	60	150	952	74	154	706	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	31	0	10	31	0	10	59	0	10	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	57	47	47	57	49	49	45	35	35	45	35	35
g / C, Green / Cycle	0.52	0.43	0.43	0.52	0.45	0.45	0.41	0.31	0.31	0.41	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.02	0.31	0.30	0.08	0.35	0.35	0.08	0.28	0.27	0.09	0.19	0.08
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	477	817	774	557	844	800	545	597	565	346	1193	565
d1, Uniform Delay [s]	12.91	26.04	25.44	13.72	26.26	26.08	21.21	36.01	35.67	21.26	31.82	28.02
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.13	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	5.63	5.01	0.25	7.61	7.58	0.27	6.38	5.23	0.90	0.47	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.73	0.69	0.26	0.79	0.78	0.28	0.89	0.87	0.45	0.59	0.24
d, Delay for Lane Group [s/veh]	13.28	31.67	30.45	13.97	33.87	33.66	21.48	42.39	40.90	22.16	32.29	28.24
Lane Group LOS	B	C	C	B	C	C	C	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.57	13.84	12.11	1.92	16.37	15.23	2.54	14.47	13.10	2.66	7.92	2.70
50th-Percentile Queue Length [ft]	14.15	345.96	302.68	47.88	409.17	380.76	63.62	361.77	327.41	66.58	198.05	67.40
95th-Percentile Queue Length [veh]	1.02	19.94	17.81	3.45	23.00	21.63	4.58	20.71	19.03	4.79	12.54	4.85
95th-Percentile Queue Length [ft]	25.47	498.48	445.34	86.18	575.04	540.76	114.52	517.73	475.78	119.85	313.45	121.31

Movement, Approach, & Intersection Results

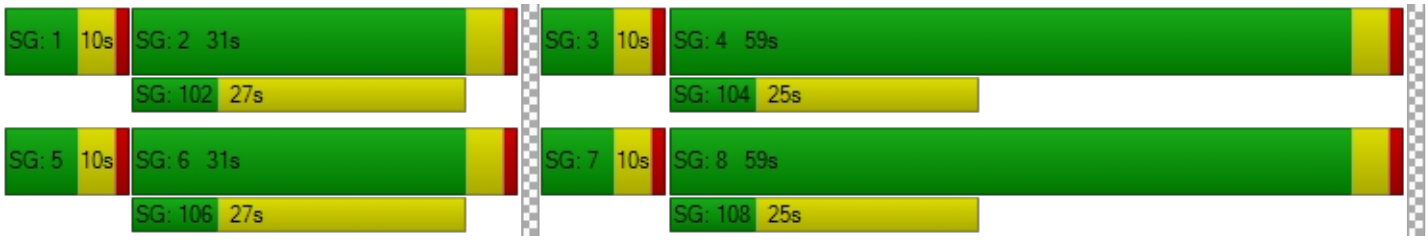
d_M, Delay for Movement [s/veh]	13.28	31.21	30.45	13.97	33.77	33.66	21.48	41.74	40.90	22.16	32.29	28.24
Movement LOS	B	C	C	B	C	C	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	30.44			31.75			39.10			30.17		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	32.91											
Intersection LOS	C											
Intersection V/C	0.823											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.897	2.905	2.725	2.925
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	491	1000	1000
d_b, Bicycle Delay [s]	31.31	31.31	13.75	13.75
I_b,int, Bicycle LOS Score for Intersection	2.527	2.752	2.530	2.381
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	95	583	115	62	563	60	248	902	150	176	763	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	583	115	62	563	60	248	902	150	176	763	125
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	146	29	16	141	15	62	226	38	44	191	31
Total Analysis Volume [veh/h]	95	583	115	62	563	60	248	902	150	176	763	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	10	31	0	37	57	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	55	46	46	55	45	45	17	36	36	7	26	26
g / C, Green / Cycle	0.50	0.42	0.42	0.50	0.41	0.41	0.16	0.33	0.33	0.06	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.15	0.06	0.03	0.17	0.17	0.14	0.29	0.28	0.05	0.20	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	770	1584	750	798	782	741	284	620	587	225	884	419
d1, Uniform Delay [s]	14.50	22.11	20.00	14.23	22.98	22.83	45.27	35.24	34.61	50.74	40.57	34.84
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.17	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.33	0.66	0.43	0.04	1.62	1.62	8.18	7.21	5.00	5.81	2.66	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.37	0.15	0.08	0.42	0.40	0.87	0.89	0.85	0.78	0.86	0.30
d, Delay for Lane Group [s/veh]	14.83	22.77	20.43	14.27	24.60	24.46	53.46	42.45	39.61	56.55	43.23	35.24
Lane Group LOS	B	C	C	B	C	C	D	D	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.31	5.28	1.92	0.80	6.26	5.72	7.22	15.04	13.08	2.57	10.15	2.81
50th-Percentile Queue Length [ft]	32.77	132.00	48.06	20.08	156.47	142.98	180.58	375.97	326.88	64.15	253.81	70.27
95th-Percentile Queue Length [veh]	2.36	9.05	3.46	1.45	10.36	9.64	11.63	21.40	19.01	4.62	15.38	5.06
95th-Percentile Queue Length [ft]	58.99	226.21	86.51	36.15	259.05	241.03	290.78	534.97	475.14	115.46	384.45	126.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.83	22.77	20.43	14.27	24.54	24.46	53.46	41.35	39.61	56.55	43.23	35.24
Movement LOS	B	C	C	B	C	C	D	D	D	E	D	D
d_A, Approach Delay [s/veh]	21.48			23.60			43.46			44.49		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.67											
Intersection LOS	D											
Intersection V/C	0.634											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.736	2.629	2.800	2.940
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	491	964	491
d_b, Bicycle Delay [s]	30.56	31.31	14.77	31.31
I_b,int, Bicycle LOS Score for Intersection	2.214	2.125	2.632	2.437
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Berkeley Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.467

Intersection Setup

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	15	94	59	336	71	90	53	963	8	47	987	466
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	94	59	336	71	90	53	963	8	47	987	466
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	24	15	84	18	23	13	241	2	12	247	117
Total Analysis Volume [veh/h]	15	94	59	336	71	90	53	963	8	47	987	466
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	3	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	6	6	0	0	6	6
Maximum Green [s]	0	30	0	30	30	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	10	0	58	68	0	10	42	0	0	32	32
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	20	0	0	20	0	0	21	21
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall		No		No	No		No	No			No	No
Maximum Recall		No		No	No		No	No			No	No
Pedestrian Recall		No		No	No		No	No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	8	8	8	15	26	76	76	76	67	67	86
g / C, Green / Cycle	0.07	0.07	0.07	0.13	0.24	0.69	0.69	0.69	0.61	0.61	0.78
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.03	0.10	0.09	0.03	0.26	0.26	0.03	0.26	0.26
s, saturation flow rate [veh/h]	1800	1900	1800	3500	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	66	133	126	467	431	1073	1306	1238	912	2307	1398
d1, Uniform Delay [s]	48.00	50.08	49.21	45.71	34.93	5.53	7.28	7.28	8.73	11.48	3.70
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.71	6.74	2.70	2.10	0.54	0.02	0.85	0.89	0.11	0.58	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.71	0.47	0.72	0.37	0.05	0.38	0.38	0.05	0.43	0.33
d, Delay for Lane Group [s/veh]	49.71	56.81	51.91	47.81	35.47	5.55	8.13	8.17	8.83	12.06	3.85
Lane Group LOS	D	E	D	D	D	A	A	A	A	B	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.42	2.78	1.65	4.52	3.67	0.37	4.81	4.56	0.47	6.26	2.53
50th-Percentile Queue Length [ft]	10.45	69.38	41.32	113.10	91.63	9.22	120.31	113.92	11.66	156.41	63.13
95th-Percentile Queue Length [veh]	0.75	5.00	2.97	8.01	6.60	0.66	8.41	8.06	0.84	10.36	4.55
95th-Percentile Queue Length [ft]	18.81	124.88	74.37	200.30	164.94	16.59	210.26	201.44	21.00	258.97	113.64

Movement, Approach, & Intersection Results

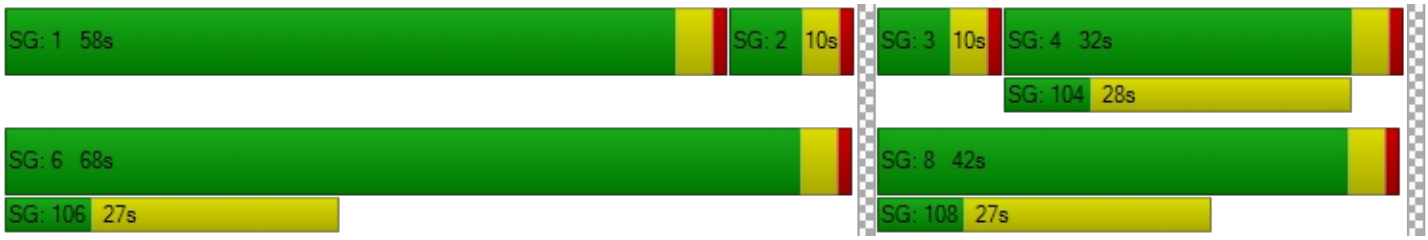
d_M, Delay for Movement [s/veh]	49.71	56.81	51.91	47.81	35.47	35.47	5.55	8.15	8.17	8.83	12.06	3.85
Movement LOS	D	E	D	D	D	D	A	A	A	A	B	A
d_A, Approach Delay [s/veh]	54.46			43.81			8.02			9.41		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	16.70											
Intersection LOS	B											
Intersection V/C	0.467											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.279	2.458	2.743	0.000
Crosswalk LOS	B	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	109	1164	691	509
d_b, Bicycle Delay [s]	49.16	9.62	23.56	30.56
I_b,int, Bicycle LOS Score for Intersection	1.837	2.380	2.404	2.797
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Raymond Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	28.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.723

Intersection Setup

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	139	264	261	195	483	86	47	1104	137	176	1264	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	139	264	261	195	483	86	47	1104	137	176	1264	71
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	66	65	49	121	22	12	276	34	44	316	18
Total Analysis Volume [veh/h]	139	264	261	195	483	86	47	1104	137	176	1264	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	48	0	14	51	0	10	35	0	13	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	18	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	33	19	19	33	22	22	69	58	58	69	60	60
g / C, Green / Cycle	0.30	0.17	0.17	0.30	0.20	0.20	0.63	0.53	0.53	0.63	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.08	0.14	0.15	0.11	0.16	0.15	0.03	0.34	0.33	0.10	0.36	0.36
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	375	331	313	405	382	362	740	999	947	762	1039	984
d1, Uniform Delay [s]	29.08	43.62	43.93	30.09	41.71	41.32	7.93	18.79	18.45	8.56	17.76	17.62
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.61	4.44	5.76	0.89	3.56	3.04	0.04	3.26	3.13	0.71	3.35	3.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.80	0.83	0.48	0.78	0.74	0.06	0.65	0.63	0.23	0.66	0.66
d, Delay for Lane Group [s/veh]	29.69	48.06	49.69	30.98	45.28	44.36	7.96	22.05	21.58	9.26	21.11	21.02
Lane Group LOS	C	D	D	C	D	D	A	C	C	A	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.85	7.27	7.33	4.14	8.04	7.13	0.42	12.30	11.05	1.82	12.82	11.93
50th-Percentile Queue Length [ft]	71.16	181.70	183.28	103.51	201.04	178.26	10.50	307.46	276.21	45.43	320.60	298.25
95th-Percentile Queue Length [veh]	5.12	11.69	11.77	7.45	12.69	11.51	0.76	18.05	16.50	3.27	18.70	17.59
95th-Percentile Queue Length [ft]	128.09	292.23	294.30	186.31	317.30	287.74	18.89	451.25	412.49	81.78	467.43	439.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.69	48.06	49.69	30.98	44.93	44.36	7.96	21.85	21.58	9.26	21.07	21.02
Movement LOS	C	D	D	C	D	D	A	C	C	A	C	C
d_A, Approach Delay [s/veh]	44.86			41.30			21.32			19.69		
Approach LOS	D			D			C			B		
d_I, Intersection Delay [s/veh]	28.05											
Intersection LOS	C											
Intersection V/C	0.723											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.731	2.458	2.894	2.961
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	855	564	618
d_b, Bicycle Delay [s]	19.80	18.04	28.37	26.25
I_b,int, Bicycle LOS Score for Intersection	2.655	2.190	2.622	2.806
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 10: Acacia Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	52.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.667

Intersection Setup

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	192	163	137	65	297	50	109	1200	151	157	1053	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	163	137	65	297	50	109	1200	151	157	1053	45
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	41	34	16	74	13	27	300	38	39	263	11
Total Analysis Volume [veh/h]	192	163	137	65	297	50	109	1200	151	157	1053	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	58	0	0	58	0	18	40	0	12	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	24	24	24	24	24	78	68	68	78	69	69
g / C, Green / Cycle	0.21	0.21	0.21	0.21	0.21	0.71	0.62	0.62	0.71	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.11	0.09	0.08	0.04	0.19	0.06	0.37	0.36	0.09	0.30	0.29
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	82	406	385	286	385	1081	1182	1119	967	1185	1122
d1, Uniform Delay [s]	35.61	37.17	36.78	35.25	42.09	4.81	12.49	12.27	4.95	11.11	11.05
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	607.45	0.64	0.56	0.40	7.84	0.04	2.22	2.18	0.36	1.39	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.33	0.40	0.36	0.23	0.90	0.10	0.60	0.58	0.16	0.48	0.47
d, Delay for Lane Group [s/veh]	643.06	37.81	37.33	35.65	49.93	4.85	14.70	14.45	5.31	12.50	12.48
Lane Group LOS	F	D	D	D	D	A	B	B	A	B	B
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	15.72	3.84	3.19	1.46	9.92	0.69	10.41	9.42	1.11	7.42	6.92
50th-Percentile Queue Length [ft]	392.93	95.99	79.82	36.42	248.02	17.35	260.17	235.44	27.69	185.58	172.95
95th-Percentile Queue Length [veh]	28.16	6.91	5.75	2.62	15.09	1.25	15.70	14.45	1.99	11.89	11.23
95th-Percentile Queue Length [ft]	703.96	172.77	143.67	65.55	377.16	31.22	392.44	361.26	49.84	297.28	280.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	643.06	37.81	37.33	35.65	49.93	49.93	4.85	14.60	14.45	5.31	12.49	12.48
Movement LOS	F	D	D	D	D	D	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	273.87			47.68			13.85			11.59		
Approach LOS	F			D			B			B		
d_I, Intersection Delay [s/veh]	52.27											
Intersection LOS	D											
Intersection V/C	0.667											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.551	2.286	3.120	2.920
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	982	982	655	545
d_b, Bicycle Delay [s]	14.25	14.25	24.89	29.09
I_b,int, Bicycle LOS Score for Intersection	2.371	2.239	2.764	2.595
Bicycle LOS	B	B	C	B

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 11: State College Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	34.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.722

Intersection Setup

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	46	412	38	282	222	469	492	1020	36	57	903	269
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	412	38	282	222	469	492	1020	36	57	903	269
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	103	10	71	56	117	123	255	9	14	226	67
Total Analysis Volume [veh/h]	46	412	38	282	222	469	492	1020	36	57	903	269
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						3,6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	6	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	14	38	38	22	39	0	23	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	26	26	0	23	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	36	36	10	42	64	18	43	43	5	30	30
g / C, Green / Cycle	0.04	0.33	0.33	0.09	0.38	0.58	0.16	0.39	0.39	0.05	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.03	0.11	0.02	0.08	0.06	0.26	0.14	0.27	0.02	0.03	0.24	0.15
s, saturation flow rate [veh/h]	1800	3800	1800	3500	3800	1800	3500	3800	1800	1800	3800	1800
c, Capacity [veh/h]	76	1252	593	320	1439	1042	574	1474	698	83	1025	486
d1, Uniform Delay [s]	51.83	27.77	25.29	49.42	22.56	13.19	44.78	28.20	21.05	51.75	38.50	34.51
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.42	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.57	0.70	0.21	7.79	0.23	1.18	3.85	0.59	0.03	9.75	2.67	0.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.33	0.06	0.88	0.15	0.45	0.86	0.69	0.05	0.69	0.88	0.55
d, Delay for Lane Group [s/veh]	59.40	28.47	25.50	57.21	22.79	14.37	48.63	28.79	21.08	61.50	41.16	35.50
Lane Group LOS	E	C	C	E	C	B	D	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.41	4.19	0.72	4.16	1.94	6.66	6.80	11.15	0.59	1.77	11.89	6.28
50th-Percentile Queue Length [ft]	35.16	104.72	17.94	104.12	48.55	166.59	169.96	278.80	14.68	44.30	297.32	157.04
95th-Percentile Queue Length [veh]	2.53	7.54	1.29	7.50	3.50	10.90	11.07	16.63	1.06	3.19	17.55	10.39
95th-Percentile Queue Length [ft]	63.28	188.50	32.29	187.42	87.38	272.42	276.86	415.72	26.42	79.74	438.72	259.80

Movement, Approach, & Intersection Results

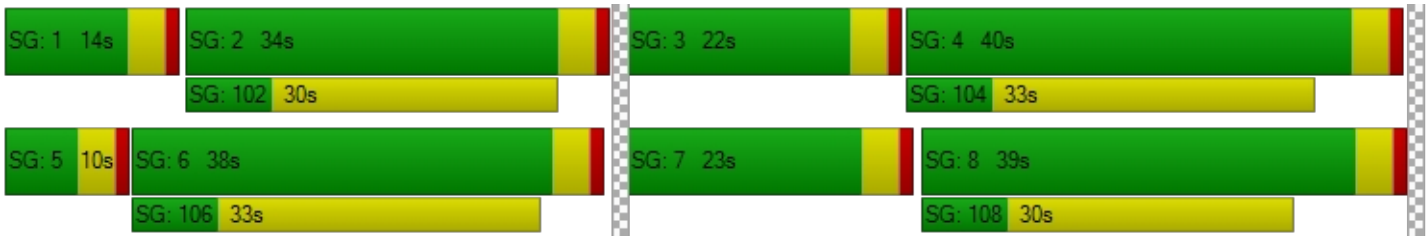
d_M, Delay for Movement [s/veh]	59.40	28.47	25.50	57.21	22.79	14.37	48.63	28.79	21.08	61.50	41.16	35.50
Movement LOS	E	C	C	E	C	B	D	C	C	E	D	D
d_A, Approach Delay [s/veh]	31.11			28.71			34.92			40.87		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	34.77											
Intersection LOS	C											
Intersection V/C	0.722											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.594	2.902	3.017	2.880
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	618	636	655
d_b, Bicycle Delay [s]	29.09	26.25	25.57	24.89
I_b,int, Bicycle LOS Score for Intersection	1.969	2.362	2.837	2.574
Bicycle LOS	A	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	17.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	93	88	183	0	1182	693	306	1795	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	93	88	183	0	1182	693	306	1795	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	23	22	46	0	296	173	77	449	0
Total Analysis Volume [veh/h]	0	0	0	93	88	183	0	1182	693	306	1795	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	17	0	0	50	0	43	93	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	64	64	21	89
g / C, Green / Cycle		0.12	0.12	0.58	0.58	0.19	0.81
(v / s)_i Volume / Saturation Flow Rate		0.10	0.10	0.31	0.39	0.17	0.47
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		213	213	2214	1049	342	3074
d1, Uniform Delay [s]		47.53	47.59	13.90	15.57	43.46	3.80
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		9.17	9.74	0.93	3.27	8.22	0.82
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.85	0.86	0.53	0.66	0.89	0.58
d, Delay for Lane Group [s/veh]		56.70	57.33	14.83	18.85	51.68	4.62
Lane Group LOS		E	E	B	B	D	A
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		5.38	5.48	8.75	12.07	8.84	5.36
50th-Percentile Queue Length [ft]		134.59	136.91	218.68	301.73	221.01	134.00
95th-Percentile Queue Length [veh]		9.19	9.31	13.60	17.77	13.72	9.16
95th-Percentile Queue Length [ft]		229.72	232.86	339.94	444.17	342.91	228.92

Movement, Approach, & Intersection Results

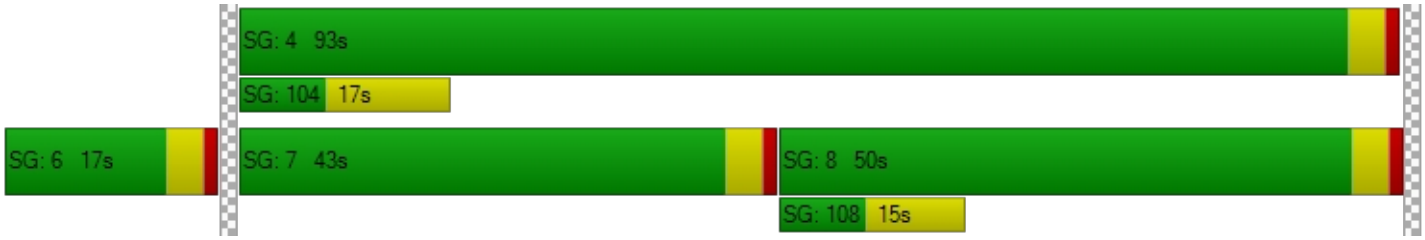
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	56.70	56.70	57.33	0.00	14.83	18.85	51.68	4.62	0.00
Movement LOS				E	E	E		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			57.02			16.31			11.47		
Approach LOS	A			E			B			B		
d_I, Intersection Delay [s/veh]	17.38											
Intersection LOS	B											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.493	1.902	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	236	836	1618
d_b, Bicycle Delay [s]	55.00	42.77	18.62	2.00
I_b,int, Bicycle LOS Score for Intersection	4.132	2.160	2.591	3.293
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.844

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	957	0	255	0	0	0	223	941	0	0	1172	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	957	0	255	0	0	0	223	941	0	0	1172	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	239	0	64	0	0	0	56	235	0	0	293	33
Total Analysis Volume [veh/h]	957	0	255	0	0	0	223	941	0	0	1172	132
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	77	0	0	0	0	0	10	33	0	0	23	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	33		16	69	49	49
g / C, Green / Cycle	0.30	0.30	0.30		0.14	0.63	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.27	0.27	0.14		0.12	0.25	0.34	0.36
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	544	544	544		259	2376	845	801
d1, Uniform Delay [s]	36.48	36.48	31.20		46.01	10.27	25.79	26.56
k, delay calibration	0.11	0.11	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.82	4.82	0.63		8.25	0.50	6.73	8.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.88	0.47		0.86	0.40	0.77	0.81
d, Delay for Lane Group [s/veh]	41.30	41.30	31.83		54.26	10.76	32.52	35.45
Lane Group LOS	D	D	C		D	B	C	D
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	12.74	12.74	5.57		6.52	5.52	15.55	16.37
50th-Percentile Queue Length [ft]	318.55	318.55	139.29		162.92	138.09	388.85	409.21
95th-Percentile Queue Length [veh]	18.60	18.60	9.44		10.70	9.38	22.02	23.00
95th-Percentile Queue Length [ft]	464.91	464.91	236.07		267.59	234.45	550.55	575.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.30	0.00	31.83	0.00	0.00	0.00	54.26	10.76	0.00	0.00	33.82	35.45
Movement LOS	D		C				D	B			C	D
d_A, Approach Delay [s/veh]	39.31			0.00			19.10			33.98		
Approach LOS	D			A			B			C		
d_I, Intersection Delay [s/veh]	31.03											
Intersection LOS	C											
Intersection V/C	0.844											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.344	1.779	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	527	345
d_b, Bicycle Delay [s]	55.00	55.00	29.82	37.64
I_b,int, Bicycle LOS Score for Intersection	6.132	4.132	2.520	2.635
Bicycle LOS	F	D	B	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 14: Lemon Street at Wilshire Avenue

Control Type:	Signalized	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.407

Intersection Setup

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Base Volume Input [veh/h]	44	783	101	55	820	32	29	139	72	84	63	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	783	101	55	820	32	29	139	72	84	63	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	196	25	14	205	8	7	35	18	21	16	15
Total Analysis Volume [veh/h]	44	783	101	55	820	32	29	139	72	84	63	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	48	0	0	48	0	0	62	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	85	85	85	85	85	85	17	17
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.24	0.23	0.03	0.23	0.23	0.13	0.12
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1287	1473	1395	1278	1473	1395	310	320
d1, Uniform Delay [s]	2.85	3.67	3.62	2.86	3.61	3.60	45.50	44.58
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.56	0.56	0.06	0.52	0.54	4.10	2.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.03	0.31	0.30	0.04	0.30	0.30	0.77	0.65
d, Delay for Lane Group [s/veh]	2.89	4.23	4.18	2.93	4.13	4.14	49.60	46.81
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.20	2.67	2.41	0.25	2.50	2.34	6.71	5.60
50th-Percentile Queue Length [ft]	4.94	66.85	60.23	6.23	62.55	58.49	167.87	140.01
95th-Percentile Queue Length [veh]	0.36	4.81	4.34	0.45	4.50	4.21	10.96	9.48
95th-Percentile Queue Length [ft]	8.90	120.32	108.42	11.21	112.59	105.28	274.12	237.04

Movement, Approach, & Intersection Results

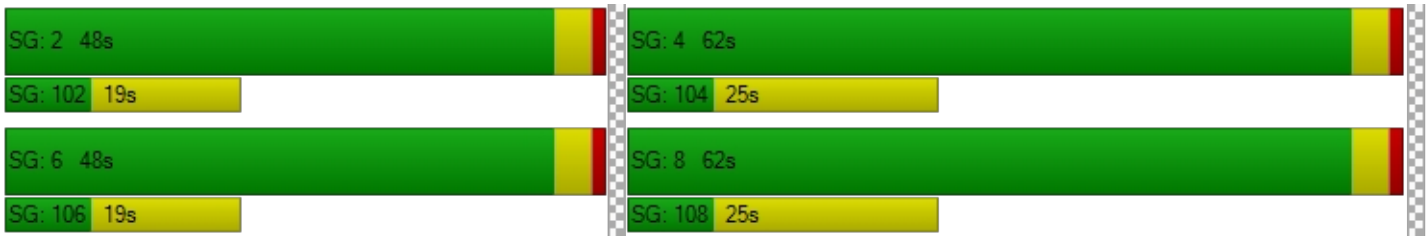
d_M, Delay for Movement [s/veh]	2.89	4.21	4.18	2.93	4.14	4.14	49.60	49.60	49.60	46.81	46.81	46.81
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.14			4.06			49.60			46.81		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.78											
Intersection LOS	B											
Intersection V/C	0.407											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.800	2.698	1.972	2.048
Crosswalk LOS	C	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	1055	1055
d_b, Bicycle Delay [s]	19.80	19.80	12.29	12.29
I_b,int, Bicycle LOS Score for Intersection	2.325	2.308	1.956	1.903
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Harbor Boulevard at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	35.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.876

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	54	1033	302	49	1343	79	196	1022	74	200	526	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	1033	302	49	1343	79	196	1022	74	200	526	58
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	258	76	12	336	20	49	256	19	50	132	15
Total Analysis Volume [veh/h]	54	1033	302	49	1343	79	196	1022	74	200	526	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	57	0	10	57	0	14	33	0	10	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	20	0	0	22	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	55	46	46	55	46	46	47	33	33	47	33	33
g / C, Green / Cycle	0.50	0.42	0.42	0.50	0.42	0.42	0.43	0.30	0.30	0.43	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.03	0.27	0.17	0.03	0.39	0.38	0.11	0.27	0.04	0.11	0.14	0.03
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	1800	3800	1800
c, Capacity [veh/h]	321	1595	755	584	794	752	681	1147	543	425	1150	545
d1, Uniform Delay [s]	14.25	25.45	22.27	14.21	30.42	30.14	20.17	36.69	27.97	20.22	31.06	27.66
k, delay calibration	0.11	0.11	0.11	0.11	0.31	0.30	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.45	0.34	0.06	12.82	11.69	0.23	10.56	0.52	3.71	1.31	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.65	0.40	0.08	0.93	0.91	0.29	0.89	0.14	0.47	0.46	0.11
d, Delay for Lane Group [s/veh]	14.49	25.90	22.61	14.27	43.25	41.83	20.40	47.24	28.49	23.93	32.38	28.05
Lane Group LOS	B	C	C	B	D	D	C	D	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.71	10.63	5.46	0.64	20.71	18.98	3.25	14.59	1.50	3.72	5.84	1.16
50th-Percentile Queue Length [ft]	17.85	265.80	136.51	15.91	517.78	474.47	81.26	364.66	37.59	92.96	145.96	29.12
95th-Percentile Queue Length [veh]	1.29	15.98	9.29	1.15	28.17	26.12	5.85	20.85	2.71	6.69	9.80	2.10
95th-Percentile Queue Length [ft]	32.14	399.48	232.32	28.63	704.37	653.09	146.27	521.25	67.66	167.33	245.03	52.41

Movement, Approach, & Intersection Results

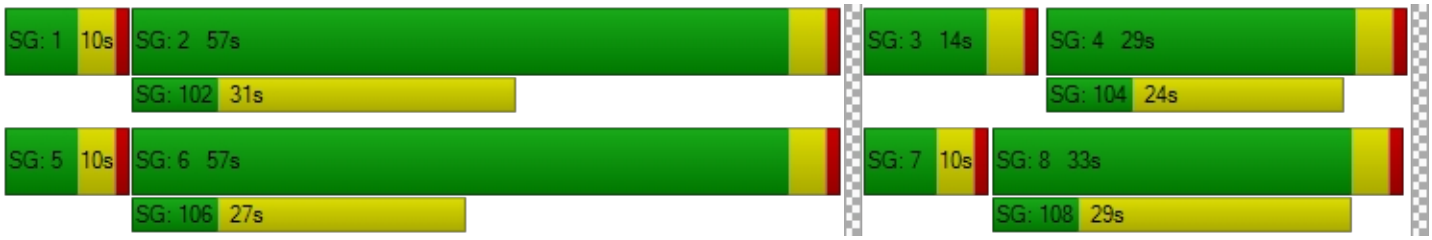
d_M, Delay for Movement [s/veh]	14.49	25.90	22.61	14.27	42.60	41.83	20.40	47.24	28.49	23.93	32.38	28.05
Movement LOS	B	C	C	B	D	D	C	D	C	C	C	C
d_A, Approach Delay [s/veh]	24.74			41.62			42.10			29.90		
Approach LOS	C			D			D			C		
d_I, Intersection Delay [s/veh]	35.13											
Intersection LOS	D											
Intersection V/C	0.876											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.042	2.937	2.813	2.843
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	964	964	527	455
d_b, Bicycle Delay [s]	14.77	14.77	29.82	32.84
I_b,int, Bicycle LOS Score for Intersection	2.706	2.773	2.626	2.206
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Lemon Street at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	35.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.790

Intersection Setup

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	80	778	250	61	813	58	120	1148	105	361	613	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	778	250	61	813	58	120	1148	105	361	613	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	195	63	15	203	15	30	287	26	90	153	15
Total Analysis Volume [veh/h]	80	778	250	61	813	58	120	1148	105	361	613	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	55	0	11	48	0	14	31	0	13	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	30	30	39	30	30	9	45	45	14	50	50
g / C, Green / Cycle	0.35	0.27	0.27	0.35	0.27	0.27	0.08	0.41	0.41	0.13	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.04	0.20	0.14	0.03	0.24	0.23	0.07	0.30	0.06	0.10	0.16	0.03
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	3500	3800	1800
c, Capacity [veh/h]	327	1034	490	402	510	483	152	1550	734	447	1715	812
d1, Uniform Delay [s]	23.93	36.68	33.87	23.67	38.67	38.39	49.46	27.66	20.50	46.71	19.77	17.16
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.38	1.13	0.82	0.17	5.42	4.82	8.86	3.23	0.41	3.52	0.58	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.75	0.51	0.15	0.89	0.87	0.79	0.74	0.14	0.81	0.36	0.08
d, Delay for Lane Group [s/veh]	24.32	37.81	34.70	23.84	44.09	43.21	58.31	30.89	20.91	50.23	20.35	17.34
Lane Group LOS	C	D	C	C	D	D	E	C	C	D	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.44	9.64	5.74	1.08	12.34	11.27	3.60	13.19	1.78	5.01	5.20	0.92
50th-Percentile Queue Length [ft]	36.12	240.98	143.43	27.06	308.58	281.81	90.07	329.73	44.43	125.15	130.11	22.89
95th-Percentile Queue Length [veh]	2.60	14.73	9.67	1.95	18.11	16.78	6.49	19.15	3.20	8.68	8.95	1.65
95th-Percentile Queue Length [ft]	65.01	368.28	241.63	48.72	452.63	419.47	162.13	478.63	79.98	216.88	223.64	41.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.32	37.81	34.70	23.84	43.70	43.21	58.31	30.89	20.91	50.23	20.35	17.34
Movement LOS	C	D	C	C	D	D	E	C	C	D	C	B
d_A, Approach Delay [s/veh]	36.13			42.37			32.52			30.59		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	35.04											
Intersection LOS	D											
Intersection V/C	0.790											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.850	2.678	2.840	2.976
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	927	800	491	473
d_b, Bicycle Delay [s]	15.82	19.80	31.31	32.07
I_b,int, Bicycle LOS Score for Intersection	2.474	2.329	2.692	2.413
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: Harbor Boulevard at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	16.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.693

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	25	1287	35	44	1577	32	133	155	84	78	107	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	1287	35	44	1577	32	133	155	84	78	107	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	322	9	11	394	8	33	39	21	20	27	8
Total Analysis Volume [veh/h]	25	1287	35	44	1577	32	133	155	84	78	107	31
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	53	0	0	53	0	0	57	0	0	57	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	11	0	0	20	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	77	77	77	77	77	77	25	25	25
g / C, Green / Cycle	0.70	0.70	0.70	0.70	0.70	0.70	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.01	0.36	0.36	0.02	0.44	0.43	0.21	0.04	0.08
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800	1800
c, Capacity [veh/h]	878	1333	1263	991	1333	1263	451	77	406
d1, Uniform Delay [s]	4.97	7.64	7.60	5.02	8.68	8.65	41.50	34.40	35.65
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	1.40	1.46	0.08	2.19	2.28	3.88	49.36	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.03	0.51	0.51	0.04	0.62	0.62	0.83	1.01	0.34
d, Delay for Lane Group [s/veh]	5.03	9.04	9.06	5.10	10.86	10.94	45.37	83.76	36.14
Lane Group LOS	A	A	A	A	B	B	D	F	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.17	7.16	6.72	0.30	9.97	9.42	10.21	2.74	3.16
50th-Percentile Queue Length [ft]	4.32	178.96	168.01	7.62	249.24	235.57	255.28	68.51	78.88
95th-Percentile Queue Length [veh]	0.31	11.55	10.97	0.55	15.15	14.46	15.45	4.93	5.68
95th-Percentile Queue Length [ft]	7.78	288.65	274.30	13.72	378.70	361.43	386.29	123.31	141.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.03	9.05	9.06	5.10	10.90	10.94	45.37	45.37	45.37	83.76	36.14	36.14
Movement LOS	A	A	A	A	B	B	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	8.98			10.74			45.37			53.34		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	16.23											
Intersection LOS	B											
Intersection V/C	0.693											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.022	3.104	2.021	2.159
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	891	891	964	964
d_b, Bicycle Delay [s]	16.91	16.91	14.77	14.77
I_b,int, Bicycle LOS Score for Intersection	2.671	2.923	2.173	1.916
Bicycle LOS	B	C	B	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 18: Lemon Street at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	45	903	12	41	1146	86	158	54	128	90	79	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	903	12	41	1146	86	158	54	128	90	79	75
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	226	3	10	287	22	40	14	32	23	20	19
Total Analysis Volume [veh/h]	45	903	12	41	1146	86	158	54	128	90	79	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	38	0	0	38	0	0	72	0	0	72	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	11	0	0	11	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	79	79	79	79	79	79	23	23
g / C, Green / Cycle	0.72	0.72	0.72	0.72	0.72	0.72	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.25	0.25	0.02	0.34	0.33	0.19	0.14
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1065	1366	1295	1154	1366	1295	422	419
d1, Uniform Delay [s]	4.44	5.76	5.75	4.43	6.53	6.45	42.47	39.85
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.69	0.72	0.06	1.15	1.17	3.65	1.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.34	0.34	0.04	0.47	0.46	0.80	0.58
d, Delay for Lane Group [s/veh]	4.52	6.45	6.47	4.49	7.68	7.62	46.12	41.14
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	0.29	3.83	3.62	0.26	5.94	5.45	9.35	6.16
50th-Percentile Queue Length [ft]	7.13	95.82	90.54	6.44	148.43	136.34	233.75	153.93
95th-Percentile Queue Length [veh]	0.51	6.90	6.52	0.46	9.93	9.28	14.36	10.23
95th-Percentile Queue Length [ft]	12.84	172.47	162.97	11.59	248.33	232.08	359.12	255.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	4.52	6.46	6.47	4.49	7.66	7.62	46.12	46.12	46.12	41.14	41.14	41.14
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	6.37			7.55			46.12			41.14		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	14.71											
Intersection LOS	B											
Intersection V/C	0.567											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.891	3.004	2.057	1.954
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	618	618	1236	1236
d_b, Bicycle Delay [s]	26.25	26.25	8.02	8.02
I_b,int, Bicycle LOS Score for Intersection	2.352	2.610	2.121	1.962
Bicycle LOS	B	B	B	A

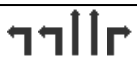
Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 19: Harbor Boulevard at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.776

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	104	1117	295	262	1508	102	147	1330	275	103	435	114
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	1117	295	262	1508	102	147	1330	275	103	435	114
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	279	74	66	377	26	37	333	69	26	109	29
Total Analysis Volume [veh/h]	104	1117	295	262	1508	102	147	1330	275	103	435	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	47	0	14	51	0	12	39	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	27	0	0	28	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	38	38	10	42	42	11	38	38	8	35	35
g / C, Green / Cycle	0.05	0.34	0.34	0.09	0.38	0.38	0.10	0.35	0.35	0.07	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.03	0.29	0.16	0.07	0.34	0.17	0.08	0.23	0.15	0.06	0.08	0.06
s, saturation flow rate [veh/h]	3500	3800	1800	3500	3800	1800	1800	5700	1800	1800	5700	1800
c, Capacity [veh/h]	186	1302	617	320	1448	686	177	1983	626	130	1835	579
d1, Uniform Delay [s]	50.87	33.68	28.44	49.11	32.08	25.43	48.72	30.53	27.62	50.24	27.41	27.03
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.62	1.75	0.58	5.13	2.28	0.46	9.47	1.82	2.23	10.15	0.30	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.86	0.48	0.82	0.90	0.45	0.83	0.67	0.44	0.79	0.24	0.20
d, Delay for Lane Group [s/veh]	53.49	35.43	29.02	54.24	34.36	25.88	58.18	32.35	29.85	60.40	27.71	27.79
Lane Group LOS	D	D	C	D	C	C	E	C	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.47	13.92	6.17	3.75	16.33	6.03	4.42	10.19	5.92	3.15	2.85	2.29
50th-Percentile Queue Length [ft]	36.63	348.01	154.16	93.84	408.34	150.71	110.44	254.72	147.97	78.79	71.30	57.33
95th-Percentile Queue Length [veh]	2.64	20.04	10.24	6.76	22.96	10.05	7.86	15.42	9.91	5.67	5.13	4.13
95th-Percentile Queue Length [ft]	65.93	500.98	255.97	168.91	574.04	251.37	196.61	385.59	247.72	141.82	128.35	103.20

Movement, Approach, & Intersection Results

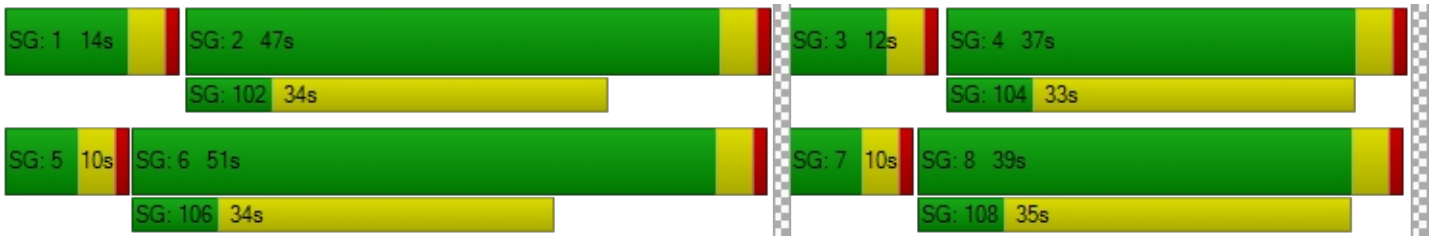
d_M, Delay for Movement [s/veh]	53.49	35.43	29.02	54.24	33.20	25.88	58.18	32.35	29.85	60.40	27.71	27.79
Movement LOS	D	D	C	D	C	C	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	35.42			35.75			34.13			32.89		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	34.85											
Intersection LOS	C											
Intersection V/C	0.776											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.150	3.056	3.027	3.044
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	782	855	636	600
d_b, Bicycle Delay [s]	20.40	18.04	25.57	26.95
I_b,int, Bicycle LOS Score for Intersection	2.810	2.589	2.523	1.918
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Lemon Street at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	34.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.834

Intersection Setup

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	141	831	152	287	1001	92	153	1474	149	108	440	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	831	152	287	1001	92	153	1474	149	108	440	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	208	38	72	250	23	38	369	37	27	110	34
Total Analysis Volume [veh/h]	141	831	152	287	1001	92	153	1474	149	108	440	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	48	0	17	54	0	11	35	0	10	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	25	0	0	20	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	45	28	28	45	34	34	11	47	47	6	42	42
g / C, Green / Cycle	0.41	0.25	0.25	0.41	0.31	0.31	0.10	0.43	0.43	0.05	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.08	0.22	0.08	0.16	0.26	0.05	0.09	0.35	0.17	0.03	0.16	0.15
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3800	1800	1800	3800	1800	3500	1900	1800
c, Capacity [veh/h]	390	968	459	462	1175	556	186	1626	770	187	718	680
d1, Uniform Delay [s]	20.80	39.12	33.38	22.81	35.67	27.69	48.38	27.60	21.67	50.91	25.41	25.04
k, delay calibration	0.11	0.11	0.11	0.15	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.56	2.34	0.42	1.85	1.86	0.14	8.79	4.53	1.51	2.83	1.86	1.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.86	0.33	0.62	0.85	0.17	0.82	0.81	0.39	0.58	0.43	0.40
d, Delay for Lane Group [s/veh]	21.37	41.46	33.80	24.66	37.53	27.83	57.17	32.13	23.18	53.74	27.26	26.76
Lane Group LOS	C	D	C	C	D	C	E	C	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.38	10.90	3.36	5.42	12.70	1.79	4.56	15.76	5.64	1.53	6.27	5.42
50th-Percentile Queue Length [ft]	59.55	272.46	83.94	135.43	317.39	44.74	113.91	394.09	141.02	38.14	156.77	135.50
95th-Percentile Queue Length [veh]	4.29	16.31	6.04	9.23	18.54	3.22	8.06	22.28	9.54	2.75	10.38	9.24
95th-Percentile Queue Length [ft]	107.18	407.81	151.09	230.86	463.48	80.54	201.43	556.88	238.40	68.66	259.44	230.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.37	41.46	33.80	24.66	37.53	27.83	57.17	31.20	23.18	53.74	27.11	26.76
Movement LOS	C	D	C	C	D	C	E	C	C	D	C	C
d_A, Approach Delay [s/veh]	37.91			34.21			32.76			31.25		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	34.12											
Intersection LOS	C											
Intersection V/C	0.834											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.849	2.869	2.926	3.077
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	909	564	545
d_b, Bicycle Delay [s]	19.80	16.36	28.37	29.09
I_b,int, Bicycle LOS Score for Intersection	2.487	2.698	2.536	2.124
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	117	1474	0	0	1749	578	0	0	0	214	284	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	1474	0	0	1749	578	0	0	0	214	284	198
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	369	0	0	437	145	0	0	0	54	71	50
Total Analysis Volume [veh/h]	117	1474	0	0	1749	578	0	0	0	214	284	198
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	39	0	0	29	0	0	0	0	0	61	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	77	67	67		15	15	15
g / C, Green / Cycle	0.06	0.77	0.67	0.67		0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.26	0.41	0.43		0.12	0.07	0.11
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	205	4381	2546	1206		273	575	273
d1, Uniform Delay [s]	45.85	3.61	9.20	9.57		40.87	38.92	40.46
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.48	0.21	1.10	2.65		4.96	0.66	3.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.34	0.61	0.64		0.79	0.49	0.73
d, Delay for Lane Group [s/veh]	48.33	3.82	10.30	12.22		45.83	39.57	44.14
Lane Group LOS	D	A	B	B		D	D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	1.48	2.43	8.60	9.43		5.40	3.23	4.88
50th-Percentile Queue Length [ft]	36.99	60.78	215.07	235.74		135.03	80.70	122.05
95th-Percentile Queue Length [veh]	2.66	4.38	13.41	14.47		9.21	5.81	8.51
95th-Percentile Queue Length [ft]	66.59	109.40	335.33	361.64		230.32	145.26	212.64

Movement, Approach, & Intersection Results

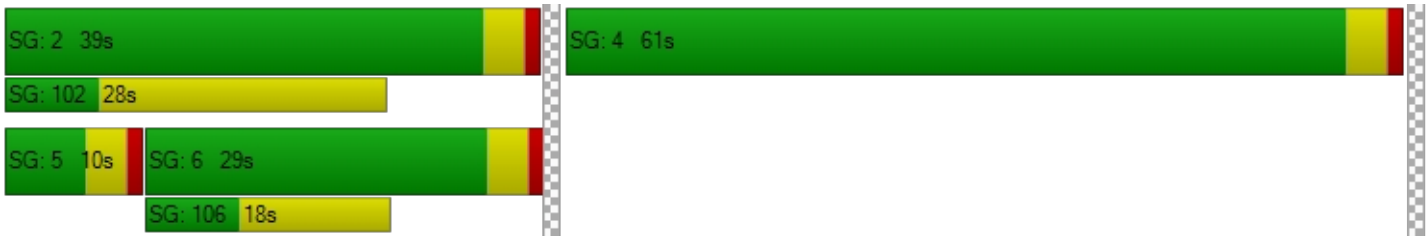
d_M, Delay for Movement [s/veh]	48.33	3.82	0.00	0.00	10.52	12.22	0.00	0.00	0.00	45.83	39.57	44.14
Movement LOS	D	A			B	B				D	D	D
d_A, Approach Delay [s/veh]	7.09			10.94			0.00			42.80		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	14.42											
Intersection LOS	B											
Intersection V/C	0.663											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.197	2.306
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	500	0	1140
d_b, Bicycle Delay [s]	21.13	28.13	50.00	9.25
I_b,int, Bicycle LOS Score for Intersection	2.435	2.839	4.132	2.134
Bicycle LOS	B	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.757

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	68	617	0	0	1297	284	0	0	0	270	422	604
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	617	0	0	1297	284	0	0	0	270	422	604
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	154	0	0	324	71	0	0	0	68	106	151
Total Analysis Volume [veh/h]	68	617	0	0	1297	284	0	0	0	270	422	604
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	33	0	0	23	0	0	0	0	0	67	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	55	45	45		37	37	37
g / C, Green / Cycle	0.05	0.55	0.45	0.45		0.37	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.28	0.29		0.19	0.18	0.34
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	93	3108	1723	816		674	712	674
d1, Uniform Delay [s]	46.71	11.59	20.67	21.12		24.22	23.89	29.43
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.27	0.14	1.63	3.92		0.61	0.51	5.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.20	0.61	0.65		0.51	0.48	0.90
d, Delay for Lane Group [s/veh]	56.98	11.74	22.30	25.05		24.83	24.40	34.42
Lane Group LOS	E	B	C	C		C	C	C
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.92	2.29	9.35	10.04		6.34	6.21	14.10
50th-Percentile Queue Length [ft]	48.12	57.23	233.76	251.12		158.57	155.15	352.61
95th-Percentile Queue Length [veh]	3.46	4.12	14.37	15.24		10.47	10.29	20.26
95th-Percentile Queue Length [ft]	86.62	103.01	359.13	381.06		261.83	257.29	506.59

Movement, Approach, & Intersection Results

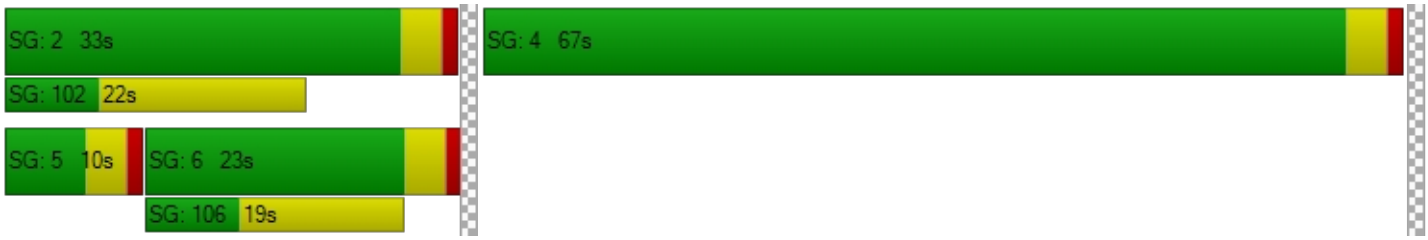
d_M, Delay for Movement [s/veh]	56.98	11.74	0.00	0.00	22.82	25.05	0.00	0.00	0.00	24.83	24.48	34.42
Movement LOS	E	B			C	C				C	C	C
d_A, Approach Delay [s/veh]	16.23			23.22			0.00			29.19		
Approach LOS	B			C			A			C		
d_I, Intersection Delay [s/veh]	24.05											
Intersection LOS	C											
Intersection V/C	0.757											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.097	2.366
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	580	380	0	1260
d_b, Bicycle Delay [s]	25.21	32.81	50.00	6.85
I_b,int, Bicycle LOS Score for Intersection	1.936	2.429	4.132	2.629
Bicycle LOS	A	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.594

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1096	444	512	1407	0	454	137	157	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1096	444	512	1407	0	454	137	157	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	274	111	128	352	0	114	34	39	0	0	0
Total Analysis Volume [veh/h]	0	1096	444	512	1407	0	454	137	157	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	39	0	38	77	0	0	23	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	55	55	18	76	16	16	16	
g / C, Green / Cycle	0.55	0.55	0.18	0.76	0.16	0.16	0.16	
(v / s)_i Volume / Saturation Flow Rate	0.19	0.25	0.15	0.25	0.13	0.07	0.09	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	3124	987	614	4352	547	297	282	
d1, Uniform Delay [s]	12.64	13.55	39.82	3.71	40.89	38.35	38.99	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.31	1.48	3.05	0.20	3.31	1.11	1.73	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.35	0.45	0.83	0.32	0.83	0.46	0.56	
d, Delay for Lane Group [s/veh]	12.95	15.04	42.87	3.91	44.20	39.46	40.71	
Lane Group LOS	B	B	D	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	4.46	6.10	6.26	2.37	5.61	3.13	3.67	
50th-Percentile Queue Length [ft]	111.51	152.54	156.60	59.27	140.32	78.17	91.76	
95th-Percentile Queue Length [veh]	7.92	10.15	10.37	4.27	9.50	5.63	6.61	
95th-Percentile Queue Length [ft]	198.10	253.82	259.22	106.68	237.45	140.70	165.16	

Movement, Approach, & Intersection Results

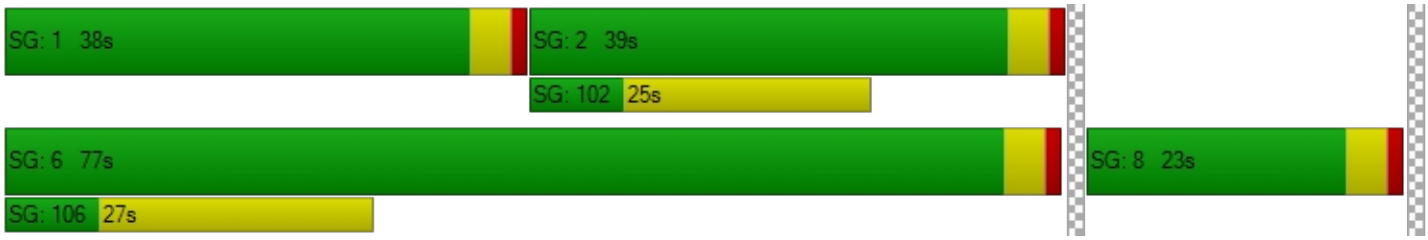
d_M, Delay for Movement [s/veh]	0.00	12.95	15.04	42.87	3.91	0.00	44.20	39.46	40.71	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	D			
d_A, Approach Delay [s/veh]	13.55			14.30			42.60			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.06											
Intersection LOS	B											
Intersection V/C	0.594											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.318	2.253
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	1460	380	0
d_b, Bicycle Delay [s]	21.13	3.65	32.81	50.00
I_b,int, Bicycle LOS Score for Intersection	2.407	2.615	2.794	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	638	377	528	947	0	68	807	193	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	638	377	528	947	0	68	807	193	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	160	94	132	237	0	17	202	48	0	0	0
Total Analysis Volume [veh/h]	0	638	377	528	947	0	68	807	193	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	24	47	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	17	64	28	28	28	
g / C, Green / Cycle	0.42	0.42	0.17	0.64	0.28	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.17	0.21	0.15	0.25	0.25	0.23	0.11	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1613	764	606	2422	509	537	509	
d1, Uniform Delay [s]	19.91	20.95	40.27	8.75	34.19	33.28	28.83	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.73	2.27	4.08	0.48	4.90	2.84	0.47	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.40	0.49	0.87	0.39	0.87	0.80	0.38	
d, Delay for Lane Group [s/veh]	20.64	23.23	44.35	9.23	39.08	36.12	29.30	
Lane Group LOS	C	C	D	A	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.19	6.73	6.59	4.69	10.76	9.91	3.75	
50th-Percentile Queue Length [ft]	129.64	168.25	164.72	117.30	268.97	247.69	93.78	
95th-Percentile Queue Length [veh]	8.92	10.98	10.80	8.24	16.14	15.07	6.75	
95th-Percentile Queue Length [ft]	223.01	274.61	269.97	206.11	403.45	376.74	168.80	

Movement, Approach, & Intersection Results

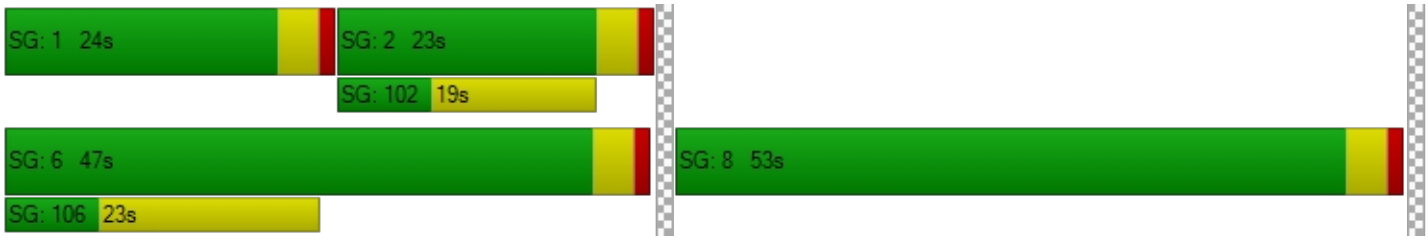
d_M, Delay for Movement [s/veh]	0.00	20.64	23.23	44.35	9.23	0.00	39.08	37.50	29.30	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	D	C			
d_A, Approach Delay [s/veh]	21.60			21.80			36.12			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	26.04											
Intersection LOS	C											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.292	2.554
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	860	980	0
d_b, Bicycle Delay [s]	32.81	16.25	13.01	50.00
I_b,int, Bicycle LOS Score for Intersection	2.118	2.776	2.441	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Harbor Boulevard at Bastanchury Road

Control Type:	Signalized	Delay (sec / veh):	103.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Base Volume Input [veh/h]	194	705	109	530	1394	313	353	1383	259	248	1089	219
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	194	705	109	530	1394	313	353	1383	259	248	1089	219
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	176	27	133	349	78	88	346	65	62	272	55
Total Analysis Volume [veh/h]	194	705	109	530	1394	313	353	1383	259	248	1089	219
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	42	0	12	43	0	14	44	0	12	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	24	0	0	31	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	41	41	8	42	42	10	37	37	8	35	35
g / C, Green / Cycle	0.06	0.38	0.38	0.07	0.39	0.39	0.09	0.33	0.33	0.07	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.06	0.12	0.06	0.15	0.30	0.31	0.20	0.29	0.30	0.07	0.19	0.12
s, saturation flow rate [veh/h]	3500	5700	1800	3500	3800	1800	1800	3800	1800	3500	5700	1800
c, Capacity [veh/h]	225	2145	677	257	1464	694	165	1260	597	257	1787	564
d1, Uniform Delay [s]	51.02	24.44	22.80	51.01	29.77	30.24	50.01	34.65	35.13	50.87	32.08	29.54
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.25	0.11	0.33	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.29	0.41	0.51	480.78	4.23	9.92	523.97	2.09	14.28	18.91	0.34	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.86	0.33	0.16	2.06	0.78	0.81	2.14	0.88	0.90	0.96	0.61	0.39
d, Delay for Lane Group [s/veh]	60.31	24.85	23.31	531.79	34.00	40.16	573.98	36.74	49.41	69.78	32.42	29.98
Lane Group LOS	E	C	C	F	C	D	F	D	D	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.93	4.42	1.97	20.69	13.90	14.91	28.50	13.97	15.87	4.07	8.17	4.58
50th-Percentile Queue Length [ft]	73.32	110.58	49.36	517.36	347.54	372.76	712.40	349.33	396.71	101.79	204.21	114.40
95th-Percentile Queue Length [veh]	5.28	7.87	3.55	33.35	20.02	21.24	45.10	20.10	22.40	7.33	12.86	8.08
95th-Percentile Queue Length [ft]	131.98	196.81	88.84	833.67	500.40	531.07	1127.44	502.59	560.03	183.23	321.39	202.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.31	24.85	23.31	531.79	35.10	40.16	573.98	39.31	49.41	69.78	32.42	29.98
Movement LOS	E	C	C	F	D	D	F	D	D	E	C	C
d_A, Approach Delay [s/veh]	31.51			153.49			135.23			38.03		
Approach LOS	C			F			F			D		
d_I, Intersection Delay [s/veh]	103.60											
Intersection LOS	F											
Intersection V/C	0.883											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.174	3.163	3.104	3.246
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	709	727	691
d_b, Bicycle Delay [s]	23.56	22.91	22.27	23.56
I_b,int, Bicycle LOS Score for Intersection	2.114	2.790	2.657	2.415
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 26: College Driveway No. 1 at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	11	4	10	814	546	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	4	10	814	546	11
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	3	204	137	3
Total Analysis Volume [veh/h]	11	4	10	814	546	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	15.66	12.12	8.59	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.12	0.12	0.03	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.03	3.03	0.75	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.72		0.10		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.22					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 27: Centennial Way at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.131

Intersection Setup

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	0	72	529	279	39	601
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	72	529	279	39	601
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	18	132	70	10	150
Total Analysis Volume [veh/h]	0	72	529	279	39	601
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.13	0.01	0.00	0.05	0.01
d_M, Delay for Movement [s/veh]	0.00	12.53	0.00	0.00	9.63	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.45	0.00	0.00	0.15	0.00
95th-Percentile Queue Length [ft]	0.00	11.22	0.00	0.00	3.75	0.00
d_A, Approach Delay [s/veh]	12.53		0.00		0.59	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.84					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 28: Lemon Street at Parking Structure

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Base Volume Input [veh/h]	80	488	184	0	715	57	0	0	4	0	0	92
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	488	184	0	715	57	0	0	4	0	0	92
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	122	46	0	179	14	0	0	1	0	0	23
Total Analysis Volume [veh/h]	80	488	184	0	715	57	0	0	4	0	0	92
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.14
d_M, Delay for Movement [s/veh]	9.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.92	0.00	0.00	11.34
Movement LOS	A	A	A		A	A			B			B
95th-Percentile Queue Length [veh]	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.48
95th-Percentile Queue Length [ft]	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	12.07
d_A, Approach Delay [s/veh]	1.04			0.00			10.92			11.34		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.15											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 29: Lemon Street at Fullerton College Drive

Control Type:	Signalized	Delay (sec / veh):	22.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Base Volume Input [veh/h]	0	643	341	185	575	0	116	2	149	144	0	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	643	341	185	575	0	116	2	149	144	0	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	161	85	46	144	0	29	1	37	36	0	15
Total Analysis Volume [veh/h]	0	643	341	185	575	0	116	2	149	144	0	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	6	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	30	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	10	34	0	0	49	0	27	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	7	0	0
Pedestrian Clearance [s]	0	13	0	0	14	0	0	0	0	16	0	0
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall		No		No	No			No		No		
Maximum Recall		No		No	No			No		No		
Pedestrian Recall		No		No	No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	R
C, Cycle Length [s]	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	58	58	68	68	19	11	11
g / C, Green / Cycle	0.53	0.53	0.62	0.62	0.17	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.26	0.27	0.10	0.15	0.15	0.08	0.03
s, saturation flow rate [veh/h]	1900	1800	1800	3800	1800	1800	1800
c, Capacity [veh/h]	1006	953	880	2360	306	180	180
d1, Uniform Delay [s]	16.46	16.79	8.82	9.32	44.55	48.44	46.10
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.70	2.00	0.12	0.25	7.74	7.84	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.52	0.21	0.24	0.87	0.80	0.33
d, Delay for Lane Group [s/veh]	18.16	18.79	8.93	9.57	52.29	56.28	47.17
Lane Group LOS	B	B	A	A	D	E	D
Critical Lane Group	No	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	8.09	8.30	1.82	3.02	7.71	4.25	1.58
50th-Percentile Queue Length [ft]	202.37	207.49	45.49	75.57	192.80	106.20	39.56
95th-Percentile Queue Length [veh]	12.76	13.02	3.28	5.44	12.27	7.63	2.85
95th-Percentile Queue Length [ft]	319.03	325.60	81.88	136.03	306.66	190.71	71.21

Movement, Approach, & Intersection Results

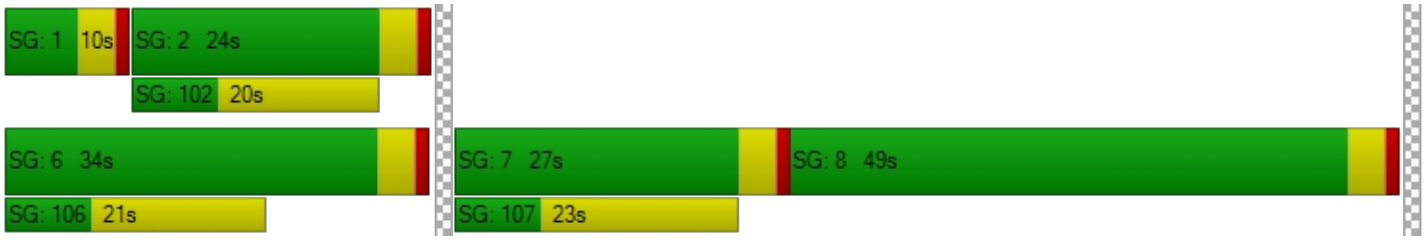
d_M, Delay for Movement [s/veh]	0.00	18.31	18.79	8.93	9.57	0.00	52.29	52.29	52.29	56.28	0.00	47.17
Movement LOS		B	B	A	A		D	D	D	E		D
d_A, Approach Delay [s/veh]	18.47			9.41			52.29			53.60		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	22.68											
Intersection LOS	C											
Intersection V/C	0.615											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.782	1.693	2.332
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	364	545	818	0
d_b, Bicycle Delay [s]	36.82	29.09	19.20	55.00
I_b,int, Bicycle LOS Score for Intersection	2.371	2.187	2.000	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Berkeley Avenue at College Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	15.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.095

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Base Volume Input [veh/h]	87	365	489	11	40	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	365	489	11	40	44
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	91	122	3	10	11
Total Analysis Volume [veh/h]	87	365	489	11	40	44
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.09	0.08
d_M, Delay for Movement [s/veh]	8.68	0.00	0.00	0.00	15.04	12.77
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.27	0.00	0.00	0.00	0.61	0.61
95th-Percentile Queue Length [ft]	6.66	0.00	0.00	0.00	15.32	15.32
d_A, Approach Delay [s/veh]	1.67		0.00		13.85	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.85					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 31: Berkeley Avenue at College Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.027

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Base Volume Input [veh/h]	113	391	392	4	11	93
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	113	391	392	4	11	93
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	98	98	1	3	23
Total Analysis Volume [veh/h]	113	391	392	4	11	93
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.03	0.14
d_M, Delay for Movement [s/veh]	8.43	0.00	0.00	0.00	14.90	11.68
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh]	0.32	0.00	0.00	0.00	0.60	0.60
95th-Percentile Queue Length [ft]	8.05	0.00	0.00	0.00	15.07	15.07
d_A, Approach Delay [s/veh]	1.89		0.00		12.02	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.19					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 32: Berkeley Avenue at Brookdale Place

Control Type:	Two-way stop	Delay (sec / veh):	15.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.069

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Base Volume Input [veh/h]	550	14	43	457	29	51
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	550	14	43	457	29	51
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	138	4	11	114	7	13
Total Analysis Volume [veh/h]	550	14	43	457	29	51
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.00	0.07	0.10
d_M, Delay for Movement [s/veh]	0.00	0.00	8.73	0.00	15.01	13.26
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.13	0.00	0.59	0.59
95th-Percentile Queue Length [ft]	0.00	0.00	3.34	0.00	14.66	14.66
d_A, Approach Delay [s/veh]	0.00		0.75		13.89	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.30					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: Harbor Boulevard at Valley View Drive/Brea Boulevard

Control Type:	Signalized	Delay (sec / veh):	29.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.685

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Base Volume Input [veh/h]	27	1407	605	97	1231	68	102	190	36	546	113	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	1407	605	97	1231	68	102	190	36	546	113	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	352	151	24	308	17	26	48	9	137	28	0
Total Analysis Volume [veh/h]	27	1407	605	97	1231	68	102	190	36	546	113	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	11	33	0	0	16	0	0	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	20	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	50	7	54	54	13	13	13	23	23
g / C, Green / Cycle	0.03	0.46	0.06	0.49	0.49	0.12	0.12	0.12	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.02	0.25	0.05	0.28	0.14	0.06	0.10	0.02	0.18	0.18
s, saturation flow rate [veh/h]	1800	5700	1800	3800	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	57	2598	116	1856	879	221	233	221	381	381
d1, Uniform Delay [s]	52.40	21.64	50.93	19.90	16.71	44.90	47.06	43.22	41.82	41.95
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.98	0.82	14.39	1.25	0.81	1.50	6.75	0.34	5.70	6.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.54	0.84	0.57	0.28	0.46	0.81	0.16	0.86	0.87
d, Delay for Lane Group [s/veh]	58.38	22.46	65.33	21.15	17.52	46.40	53.82	43.56	47.51	48.19
Lane Group LOS	E	C	E	C	B	D	D	D	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.83	8.74	3.10	9.55	3.88	2.68	5.49	0.90	9.09	9.30
50th-Percentile Queue Length [ft]	20.69	218.54	77.53	238.70	96.90	67.01	137.30	22.51	227.21	232.40
95th-Percentile Queue Length [veh]	1.49	13.59	5.58	14.62	6.98	4.82	9.34	1.62	14.03	14.30
95th-Percentile Queue Length [ft]	37.24	339.76	139.55	365.39	174.43	120.62	233.38	40.52	350.81	357.40

Movement, Approach, & Intersection Results

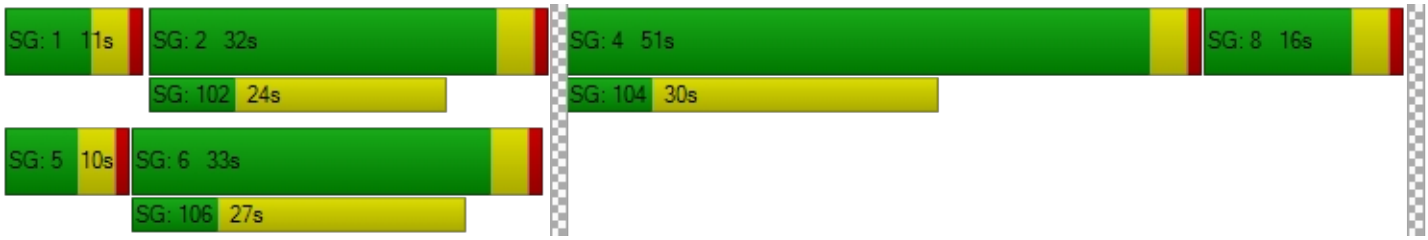
d_M, Delay for Movement [s/veh]	58.38	22.46	0.00	65.33	20.62	17.52	46.40	53.82	43.56	47.78	48.19	0.00
Movement LOS	E	C		E	C	B	D	D	D	D	D	
d_A, Approach Delay [s/veh]	23.14			23.57			50.38			47.85		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.90											
Intersection LOS	C											
Intersection V/C	0.685											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.153	2.271	2.257
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	527	218	855
d_b, Bicycle Delay [s]	30.56	29.82	43.65	18.04
I_b,int, Bicycle LOS Score for Intersection	2.348	2.327	2.101	2.647
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Harbor Boulevard at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	30.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.876

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	81	1369	30	423	1308	37	40	190	126	61	260	604
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	1369	30	423	1308	37	40	190	126	61	260	604
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	342	8	106	327	9	10	48	32	15	65	151
Total Analysis Volume [veh/h]	81	1369	30	423	1308	37	40	190	126	61	260	604
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	5	2	0	1	6	0	0	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	6
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
Split [s]	10	53	0	20	63	0	0	37	0	0	37	37
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	21	0	0	22	0	0	18	0	0	26	26
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No	No		No	No			No			No	No
Maximum Recall	No	No		No	No			No			No	No
Pedestrian Recall	No	No		No	No			No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	50	50	16	60	60	32	32	32	32	32	52
g / C, Green / Cycle	0.06	0.46	0.46	0.15	0.55	0.55	0.29	0.29	0.29	0.29	0.29	0.47
(v / s)_i Volume / Saturation Flow Rate	0.05	0.38	0.38	0.12	0.34	0.02	0.02	0.10	0.07	0.03	0.14	0.34
s, saturation flow rate [veh/h]	1800	1900	1800	3500	3800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	101	865	820	513	2073	982	346	549	520	407	549	849
d1, Uniform Delay [s]	51.27	26.27	26.18	45.54	17.30	11.59	28.42	30.88	29.88	28.76	32.19	23.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.42	9.23	9.43	3.42	1.47	0.07	0.15	0.37	0.24	0.17	0.64	5.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.83	0.83	0.82	0.63	0.04	0.12	0.35	0.24	0.15	0.47	0.71
d, Delay for Lane Group [s/veh]	64.69	35.49	35.60	48.97	18.77	11.66	28.57	31.25	30.12	28.93	32.83	28.09
Lane Group LOS	E	D	D	D	B	B	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	2.58	18.18	17.13	5.83	11.38	0.43	0.78	4.03	2.58	1.21	5.76	13.22
50th-Percentile Queue Length [ft]	64.50	454.47	428.26	145.64	284.54	10.87	19.60	100.73	64.59	30.18	144.11	330.61
95th-Percentile Queue Length [veh]	4.64	25.17	23.92	9.78	16.91	0.78	1.41	7.25	4.65	2.17	9.70	19.19
95th-Percentile Queue Length [ft]	116.10	629.28	597.95	244.60	422.86	19.56	35.27	181.31	116.27	54.32	242.55	479.71

Movement, Approach, & Intersection Results

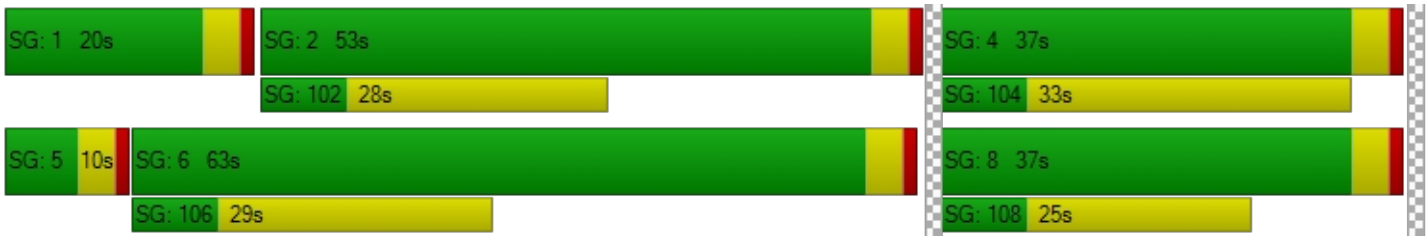
d_M, Delay for Movement [s/veh]	64.69	35.55	35.60	48.97	18.77	11.66	28.57	31.25	30.12	28.93	32.83	28.09
Movement LOS	E	D	D	D	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	37.14			25.85			30.55			29.48		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	30.65											
Intersection LOS	C											
Intersection V/C	0.876											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.976	3.187	2.320	2.615
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	891	1073	600	600
d_b, Bicycle Delay [s]	16.91	11.82	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	2.781	3.018	2.147	3.086
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Lemon Street at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	38.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	444	424	117	114	295	19	23	341	288	81	488	144
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	444	424	117	114	295	19	23	341	288	81	488	144
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	111	106	29	29	74	5	6	85	72	20	122	36
Total Analysis Volume [veh/h]	444	424	117	114	295	19	23	341	288	81	488	144
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	6	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	43	0	0	33	0	0	34	34	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	19	0	0	16	16	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		No	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	38	38	38	38	38	22	22	64	22	22	22
g / C, Green / Cycle	0.34	0.34	0.34	0.34	0.34	0.20	0.20	0.58	0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.24	0.24	0.07	0.06	0.17	0.01	0.18	0.16	0.05	0.18	0.16
s, saturation flow rate [veh/h]	1800	1800	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	618	618	618	618	618	104	387	1050	98	387	366
d1, Uniform Delay [s]	31.16	31.16	25.29	25.24	28.64	35.26	42.43	11.33	36.45	42.31	41.65
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.20	0.50	0.11	0.19	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.53	6.53	0.68	0.66	2.96	1.06	11.37	0.65	16.04	10.25	6.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.70	0.19	0.18	0.51	0.22	0.88	0.27	0.83	0.87	0.81
d, Delay for Lane Group [s/veh]	37.69	37.69	25.97	25.90	31.60	36.32	53.80	11.98	52.49	52.56	47.66
Lane Group LOS	D	D	C	C	C	D	D	B	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	10.93	10.93	2.26	2.20	7.03	0.53	10.13	3.56	2.25	9.87	8.18
50th-Percentile Queue Length [ft]	273.22	273.22	56.56	55.00	175.78	13.24	253.15	88.94	56.31	246.71	204.56
95th-Percentile Queue Length [veh]	16.35	16.35	4.07	3.96	11.38	0.95	15.34	6.40	4.05	15.02	12.87
95th-Percentile Queue Length [ft]	408.76	408.76	101.80	98.99	284.49	23.84	383.62	160.10	101.35	375.50	321.84

Movement, Approach, & Intersection Results

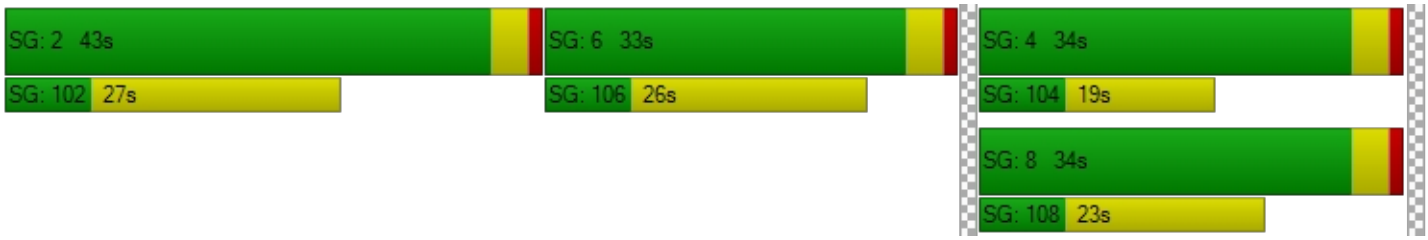
d_M, Delay for Movement [s/veh]	37.69	37.69	25.97	25.90	31.60	31.60	36.32	53.80	11.98	52.49	51.04	47.66
Movement LOS	D	D	C	C	C	C	D	D	B	D	D	D
d_A, Approach Delay [s/veh]	36.30			30.09			34.71			50.52		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	38.62											
Intersection LOS	D											
Intersection V/C	0.668											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.658	2.314	3.254	2.616
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	709	527	545	545
d_b, Bicycle Delay [s]	22.91	29.82	29.09	29.09
I_b,int, Bicycle LOS Score for Intersection	3.185	2.266	2.635	2.148
Bicycle LOS	C	B	B	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Hornet Way at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.402

Intersection Setup

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	28	232	176	400	463	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	232	176	400	463	23
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	58	44	100	116	6
Total Analysis Volume [veh/h]	28	232	176	400	463	23
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	8	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	6	6	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	64	0	0	46	46	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	19	0	0	0	14	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	85	85	85	85
g / C, Green / Cycle	0.15	0.15	0.78	0.78	0.78	0.78
(v / s)_i Volume / Saturation Flow Rate	0.02	0.13	0.10	0.21	0.24	0.01
s, saturation flow rate [veh/h]	1800	1800	1800	1900	1900	1800
c, Capacity [veh/h]	268	268	1284	1478	1478	1400
d1, Uniform Delay [s]	40.33	45.57	3.00	3.43	3.58	2.74
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	8.14	0.22	0.45	0.55	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.86	0.14	0.27	0.31	0.02
d, Delay for Lane Group [s/veh]	40.50	53.71	3.22	3.88	4.13	2.76
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.67	6.75	0.84	2.16	2.62	0.10
50th-Percentile Queue Length [ft]	16.71	168.71	21.02	54.08	65.44	2.48
95th-Percentile Queue Length [veh]	1.20	11.01	1.51	3.89	4.71	0.18
95th-Percentile Queue Length [ft]	30.08	275.21	37.84	97.34	117.79	4.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.50	53.71	3.22	3.88	4.13	2.76
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	52.29		3.68		4.07	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	13.38					
Intersection LOS	B					
Intersection V/C	0.402					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	42.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	21.02
I_p,int, Pedestrian LOS Score for Intersection	2.349	2.363	2.257
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	55.00	55.00	55.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.083	4.934
Bicycle LOS	D	F	E

Sequence

Ring 1	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Euclid Street at Malvern Avenue

Control Type:	Signalized	Delay (sec / veh):	33.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.834

Intersection Setup

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Base Volume Input [veh/h]	188	1229	99	136	1107	29	52	591	174	157	801	234
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	188	1229	99	136	1107	29	52	591	174	157	801	234
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	307	25	34	277	7	13	148	44	39	200	59
Total Analysis Volume [veh/h]	188	1229	99	136	1107	29	52	591	174	157	801	234
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	10	30	0	10	60	0	10	60	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	58	47	47	58	47	47	45	34	34	45	36	36
g / C, Green / Cycle	0.52	0.43	0.43	0.52	0.43	0.43	0.40	0.31	0.31	0.40	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.10	0.36	0.36	0.08	0.31	0.31	0.03	0.21	0.20	0.09	0.29	0.27
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	569	818	775	443	818	775	329	596	564	488	616	584
d1, Uniform Delay [s]	14.03	27.99	27.70	13.59	25.81	25.71	20.06	33.05	32.36	21.34	35.41	34.35
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.14	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.55	10.20	9.78	0.39	5.33	5.46	0.22	1.41	1.18	0.38	6.19	3.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.84	0.83	0.31	0.72	0.71	0.16	0.69	0.63	0.32	0.89	0.83
d, Delay for Lane Group [s/veh]	15.59	38.19	37.48	13.98	31.13	31.17	20.28	34.46	33.54	21.72	41.60	37.45
Lane Group LOS	B	D	D	B	C	C	C	C	C	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.70	17.95	16.49	1.77	13.48	12.66	0.84	9.65	8.24	2.69	14.88	12.25
50th-Percentile Queue Length [ft]	67.55	448.83	412.35	44.23	337.06	316.54	21.02	241.24	206.12	67.16	371.90	306.24
95th-Percentile Queue Length [veh]	4.86	24.90	23.15	3.18	19.50	18.50	1.51	14.74	12.95	4.84	21.20	17.99
95th-Percentile Queue Length [ft]	121.59	622.55	578.86	79.62	487.60	462.43	37.83	368.60	323.84	120.90	530.03	449.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.59	37.88	37.48	13.98	31.15	31.17	20.28	34.17	33.54	21.72	40.31	37.45
Movement LOS	B	D	D	B	C	C	C	C	C	C	D	D
d_A, Approach Delay [s/veh]	35.09			29.32			33.16			37.30		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	33.78											
Intersection LOS	C											
Intersection V/C	0.834											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.959	2.878	2.788	2.790
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	1018	1018
d_b, Bicycle Delay [s]	32.07	32.07	13.25	13.25
I_b,int, Bicycle LOS Score for Intersection	2.810	2.609	2.234	2.543
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Harbor Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	31.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.835

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	110	1060	113	120	900	105	243	687	102	197	1006	153
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	1060	113	120	900	105	243	687	102	197	1006	153
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	265	28	30	225	26	61	172	26	49	252	38
Total Analysis Volume [veh/h]	110	1060	113	120	900	105	243	687	102	197	1006	153
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	31	0	10	31	0	10	55	0	14	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	58	48	48	58	48	48	44	30	30	44	34	34
g / C, Green / Cycle	0.53	0.44	0.44	0.53	0.44	0.44	0.40	0.27	0.27	0.40	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.06	0.32	0.31	0.07	0.28	0.27	0.14	0.22	0.21	0.11	0.26	0.09
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	648	832	789	553	833	789	368	515	488	453	1168	553
d1, Uniform Delay [s]	13.04	25.64	25.26	13.12	23.99	23.66	22.99	37.40	36.93	22.33	35.93	28.87
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	5.72	5.42	0.19	3.61	3.46	2.03	3.00	2.57	0.66	2.01	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.73	0.71	0.22	0.63	0.61	0.66	0.80	0.77	0.44	0.86	0.28
d, Delay for Lane Group [s/veh]	13.61	31.35	30.68	13.31	27.59	27.12	25.02	40.40	39.50	22.99	37.94	29.14
Lane Group LOS	B	C	C	B	C	C	C	D	D	C	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.45	14.19	12.83	1.51	11.18	10.08	4.56	10.71	9.53	3.51	12.84	3.10
50th-Percentile Queue Length [ft]	36.28	354.64	320.64	37.76	279.55	251.91	114.10	267.85	238.23	87.84	321.11	77.53
95th-Percentile Queue Length [veh]	2.61	20.36	18.70	2.72	16.67	15.28	8.07	16.08	14.59	6.32	18.72	5.58
95th-Percentile Queue Length [ft]	65.30	509.06	467.47	67.97	416.65	382.05	201.70	402.05	364.80	158.12	468.05	139.55

Movement, Approach, & Intersection Results

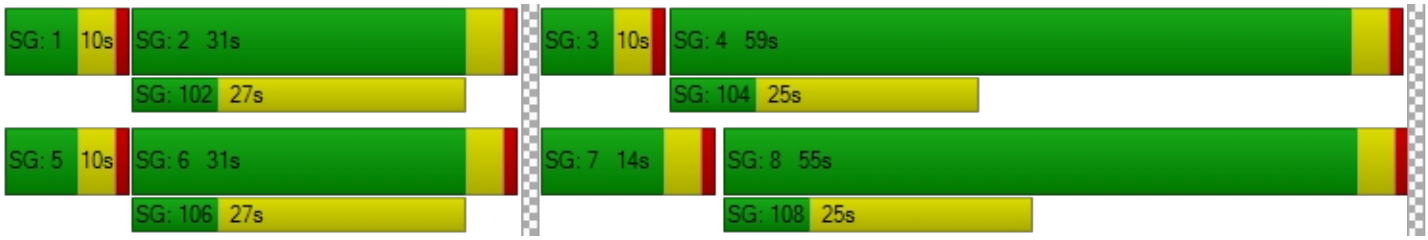
d_M, Delay for Movement [s/veh]	13.61	31.07	30.68	13.31	27.40	27.12	25.02	40.04	39.50	22.99	37.94	29.14
Movement LOS	B	C	C	B	C	C	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	29.54			25.87			36.45			34.77		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	31.64											
Intersection LOS	C											
Intersection V/C	0.835											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.874	2.925	2.820	2.910
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	491	927	1000
d_b, Bicycle Delay [s]	31.31	31.31	15.82	13.75
I_b,int, Bicycle LOS Score for Intersection	2.618	2.488	2.411	2.678
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	34.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.726

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	150	831	138	82	599	115	131	773	124	282	1135	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	831	138	82	599	115	131	773	124	282	1135	119
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	208	35	21	150	29	33	193	31	71	284	30
Total Analysis Volume [veh/h]	150	831	138	82	599	115	131	773	124	282	1135	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	10	31	0	13	53	0	15	55	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	52	42	42	52	41	41	9	36	36	11	37	37
g / C, Green / Cycle	0.47	0.38	0.38	0.47	0.37	0.37	0.08	0.32	0.32	0.10	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.22	0.08	0.05	0.20	0.19	0.07	0.25	0.24	0.08	0.30	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	657	1454	689	625	702	665	148	613	581	344	1286	609
d1, Uniform Delay [s]	16.87	26.85	22.72	16.20	27.32	26.95	49.98	33.58	33.05	48.69	34.34	25.79
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.81	1.64	0.65	0.09	2.93	2.76	15.24	2.59	1.91	4.88	2.18	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.57	0.20	0.13	0.54	0.51	0.88	0.77	0.73	0.82	0.88	0.20
d, Delay for Lane Group [s/veh]	17.68	28.49	23.38	16.30	30.25	29.71	65.23	36.17	34.97	53.57	36.52	25.95
Lane Group LOS	B	C	C	B	C	C	E	D	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.32	8.82	2.51	1.16	8.27	7.30	4.19	11.63	10.23	4.02	14.42	2.24
50th-Percentile Queue Length [ft]	58.12	220.46	62.76	28.98	206.63	182.60	104.64	290.68	255.74	100.49	360.53	55.90
95th-Percentile Queue Length [veh]	4.18	13.69	4.52	2.09	12.98	11.74	7.53	17.22	15.47	7.24	20.65	4.02
95th-Percentile Queue Length [ft]	104.62	342.22	112.97	52.17	324.50	293.41	188.34	430.48	386.87	180.89	516.23	100.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.68	28.49	23.38	16.30	30.05	29.71	65.23	35.70	34.97	53.57	36.52	25.95
Movement LOS	B	C	C	B	C	C	E	D	C	D	D	C
d_A, Approach Delay [s/veh]	26.41			28.58			39.37			38.83		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.03											
Intersection LOS	C											
Intersection V/C	0.726											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.808	2.675	2.866	3.003
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	491	891	927
d_b, Bicycle Delay [s]	30.56	31.31	16.91	15.82
I_b,int, Bicycle LOS Score for Intersection	2.483	2.216	2.408	2.827
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Berkeley Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.609

Intersection Setup

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	11	62	43	436	61	87	57	898	13	52	1418	430
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	62	43	436	61	87	57	898	13	52	1418	430
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	16	11	109	15	22	14	225	3	13	355	108
Total Analysis Volume [veh/h]	11	62	43	436	61	87	57	898	13	52	1418	430
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	3	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	6	6	0	0	6	6
Maximum Green [s]	0	30	0	30	30	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	10	0	58	68	0	10	42	0	0	32	32
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	20	0	0	20	0	0	21	21
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall		No		No	No		No	No			No	No
Maximum Recall		No		No	No		No	No			No	No
Pedestrian Recall		No		No	No		No	No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	6	6	18	28	74	74	74	65	65	87
g / C, Green / Cycle	0.05	0.05	0.05	0.16	0.25	0.68	0.68	0.68	0.59	0.59	0.79
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.02	0.12	0.08	0.03	0.25	0.25	0.03	0.37	0.24
s, saturation flow rate [veh/h]	1800	1900	1800	3500	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	66	101	96	568	453	864	1283	1216	901	2256	1426
d1, Uniform Delay [s]	49.61	50.97	50.51	44.12	33.56	5.99	7.70	7.68	9.36	14.50	3.12
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.17	5.83	3.23	2.22	0.42	0.03	0.81	0.84	0.12	1.34	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.61	0.45	0.77	0.33	0.07	0.37	0.36	0.06	0.63	0.30
d, Delay for Lane Group [s/veh]	50.78	56.80	53.75	46.35	33.97	6.02	8.50	8.53	9.48	15.84	3.24
Lane Group LOS	D	E	D	D	C	A	A	A	A	B	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.31	1.83	1.23	5.83	3.28	0.42	4.66	4.40	0.54	11.19	2.00
50th-Percentile Queue Length [ft]	7.75	45.85	30.85	145.87	81.90	10.53	116.55	110.03	13.51	279.68	49.99
95th-Percentile Queue Length [veh]	0.56	3.30	2.22	9.80	5.90	0.76	8.20	7.84	0.97	16.67	3.60
95th-Percentile Queue Length [ft]	13.94	82.53	55.53	244.91	147.42	18.95	205.08	196.04	24.32	416.81	89.99

Movement, Approach, & Intersection Results

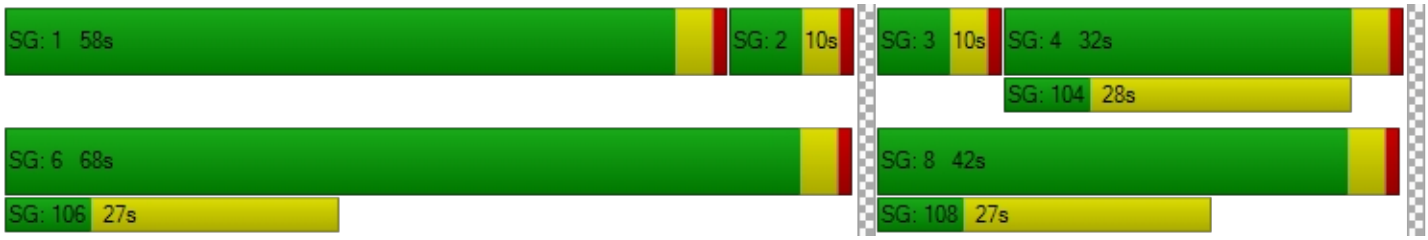
d_M, Delay for Movement [s/veh]	50.78	56.80	53.75	46.35	33.97	33.97	6.02	8.51	8.53	9.48	15.84	3.24
Movement LOS	D	E	D	D	C	C	A	A	A	A	B	A
d_A, Approach Delay [s/veh]	55.10			43.21			8.37			12.81		
Approach LOS	E			D			A			B		
d_I, Intersection Delay [s/veh]	17.96											
Intersection LOS	B											
Intersection V/C	0.609											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.274	2.466	2.809	0.000
Crosswalk LOS	B	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	109	1164	691	509
d_b, Bicycle Delay [s]	49.16	9.62	23.56	30.56
I_b,int, Bicycle LOS Score for Intersection	1.751	2.523	2.358	3.127
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Raymond Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	26.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

Intersection Setup

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	278	267	231	65	161	62	59	1076	133	188	1538	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	267	231	65	161	62	59	1076	133	188	1538	105
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	67	58	16	40	16	15	269	33	47	385	26
Total Analysis Volume [veh/h]	278	267	231	65	161	62	59	1076	133	188	1538	105
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	40	0	10	30	0	11	45	0	15	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	18	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	29	20	20	29	9	9	73	62	62	73	64	64
g / C, Green / Cycle	0.27	0.18	0.18	0.27	0.08	0.08	0.66	0.56	0.56	0.66	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.15	0.14	0.13	0.04	0.06	0.06	0.03	0.33	0.32	0.10	0.45	0.44
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	474	346	328	338	160	152	656	1068	1012	876	1099	1041
d1, Uniform Delay [s]	35.03	42.84	42.24	30.73	49.19	49.03	6.55	15.81	15.54	7.07	17.65	17.58
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.15	3.66	2.77	0.27	6.28	5.61	0.06	2.41	2.33	0.56	5.22	5.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.77	0.70	0.19	0.73	0.70	0.09	0.59	0.57	0.21	0.77	0.77
d, Delay for Lane Group [s/veh]	36.18	46.50	45.01	31.00	55.47	54.64	6.61	18.22	17.87	7.63	22.87	22.97
Lane Group LOS	D	D	D	C	E	D	A	B	B	A	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	6.58	7.22	6.11	1.34	3.42	3.06	0.47	10.62	9.55	1.70	16.82	15.85
50th-Percentile Queue Length [ft]	164.52	180.57	152.84	33.61	85.53	76.39	11.66	265.61	238.80	42.62	420.41	396.15
95th-Percentile Queue Length [veh]	10.79	11.63	10.17	2.42	6.16	5.50	0.84	15.97	14.62	3.07	23.54	22.37
95th-Percentile Queue Length [ft]	269.69	290.76	254.21	60.49	153.95	137.51	20.99	399.25	365.52	76.71	588.54	559.35

Movement, Approach, & Intersection Results

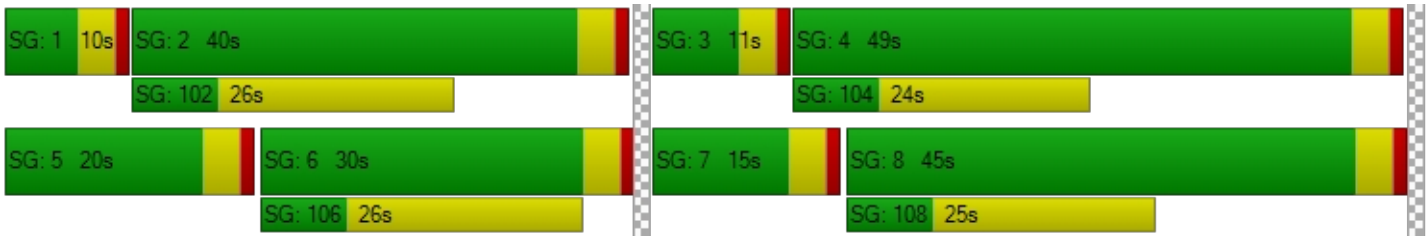
d_M, Delay for Movement [s/veh]	36.18	46.50	45.01	31.00	55.24	54.64	6.61	18.08	17.87	7.63	22.91	22.97
Movement LOS	D	D	D	C	E	D	A	B	B	A	C	C
d_A, Approach Delay [s/veh]	42.36			49.64			17.52			21.35		
Approach LOS	D			D			B			C		
d_I, Intersection Delay [s/veh]	26.06											
Intersection LOS	C											
Intersection V/C	0.771											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.710	2.366	2.963	2.953
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	655	473	745	818
d_b, Bicycle Delay [s]	24.89	32.07	21.64	19.20
I_b,int, Bicycle LOS Score for Intersection	2.840	1.797	2.606	3.070
Bicycle LOS	C	A	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Acacia Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.625

Intersection Setup

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	88	240	204	55	117	72	48	1247	92	111	1507	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	240	204	55	117	72	48	1247	92	111	1507	53
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	60	51	14	29	18	12	312	23	28	377	13
Total Analysis Volume [veh/h]	88	240	204	55	117	72	48	1247	92	111	1507	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	63	0	0	63	0	24	37	0	10	23	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	17	17	17	17	17	85	75	75	85	77	77
g / C, Green / Cycle	0.15	0.15	0.15	0.15	0.15	0.78	0.69	0.69	0.78	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.05	0.13	0.11	0.03	0.11	0.03	0.37	0.36	0.06	0.42	0.42
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	130	289	273	89	273	1075	1302	1234	1150	1323	1253
d1, Uniform Delay [s]	41.58	45.27	44.61	40.80	44.19	2.85	8.58	8.48	2.96	8.80	8.76
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.03	6.16	4.04	6.87	3.12	0.02	1.57	1.58	0.17	2.08	2.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.83	0.75	0.62	0.69	0.04	0.53	0.52	0.10	0.61	0.60
d, Delay for Lane Group [s/veh]	47.62	51.43	48.65	47.66	47.31	2.87	10.14	10.06	3.12	10.88	10.92
Lane Group LOS	D	D	D	D	D	A	B	B	A	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.35	6.82	5.60	1.48	5.10	0.20	7.91	7.28	0.52	9.65	9.09
50th-Percentile Queue Length [ft]	58.70	170.47	140.11	36.89	127.48	5.03	197.86	182.12	13.10	241.32	227.16
95th-Percentile Queue Length [veh]	4.23	11.10	9.49	2.66	8.80	0.36	12.53	11.71	0.94	14.75	14.03
95th-Percentile Queue Length [ft]	105.67	277.54	237.18	66.40	220.06	9.06	313.20	292.78	23.58	368.70	350.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.62	51.43	48.65	47.66	47.31	47.31	2.87	10.11	10.06	3.12	10.90	10.92
Movement LOS	D	D	D	D	D	D	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	49.73			47.39			9.85			10.38		
Approach LOS	D			D			A			B		
d_I, Intersection Delay [s/veh]	18.01											
Intersection LOS	B											
Intersection V/C	0.625											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.459	2.189	3.030	3.007
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1073	1073	600	345
d_b, Bicycle Delay [s]	11.82	11.82	26.95	37.64
I_b,int, Bicycle LOS Score for Intersection	2.437	1.962	2.704	2.938
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 11: State College Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	35.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.814

Intersection Setup

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	81	399	68	311	385	541	437	865	50	123	1044	274
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	399	68	311	385	541	437	865	50	123	1044	274
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	100	17	78	96	135	109	216	13	31	261	69
Total Analysis Volume [veh/h]	81	399	68	311	385	541	437	865	50	123	1044	274
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						3,6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	6	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	34	0	15	38	38	20	44	0	17	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	26	26	0	23	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	34	34	11	38	58	16	40	40	9	33	33
g / C, Green / Cycle	0.06	0.30	0.30	0.10	0.35	0.53	0.15	0.37	0.37	0.08	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.04	0.09	0.10	0.30	0.12	0.23	0.03	0.07	0.27	0.15
s, saturation flow rate [veh/h]	1800	3800	1800	3500	3800	1800	3500	3800	1800	1800	3800	1800
c, Capacity [veh/h]	105	1157	548	352	1318	952	510	1387	657	153	1155	547
d1, Uniform Delay [s]	51.13	29.76	27.68	48.88	26.14	17.46	45.90	28.75	22.84	49.49	36.79	31.47
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.37	0.82	0.46	7.34	0.56	2.46	4.26	0.46	0.05	9.55	2.97	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.34	0.12	0.88	0.29	0.57	0.86	0.62	0.08	0.81	0.90	0.50
d, Delay for Lane Group [s/veh]	62.49	30.58	28.14	56.22	26.70	19.92	50.16	29.21	22.89	59.04	39.76	32.18
Lane Group LOS	E	C	C	E	C	B	D	C	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.53	4.23	1.37	4.56	3.76	9.55	6.10	9.34	0.86	3.72	13.71	6.05
50th-Percentile Queue Length [ft]	63.23	105.67	34.23	114.02	94.01	238.82	152.57	233.48	21.46	92.98	342.83	151.30
95th-Percentile Queue Length [veh]	4.55	7.60	2.46	8.06	6.77	14.62	10.15	14.35	1.55	6.69	19.79	10.09
95th-Percentile Queue Length [ft]	113.81	189.96	61.61	201.58	169.21	365.55	253.85	358.77	38.63	167.36	494.66	252.16

Movement, Approach, & Intersection Results

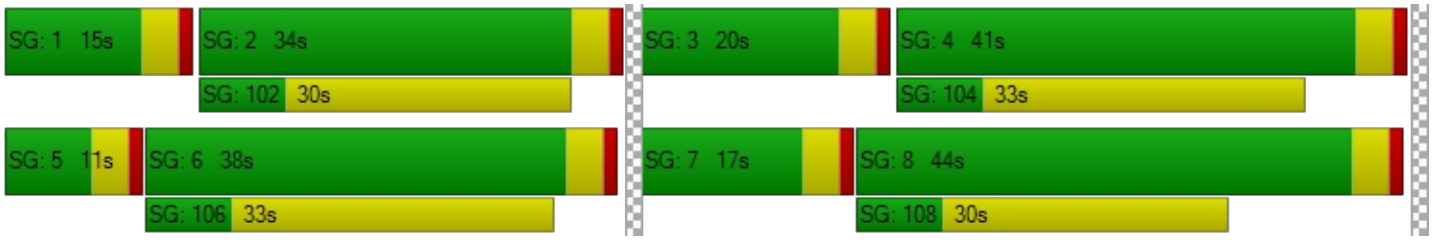
d_M, Delay for Movement [s/veh]	62.49	30.58	28.14	56.22	26.70	19.92	50.16	29.21	22.89	59.04	39.76	32.18
Movement LOS	E	C	C	E	C	B	D	C	C	E	D	C
d_A, Approach Delay [s/veh]	34.99			31.16			35.75			39.96		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.74											
Intersection LOS	D											
Intersection V/C	0.814											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.642	2.930	3.024	2.899
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	618	727	673
d_b, Bicycle Delay [s]	29.09	26.25	22.27	24.22
I_b,int, Bicycle LOS Score for Intersection	2.012	2.580	2.675	2.748
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.637

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	118	173	205	0	1009	515	205	1543	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	118	173	205	0	1009	515	205	1543	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	30	43	51	0	252	129	51	386	0
Total Analysis Volume [veh/h]	0	0	0	118	173	205	0	1009	515	205	1543	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	69	0	0	31	0	10	41	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		21	21	63	63	15	81
g / C, Green / Cycle		0.19	0.19	0.57	0.57	0.13	0.74
(v / s)_i Volume / Saturation Flow Rate		0.16	0.11	0.27	0.29	0.11	0.41
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		335	335	2170	1028	240	2815
d1, Uniform Delay [s]		43.42	41.08	13.78	14.18	46.58	6.21
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		6.82	1.80	0.72	1.75	8.32	0.77
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.87	0.61	0.47	0.50	0.85	0.55
d, Delay for Lane Group [s/veh]		50.24	42.88	14.50	15.92	54.90	6.99
Lane Group LOS		D	D	B	B	D	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]		8.26	5.25	7.24	7.87	6.01	6.84
50th-Percentile Queue Length [ft]		206.55	131.28	181.00	196.86	150.31	171.00
95th-Percentile Queue Length [veh]		12.98	9.01	11.65	12.48	10.03	11.13
95th-Percentile Queue Length [ft]		324.40	225.23	291.31	311.91	250.84	278.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	50.24	50.24	42.88	0.00	14.50	15.92	54.90	6.99	0.00
Movement LOS				D	D	D		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			47.20			14.98			12.61		
Approach LOS	A			D			B			B		
d_I, Intersection Delay [s/veh]	18.12											
Intersection LOS	B											
Intersection V/C	0.637											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.304	1.966	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1182	491	673
d_b, Bicycle Delay [s]	55.00	9.20	31.31	24.22
I_b,int, Bicycle LOS Score for Intersection	4.132	2.378	2.398	3.002
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.760

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	618	0	486	0	0	0	144	968	0	0	1212	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	618	0	486	0	0	0	144	968	0	0	1212	203
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	155	0	122	0	0	0	36	242	0	0	303	51
Total Analysis Volume [veh/h]	618	0	486	0	0	0	144	968	0	0	1212	203
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	81	0	0	0	0	0	10	29	0	0	19	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	27		11	75	61	61
g / C, Green / Cycle	0.24	0.24	0.24		0.10	0.69	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.20	0.20	0.20		0.08	0.25	0.37	0.39
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	435	435	435		177	2605	1046	991
d1, Uniform Delay [s]	39.74	39.74	39.74		48.56	7.30	17.69	18.30
k, delay calibration	0.11	0.11	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.60	4.60	4.60		8.57	0.41	3.51	4.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.85	0.85		0.81	0.37	0.68	0.71
d, Delay for Lane Group [s/veh]	44.34	44.34	44.34		57.13	7.70	21.20	22.68
Lane Group LOS	D	D	D		E	A	C	C
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	9.94	9.94	9.94		4.28	4.52	13.25	13.85
50th-Percentile Queue Length [ft]	248.41	248.41	248.41		107.05	112.89	331.13	346.21
95th-Percentile Queue Length [veh]	15.11	15.11	15.11		7.68	8.00	19.21	19.95
95th-Percentile Queue Length [ft]	377.65	377.65	377.65		191.89	200.02	480.35	498.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.34	0.00	44.34	0.00	0.00	0.00	57.13	7.70	0.00	0.00	21.82	22.68
Movement LOS	D		D				E	A			C	C
d_A, Approach Delay [s/veh]	44.34			0.00			14.10			21.94		
Approach LOS	D			A			B			C		
d_I, Intersection Delay [s/veh]	26.35											
Intersection LOS	C											
Intersection V/C	0.760											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.309	1.771	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	455	273
d_b, Bicycle Delay [s]	55.00	55.00	32.84	41.02
I_b,int, Bicycle LOS Score for Intersection	5.954	4.132	2.477	2.727
Bicycle LOS	F	D	B	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 14: Lemon Street at Wilshire Avenue

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.486

Intersection Setup

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Base Volume Input [veh/h]	46	1089	81	57	880	46	19	44	49	100	52	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	1089	81	57	880	46	19	44	49	100	52	84
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	272	20	14	220	12	5	11	12	25	13	21
Total Analysis Volume [veh/h]	46	1089	81	57	880	46	19	44	49	100	52	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	50	0	0	50	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	85	85	85	85	85	85	16	16
g / C, Green / Cycle	0.78	0.78	0.78	0.78	0.78	0.78	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.31	0.03	0.25	0.25	0.06	0.13
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1278	1478	1400	1224	1478	1400	307	316
d1, Uniform Delay [s]	2.78	3.99	3.94	2.80	3.63	3.61	42.31	45.66
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.85	0.86	0.07	0.58	0.60	0.72	3.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.41	0.40	0.05	0.32	0.32	0.36	0.75
d, Delay for Lane Group [s/veh]	2.83	4.83	4.80	2.87	4.21	4.21	43.03	49.20
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.20	3.84	3.53	0.25	2.75	2.56	2.81	6.57
50th-Percentile Queue Length [ft]	5.08	96.09	88.35	6.37	68.76	63.89	70.37	164.28
95th-Percentile Queue Length [veh]	0.37	6.92	6.36	0.46	4.95	4.60	5.07	10.78
95th-Percentile Queue Length [ft]	9.15	172.96	159.03	11.46	123.77	114.99	126.67	269.39

Movement, Approach, & Intersection Results

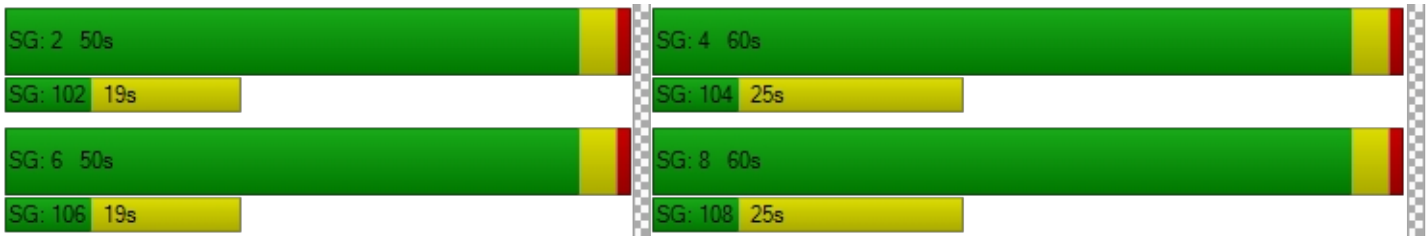
d_M, Delay for Movement [s/veh]	2.83	4.82	4.80	2.87	4.21	4.21	43.03	43.03	43.03	49.20	49.20	49.20
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.74			4.13			43.03			49.20		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.31											
Intersection LOS	B											
Intersection V/C	0.486											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.889	2.761	1.915	2.009
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	1018	1018
d_b, Bicycle Delay [s]	18.62	18.62	13.25	13.25
I_b,int, Bicycle LOS Score for Intersection	2.563	2.371	1.744	1.949
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Harbor Boulevard at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	112	1048	196	48	1011	100	129	596	115	218	743	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	1048	196	48	1011	100	129	596	115	218	743	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	262	49	12	253	25	32	149	29	55	186	18
Total Analysis Volume [veh/h]	112	1048	196	48	1011	100	129	596	115	218	743	70
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	57	0	10	57	0	11	33	0	10	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	20	0	0	22	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	47	38	38	47	37	37	55	41	41	55	45	45
g / C, Green / Cycle	0.43	0.35	0.35	0.43	0.34	0.34	0.50	0.37	0.37	0.50	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.11	0.03	0.30	0.30	0.07	0.16	0.06	0.12	0.20	0.04
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	1800	3800	1800
c, Capacity [veh/h]	343	1326	628	417	640	606	728	1411	669	782	1535	727
d1, Uniform Delay [s]	19.20	32.23	26.19	18.49	34.84	34.38	14.87	25.80	23.24	15.71	24.30	20.34
k, delay calibration	0.11	0.11	0.11	0.11	0.20	0.18	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	1.09	0.28	0.12	8.76	6.85	0.11	0.93	0.56	0.89	1.09	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.79	0.31	0.12	0.91	0.88	0.18	0.42	0.17	0.28	0.48	0.10
d, Delay for Lane Group [s/veh]	19.74	33.32	26.47	18.62	43.60	41.22	14.99	26.73	23.80	16.60	25.40	20.60
Lane Group LOS	B	C	C	B	D	D	B	C	C	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.80	12.52	3.79	0.73	16.05	14.28	1.75	5.94	2.11	3.27	7.30	1.17
50th-Percentile Queue Length [ft]	44.94	312.96	94.83	18.37	401.34	357.08	43.69	148.61	52.66	81.77	182.49	29.19
95th-Percentile Queue Length [veh]	3.24	18.32	6.83	1.32	22.62	20.48	3.15	9.94	3.79	5.89	11.73	2.10
95th-Percentile Queue Length [ft]	80.90	458.02	170.69	33.06	565.61	512.03	78.65	248.57	94.80	147.19	293.26	52.55

Movement, Approach, & Intersection Results

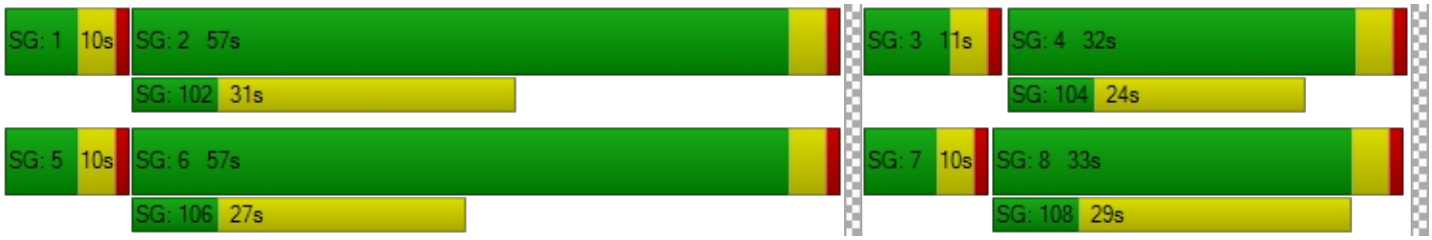
d_M, Delay for Movement [s/veh]	19.74	33.32	26.47	18.62	42.58	41.22	14.99	26.73	23.80	16.60	25.40	20.60
Movement LOS	B	C	C	B	D	D	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	31.21			41.47			24.52			23.21		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	30.76											
Intersection LOS	C											
Intersection V/C	0.681											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.022	2.856	2.811	2.792
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	964	964	527	509
d_b, Bicycle Delay [s]	14.77	14.77	29.82	30.56
I_b,int, Bicycle LOS Score for Intersection	2.678	2.516	2.253	2.410
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Lemon Street at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	33.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

Intersection Setup

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	141	996	211	46	800	91	116	639	97	351	816	85
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	996	211	46	800	91	116	639	97	351	816	85
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	249	53	12	200	23	29	160	24	88	204	21
Total Analysis Volume [veh/h]	141	996	211	46	800	91	116	639	97	351	816	85
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	36	0	34	60	0	10	30	0	10	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	42	34	34	42	32	32	9	42	42	14	47	47
g / C, Green / Cycle	0.38	0.30	0.30	0.38	0.29	0.29	0.08	0.38	0.38	0.12	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.08	0.26	0.12	0.03	0.25	0.24	0.06	0.17	0.05	0.10	0.21	0.05
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	3500	3800	1800
c, Capacity [veh/h]	377	1159	549	343	554	525	147	1456	690	436	1618	766
d1, Uniform Delay [s]	22.71	36.04	30.12	21.48	36.58	36.15	49.62	25.19	22.14	46.90	23.11	19.05
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.61	1.99	0.44	0.18	3.52	3.04	8.99	0.96	0.43	3.56	1.13	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.86	0.38	0.13	0.84	0.81	0.79	0.44	0.14	0.81	0.50	0.11
d, Delay for Lane Group [s/veh]	23.32	38.03	30.57	21.65	40.10	39.19	58.61	26.15	22.57	50.47	24.24	19.34
Lane Group LOS	C	D	C	C	D	D	E	C	C	D	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.51	12.72	4.46	0.77	12.13	10.90	3.49	6.32	1.72	4.87	7.86	1.37
50th-Percentile Queue Length [ft]	62.75	317.96	111.46	19.28	303.18	272.43	87.30	158.00	42.92	121.87	196.45	34.20
95th-Percentile Queue Length [veh]	4.52	18.57	7.92	1.39	17.84	16.31	6.29	10.44	3.09	8.50	12.46	2.46
95th-Percentile Queue Length [ft]	112.94	464.17	198.02	34.71	445.96	407.78	157.13	261.07	77.25	212.40	311.39	61.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.32	38.03	30.57	21.65	39.72	39.19	58.61	26.15	22.57	50.47	24.24	19.34
Movement LOS	C	D	C	C	D	D	E	C	C	D	C	B
d_A, Approach Delay [s/veh]	35.32			38.78			30.16			31.26		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	33.90											
Intersection LOS	C											
Intersection V/C	0.677											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.884	2.726	2.833	2.924
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	582	1018	473	473
d_b, Bicycle Delay [s]	27.65	13.25	32.07	32.07
I_b,int, Bicycle LOS Score for Intersection	2.672	2.333	2.263	2.593
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: Harbor Boulevard at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.983

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	59	1323	50	22	46	1380	60	114	86	67	131	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	1323	50	22	46	1380	60	114	86	67	131	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	331	13	6	12	345	15	29	22	17	33	4
Total Analysis Volume [veh/h]	59	1323	50	22	46	1380	60	114	86	67	131	15
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	79	0	0	79	0	0	31	0	0	31	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	11	0	0	20	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	84	84	18	18	18
g / C, Green / Cycle	0.76	0.76	0.76	0.76	0.76	0.76	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.37	0.37	0.01	0.02	0.77	0.14	0.04	0.08
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800	1800
c, Capacity [veh/h]	72	1454	1377	1145	1454	1377	332	74	291
d1, Uniform Delay [s]	3.12	4.82	4.79	3.06	3.10	12.87	45.03	40.02	41.93
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	63.64	1.17	1.21	0.03	0.04	24.69	4.09	28.70	1.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.49	0.48	0.02	0.03	1.00	0.78	0.90	0.50
d, Delay for Lane Group [s/veh]	66.76	5.99	6.00	3.09	3.14	37.56	49.12	68.72	43.26
Lane Group LOS	E	A	A	A	A	F	D	E	D
Critical Lane Group	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.53	5.32	4.98	0.11	0.22	34.62	7.27	2.17	3.71
50th-Percentile Queue Length [ft]	38.36	133.02	124.54	2.63	5.46	865.54	181.67	54.29	92.76
95th-Percentile Queue Length [veh]	2.76	9.10	8.64	0.19	0.39	44.35	11.69	3.91	6.68
95th-Percentile Queue Length [ft]	69.05	227.59	216.06	4.74	9.84	1108.74	292.19	97.72	166.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.76	5.99	6.00	3.09	3.14	37.56	49.12	49.12	49.12	68.72	43.26	43.26
Movement LOS	E	A	A	A	A	F	D	D	D	E	D	D
d_A, Approach Delay [s/veh]	8.50			35.94			49.12			51.27		
Approach LOS	A			D			D			D		
d_I, Intersection Delay [s/veh]	26.22											
Intersection LOS	C											
Intersection V/C	0.983											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.723	2.950	2.700	2.111
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1364	1364	491	491
d_b, Bicycle Delay [s]	5.57	5.57	31.31	31.31
I_b,int, Bicycle LOS Score for Intersection	2.741	2.754	1.989	1.911
Bicycle LOS	B	C	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 18: Lemon Street at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.521

Intersection Setup

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	124	1285	75	55	1189	67	73	39	92	99	51	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	1285	75	55	1189	67	73	39	92	99	51	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	321	19	14	297	17	18	10	23	25	13	12
Total Analysis Volume [veh/h]	124	1285	75	55	1189	67	73	39	92	99	51	46
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	50	0	0	50	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	11	0	0	11	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	87	87	87	87	87	87	15	15
g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.79	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.07	0.37	0.36	0.03	0.34	0.34	0.11	0.11
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1260	1511	1431	1235	1511	1431	282	287
d1, Uniform Delay [s]	2.48	3.66	3.63	2.38	3.51	3.48	46.65	46.42
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.16	1.03	1.06	0.07	0.90	0.92	3.49	2.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.47	0.46	0.04	0.43	0.42	0.72	0.68
d, Delay for Lane Group [s/veh]	2.63	4.70	4.69	2.45	4.41	4.40	50.14	49.27
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.50	4.21	3.92	0.22	3.72	3.45	5.70	5.42
50th-Percentile Queue Length [ft]	12.62	105.21	97.93	5.38	92.97	86.28	142.62	135.50
95th-Percentile Queue Length [veh]	0.91	7.57	7.05	0.39	6.69	6.21	9.62	9.24
95th-Percentile Queue Length [ft]	22.71	189.32	176.27	9.68	167.35	155.31	240.55	230.95

Movement, Approach, & Intersection Results

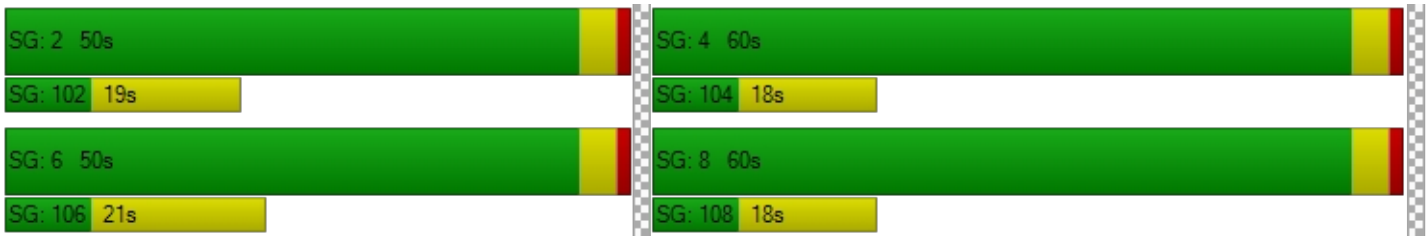
d_M, Delay for Movement [s/veh]	2.63	4.70	4.69	2.45	4.40	4.40	50.14	50.14	50.14	49.27	49.27	49.27
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.52			4.32			50.14			49.27		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.10											
Intersection LOS	B											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.009	2.943	2.118	1.981
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	1018	1018
d_b, Bicycle Delay [s]	18.62	18.62	13.25	13.25
I_b,int, Bicycle LOS Score for Intersection	2.784	2.641	1.896	1.883
Bicycle LOS	C	B	A	A

Sequence

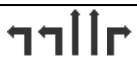
Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Harbor Boulevard at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	38.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.790

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	278	1261	228	190	1147	191	188	740	197	213	1051	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	1261	228	190	1147	191	188	740	197	213	1051	165
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	315	57	48	287	48	47	185	49	53	263	41
Total Analysis Volume [veh/h]	278	1261	228	190	1147	191	188	740	197	213	1051	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	42	0	11	39	0	18	39	0	18	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	27	0	0	28	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	38	38	7	35	35	13	35	35	14	36	36
g / C, Green / Cycle	0.09	0.34	0.34	0.06	0.32	0.32	0.12	0.32	0.32	0.13	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.08	0.33	0.13	0.05	0.29	0.13	0.10	0.13	0.11	0.12	0.18	0.09
s, saturation flow rate [veh/h]	3500	3800	1800	3500	3800	1800	1800	5700	1800	1800	5700	1800
c, Capacity [veh/h]	318	1310	620	223	1206	571	217	1806	570	233	1856	586
d1, Uniform Delay [s]	49.38	35.36	27.05	50.99	36.05	29.57	47.48	29.49	28.82	47.29	30.68	27.55
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.46	5.74	0.36	8.91	3.06	0.49	9.87	0.69	1.66	13.32	1.26	1.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.96	0.37	0.85	0.91	0.42	0.87	0.41	0.35	0.91	0.57	0.28
d, Delay for Lane Group [s/veh]	56.84	41.10	27.41	59.90	39.11	30.06	57.35	30.18	30.47	60.61	31.94	28.75
Lane Group LOS	E	D	C	E	D	C	E	C	C	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	4.09	17.22	4.54	2.86	14.39	5.05	5.63	5.21	4.24	6.60	7.83	3.42
50th-Percentile Queue Length [ft]	102.22	430.39	113.42	71.50	359.86	126.14	140.77	130.25	105.95	164.91	195.77	85.39
95th-Percentile Queue Length [veh]	7.36	24.02	8.03	5.15	20.62	8.73	9.52	8.95	7.61	10.81	12.42	6.15
95th-Percentile Queue Length [ft]	183.99	600.50	200.75	128.70	515.42	218.24	238.05	223.83	190.35	270.21	310.50	153.69

Movement, Approach, & Intersection Results

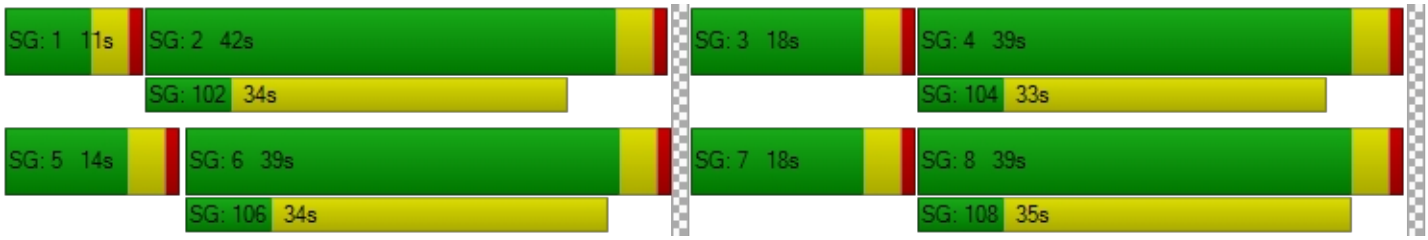
d_M, Delay for Movement [s/veh]	56.84	41.10	27.41	59.90	38.73	30.06	57.35	30.18	30.47	60.61	31.94	28.75
Movement LOS	E	D	C	E	D	C	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	41.81			40.28			34.77			35.84		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	38.60											
Intersection LOS	D											
Intersection V/C	0.790											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.140	3.041	3.057	3.050
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	636	636	636
d_b, Bicycle Delay [s]	23.56	25.57	25.57	25.57
I_b,int, Bicycle LOS Score for Intersection	3.017	2.400	2.178	2.346
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Lemon Street at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	38.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.882

Intersection Setup

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	242	1193	101	187	1000	188	208	705	143	253	797	137
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	242	1193	101	187	1000	188	208	705	143	253	797	137
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	298	25	47	250	47	52	176	36	63	199	34
Total Analysis Volume [veh/h]	242	1193	101	187	1000	188	208	705	143	253	797	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	45	0	15	42	0	16	35	0	15	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	25	0	0	20	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	51	38	38	51	36	36	15	37	37	10	32	32
g / C, Green / Cycle	0.47	0.35	0.35	0.47	0.33	0.33	0.13	0.33	0.33	0.09	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.13	0.31	0.06	0.10	0.26	0.10	0.12	0.18	0.08	0.07	0.26	0.25
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3800	1800	1800	3800	1800	3500	1900	1800
c, Capacity [veh/h]	496	1326	628	394	1242	588	239	1262	598	323	554	525
d1, Uniform Delay [s]	18.09	34.00	24.71	17.47	33.83	27.84	46.82	30.08	26.79	48.86	37.23	36.60
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.74	2.50	0.12	0.89	1.27	0.31	9.52	1.75	1.01	4.16	18.58	15.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.90	0.16	0.47	0.81	0.32	0.87	0.55	0.25	0.78	0.89	0.84
d, Delay for Lane Group [s/veh]	18.83	36.50	24.83	18.36	35.11	28.15	56.33	31.83	27.80	53.02	55.81	51.72
Lane Group LOS	B	D	C	B	D	C	E	C	C	D	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.85	15.25	1.84	2.90	12.22	3.76	6.19	7.80	3.04	3.58	15.29	13.21
50th-Percentile Queue Length [ft]	96.37	381.16	46.01	72.44	305.39	94.04	154.71	194.89	76.02	89.41	382.33	330.29
95th-Percentile Queue Length [veh]	6.94	21.65	3.31	5.22	17.95	6.77	10.27	12.37	5.47	6.44	21.71	19.17
95th-Percentile Queue Length [ft]	173.46	541.26	82.82	130.40	448.69	169.28	256.70	309.36	136.84	160.94	542.67	479.31

Movement, Approach, & Intersection Results

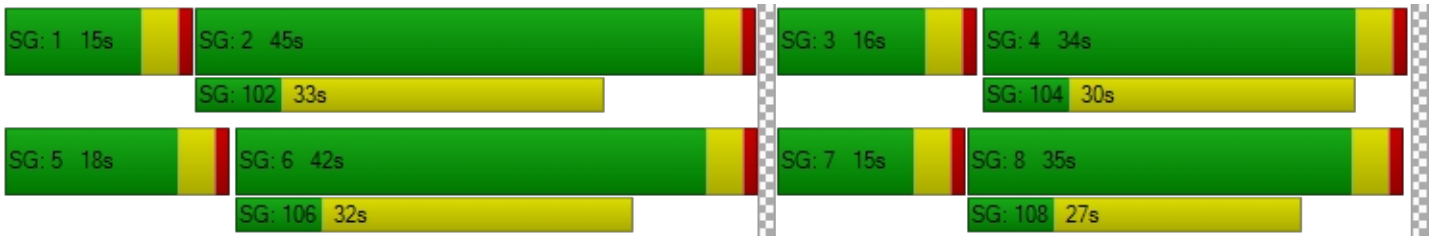
d_M, Delay for Movement [s/veh]	18.83	36.50	24.83	18.36	35.11	28.15	56.33	31.79	27.80	53.02	54.24	51.72
Movement LOS	B	D	C	B	D	C	E	C	C	D	D	D
d_A, Approach Delay [s/veh]	32.95			31.88			36.08			53.69		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	38.08											
Intersection LOS	D											
Intersection V/C	0.882											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.939	2.936	2.952	3.005
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	745	691	564	545
d_b, Bicycle Delay [s]	21.64	23.56	28.37	29.09
I_b,int, Bicycle LOS Score for Intersection	2.827	2.694	2.140	2.539
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	77	1892	0	0	1383	510	0	0	0	306	378	360
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	1892	0	0	1383	510	0	0	0	306	378	360
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	473	0	0	346	128	0	0	0	77	95	90
Total Analysis Volume [veh/h]	77	1892	0	0	1383	510	0	0	0	306	378	360
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	0	22	0	0	0	0	0	68	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	68	59	59		24	24	24
g / C, Green / Cycle	0.05	0.68	0.59	0.59		0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.02	0.33	0.33	0.35		0.17	0.10	0.20
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	189	3887	2235	1059		428	904	428
d1, Uniform Delay [s]	45.77	7.57	12.70	13.06		34.98	32.24	36.29
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.41	0.44	1.04	2.48		2.23	0.31	4.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.49	0.56	0.60		0.71	0.42	0.84
d, Delay for Lane Group [s/veh]	47.18	8.01	13.74	15.54		37.21	32.55	40.78
Lane Group LOS	D	A	B	B		D	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	0.96	5.77	8.40	9.03		7.01	3.88	8.76
50th-Percentile Queue Length [ft]	23.97	144.36	209.88	225.75		175.15	96.90	219.05
95th-Percentile Queue Length [veh]	1.73	9.72	13.15	13.96		11.35	6.98	13.62
95th-Percentile Queue Length [ft]	43.14	242.88	328.68	348.96		283.67	174.42	340.42

Movement, Approach, & Intersection Results

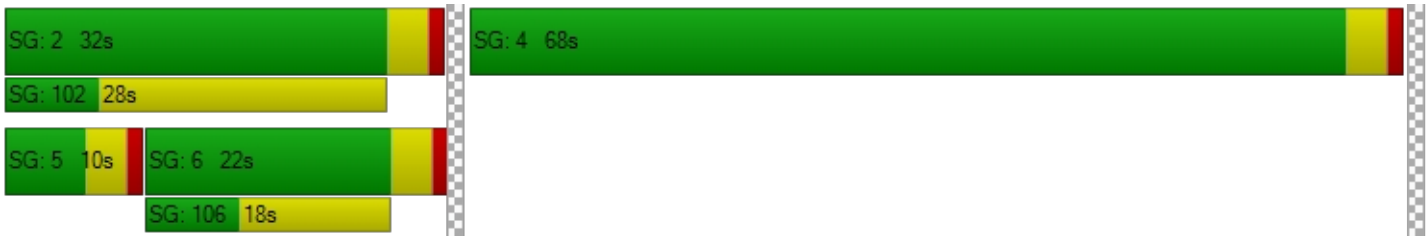
d_M, Delay for Movement [s/veh]	47.18	8.01	0.00	0.00	13.90	15.54	0.00	0.00	0.00	37.21	32.55	40.78
Movement LOS	D	A			B	B				D	C	D
d_A, Approach Delay [s/veh]	9.54			14.34			0.00			36.75		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	17.18											
Intersection LOS	B											
Intersection V/C	0.651											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.190	2.390
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	360	0	1280
d_b, Bicycle Delay [s]	25.92	33.62	50.00	6.48
I_b,int, Bicycle LOS Score for Intersection	2.643	2.601	4.132	2.421
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.774

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	101	1199	0	0	1210	334	0	0	0	166	564	611
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	101	1199	0	0	1210	334	0	0	0	166	564	611
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	300	0	0	303	84	0	0	0	42	141	153
Total Analysis Volume [veh/h]	101	1199	0	0	1210	334	0	0	0	166	564	611
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	11	46	0	0	35	0	0	0	0	0	54	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	7	54	43	43		38	38	38
g / C, Green / Cycle	0.07	0.54	0.43	0.43		0.38	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.27	0.29		0.20	0.19	0.34
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	127	3096	1643	778		678	716	678
d1, Uniform Delay [s]	45.74	13.21	22.10	22.56		24.42	23.98	29.40
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.48	0.37	1.82	4.39		0.68	0.55	9.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.39	0.63	0.66		0.54	0.50	0.90
d, Delay for Lane Group [s/veh]	56.22	13.58	23.91	26.95		25.11	24.53	38.52
Lane Group LOS	E	B	C	C		C	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	2.83	5.07	9.50	10.23		6.82	6.54	15.06
50th-Percentile Queue Length [ft]	70.64	126.70	237.52	255.66		170.54	163.57	376.59
95th-Percentile Queue Length [veh]	5.09	8.76	14.56	15.47		11.11	10.74	21.43
95th-Percentile Queue Length [ft]	127.15	219.00	363.90	386.77		277.63	268.44	535.71

Movement, Approach, & Intersection Results

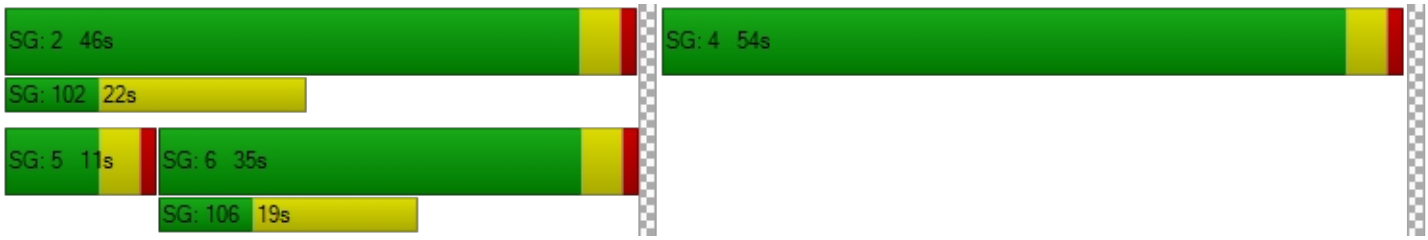
d_M, Delay for Movement [s/veh]	56.22	13.58	0.00	0.00	24.37	26.95	0.00	0.00	0.00	25.11	24.74	38.52
Movement LOS	E	B			C	C				C	C	D
d_A, Approach Delay [s/veh]	16.89			24.93			0.00			31.06		
Approach LOS	B			C			A			C		
d_I, Intersection Delay [s/veh]	24.40											
Intersection LOS	C											
Intersection V/C	0.774											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.207	2.381
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	840	620	0	1000
d_b, Bicycle Delay [s]	16.82	23.81	50.00	12.50
I_b,int, Bicycle LOS Score for Intersection	2.275	2.409	4.132	2.666
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1336	212	271	1466	0	696	287	144	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1336	212	271	1466	0	696	287	144	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	334	53	68	367	0	174	72	36	0	0	0
Total Analysis Volume [veh/h]	0	1336	212	271	1466	0	696	287	144	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	32	0	14	46	0	0	54	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	54	54	10	68	24	24	24	
g / C, Green / Cycle	0.54	0.54	0.10	0.68	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.23	0.12	0.08	0.26	0.20	0.15	0.08	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	3088	975	338	3867	846	459	435	
d1, Uniform Delay [s]	13.72	11.90	44.23	6.96	35.90	33.88	31.26	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.44	0.51	4.41	0.28	2.08	1.40	0.44	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.43	0.22	0.80	0.38	0.82	0.63	0.33	
d, Delay for Lane Group [s/veh]	14.16	12.42	48.64	7.25	37.98	35.28	31.70	
Lane Group LOS	B	B	D	A	D	D	C	
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.85	2.50	3.47	4.08	8.14	6.33	2.90	
50th-Percentile Queue Length [ft]	146.24	62.57	86.76	102.04	203.58	158.14	72.49	
95th-Percentile Queue Length [veh]	9.82	4.51	6.25	7.35	12.82	10.45	5.22	
95th-Percentile Queue Length [ft]	245.40	112.63	156.17	183.67	320.57	261.26	130.47	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	14.16	12.42	48.64	7.25	0.00	37.98	35.28	31.70	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	C			
d_A, Approach Delay [s/veh]	13.92			13.71			36.49			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.60											
Intersection LOS	B											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.411	2.095
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	840	1000	0
d_b, Bicycle Delay [s]	25.92	16.82	12.50	50.00
I_b,int, Bicycle LOS Score for Intersection	2.411	2.515	3.419	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.611

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	979	208	406	938	0	316	412	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	979	208	406	938	0	316	412	57	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	245	52	102	235	0	79	103	14	0	0	0
Total Analysis Volume [veh/h]	0	979	208	406	938	0	316	412	57	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	24	47	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	51	51	14	69	23	23	23	
g / C, Green / Cycle	0.51	0.51	0.14	0.69	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.21	0.22	0.12	0.25	0.20	0.19	0.03	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1924	912	491	2609	420	444	420	
d1, Uniform Delay [s]	15.39	15.62	41.82	6.52	36.83	36.35	30.34	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.65	1.51	3.64	0.39	5.48	3.84	0.15	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.41	0.43	0.83	0.36	0.87	0.82	0.14	
d, Delay for Lane Group [s/veh]	16.04	17.12	45.46	6.91	42.30	40.18	30.49	
Lane Group LOS	B	B	D	A	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.58	5.87	5.07	3.77	9.04	8.77	1.10	
50th-Percentile Queue Length [ft]	139.57	146.75	126.79	94.15	225.89	219.14	27.52	
95th-Percentile Queue Length [veh]	9.46	9.84	8.76	6.78	13.97	13.62	1.98	
95th-Percentile Queue Length [ft]	236.44	246.09	219.12	169.47	349.14	340.53	49.53	

Movement, Approach, & Intersection Results

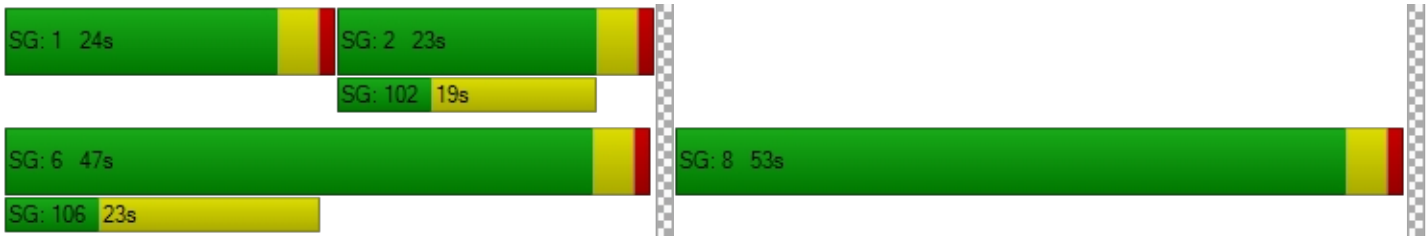
d_M, Delay for Movement [s/veh]	0.00	16.25	17.12	45.46	6.91	0.00	42.30	40.43	30.49	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	C			
d_A, Approach Delay [s/veh]	16.40			18.55			40.46			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	22.97											
Intersection LOS	C											
Intersection V/C	0.611											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.200	2.220
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	860	980	0
d_b, Bicycle Delay [s]	32.81	16.25	13.01	50.00
I_b,int, Bicycle LOS Score for Intersection	2.212	2.668	2.207	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Harbor Boulevard at Bastanchury Road

Control Type:	Signalized	Delay (sec / veh):	57.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.801

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Base Volume Input [veh/h]	296	1280	212	333	976	391	281	1255	171	191	1119	330
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	296	1280	212	333	976	391	281	1255	171	191	1119	330
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	320	53	83	244	98	70	314	43	48	280	83
Total Analysis Volume [veh/h]	296	1280	212	333	976	391	281	1255	171	191	1119	330
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	42	0	11	38	0	15	45	0	12	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	24	0	0	31	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	46	46	7	42	42	11	33	33	8	30	30
g / C, Green / Cycle	0.10	0.42	0.42	0.06	0.38	0.38	0.10	0.30	0.30	0.07	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.08	0.22	0.12	0.10	0.25	0.24	0.16	0.25	0.26	0.05	0.20	0.18
s, saturation flow rate [veh/h]	3500	5700	1800	3500	3800	1800	1800	3800	1800	3500	5700	1800
c, Capacity [veh/h]	354	2376	750	228	1447	686	182	1139	539	256	1548	489
d1, Uniform Delay [s]	48.63	24.16	21.24	51.51	28.07	27.68	49.53	36.09	36.63	50.07	36.37	35.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.14	0.11	0.25	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.23	0.88	0.94	212.44	2.27	4.22	251.92	1.73	9.76	4.30	0.65	1.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.54	0.28	1.46	0.65	0.62	1.54	0.84	0.87	0.75	0.72	0.67
d, Delay for Lane Group [s/veh]	53.86	25.04	22.18	263.96	30.34	31.91	301.45	37.81	46.39	54.37	37.03	37.53
Lane Group LOS	D	C	C	F	C	C	F	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	4.24	8.40	3.78	9.87	10.46	9.76	17.73	12.08	13.31	2.73	9.09	8.07
50th-Percentile Queue Length [ft]	105.95	209.97	94.49	246.65	261.61	244.09	443.27	301.95	332.81	68.18	227.35	201.81
95th-Percentile Queue Length [veh]	7.61	13.15	6.80	16.64	15.77	14.89	28.36	17.78	19.30	4.91	14.04	12.73
95th-Percentile Queue Length [ft]	190.36	328.79	170.09	416.00	394.24	372.21	708.90	444.44	482.40	122.73	350.99	318.30

Movement, Approach, & Intersection Results

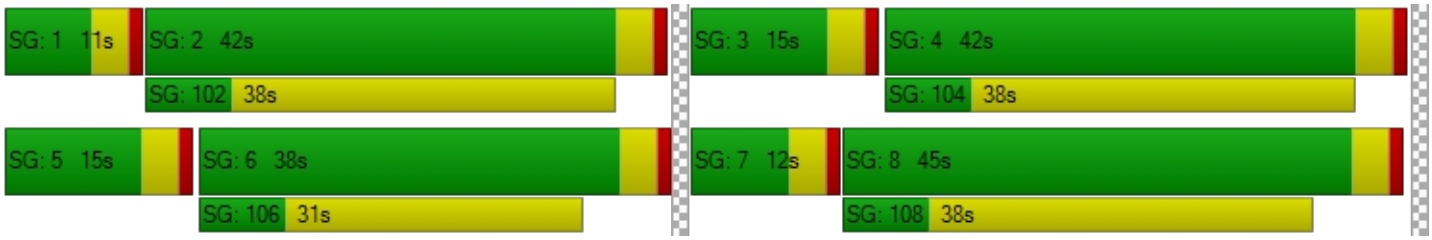
d_M, Delay for Movement [s/veh]	53.86	25.04	22.18	263.96	30.40	31.91	301.45	39.87	46.39	54.37	37.03	37.53
Movement LOS	D	C	C	F	C	C	F	D	D	D	D	D
d_A, Approach Delay [s/veh]	29.47			76.50			83.58			39.15		
Approach LOS	C			E			F			D		
d_I, Intersection Delay [s/veh]	57.00											
Intersection LOS	E											
Intersection V/C	0.801											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.197	3.173	3.093	3.231
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	618	745	691
d_b, Bicycle Delay [s]	23.56	26.25	21.64	23.56
I_b,int, Bicycle LOS Score for Intersection	2.543	2.495	2.498	2.462
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: College Driveway No. 1 at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	3	5	6	559	670	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	5	6	559	670	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2	140	168	0
Total Analysis Volume [veh/h]	3	5	6	559	670	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	14.25	13.04	8.94	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.06	0.06	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	1.41	1.41	0.49	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.49		0.09		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.13					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 27: Centennial Way at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	0	78	512	80	16	678
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	78	512	80	16	678
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	20	128	20	4	170
Total Analysis Volume [veh/h]	0	78	512	80	16	678
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.14	0.01	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	0.00	12.44	0.00	0.00	8.72	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.48	0.00	0.00	0.05	0.00
95th-Percentile Queue Length [ft]	0.00	11.99	0.00	0.00	1.24	0.00
d_A, Approach Delay [s/veh]	12.44		0.00		0.20	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.81					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 28: Lemon Street at Parking Structure

Control Type:	Two-way stop	Delay (sec / veh):	16.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.442

Intersection Setup

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Base Volume Input [veh/h]	33	826	42	0	669	11	0	0	28	0	0	252
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	826	42	0	669	11	0	0	28	0	0	252
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	207	11	0	167	3	0	0	7	0	0	63
Total Analysis Volume [veh/h]	33	826	42	0	669	11	0	0	28	0	0	252
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.44
d_M, Delay for Movement [s/veh]	9.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.73	0.00	0.00	16.23
Movement LOS	A	A	A		A	A			B			C
95th-Percentile Queue Length [veh]	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	2.25
95th-Percentile Queue Length [ft]	2.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34	0.00	0.00	56.26
d_A, Approach Delay [s/veh]	0.33			0.00			10.73			16.23		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	2.52											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 29: Lemon Street at Fullerton College Drive

Control Type:	Signalized	Delay (sec / veh):	21.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.590

Intersection Setup

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Base Volume Input [veh/h]	0	862	222	80	584	0	46	0	54	271	0	73
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	862	222	80	584	0	46	0	54	271	0	73
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	216	56	20	146	0	12	0	14	68	0	18
Total Analysis Volume [veh/h]	0	862	222	80	584	0	46	0	54	271	0	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	6	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	30	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	10	34	0	0	10	0	66	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	7	0	0
Pedestrian Clearance [s]	0	13	0	0	14	0	0	0	0	16	0	0
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall		No		No	No			No		No		
Maximum Recall		No		No	No			No		No		
Pedestrian Recall		No		No	No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	R
C, Cycle Length [s]	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	62	62	71	71	8	19	19
g / C, Green / Cycle	0.56	0.56	0.65	0.65	0.07	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.29	0.30	0.04	0.15	0.06	0.15	0.04
s, saturation flow rate [veh/h]	1900	1800	1800	3800	1800	1800	1800
c, Capacity [veh/h]	1063	1007	909	2456	129	311	311
d1, Uniform Delay [s]	14.93	15.27	7.21	8.14	50.19	44.32	39.24
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.75	2.06	0.04	0.23	9.39	7.48	0.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.54	0.09	0.24	0.77	0.87	0.23
d, Delay for Lane Group [s/veh]	16.67	17.33	7.25	8.36	59.58	51.80	39.62
Lane Group LOS	B	B	A	A	E	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	8.52	8.76	0.67	2.81	3.04	7.79	1.74
50th-Percentile Queue Length [ft]	213.04	219.10	16.83	70.24	75.90	194.82	43.44
95th-Percentile Queue Length [veh]	13.31	13.62	1.21	5.06	5.47	12.37	3.13
95th-Percentile Queue Length [ft]	332.73	340.48	30.30	126.43	136.63	309.27	78.18

Movement, Approach, & Intersection Results

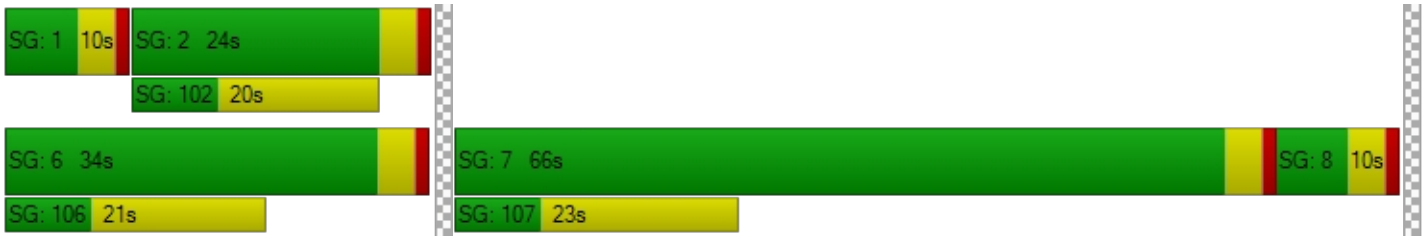
d_M, Delay for Movement [s/veh]	0.00	16.92	17.33	7.25	8.36	0.00	59.58	59.58	59.58	51.80	0.00	39.62
Movement LOS		B	B	A	A		E	E	E	D		D
d_A, Approach Delay [s/veh]	17.00			8.23			59.58			49.22		
Approach LOS	B			A			E			D		
d_I, Intersection Delay [s/veh]	21.34											
Intersection LOS	C											
Intersection V/C	0.590											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.696	1.530	2.226
Crosswalk LOS	F	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	364	545	109	0
d_b, Bicycle Delay [s]	36.82	29.09	49.16	55.00
I_b,int, Bicycle LOS Score for Intersection	2.454	2.107	1.725	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Berkeley Avenue at College Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.120

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Base Volume Input [veh/h]	27	441	345	7	61	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	441	345	7	61	77
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	110	86	2	15	19
Total Analysis Volume [veh/h]	27	441	345	7	61	77
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.12	0.11
d_M, Delay for Movement [s/veh]	8.05	0.00	0.00	0.00	13.90	11.98
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh]	0.07	0.00	0.00	0.00	0.89	0.89
95th-Percentile Queue Length [ft]	1.72	0.00	0.00	0.00	22.20	22.20
d_A, Approach Delay [s/veh]	0.46		0.00		12.83	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.08					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 31: Berkeley Avenue at College Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Base Volume Input [veh/h]	55	461	427	1	7	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	461	427	1	7	109
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	115	107	0	2	27
Total Analysis Volume [veh/h]	55	461	427	1	7	109
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.02	0.17
d_M, Delay for Movement [s/veh]	8.34	0.00	0.00	0.00	14.47	12.11
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh]	0.15	0.00	0.00	0.00	0.69	0.69
95th-Percentile Queue Length [ft]	3.83	0.00	0.00	0.00	17.35	17.35
d_A, Approach Delay [s/veh]	0.89		0.00		12.25	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.77					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 32: Berkeley Avenue at Brookdale Place

Control Type:	Two-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.076

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Base Volume Input [veh/h]	504	28	42	550	31	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	504	28	42	550	31	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	7	11	138	8	15
Total Analysis Volume [veh/h]	504	28	42	550	31	61
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.08	0.11
d_M, Delay for Movement [s/veh]	0.00	0.00	8.62	0.00	15.53	13.11
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.13	0.00	0.68	0.68
95th-Percentile Queue Length [ft]	0.00	0.00	3.17	0.00	16.90	16.90
d_A, Approach Delay [s/veh]	0.00		0.61		13.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.35					
Intersection LOS	C					

APPENDIX B-II

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Harbor Boulevard at Valley View Drive/Brea Boulevard

Control Type:	Signalized	Delay (sec / veh):	29.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.742

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Base Volume Input [veh/h]	40	994	387	51	1373	151	64	99	36	701	134	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	994	387	51	1373	151	64	99	36	701	134	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	249	97	13	343	38	16	25	9	175	34	0
Total Analysis Volume [veh/h]	40	994	387	51	1373	151	64	99	36	701	134	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	31	0	10	31	0	0	10	0	0	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	20	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	52	5	53	53	8	8	8	29	29
g / C, Green / Cycle	0.04	0.48	0.04	0.48	0.48	0.07	0.07	0.07	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.02	0.17	0.03	0.33	0.16	0.04	0.05	0.02	0.23	0.23
s, saturation flow rate [veh/h]	1800	5700	1800	3800	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	71	2707	79	1822	863	132	140	132	472	472
d1, Uniform Delay [s]	51.94	18.39	51.78	22.16	17.69	48.99	49.85	48.22	38.97	39.06
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.81	0.39	8.41	2.08	1.01	2.72	6.45	1.09	5.54	5.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.37	0.64	0.68	0.33	0.48	0.71	0.27	0.88	0.89
d, Delay for Lane Group [s/veh]	58.75	18.77	60.19	24.24	18.70	51.71	56.30	49.31	44.51	44.91
Lane Group LOS	E	B	E	C	B	D	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.22	5.37	1.57	12.51	4.60	1.79	2.91	0.98	11.37	11.52
50th-Percentile Queue Length [ft]	30.46	134.21	39.21	312.78	114.89	44.72	72.70	24.38	284.24	287.91
95th-Percentile Queue Length [veh]	2.19	9.17	2.82	18.31	8.11	3.22	5.23	1.76	16.90	17.08
95th-Percentile Queue Length [ft]	54.82	229.21	70.58	457.80	202.79	80.49	130.87	43.88	422.48	427.05

Movement, Approach, & Intersection Results

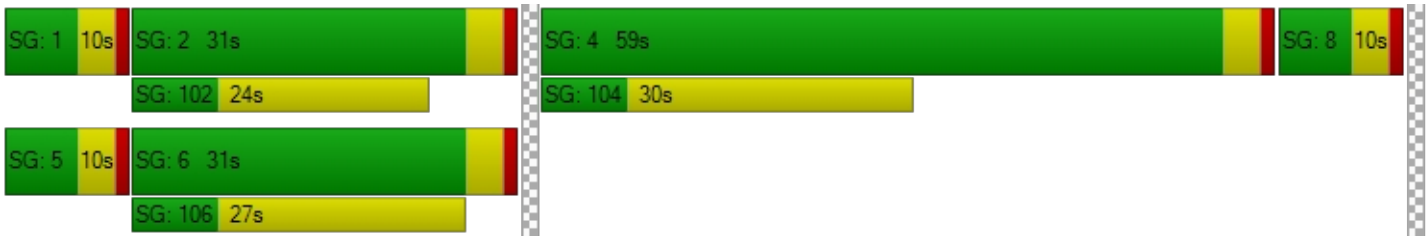
d_M, Delay for Movement [s/veh]	58.75	18.77	0.00	60.19	23.71	18.70	51.71	56.30	49.31	44.67	44.91	0.00
Movement LOS	E	B		E	C	B	D	E	D	D	D	
d_A, Approach Delay [s/veh]	20.32			24.41			53.56			44.71		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.49											
Intersection LOS	C											
Intersection V/C	0.742											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.061	2.268	2.270
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	491	109	1000
d_b, Bicycle Delay [s]	31.31	31.31	49.16	13.75
I_b,int, Bicycle LOS Score for Intersection	2.128	2.426	1.888	2.937
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Harbor Boulevard at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	28.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.748

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	166	984	83	545	1509	19	34	306	124	50	196	409
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	984	83	545	1509	19	34	306	124	50	196	409
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	246	21	136	377	5	9	77	31	13	49	102
Total Analysis Volume [veh/h]	166	984	83	545	1509	19	34	306	124	50	196	409
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	5	2	0	1	6	0	0	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	6
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
Split [s]	16	41	0	31	56	0	0	38	0	0	38	38
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	21	0	0	22	0	0	18	0	0	26	26
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No	No		No	No			No			No	No
Maximum Recall	No	No		No	No			No			No	No
Pedestrian Recall	No	No		No	No			No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	12	54	54	22	64	64	22	22	22	22	22	48
g / C, Green / Cycle	0.11	0.49	0.49	0.20	0.58	0.58	0.20	0.20	0.20	0.20	0.20	0.44
(v / s)_i Volume / Saturation Flow Rate	0.09	0.29	0.28	0.16	0.40	0.01	0.02	0.16	0.07	0.03	0.10	0.23
s, saturation flow rate [veh/h]	1800	1900	1800	3500	3800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	197	935	886	704	2219	1051	226	375	356	116	375	783
d1, Uniform Delay [s]	48.01	20.02	19.80	41.54	15.78	9.62	36.05	42.16	37.99	36.38	39.44	22.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.33
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.41	2.77	2.74	1.87	1.71	0.03	0.30	4.33	0.58	2.50	1.13	1.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.59	0.58	0.77	0.68	0.02	0.15	0.81	0.35	0.43	0.52	0.52
d, Delay for Lane Group [s/veh]	57.42	22.78	22.55	43.40	17.49	9.65	36.35	46.49	38.57	38.88	40.56	24.32
Lane Group LOS	E	C	C	D	B	A	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	4.96	10.62	9.72	7.13	12.80	0.20	0.77	8.33	2.94	1.19	4.84	7.96
50th-Percentile Queue Length [ft]	124.12	265.52	242.92	178.14	320.00	4.94	19.20	208.37	73.39	29.81	121.01	198.89
95th-Percentile Queue Length [veh]	8.62	15.97	14.83	11.50	18.67	0.36	1.38	13.07	5.28	2.15	8.45	12.58
95th-Percentile Queue Length [ft]	215.47	399.13	370.72	287.59	466.69	8.89	34.56	326.74	132.11	53.65	211.21	314.53

Movement, Approach, & Intersection Results

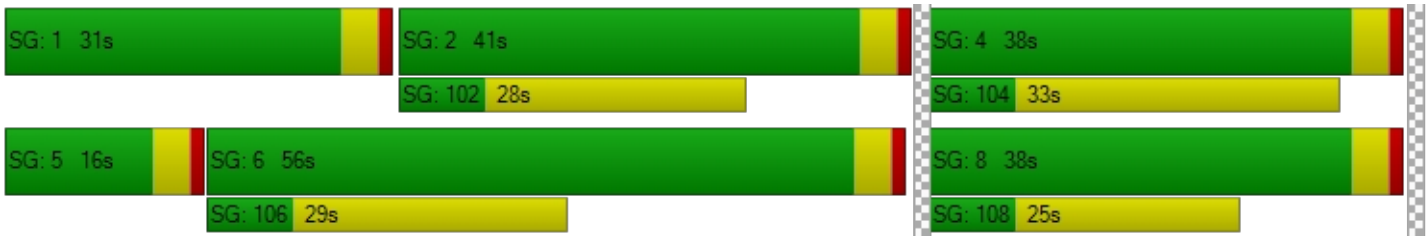
d_M, Delay for Movement [s/veh]	57.42	22.68	22.55	43.40	17.49	9.65	36.35	46.49	38.57	38.88	40.56	24.32
Movement LOS	E	C	C	D	B	A	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	27.35			24.23			43.63			30.29		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.03											
Intersection LOS	C											
Intersection V/C	0.748											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.949	3.139	2.347	2.619
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	673	945	618	618
d_b, Bicycle Delay [s]	24.22	15.29	26.25	26.25
I_b,int, Bicycle LOS Score for Intersection	2.577	3.270	2.325	2.640
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Lemon Street at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	54.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.703

Intersection Setup

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	214	171	148	163	379	10	4	571	349	103	427	51
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	214	171	148	163	379	10	4	571	349	103	427	51
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	43	37	41	95	3	1	143	87	26	107	13
Total Analysis Volume [veh/h]	214	171	148	163	379	10	4	571	349	103	427	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	6	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	29	0	0	29	0	0	52	52	0	52	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	19	0	0	16	16	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		No	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	34	34	34	30	30	68	30	30	30
g / C, Green / Cycle	0.31	0.31	0.31	0.31	0.31	0.27	0.27	0.62	0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.10	0.11	0.08	0.09	0.22	0.00	0.30	0.19	0.06	0.13	0.13
s, saturation flow rate [veh/h]	1800	1800	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	556	556	556	556	556	340	519	1113	75	519	492
d1, Uniform Delay [s]	29.28	29.43	28.57	28.83	33.45	29.06	39.89	9.92	30.26	33.37	33.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.65	1.76	1.17	1.34	7.17	0.01	69.80	0.74	183.15	0.69	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.35	0.27	0.29	0.70	0.01	1.10	0.31	1.37	0.48	0.47
d, Delay for Lane Group [s/veh]	30.94	31.19	29.74	30.17	40.62	29.07	109.69	10.65	213.41	34.07	33.90
Lane Group LOS	C	C	C	C	D	C	F	B	F	C	C
Critical Lane Group	No	Yes	No	No	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	4.09	4.29	3.12	3.47	10.14	0.08	23.84	4.02	5.35	5.64	5.15
50th-Percentile Queue Length [ft]	102.20	107.22	77.92	86.75	253.57	1.97	596.08	100.59	133.65	141.02	128.78
95th-Percentile Queue Length [veh]	7.36	7.69	5.61	6.25	15.37	0.14	33.76	7.24	9.62	9.54	8.87
95th-Percentile Queue Length [ft]	183.96	192.13	140.26	156.15	384.14	3.54	844.02	181.06	240.57	238.39	221.83

Movement, Approach, & Intersection Results

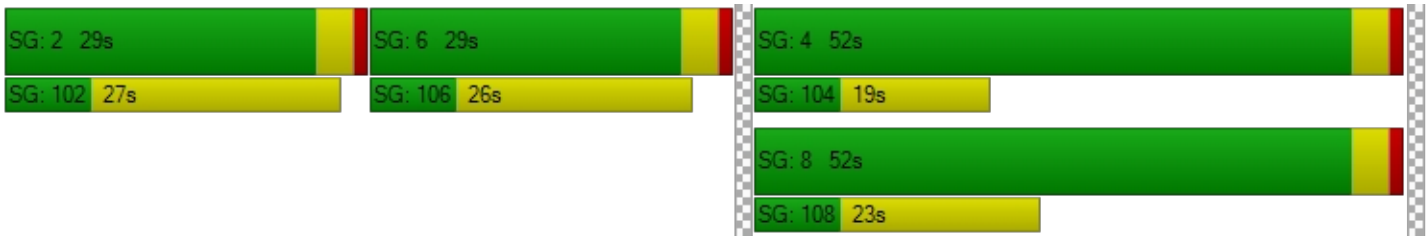
d_M, Delay for Movement [s/veh]	30.96	31.19	29.74	30.17	40.62	40.62	29.07	109.69	10.65	213.41	34.00	33.90
Movement LOS	C	C	C	C	D	D	C	F	B	F	C	C
d_A, Approach Delay [s/veh]	30.70			37.53			71.93			65.79		
Approach LOS	C			D			E			E		
d_I, Intersection Delay [s/veh]	54.74											
Intersection LOS	D											
Intersection V/C	0.703											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.620	2.208	2.921	2.729
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	455	455	873	873
d_b, Bicycle Delay [s]	32.84	32.84	17.47	17.47
I_b,int, Bicycle LOS Score for Intersection	2.439	2.470	3.084	2.039
Bicycle LOS	B	B	C	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Hornet Way at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.391

Intersection Setup

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	51	277	162	397	386	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	277	162	397	386	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	69	41	99	97	4
Total Analysis Volume [veh/h]	51	277	162	397	386	15
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	8	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	6	6	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	30	0	0	80	80	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	19	0	0	0	14	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19	19	83	83	83	83
g / C, Green / Cycle	0.17	0.17	0.75	0.75	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.03	0.15	0.09	0.21	0.20	0.01
s, saturation flow rate [veh/h]	1800	1800	1800	1900	1900	1800
c, Capacity [veh/h]	310	310	1266	1434	1434	1359
d1, Uniform Delay [s]	38.67	44.41	3.62	4.17	4.14	3.32
k, delay calibration	0.11	0.13	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.25	10.37	0.21	0.48	0.46	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.89	0.13	0.28	0.27	0.01
d, Delay for Lane Group [s/veh]	38.91	54.77	3.83	4.65	4.60	3.34
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.19	8.21	0.89	2.50	2.42	0.08
50th-Percentile Queue Length [ft]	29.86	205.27	22.35	62.62	60.43	1.88
95th-Percentile Queue Length [veh]	2.15	12.91	1.61	4.51	4.35	0.14
95th-Percentile Queue Length [ft]	53.75	322.75	40.23	112.72	108.77	3.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.91	54.77	3.83	4.65	4.60	3.34
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	52.31		4.41		4.55	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	16.65					
Intersection LOS	B					
Intersection V/C	0.391					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	76.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	5.25
I_p,int, Pedestrian LOS Score for Intersection	2.344	2.347	2.213
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	55.00	55.00	55.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.055	4.794
Bicycle LOS	D	F	E

Sequence

Ring 1	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Euclid Street at Malvern Avenue

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.859

Intersection Setup

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Base Volume Input [veh/h]	138	1027	113	319	1371	18	49	732	171	169	483	127
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	1027	113	319	1371	18	49	732	171	169	483	127
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	257	28	80	343	5	12	183	43	42	121	32
Total Analysis Volume [veh/h]	138	1027	113	319	1371	18	49	732	171	169	483	127
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	14	34	0	11	55	0	11	55	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	60	46	46	60	50	50	42	31	31	42	33	33
g / C, Green / Cycle	0.54	0.42	0.42	0.54	0.45	0.45	0.38	0.28	0.28	0.38	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.08	0.31	0.30	0.18	0.38	0.38	0.03	0.25	0.24	0.09	0.17	0.16
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	468	791	749	586	859	814	530	537	509	354	577	547
d1, Uniform Delay [s]	12.40	27.32	26.93	13.92	26.46	26.43	21.52	37.88	37.05	23.10	32.18	31.72
k, delay calibration	0.50	0.50	0.50	0.19	0.50	0.50	0.11	0.13	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.60	6.53	6.13	1.42	9.18	9.55	0.07	6.29	3.63	1.00	0.86	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.75	0.73	0.54	0.83	0.83	0.09	0.89	0.83	0.48	0.56	0.52
d, Delay for Lane Group [s/veh]	14.01	33.85	33.06	15.33	35.64	35.98	21.59	44.17	40.68	24.10	33.04	32.50
Lane Group LOS	B	C	C	B	D	D	C	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.86	14.36	12.97	4.51	18.01	17.10	0.82	13.15	11.07	3.08	7.33	6.37
50th-Percentile Queue Length [ft]	46.46	359.12	324.13	112.78	450.30	427.46	20.40	328.67	276.85	76.99	183.36	159.20
95th-Percentile Queue Length [veh]	3.35	20.58	18.87	7.99	24.97	23.88	1.47	19.09	16.53	5.54	11.78	10.51
95th-Percentile Queue Length [ft]	83.63	514.52	471.76	199.86	624.31	596.99	36.72	477.33	413.29	138.58	294.40	262.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.01	33.52	33.06	15.33	35.80	35.98	21.59	42.97	40.68	24.10	32.86	32.50
Movement LOS	B	C	C	B	D	D	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	31.37			31.98			41.46			30.90		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	33.55											
Intersection LOS	C											
Intersection V/C	0.859											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.965	2.899	2.712	2.886
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	545	927	927
d_b, Bicycle Delay [s]	32.07	29.09	15.82	15.82
I_b,int, Bicycle LOS Score for Intersection	2.614	2.969	2.345	2.202
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Harbor Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.858

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	43	958	216	147	1238	60	150	1029	74	163	721	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	958	216	147	1238	60	150	1029	74	163	721	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	240	54	37	310	15	38	257	19	41	180	34
Total Analysis Volume [veh/h]	43	958	216	147	1238	60	150	1029	74	163	721	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	31	0	10	31	0	10	59	0	10	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	55	45	45	55	47	47	47	37	37	47	37	37
g / C, Green / Cycle	0.50	0.41	0.41	0.50	0.42	0.42	0.43	0.34	0.34	0.43	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.02	0.33	0.31	0.08	0.35	0.35	0.08	0.30	0.29	0.09	0.19	0.08
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	420	777	736	472	804	762	583	637	603	348	1274	603
d1, Uniform Delay [s]	14.07	28.59	27.77	14.96	28.30	28.11	19.73	34.82	34.50	19.88	30.03	26.32
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.17	0.16	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	8.46	6.96	0.37	9.93	9.81	0.23	7.51	6.36	0.98	0.40	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.80	0.75	0.31	0.83	0.82	0.26	0.90	0.88	0.47	0.57	0.23
d, Delay for Lane Group [s/veh]	14.56	37.05	34.73	15.33	38.23	37.91	19.96	42.33	40.86	20.86	30.42	26.51
Lane Group LOS	B	D	C	B	D	D	B	D	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.60	15.82	13.52	2.03	17.47	16.24	2.44	15.62	14.19	2.72	7.83	2.60
50th-Percentile Queue Length [ft]	15.05	395.48	337.93	50.72	436.81	406.11	60.88	390.60	354.65	68.03	195.79	64.94
95th-Percentile Queue Length [veh]	1.08	22.34	19.55	3.65	24.33	22.85	4.38	22.11	20.36	4.90	12.42	4.68
95th-Percentile Queue Length [ft]	27.08	558.55	488.67	91.30	608.19	571.36	109.59	552.66	509.07	122.45	310.53	116.90

Movement, Approach, & Intersection Results

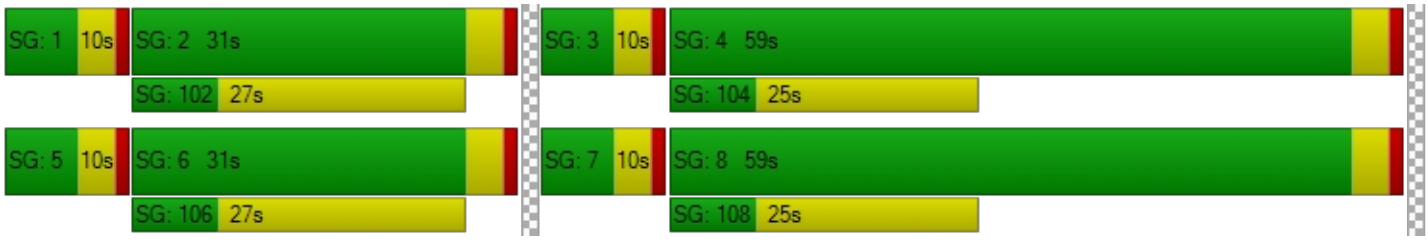
d_M, Delay for Movement [s/veh]	14.56	36.24	34.73	15.33	38.08	37.91	19.96	41.68	40.86	20.86	30.42	26.51
Movement LOS	B	D	C	B	D	D	B	D	D	C	C	C
d_A, Approach Delay [s/veh]	35.20			35.76			39.03			28.37		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	34.93											
Intersection LOS	C											
Intersection V/C	0.858											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.916	2.909	2.741	2.944
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	491	1000	1000
d_b, Bicycle Delay [s]	31.31	31.31	13.75	13.75
I_b,int, Bicycle LOS Score for Intersection	2.564	2.752	2.593	2.401
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.715

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	158	29	16	143	20	89	230	38	44	192	31
Total Analysis Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	10	31	0	37	57	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	49	40	40	49	39	39	24	42	42	7	25	25
g / C, Green / Cycle	0.44	0.36	0.36	0.44	0.35	0.35	0.22	0.38	0.38	0.06	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.06	0.03	0.18	0.17	0.20	0.29	0.28	0.05	0.20	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	630	1364	646	655	672	637	390	730	691	225	881	417
d1, Uniform Delay [s]	18.06	27.13	24.16	17.72	28.02	27.78	42.06	29.60	29.12	50.74	40.69	34.91
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.20	0.18	0.16	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	1.13	0.60	0.06	2.73	2.66	13.76	2.83	2.30	5.81	2.81	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.46	0.18	0.09	0.51	0.49	0.91	0.77	0.74	0.78	0.87	0.30
d, Delay for Lane Group [s/veh]	18.56	28.26	24.77	17.78	30.75	30.43	55.82	32.42	31.42	56.55	43.49	35.31
Lane Group LOS	B	C	C	B	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.51	6.53	2.16	0.92	7.52	6.79	10.78	13.21	11.76	2.57	10.23	2.81
50th-Percentile Queue Length [ft]	37.67	163.15	53.94	22.98	188.08	169.71	269.40	330.24	293.91	64.15	255.69	70.35
95th-Percentile Queue Length [veh]	2.71	10.72	3.88	1.65	12.02	11.06	16.16	19.17	17.38	4.62	15.47	5.07
95th-Percentile Queue Length [ft]	67.81	267.89	97.10	41.37	300.53	276.54	403.99	479.26	434.49	115.46	386.81	126.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.56	28.26	24.77	17.78	30.62	30.43	55.82	32.03	31.42	56.55	43.49	35.31
Movement LOS	B	C	C	B	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	26.68			29.49			37.89			44.69		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.87											
Intersection LOS	D											
Intersection V/C	0.715											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.745	2.665	2.821	2.938
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	491	964	491
d_b, Bicycle Delay [s]	30.56	31.31	14.77	31.31
I_b,int, Bicycle LOS Score for Intersection	2.253	2.149	2.733	2.440
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Berkeley Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

Intersection Setup

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	15	94	59	357	71	91	56	965	8	47	997	575
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	94	59	357	71	91	56	965	8	47	997	575
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	24	15	89	18	23	14	241	2	12	249	144
Total Analysis Volume [veh/h]	15	94	59	357	71	91	56	965	8	47	997	575
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	3	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	6	6	0	0	6	6
Maximum Green [s]	0	30	0	30	30	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	10	0	58	68	0	10	42	0	0	32	32
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	20	0	0	20	0	0	21	21
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall		No		No	No		No	No			No	No
Maximum Recall		No		No	No		No	No			No	No
Pedestrian Recall		No		No	No		No	No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	8	8	8	17	28	74	74	74	65	65	85
g / C, Green / Cycle	0.07	0.07	0.07	0.15	0.26	0.67	0.67	0.67	0.59	0.59	0.78
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.03	0.10	0.09	0.03	0.26	0.26	0.03	0.26	0.32
s, saturation flow rate [veh/h]	1800	1900	1800	3500	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	66	132	125	531	464	1031	1272	1205	871	2236	1398
d1, Uniform Delay [s]	48.01	50.09	49.23	44.09	33.31	6.20	8.15	8.14	9.56	12.63	4.04
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.75	6.86	2.73	1.49	0.45	0.02	0.91	0.96	0.12	0.65	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.71	0.47	0.67	0.35	0.05	0.39	0.39	0.05	0.45	0.41
d, Delay for Lane Group [s/veh]	49.76	56.95	51.96	45.58	33.76	6.22	9.06	9.10	9.68	13.27	4.41
Lane Group LOS	D	E	D	D	C	A	A	A	A	B	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.42	2.78	1.65	4.69	3.59	0.42	5.21	4.93	0.50	6.74	3.48
50th-Percentile Queue Length [ft]	10.46	69.46	41.34	117.31	89.65	10.55	130.24	123.30	12.38	168.44	86.91
95th-Percentile Queue Length [veh]	0.75	5.00	2.98	8.25	6.45	0.76	8.95	8.57	0.89	10.99	6.26
95th-Percentile Queue Length [ft]	18.82	125.03	74.40	206.13	161.36	18.99	223.82	214.35	22.29	274.86	156.43

Movement, Approach, & Intersection Results

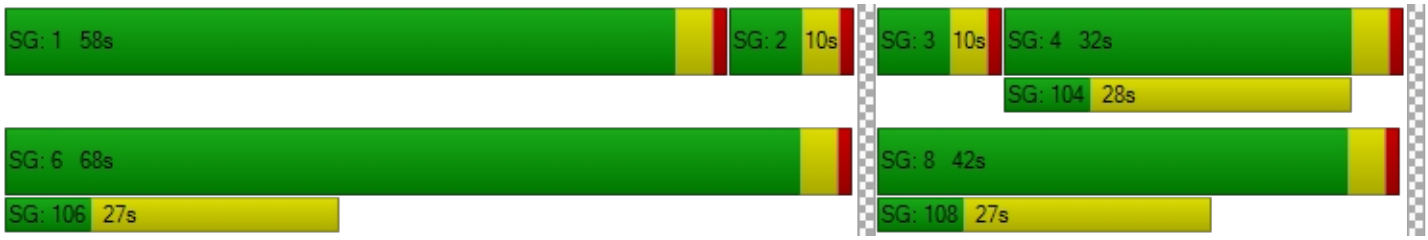
d_M, Delay for Movement [s/veh]	49.76	56.95	51.96	45.58	33.76	33.76	6.22	9.08	9.10	9.68	13.27	4.41
Movement LOS	D	E	D	D	C	C	A	A	A	A	B	A
d_A, Approach Delay [s/veh]	54.56			41.89			8.92			10.02		
Approach LOS	D			D			A			B		
d_I, Intersection Delay [s/veh]	16.89											
Intersection LOS	B											
Intersection V/C	0.482											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.279	2.492	2.746	0.000
Crosswalk LOS	B	B	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	109	1164	691	509
d_b, Bicycle Delay [s]	49.16	9.62	23.56	30.56
I_b,int, Bicycle LOS Score for Intersection	1.837	2.416	2.409	2.895
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Raymond Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.739

Intersection Setup

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	165	264	261	195	483	86	47	1122	142	176	1357	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	165	264	261	195	483	86	47	1122	142	176	1357	71
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	66	65	49	121	22	12	281	36	44	339	18
Total Analysis Volume [veh/h]	165	264	261	195	483	86	47	1122	142	176	1357	71
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	48	0	14	51	0	10	35	0	13	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	18	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	33	19	19	33	22	22	69	58	58	69	60	60
g / C, Green / Cycle	0.30	0.17	0.17	0.30	0.20	0.20	0.63	0.53	0.53	0.63	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.09	0.14	0.15	0.11	0.16	0.15	0.03	0.35	0.34	0.10	0.39	0.38
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	376	332	314	406	383	363	685	998	946	748	1038	983
d1, Uniform Delay [s]	29.50	43.56	43.87	30.05	41.66	41.27	7.95	19.01	18.66	8.58	18.52	18.39
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.81	4.37	5.66	0.88	3.52	3.01	0.04	3.45	3.29	0.74	4.12	4.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.80	0.83	0.48	0.78	0.74	0.07	0.66	0.64	0.24	0.71	0.70
d, Delay for Lane Group [s/veh]	30.31	47.93	49.53	30.93	45.18	44.27	7.99	22.46	21.96	9.32	22.63	22.59
Lane Group LOS	C	D	D	C	D	D	A	C	C	A	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.44	7.26	7.32	4.14	8.03	7.12	0.42	12.69	11.39	1.82	14.38	13.44
50th-Percentile Queue Length [ft]	85.94	181.44	182.97	103.41	200.80	178.07	10.53	317.26	284.82	45.61	359.58	335.91
95th-Percentile Queue Length [veh]	6.19	11.68	11.76	7.45	12.68	11.50	0.76	18.53	16.93	3.28	20.60	19.45
95th-Percentile Queue Length [ft]	154.69	291.89	293.89	186.13	317.00	287.49	18.96	463.32	423.21	82.09	515.07	486.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.31	47.93	49.53	30.93	44.83	44.27	7.99	22.26	21.96	9.32	22.61	22.59
Movement LOS	C	D	D	C	D	D	A	C	C	A	C	C
d_A, Approach Delay [s/veh]	44.32			41.22			21.71			21.15		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	28.49											
Intersection LOS	C											
Intersection V/C	0.739											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.736	2.458	2.930	2.983
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	855	564	618
d_b, Bicycle Delay [s]	19.80	18.04	28.37	26.25
I_b,int, Bicycle LOS Score for Intersection	2.698	2.190	2.641	2.883
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 10: Acacia Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	53.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	192	163	137	65	297	50	109	1218	151	157	1146	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	192	163	137	65	297	50	109	1218	151	157	1146	45
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	48	41	34	16	74	13	27	305	38	39	287	11
Total Analysis Volume [veh/h]	192	163	137	65	297	50	109	1218	151	157	1146	45
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	40	0	0	40	0	18	50	0	20	52	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	23	23	23	23	23	79	69	69	79	69	69
g / C, Green / Cycle	0.21	0.21	0.21	0.21	0.21	0.71	0.62	0.62	0.71	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.11	0.09	0.08	0.04	0.19	0.06	0.38	0.36	0.09	0.32	0.32
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	80	405	384	284	384	1047	1183	1121	962	1186	1124
d1, Uniform Delay [s]	35.63	37.25	36.86	35.33	42.18	4.78	12.52	12.31	4.92	11.47	11.41
k, delay calibration	0.11	0.11	0.11	0.11	0.15	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	643.79	0.65	0.56	0.41	10.91	0.04	2.28	2.24	0.36	1.62	1.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.41	0.40	0.36	0.23	0.90	0.10	0.60	0.59	0.16	0.52	0.51
d, Delay for Lane Group [s/veh]	679.42	37.89	37.42	35.73	53.09	4.82	14.80	14.54	5.29	13.09	13.08
Lane Group LOS	F	D	D	D	D	A	B	B	A	B	B
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	15.99	3.84	3.20	1.46	10.26	0.69	10.59	9.60	1.10	8.34	7.79
50th-Percentile Queue Length [ft]	399.87	96.12	79.93	36.47	256.41	17.28	264.84	240.03	27.59	208.46	194.71
95th-Percentile Queue Length [veh]	28.66	6.92	5.75	2.63	15.51	1.24	15.93	14.68	1.99	13.07	12.37
95th-Percentile Queue Length [ft]	716.44	173.01	143.87	65.64	387.71	31.11	398.29	367.07	49.66	326.85	309.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	679.42	37.89	37.42	35.73	53.09	53.09	4.82	14.69	14.54	5.29	13.09	13.08
Movement LOS	F	D	D	D	D	D	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	288.11			50.35			13.95			12.18		
Approach LOS	F			D			B			B		
d_I, Intersection Delay [s/veh]	53.49											
Intersection LOS	D											
Intersection V/C	0.673											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.551	2.286	3.141	2.942
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	655	655	836	873
d_b, Bicycle Delay [s]	24.89	24.89	18.62	17.47
I_b,int, Bicycle LOS Score for Intersection	2.371	2.239	2.779	2.672
Bicycle LOS	B	B	C	B

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 11: State College Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	34.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.760

Intersection Setup

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	65	412	38	282	222	479	494	1032	40	57	967	269
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	412	38	282	222	479	494	1032	40	57	967	269
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	103	10	71	56	120	124	258	10	14	242	67
Total Analysis Volume [veh/h]	65	412	38	282	222	479	494	1032	40	57	967	269
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						3,6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	6	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	14	38	38	22	52	0	10	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	26	26	0	23	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	35	35	10	39	61	18	44	44	5	31	31
g / C, Green / Cycle	0.05	0.31	0.31	0.09	0.36	0.56	0.16	0.40	0.40	0.05	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.02	0.08	0.06	0.27	0.14	0.27	0.02	0.03	0.25	0.15
s, saturation flow rate [veh/h]	1800	3800	1800	3500	3800	1800	3500	3800	1800	1800	3800	1800
c, Capacity [veh/h]	86	1194	566	320	1359	1004	574	1532	725	83	1083	513
d1, Uniform Delay [s]	51.76	29.04	26.45	49.42	24.12	14.66	44.81	26.93	20.06	51.75	37.74	33.08
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.43	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.32	0.79	0.23	7.79	0.26	1.41	3.95	0.52	0.03	9.75	2.82	0.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.35	0.07	0.88	0.16	0.48	0.86	0.67	0.06	0.69	0.89	0.52
d, Delay for Lane Group [s/veh]	64.09	29.84	26.68	57.21	24.38	16.07	48.76	27.46	20.10	61.50	40.56	33.91
Lane Group LOS	E	C	C	E	C	B	D	C	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.06	4.31	0.74	4.16	2.02	7.32	6.84	10.99	0.63	1.77	12.73	6.12
50th-Percentile Queue Length [ft]	51.62	107.66	18.44	104.12	50.54	183.05	170.93	274.71	15.86	44.30	318.21	152.97
95th-Percentile Queue Length [veh]	3.72	7.71	1.33	7.50	3.64	11.76	11.13	16.42	1.14	3.19	18.58	10.18
95th-Percentile Queue Length [ft]	92.91	192.74	33.18	187.42	90.96	294.00	278.14	410.62	28.55	79.74	464.48	254.38

Movement, Approach, & Intersection Results

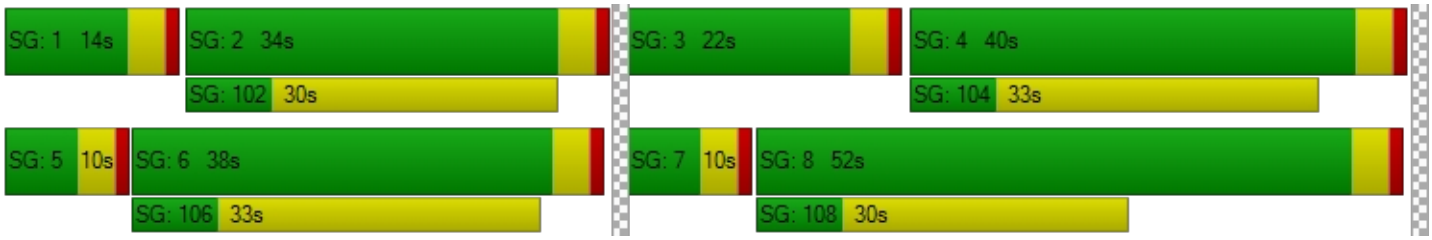
d_M, Delay for Movement [s/veh]	64.09	29.84	26.68	57.21	24.38	16.07	48.76	27.46	20.10	61.50	40.56	33.91
Movement LOS	E	C	C	E	C	B	D	C	C	E	D	C
d_A, Approach Delay [s/veh]	33.93			29.75			33.99			40.10		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	34.84											
Intersection LOS	C											
Intersection V/C	0.760											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.598	2.904	3.032	2.892
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	618	873	655
d_b, Bicycle Delay [s]	29.09	26.25	17.47	24.89
I_b,int, Bicycle LOS Score for Intersection	1.984	2.371	2.852	2.626
Bicycle LOS	A	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.753

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	93	88	206	0	1191	696	306	1837	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	93	88	206	0	1191	696	306	1837	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	23	22	52	0	298	174	77	459	0
Total Analysis Volume [veh/h]	0	0	0	93	88	206	0	1191	696	306	1837	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	17	0	0	50	0	43	93	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	64	64	21	89
g / C, Green / Cycle		0.12	0.12	0.58	0.58	0.19	0.81
(v / s)_i Volume / Saturation Flow Rate		0.10	0.11	0.31	0.39	0.17	0.48
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		213	213	2213	1048	342	3073
d1, Uniform Delay [s]		47.51	48.25	13.97	15.64	43.46	3.89
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		9.02	21.49	0.94	3.32	8.20	0.87
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.85	0.97	0.54	0.66	0.89	0.60
d, Delay for Lane Group [s/veh]		56.53	69.74	14.92	18.96	51.66	4.76
Lane Group LOS		E	E	B	B	D	A
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		5.38	6.87	8.85	12.17	8.84	5.62
50th-Percentile Queue Length [ft]		134.38	171.71	221.36	304.30	220.97	140.54
95th-Percentile Queue Length [veh]		9.18	11.17	13.73	17.89	13.71	9.51
95th-Percentile Queue Length [ft]		229.43	279.16	343.36	447.34	342.86	237.75

Movement, Approach, & Intersection Results

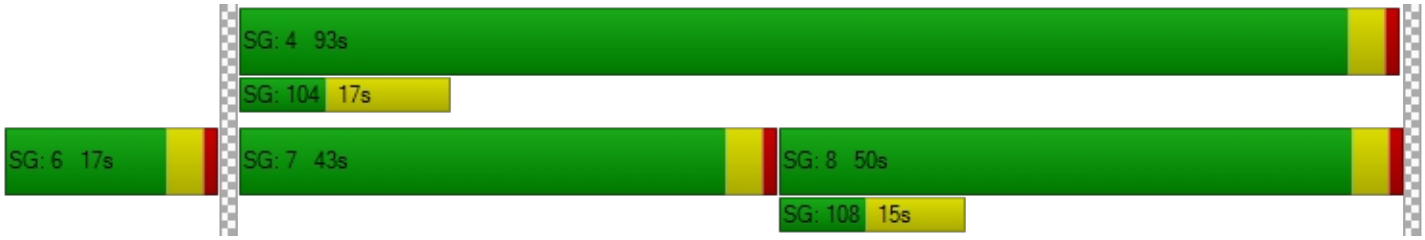
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	56.53	56.53	69.74	0.00	14.92	18.96	51.66	4.76	0.00
Movement LOS				E	E	E		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			63.56			16.41			11.46		
Approach LOS	A			E			B			B		
d_I, Intersection Delay [s/veh]	18.14											
Intersection LOS	B											
Intersection V/C	0.753											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.496	1.913	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	236	836	1618
d_b, Bicycle Delay [s]	55.00	42.77	18.62	2.00
I_b,int, Bicycle LOS Score for Intersection	4.132	2.198	2.597	3.328
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.860

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	973	0	255	0	0	0	227	946	0	0	1198	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	973	0	255	0	0	0	227	946	0	0	1198	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	243	0	64	0	0	0	57	237	0	0	300	33
Total Analysis Volume [veh/h]	973	0	255	0	0	0	227	946	0	0	1198	132
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	77	0	0	0	0	0	10	33	0	0	23	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	34		16	68	48	48
g / C, Green / Cycle	0.31	0.31	0.31		0.15	0.62	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.27	0.27	0.14		0.13	0.25	0.35	0.37
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	552	552	552		263	2358	832	789
d1, Uniform Delay [s]	36.22	36.22	30.79		45.88	10.54	26.71	27.53
k, delay calibration	0.11	0.11	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.80	4.80	0.60		8.24	0.51	7.90	10.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.88	0.46		0.86	0.40	0.80	0.84
d, Delay for Lane Group [s/veh]	41.02	41.02	31.39		54.12	11.05	34.61	38.20
Lane Group LOS	D	D	C		D	B	C	D
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	12.93	12.93	5.53		6.63	5.65	16.44	17.40
50th-Percentile Queue Length [ft]	323.28	323.28	138.17		165.73	141.36	411.09	435.11
95th-Percentile Queue Length [veh]	18.83	18.83	9.38		10.85	9.55	23.09	24.25
95th-Percentile Queue Length [ft]	470.71	470.71	234.56		271.29	238.85	577.35	606.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.02	0.00	31.39	0.00	0.00	0.00	54.12	11.05	0.00	0.00	36.21	38.20
Movement LOS	D		C				D	B			D	D
d_A, Approach Delay [s/veh]	39.02			0.00			19.39			36.40		
Approach LOS	D			A			B			D		
d_I, Intersection Delay [s/veh]	31.91											
Intersection LOS	C											
Intersection V/C	0.860											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.349	1.783	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	527	345
d_b, Bicycle Delay [s]	55.00	55.00	29.82	37.64
I_b,int, Bicycle LOS Score for Intersection	6.159	4.132	2.527	2.657
Bicycle LOS	F	D	B	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 14: Lemon Street at Wilshire Avenue

Control Type:	Signalized	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.421

Intersection Setup

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Base Volume Input [veh/h]	44	831	101	55	829	32	29	139	72	84	63	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	831	101	55	829	32	29	139	72	84	63	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	208	25	14	207	8	7	35	18	21	16	15
Total Analysis Volume [veh/h]	44	831	101	55	829	32	29	139	72	84	63	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	48	0	0	48	0	0	62	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	85	85	85	85	85	85	17	17
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.26	0.25	0.03	0.23	0.23	0.13	0.12
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1285	1473	1395	1269	1473	1395	310	320
d1, Uniform Delay [s]	2.85	3.73	3.68	2.86	3.62	3.61	45.50	44.58
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.60	0.60	0.06	0.53	0.55	4.10	2.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.03	0.33	0.32	0.04	0.30	0.30	0.77	0.65
d, Delay for Lane Group [s/veh]	2.89	4.34	4.29	2.93	4.15	4.16	49.60	46.81
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.20	2.87	2.59	0.25	2.54	2.37	6.71	5.60
50th-Percentile Queue Length [ft]	4.95	71.68	64.71	6.23	63.42	59.31	167.87	140.01
95th-Percentile Queue Length [veh]	0.36	5.16	4.66	0.45	4.57	4.27	10.96	9.48
95th-Percentile Queue Length [ft]	8.90	129.03	116.47	11.21	114.15	106.75	274.12	237.04

Movement, Approach, & Intersection Results

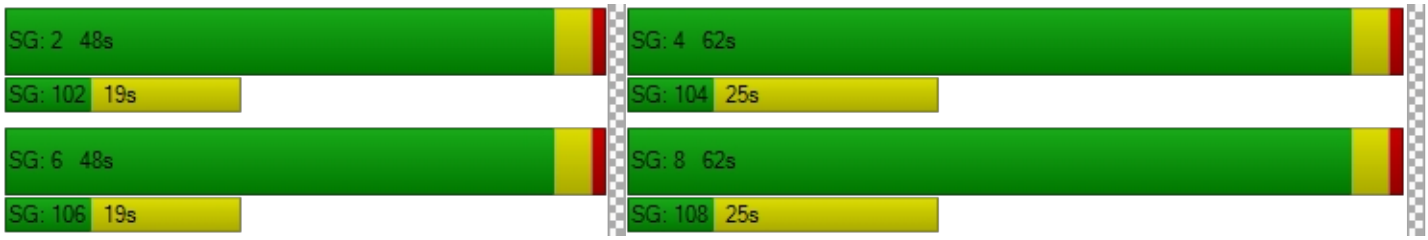
d_M, Delay for Movement [s/veh]	2.89	4.32	4.29	2.93	4.15	4.16	49.60	49.60	49.60	46.81	46.81	46.81
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.25			4.08			49.60			46.81		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.62											
Intersection LOS	B											
Intersection V/C	0.421											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.811	2.709	1.972	2.048
Crosswalk LOS	C	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	1055	1055
d_b, Bicycle Delay [s]	19.80	19.80	12.29	12.29
I_b,int, Bicycle LOS Score for Intersection	2.365	2.315	1.956	1.903
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Harbor Boulevard at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.879

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	54	1068	302	49	1350	81	206	1022	74	200	526	58
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	1068	302	49	1350	81	206	1022	74	200	526	58
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	267	76	12	338	20	52	256	19	50	132	15
Total Analysis Volume [veh/h]	54	1068	302	49	1350	81	206	1022	74	200	526	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	57	0	10	57	0	14	33	0	10	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	20	0	0	22	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	55	46	46	55	46	46	47	33	33	47	33	33
g / C, Green / Cycle	0.50	0.42	0.42	0.50	0.42	0.42	0.43	0.30	0.30	0.43	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.03	0.28	0.17	0.03	0.39	0.38	0.11	0.27	0.04	0.11	0.14	0.03
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	1800	3800	1800
c, Capacity [veh/h]	321	1603	759	571	798	756	676	1137	539	419	1124	533
d1, Uniform Delay [s]	14.12	25.58	22.09	14.08	30.30	30.02	20.46	36.95	28.17	20.38	31.66	28.19
k, delay calibration	0.11	0.11	0.11	0.11	0.32	0.31	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.48	0.34	0.06	12.97	11.81	0.25	11.24	0.53	3.86	1.40	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.67	0.40	0.09	0.93	0.91	0.30	0.90	0.14	0.48	0.47	0.11
d, Delay for Lane Group [s/veh]	14.36	26.06	22.43	14.14	43.27	41.83	20.71	48.20	28.70	24.24	33.06	28.60
Lane Group LOS	B	C	C	B	D	D	C	D	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.71	11.08	5.43	0.63	20.86	19.11	3.46	14.73	1.51	3.75	5.91	1.18
50th-Percentile Queue Length [ft]	17.75	277.10	135.85	15.82	521.51	477.70	86.39	368.37	37.76	93.64	147.74	29.46
95th-Percentile Queue Length [veh]	1.28	16.54	9.26	1.14	28.35	26.28	6.22	21.03	2.72	6.74	9.90	2.12
95th-Percentile Queue Length [ft]	31.96	413.59	231.42	28.48	708.77	656.92	155.50	525.76	67.96	168.55	247.41	53.03

Movement, Approach, & Intersection Results

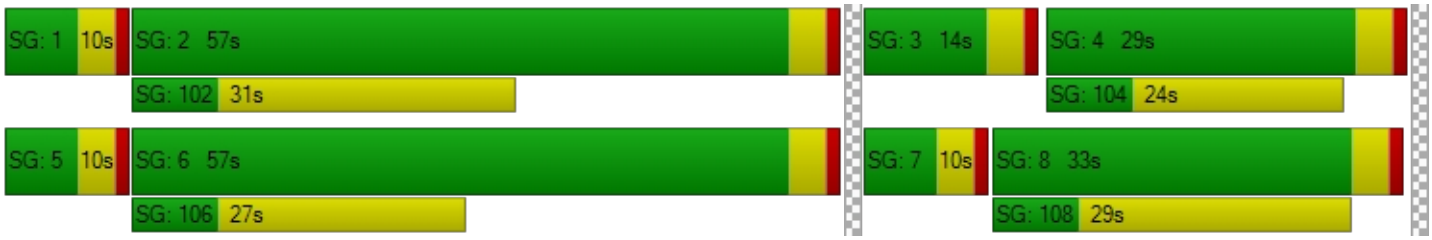
d_M, Delay for Movement [s/veh]	14.36	26.06	22.43	14.14	42.62	41.83	20.71	48.20	28.70	24.24	33.06	28.60
Movement LOS	B	C	C	B	D	D	C	D	C	C	C	C
d_A, Approach Delay [s/veh]	24.84			41.63			42.74			30.48		
Approach LOS	C			D			D			C		
d_I, Intersection Delay [s/veh]	35.38											
Intersection LOS	D											
Intersection V/C	0.879											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.048	2.950	2.815	2.844
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	964	964	527	455
d_b, Bicycle Delay [s]	14.77	14.77	29.82	32.84
I_b,int, Bicycle LOS Score for Intersection	2.734	2.781	2.634	2.206
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Lemon Street at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	35.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.793

Intersection Setup

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	80	826	250	61	822	58	120	1148	105	361	613	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	826	250	61	822	58	120	1148	105	361	613	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	207	63	15	206	15	30	287	26	90	153	15
Total Analysis Volume [veh/h]	80	826	250	61	822	58	120	1148	105	361	613	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	36	60	0	10	30	0	10	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	30	30	39	30	30	9	45	45	14	49	49
g / C, Green / Cycle	0.36	0.27	0.27	0.36	0.27	0.27	0.08	0.41	0.41	0.13	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.14	0.03	0.24	0.23	0.07	0.30	0.06	0.10	0.16	0.03
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	3500	3800	1800
c, Capacity [veh/h]	330	1044	495	380	515	488	152	1539	729	447	1705	807
d1, Uniform Delay [s]	23.73	36.99	33.62	23.48	38.51	38.23	49.46	27.92	20.69	46.70	19.96	17.33
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.38	1.39	0.80	0.20	5.38	4.79	8.86	3.33	0.41	3.50	0.59	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.79	0.51	0.16	0.89	0.87	0.79	0.75	0.14	0.81	0.36	0.08
d, Delay for Lane Group [s/veh]	24.11	38.38	34.42	23.67	43.90	43.02	58.32	31.25	21.10	50.20	20.55	17.51
Lane Group LOS	C	D	C	C	D	D	E	C	C	D	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.44	10.38	5.71	1.08	12.45	11.38	3.60	13.28	1.79	5.00	5.24	0.92
50th-Percentile Queue Length [ft]	35.94	259.57	142.78	26.97	311.31	284.38	90.08	331.88	44.68	125.12	130.88	23.03
95th-Percentile Queue Length [veh]	2.59	15.67	9.63	1.94	18.24	16.91	6.49	19.25	3.22	8.67	8.99	1.66
95th-Percentile Queue Length [ft]	64.69	391.68	240.76	48.54	455.99	422.67	162.15	481.27	80.42	216.85	224.69	41.45

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.11	38.38	34.42	23.67	43.51	43.02	58.32	31.25	21.10	50.20	20.55	17.51
Movement LOS	C	D	C	C	D	D	E	C	C	D	C	B
d_A, Approach Delay [s/veh]	36.54			42.19			32.84			30.71		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	35.25											
Intersection LOS	D											
Intersection V/C	0.793											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.860	2.689	2.840	2.976
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	1018	473	473
d_b, Bicycle Delay [s]	29.09	13.25	32.07	32.07
I_b,int, Bicycle LOS Score for Intersection	2.513	2.336	2.692	2.413
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: Harbor Boulevard at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	25	1322	35	44	1584	32	133	155	84	78	107	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	1322	35	44	1584	32	133	155	84	78	107	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	331	9	11	396	8	33	39	21	20	27	8
Total Analysis Volume [veh/h]	25	1322	35	44	1584	32	133	155	84	78	107	31
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	53	0	0	53	0	0	57	0	0	57	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	11	0	0	20	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	77	77	77	77	77	77	25	25	25
g / C, Green / Cycle	0.70	0.70	0.70	0.70	0.70	0.70	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.01	0.37	0.37	0.02	0.44	0.44	0.21	0.04	0.08
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800	1800
c, Capacity [veh/h]	875	1333	1263	979	1333	1263	451	77	406
d1, Uniform Delay [s]	4.97	7.75	7.72	5.02	8.71	8.68	41.50	34.40	35.65
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	1.48	1.54	0.09	2.21	2.31	3.88	49.36	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.03	0.52	0.52	0.04	0.62	0.62	0.83	1.01	0.34
d, Delay for Lane Group [s/veh]	5.03	9.23	9.25	5.11	10.92	10.99	45.37	83.76	36.14
Lane Group LOS	A	A	A	A	B	B	D	F	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.17	7.46	7.01	0.31	10.05	9.50	10.21	2.74	3.16
50th-Percentile Queue Length [ft]	4.33	186.56	175.26	7.63	251.23	237.48	255.28	68.51	78.88
95th-Percentile Queue Length [veh]	0.31	11.94	11.35	0.55	15.25	14.55	15.45	4.93	5.68
95th-Percentile Queue Length [ft]	7.79	298.56	283.81	13.74	381.20	363.85	386.29	123.31	141.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.03	9.24	9.25	5.11	10.95	10.99	45.37	45.37	45.37	83.76	36.14	36.14
Movement LOS	A	A	A	A	B	B	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	9.17			10.80			45.37			53.34		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	16.25											
Intersection LOS	B											
Intersection V/C	0.695											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.030	3.112	2.021	2.159
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	891	891	964	964
d_b, Bicycle Delay [s]	16.91	16.91	14.77	14.77
I_b,int, Bicycle LOS Score for Intersection	2.700	2.929	2.173	1.916
Bicycle LOS	B	C	B	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 18: Lemon Street at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	45	951	12	41	1155	86	158	54	128	90	79	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	951	12	41	1155	86	158	54	128	90	79	75
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	238	3	10	289	22	40	14	32	23	20	19
Total Analysis Volume [veh/h]	45	951	12	41	1155	86	158	54	128	90	79	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	69	0	0	69	0	0	41	0	0	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	11	0	0	11	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	79	79	79	79	79	79	23	23
g / C, Green / Cycle	0.72	0.72	0.72	0.72	0.72	0.72	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.26	0.26	0.02	0.34	0.33	0.19	0.14
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1066	1368	1296	1146	1368	1296	421	418
d1, Uniform Delay [s]	4.42	5.83	5.82	4.41	6.52	6.45	42.54	39.92
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.13	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.75	0.78	0.06	1.17	1.18	4.53	1.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.36	0.36	0.04	0.47	0.46	0.81	0.58
d, Delay for Lane Group [s/veh]	4.50	6.58	6.60	4.47	7.69	7.63	47.07	41.21
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	0.28	4.09	3.87	0.26	5.98	5.50	9.46	6.16
50th-Percentile Queue Length [ft]	7.11	102.33	96.72	6.42	149.55	137.42	236.50	154.10
95th-Percentile Queue Length [veh]	0.51	7.37	6.96	0.46	9.99	9.34	14.50	10.24
95th-Percentile Queue Length [ft]	12.79	184.19	174.09	11.56	249.83	233.54	362.60	255.89

Movement, Approach, & Intersection Results

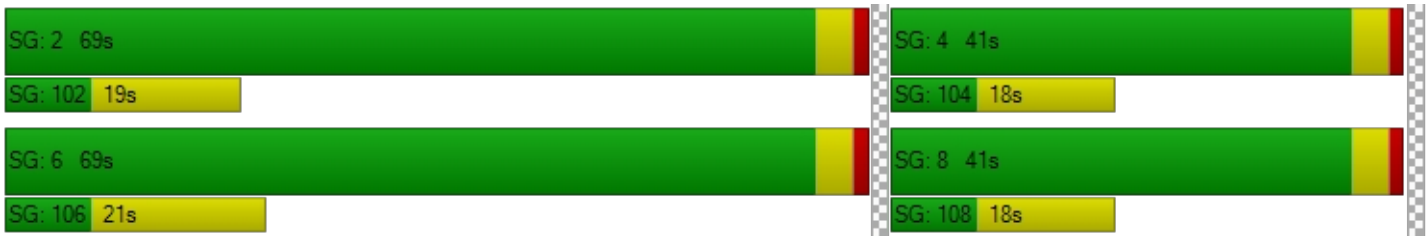
d_M, Delay for Movement [s/veh]	4.50	6.59	6.60	4.47	7.66	7.63	47.07	47.07	47.07	41.21	41.21	41.21
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	6.50			7.56			47.07			41.21		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	14.72											
Intersection LOS	B											
Intersection V/C	0.569											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.902	3.015	2.057	1.954
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1182	1182	673	673
d_b, Bicycle Delay [s]	9.20	9.20	24.22	24.22
I_b,int, Bicycle LOS Score for Intersection	2.391	2.617	2.121	1.962
Bicycle LOS	B	B	B	A

Sequence

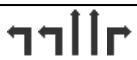
Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Harbor Boulevard at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	35.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.780

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	104	1146	295	262	1513	103	153	1330	275	103	435	114
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	104	1146	295	262	1513	103	153	1330	275	103	435	114
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	287	74	66	378	26	38	333	69	26	109	29
Total Analysis Volume [veh/h]	104	1146	295	262	1513	103	153	1330	275	103	435	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	47	0	14	51	0	12	39	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	27	0	0	28	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	38	38	10	42	42	11	38	38	8	35	35
g / C, Green / Cycle	0.05	0.34	0.34	0.09	0.38	0.38	0.10	0.35	0.35	0.07	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.03	0.30	0.16	0.07	0.34	0.17	0.09	0.23	0.15	0.06	0.08	0.06
s, saturation flow rate [veh/h]	3500	3800	1800	3500	3800	1800	1800	5700	1800	1800	5700	1800
c, Capacity [veh/h]	186	1307	619	320	1453	688	183	1977	624	130	1809	571
d1, Uniform Delay [s]	50.87	33.93	28.34	49.11	32.02	25.35	48.53	30.63	27.72	50.24	27.77	27.39
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.62	2.05	0.57	5.13	2.29	0.46	9.49	1.85	2.25	10.16	0.31	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.88	0.48	0.82	0.90	0.45	0.83	0.67	0.44	0.79	0.24	0.20
d, Delay for Lane Group [s/veh]	53.49	35.98	28.91	54.24	34.31	25.81	58.02	32.48	29.97	60.41	28.08	28.17
Lane Group LOS	D	D	C	D	C	C	E	C	C	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.47	14.45	6.15	3.75	16.39	6.04	4.59	10.21	5.93	3.15	2.87	2.31
50th-Percentile Queue Length [ft]	36.63	361.29	153.84	93.84	409.82	151.02	114.84	255.30	148.31	78.80	71.87	57.81
95th-Percentile Queue Length [veh]	2.64	20.69	10.22	6.76	23.03	10.07	8.11	15.45	9.93	5.67	5.17	4.16
95th-Percentile Queue Length [ft]	65.93	517.16	255.54	168.91	575.83	251.79	202.71	386.32	248.17	141.83	129.36	104.05

Movement, Approach, & Intersection Results

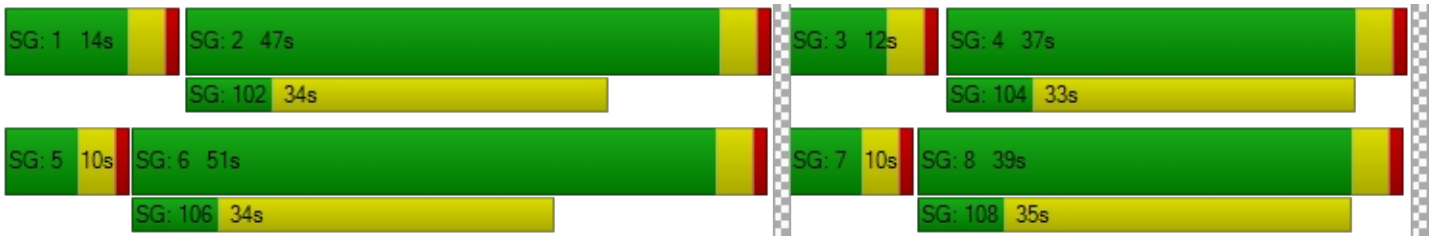
d_M, Delay for Movement [s/veh]	53.49	35.98	28.91	54.24	33.16	25.81	58.02	32.48	29.97	60.41	28.08	28.17
Movement LOS	D	D	C	D	C	C	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	35.81			35.70			34.31			33.21		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	35.03											
Intersection LOS	D											
Intersection V/C	0.780											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.154	3.062	3.028	3.044
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	782	855	636	600
d_b, Bicycle Delay [s]	20.40	18.04	25.57	26.95
I_b,int, Bicycle LOS Score for Intersection	2.834	2.593	2.527	1.918
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Lemon Street at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	34.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.846

Intersection Setup

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	141	879	152	287	1010	92	153	1474	149	108	440	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	879	152	287	1010	92	153	1474	149	108	440	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	220	38	72	253	23	38	369	37	27	110	34
Total Analysis Volume [veh/h]	141	879	152	287	1010	92	153	1474	149	108	440	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	48	0	17	54	0	11	35	0	10	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	25	0	0	20	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	47	29	29	47	35	35	11	46	46	6	40	40
g / C, Green / Cycle	0.42	0.27	0.27	0.42	0.32	0.32	0.10	0.42	0.42	0.05	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.08	0.16	0.27	0.05	0.09	0.35	0.17	0.03	0.16	0.15
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3800	1800	1800	3800	1800	3500	1900	1800
c, Capacity [veh/h]	416	1019	483	464	1225	580	186	1576	746	187	693	657
d1, Uniform Delay [s]	19.88	38.36	32.21	21.80	34.43	26.64	48.40	28.90	22.68	50.91	26.49	26.11
k, delay calibration	0.11	0.11	0.11	0.15	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	2.31	0.37	1.82	1.46	0.13	8.86	5.48	1.64	2.83	2.05	1.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.86	0.31	0.62	0.82	0.16	0.82	0.84	0.41	0.58	0.44	0.41
d, Delay for Lane Group [s/veh]	20.36	40.67	32.58	23.62	35.89	26.76	57.26	34.38	24.33	53.74	28.54	28.00
Lane Group LOS	C	D	C	C	D	C	E	C	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.31	11.47	3.29	5.28	12.51	1.75	4.56	16.35	5.81	1.53	6.44	5.57
50th-Percentile Queue Length [ft]	57.85	286.85	82.16	131.90	312.86	43.73	114.01	408.77	145.16	38.14	161.03	139.16
95th-Percentile Queue Length [veh]	4.17	17.03	5.92	9.04	18.32	3.15	8.06	22.98	9.76	2.75	10.60	9.44
95th-Percentile Queue Length [ft]	104.13	425.73	147.88	226.08	457.90	78.72	201.56	574.56	243.95	68.66	265.09	235.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.36	40.67	32.58	23.62	35.89	26.76	57.26	33.33	24.33	53.74	28.37	28.00
Movement LOS	C	D	C	C	D	C	E	C	C	D	C	C
d_A, Approach Delay [s/veh]	37.18			32.75			34.63			32.30		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	34.39											
Intersection LOS	C											
Intersection V/C	0.846											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.859	2.878	2.929	3.082
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	909	564	545
d_b, Bicycle Delay [s]	19.80	16.36	28.37	29.09
I_b,int, Bicycle LOS Score for Intersection	2.527	2.706	2.536	2.124
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	117	1503	0	0	1752	580	0	0	0	214	288	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	1503	0	0	1752	580	0	0	0	214	288	198
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	376	0	0	438	145	0	0	0	54	72	50
Total Analysis Volume [veh/h]	117	1503	0	0	1752	580	0	0	0	214	288	198
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	39	0	0	29	0	0	0	0	0	61	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	77	67	67		15	15	15
g / C, Green / Cycle	0.06	0.77	0.67	0.67		0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.26	0.41	0.43		0.12	0.08	0.11
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	205	4381	2546	1206		273	576	273
d1, Uniform Delay [s]	45.85	3.64	9.22	9.59		40.86	38.95	40.45
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.48	0.21	1.10	2.66		4.95	0.67	3.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.34	0.61	0.64		0.78	0.50	0.73
d, Delay for Lane Group [s/veh]	48.33	3.85	10.32	12.25		45.81	39.63	44.12
Lane Group LOS	D	A	B	B		D	D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	1.48	2.50	8.64	9.47		5.40	3.28	4.88
50th-Percentile Queue Length [ft]	36.99	62.45	215.95	236.76		134.99	81.94	122.02
95th-Percentile Queue Length [veh]	2.66	4.50	13.46	14.52		9.21	5.90	8.50
95th-Percentile Queue Length [ft]	66.59	112.41	336.46	362.94		230.27	147.49	212.60

Movement, Approach, & Intersection Results

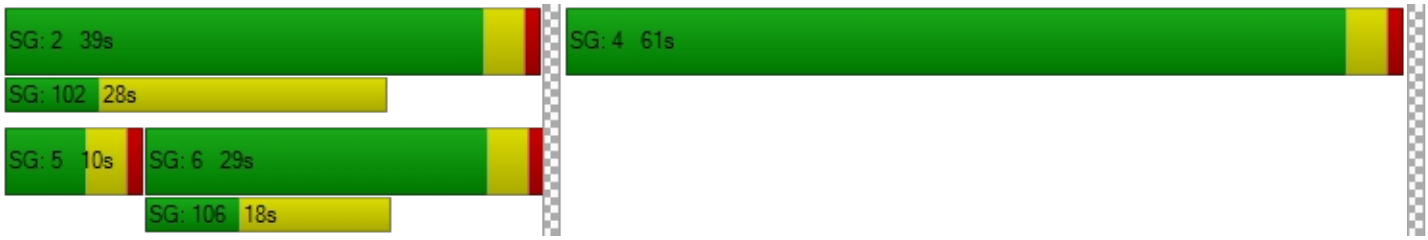
d_M, Delay for Movement [s/veh]	48.33	3.85	0.00	0.00	10.54	12.25	0.00	0.00	0.00	45.81	39.63	44.12
Movement LOS	D	A			B	B				D	D	D
d_A, Approach Delay [s/veh]	7.07			10.97			0.00			42.79		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	14.40											
Intersection LOS	B											
Intersection V/C	0.664											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.200	2.307
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	500	0	1140
d_b, Bicycle Delay [s]	21.13	28.13	50.00	9.25
I_b,int, Bicycle LOS Score for Intersection	2.451	2.842	4.132	2.137
Bicycle LOS	B	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	68	649	0	0	1302	288	0	0	0	270	422	620
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	649	0	0	1302	288	0	0	0	270	422	620
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	162	0	0	326	72	0	0	0	68	106	155
Total Analysis Volume [veh/h]	68	649	0	0	1302	288	0	0	0	270	422	620
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	33	0	0	23	0	0	0	0	0	67	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	54	45	45		38	38	38
g / C, Green / Cycle	0.05	0.54	0.45	0.45		0.38	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.28	0.29		0.19	0.18	0.34
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	93	3058	1689	800		690	729	690
d1, Uniform Delay [s]	46.71	12.12	21.39	21.86		23.54	23.22	28.99
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.27	0.16	1.78	4.29		0.57	0.48	5.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.21	0.63	0.66		0.50	0.47	0.90
d, Delay for Lane Group [s/veh]	56.98	12.28	23.17	26.15		24.11	23.70	34.40
Lane Group LOS	E	B	C	C		C	C	C
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.92	2.48	9.63	10.37		6.23	6.10	14.50
50th-Percentile Queue Length [ft]	48.12	62.11	240.70	259.19		155.84	152.41	362.62
95th-Percentile Queue Length [veh]	3.46	4.47	14.72	15.65		10.33	10.15	20.75
95th-Percentile Queue Length [ft]	86.62	111.80	367.92	391.20		258.21	253.65	518.76

Movement, Approach, & Intersection Results

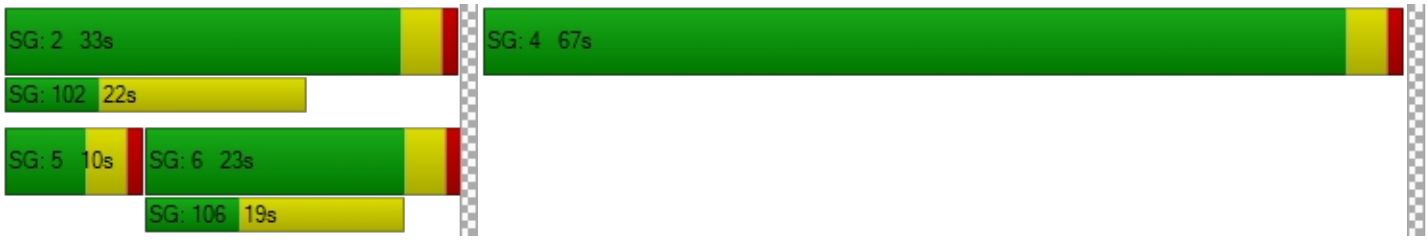
d_M, Delay for Movement [s/veh]	56.98	12.28	0.00	0.00	23.72	26.15	0.00	0.00	0.00	24.11	23.77	34.40
Movement LOS	E	B			C	C				C	C	C
d_A, Approach Delay [s/veh]	16.52			24.16			0.00			28.86		
Approach LOS	B			C			A			C		
d_I, Intersection Delay [s/veh]	24.35											
Intersection LOS	C											
Intersection V/C	0.769											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.099	2.371
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	580	380	0	1260
d_b, Bicycle Delay [s]	25.21	32.81	50.00	6.85
I_b,int, Bicycle LOS Score for Intersection	1.954	2.434	4.132	2.642
Bicycle LOS	A	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.598

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1112	444	512	1410	0	467	156	157	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1112	444	512	1410	0	467	156	157	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	278	111	128	353	0	117	39	39	0	0	0
Total Analysis Volume [veh/h]	0	1112	444	512	1410	0	467	156	157	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	29	0	47	76	0	0	24	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	54	54	18	76	16	16	16	
g / C, Green / Cycle	0.54	0.54	0.18	0.76	0.16	0.16	0.16	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.25	0.15	0.25	0.13	0.08	0.09	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	3092	976	617	4324	565	307	290	
d1, Uniform Delay [s]	13.00	13.90	39.75	3.87	40.59	38.32	38.53	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.33	1.53	2.97	0.20	3.16	1.31	1.56	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.36	0.45	0.83	0.33	0.83	0.51	0.54	
d, Delay for Lane Group [s/veh]	13.33	15.42	42.72	4.07	43.75	39.62	40.10	
Lane Group LOS	B	B	D	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	4.62	6.20	6.25	2.46	5.75	3.58	3.64	
50th-Percentile Queue Length [ft]	115.40	155.06	156.30	61.59	143.74	89.53	90.95	
95th-Percentile Queue Length [veh]	8.14	10.29	10.35	4.43	9.68	6.45	6.55	
95th-Percentile Queue Length [ft]	203.48	257.17	258.82	110.87	242.05	161.15	163.70	

Movement, Approach, & Intersection Results

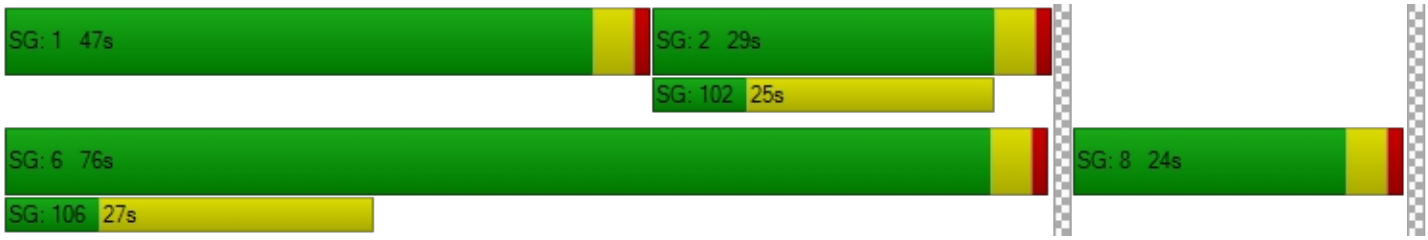
d_M, Delay for Movement [s/veh]	0.00	13.33	15.42	42.72	4.07	0.00	43.75	39.62	40.10	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	D			
d_A, Approach Delay [s/veh]	13.93			14.37			42.19			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.30											
Intersection LOS	B											
Intersection V/C	0.598											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.326	2.262
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	1440	400	0
d_b, Bicycle Delay [s]	28.13	3.92	32.00	50.00
I_b,int, Bicycle LOS Score for Intersection	2.415	2.617	2.847	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.697

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	651	377	531	949	0	87	807	193	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	651	377	531	949	0	87	807	193	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	163	94	133	237	0	22	202	48	0	0	0
Total Analysis Volume [veh/h]	0	651	377	531	949	0	87	807	193	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	24	47	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	17	63	29	29	29	
g / C, Green / Cycle	0.42	0.42	0.17	0.63	0.29	0.29	0.29	
(v / s)_i Volume / Saturation Flow Rate	0.17	0.21	0.15	0.25	0.25	0.23	0.11	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1590	753	608	2402	518	547	518	
d1, Uniform Delay [s]	20.42	21.40	40.24	9.02	33.91	33.01	28.41	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.78	2.37	4.09	0.49	4.88	2.84	0.44	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.41	0.50	0.87	0.40	0.88	0.80	0.37	
d, Delay for Lane Group [s/veh]	21.20	23.77	44.33	9.51	38.79	35.84	28.85	
Lane Group LOS	C	C	D	A	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.39	6.82	6.63	4.80	10.96	10.11	3.72	
50th-Percentile Queue Length [ft]	134.63	170.61	165.68	120.03	273.97	252.77	92.93	
95th-Percentile Queue Length [veh]	9.19	11.11	10.85	8.39	16.39	15.33	6.69	
95th-Percentile Queue Length [ft]	229.78	277.72	271.23	209.86	409.69	383.14	167.28	

Movement, Approach, & Intersection Results

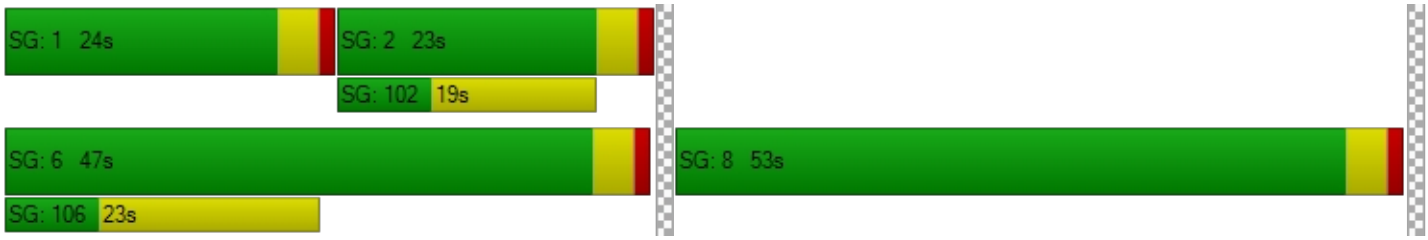
d_M, Delay for Movement [s/veh]	0.00	21.20	23.77	44.33	9.51	0.00	38.79	37.18	28.85	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	D	C			
d_A, Approach Delay [s/veh]	22.14			22.00			35.83			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	26.22											
Intersection LOS	C											
Intersection V/C	0.697											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.298	2.556
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	860	980	0
d_b, Bicycle Delay [s]	32.81	16.25	13.01	50.00
I_b,int, Bicycle LOS Score for Intersection	2.125	2.781	2.456	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Harbor Boulevard at Bastanchury Road

Control Type:	Signalized	Delay (sec / veh):	104.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.888

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Base Volume Input [veh/h]	194	709	109	530	1413	313	353	1383	259	248	1089	219
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	194	709	109	530	1413	313	353	1383	259	248	1089	219
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	177	27	133	353	78	88	346	65	62	272	55
Total Analysis Volume [veh/h]	194	709	109	530	1413	313	353	1383	259	248	1089	219
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	43	0	12	44	0	14	43	0	12	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	24	0	0	31	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	42	42	8	43	43	10	36	36	8	34	34
g / C, Green / Cycle	0.06	0.38	0.38	0.07	0.39	0.39	0.09	0.33	0.33	0.07	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.06	0.12	0.06	0.15	0.30	0.32	0.20	0.29	0.30	0.07	0.19	0.12
s, saturation flow rate [veh/h]	3500	5700	1800	3500	3800	1800	1800	3800	1800	3500	5700	1800
c, Capacity [veh/h]	224	2159	682	256	1474	698	164	1253	593	256	1776	561
d1, Uniform Delay [s]	51.03	24.26	22.61	51.00	29.65	30.15	50.01	34.83	35.30	50.88	32.24	29.69
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.24	0.11	0.35	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.66	0.41	0.50	485.31	4.28	10.13	527.27	2.19	15.35	19.80	0.35	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.33	0.16	2.07	0.79	0.82	2.15	0.88	0.91	0.97	0.61	0.39
d, Delay for Lane Group [s/veh]	60.69	24.66	23.11	536.31	33.93	40.28	577.27	37.01	50.65	70.68	32.58	30.13
Lane Group LOS	E	C	C	F	C	D	F	D	D	E	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.94	4.43	1.96	20.75	14.04	15.13	28.55	14.04	16.08	4.10	8.20	4.59
50th-Percentile Queue Length [ft]	73.57	110.72	49.10	518.83	351.06	378.30	713.68	350.97	401.99	102.49	204.96	114.82
95th-Percentile Queue Length [veh]	5.30	7.88	3.53	33.44	20.19	21.51	45.18	20.18	22.66	7.38	12.89	8.11
95th-Percentile Queue Length [ft]	132.42	197.00	88.37	836.02	504.70	537.79	1129.49	504.59	566.40	184.49	322.35	202.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.69	24.66	23.11	536.31	35.08	40.28	577.27	39.78	50.65	70.68	32.58	30.13
Movement LOS	E	C	C	F	D	D	F	D	D	E	C	C
d_A, Approach Delay [s/veh]	31.40			153.56			136.30			38.31		
Approach LOS	C			F			F			D		
d_I, Intersection Delay [s/veh]	104.08											
Intersection LOS	F											
Intersection V/C	0.888											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.176	3.166	3.104	3.246
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	709	727	709	673
d_b, Bicycle Delay [s]	22.91	22.27	22.91	24.22
I_b,int, Bicycle LOS Score for Intersection	2.116	2.800	2.657	2.415
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 26: College Driveway No. 1 at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	17.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.049

Intersection Setup

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	15	11	49	833	548	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	11	49	833	548	30
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	12	208	137	8
Total Analysis Volume [veh/h]	15	11	49	833	548	30
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.02	0.05	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	17.42	12.57	8.80	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.22	0.22	0.16	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	5.59	5.59	3.88	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.37		0.49		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 27: Centennial Way at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.137

Intersection Setup

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	0	75	533	298	55	622
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	75	533	298	55	622
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	19	133	75	14	156
Total Analysis Volume [veh/h]	0	75	533	298	55	622
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.14	0.01	0.00	0.07	0.01
d_M, Delay for Movement [s/veh]	0.00	12.63	0.00	0.00	9.82	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.47	0.00	0.00	0.22	0.00
95th-Percentile Queue Length [ft]	0.00	11.83	0.00	0.00	5.51	0.00
d_A, Approach Delay [s/veh]	12.63		0.00		0.80	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.94					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 28: Lemon Street at Parking Structure

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.159

Intersection Setup

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Base Volume Input [veh/h]	80	514	306	0	720	57	0	0	4	0	0	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	514	306	0	720	57	0	0	4	0	0	94
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	129	77	0	180	14	0	0	1	0	0	24
Total Analysis Volume [veh/h]	80	514	306	0	720	57	0	0	4	0	0	94
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.16
d_M, Delay for Movement [s/veh]	9.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.94	0.00	0.00	12.24
Movement LOS	A	A	A		A	A			B			B
95th-Percentile Queue Length [veh]	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.56
95th-Percentile Queue Length [ft]	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	14.06
d_A, Approach Delay [s/veh]	0.87			0.00			10.94			12.24		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.11											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 29: Lemon Street at Fullerton College Drive

Control Type:	Signalized	Delay (sec / veh):	24.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

Intersection Setup

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Base Volume Input [veh/h]	0	791	341	185	580	0	116	2	149	167	0	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	791	341	185	580	0	116	2	149	167	0	60
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	198	85	46	145	0	29	1	37	42	0	15
Total Analysis Volume [veh/h]	0	791	341	185	580	0	116	2	149	167	0	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	6	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	30	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	10	34	0	0	49	0	27	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	7	0	0
Pedestrian Clearance [s]	0	13	0	0	14	0	0	0	0	16	0	0
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall		No		No	No			No		No		
Maximum Recall		No		No	No			No		No		
Pedestrian Recall		No		No	No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	R
C, Cycle Length [s]	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	57	57	67	67	19	12	12
g / C, Green / Cycle	0.52	0.52	0.61	0.61	0.17	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.30	0.31	0.10	0.15	0.15	0.09	0.03
s, saturation flow rate [veh/h]	1900	1800	1800	3800	1800	1800	1800
c, Capacity [veh/h]	981	930	776	2311	306	203	203
d1, Uniform Delay [s]	18.33	18.77	9.42	9.97	44.55	47.74	44.80
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.47	2.96	0.16	0.26	7.74	7.96	0.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.61	0.24	0.25	0.87	0.82	0.29
d, Delay for Lane Group [s/veh]	20.80	21.74	9.58	10.23	52.30	55.70	45.60
Lane Group LOS	C	C	A	B	D	E	D
Critical Lane Group	No	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	10.24	10.56	1.91	3.19	7.71	4.91	1.55
50th-Percentile Queue Length [ft]	256.00	264.08	47.63	79.75	192.81	122.80	38.74
95th-Percentile Queue Length [veh]	15.49	15.89	3.43	5.74	12.27	8.55	2.79
95th-Percentile Queue Length [ft]	387.19	397.34	85.74	143.56	306.67	213.67	69.73

Movement, Approach, & Intersection Results

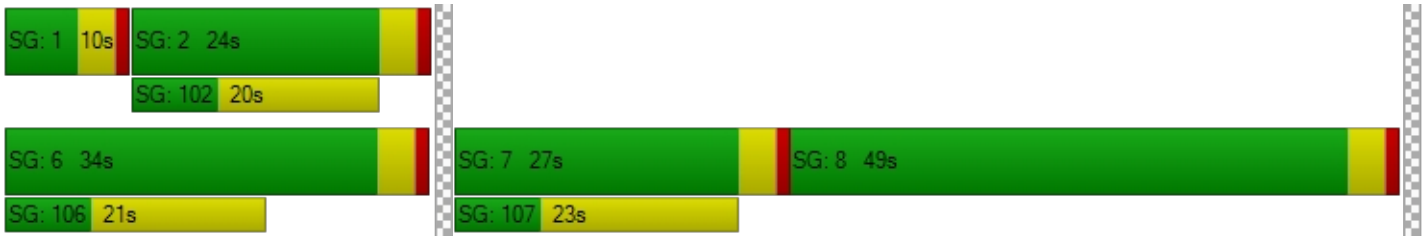
d_M, Delay for Movement [s/veh]	0.00	21.06	21.74	9.58	10.23	0.00	52.30	52.30	52.30	55.70	0.00	45.60
Movement LOS		C	C	A	B		D	D	D	E		D
d_A, Approach Delay [s/veh]	21.27			10.08			52.30			53.03		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	24.17											
Intersection LOS	C											
Intersection V/C	0.677											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.812	1.693	2.336
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	364	545	818	0
d_b, Bicycle Delay [s]	36.82	29.09	19.20	55.00
I_b,int, Bicycle LOS Score for Intersection	2.494	2.191	2.000	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Berkeley Avenue at College Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	23.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.171

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Base Volume Input [veh/h]	268	400	492	15	42	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	268	400	492	15	42	47
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	100	123	4	11	12
Total Analysis Volume [veh/h]	268	400	492	15	42	47
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.25	0.00	0.00	0.00	0.17	0.08
d_M, Delay for Movement [s/veh]	9.55	0.00	0.00	0.00	23.05	14.73
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	1.01	0.00	0.00	0.00	0.99	0.99
95th-Percentile Queue Length [ft]	25.19	0.00	0.00	0.00	24.65	24.65
d_A, Approach Delay [s/veh]	3.83		0.00		18.66	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.34					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 31: Berkeley Avenue at College Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Base Volume Input [veh/h]	0	607	402	0	11	103
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	607	402	0	11	103
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	152	101	0	3	26
Total Analysis Volume [veh/h]	0	607	402	0	11	103
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.02	0.16
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	14.12	11.84
Movement LOS		A	A		B	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.66	0.66
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	16.61	16.61
d_A, Approach Delay [s/veh]	0.00		0.00		12.06	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.22					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 32: Berkeley Avenue at Brookdale Place

Control Type:	Two-way stop	Delay (sec / veh):	16.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.075

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Base Volume Input [veh/h]	653	14	43	477	29	51
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	653	14	43	477	29	51
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	163	4	11	119	7	13
Total Analysis Volume [veh/h]	653	14	43	477	29	51
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.05	0.00	0.08	0.11
d_M, Delay for Movement [s/veh]	0.00	0.00	9.09	0.00	16.24	14.67
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.15	0.00	0.67	0.67
95th-Percentile Queue Length [ft]	0.00	0.00	3.66	0.00	16.82	16.82
d_A, Approach Delay [s/veh]	0.00		0.75		15.24	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.27					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: Harbor Boulevard at Valley View Drive/Brea Boulevard

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Base Volume Input [veh/h]	27	1416	611	97	1245	68	102	190	36	556	113	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	1416	611	97	1245	68	102	190	36	556	113	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	354	153	24	311	17	26	48	9	139	28	0
Total Analysis Volume [veh/h]	27	1416	611	97	1245	68	102	190	36	556	113	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	11	33	0	0	16	0	0	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	20	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	50	7	54	54	13	13	13	24	24
g / C, Green / Cycle	0.03	0.45	0.06	0.49	0.49	0.12	0.12	0.12	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.02	0.25	0.05	0.28	0.14	0.06	0.10	0.02	0.18	0.19
s, saturation flow rate [veh/h]	1800	5700	1800	3800	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	57	2582	116	1846	874	221	233	221	386	386
d1, Uniform Delay [s]	52.40	21.92	50.93	20.20	16.93	44.90	47.06	43.22	41.65	41.79
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.98	0.84	14.39	1.31	0.83	1.50	6.76	0.34	5.69	6.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.55	0.84	0.57	0.29	0.46	0.81	0.16	0.86	0.87
d, Delay for Lane Group [s/veh]	58.38	22.76	65.33	21.51	17.76	46.40	53.82	43.56	47.35	48.00
Lane Group LOS	E	C	E	C	B	D	D	D	D	D
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.83	8.87	3.10	9.76	3.95	2.68	5.49	0.90	9.22	9.43
50th-Percentile Queue Length [ft]	20.69	221.87	77.53	244.04	98.85	67.02	137.30	22.51	230.51	235.63
95th-Percentile Queue Length [veh]	1.49	13.76	5.58	14.89	7.12	4.83	9.34	1.62	14.20	14.46
95th-Percentile Queue Length [ft]	37.24	344.01	139.55	372.14	177.94	120.63	233.39	40.52	355.01	361.50

Movement, Approach, & Intersection Results

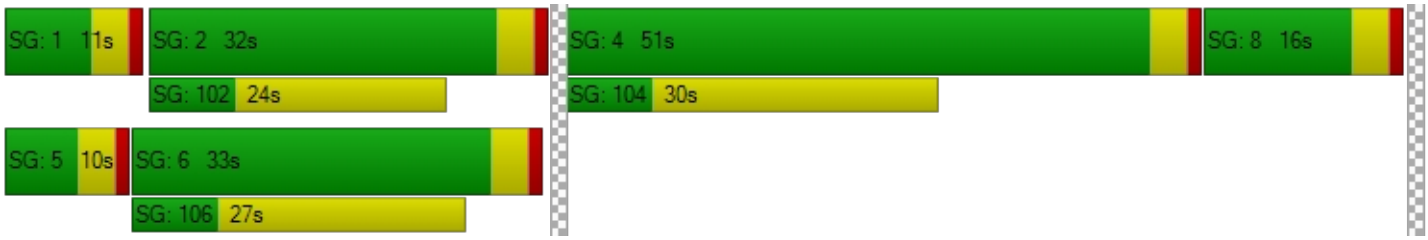
d_M, Delay for Movement [s/veh]	58.38	22.76	0.00	65.33	20.96	17.76	46.40	53.82	43.56	47.61	48.00	0.00
Movement LOS	E	C		E	C	B	D	D	D	D	D	
d_A, Approach Delay [s/veh]	23.43			23.86			50.39			47.68		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.10											
Intersection LOS	C											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.156	2.271	2.260
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	527	218	855
d_b, Bicycle Delay [s]	30.56	29.82	43.65	18.04
I_b,int, Bicycle LOS Score for Intersection	2.353	2.335	2.101	2.663
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Harbor Boulevard at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.891

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	81	1369	30	447	1308	37	40	190	126	61	260	618
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	1369	30	447	1308	37	40	190	126	61	260	618
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	342	8	112	327	9	10	48	32	15	65	155
Total Analysis Volume [veh/h]	81	1369	30	447	1308	37	40	190	126	61	260	618
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	5	2	0	1	6	0	0	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	6
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
Split [s]	10	53	0	20	63	0	0	37	0	0	37	37
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	21	0	0	22	0	0	18	0	0	26	26
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No	No		No	No			No			No	No
Maximum Recall	No	No		No	No			No			No	No
Pedestrian Recall	No	No		No	No			No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	50	50	16	60	60	32	32	32	32	32	52
g / C, Green / Cycle	0.06	0.45	0.45	0.15	0.54	0.54	0.29	0.29	0.29	0.29	0.29	0.48
(v / s)_i Volume / Saturation Flow Rate	0.05	0.38	0.38	0.13	0.34	0.02	0.02	0.10	0.07	0.03	0.14	0.34
s, saturation flow rate [veh/h]	1800	1900	1800	3500	3800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	101	856	811	513	2056	974	355	558	529	416	558	858
d1, Uniform Delay [s]	51.27	26.72	26.63	45.90	17.66	11.83	28.05	30.47	29.49	28.39	31.77	22.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.42	9.80	10.00	4.76	1.52	0.07	0.14	0.36	0.23	0.16	0.61	5.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.84	0.84	0.87	0.64	0.04	0.11	0.34	0.24	0.15	0.47	0.72
d, Delay for Lane Group [s/veh]	64.69	36.52	36.63	50.66	19.18	11.90	28.19	30.83	29.72	28.55	32.38	28.12
Lane Group LOS	E	D	D	D	B	B	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	2.58	18.46	17.39	6.28	11.53	0.44	0.78	4.00	2.56	1.20	5.72	13.57
50th-Percentile Queue Length [ft]	64.50	461.47	434.84	157.10	288.35	11.01	19.44	99.94	64.09	29.94	142.96	339.19
95th-Percentile Queue Length [veh]	4.64	25.51	24.23	10.39	17.10	0.79	1.40	7.20	4.61	2.16	9.64	19.61
95th-Percentile Queue Length [ft]	116.10	637.63	605.83	259.87	427.59	19.81	34.99	179.90	115.36	53.89	241.01	490.20

Movement, Approach, & Intersection Results

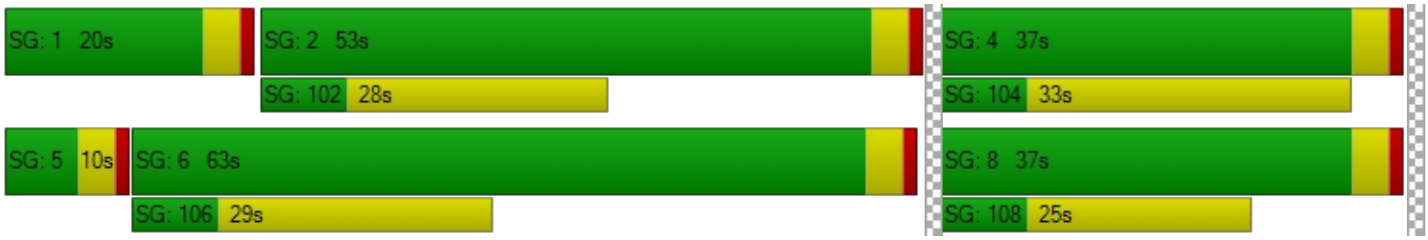
d_M, Delay for Movement [s/veh]	64.69	36.58	36.63	50.66	19.18	11.90	28.19	30.83	29.72	28.55	32.38	28.12
Movement LOS	E	D	D	D	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	38.12			26.88			30.14			29.33		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	31.28											
Intersection LOS	C											
Intersection V/C	0.891											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.976	3.192	2.320	2.623
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	891	1073	600	600
d_b, Bicycle Delay [s]	16.91	11.82	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	2.781	3.038	2.147	3.109
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Lemon Street at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	39.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	448	424	136	114	295	19	23	365	288	92	498	144
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	448	424	136	114	295	19	23	365	288	92	498	144
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	112	106	34	29	74	5	6	91	72	23	125	36
Total Analysis Volume [veh/h]	448	424	136	114	295	19	23	365	288	92	498	144
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	6	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	43	0	0	33	0	0	34	34	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	19	0	0	16	16	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		No	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	37	37	37	37	37	24	24	65	24	24	24
g / C, Green / Cycle	0.34	0.34	0.34	0.34	0.34	0.22	0.22	0.59	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.24	0.24	0.08	0.06	0.17	0.01	0.19	0.16	0.05	0.18	0.17
s, saturation flow rate [veh/h]	1800	1800	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	608	608	608	608	608	122	409	1061	95	409	387
d1, Uniform Delay [s]	31.76	31.76	26.04	25.70	29.15	34.24	41.83	11.01	35.62	41.22	40.56
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.23	0.50	0.11	0.20	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.11	7.11	0.85	0.68	3.12	0.74	13.34	0.63	36.72	8.10	5.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.72	0.22	0.19	0.52	0.19	0.89	0.27	0.97	0.84	0.77
d, Delay for Lane Group [s/veh]	38.87	38.87	26.89	26.38	32.27	34.98	55.18	11.65	72.34	49.31	45.56
Lane Group LOS	D	D	C	C	C	C	E	B	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	11.17	11.17	2.69	2.22	7.12	0.52	11.03	3.49	3.01	9.70	8.12
50th-Percentile Queue Length [ft]	279.27	279.27	67.32	55.60	177.93	12.90	275.83	87.34	75.18	242.61	203.10
95th-Percentile Queue Length [veh]	16.65	16.65	4.85	4.00	11.49	0.93	16.48	6.29	5.41	14.81	12.80
95th-Percentile Queue Length [ft]	416.31	416.31	121.18	100.09	287.31	23.22	412.02	157.20	135.33	370.33	319.96

Movement, Approach, & Intersection Results

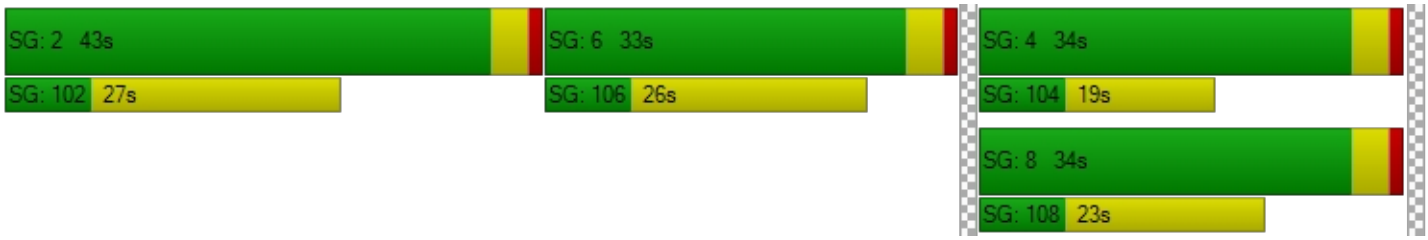
d_M, Delay for Movement [s/veh]	38.87	38.87	26.89	26.38	32.27	32.27	34.98	55.18	11.65	72.34	48.14	45.56
Movement LOS	D	D	C	C	C	C	C	E	B	E	D	D
d_A, Approach Delay [s/veh]	37.26			30.70			35.94			50.67		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	39.42											
Intersection LOS	D											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.682	2.314	3.267	2.632
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	709	527	545	545
d_b, Bicycle Delay [s]	22.91	29.82	29.09	29.09
I_b,int, Bicycle LOS Score for Intersection	3.223	2.266	2.675	2.165
Bicycle LOS	C	B	B	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Hornet Way at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.419

Intersection Setup

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	28	232	176	416	494	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	232	176	416	494	23
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	58	44	104	124	6
Total Analysis Volume [veh/h]	28	232	176	416	494	23
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	8	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	6	6	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	30	0	0	80	80	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	19	0	0	0	14	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	16	86	86	86	86
g / C, Green / Cycle	0.15	0.15	0.78	0.78	0.78	0.78
(v / s)_i Volume / Saturation Flow Rate	0.02	0.13	0.10	0.22	0.26	0.01
s, saturation flow rate [veh/h]	1800	1800	1800	1900	1900	1800
c, Capacity [veh/h]	266	266	1281	1481	1481	1403
d1, Uniform Delay [s]	40.48	45.74	2.96	3.41	3.60	2.70
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	8.75	0.22	0.47	0.61	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.87	0.14	0.28	0.33	0.02
d, Delay for Lane Group [s/veh]	40.65	54.50	3.18	3.89	4.21	2.72
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.67	6.80	0.83	2.25	2.82	0.10
50th-Percentile Queue Length [ft]	16.75	170.03	20.78	56.18	70.55	2.45
95th-Percentile Queue Length [veh]	1.21	11.08	1.50	4.04	5.08	0.18
95th-Percentile Queue Length [ft]	30.15	276.95	37.40	101.12	126.98	4.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.65	54.50	3.18	3.89	4.21	2.72
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	53.00		3.68		4.14	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	13.22					
Intersection LOS	B					
Intersection V/C	0.419					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	76.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	5.25
I_p,int, Pedestrian LOS Score for Intersection	2.349	2.378	2.216
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	55.00	55.00	55.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.109	4.985
Bicycle LOS	D	F	E

Sequence

Ring 1	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Euclid Street at Malvern Avenue

Control Type:	Signalized	Delay (sec / veh):	34.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.855

Intersection Setup

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Base Volume Input [veh/h]	188	1229	116	153	1107	29	52	615	174	167	815	244
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	188	1229	116	153	1107	29	52	615	174	167	815	244
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	307	29	38	277	7	13	154	44	42	204	61
Total Analysis Volume [veh/h]	188	1229	116	153	1107	29	52	615	174	167	815	244
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	10	30	0	10	60	0	10	60	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	57	47	47	57	47	47	45	35	35	45	36	36
g / C, Green / Cycle	0.52	0.42	0.42	0.52	0.42	0.42	0.41	0.32	0.32	0.41	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.10	0.37	0.36	0.09	0.31	0.31	0.03	0.22	0.20	0.09	0.30	0.27
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	551	804	762	410	804	762	330	609	577	490	630	597
d1, Uniform Delay [s]	14.45	28.92	28.58	14.15	26.46	26.36	19.58	32.64	31.95	20.96	34.99	33.92
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.15	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.68	12.15	11.40	0.56	5.72	5.86	0.22	1.41	1.18	0.41	6.51	3.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.87	0.85	0.37	0.73	0.72	0.16	0.69	0.64	0.34	0.90	0.83
d, Delay for Lane Group [s/veh]	16.14	41.07	39.98	14.71	32.18	32.22	19.80	34.05	33.13	21.37	41.50	37.22
Lane Group LOS	B	D	D	B	C	C	B	C	C	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.76	18.94	17.28	2.06	13.73	12.90	0.83	9.91	8.48	2.84	15.24	12.52
50th-Percentile Queue Length [ft]	69.00	473.39	432.06	51.43	343.37	322.53	20.72	247.65	211.92	70.90	380.90	313.00
95th-Percentile Queue Length [veh]	4.97	26.07	24.10	3.70	19.81	18.79	1.49	15.07	13.25	5.10	21.64	18.32
95th-Percentile Queue Length [ft]	124.20	651.80	602.51	92.58	495.32	469.79	37.30	376.69	331.29	127.61	540.93	458.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.14	40.60	39.98	14.71	32.20	32.22	19.80	33.76	33.13	21.37	40.18	37.22
Movement LOS	B	D	D	B	C	C	B	C	C	C	D	D
d_A, Approach Delay [s/veh]	37.55			30.13			32.77			37.03		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	34.64											
Intersection LOS	C											
Intersection V/C	0.855											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.971	2.884	2.793	2.817
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	1018	1018
d_b, Bicycle Delay [s]	32.07	32.07	13.25	13.25
I_b,int, Bicycle LOS Score for Intersection	2.824	2.623	2.253	2.571
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Harbor Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	32.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.857

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	110	1060	147	120	900	105	243	745	102	217	1040	153
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	1060	147	120	900	105	243	745	102	217	1040	153
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	265	37	30	225	26	61	186	26	54	260	38
Total Analysis Volume [veh/h]	110	1060	147	120	900	105	243	745	102	217	1040	153
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	31	0	10	31	0	10	55	0	14	59	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	57	47	47	57	47	47	45	31	31	45	35	35
g / C, Green / Cycle	0.52	0.43	0.43	0.52	0.43	0.43	0.41	0.28	0.28	0.41	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.06	0.33	0.32	0.07	0.28	0.27	0.14	0.23	0.22	0.12	0.27	0.09
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	624	813	770	503	814	771	372	535	506	442	1207	572
d1, Uniform Delay [s]	13.61	26.99	26.49	13.69	24.87	24.53	22.22	37.10	36.63	21.85	35.30	28.02
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.62	7.19	6.54	0.24	3.93	3.76	1.95	3.41	2.90	0.85	1.95	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.78	0.75	0.24	0.65	0.62	0.65	0.83	0.80	0.49	0.86	0.27
d, Delay for Lane Group [s/veh]	14.23	34.19	33.03	13.94	28.80	28.29	24.17	40.51	39.53	22.70	37.26	28.27
Lane Group LOS	B	C	C	B	C	C	C	D	D	C	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.49	15.41	13.73	1.55	11.46	10.33	4.47	11.57	10.32	3.85	13.20	3.05
50th-Percentile Queue Length [ft]	37.32	385.29	343.30	38.87	286.58	258.18	111.75	289.29	258.01	96.33	330.10	76.17
95th-Percentile Queue Length [veh]	2.69	21.85	19.81	2.80	17.02	15.60	7.94	17.15	15.59	6.94	19.16	5.48
95th-Percentile Queue Length [ft]	67.17	546.24	495.23	69.96	425.39	389.94	198.44	428.76	389.73	173.40	479.08	137.11

Movement, Approach, & Intersection Results

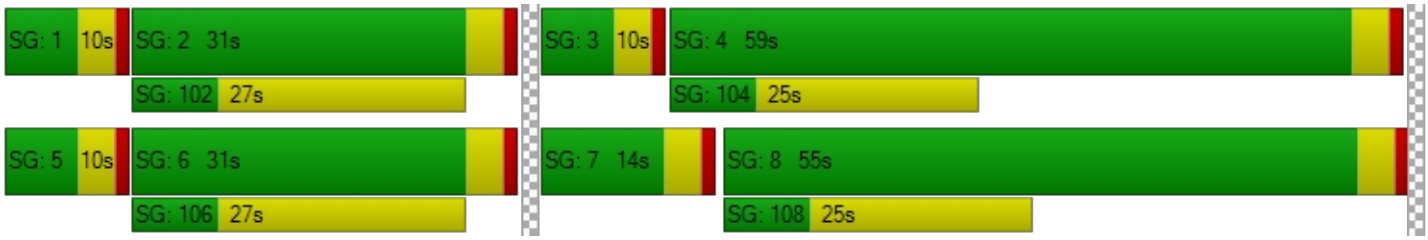
d_M, Delay for Movement [s/veh]	14.23	33.72	33.03	13.94	28.59	28.29	24.17	40.11	39.53	22.70	37.26	28.27
Movement LOS	B	C	C	B	C	C	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	32.02			27.00			36.50			34.04		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	32.44											
Intersection LOS	C											
Intersection V/C	0.857											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.896	2.929	2.837	2.932
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	491	927	1000
d_b, Bicycle Delay [s]	31.31	31.31	15.82	13.75
I_b,int, Bicycle LOS Score for Intersection	2.646	2.488	2.459	2.723
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	43.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.805

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	217	35	21	155	41	53	196	31	71	286	30
Total Analysis Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	10	31	0	13	53	0	15	55	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	52	42	42	52	41	41	9	36	36	11	37	37
g / C, Green / Cycle	0.47	0.38	0.38	0.47	0.37	0.37	0.08	0.32	0.32	0.10	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.08	0.05	0.22	0.20	0.12	0.25	0.24	0.08	0.30	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	614	1447	685	603	698	661	148	617	585	344	1294	613
d1, Uniform Delay [s]	17.00	27.36	22.87	16.32	28.22	27.66	50.51	33.53	33.01	48.69	34.23	25.64
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.94	1.84	0.66	0.10	3.73	3.32	197.95	2.74	2.05	4.88	2.17	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.60	0.20	0.14	0.60	0.55	1.42	0.77	0.74	0.82	0.88	0.19
d, Delay for Lane Group [s/veh]	17.94	29.20	23.53	16.43	31.95	30.98	248.46	36.27	35.06	53.57	36.40	25.79
Lane Group LOS	B	C	C	B	C	C	F	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.35	9.37	2.52	1.17	9.48	8.16	12.24	11.81	10.41	4.02	14.50	2.23
50th-Percentile Queue Length [ft]	58.70	234.21	63.01	29.13	236.94	203.94	305.95	295.15	260.15	100.49	362.42	55.70
95th-Percentile Queue Length [veh]	4.23	14.39	4.54	2.10	14.53	12.84	20.04	17.44	15.70	7.24	20.74	4.01
95th-Percentile Queue Length [ft]	105.67	359.70	113.42	52.44	363.16	321.05	500.96	436.03	392.40	180.89	518.53	100.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.94	29.20	23.53	16.43	31.63	30.98	248.46	35.80	35.06	53.57	36.40	25.79
Movement LOS	B	C	C	B	C	C	F	D	D	D	D	C
d_A, Approach Delay [s/veh]	27.06			30.07			75.78			38.72		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	43.11											
Intersection LOS	D											
Intersection V/C	0.805											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.817	2.711	2.894	3.005
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	491	891	927
d_b, Bicycle Delay [s]	30.56	31.31	16.91	15.82
I_b,int, Bicycle LOS Score for Intersection	2.512	2.272	2.484	2.833
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Berkeley Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.628

Intersection Setup

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	11	62	43	484	61	88	59	902	13	52	1425	512
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	62	43	484	61	88	59	902	13	52	1425	512
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	16	11	121	15	22	15	226	3	13	356	128
Total Analysis Volume [veh/h]	11	62	43	484	61	88	59	902	13	52	1425	512
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	3	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	6	6	0	0	6	6
Maximum Green [s]	0	30	0	30	30	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	10	0	58	68	0	10	42	0	0	32	32
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	20	0	0	20	0	0	21	21
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall		No		No	No		No	No			No	No
Maximum Recall		No		No	No		No	No			No	No
Pedestrian Recall		No		No	No		No	No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	6	6	20	30	72	72	72	63	63	87
g / C, Green / Cycle	0.05	0.05	0.05	0.18	0.27	0.66	0.66	0.66	0.58	0.58	0.79
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.02	0.14	0.08	0.03	0.25	0.25	0.03	0.38	0.28
s, saturation flow rate [veh/h]	1800	1900	1800	3500	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	66	101	96	628	484	810	1251	1185	857	2188	1425
d1, Uniform Delay [s]	49.61	50.97	50.51	43.00	32.05	6.65	8.55	8.53	10.20	15.84	3.34
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.17	5.83	3.23	2.04	0.36	0.04	0.87	0.91	0.14	1.52	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.61	0.45	0.77	0.31	0.07	0.38	0.37	0.06	0.65	0.36
d, Delay for Lane Group [s/veh]	50.78	56.80	53.75	45.05	32.40	6.68	9.42	9.44	10.33	17.36	3.56
Lane Group LOS	D	E	D	D	C	A	A	A	B	B	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.31	1.83	1.23	6.41	3.21	0.47	5.03	4.75	0.57	11.93	2.57
50th-Percentile Queue Length [ft]	7.75	45.85	30.85	160.33	80.25	11.73	125.78	118.73	14.28	298.35	64.31
95th-Percentile Queue Length [veh]	0.56	3.30	2.22	10.57	5.78	0.84	8.71	8.32	1.03	17.60	4.63
95th-Percentile Queue Length [ft]	13.94	82.53	55.53	264.16	144.44	21.11	217.74	208.08	25.70	439.99	115.76

Movement, Approach, & Intersection Results

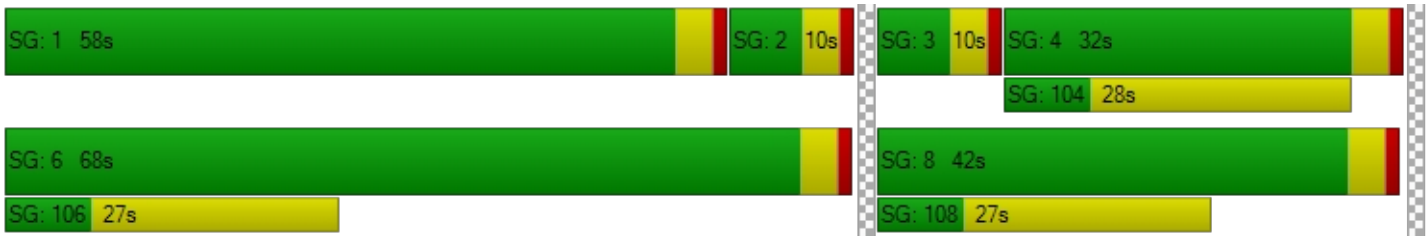
d_M, Delay for Movement [s/veh]	50.78	56.80	53.75	45.05	32.40	32.40	6.68	9.43	9.44	10.33	17.36	3.56
Movement LOS	D	E	D	D	C	C	A	A	A	B	B	A
d_A, Approach Delay [s/veh]	55.10			42.07			9.26			13.63		
Approach LOS	E			D			A			B		
d_I, Intersection Delay [s/veh]	18.63											
Intersection LOS	B											
Intersection V/C	0.628											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.274	2.499	2.812	0.000
Crosswalk LOS	B	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	109	1164	691	509
d_b, Bicycle Delay [s]	49.16	9.62	23.56	30.56
I_b,int, Bicycle LOS Score for Intersection	1.751	2.604	2.363	3.201
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Raymond Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.803

Intersection Setup

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	297	267	231	65	161	62	59	1117	144	188	1608	105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	297	267	231	65	161	62	59	1117	144	188	1608	105
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	67	58	16	40	16	15	279	36	47	402	26
Total Analysis Volume [veh/h]	297	267	231	65	161	62	59	1117	144	188	1608	105
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	40	0	10	30	0	11	45	0	15	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	18	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	29	20	20	29	9	9	73	62	62	73	64	64
g / C, Green / Cycle	0.27	0.18	0.18	0.27	0.08	0.08	0.66	0.56	0.56	0.66	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.17	0.14	0.13	0.04	0.06	0.06	0.03	0.35	0.33	0.10	0.46	0.46
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	474	346	328	339	160	152	608	1068	1012	849	1099	1041
d1, Uniform Delay [s]	35.47	42.84	42.24	30.73	49.19	49.03	6.55	16.16	15.86	7.07	18.26	18.22
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	3.66	2.77	0.27	6.28	5.61	0.07	2.67	2.58	0.60	6.19	6.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.77	0.70	0.19	0.73	0.70	0.10	0.62	0.60	0.22	0.80	0.80
d, Delay for Lane Group [s/veh]	36.83	46.50	45.01	31.00	55.47	54.64	6.62	18.84	18.44	7.67	24.45	24.68
Lane Group LOS	D	D	D	C	E	D	A	B	B	A	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	7.13	7.22	6.11	1.34	3.42	3.06	0.47	11.36	10.20	1.71	18.28	17.33
50th-Percentile Queue Length [ft]	178.35	180.56	152.83	33.60	85.53	76.39	11.68	283.89	254.92	42.76	456.91	433.32
95th-Percentile Queue Length [veh]	11.51	11.63	10.17	2.42	6.16	5.50	0.84	16.88	15.43	3.08	25.29	24.16
95th-Percentile Queue Length [ft]	287.86	290.75	254.21	60.49	153.95	137.51	21.03	422.05	385.84	76.97	632.18	604.01

Movement, Approach, & Intersection Results

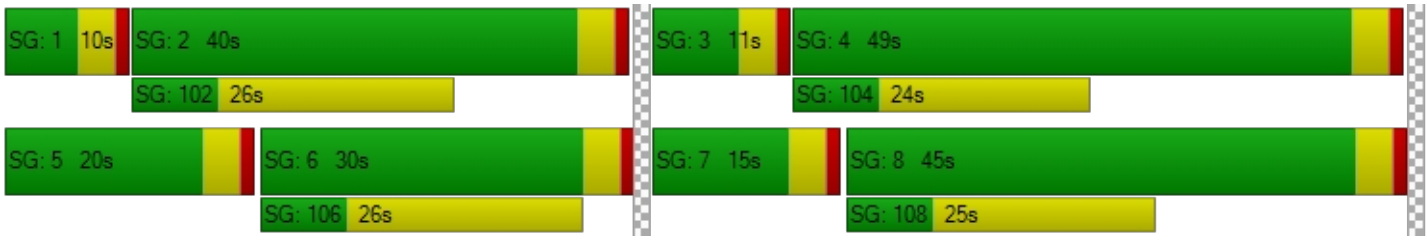
d_M, Delay for Movement [s/veh]	36.83	46.50	45.01	31.00	55.24	54.64	6.62	18.68	18.44	7.67	24.55	24.68
Movement LOS	D	D	D	C	E	D	A	B	B	A	C	C
d_A, Approach Delay [s/veh]	42.45			49.64			18.11			22.89		
Approach LOS	D			D			B			C		
d_I, Intersection Delay [s/veh]	26.83											
Intersection LOS	C											
Intersection V/C	0.803											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.716	2.366	2.994	2.974
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	655	473	745	818
d_b, Bicycle Delay [s]	24.89	32.07	21.64	19.20
I_b,int, Bicycle LOS Score for Intersection	2.871	1.797	2.649	3.128
Bicycle LOS	C	A	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Acacia Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	88	240	204	55	117	72	48	1288	92	111	1577	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	240	204	55	117	72	48	1288	92	111	1577	53
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	60	51	14	29	18	12	322	23	28	394	13
Total Analysis Volume [veh/h]	88	240	204	55	117	72	48	1288	92	111	1577	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	63	0	0	63	0	24	37	0	10	23	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	17	17	17	17	17	85	75	75	85	77	77
g / C, Green / Cycle	0.15	0.15	0.15	0.15	0.15	0.78	0.69	0.69	0.78	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.05	0.13	0.11	0.03	0.11	0.03	0.38	0.37	0.06	0.44	0.44
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	130	289	273	89	273	1043	1302	1234	1135	1323	1253
d1, Uniform Delay [s]	41.58	45.27	44.61	40.80	44.19	2.85	8.73	8.63	2.96	9.09	9.06
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.03	6.16	4.04	6.87	3.12	0.02	1.67	1.69	0.17	2.33	2.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.83	0.75	0.62	0.69	0.05	0.55	0.54	0.10	0.63	0.63
d, Delay for Lane Group [s/veh]	47.62	51.43	48.65	47.66	47.31	2.87	10.40	10.32	3.13	11.42	11.48
Lane Group LOS	D	D	D	D	D	A	B	B	A	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.35	6.82	5.60	1.48	5.10	0.20	8.30	7.66	0.52	10.44	9.86
50th-Percentile Queue Length [ft]	58.70	170.47	140.11	36.89	127.48	5.04	207.59	191.43	13.12	261.12	246.43
95th-Percentile Queue Length [veh]	4.23	11.10	9.49	2.66	8.80	0.36	13.03	12.20	0.94	15.74	15.01
95th-Percentile Queue Length [ft]	105.67	277.54	237.18	66.40	220.06	9.06	325.73	304.88	23.62	393.62	375.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.62	51.43	48.65	47.66	47.31	47.31	2.87	10.36	10.32	3.13	11.45	11.48
Movement LOS	D	D	D	D	D	D	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	49.73			47.39			10.11			10.92		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	18.11											
Intersection LOS	B											
Intersection V/C	0.646											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.459	2.189	3.052	3.029
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1073	1073	600	345
d_b, Bicycle Delay [s]	11.82	11.82	26.95	37.64
I_b,int, Bicycle LOS Score for Intersection	2.437	1.962	2.738	2.996
Bicycle LOS	B	A	B	C

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 11: State College Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	36.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.843

Intersection Setup

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	95	399	68	311	385	548	441	893	59	123	1092	274
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	399	68	311	385	548	441	893	59	123	1092	274
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	100	17	78	96	137	110	223	15	31	273	69
Total Analysis Volume [veh/h]	95	399	68	311	385	548	441	893	59	123	1092	274
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						3,6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	6	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	34	0	15	38	38	20	44	0	17	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	26	26	0	23	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	32	32	11	36	56	16	41	41	9	35	35
g / C, Green / Cycle	0.06	0.29	0.29	0.10	0.33	0.51	0.15	0.38	0.38	0.08	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.04	0.09	0.10	0.30	0.13	0.24	0.03	0.07	0.29	0.15
s, saturation flow rate [veh/h]	1800	3800	1800	3500	3800	1800	3500	3800	1800	1800	3800	1800
c, Capacity [veh/h]	116	1120	531	352	1258	924	510	1423	674	153	1191	564
d1, Uniform Delay [s]	50.87	30.59	28.45	48.88	27.42	18.76	45.96	28.15	22.27	49.49	36.41	30.61
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.12	0.89	0.50	7.34	0.63	2.80	4.51	0.46	0.06	9.55	3.30	0.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.36	0.13	0.88	0.31	0.59	0.86	0.63	0.09	0.81	0.92	0.49
d, Delay for Lane Group [s/veh]	64.00	31.47	28.95	56.22	28.05	21.56	50.47	28.61	22.32	59.04	39.71	31.25
Lane Group LOS	E	C	C	E	C	C	D	C	C	E	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.00	4.30	1.39	4.56	3.87	10.17	6.18	9.56	1.00	3.72	14.41	5.95
50th-Percentile Queue Length [ft]	75.07	107.51	34.83	114.02	96.82	254.37	154.53	238.90	24.99	92.98	360.14	148.70
95th-Percentile Queue Length [veh]	5.41	7.70	2.51	8.06	6.97	15.41	10.26	14.63	1.80	6.69	20.63	9.95
95th-Percentile Queue Length [ft]	135.13	192.54	62.69	201.58	174.27	385.15	256.47	365.64	44.98	167.36	515.76	248.69

Movement, Approach, & Intersection Results

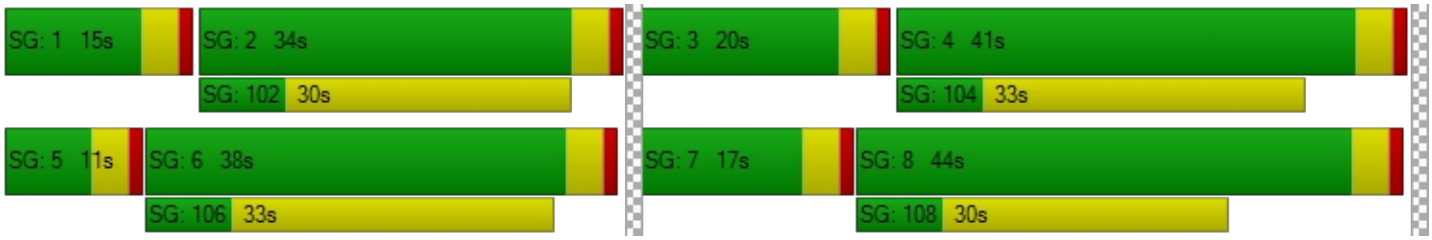
d_M, Delay for Movement [s/veh]	64.00	31.47	28.95	56.22	28.05	21.56	50.47	28.61	22.32	59.04	39.71	31.25
Movement LOS	E	C	C	E	C	C	D	C	C	E	D	C
d_A, Approach Delay [s/veh]	36.67			32.23			35.27			39.75		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	36.05											
Intersection LOS	D											
Intersection V/C	0.843											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.646	2.932	3.039	2.911
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	618	727	673
d_b, Bicycle Delay [s]	29.09	26.25	22.27	24.22
I_b,int, Bicycle LOS Score for Intersection	2.023	2.586	2.709	2.788
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	118	173	222	0	1030	522	205	1574	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	118	173	222	0	1030	522	205	1574	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	30	43	56	0	258	131	51	394	0
Total Analysis Volume [veh/h]	0	0	0	118	173	222	0	1030	522	205	1574	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	69	0	0	31	0	10	41	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		21	21	63	63	15	81
g / C, Green / Cycle		0.19	0.19	0.57	0.57	0.13	0.74
(v / s)_i Volume / Saturation Flow Rate		0.16	0.12	0.27	0.29	0.11	0.41
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		336	336	2168	1027	240	2814
d1, Uniform Delay [s]		43.38	41.48	13.91	14.28	46.58	6.32
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		6.71	2.22	0.75	1.80	8.32	0.81
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.87	0.66	0.48	0.51	0.85	0.56
d, Delay for Lane Group [s/veh]		50.09	43.70	14.66	16.08	54.90	7.13
Lane Group LOS		D	D	B	B	D	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]		8.25	5.77	7.46	8.04	6.01	7.09
50th-Percentile Queue Length [ft]		206.23	144.20	186.45	200.97	150.31	177.37
95th-Percentile Queue Length [veh]		12.96	9.71	11.94	12.69	10.03	11.46
95th-Percentile Queue Length [ft]		323.99	242.67	298.41	317.22	250.84	286.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	50.09	50.09	43.70	0.00	14.66	16.08	54.90	7.13	0.00
Movement LOS				D	D	D		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			47.33			15.14			12.63		
Approach LOS	A			D			B			B		
d_I, Intersection Delay [s/veh]	18.27											
Intersection LOS	B											
Intersection V/C	0.646											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.310	1.975	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1182	491	673
d_b, Bicycle Delay [s]	55.00	9.20	31.31	24.22
I_b,int, Bicycle LOS Score for Intersection	4.132	2.406	2.413	3.027
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	26.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.775

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	630	0	486	0	0	0	154	979	0	0	1231	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	630	0	486	0	0	0	154	979	0	0	1231	203
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	158	0	122	0	0	0	39	245	0	0	308	51
Total Analysis Volume [veh/h]	630	0	486	0	0	0	154	979	0	0	1231	203
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	81	0	0	0	0	0	10	29	0	0	19	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	27		11	75	60	60
g / C, Green / Cycle	0.24	0.24	0.24		0.10	0.68	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.21	0.21	0.21		0.09	0.26	0.38	0.40
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	439	439	439		188	2596	1030	976
d1, Uniform Delay [s]	39.60	39.60	39.60		48.23	7.44	18.50	19.14
k, delay calibration	0.11	0.11	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.58	4.58	4.58		8.49	0.42	3.89	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.85	0.85		0.82	0.38	0.70	0.73
d, Delay for Lane Group [s/veh]	44.18	44.18	44.18		56.72	7.86	22.38	24.04
Lane Group LOS	D	D	D		E	A	C	C
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	10.03	10.03	10.03		4.57	4.63	13.89	14.55
50th-Percentile Queue Length [ft]	250.83	250.83	250.83		114.15	115.87	347.32	363.87
95th-Percentile Queue Length [veh]	15.23	15.23	15.23		8.07	8.17	20.01	20.81
95th-Percentile Queue Length [ft]	380.70	380.70	380.70		201.76	204.14	500.14	520.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.18	0.00	44.18	0.00	0.00	0.00	56.72	7.86	0.00	0.00	23.08	24.04
Movement LOS	D		D				E	A			C	C
d_A, Approach Delay [s/veh]	44.18			0.00			14.50			23.21		
Approach LOS	D			A			B			C		
d_I, Intersection Delay [s/veh]	26.88											
Intersection LOS	C											
Intersection V/C	0.775											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.312	1.781	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	455	273
d_b, Bicycle Delay [s]	55.00	55.00	32.84	41.02
I_b,int, Bicycle LOS Score for Intersection	5.974	4.132	2.494	2.743
Bicycle LOS	F	D	B	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 14: Lemon Street at Wilshire Avenue

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.497

Intersection Setup

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Base Volume Input [veh/h]	46	1125	81	57	901	46	19	44	49	100	52	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	1125	81	57	901	46	19	44	49	100	52	84
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	281	20	14	225	12	5	11	12	25	13	21
Total Analysis Volume [veh/h]	46	1125	81	57	901	46	19	44	49	100	52	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	50	0	0	50	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	85	85	85	85	85	85	16	16
g / C, Green / Cycle	0.78	0.78	0.78	0.78	0.78	0.78	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.33	0.32	0.03	0.26	0.25	0.06	0.13
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1274	1478	1400	1216	1478	1400	307	316
d1, Uniform Delay [s]	2.78	4.04	4.00	2.80	3.65	3.63	42.31	45.66
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.89	0.91	0.07	0.60	0.62	0.72	3.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.42	0.41	0.05	0.33	0.33	0.36	0.75
d, Delay for Lane Group [s/veh]	2.84	4.94	4.91	2.87	4.26	4.25	43.03	49.20
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.20	4.02	3.70	0.25	2.83	2.63	2.81	6.57
50th-Percentile Queue Length [ft]	5.09	100.48	92.50	6.37	70.86	65.86	70.37	164.28
95th-Percentile Queue Length [veh]	0.37	7.23	6.66	0.46	5.10	4.74	5.07	10.78
95th-Percentile Queue Length [ft]	9.15	180.86	166.50	11.47	127.55	118.56	126.67	269.39

Movement, Approach, & Intersection Results

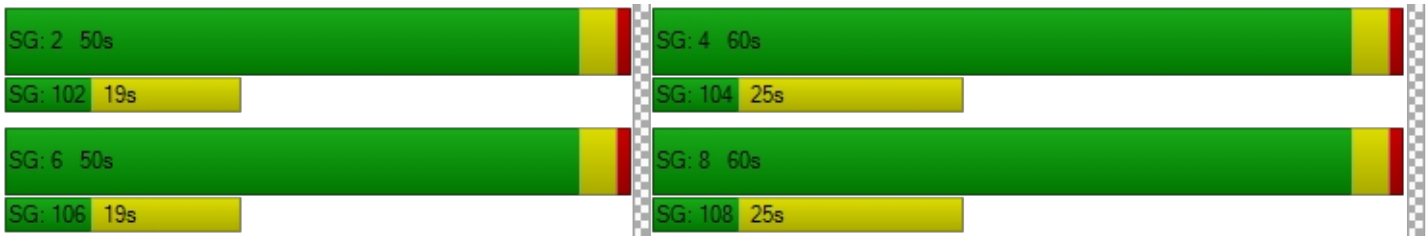
d_M, Delay for Movement [s/veh]	2.84	4.92	4.91	2.87	4.26	4.25	43.03	43.03	43.03	49.20	49.20	49.20
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.85			4.18			43.03			49.20		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.25											
Intersection LOS	B											
Intersection V/C	0.497											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.901	2.772	1.915	2.009
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	1018	1018
d_b, Bicycle Delay [s]	18.62	18.62	13.25	13.25
I_b,int, Bicycle LOS Score for Intersection	2.593	2.388	1.744	1.949
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Harbor Boulevard at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	112	1075	196	48	1027	104	136	596	115	218	743	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	1075	196	48	1027	104	136	596	115	218	743	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	269	49	12	257	26	34	149	29	55	186	18
Total Analysis Volume [veh/h]	112	1075	196	48	1027	104	136	596	115	218	743	70
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	57	0	10	57	0	11	33	0	10	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	20	0	0	22	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	48	39	39	48	38	38	54	40	40	54	44	44
g / C, Green / Cycle	0.43	0.35	0.35	0.43	0.34	0.34	0.49	0.37	0.37	0.49	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.11	0.03	0.31	0.30	0.08	0.16	0.06	0.12	0.20	0.04
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	1800	3800	1800
c, Capacity [veh/h]	343	1346	638	414	650	616	716	1389	658	771	1504	712
d1, Uniform Delay [s]	18.84	32.01	25.76	18.15	34.53	34.05	15.26	26.29	23.68	16.05	24.98	20.91
k, delay calibration	0.11	0.11	0.11	0.11	0.20	0.19	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	1.13	0.27	0.12	9.05	7.06	0.13	0.97	0.58	0.92	1.16	0.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.80	0.31	0.12	0.91	0.88	0.19	0.43	0.17	0.28	0.49	0.10
d, Delay for Lane Group [s/veh]	19.39	33.15	26.03	18.27	43.58	41.11	15.38	27.26	24.26	16.97	26.14	21.19
Lane Group LOS	B	C	C	B	D	D	B	C	C	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.78	12.85	3.76	0.73	16.37	14.54	1.87	6.01	2.13	3.32	7.43	1.19
50th-Percentile Queue Length [ft]	44.46	321.23	93.91	18.17	409.20	363.50	46.87	150.34	53.27	82.88	185.65	29.68
95th-Percentile Queue Length [veh]	3.20	18.73	6.76	1.31	23.00	20.79	3.37	10.04	3.84	5.97	11.90	2.14
95th-Percentile Queue Length [ft]	80.02	468.19	169.04	32.71	575.07	519.84	84.37	250.88	95.89	149.18	297.38	53.43

Movement, Approach, & Intersection Results

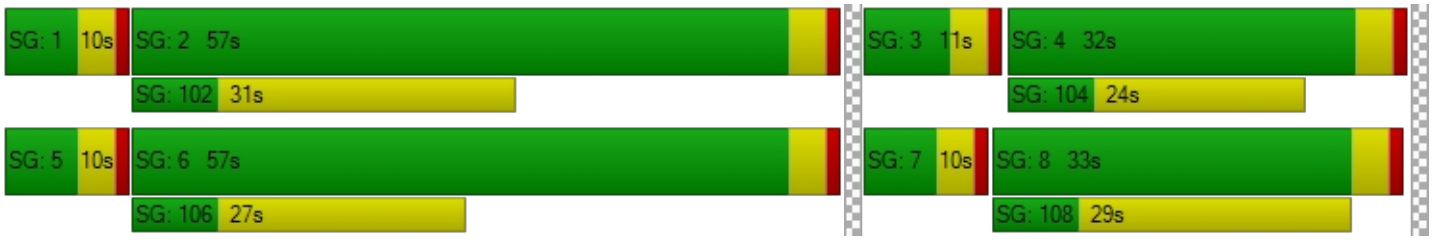
d_M, Delay for Movement [s/veh]	19.39	33.15	26.03	18.27	42.53	41.11	15.38	27.26	24.26	16.97	26.14	21.19
Movement LOS	B	C	C	B	D	D	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	31.02			41.42			24.94			23.87		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	30.96											
Intersection LOS	C											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.027	2.869	2.813	2.792
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	964	964	527	509
d_b, Bicycle Delay [s]	14.77	14.77	29.82	30.56
I_b,int, Bicycle LOS Score for Intersection	2.701	2.532	2.258	2.410
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Lemon Street at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	33.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	141	1032	211	46	821	91	116	639	97	351	816	85
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	1032	211	46	821	91	116	639	97	351	816	85
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	258	53	12	205	23	29	160	24	88	204	21
Total Analysis Volume [veh/h]	141	1032	211	46	821	91	116	639	97	351	816	85
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	34	58	0	10	32	0	10	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	43	35	35	43	33	33	9	41	41	14	46	46
g / C, Green / Cycle	0.39	0.31	0.31	0.39	0.30	0.30	0.08	0.37	0.37	0.12	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.12	0.03	0.25	0.24	0.06	0.17	0.05	0.10	0.21	0.05
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	3500	3800	1800
c, Capacity [veh/h]	388	1197	567	345	574	543	147	1419	672	434	1580	748
d1, Uniform Delay [s]	21.96	35.45	29.25	20.77	35.81	35.39	49.63	25.98	22.84	46.96	23.92	19.72
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	1.96	0.41	0.17	3.19	2.80	9.08	1.03	0.45	3.65	1.21	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.86	0.37	0.13	0.83	0.80	0.79	0.45	0.14	0.81	0.52	0.11
d, Delay for Lane Group [s/veh]	22.54	37.41	29.66	20.95	39.00	38.18	58.72	27.01	23.29	50.61	25.13	20.03
Lane Group LOS	C	D	C	C	D	D	E	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.46	13.12	4.38	0.76	12.26	11.03	3.50	6.44	1.75	4.88	8.03	1.40
50th-Percentile Queue Length [ft]	61.49	327.99	109.51	18.91	306.38	275.70	87.38	161.07	43.74	122.06	200.75	34.93
95th-Percentile Queue Length [veh]	4.43	19.06	7.81	1.36	18.00	16.47	6.29	10.61	3.15	8.51	12.68	2.51
95th-Percentile Queue Length [ft]	110.68	476.49	195.32	34.04	449.91	411.86	157.29	265.14	78.73	212.65	316.93	62.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.54	37.41	29.66	20.95	38.66	38.18	58.72	27.01	23.29	50.61	25.13	20.03
Movement LOS	C	D	C	C	D	D	E	C	C	D	C	C
d_A, Approach Delay [s/veh]	34.72			37.76			30.90			31.93		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	33.86											
Intersection LOS	C											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.894	2.737	2.835	2.924
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	982	509	509
d_b, Bicycle Delay [s]	29.09	14.25	30.56	30.56
I_b,int, Bicycle LOS Score for Intersection	2.701	2.350	2.263	2.593
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: Harbor Boulevard at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	26.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.983

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	59	1350	50	22	62	1380	60	114	86	67	131	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	1350	50	22	62	1380	60	114	86	67	131	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	338	13	6	16	345	15	29	22	17	33	4
Total Analysis Volume [veh/h]	59	1350	50	22	62	1380	60	114	86	67	131	15
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	65	0	0	65	0	0	45	0	0	45	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	11	0	0	20	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	84	84	18	18	18
g / C, Green / Cycle	0.76	0.76	0.76	0.76	0.76	0.76	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.38	0.38	0.01	0.03	0.77	0.14	0.04	0.08
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800	1800
c, Capacity [veh/h]	72	1452	1376	1132	1452	1376	334	78	293
d1, Uniform Delay [s]	3.15	4.92	4.89	3.09	3.15	12.93	44.92	39.91	41.82
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	64.98	1.22	1.26	0.03	0.06	25.05	3.96	22.21	1.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.50	0.49	0.02	0.04	1.00	0.78	0.86	0.50
d, Delay for Lane Group [s/veh]	68.13	6.14	6.15	3.12	3.21	37.98	48.88	62.12	43.13
Lane Group LOS	E	A	A	A	A	F	D	E	D
Critical Lane Group	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	1.55	5.53	5.18	0.11	0.30	34.80	7.25	2.06	3.70
50th-Percentile Queue Length [ft]	38.87	138.30	129.58	2.66	7.49	869.91	181.18	51.44	92.59
95th-Percentile Queue Length [veh]	2.80	9.39	8.92	0.19	0.54	44.61	11.66	3.70	6.67
95th-Percentile Queue Length [ft]	69.96	234.73	222.92	4.78	13.48	1115.25	291.55	92.59	166.66

Movement, Approach, & Intersection Results

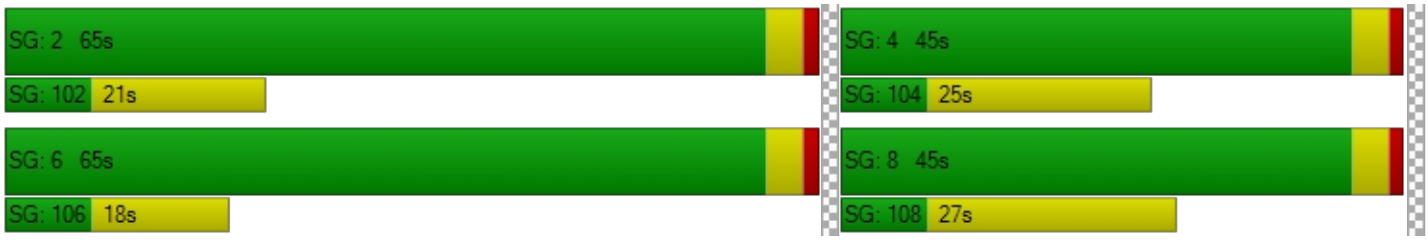
d_M, Delay for Movement [s/veh]	68.13	6.15	6.15	3.12	3.21	37.98	48.88	48.88	48.88	62.12	43.13	43.13
Movement LOS	E	A	A	A	A	F	D	D	D	E	D	D
d_A, Approach Delay [s/veh]	8.65			35.98			48.88			49.10		
Approach LOS	A			D			D			D		
d_I, Intersection Delay [s/veh]	26.05											
Intersection LOS	C											
Intersection V/C	0.983											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.731	2.958	2.700	2.111
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1109	1109	745	745
d_b, Bicycle Delay [s]	10.91	10.91	21.64	21.64
I_b,int, Bicycle LOS Score for Intersection	2.763	2.767	1.989	1.911
Bicycle LOS	C	C	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Lemon Street at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.532

Intersection Setup

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	124	1321	75	55	1210	67	73	39	92	99	51	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	1321	75	55	1210	67	73	39	92	99	51	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	330	19	14	303	17	18	10	23	25	13	12
Total Analysis Volume [veh/h]	124	1321	75	55	1210	67	73	39	92	99	51	46
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	50	0	0	50	0	0	60	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	11	0	0	11	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	87	87	87	87	87	87	15	15
g / C, Green / Cycle	0.79	0.79	0.79	0.79	0.79	0.79	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.07	0.38	0.37	0.03	0.35	0.34	0.11	0.11
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1255	1511	1431	1226	1511	1431	282	287
d1, Uniform Delay [s]	2.48	3.72	3.69	2.38	3.54	3.51	46.65	46.42
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.16	1.08	1.12	0.07	0.92	0.95	3.49	2.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.48	0.47	0.04	0.44	0.43	0.72	0.68
d, Delay for Lane Group [s/veh]	2.64	4.80	4.81	2.45	4.46	4.46	50.14	49.27
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.50	4.39	4.09	0.22	3.81	3.54	5.70	5.42
50th-Percentile Queue Length [ft]	12.62	109.68	102.25	5.38	95.35	88.55	142.62	135.50
95th-Percentile Queue Length [veh]	0.91	7.82	7.36	0.39	6.87	6.38	9.62	9.24
95th-Percentile Queue Length [ft]	22.72	195.56	184.05	9.69	171.63	159.40	240.55	230.95

Movement, Approach, & Intersection Results

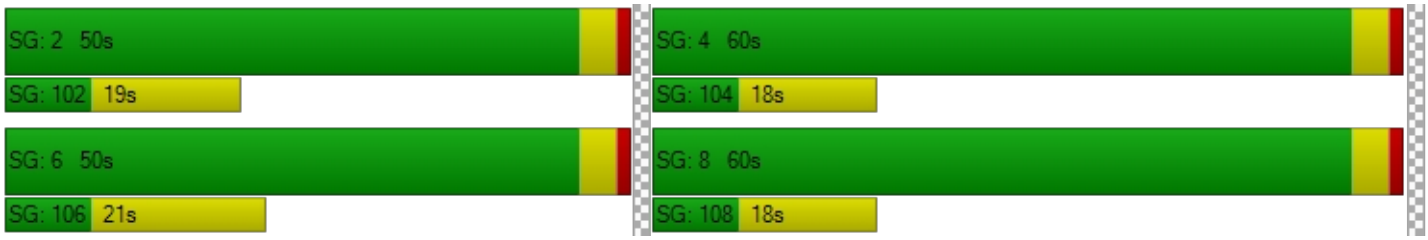
d_M, Delay for Movement [s/veh]	2.64	4.81	4.81	2.45	4.46	4.46	50.14	50.14	50.14	49.27	49.27	49.27
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.63			4.38			50.14			49.27		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.07											
Intersection LOS	B											
Intersection V/C	0.532											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.020	2.954	2.118	1.981
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	1018	1018
d_b, Bicycle Delay [s]	18.62	18.62	13.25	13.25
I_b,int, Bicycle LOS Score for Intersection	2.814	2.659	1.896	1.883
Bicycle LOS	C	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Harbor Boulevard at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	39.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.800

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	278	1283	228	190	1160	194	193	740	197	213	1051	165
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	1283	228	190	1160	194	193	740	197	213	1051	165
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	321	57	48	290	49	48	185	49	53	263	41
Total Analysis Volume [veh/h]	278	1283	228	190	1160	194	193	740	197	213	1051	165
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	14	42	0	11	39	0	18	39	0	18	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	27	0	0	28	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	38	38	7	35	35	14	35	35	14	35	35
g / C, Green / Cycle	0.09	0.35	0.35	0.06	0.32	0.32	0.12	0.32	0.32	0.13	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.08	0.34	0.13	0.05	0.29	0.13	0.11	0.13	0.11	0.12	0.18	0.09
s, saturation flow rate [veh/h]	3500	3800	1800	3500	3800	1800	1800	5700	1800	1800	5700	1800
c, Capacity [veh/h]	318	1311	621	223	1207	572	222	1805	570	233	1838	580
d1, Uniform Delay [s]	49.38	35.63	27.02	50.99	36.19	29.59	47.34	29.51	28.84	47.31	30.95	27.79
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.46	7.60	0.36	8.91	3.41	0.50	9.93	0.69	1.66	13.44	1.30	1.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.98	0.37	0.85	0.92	0.42	0.87	0.41	0.35	0.92	0.57	0.28
d, Delay for Lane Group [s/veh]	56.84	43.22	27.38	59.90	39.60	30.09	57.27	30.20	30.49	60.75	32.25	29.02
Lane Group LOS	E	D	C	E	D	C	E	C	C	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	4.09	17.97	4.53	2.86	14.68	5.11	5.78	5.21	4.24	6.61	7.88	3.44
50th-Percentile Queue Length [ft]	102.22	449.18	113.33	71.50	366.97	127.75	144.50	130.29	105.99	165.13	196.91	85.88
95th-Percentile Queue Length [veh]	7.36	24.92	8.02	5.15	20.96	8.82	9.72	8.96	7.62	10.82	12.48	6.18
95th-Percentile Queue Length [ft]	183.99	622.97	200.62	128.70	524.06	220.43	243.07	223.89	190.41	270.51	311.98	154.59

Movement, Approach, & Intersection Results

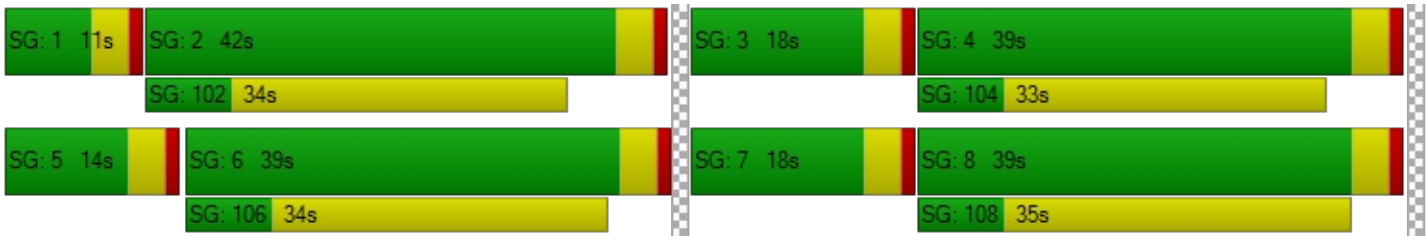
d_M, Delay for Movement [s/veh]	56.84	43.22	27.38	59.90	39.20	30.09	57.27	30.20	30.49	60.75	32.25	29.02
Movement LOS	E	D	C	E	D	C	E	C	C	E	C	C
d_A, Approach Delay [s/veh]	43.32			40.61			34.88			36.13		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	39.24											
Intersection LOS	D											
Intersection V/C	0.800											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.144	3.047	3.058	3.050
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	636	636	636
d_b, Bicycle Delay [s]	23.56	25.57	25.57	25.57
I_b,int, Bicycle LOS Score for Intersection	3.036	2.409	2.181	2.346
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Lemon Street at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	38.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.892

Intersection Setup

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	242	1229	101	187	1021	188	208	705	143	253	797	137
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	242	1229	101	187	1021	188	208	705	143	253	797	137
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	307	25	47	255	47	52	176	36	63	199	34
Total Analysis Volume [veh/h]	242	1229	101	187	1021	188	208	705	143	253	797	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	45	0	15	42	0	16	35	0	15	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	25	0	0	20	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	52	39	39	52	37	37	15	36	36	10	31	31
g / C, Green / Cycle	0.47	0.36	0.36	0.47	0.34	0.34	0.13	0.33	0.33	0.09	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.13	0.32	0.06	0.10	0.27	0.10	0.12	0.18	0.08	0.07	0.26	0.25
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3800	1800	1800	3800	1800	3500	1900	1800
c, Capacity [veh/h]	500	1356	642	388	1273	603	238	1235	585	322	541	513
d1, Uniform Delay [s]	17.60	33.65	24.12	17.00	33.27	27.17	46.84	30.71	27.36	48.89	37.97	37.33
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.73	2.62	0.11	0.93	1.22	0.29	9.64	1.88	1.06	4.22	21.62	17.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.91	0.16	0.48	0.80	0.31	0.87	0.57	0.26	0.78	0.91	0.86
d, Delay for Lane Group [s/veh]	18.33	36.26	24.23	17.92	34.49	27.46	56.48	32.59	28.42	53.11	59.59	54.64
Lane Group LOS	B	D	C	B	C	C	E	C	C	D	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.79	15.71	1.81	2.85	12.38	3.71	6.20	7.90	3.08	3.58	15.82	13.60
50th-Percentile Queue Length [ft]	94.77	392.87	45.34	71.34	309.47	92.66	154.92	197.57	77.03	89.49	395.60	339.95
95th-Percentile Queue Length [veh]	6.82	22.22	3.26	5.14	18.15	6.67	10.28	12.51	5.55	6.44	22.35	19.65
95th-Percentile Queue Length [ft]	170.58	555.40	81.61	128.41	453.72	166.80	256.99	312.83	138.65	161.09	558.70	491.14

Movement, Approach, & Intersection Results

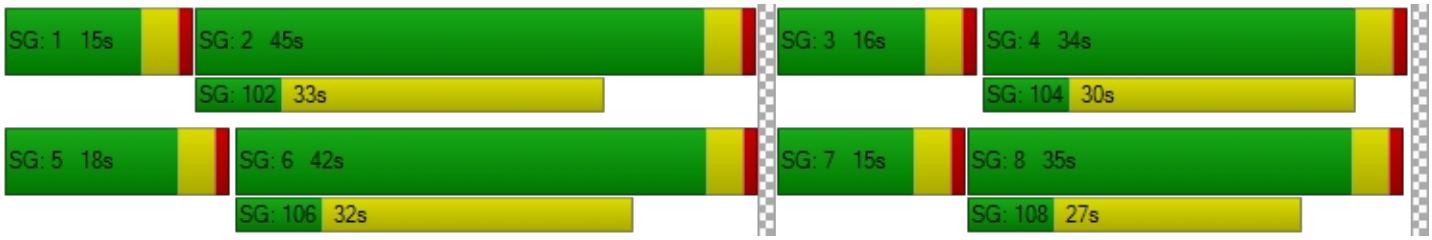
d_M, Delay for Movement [s/veh]	18.33	36.26	24.23	17.92	34.49	27.46	56.48	32.54	28.42	53.11	57.69	54.64
Movement LOS	B	D	C	B	C	C	E	C	C	D	E	D
d_A, Approach Delay [s/veh]	32.73			31.33			36.70			56.36		
Approach LOS	C			C			D			E		
d_I, Intersection Delay [s/veh]	38.54											
Intersection LOS	D											
Intersection V/C	0.892											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.948	2.945	2.955	3.007
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	745	691	564	545
d_b, Bicycle Delay [s]	21.64	23.56	28.37	29.09
I_b,int, Bicycle LOS Score for Intersection	2.857	2.711	2.140	2.539
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	77	1914	0	0	1390	516	0	0	0	306	387	360
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	1914	0	0	1390	516	0	0	0	306	387	360
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	479	0	0	348	129	0	0	0	77	97	90
Total Analysis Volume [veh/h]	77	1914	0	0	1390	516	0	0	0	306	387	360
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	0	22	0	0	0	0	0	68	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	68	59	59		24	24	24
g / C, Green / Cycle	0.05	0.68	0.59	0.59		0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.02	0.34	0.33	0.35		0.17	0.10	0.20
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	189	3886	2234	1058		429	905	429
d1, Uniform Delay [s]	45.77	7.62	12.76	13.13		34.96	32.31	36.27
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.41	0.45	1.06	2.52		2.22	0.32	4.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.49	0.57	0.60		0.71	0.43	0.84
d, Delay for Lane Group [s/veh]	47.18	8.07	13.82	15.65		37.18	32.63	40.74
Lane Group LOS	D	A	B	B		D	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	0.96	5.88	8.49	9.14		7.00	3.98	8.76
50th-Percentile Queue Length [ft]	23.97	147.05	212.24	228.42		175.07	99.45	218.92
95th-Percentile Queue Length [veh]	1.73	9.86	13.27	14.09		11.34	7.16	13.61
95th-Percentile Queue Length [ft]	43.14	246.49	331.70	352.35		283.57	179.01	340.25

Movement, Approach, & Intersection Results

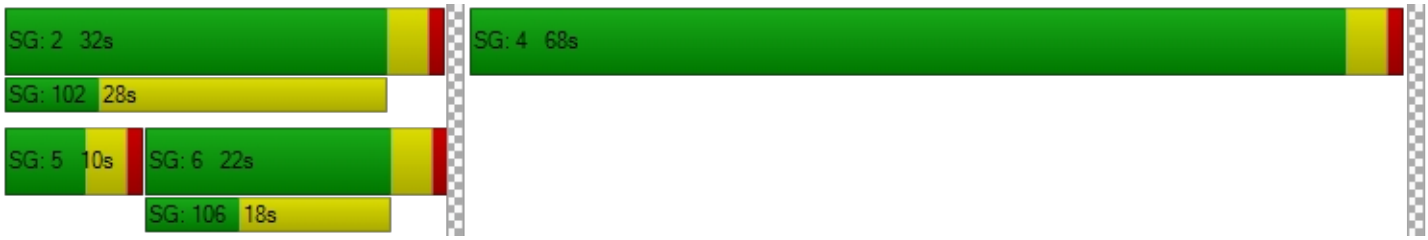
d_M, Delay for Movement [s/veh]	47.18	8.07	0.00	0.00	13.97	15.65	0.00	0.00	0.00	37.18	32.63	40.74
Movement LOS	D	A			B	B				D	C	D
d_A, Approach Delay [s/veh]	9.59			14.43			0.00			36.72		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	17.22											
Intersection LOS	B											
Intersection V/C	0.653											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.197	2.393
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	360	0	1280
d_b, Bicycle Delay [s]	25.92	33.62	50.00	6.48
I_b,int, Bicycle LOS Score for Intersection	2.655	2.608	4.132	2.428
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.787

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	101	1223	0	0	1223	343	0	0	0	166	564	623
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	101	1223	0	0	1223	343	0	0	0	166	564	623
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	306	0	0	306	86	0	0	0	42	141	156
Total Analysis Volume [veh/h]	101	1223	0	0	1223	343	0	0	0	166	564	623
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	11	47	0	0	36	0	0	0	0	0	53	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	7	54	43	43		38	38	38
g / C, Green / Cycle	0.07	0.54	0.43	0.43		0.38	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.27	0.29		0.20	0.19	0.35
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	127	3063	1621	768		689	727	689
d1, Uniform Delay [s]	45.74	13.63	22.67	23.16		23.97	23.53	29.14
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.48	0.39	1.99	4.82		0.65	0.53	9.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.40	0.64	0.68		0.54	0.50	0.90
d, Delay for Lane Group [s/veh]	56.22	14.02	24.66	27.98		24.62	24.05	39.11
Lane Group LOS	E	B	C	C		C	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	2.83	5.28	9.83	10.61		6.74	6.47	15.50
50th-Percentile Queue Length [ft]	70.64	132.11	245.71	265.27		168.57	161.65	387.45
95th-Percentile Queue Length [veh]	5.09	9.05	14.97	15.95		11.00	10.64	21.95
95th-Percentile Queue Length [ft]	127.15	226.35	374.25	398.83		275.04	265.91	548.86

Movement, Approach, & Intersection Results

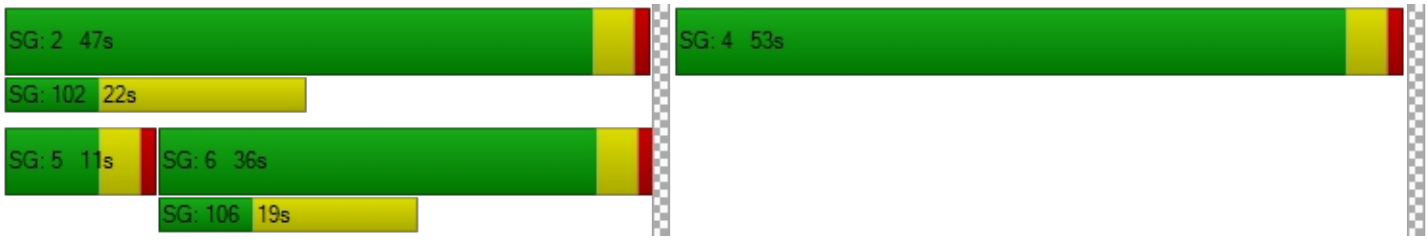
d_M, Delay for Movement [s/veh]	56.22	14.02	0.00	0.00	25.15	27.98	0.00	0.00	0.00	24.62	24.26	39.11
Movement LOS	E	B			C	C				C	C	D
d_A, Approach Delay [s/veh]	17.24			25.77			0.00			31.14		
Approach LOS	B			C			A			C		
d_I, Intersection Delay [s/veh]	24.82											
Intersection LOS	C											
Intersection V/C	0.787											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.211	2.385
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	860	640	0	980
d_b, Bicycle Delay [s]	16.25	23.12	50.00	13.01
I_b,int, Bicycle LOS Score for Intersection	2.288	2.421	4.132	2.676
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.586

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1348	212	271	1473	0	706	301	144	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1348	212	271	1473	0	706	301	144	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	337	53	68	368	0	177	75	36	0	0	0
Total Analysis Volume [veh/h]	0	1348	212	271	1473	0	706	301	144	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	32	0	14	46	0	0	54	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	54	54	10	68	24	24	24	
g / C, Green / Cycle	0.54	0.54	0.10	0.68	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.12	0.08	0.26	0.20	0.16	0.08	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	3069	969	338	3848	857	465	441	
d1, Uniform Delay [s]	13.96	12.08	44.23	7.12	35.71	33.87	30.98	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.46	0.52	4.41	0.29	2.06	1.51	0.43	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.44	0.22	0.80	0.38	0.82	0.65	0.33	
d, Delay for Lane Group [s/veh]	14.41	12.60	48.64	7.41	37.77	35.39	31.41	
Lane Group LOS	B	B	D	A	D	D	C	
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.98	2.53	3.47	4.17	8.24	6.67	2.88	
50th-Percentile Queue Length [ft]	149.38	63.16	86.76	104.26	206.12	166.65	72.09	
95th-Percentile Queue Length [veh]	9.98	4.55	6.25	7.51	12.95	10.90	5.19	
95th-Percentile Queue Length [ft]	249.60	113.69	156.17	187.67	323.85	272.50	129.77	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	14.41	12.60	48.64	7.41	0.00	37.77	35.39	31.41	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	C			
d_A, Approach Delay [s/veh]	14.17			13.82			36.35			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.76											
Intersection LOS	B											
Intersection V/C	0.586											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.416	2.102
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	840	1000	0
d_b, Bicycle Delay [s]	25.92	16.82	12.50	50.00
I_b,int, Bicycle LOS Score for Intersection	2.418	2.519	3.459	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.620

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	989	208	413	944	0	330	412	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	989	208	413	944	0	330	412	57	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	247	52	103	236	0	83	103	14	0	0	0
Total Analysis Volume [veh/h]	0	989	208	413	944	0	330	412	57	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	24	47	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	50	50	14	68	24	24	24	
g / C, Green / Cycle	0.50	0.50	0.14	0.68	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.21	0.22	0.12	0.25	0.21	0.20	0.03	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1902	901	497	2594	427	451	427	
d1, Uniform Delay [s]	15.79	16.03	41.72	6.70	36.62	36.15	30.03	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.68	1.58	3.65	0.40	5.45	3.83	0.14	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.42	0.44	0.83	0.36	0.87	0.82	0.13	
d, Delay for Lane Group [s/veh]	16.47	17.61	45.38	7.10	42.08	39.98	30.17	
Lane Group LOS	B	B	D	A	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.73	6.03	5.16	3.87	9.19	8.93	1.09	
50th-Percentile Queue Length [ft]	143.23	150.68	128.94	96.70	229.73	223.19	27.35	
95th-Percentile Queue Length [veh]	9.65	10.05	8.88	6.96	14.16	13.83	1.97	
95th-Percentile Queue Length [ft]	241.37	251.34	222.05	174.07	354.02	345.69	49.22	

Movement, Approach, & Intersection Results

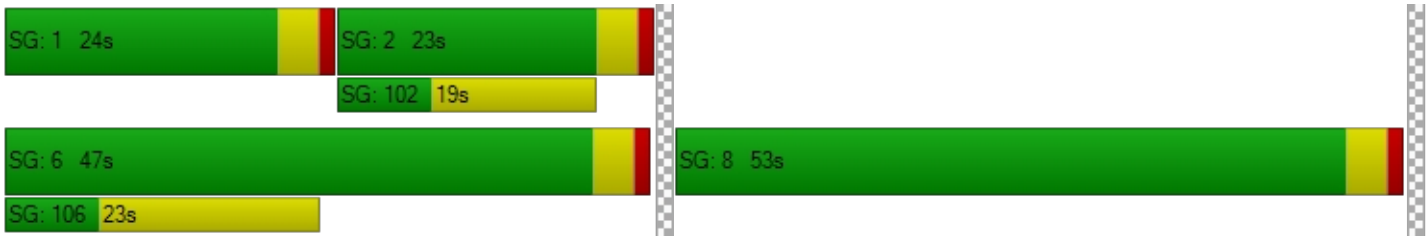
d_M, Delay for Movement [s/veh]	0.00	16.69	17.61	45.38	7.10	0.00	42.08	40.19	30.17	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	C			
d_A, Approach Delay [s/veh]	16.85			18.75			40.25			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	23.20											
Intersection LOS	C											
Intersection V/C	0.620											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.205	2.223
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	860	980	0
d_b, Bicycle Delay [s]	32.81	16.25	13.01	50.00
I_b,int, Bicycle LOS Score for Intersection	2.218	2.679	2.219	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Harbor Boulevard at Bastanchury Road

Control Type:	Signalized	Delay (sec / veh):	57.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.804

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Base Volume Input [veh/h]	296	1289	212	333	990	391	281	1255	171	191	1119	330
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	296	1289	212	333	990	391	281	1255	171	191	1119	330
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	322	53	83	248	98	70	314	43	48	280	83
Total Analysis Volume [veh/h]	296	1289	212	333	990	391	281	1255	171	191	1119	330
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	42	0	11	38	0	15	45	0	12	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	24	0	0	31	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	46	46	7	42	42	11	33	33	8	30	30
g / C, Green / Cycle	0.10	0.42	0.42	0.06	0.38	0.38	0.10	0.30	0.30	0.07	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.12	0.10	0.25	0.24	0.16	0.25	0.26	0.05	0.20	0.18
s, saturation flow rate [veh/h]	3500	5700	1800	3500	3800	1800	1800	3800	1800	3500	5700	1800
c, Capacity [veh/h]	354	2376	750	228	1447	686	182	1139	539	256	1548	489
d1, Uniform Delay [s]	48.63	24.21	21.24	51.51	28.16	27.79	49.53	36.09	36.63	50.07	36.37	35.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.14	0.11	0.25	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.23	0.89	0.94	212.44	2.34	4.35	251.92	1.73	9.76	4.30	0.65	1.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.54	0.28	1.46	0.66	0.63	1.54	0.84	0.87	0.75	0.72	0.67
d, Delay for Lane Group [s/veh]	53.86	25.11	22.18	263.96	30.49	32.14	301.45	37.81	46.39	54.37	37.03	37.53
Lane Group LOS	D	C	C	F	C	C	F	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	4.24	8.48	3.78	9.87	10.60	9.93	17.73	12.08	13.31	2.73	9.09	8.07
50th-Percentile Queue Length [ft]	105.95	211.91	94.49	246.65	265.12	248.13	443.27	301.95	332.81	68.18	227.35	201.81
95th-Percentile Queue Length [veh]	7.61	13.25	6.80	16.64	15.95	15.09	28.36	17.78	19.30	4.91	14.04	12.73
95th-Percentile Queue Length [ft]	190.36	331.27	170.09	416.00	398.64	377.30	708.90	444.44	482.40	122.73	350.99	318.30

Movement, Approach, & Intersection Results

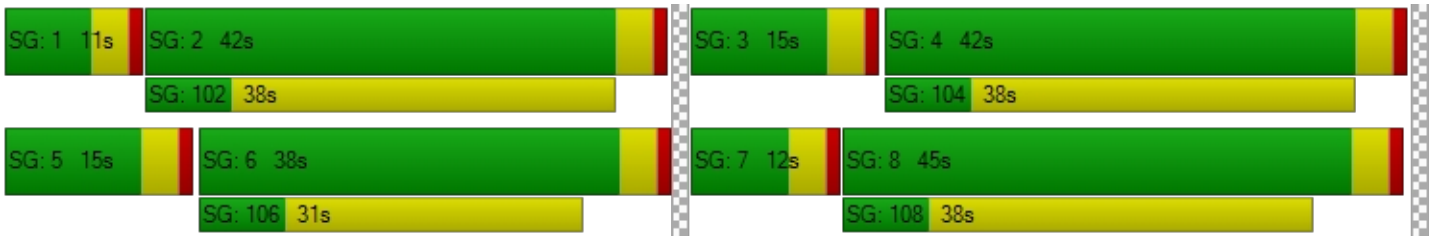
d_M, Delay for Movement [s/veh]	53.86	25.11	22.18	263.96	30.56	32.14	301.45	39.87	46.39	54.37	37.03	37.53
Movement LOS	D	C	C	F	C	C	F	D	D	D	D	D
d_A, Approach Delay [s/veh]	29.50			76.26			83.58			39.15		
Approach LOS	C			E			F			D		
d_I, Intersection Delay [s/veh]	56.96											
Intersection LOS	E											
Intersection V/C	0.804											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.200	3.175	3.093	3.231
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	618	745	691
d_b, Bicycle Delay [s]	23.56	26.25	21.64	23.56
I_b,int, Bicycle LOS Score for Intersection	2.548	2.502	2.498	2.462
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: College Driveway No. 1 at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	12	22	35	573	674	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	22	35	573	674	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	6	9	143	169	4
Total Analysis Volume [veh/h]	12	22	35	573	674	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	15.66	13.77	9.14	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.27	0.27	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	6.65	6.65	3.01	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.44		0.53		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.61					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 27: Centennial Way at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.153

Intersection Setup

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	0	85	521	94	28	697
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	85	521	94	28	697
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	21	130	24	7	174
Total Analysis Volume [veh/h]	0	85	521	94	28	697
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.15	0.01	0.00	0.03	0.01
d_M, Delay for Movement [s/veh]	0.00	12.65	0.00	0.00	8.84	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.54	0.00	0.00	0.09	0.00
95th-Percentile Queue Length [ft]	0.00	13.43	0.00	0.00	2.24	0.00
d_A, Approach Delay [s/veh]	12.65		0.00		0.34	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.93					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 28: Lemon Street at Parking Structure

Control Type:	Two-way stop	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.488

Intersection Setup

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Base Volume Input [veh/h]	33	845	134	0	680	11	0	0	28	0	0	256
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	845	134	0	680	11	0	0	28	0	0	256
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	211	34	0	170	3	0	0	7	0	0	64
Total Analysis Volume [veh/h]	33	845	134	0	680	11	0	0	28	0	0	256
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.49
d_M, Delay for Movement [s/veh]	9.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.78	0.00	0.00	18.24
Movement LOS	A	A	A		A	A			B			C
95th-Percentile Queue Length [veh]	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	2.65
95th-Percentile Queue Length [ft]	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37	0.00	0.00	66.29
d_A, Approach Delay [s/veh]	0.30			0.00			10.78			18.24		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	2.65											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 29: Lemon Street at Fullerton College Drive

Control Type:	Signalized	Delay (sec / veh):	23.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Base Volume Input [veh/h]	0	973	222	80	595	0	46	0	54	325	0	73
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	973	222	80	595	0	46	0	54	325	0	73
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	243	56	20	149	0	12	0	14	81	0	18
Total Analysis Volume [veh/h]	0	973	222	80	595	0	46	0	54	325	0	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	6	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	30	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	10	34	0	0	10	0	66	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	7	0	0
Pedestrian Clearance [s]	0	13	0	0	14	0	0	0	0	16	0	0
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall		No		No	No			No		No		
Maximum Recall		No		No	No			No		No		
Pedestrian Recall		No		No	No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	R
C, Cycle Length [s]	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	58	58	68	68	8	22	22
g / C, Green / Cycle	0.53	0.53	0.62	0.62	0.07	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.31	0.33	0.04	0.16	0.06	0.18	0.04
s, saturation flow rate [veh/h]	1900	1800	1800	3800	1800	1800	1800
c, Capacity [veh/h]	1006	953	775	2341	129	366	366
d1, Uniform Delay [s]	17.78	18.24	8.49	9.62	50.19	42.64	36.42
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.58	3.12	0.06	0.26	9.41	7.40	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.63	0.10	0.25	0.77	0.89	0.20
d, Delay for Lane Group [s/veh]	20.36	21.36	8.55	9.88	59.60	50.04	36.68
Lane Group LOS	C	C	A	A	E	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	10.73	11.10	0.75	3.20	3.04	9.27	1.66
50th-Percentile Queue Length [ft]	268.24	277.38	18.82	80.10	75.92	231.72	41.52
95th-Percentile Queue Length [veh]	16.10	16.56	1.35	5.77	5.47	14.26	2.99
95th-Percentile Queue Length [ft]	402.54	413.95	33.87	144.18	136.66	356.54	74.74

Movement, Approach, & Intersection Results

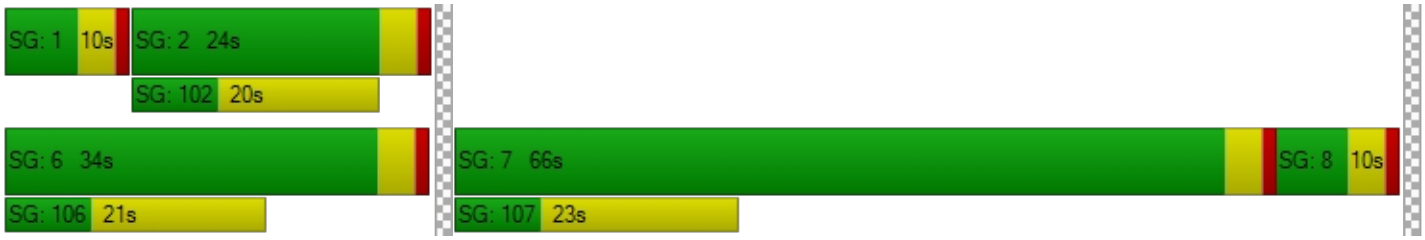
d_M, Delay for Movement [s/veh]	0.00	20.75	21.36	8.55	9.88	0.00	59.60	59.60	59.60	50.04	0.00	36.68
Movement LOS		C	C	A	A		E	E	E	D		D
d_A, Approach Delay [s/veh]	20.86			9.72			59.60			47.59		
Approach LOS	C			A			E			D		
d_I, Intersection Delay [s/veh]	23.81											
Intersection LOS	C											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.719	1.530	2.240
Crosswalk LOS	F	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	364	545	109	0
d_b, Bicycle Delay [s]	36.82	29.09	49.16	55.00
I_b,int, Bicycle LOS Score for Intersection	2.545	2.116	1.725	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Berkeley Avenue at College Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	17.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.175

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Base Volume Input [veh/h]	133	468	360	8	65	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	468	360	8	65	84
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	117	90	2	16	21
Total Analysis Volume [veh/h]	133	468	360	8	65	84
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.00	0.00	0.00	0.18	0.12
d_M, Delay for Movement [s/veh]	8.40	0.00	0.00	0.00	17.76	13.33
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.38	0.00	0.00	0.00	1.24	1.24
95th-Percentile Queue Length [ft]	9.41	0.00	0.00	0.00	31.07	31.07
d_A, Approach Delay [s/veh]	1.86		0.00		15.27	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.03					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 31: Berkeley Avenue at College Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Base Volume Input [veh/h]	0	593	450	0	7	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	593	450	0	7	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	148	113	0	2	33
Total Analysis Volume [veh/h]	0	593	450	0	7	132
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.02	0.22
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	14.75	12.72
Movement LOS		A	A		B	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.89	0.89
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	22.33	22.33
d_A, Approach Delay [s/veh]	0.00		0.00		12.82	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.51					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 32: Berkeley Avenue at Brookdale Place

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.083

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Base Volume Input [veh/h]	581	28	42	595	31	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	581	28	42	595	31	61
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	145	7	11	149	8	15
Total Analysis Volume [veh/h]	581	28	42	595	31	61
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.08	0.12
d_M, Delay for Movement [s/veh]	0.00	0.00	8.88	0.00	16.67	14.17
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.14	0.00	0.76	0.76
95th-Percentile Queue Length [ft]	0.00	0.00	3.39	0.00	18.89	18.89
d_A, Approach Delay [s/veh]	0.00		0.59		15.01	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.31					
Intersection LOS	C					

APPENDIX B-III

YEAR 2030 BUILDOUT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Harbor Boulevard at Valley View Drive/Brea Boulevard

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.878

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Base Volume Input [veh/h]	40	1630	473	68	1753	157	65	110	34	804	141	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	1630	473	68	1753	157	65	110	34	804	141	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	408	118	17	438	39	16	28	9	201	35	0
Total Analysis Volume [veh/h]	40	1630	473	68	1753	157	65	110	34	804	141	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	34	0	24	48	0	0	10	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	20	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	48	5	50	50	8	8	8	32	32
g / C, Green / Cycle	0.04	0.44	0.05	0.45	0.45	0.08	0.08	0.08	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.02	0.29	0.04	0.41	0.20	0.04	0.06	0.02	0.26	0.26
s, saturation flow rate [veh/h]	1800	5700	1800	3800	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	71	2500	90	1707	809	139	146	139	520	520
d1, Uniform Delay [s]	51.94	24.30	51.62	28.18	20.89	48.66	49.78	47.80	37.73	37.76
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.28	0.28
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.81	1.34	11.90	8.55	1.78	2.45	7.54	0.91	14.30	14.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.65	0.75	0.91	0.45	0.47	0.75	0.25	0.91	0.91
d, Delay for Lane Group [s/veh]	58.75	25.63	63.52	36.74	22.67	51.11	57.32	48.71	52.04	52.26
Lane Group LOS	E	C	E	D	C	D	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.22	11.15	2.15	20.23	6.69	1.80	3.27	0.91	14.14	14.19
50th-Percentile Queue Length [ft]	30.46	278.75	53.69	505.63	167.22	45.08	81.64	22.83	353.43	354.82
95th-Percentile Queue Length [veh]	2.19	16.63	3.87	27.60	10.93	3.25	5.88	1.64	20.30	20.37
95th-Percentile Queue Length [ft]	54.82	415.66	96.64	690.01	273.26	81.15	146.94	41.09	507.59	509.28

Movement, Approach, & Intersection Results

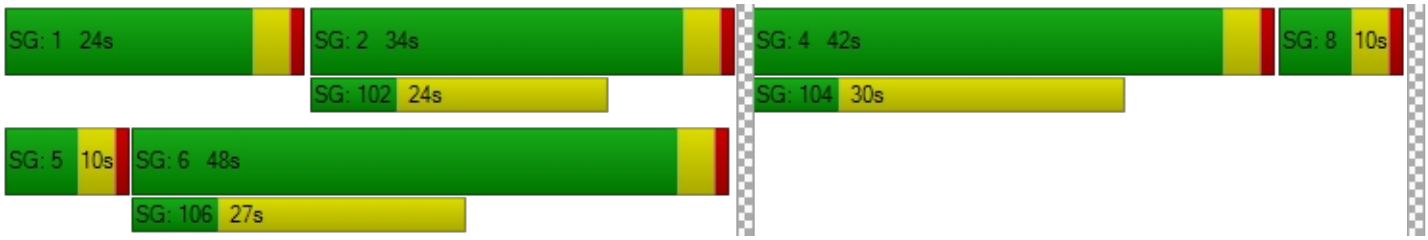
d_M, Delay for Movement [s/veh]	58.75	25.63	0.00	63.52	35.10	22.67	51.11	57.32	48.71	52.13	52.26	0.00
Movement LOS	E	C		E	D	C	D	E	D	D	D	
d_A, Approach Delay [s/veh]	26.43			35.09			53.99			52.15		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	36.26											
Intersection LOS	D											
Intersection V/C	0.878											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.208	2.274	2.315
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	800	109	691
d_b, Bicycle Delay [s]	29.09	19.80	49.16	23.56
I_b,int, Bicycle LOS Score for Intersection	2.478	2.648	1.904	3.119
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Harbor Boulevard at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	41.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.953

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	166	1650	87	578	1956	18	34	321	121	53	206	466
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	1650	87	578	1956	18	34	321	121	53	206	466
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	413	22	145	489	5	9	80	30	13	52	117
Total Analysis Volume [veh/h]	166	1650	87	578	1956	18	34	321	121	53	206	466
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	5	2	0	1	6	0	0	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	6
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
Split [s]	14	52	0	21	59	0	0	37	0	0	37	37
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	21	0	0	22	0	0	18	0	0	26	26
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No	No		No	No			No			No	No
Maximum Recall	No	No		No	No			No			No	No
Pedestrian Recall	No	No		No	No			No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	55	55	17	62	62	26	26	26	26	26	47
g / C, Green / Cycle	0.09	0.50	0.50	0.16	0.57	0.57	0.23	0.23	0.23	0.23	0.23	0.42
(v / s)_i Volume / Saturation Flow Rate	0.09	0.47	0.47	0.17	0.51	0.01	0.02	0.17	0.07	0.03	0.11	0.26
s, saturation flow rate [veh/h]	1800	1900	1800	3500	3800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	166	957	906	544	2154	1020	280	440	417	167	440	763
d1, Uniform Delay [s]	49.88	25.55	25.52	46.42	21.27	10.42	33.07	39.04	34.78	33.43	36.39	24.63
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.13	0.11	0.11	0.11	0.41
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	32.03	16.82	17.31	36.96	7.07	0.03	0.19	2.84	0.38	1.08	0.77	3.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.93	0.93	1.06	0.91	0.02	0.12	0.73	0.29	0.32	0.47	0.61
d, Delay for Lane Group [s/veh]	81.91	42.38	42.83	83.38	28.33	10.46	33.26	41.88	35.16	34.50	37.16	27.65
Lane Group LOS	F	D	D	F	C	B	C	D	D	C	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	6.03	25.15	23.89	10.19	22.96	0.20	0.73	8.29	2.71	1.17	4.85	9.89
50th-Percentile Queue Length [ft]	150.65	628.75	597.26	254.65	574.10	4.93	18.19	207.27	67.80	29.33	121.16	247.33
95th-Percentile Queue Length [veh]	10.05	33.37	31.91	15.85	30.82	0.35	1.31	13.01	4.88	2.11	8.46	15.05
95th-Percentile Queue Length [ft]	251.29	834.36	797.66	396.28	770.57	8.87	32.74	325.33	122.04	52.79	211.42	376.28

Movement, Approach, & Intersection Results

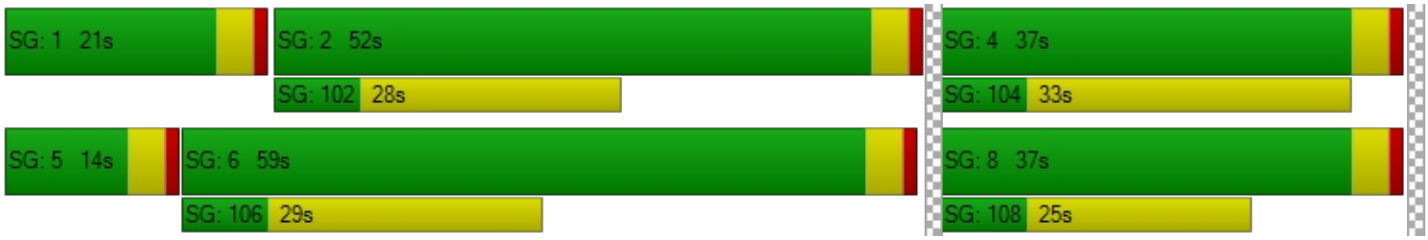
d_M, Delay for Movement [s/veh]	81.91	42.58	42.83	83.38	28.33	10.46	33.26	41.88	35.16	34.50	37.16	27.65
Movement LOS	F	D	D	F	C	B	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	46.02			40.67			39.55			30.85		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	41.12											
Intersection LOS	D											
Intersection V/C	0.953											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.171	3.307	2.352	2.643
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	873	1000	600	600
d_b, Bicycle Delay [s]	17.47	13.75	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	3.130	3.665	2.345	2.756
Bicycle LOS	C	D	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Lemon Street at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	58.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.764

Intersection Setup

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	251	203	128	171	415	16	5	593	397	103	465	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	251	203	128	171	415	16	5	593	397	103	465	54
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	51	32	43	104	4	1	148	99	26	116	14
Total Analysis Volume [veh/h]	251	203	128	171	415	16	5	593	397	103	465	54
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	6	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	31	0	0	30	0	0	49	49	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	19	0	0	16	16	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		No	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	34	34	34	30	30	68	30	30	30
g / C, Green / Cycle	0.31	0.31	0.31	0.31	0.31	0.27	0.27	0.62	0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.12	0.13	0.07	0.10	0.24	0.00	0.31	0.22	0.06	0.14	0.14
s, saturation flow rate [veh/h]	1800	1800	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	556	556	556	556	556	320	519	1113	72	519	492
d1, Uniform Delay [s]	29.92	30.10	28.24	28.98	34.49	29.06	39.88	10.25	30.18	33.79	33.61
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.14	2.30	0.97	1.43	10.18	0.02	84.80	0.89	212.88	0.81	0.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.42	0.23	0.31	0.78	0.02	1.14	0.36	1.44	0.52	0.50
d, Delay for Lane Group [s/veh]	32.07	32.40	29.20	30.42	44.67	29.08	124.68	11.14	243.06	34.60	34.41
Lane Group LOS	C	C	C	C	D	C	F	B	F	C	C
Critical Lane Group	No	Yes	No	No	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	4.95	5.20	2.66	3.66	11.89	0.10	26.03	4.74	5.68	6.21	5.67
50th-Percentile Queue Length [ft]	123.76	129.90	66.46	91.55	297.26	2.46	650.77	118.52	142.04	155.32	141.69
95th-Percentile Queue Length [veh]	8.60	8.93	4.79	6.59	17.55	0.18	37.23	8.31	10.23	10.30	9.57
95th-Percentile Queue Length [ft]	214.98	223.35	119.63	164.79	438.64	4.43	930.69	207.79	255.67	257.51	239.30

Movement, Approach, & Intersection Results

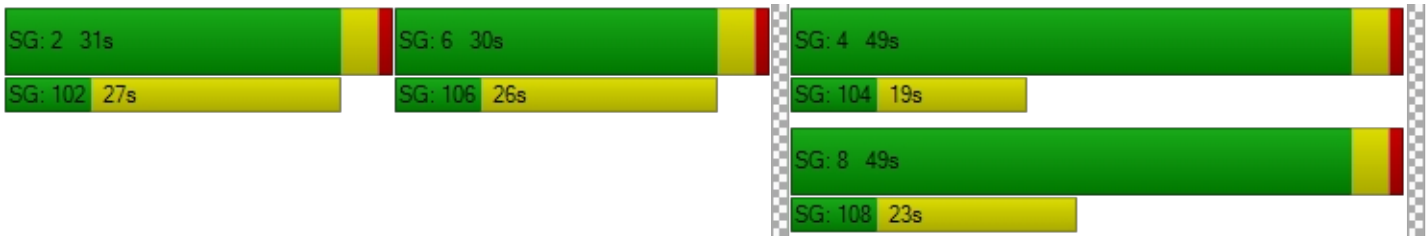
d_M, Delay for Movement [s/veh]	32.10	32.40	29.20	30.42	44.67	44.67	29.08	124.68	11.14	243.06	34.52	34.41
Movement LOS	C	C	C	C	D	D	C	F	B	F	C	C
d_A, Approach Delay [s/veh]	31.57			40.62			78.90			69.05		
Approach LOS	C			D			E			E		
d_I, Intersection Delay [s/veh]	58.65											
Intersection LOS	E											
Intersection V/C	0.764											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.652	2.238	3.003	2.753
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	473	818	818
d_b, Bicycle Delay [s]	31.31	32.07	19.20	19.20
I_b,int, Bicycle LOS Score for Intersection	2.520	2.553	3.201	2.073
Bicycle LOS	B	B	C	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Hornet Way at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.418

Intersection Setup

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	54	291	170	429	384	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	291	170	429	384	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	73	43	107	96	4
Total Analysis Volume [veh/h]	54	291	170	429	384	16
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	8	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	6	6	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	37	0	0	73	73	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	19	0	0	0	14	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	20	82	82	82	82
g / C, Green / Cycle	0.18	0.18	0.74	0.74	0.74	0.74
(v / s)_i Volume / Saturation Flow Rate	0.03	0.16	0.09	0.23	0.20	0.01
s, saturation flow rate [veh/h]	1800	1800	1800	1900	1900	1800
c, Capacity [veh/h]	327	327	1246	1416	1416	1342
d1, Uniform Delay [s]	37.87	43.82	3.92	4.59	4.45	3.58
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	8.63	0.23	0.55	0.47	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.89	0.14	0.30	0.27	0.01
d, Delay for Lane Group [s/veh]	38.10	52.45	4.15	5.14	4.92	3.60
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.25	8.44	1.00	2.93	2.54	0.09
50th-Percentile Queue Length [ft]	31.25	211.08	24.95	73.25	63.55	2.13
95th-Percentile Queue Length [veh]	2.25	13.21	1.80	5.27	4.58	0.15
95th-Percentile Queue Length [ft]	56.24	330.22	44.91	131.84	114.39	3.83

Movement, Approach, & Intersection Results

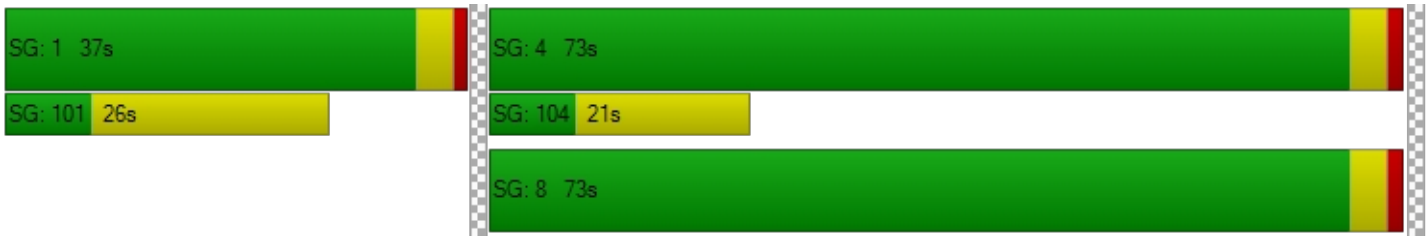
d_M, Delay for Movement [s/veh]	38.10	52.45	4.15	5.14	4.92	3.60
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	50.20		4.86		4.87	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	16.50					
Intersection LOS	B					
Intersection V/C	0.418					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	69.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	7.64
I_p,int, Pedestrian LOS Score for Intersection	2.364	2.364	2.243
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	55.00	55.00	55.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.121	4.792
Bicycle LOS	D	F	E

Sequence

Ring 1	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Euclid Street at Malvern Avenue

Control Type:	Signalized	Delay (sec / veh):	56.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.055

Intersection Setup

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Base Volume Input [veh/h]	154	1250	105	357	1600	21	59	1008	227	197	693	163
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	154	1250	105	357	1600	21	59	1008	227	197	693	163
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	313	26	89	400	5	15	252	57	49	173	41
Total Analysis Volume [veh/h]	154	1250	105	357	1600	21	59	1008	227	197	693	163
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	50	0	10	50	0	10	40	0	10	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	56	46	46	56	46	46	46	36	36	46	37	37
g / C, Green / Cycle	0.51	0.42	0.42	0.51	0.42	0.42	0.42	0.33	0.33	0.42	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.09	0.37	0.36	0.20	0.44	0.44	0.03	0.34	0.32	0.11	0.24	0.22
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	260	798	756	418	798	756	460	619	586	269	636	602
d1, Uniform Delay [s]	14.40	29.38	29.05	16.42	31.91	31.91	19.36	37.10	36.99	21.03	32.01	31.35
k, delay calibration	0.50	0.50	0.50	0.25	0.50	0.50	0.11	0.50	0.45	0.11	0.25	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.54	13.34	12.53	10.83	43.83	44.68	0.12	51.34	33.85	3.85	3.39	2.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.88	0.86	0.85	1.04	1.04	0.13	1.05	0.99	0.73	0.71	0.67
d, Delay for Lane Group [s/veh]	23.94	42.72	41.58	27.25	75.74	76.60	19.48	88.44	70.83	24.88	35.39	33.83
Lane Group LOS	C	D	D	C	F	F	B	F	E	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.73	19.53	17.85	6.64	30.15	28.74	0.93	25.06	20.75	3.59	11.00	9.43
50th-Percentile Queue Length [ft]	68.14	488.17	446.26	166.03	753.73	718.55	23.15	626.41	518.78	89.70	274.98	235.64
95th-Percentile Queue Length [veh]	4.91	26.77	24.78	10.87	40.43	38.75	1.67	34.48	28.22	6.46	16.44	14.46
95th-Percentile Queue Length [ft]	122.65	669.35	619.48	271.69	1010.81	968.81	41.67	862.02	705.55	161.46	410.96	361.52

Movement, Approach, & Intersection Results

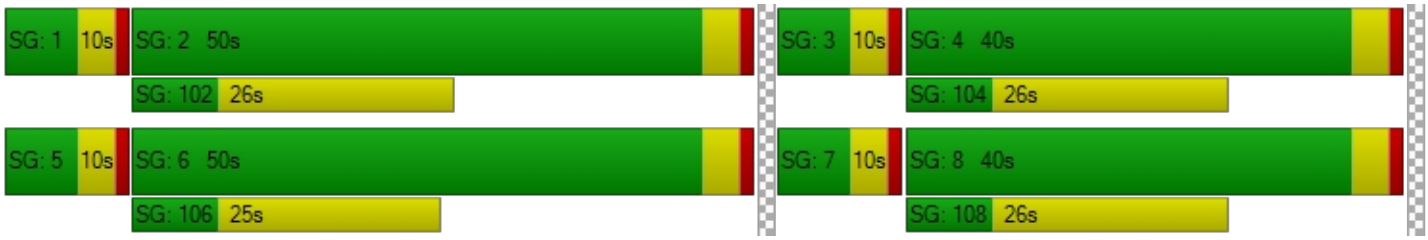
d_M, Delay for Movement [s/veh]	23.94	42.22	41.58	27.25	76.15	76.60	19.48	82.23	70.83	24.88	34.85	33.83
Movement LOS	C	D	D	C	F	E	B	F	E	C	C	C
d_A, Approach Delay [s/veh]	40.31			67.33			77.37			32.83		
Approach LOS	D			E			E			C		
d_I, Intersection Delay [s/veh]	56.34											
Intersection LOS	E											
Intersection V/C	1.055											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.095	3.012	2.827	3.076
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	655	655
d_b, Bicycle Delay [s]	18.62	18.62	24.89	24.89
I_b,int, Bicycle LOS Score for Intersection	2.805	3.191	2.627	2.428
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Harbor Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	84.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.181

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	67	1538	241	204	1582	86	176	1290	100	230	941	204
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	1538	241	204	1582	86	176	1290	100	230	941	204
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	385	60	51	396	22	44	323	25	58	235	51
Total Analysis Volume [veh/h]	67	1538	241	204	1582	86	176	1290	100	230	941	204
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	50	0	10	50	0	16	40	0	10	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	56	46	46	56	47	47	46	36	36	46	33	33
g / C, Green / Cycle	0.51	0.42	0.42	0.51	0.43	0.43	0.42	0.33	0.33	0.42	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.48	0.48	0.11	0.45	0.45	0.10	0.38	0.37	0.13	0.25	0.11
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	247	796	754	259	809	767	427	620	588	266	1135	537
d1, Uniform Delay [s]	13.72	31.96	31.96	14.90	31.57	31.57	20.70	37.05	37.05	21.41	35.97	30.52
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.70	82.97	79.35	5.31	48.65	48.54	0.64	89.08	82.62	8.33	1.63	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	1.15	1.14	0.79	1.06	1.06	0.41	1.16	1.14	0.87	0.83	0.38
d, Delay for Lane Group [s/veh]	16.42	114.93	111.31	20.21	80.22	80.12	21.33	126.13	119.67	29.73	37.60	30.96
Lane Group LOS	B	F	F	C	F	F	C	F	F	C	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.03	38.74	35.94	3.17	31.62	29.93	2.98	31.63	28.91	4.55	11.84	4.33
50th-Percentile Queue Length [ft]	25.68	968.38	898.41	79.15	790.45	748.29	74.59	790.71	722.73	113.63	296.11	108.23
95th-Percentile Queue Length [veh]	1.85	54.12	50.27	5.70	42.65	40.54	5.37	44.90	41.05	8.04	17.49	7.74
95th-Percentile Queue Length [ft]	46.22	1352.92	1256.77	142.47	1066.31	1013.54	134.27	1122.52	1026.27	201.04	437.21	193.53

Movement, Approach, & Intersection Results

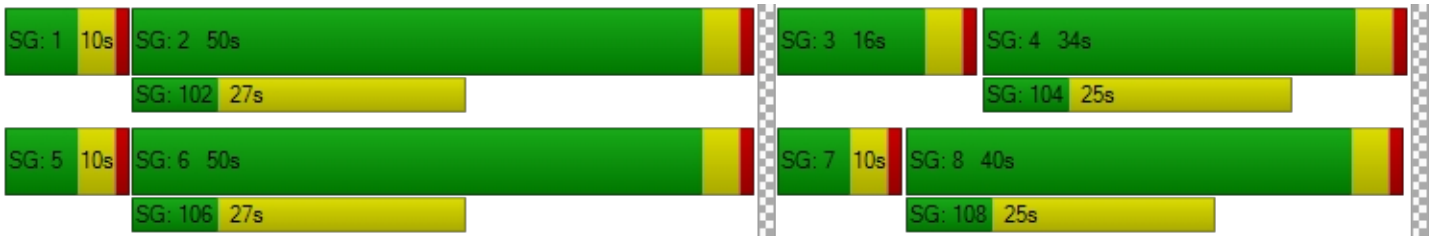
d_M, Delay for Movement [s/veh]	16.42	113.47	111.31	20.21	80.17	80.12	21.33	123.27	119.67	29.73	37.60	30.96
Movement LOS	B	F	F	C	F	F	C	F	F	C	D	C
d_A, Approach Delay [s/veh]	109.67			73.64			111.59			35.30		
Approach LOS	F			E			F			D		
d_I, Intersection Delay [s/veh]	84.63											
Intersection LOS	F											
Intersection V/C	1.181											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.155	3.128	2.870	3.095
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	655	545
d_b, Bicycle Delay [s]	18.62	18.62	24.89	29.09
I_b,int, Bicycle LOS Score for Intersection	3.083	3.104	2.852	2.694
Bicycle LOS	C	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	40.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.843

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	124	681	224	68	645	63	260	1334	170	240	1110	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	681	224	68	645	63	260	1334	170	240	1110	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	170	56	17	161	16	65	334	43	60	278	33
Total Analysis Volume [veh/h]	124	681	224	68	645	63	260	1334	170	240	1110	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	10	31	0	23	56	0	12	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	42	33	33	42	31	31	18	48	48	8	38	38
g / C, Green / Cycle	0.38	0.30	0.30	0.38	0.28	0.28	0.16	0.44	0.44	0.07	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.07	0.18	0.12	0.04	0.19	0.19	0.14	0.41	0.40	0.07	0.29	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	477	1130	535	510	537	509	290	827	784	257	1320	625
d1, Uniform Delay [s]	22.56	33.12	31.05	21.83	35.14	34.88	45.26	29.72	29.44	50.74	33.12	25.30
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.37	0.36	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.32	2.39	2.40	0.12	7.00	6.74	9.53	15.98	14.67	14.38	1.52	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.60	0.42	0.13	0.69	0.67	0.90	0.94	0.93	0.93	0.84	0.21
d, Delay for Lane Group [s/veh]	23.88	35.50	33.45	21.95	42.14	41.63	54.79	45.69	44.11	65.12	34.64	25.47
Lane Group LOS	C	D	C	C	D	D	D	D	D	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.30	8.08	5.11	1.15	9.76	8.90	7.69	22.59	20.70	3.79	13.66	2.46
50th-Percentile Queue Length [ft]	57.62	202.02	127.73	28.67	243.93	222.44	192.15	564.78	517.60	94.81	341.45	61.49
95th-Percentile Queue Length [veh]	4.15	12.74	8.82	2.06	14.88	13.79	12.23	30.39	28.17	6.83	19.72	4.43
95th-Percentile Queue Length [ft]	103.72	318.57	220.41	51.61	372.01	344.74	305.82	759.66	704.15	170.65	492.97	110.68

Movement, Approach, & Intersection Results

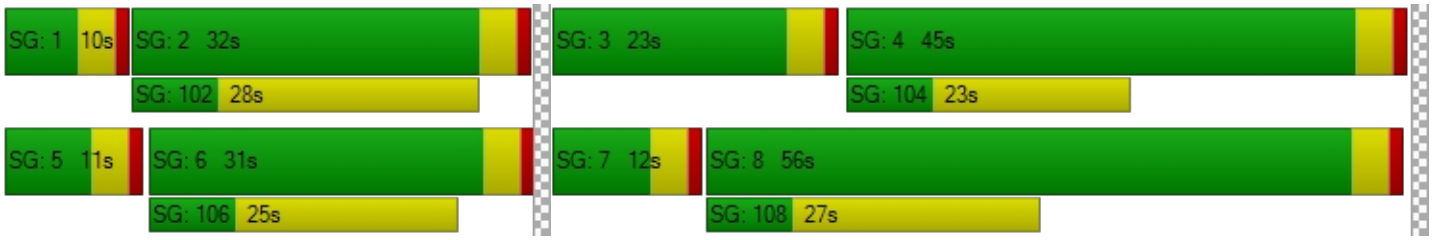
d_M, Delay for Movement [s/veh]	23.88	35.50	33.45	21.95	41.92	41.63	54.79	45.03	44.11	65.12	34.64	25.47
Movement LOS	C	D	C	C	D	D	D	D	D	E	C	C
d_A, Approach Delay [s/veh]	33.66			40.14			46.38			38.76		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	40.59											
Intersection LOS	D											
Intersection V/C	0.843											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.801	2.670	2.959	3.067
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	491	945	745
d_b, Bicycle Delay [s]	30.56	31.31	15.29	21.64
I_b,int, Bicycle LOS Score for Intersection	2.409	2.200	3.015	2.782
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Berkeley Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	16	99	94	370	75	95	56	1511	8	68	1410	513
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	99	94	370	75	95	56	1511	8	68	1410	513
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	25	24	93	19	24	14	378	2	17	353	128
Total Analysis Volume [veh/h]	16	99	94	370	75	95	56	1511	8	68	1410	513
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	3	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	6	6	0	0	6	6
Maximum Green [s]	0	30	0	30	30	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	10	0	58	68	0	10	42	0	0	32	32
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	20	0	0	20	0	0	21	21
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall		No		No	No		No	No			No	No
Maximum Recall		No		No	No		No	No			No	No
Pedestrian Recall		No		No	No		No	No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	8	8	8	16	28	74	74	74	65	65	85
g / C, Green / Cycle	0.07	0.07	0.07	0.15	0.26	0.67	0.67	0.67	0.59	0.59	0.77
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.05	0.11	0.09	0.03	0.41	0.41	0.04	0.37	0.29
s, saturation flow rate [veh/h]	1800	1900	1800	3500	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	66	140	133	509	460	851	1276	1209	664	2243	1390
d1, Uniform Delay [s]	47.63	49.80	49.80	44.93	33.67	6.12	10.06	10.06	9.60	14.69	4.00
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.86	6.35	6.73	2.00	0.49	0.03	2.19	2.31	0.31	1.35	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.71	0.71	0.73	0.37	0.07	0.61	0.61	0.10	0.63	0.37
d, Delay for Lane Group [s/veh]	49.49	56.15	56.54	46.94	34.17	6.15	12.26	12.36	9.91	16.04	4.24
Lane Group LOS	D	E	E	D	C	A	B	B	A	B	A
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	0.44	2.90	2.77	4.95	3.80	0.42	10.23	9.71	0.74	11.20	3.01
50th-Percentile Queue Length [ft]	11.12	72.58	69.26	123.75	94.90	10.50	255.64	242.69	18.42	280.01	75.32
95th-Percentile Queue Length [veh]	0.80	5.23	4.99	8.60	6.83	0.76	15.47	14.82	1.33	16.69	5.42
95th-Percentile Queue Length [ft]	20.01	130.64	124.67	214.97	170.82	18.89	386.75	370.43	33.15	417.22	135.58

Movement, Approach, & Intersection Results

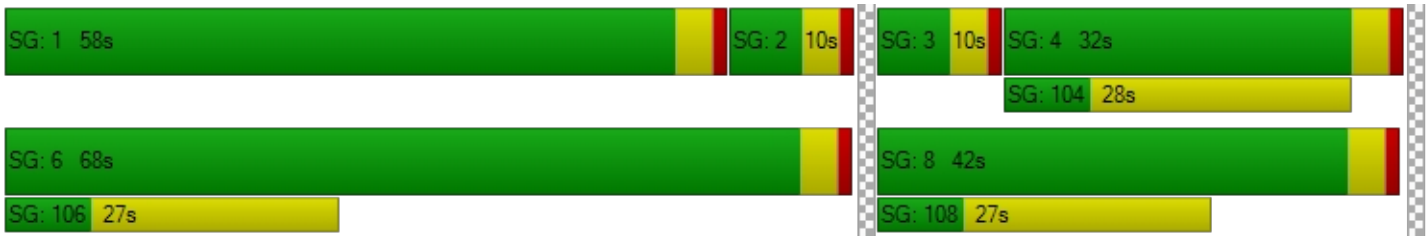
d_M, Delay for Movement [s/veh]	49.49	56.15	56.54	46.94	34.17	34.17	6.15	12.31	12.36	9.91	16.04	4.24
Movement LOS	D	E	E	D	C	C	A	B	B	A	B	A
d_A, Approach Delay [s/veh]	55.81			42.92			12.09			12.79		
Approach LOS	E			D			B			B		
d_I, Intersection Delay [s/veh]	18.39											
Intersection LOS	B											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.325	2.484	2.936	0.000
Crosswalk LOS	B	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	109	1164	691	509
d_b, Bicycle Delay [s]	49.16	9.62	23.56	30.56
I_b,int, Bicycle LOS Score for Intersection	1.904	2.451	2.859	3.202
Bicycle LOS	A	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Raymond Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	44.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.021

Intersection Setup

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	160	279	388	205	508	90	49	1659	190	269	1717	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	160	279	388	205	508	90	49	1659	190	269	1717	75
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	70	97	51	127	23	12	415	48	67	429	19
Total Analysis Volume [veh/h]	160	279	388	205	508	90	49	1659	190	269	1717	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	10	30	0	42	60	0	10	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	18	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	35	25	25	35	25	25	67	56	56	67	58	58
g / C, Green / Cycle	0.32	0.23	0.23	0.32	0.23	0.23	0.60	0.51	0.51	0.60	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.09	0.15	0.22	0.11	0.17	0.16	0.03	0.50	0.50	0.15	0.48	0.48
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	402	440	417	439	440	417	389	965	914	292	1000	947
d1, Uniform Delay [s]	27.71	38.07	41.40	28.49	38.93	38.54	8.83	26.68	26.58	10.10	23.96	23.96
k, delay calibration	0.11	0.11	0.30	0.11	0.16	0.14	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.64	1.57	20.73	0.78	3.27	2.51	0.14	25.74	25.77	35.62	14.78	15.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.63	0.93	0.47	0.72	0.68	0.13	0.99	0.98	0.92	0.92	0.92
d, Delay for Lane Group [s/veh]	28.35	39.64	62.13	29.27	42.21	41.05	8.97	52.42	52.36	45.72	38.73	39.36
Lane Group LOS	C	D	E	C	D	D	A	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	3.20	6.93	12.59	4.22	8.18	7.21	0.48	30.01	28.29	5.80	24.80	23.66
50th-Percentile Queue Length [ft]	80.00	173.17	314.67	105.41	204.41	180.16	11.97	750.34	707.15	145.01	619.98	591.48
95th-Percentile Queue Length [veh]	5.76	11.24	18.41	7.58	12.87	11.61	0.86	39.00	37.01	9.75	32.97	31.64
95th-Percentile Queue Length [ft]	144.01	281.08	460.13	189.60	321.65	290.23	21.54	974.95	925.21	243.75	824.15	790.91

Movement, Approach, & Intersection Results

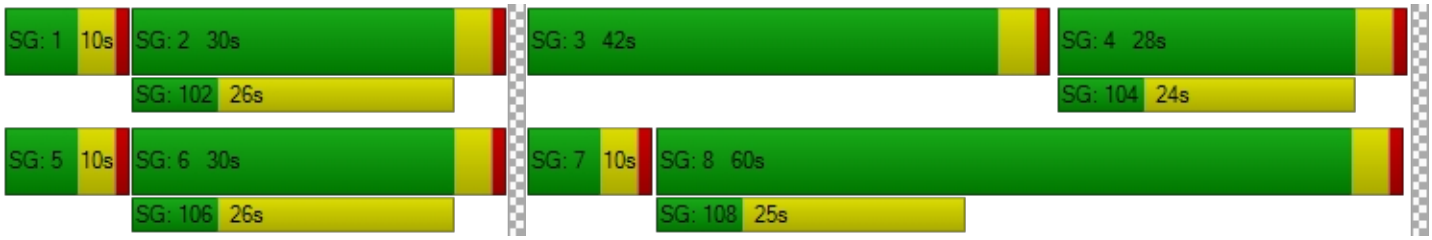
d_M, Delay for Movement [s/veh]	28.35	39.64	62.13	29.27	41.77	41.05	8.97	52.39	52.36	45.72	39.02	39.36
Movement LOS	C	D	E	C	D	D	A	D	D	D	D	D
d_A, Approach Delay [s/veh]	48.01			38.50			51.27			39.91		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.76											
Intersection LOS	D											
Intersection V/C	1.021											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.861	2.473	3.120	3.223
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	1018	436
d_b, Bicycle Delay [s]	32.07	32.07	13.25	33.62
I_b,int, Bicycle LOS Score for Intersection	2.924	2.222	3.125	3.260
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Acacia Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	56.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.883

Intersection Setup

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	209	171	150	68	312	53	114	1818	181	207	1597	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	209	171	150	68	312	53	114	1818	181	207	1597	47
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	43	38	17	78	13	29	455	45	52	399	12
Total Analysis Volume [veh/h]	209	171	150	68	312	53	114	1818	181	207	1597	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	59	0	0	59	0	17	39	0	12	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	25	25	77	67	67	77	67	67
g / C, Green / Cycle	0.22	0.22	0.22	0.22	0.22	0.70	0.61	0.61	0.70	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.12	0.09	0.08	0.04	0.20	0.06	0.54	0.54	0.12	0.44	0.44
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	83	426	403	298	403	793	1150	1089	515	1165	1104
d1, Uniform Delay [s]	34.71	36.38	36.12	34.41	41.53	5.17	18.65	18.65	5.47	14.82	14.80
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	690.73	0.61	0.57	0.38	7.79	0.08	10.68	11.18	2.32	3.95	4.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.52	0.40	0.37	0.23	0.91	0.14	0.89	0.89	0.40	0.73	0.72
d, Delay for Lane Group [s/veh]	725.44	37.00	36.69	34.79	49.32	5.25	29.33	29.83	7.80	18.78	18.94
Lane Group LOS	F	D	D	C	D	A	C	C	A	B	B
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	17.74	3.98	3.47	1.50	10.40	0.77	23.89	22.78	1.78	14.86	14.09
50th-Percentile Queue Length [ft]	443.45	99.62	86.77	37.58	260.11	19.27	597.15	569.50	44.48	371.54	352.29
95th-Percentile Queue Length [veh]	31.61	7.17	6.25	2.71	15.69	1.39	31.90	30.61	3.20	21.18	20.25
95th-Percentile Queue Length [ft]	790.25	179.31	156.19	67.65	392.36	34.69	797.53	765.18	80.07	529.59	506.20

Movement, Approach, & Intersection Results

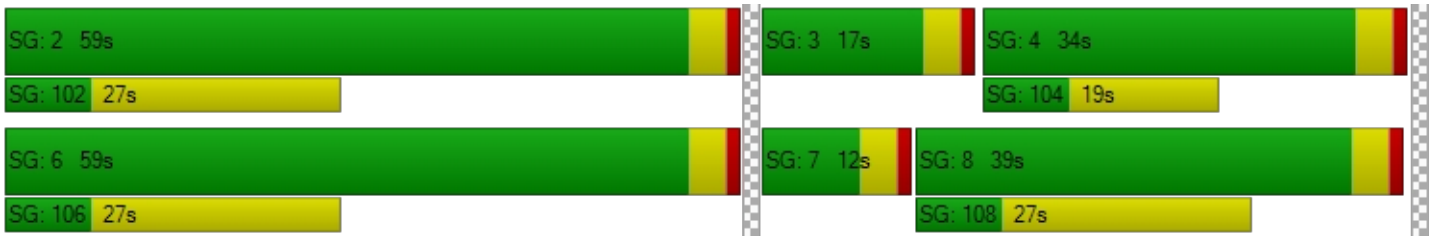
d_M, Delay for Movement [s/veh]	725.44	37.00	36.69	34.79	49.32	49.32	5.25	29.55	29.83	7.80	18.85	18.94
Movement LOS	F	D	D	C	D	D	A	C	C	A	B	B
d_A, Approach Delay [s/veh]	308.39			47.04			28.26			17.62		
Approach LOS	F			D			C			B		
d_I, Intersection Delay [s/veh]	56.05											
Intersection LOS	E											
Intersection V/C	0.883											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.624	2.301	3.381	3.164
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1000	636	545
d_b, Bicycle Delay [s]	13.75	13.75	25.57	29.09
I_b,int, Bicycle LOS Score for Intersection	2.434	2.274	3.303	3.087
Bicycle LOS	B	B	C	C

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: State College Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	60.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.981

Intersection Setup

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	60	483	343	296	421	569	555	1603	66	193	1453	282
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	483	343	296	421	569	555	1603	66	193	1453	282
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	121	86	74	105	142	139	401	17	48	363	71
Total Analysis Volume [veh/h]	60	483	343	296	421	569	555	1603	66	193	1453	282
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						3,6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	6	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	13	37	37	20	48	0	15	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	26	26	0	23	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	30	30	9	34	54	16	44	44	11	39	39
g / C, Green / Cycle	0.05	0.27	0.27	0.08	0.31	0.49	0.15	0.40	0.40	0.10	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.03	0.13	0.19	0.08	0.11	0.32	0.16	0.42	0.04	0.11	0.38	0.16
s, saturation flow rate [veh/h]	1800	3800	1800	3500	3800	1800	3500	3800	1800	1800	3800	1800
c, Capacity [veh/h]	83	1042	494	287	1178	886	509	1513	717	180	1341	635
d1, Uniform Delay [s]	51.79	33.20	35.80	50.50	29.45	20.76	47.01	33.10	20.68	49.50	35.60	27.32
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.26	1.48	7.86	33.16	0.85	3.57	48.06	30.75	0.06	51.85	41.36	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.46	0.70	1.03	0.36	0.64	1.09	1.06	0.09	1.07	1.08	0.44
d, Delay for Lane Group [s/veh]	63.04	34.69	43.67	83.67	30.29	24.33	95.07	63.85	20.73	101.35	76.96	27.81
Lane Group LOS	E	C	D	F	C	C	F	F	C	F	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.89	5.56	9.26	5.26	4.45	11.41	10.32	25.93	1.07	7.53	25.18	5.73
50th-Percentile Queue Length [ft]	47.25	138.97	231.58	131.39	111.28	285.32	258.12	648.27	26.79	188.19	629.48	143.16
95th-Percentile Queue Length [veh]	3.40	9.43	14.25	9.11	7.91	16.95	16.20	35.73	1.93	12.34	35.27	9.65
95th-Percentile Queue Length [ft]	85.05	235.64	356.36	227.77	197.78	423.83	404.99	893.16	48.22	308.51	881.67	241.27

Movement, Approach, & Intersection Results

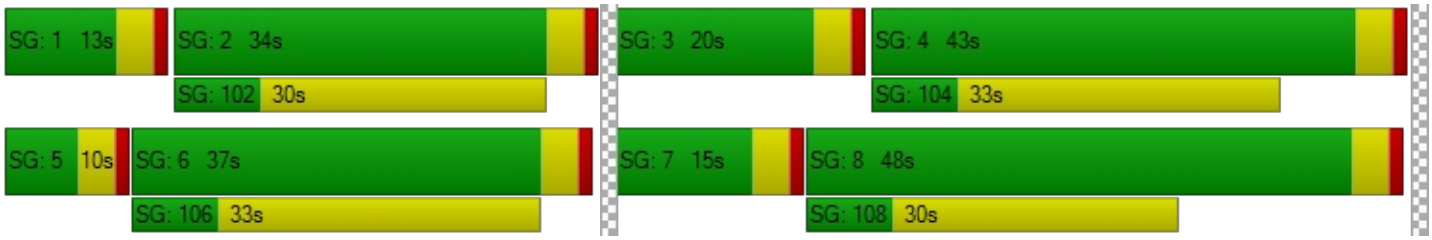
d_M, Delay for Movement [s/veh]	63.04	34.69	43.67	83.67	30.29	24.33	95.07	63.85	20.73	101.35	76.96	27.81
Movement LOS	E	C	D	F	C	C	F	F	C	F	F	C
d_A, Approach Delay [s/veh]	40.08			39.94			70.36			72.21		
Approach LOS	D			D			E			E		
d_I, Intersection Delay [s/veh]	60.50											
Intersection LOS	E											
Intersection V/C	0.981											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.717	2.966	3.203	3.140
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	600	800	709
d_b, Bicycle Delay [s]	29.09	26.95	19.80	22.91
I_b,int, Bicycle LOS Score for Intersection	2.291	2.621	3.394	3.150
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	40.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.020

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	102	109	428	0	1575	866	342	2432	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	102	109	428	0	1575	866	342	2432	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	26	27	107	0	394	217	86	608	0
Total Analysis Volume [veh/h]	0	0	0	102	109	428	0	1575	866	342	2432	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	30	0	0	55	0	25	80	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		26	26	51	51	21	76
g / C, Green / Cycle		0.24	0.24	0.46	0.46	0.19	0.69
(v / s)_i Volume / Saturation Flow Rate		0.12	0.24	0.41	0.48	0.19	0.64
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		426	426	1764	835	342	2625
d1, Uniform Delay [s]		36.30	41.98	26.96	29.46	44.52	14.61
k, delay calibration		0.11	0.36	0.50	0.50	0.23	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.89	38.09	7.38	40.97	32.66	7.12
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.50	1.01	0.89	1.04	1.00	0.93
d, Delay for Lane Group [s/veh]		37.19	80.07	34.34	70.43	77.18	21.74
Lane Group LOS		D	F	C	F	E	C
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		4.99	15.91	19.95	30.54	12.33	24.76
50th-Percentile Queue Length [ft]		124.80	397.71	498.87	763.61	308.25	619.08
95th-Percentile Queue Length [veh]		8.66	22.52	27.28	40.74	18.09	32.92
95th-Percentile Queue Length [ft]		216.40	562.93	682.02	1018.41	452.22	823.11

Movement, Approach, & Intersection Results

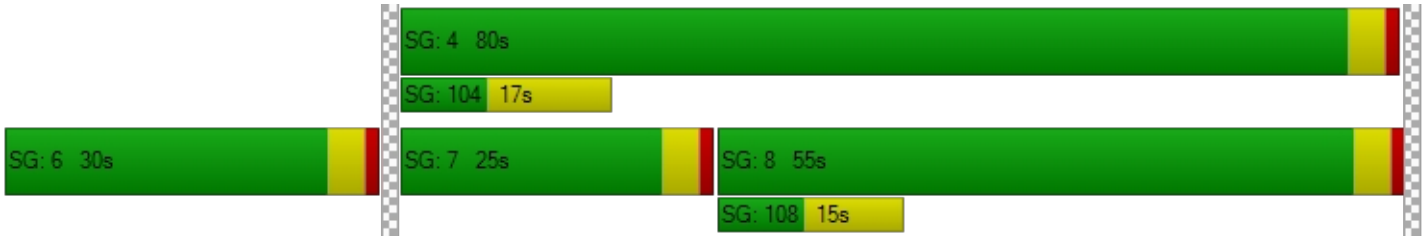
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	37.19	37.19	80.07	0.00	34.34	70.43	77.18	21.74	0.00
Movement LOS				D	D	F		C	F	E	C	
d_A, Approach Delay [s/veh]	0.00			65.91			47.15			28.57		
Approach LOS	A			E			D			C		
d_I, Intersection Delay [s/veh]	40.39											
Intersection LOS	D											
Intersection V/C	1.020											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.717	2.036	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	473	927	1382
d_b, Bicycle Delay [s]	55.00	32.07	15.82	5.25
I_b,int, Bicycle LOS Score for Intersection	4.132	2.614	2.902	3.848
Bicycle LOS	D	B	C	D

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	102.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.158

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	1287	0	283	0	0	0	382	1173	0	0	1517	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1287	0	283	0	0	0	382	1173	0	0	1517	145
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	322	0	71	0	0	0	96	293	0	0	379	36
Total Analysis Volume [veh/h]	1287	0	283	0	0	0	382	1173	0	0	1517	145
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	36	0	0	0	0	0	23	74	0	0	51	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		26	70	40	40
g / C, Green / Cycle	0.29	0.29	0.29		0.23	0.64	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.36	0.36	0.16		0.21	0.31	0.44	0.46
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	524	524	524		420	2418	697	660
d1, Uniform Delay [s]	38.99	38.99	32.80		41.05	10.52	34.81	34.81
k, delay calibration	0.50	0.50	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	118.96	118.96	0.92		7.88	0.70	100.30	128.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.23	1.23	0.54		0.91	0.49	1.19	1.26
d, Delay for Lane Group [s/veh]	157.95	157.95	33.73		48.93	11.22	135.11	163.13
Lane Group LOS	F	F	C		D	B	F	F
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	31.17	31.17	6.44		10.88	7.21	37.54	40.71
50th-Percentile Queue Length [ft]	779.33	779.33	161.01		272.00	180.34	938.56	1017.66
95th-Percentile Queue Length [veh]	45.48	45.48	10.60		16.29	11.62	53.40	59.14
95th-Percentile Queue Length [ft]	1136.91	1136.91	265.05		407.24	290.45	1335.11	1478.55

Movement, Approach, & Intersection Results

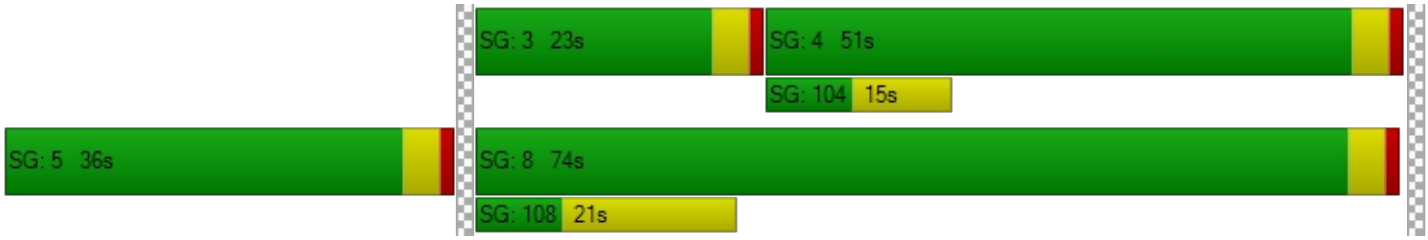
d_M, Delay for Movement [s/veh]	157.95	0.00	33.73	0.00	0.00	0.00	48.93	11.22	0.00	0.00	147.78	163.13
Movement LOS	F		C				D	B			F	F
d_A, Approach Delay [s/veh]	135.56			0.00			20.48			149.12		
Approach LOS	F			A			C			F		
d_I, Intersection Delay [s/veh]	102.89											
Intersection LOS	F											
Intersection V/C	1.158											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.460	1.947	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1273	855
d_b, Bicycle Delay [s]	55.00	55.00	7.27	18.04
I_b,int, Bicycle LOS Score for Intersection	6.723	4.132	2.842	2.931
Bicycle LOS	F	D	C	C

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Lemon Street at Wilshire Avenue

Control Type:	Signalized	Delay (sec / veh):	12.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

Intersection Setup

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Base Volume Input [veh/h]	46	1012	106	67	987	34	30	146	76	88	66	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	1012	106	67	987	34	30	146	76	88	66	80
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	253	27	17	247	9	8	37	19	22	17	20
Total Analysis Volume [veh/h]	46	1012	106	67	987	34	30	146	76	88	66	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	48	0	0	48	0	0	62	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	84	84	17	17
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.31	0.30	0.04	0.28	0.27	0.14	0.13
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1237	1460	1383	1212	1460	1383	322	331
d1, Uniform Delay [s]	3.02	4.25	4.19	3.06	4.07	4.06	45.13	44.61
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	0.82	0.82	0.09	0.70	0.72	4.14	2.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.40	0.39	0.06	0.36	0.36	0.78	0.71
d, Delay for Lane Group [s/veh]	3.08	5.07	5.00	3.14	4.77	4.78	49.27	47.39
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.22	3.87	3.51	0.32	3.35	3.13	7.04	6.38
50th-Percentile Queue Length [ft]	5.44	96.65	87.68	8.04	83.66	78.32	176.04	159.47
95th-Percentile Queue Length [veh]	0.39	6.96	6.31	0.58	6.02	5.64	11.39	10.52
95th-Percentile Queue Length [ft]	9.79	173.97	157.83	14.46	150.59	140.97	284.84	263.02

Movement, Approach, & Intersection Results

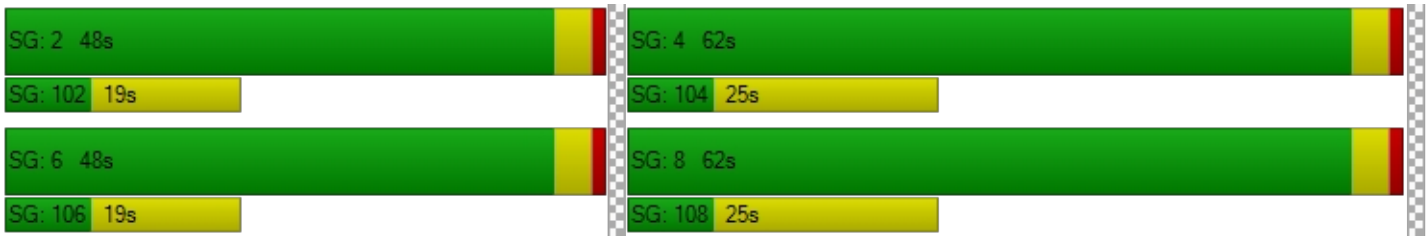
d_M, Delay for Movement [s/veh]	3.08	5.04	5.00	3.14	4.77	4.78	49.27	49.27	49.27	47.39	47.39	47.39
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	4.96			4.67			49.27			47.39		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.55											
Intersection LOS	B											
Intersection V/C	0.482											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.886	2.783	1.984	2.089
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	1055	1055
d_b, Bicycle Delay [s]	19.80	19.80	12.29	12.29
I_b,int, Bicycle LOS Score for Intersection	2.520	2.457	1.975	1.946
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Harbor Boulevard at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	68.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.141

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	125	1696	368	85	1796	101	249	1263	174	266	763	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	1696	368	85	1796	101	249	1263	174	266	763	100
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	424	92	21	449	25	62	316	44	67	191	25
Total Analysis Volume [veh/h]	125	1696	368	85	1796	101	249	1263	174	266	763	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	43	0	20	53	0	10	37	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	20	0	0	22	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	59	49	49	59	49	49	43	33	33	43	33	33
g / C, Green / Cycle	0.54	0.45	0.45	0.54	0.45	0.45	0.39	0.30	0.30	0.39	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.07	0.45	0.20	0.05	0.51	0.51	0.14	0.33	0.10	0.15	0.20	0.06
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	1800	3800	1800
c, Capacity [veh/h]	261	1707	809	263	848	804	481	1135	538	267	1135	538
d1, Uniform Delay [s]	12.72	30.13	20.97	12.42	30.45	30.45	23.66	38.57	29.94	23.92	33.84	28.64
k, delay calibration	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	8.72	0.40	0.71	80.47	81.12	0.86	63.20	1.59	54.06	3.18	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.99	0.46	0.32	1.15	1.15	0.52	1.11	0.32	1.00	0.67	0.19
d, Delay for Lane Group [s/veh]	14.08	38.85	21.37	13.13	110.92	111.56	24.52	101.77	31.53	77.98	37.02	29.40
Lane Group LOS	B	D	C	B	F	F	C	F	C	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.61	23.42	6.54	1.06	40.45	38.47	4.66	24.96	3.81	8.92	9.35	2.08
50th-Percentile Queue Length [ft]	40.37	585.46	163.46	26.46	1011.27	961.63	116.47	624.05	95.17	222.95	233.63	51.89
95th-Percentile Queue Length [veh]	2.91	31.35	10.73	1.91	56.26	53.76	8.20	35.44	6.85	13.82	14.36	3.74
95th-Percentile Queue Length [ft]	72.66	783.87	268.30	47.63	1406.61	1343.89	204.97	885.97	171.30	345.39	358.97	93.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.08	38.85	21.37	13.13	111.22	111.56	24.52	101.77	31.53	77.98	37.02	29.40
Movement LOS	B	D	C	B	F	F	C	F	C	E	D	C
d_A, Approach Delay [s/veh]	34.50			107.03			83.12			46.00		
Approach LOS	C			F			F			D		
d_I, Intersection Delay [s/veh]	68.67											
Intersection LOS	E											
Intersection V/C	1.141											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.323	3.212	2.980	2.981
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	709	891	600	600
d_b, Bicycle Delay [s]	22.91	16.91	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	3.366	3.195	2.951	2.491
Bicycle LOS	C	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 16: Lemon Street at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	52.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.005

Intersection Setup

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	125	961	354	66	956	80	167	1491	108	470	878	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	961	354	66	956	80	167	1491	108	470	878	64
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	240	89	17	239	20	42	373	27	118	220	16
Total Analysis Volume [veh/h]	125	961	354	66	956	80	167	1491	108	470	878	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	35	0	10	35	0	35	46	0	19	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	41	32	32	41	31	31	12	42	42	15	45	45
g / C, Green / Cycle	0.37	0.29	0.29	0.37	0.28	0.28	0.11	0.38	0.38	0.14	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.07	0.25	0.20	0.04	0.28	0.28	0.09	0.39	0.06	0.13	0.23	0.04
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	3500	3800	1800
c, Capacity [veh/h]	264	1097	520	332	535	507	200	1445	685	484	1547	733
d1, Uniform Delay [s]	23.28	37.24	34.64	22.49	39.52	39.22	47.87	34.08	22.47	47.19	25.14	20.04
k, delay calibration	0.11	0.11	0.22	0.11	0.46	0.44	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.32	2.40	3.15	0.29	39.23	32.94	8.68	32.21	0.49	13.46	1.51	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.88	0.68	0.20	1.01	0.98	0.83	1.03	0.16	0.97	0.57	0.09
d, Delay for Lane Group [s/veh]	24.60	39.64	37.79	22.78	78.74	72.16	56.56	66.29	22.96	60.64	26.66	20.28
Lane Group LOS	C	D	D	C	F	E	E	F	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.28	12.48	8.76	1.14	20.02	17.72	4.95	25.16	1.94	7.28	9.02	1.06
50th-Percentile Queue Length [ft]	57.12	312.12	218.98	28.57	500.49	443.02	123.77	629.01	48.39	181.89	225.59	26.47
95th-Percentile Queue Length [veh]	4.11	18.28	13.61	2.06	27.50	24.62	8.60	34.15	3.48	11.70	13.95	1.91
95th-Percentile Queue Length [ft]	102.81	456.99	340.32	51.42	687.47	615.62	215.00	853.64	87.10	292.48	348.75	47.65

Movement, Approach, & Intersection Results

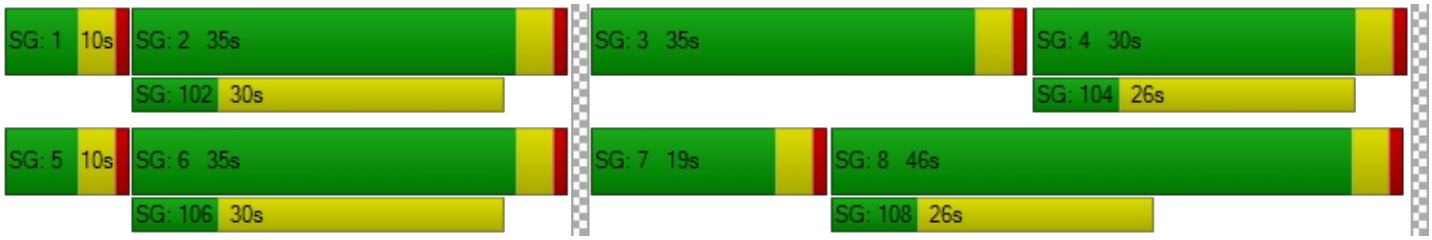
d_M, Delay for Movement [s/veh]	24.60	39.64	37.79	22.78	75.87	72.16	56.56	66.29	22.96	60.64	26.66	20.28
Movement LOS	C	D	D	C	E	E	E	F	C	E	C	C
d_A, Approach Delay [s/veh]	37.88			72.42			62.72			37.68		
Approach LOS	D			E			E			D		
d_I, Intersection Delay [s/veh]	52.16											
Intersection LOS	D											
Intersection V/C	1.005											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.946	2.757	2.979	3.095
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	564	564	764	473
d_b, Bicycle Delay [s]	28.37	28.37	21.02	32.07
I_b,int, Bicycle LOS Score for Intersection	2.748	2.469	3.017	2.725
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Harbor Boulevard at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	41.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.948

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	45	1840	47	140	2017	65	192	201	176	137	176	250
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	1840	47	140	2017	65	192	201	176	137	176	250
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	460	12	35	504	16	48	50	44	34	44	63
Total Analysis Volume [veh/h]	45	1840	47	140	2017	65	192	201	176	137	176	250
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	46	0	0	46	0	0	64	0	0	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	11	0	0	20	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	65	65	65	65	65	65	37	37	37
g / C, Green / Cycle	0.59	0.59	0.59	0.59	0.59	0.59	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.03	0.51	0.51	0.08	0.56	0.56	0.32	0.08	0.24
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800	1800
c, Capacity [veh/h]	176	1124	1065	351	1124	1065	648	81	604
d1, Uniform Delay [s]	9.40	18.71	18.71	9.94	20.96	20.96	35.43	25.38	31.75
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.16	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.47	8.79	9.21	3.36	17.44	18.11	5.62	320.01	1.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.86	0.86	0.40	0.95	0.95	0.88	1.69	0.70
d, Delay for Lane Group [s/veh]	12.87	27.50	27.92	13.30	38.41	39.07	41.05	345.39	33.27
Lane Group LOS	B	C	C	B	D	D	D	F	C
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.61	21.75	20.72	1.79	28.93	27.61	15.47	8.70	9.95
50th-Percentile Queue Length [ft]	15.33	543.69	517.94	44.65	723.34	690.17	386.78	217.56	248.86
95th-Percentile Queue Length [veh]	1.10	29.40	28.18	3.22	37.76	36.22	21.92	15.66	15.13
95th-Percentile Queue Length [ft]	27.59	734.89	704.55	80.38	943.88	905.60	548.05	391.61	378.21

Movement, Approach, & Intersection Results

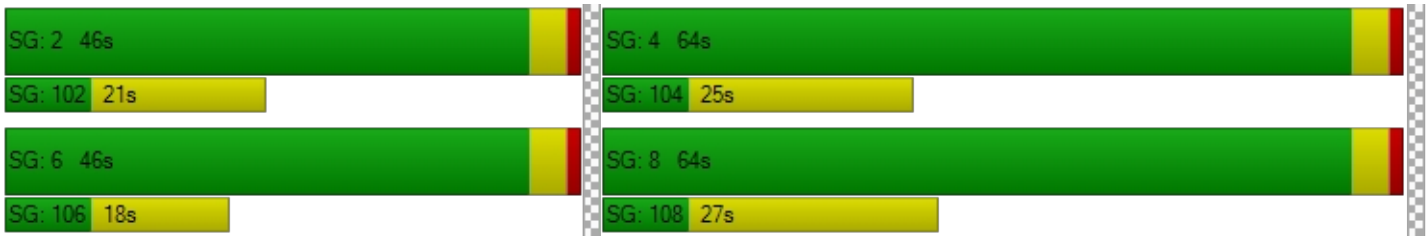
d_M, Delay for Movement [s/veh]	12.87	27.70	27.92	13.30	38.72	39.07	41.05	41.05	41.05	345.39	33.27	33.27
Movement LOS	B	C	C	B	D	D	D	D	D	F	C	C
d_A, Approach Delay [s/veh]	27.36			37.13			41.05			109.22		
Approach LOS	C			D			D			F		
d_I, Intersection Delay [s/veh]	41.66											
Intersection LOS	D											
Intersection V/C	0.948											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.335	3.461	2.205	2.458
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	764	764	1091	1091
d_b, Bicycle Delay [s]	21.02	21.02	11.36	11.36
I_b,int, Bicycle LOS Score for Intersection	3.154	3.393	2.498	2.489
Bicycle LOS	C	C	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Lemon Street at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.793

Intersection Setup

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	92	1059	8	43	1417	163	264	58	225	113	88	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	1059	8	43	1417	163	264	58	225	113	88	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	265	2	11	354	41	66	15	56	28	22	25
Total Analysis Volume [veh/h]	92	1059	8	43	1417	163	264	58	225	113	88	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	44	0	0	44	0	0	66	0	0	66	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	11	0	0	11	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	66	66	66	66	66	66	36	36
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.60	0.60	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.05	0.29	0.29	0.02	0.43	0.42	0.30	0.17
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	591	1147	1087	835	1147	1087	630	627
d1, Uniform Delay [s]	9.08	12.12	12.10	8.83	15.15	14.92	36.13	30.16
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.56	1.43	1.50	0.12	3.81	3.75	4.35	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.48	0.48	0.05	0.71	0.70	0.87	0.48
d, Delay for Lane Group [s/veh]	9.64	13.54	13.60	8.94	18.96	18.67	40.48	30.72
Lane Group LOS	A	B	B	A	B	B	D	C
Critical Lane Group	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	0.99	7.57	7.17	0.43	14.51	13.28	14.72	6.47
50th-Percentile Queue Length [ft]	24.67	189.32	179.28	10.84	362.80	332.10	367.94	161.65
95th-Percentile Queue Length [veh]	1.78	12.09	11.56	0.78	20.76	19.26	21.01	10.64
95th-Percentile Queue Length [ft]	44.41	302.15	289.07	19.51	518.99	481.53	525.23	265.90

Movement, Approach, & Intersection Results

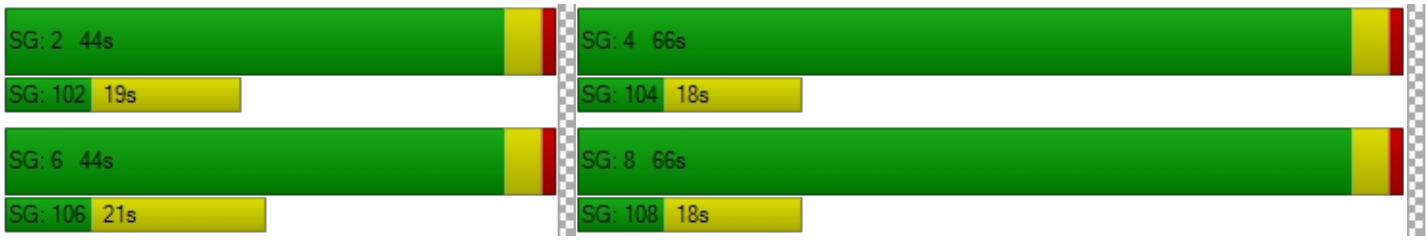
d_M, Delay for Movement [s/veh]	9.64	13.57	13.60	8.94	18.84	18.67	40.48	40.48	40.48	30.72	30.72	30.72
Movement LOS	A	B	B	A	B	B	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	13.26			18.56			40.48			30.72		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	21.18											
Intersection LOS	C											
Intersection V/C	0.793											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.038	3.279	2.289	1.984
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	727	727	1127	1127
d_b, Bicycle Delay [s]	22.27	22.27	10.47	10.47
I_b,int, Bicycle LOS Score for Intersection	2.516	2.899	2.462	2.053
Bicycle LOS	B	C	B	B

Sequence

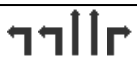
Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Harbor Boulevard at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	83.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.113

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	159	1860	361	315	2029	117	191	1700	301	132	548	177
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	1860	361	315	2029	117	191	1700	301	132	548	177
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	465	90	79	507	29	48	425	75	33	137	44
Total Analysis Volume [veh/h]	159	1860	361	315	2029	117	191	1700	301	132	548	177
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	47	0	12	49	0	14	40	0	11	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	27	0	0	28	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	43	43	8	45	45	10	36	36	7	33	33
g / C, Green / Cycle	0.05	0.39	0.39	0.07	0.41	0.41	0.09	0.33	0.33	0.06	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.05	0.49	0.20	0.09	0.45	0.23	0.11	0.30	0.17	0.07	0.10	0.10
s, saturation flow rate [veh/h]	3500	3800	1800	3500	3800	1800	1800	5700	1800	1800	5700	1800
c, Capacity [veh/h]	191	1484	703	255	1553	736	167	1857	586	118	1701	537
d1, Uniform Delay [s]	51.50	33.52	25.55	51.00	32.52	25.06	49.90	35.62	30.02	51.40	29.95	30.02
k, delay calibration	0.11	0.19	0.11	0.11	0.13	0.14	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.04	116.16	0.58	114.15	53.32	0.92	79.86	8.56	3.19	76.22	0.50	1.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	1.25	0.51	1.24	1.11	0.57	1.14	0.92	0.51	1.12	0.32	0.33
d, Delay for Lane Group [s/veh]	60.54	149.68	26.14	165.15	85.84	25.98	129.76	44.18	33.21	127.62	30.45	31.65
Lane Group LOS	E	F	C	F	F	C	F	D	C	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.41	43.10	7.22	7.53	31.44	8.47	8.28	15.76	6.92	5.73	3.82	3.88
50th-Percentile Queue Length [ft]	60.14	1077.49	180.46	188.28	785.93	211.78	206.95	394.08	172.91	143.29	95.61	97.06
95th-Percentile Queue Length [veh]	4.33	62.35	11.62	12.84	43.81	13.24	13.63	22.27	11.23	9.99	6.88	6.99
95th-Percentile Queue Length [ft]	108.25	1558.85	290.61	321.02	1095.18	331.11	340.85	556.86	280.74	249.86	172.10	174.70

Movement, Approach, & Intersection Results

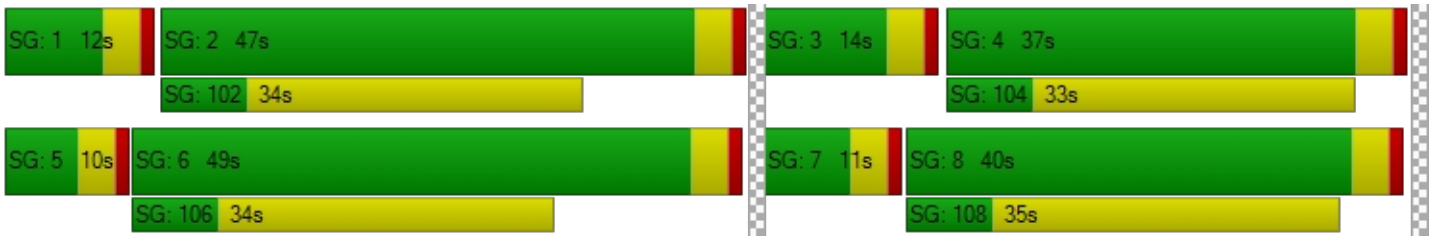
d_M, Delay for Movement [s/veh]	60.54	149.68	26.14	165.15	76.94	25.98	129.76	44.18	33.21	127.62	30.45	31.65
Movement LOS	E	F	C	F	E	C	F	D	C	F	C	C
d_A, Approach Delay [s/veh]	124.99			85.81			50.13			45.66		
Approach LOS	F			F			D			D		
d_I, Intersection Delay [s/veh]	83.35											
Intersection LOS	F											
Intersection V/C	1.113											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.325	3.257	3.103	3.129
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	782	818	655	600
d_b, Bicycle Delay [s]	20.40	19.20	24.89	26.95
I_b,int, Bicycle LOS Score for Intersection	3.523	2.913	2.765	2.031
Bicycle LOS	D	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Lemon Street at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	50.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.063

Intersection Setup

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	234	993	190	343	1293	127	176	1868	197	150	559	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	993	190	343	1293	127	176	1868	197	150	559	151
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	248	48	86	323	32	44	467	49	38	140	38
Total Analysis Volume [veh/h]	234	993	190	343	1293	127	176	1868	197	150	559	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	37	0	13	40	0	26	50	0	10	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	25	0	0	20	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	46	33	33	46	36	36	13	46	46	6	39	39
g / C, Green / Cycle	0.42	0.30	0.30	0.42	0.33	0.33	0.12	0.42	0.42	0.06	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.13	0.26	0.11	0.19	0.34	0.07	0.10	0.44	0.22	0.04	0.20	0.18
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3800	1800	1800	3800	1800	3500	1900	1800
c, Capacity [veh/h]	264	1138	539	401	1242	588	208	1584	750	197	679	643
d1, Uniform Delay [s]	21.43	36.53	30.17	23.04	37.03	26.82	47.66	32.07	23.90	51.18	28.36	27.85
k, delay calibration	0.11	0.11	0.11	0.23	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.67	2.25	0.39	10.51	24.49	0.18	8.98	39.18	2.59	5.97	3.28	2.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.87	0.35	0.86	1.04	0.22	0.84	1.06	0.52	0.76	0.56	0.52
d, Delay for Lane Group [s/veh]	31.10	38.78	30.56	33.55	61.52	27.00	56.64	71.25	26.49	57.15	31.64	30.79
Lane Group LOS	C	D	C	C	F	C	E	F	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	4.72	12.80	3.99	7.48	20.53	2.45	5.23	28.88	8.00	2.20	8.53	7.35
50th-Percentile Queue Length [ft]	117.92	319.95	99.78	187.12	513.31	61.13	130.69	722.11	200.12	54.96	213.20	183.63
95th-Percentile Queue Length [veh]	8.28	18.67	7.18	11.97	28.72	4.40	8.98	39.26	12.64	3.96	13.32	11.79
95th-Percentile Queue Length [ft]	206.96	466.63	179.60	299.30	718.03	110.04	224.44	981.47	316.11	98.93	332.94	294.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.10	38.78	30.56	33.55	61.52	27.00	56.64	66.59	26.49	57.15	31.36	30.79
Movement LOS	C	D	C	C	F	C	E	E	C	E	C	C
d_A, Approach Delay [s/veh]	36.41			53.59			62.28			35.76		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	50.37											
Intersection LOS	D											
Intersection V/C	1.063											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.959	2.963	3.091	3.243
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	655	836	545
d_b, Bicycle Delay [s]	26.95	24.89	18.62	29.09
I_b,int, Bicycle LOS Score for Intersection	2.729	3.014	2.792	2.269
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.916

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	129	2101	0	0	2235	819	0	0	0	235	361	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	2101	0	0	2235	819	0	0	0	235	361	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	525	0	0	559	205	0	0	0	59	90	92
Total Analysis Volume [veh/h]	129	2101	0	0	2235	819	0	0	0	235	361	367
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	74	0	0	64	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	70	60	60		22	22	22
g / C, Green / Cycle	0.06	0.70	0.60	0.60		0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.37	0.54	0.57		0.13	0.10	0.20
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	207	3990	2283	1081		396	836	396
d1, Uniform Delay [s]	45.94	7.13	17.17	18.35		34.99	33.62	38.21
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.03	0.50	5.81	16.47		1.42	0.35	16.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.53	0.89	0.94		0.59	0.43	0.93
d, Delay for Lane Group [s/veh]	48.97	7.63	22.98	34.82		36.41	33.97	54.73
Lane Group LOS	D	A	C	C		D	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.65	6.23	19.81	24.14		5.23	3.79	10.48
50th-Percentile Queue Length [ft]	41.13	155.68	495.20	603.59		130.85	94.69	261.91
95th-Percentile Queue Length [veh]	2.96	10.32	27.11	32.20		8.99	6.82	15.78
95th-Percentile Queue Length [ft]	74.03	258.00	677.68	805.05		224.64	170.44	394.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.97	7.63	0.00	0.00	24.04	34.82	0.00	0.00	0.00	36.41	33.97	54.73
Movement LOS	D	A			C	C				D	C	D
d_A, Approach Delay [s/veh]	10.02			26.93			0.00			42.48		
Approach LOS	B			C			A			D		
d_I, Intersection Delay [s/veh]	23.29											
Intersection LOS	C											
Intersection V/C	0.916											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.358	2.371
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	1200	0	440
d_b, Bicycle Delay [s]	4.50	8.00	50.00	30.42
I_b,int, Bicycle LOS Score for Intersection	2.786	3.239	4.132	2.354
Bicycle LOS	C	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	34.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.936

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	75	913	0	0	1558	361	0	0	0	297	613	768
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	913	0	0	1558	361	0	0	0	297	613	768
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	228	0	0	390	90	0	0	0	74	153	192
Total Analysis Volume [veh/h]	75	913	0	0	1558	361	0	0	0	297	613	768
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	49	0	0	39	0	0	0	0	0	51	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	47	38	38		45	45	45
g / C, Green / Cycle	0.05	0.47	0.38	0.38		0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.34	0.36		0.26	0.24	0.43
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	98	2673	1424	674		812	857	812
d1, Uniform Delay [s]	46.66	16.79	29.48	30.33		20.26	19.74	26.29
k, delay calibration	0.11	0.50	0.50	0.50		0.13	0.11	0.40
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	11.77	0.35	9.30	24.09		0.73	0.50	17.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.34	0.90	0.95		0.57	0.52	0.95
d, Delay for Lane Group [s/veh]	58.43	17.14	38.78	54.42		20.98	20.24	44.15
Lane Group LOS	E	B	D	D		C	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	2.15	4.39	15.80	18.88		7.82	7.40	20.59
50th-Percentile Queue Length [ft]	53.77	109.67	394.96	471.93		195.51	184.89	514.82
95th-Percentile Queue Length [veh]	3.87	7.82	22.32	26.00		12.41	11.86	28.03
95th-Percentile Queue Length [ft]	96.78	195.54	557.93	650.06		310.17	296.38	700.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.43	17.14	0.00	0.00	41.57	54.42	0.00	0.00	0.00	20.98	20.44	44.15
Movement LOS	E	B			D	D				C	C	D
d_A, Approach Delay [s/veh]	20.27			43.99			0.00			31.39		
Approach LOS	C			D			A			C		
d_I, Intersection Delay [s/veh]	34.27											
Intersection LOS	C											
Intersection V/C	0.936											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.231	2.490
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	700	0	940
d_b, Bicycle Delay [s]	15.13	21.13	50.00	14.05
I_b,int, Bicycle LOS Score for Intersection	2.103	2.615	4.132	2.944
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.795

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1438	488	753	1670	0	747	159	173	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1438	488	753	1670	0	747	159	173	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	360	122	188	418	0	187	40	43	0	0	0
Total Analysis Volume [veh/h]	0	1438	488	753	1670	0	747	159	173	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	29	0	38	67	0	0	33	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	39	39	25	67	25	25	25	
g / C, Green / Cycle	0.39	0.39	0.25	0.67	0.25	0.25	0.25	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.27	0.22	0.29	0.21	0.08	0.10	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	2216	700	861	3847	858	466	441	
d1, Uniform Delay [s]	24.98	25.62	36.22	7.48	36.22	31.09	31.52	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.49	5.68	2.99	0.36	2.90	0.43	0.57	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.65	0.70	0.87	0.43	0.87	0.34	0.39	
d, Delay for Lane Group [s/veh]	26.46	31.31	39.22	7.84	39.12	31.52	32.09	
Lane Group LOS	C	C	D	A	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	9.34	10.54	9.02	4.97	8.93	3.19	3.53	
50th-Percentile Queue Length [ft]	233.45	263.48	225.57	124.20	223.33	79.85	88.27	
95th-Percentile Queue Length [veh]	14.35	15.86	13.95	8.62	13.84	5.75	6.36	
95th-Percentile Queue Length [ft]	358.74	396.58	348.73	215.59	345.88	143.73	158.89	

Movement, Approach, & Intersection Results

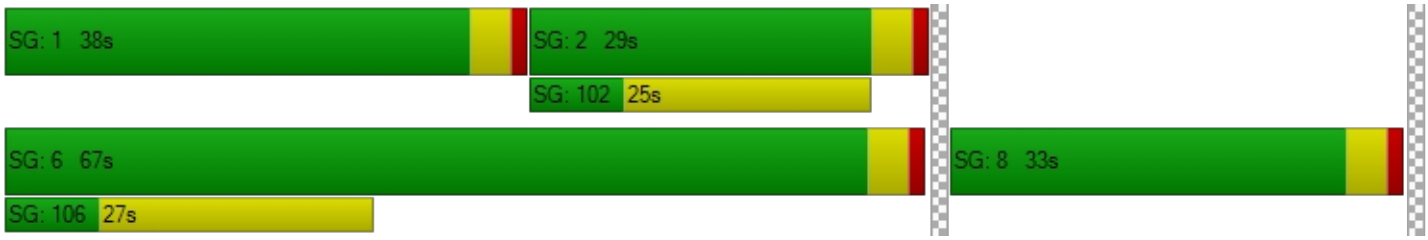
d_M, Delay for Movement [s/veh]	0.00	26.46	31.31	39.22	7.84	0.00	39.12	31.52	32.09	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	C	C			
d_A, Approach Delay [s/veh]	27.69			17.59			36.87			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	25.01											
Intersection LOS	C											
Intersection V/C	0.795											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.399	2.402
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	1260	580	0
d_b, Bicycle Delay [s]	28.13	6.85	25.21	50.00
I_b,int, Bicycle LOS Score for Intersection	2.619	2.892	3.340	4.132
Bicycle LOS	B	C	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	32.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.875

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	928	415	677	1077	0	83	1078	212	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	928	415	677	1077	0	83	1078	212	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	232	104	169	269	0	21	270	53	0	0	0
Total Analysis Volume [veh/h]	0	928	415	677	1077	0	83	1078	212	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	27	50	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	30	30	21	56	36	36	36	
g / C, Green / Cycle	0.30	0.30	0.21	0.56	0.36	0.36	0.36	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.25	0.19	0.28	0.33	0.30	0.12	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1148	544	750	2114	655	691	655	
d1, Uniform Delay [s]	31.86	32.42	38.28	13.74	30.13	28.94	22.95	
k, delay calibration	0.50	0.50	0.11	0.50	0.25	0.21	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.27	13.22	4.38	0.88	10.33	4.80	0.28	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.78	0.82	0.90	0.51	0.90	0.83	0.32	
d, Delay for Lane Group [s/veh]	37.14	45.63	42.66	14.62	40.47	33.74	23.24	
Lane Group LOS	D	D	D	B	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	10.50	11.83	8.41	7.35	14.88	12.98	3.61	
50th-Percentile Queue Length [ft]	262.61	295.71	210.19	183.81	371.97	324.57	90.16	
95th-Percentile Queue Length [veh]	15.82	17.47	13.16	11.80	21.20	18.89	6.49	
95th-Percentile Queue Length [ft]	395.49	436.72	329.07	294.99	530.12	472.29	162.29	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	37.43	45.63	42.66	14.62	0.00	40.47	36.91	23.24	0.00	0.00	0.00
Movement LOS		D	D	D	B		D	D	C			
d_A, Approach Delay [s/veh]	39.97			25.44			35.01			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	32.74											
Intersection LOS	C											
Intersection V/C	0.875											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.391	2.778
Crosswalk LOS	F	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	920	920	0
d_b, Bicycle Delay [s]	32.81	14.58	14.58	50.00
I_b,int, Bicycle LOS Score for Intersection	2.298	3.007	2.692	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 25: Harbor Boulevard at Bastanchury Road

Control Type:	Signalized	Delay (sec / veh):	144.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.115

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Base Volume Input [veh/h]	264	1248	132	581	1785	371	444	1566	316	357	1274	255
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	264	1248	132	581	1785	371	444	1566	316	357	1274	255
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	312	33	145	446	93	111	392	79	89	319	64
Total Analysis Volume [veh/h]	264	1248	132	581	1785	371	444	1566	316	357	1274	255
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	42	0	11	43	0	15	42	0	15	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	24	0	0	31	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	38	38	7	39	39	11	38	38	11	38	38
g / C, Green / Cycle	0.05	0.35	0.35	0.06	0.36	0.36	0.10	0.34	0.34	0.10	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.22	0.07	0.17	0.37	0.41	0.25	0.33	0.35	0.10	0.22	0.14
s, saturation flow rate [veh/h]	3500	5700	1800	3500	3800	1800	1800	3800	1800	3500	5700	1800
c, Capacity [veh/h]	191	1976	624	223	1352	640	180	1308	619	350	1962	619
d1, Uniform Delay [s]	52.00	30.07	25.34	51.50	35.44	35.44	49.50	35.36	36.08	49.50	30.47	27.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.38	0.11	0.46	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	178.23	1.55	0.77	724.93	39.81	82.33	671.76	5.62	36.82	27.31	0.37	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.38	0.63	0.21	2.60	1.05	1.14	2.46	0.96	1.01	1.02	0.65	0.41
d, Delay for Lane Group [s/veh]	230.23	31.61	26.11	776.43	75.25	117.78	721.26	40.99	72.90	76.81	30.84	28.00
Lane Group LOS	F	C	C	F	F	F	F	D	F	F	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	7.37	9.39	2.57	25.52	25.12	31.36	38.54	17.13	22.52	6.12	9.44	5.17
50th-Percentile Queue Length [ft]	184.13	234.75	64.24	638.08	627.93	783.94	963.49	428.22	563.09	152.98	235.99	129.18
95th-Percentile Queue Length [veh]	12.83	14.42	4.62	40.48	34.55	44.31	60.25	23.92	30.48	10.25	14.48	8.89
95th-Percentile Queue Length [ft]	320.78	360.38	115.62	1011.95	863.86	1107.67	1506.28	597.90	761.90	256.22	361.96	222.37

Movement, Approach, & Intersection Results

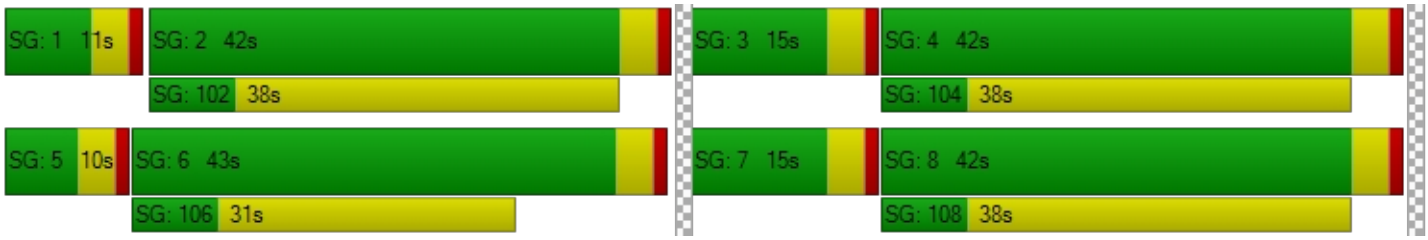
d_M, Delay for Movement [s/veh]	230.23	31.61	26.11	776.43	83.86	117.78	721.26	47.27	72.90	76.81	30.84	28.00
Movement LOS	F	C	C	F	F	F	F	D	E	F	C	C
d_A, Approach Delay [s/veh]	63.07			235.48			179.41			39.16		
Approach LOS	E			F			F			D		
d_I, Intersection Delay [s/veh]	144.23											
Intersection LOS	F											
Intersection V/C	1.115											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.303	3.306	3.193	3.310
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	709	691	691
d_b, Bicycle Delay [s]	23.56	22.91	23.56	23.56
I_b,int, Bicycle LOS Score for Intersection	2.464	3.065	2.839	2.597
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: College Driveway No. 1 at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.038

Intersection Setup

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	12	4	11	895	601	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	4	11	895	601	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	3	224	150	3
Total Analysis Volume [veh/h]	12	4	11	895	601	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	16.81	12.75	8.77	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.14	0.14	0.03	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.59	3.59	0.86	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.79		0.11		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.23					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 27: Centennial Way at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.148

Intersection Setup

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	0	76	582	293	41	661
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	76	582	293	41	661
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	19	146	73	10	165
Total Analysis Volume [veh/h]	0	76	582	293	41	661
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.15	0.01	0.00	0.05	0.01
d_M, Delay for Movement [s/veh]	0.00	13.24	0.00	0.00	9.93	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.52	0.00	0.00	0.17	0.00
95th-Percentile Queue Length [ft]	0.00	12.93	0.00	0.00	4.20	0.00
d_A, Approach Delay [s/veh]	13.24		0.00		0.58	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.85					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 28: Lemon Street at Parking Structure

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.158

Intersection Setup

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Base Volume Input [veh/h]	84	578	193	0	816	60	0	0	4	0	0	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	578	193	0	816	60	0	0	4	0	0	97
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	145	48	0	204	15	0	0	1	0	0	24
Total Analysis Volume [veh/h]	84	578	193	0	816	60	0	0	4	0	0	97
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.16
d_M, Delay for Movement [s/veh]	10.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.40	0.00	0.00	11.98
Movement LOS	B	A	A		A	A			B			B
95th-Percentile Queue Length [veh]	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.56
95th-Percentile Queue Length [ft]	9.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00	13.98
d_A, Approach Delay [s/veh]	1.01			0.00			11.40			11.98		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.13											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 29: Lemon Street at Fullerton College Drive

Control Type:	Signalized	Delay (sec / veh):	23.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.670

Intersection Setup

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Base Volume Input [veh/h]	0	748	358	194	662	0	122	2	156	151	0	63
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	748	358	194	662	0	122	2	156	151	0	63
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	187	90	49	166	0	31	1	39	38	0	16
Total Analysis Volume [veh/h]	0	748	358	194	662	0	122	2	156	151	0	63
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	6	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	30	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	10	34	0	0	49	0	27	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	7	0	0
Pedestrian Clearance [s]	0	13	0	0	14	0	0	0	0	16	0	0
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall		No		No	No			No		No		
Maximum Recall		No		No	No			No		No		
Pedestrian Recall		No		No	No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	R
C, Cycle Length [s]	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	57	57	67	67	19	11	11
g / C, Green / Cycle	0.52	0.52	0.61	0.61	0.18	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.29	0.31	0.11	0.17	0.16	0.08	0.04
s, saturation flow rate [veh/h]	1900	1800	1800	3800	1800	1800	1800
c, Capacity [veh/h]	984	932	793	2317	319	188	188
d1, Uniform Delay [s]	18.04	18.46	9.40	10.16	44.14	48.22	45.77
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.32	2.77	0.16	0.31	7.71	7.85	1.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.59	0.24	0.29	0.88	0.80	0.34
d, Delay for Lane Group [s/veh]	20.36	21.24	9.56	10.47	51.85	56.06	46.82
Lane Group LOS	C	C	A	B	D	E	D
Critical Lane Group	No	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	9.86	10.16	2.00	3.72	8.07	4.45	1.65
50th-Percentile Queue Length [ft]	246.40	253.88	49.97	93.00	201.75	111.22	41.36
95th-Percentile Queue Length [veh]	15.00	15.38	3.60	6.70	12.73	7.91	2.98
95th-Percentile Queue Length [ft]	375.11	384.54	89.95	167.41	318.22	197.70	74.45

Movement, Approach, & Intersection Results

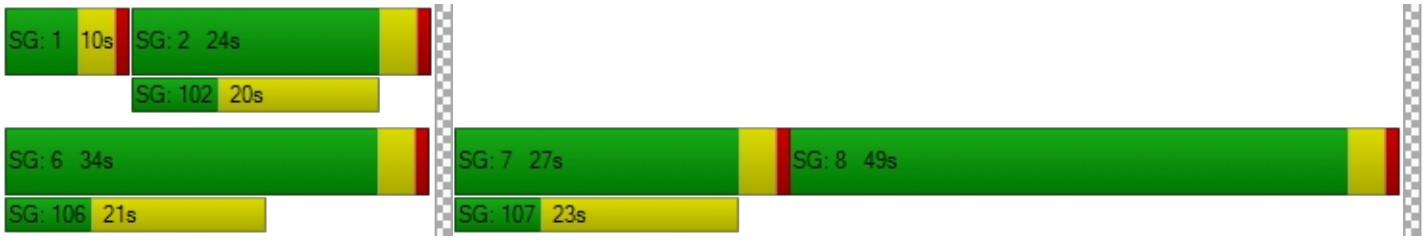
d_M, Delay for Movement [s/veh]	0.00	20.59	21.24	9.56	10.47	0.00	51.85	51.85	51.85	56.06	0.00	46.82
Movement LOS		C	C	A	B		D	D	D	E		D
d_A, Approach Delay [s/veh]	20.80			10.26			51.85			53.34		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	23.50											
Intersection LOS	C											
Intersection V/C	0.670											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.832	1.706	2.348
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	364	545	818	0
d_b, Bicycle Delay [s]	36.82	29.09	19.20	55.00
I_b,int, Bicycle LOS Score for Intersection	2.472	2.266	2.022	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Berkeley Avenue at College Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.107

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Base Volume Input [veh/h]	91	402	538	12	42	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	402	538	12	42	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	101	135	3	11	12
Total Analysis Volume [veh/h]	91	402	538	12	42	46
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.01	0.00	0.11	0.09
d_M, Delay for Movement [s/veh]	8.88	0.00	0.00	0.00	16.02	13.54
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.29	0.00	0.00	0.00	0.70	0.70
95th-Percentile Queue Length [ft]	7.33	0.00	0.00	0.00	17.58	17.58
d_A, Approach Delay [s/veh]	1.64		0.00		14.73	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.86					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 31: Berkeley Avenue at College Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Base Volume Input [veh/h]	119	430	431	4	12	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	119	430	431	4	12	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	108	108	1	3	25
Total Analysis Volume [veh/h]	119	430	431	4	12	98
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.00	0.00	0.00	0.03	0.16
d_M, Delay for Movement [s/veh]	8.58	0.00	0.00	0.00	15.79	12.21
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.35	0.00	0.00	0.00	0.69	0.69
95th-Percentile Queue Length [ft]	8.85	0.00	0.00	0.00	17.23	17.23
d_A, Approach Delay [s/veh]	1.86		0.00		12.60	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.20					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 32: Berkeley Avenue at Brookdale Place

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.077

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Base Volume Input [veh/h]	605	15	45	503	30	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	605	15	45	503	30	54
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	151	4	11	126	8	14
Total Analysis Volume [veh/h]	605	15	45	503	30	54
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.05	0.01	0.08	0.11
d_M, Delay for Movement [s/veh]	0.00	0.00	8.93	0.00	16.04	14.13
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.15	0.00	0.68	0.68
95th-Percentile Queue Length [ft]	0.00	0.00	3.68	0.00	16.93	16.93
d_A, Approach Delay [s/veh]	0.00		0.73		14.81	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.31					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: Harbor Boulevard at Valley View Drive/Brea Boulevard

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.885

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Base Volume Input [veh/h]	12	1914	708	108	1990	59	96	193	15	654	116	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	1914	708	108	1990	59	96	193	15	654	116	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	479	177	27	498	15	24	48	4	164	29	0
Total Analysis Volume [veh/h]	12	1914	708	108	1990	59	96	193	15	654	116	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	13	50	0	13	50	0	0	10	0	0	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	20	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	47	8	53	53	13	13	13	26	26
g / C, Green / Cycle	0.02	0.43	0.07	0.48	0.48	0.11	0.11	0.11	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.01	0.34	0.06	0.43	0.22	0.05	0.10	0.01	0.21	0.21
s, saturation flow rate [veh/h]	1800	5700	1800	3800	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	31	2433	135	1841	872	204	215	204	431	431
d1, Uniform Delay [s]	53.50	27.22	50.10	25.82	18.83	45.71	48.16	43.64	40.41	40.52
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.24	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.64	2.66	10.41	7.22	1.75	1.69	12.44	0.15	12.73	13.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.79	0.80	0.89	0.46	0.47	0.90	0.07	0.89	0.90
d, Delay for Lane Group [s/veh]	61.13	29.87	60.51	33.03	20.58	47.40	60.61	43.79	53.14	54.26
Lane Group LOS	E	C	E	C	C	D	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.39	14.67	3.31	20.58	7.09	2.55	5.94	0.37	11.43	11.68
50th-Percentile Queue Length [ft]	9.85	366.69	82.69	514.42	177.21	63.73	148.52	9.36	285.87	291.97
95th-Percentile Queue Length [veh]	0.71	20.95	5.95	28.02	11.45	4.59	9.94	0.67	16.98	17.28
95th-Percentile Queue Length [ft]	17.73	523.71	148.84	700.41	286.36	114.71	248.46	16.85	424.52	432.08

Movement, Approach, & Intersection Results

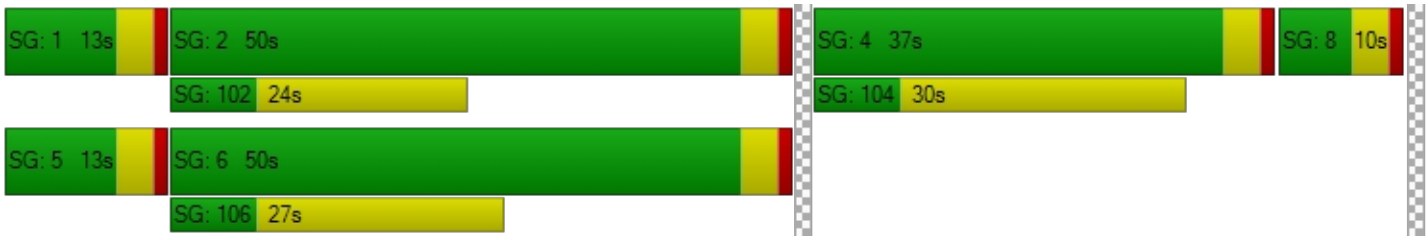
d_M, Delay for Movement [s/veh]	61.13	29.87	0.00	60.51	30.89	20.58	47.40	60.61	43.79	53.61	54.26	0.00
Movement LOS	E	C		E	C	C	D	E	D	D	D	
d_A, Approach Delay [s/veh]	30.07			32.09			55.60			53.71		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	35.95											
Intersection LOS	D											
Intersection V/C	0.885											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.320	2.260	2.298
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	109	600
d_b, Bicycle Delay [s]	18.62	18.62	49.16	26.95
I_b,int, Bicycle LOS Score for Intersection	2.619	2.746	2.061	2.830
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Harbor Boulevard at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	63.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.103

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	32	1899	32	488	2097	23	28	200	76	64	273	678
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	1899	32	488	2097	23	28	200	76	64	273	678
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	475	8	122	524	6	7	50	19	16	68	170
Total Analysis Volume [veh/h]	32	1899	32	488	2097	23	28	200	76	64	273	678
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	5	2	0	1	6	0	0	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	6
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
Split [s]	10	55	0	18	63	0	0	37	0	0	37	37
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	21	0	0	22	0	0	18	0	0	26	26
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No	No		No	No			No			No	No
Maximum Recall	No	No		No	No			No			No	No
Pedestrian Recall	No	No		No	No			No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	51	51	14	61	61	33	33	33	33	33	51
g / C, Green / Cycle	0.03	0.46	0.46	0.13	0.56	0.56	0.30	0.30	0.30	0.30	0.30	0.46
(v / s)_i Volume / Saturation Flow Rate	0.02	0.52	0.52	0.14	0.55	0.01	0.02	0.11	0.04	0.04	0.14	0.38
s, saturation flow rate [veh/h]	1800	1900	1800	3500	3800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	63	880	834	448	2113	1001	360	570	540	424	570	835
d1, Uniform Delay [s]	52.14	29.52	29.52	47.95	24.18	10.98	27.38	30.12	28.14	27.94	31.47	25.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.23	71.62	72.29	49.30	17.88	0.04	0.09	0.37	0.12	0.16	0.63	8.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	1.13	1.13	1.09	0.99	0.02	0.08	0.35	0.14	0.15	0.48	0.81
d, Delay for Lane Group [s/veh]	58.37	101.14	101.81	97.25	42.06	11.02	27.47	30.49	28.26	28.11	32.10	33.76
Lane Group LOS	E	F	F	F	D	B	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.98	39.65	37.71	9.16	30.20	0.26	0.54	4.19	1.49	1.25	6.00	16.64
50th-Percentile Queue Length [ft]	24.40	991.15	942.83	229.09	755.05	6.51	13.38	104.86	37.15	31.18	149.95	415.89
95th-Percentile Queue Length [veh]	1.76	54.63	52.22	14.65	39.21	0.47	0.96	7.55	2.67	2.24	10.01	23.32
95th-Percentile Queue Length [ft]	43.92	1365.82	1305.45	366.17	980.37	11.71	24.09	188.74	66.87	56.12	250.36	583.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.37	101.46	101.81	97.25	42.06	11.02	27.47	30.49	28.26	28.11	32.10	33.76
Movement LOS	E	F	F	F	D	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	100.76			52.12			29.65			32.96		
Approach LOS	F			D			C			C		
d_I, Intersection Delay [s/veh]	63.87											
Intersection LOS	E											
Intersection V/C	1.103											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.219	3.369	2.295	2.648
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	927	1073	600	600
d_b, Bicycle Delay [s]	15.82	11.82	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	3.179	3.711	2.061	3.234
Bicycle LOS	C	D	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Lemon Street at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.754

Intersection Setup

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	500	476	123	120	343	22	29	375	335	85	537	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	500	476	123	120	343	22	29	375	335	85	537	151
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	125	119	31	30	86	6	7	94	84	21	134	38
Total Analysis Volume [veh/h]	500	476	123	120	343	22	29	375	335	85	537	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	6	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	42	0	0	33	0	0	35	35	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	19	0	0	16	16	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		No	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	37	37	37	37	37	24	24	65	24	24	24
g / C, Green / Cycle	0.33	0.33	0.33	0.33	0.33	0.22	0.22	0.59	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.27	0.27	0.07	0.07	0.20	0.02	0.20	0.19	0.05	0.19	0.18
s, saturation flow rate [veh/h]	1800	1800	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	603	603	603	603	603	107	420	1066	95	420	398
d1, Uniform Delay [s]	33.30	33.30	26.05	26.01	30.45	33.86	41.50	11.21	34.96	41.27	40.56
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.25	0.50	0.11	0.22	0.18
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.22	11.22	0.76	0.74	4.47	1.35	13.81	0.77	22.63	10.86	6.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.81	0.20	0.20	0.61	0.27	0.89	0.31	0.89	0.87	0.81
d, Delay for Lane Group [s/veh]	44.52	44.52	26.82	26.75	34.92	35.21	55.31	11.98	57.60	52.13	47.05
Lane Group LOS	D	D	C	C	C	D	E	B	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	13.54	13.54	2.43	2.36	8.72	0.66	11.37	4.16	2.46	10.75	8.90
50th-Percentile Queue Length [ft]	338.46	338.46	60.68	59.08	218.04	16.40	284.27	104.09	61.61	268.75	222.42
95th-Percentile Queue Length [veh]	19.57	19.57	4.37	4.25	13.57	1.18	16.90	7.49	4.44	16.13	13.79
95th-Percentile Queue Length [ft]	489.32	489.32	109.22	106.34	339.13	29.51	422.52	187.35	110.89	403.18	344.71

Movement, Approach, & Intersection Results

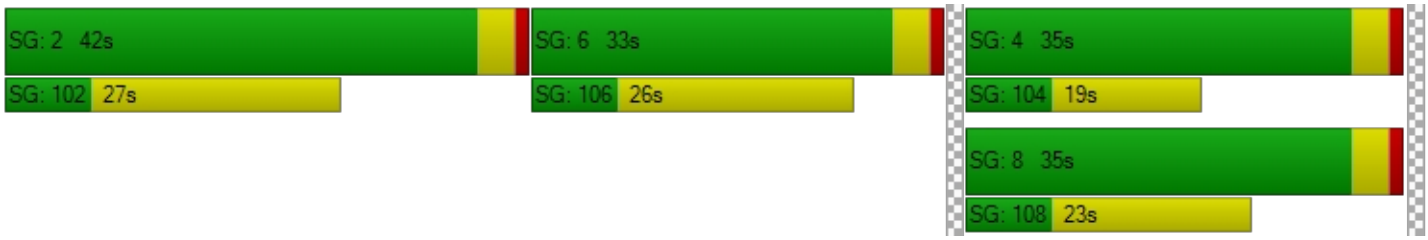
d_M, Delay for Movement [s/veh]	44.52	44.52	26.82	26.75	34.92	34.92	35.21	55.31	11.98	57.60	50.52	47.05
Movement LOS	D	D	C	C	C	C	D	E	B	E	D	D
d_A, Approach Delay [s/veh]	42.54			32.90			34.88			50.62		
Approach LOS	D			C			C			D		
d_I, Intersection Delay [s/veh]	41.22											
Intersection LOS	D											
Intersection V/C	0.754											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.715	2.362	3.371	2.650
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	527	564	564
d_b, Bicycle Delay [s]	23.56	29.82	28.37	28.37
I_b,int, Bicycle LOS Score for Intersection	3.373	2.360	2.779	2.197
Bicycle LOS	C	B	C	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Hornet Way at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.435

Intersection Setup

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	29	244	185	440	509	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	244	185	440	509	24
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	61	46	110	127	6
Total Analysis Volume [veh/h]	29	244	185	440	509	24
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	8	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	6	6	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	37	0	0	73	73	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	19	0	0	0	14	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	17	85	85	85	85
g / C, Green / Cycle	0.16	0.16	0.77	0.77	0.77	0.77
(v / s)_i Volume / Saturation Flow Rate	0.02	0.14	0.10	0.23	0.27	0.01
s, saturation flow rate [veh/h]	1800	1800	1800	1900	1900	1800
c, Capacity [veh/h]	279	279	1256	1467	1467	1389
d1, Uniform Delay [s]	39.78	45.28	3.18	3.71	3.90	2.89
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.16	8.39	0.25	0.53	0.65	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.87	0.15	0.30	0.35	0.02
d, Delay for Lane Group [s/veh]	39.94	53.66	3.43	4.24	4.55	2.91
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.69	7.11	0.93	2.55	3.11	0.11
50th-Percentile Queue Length [ft]	17.17	177.70	23.22	63.85	77.67	2.71
95th-Percentile Queue Length [veh]	1.24	11.48	1.67	4.60	5.59	0.19
95th-Percentile Queue Length [ft]	30.91	287.00	41.80	114.94	139.80	4.87

Movement, Approach, & Intersection Results

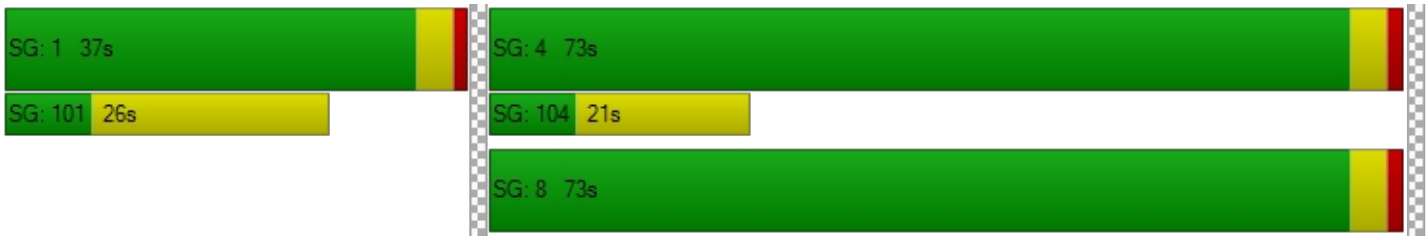
d_M, Delay for Movement [s/veh]	39.94	53.66	3.43	4.24	4.55	2.91
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	52.20		4.00		4.48	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	13.37					
Intersection LOS	B					
Intersection V/C	0.435					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	69.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	7.64
I_p,int, Pedestrian LOS Score for Intersection	2.370	2.398	2.246
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	55.00	55.00	55.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.164	5.012
Bicycle LOS	D	F	F

Sequence

Ring 1	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Euclid Street at Malvern Avenue

Control Type:	Signalized	Delay (sec / veh):	67.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.064

Intersection Setup

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Base Volume Input [veh/h]	231	1463	129	190	1323	38	58	852	214	180	1144	290
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	231	1463	129	190	1323	38	58	852	214	180	1144	290
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	366	32	48	331	10	15	213	54	45	286	73
Total Analysis Volume [veh/h]	231	1463	129	190	1323	38	58	852	214	180	1144	290
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	47	0	10	47	0	10	43	0	10	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	53	43	43	53	43	43	49	39	39	49	40	40
g / C, Green / Cycle	0.48	0.39	0.39	0.48	0.39	0.39	0.44	0.35	0.35	0.44	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.13	0.43	0.43	0.11	0.37	0.37	0.03	0.30	0.28	0.10	0.40	0.38
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	341	746	706	257	746	706	252	671	635	392	688	652
d1, Uniform Delay [s]	16.84	33.42	33.42	16.41	32.18	32.06	17.57	32.80	31.87	18.90	35.08	35.08
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.34	0.30	0.11	0.50	0.49
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.35	63.84	61.92	4.13	21.26	21.13	0.46	8.88	5.90	0.84	61.94	48.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	1.10	1.09	0.74	0.94	0.93	0.23	0.84	0.79	0.46	1.09	1.05
d, Delay for Lane Group [s/veh]	27.19	97.26	95.34	20.54	53.44	53.19	18.04	41.68	37.77	19.74	97.02	83.10
Lane Group LOS	C	F	F	C	D	D	B	D	D	B	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	4.41	32.49	30.40	3.04	21.85	20.51	0.88	15.26	12.71	2.91	29.73	25.65
50th-Percentile Queue Length [ft]	110.14	812.24	760.06	76.01	546.29	512.65	21.91	381.48	317.63	72.71	743.35	641.19
95th-Percentile Queue Length [veh]	7.85	44.76	41.99	5.47	29.52	27.93	1.58	21.67	18.55	5.24	41.08	35.07
95th-Percentile Queue Length [ft]	196.20	1119.11	1049.86	136.82	737.94	698.32	39.44	541.64	463.78	130.88	1027.07	876.73

Movement, Approach, & Intersection Results

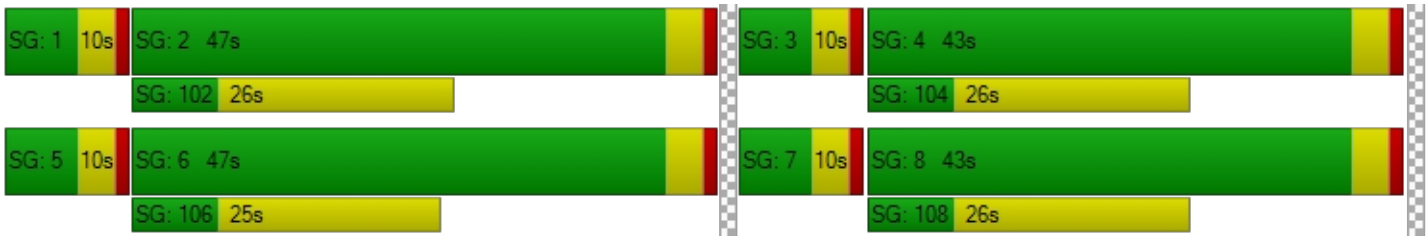
d_M, Delay for Movement [s/veh]	27.19	96.42	95.34	20.54	53.32	53.19	18.04	40.37	37.77	19.74	92.24	83.10
Movement LOS	C	F	F	C	D	D	B	D	D	B	F	F
d_A, Approach Delay [s/veh]	87.57			49.30			38.72			82.51		
Approach LOS	F			D			D			F		
d_I, Intersection Delay [s/veh]	67.54											
Intersection LOS	E											
Intersection V/C	1.064											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.095	2.996	2.939	2.963
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	782	782	709	709
d_b, Bicycle Delay [s]	20.40	20.40	22.91	22.91
I_b,int, Bicycle LOS Score for Intersection	3.064	2.839	2.487	2.891
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Harbor Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	71.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.119

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	158	1439	191	186	1517	125	270	949	153	287	1379	210
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	1439	191	186	1517	125	270	949	153	287	1379	210
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	360	48	47	379	31	68	237	38	72	345	53
Total Analysis Volume [veh/h]	158	1439	191	186	1517	125	270	949	153	287	1379	210
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	49	0	10	49	0	10	40	0	11	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	55	45	45	55	45	45	47	36	36	47	37	37
g / C, Green / Cycle	0.50	0.41	0.41	0.50	0.41	0.41	0.43	0.33	0.33	0.43	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.09	0.44	0.44	0.10	0.45	0.44	0.15	0.30	0.29	0.16	0.36	0.12
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	258	780	739	258	780	739	268	619	586	327	1272	603
d1, Uniform Delay [s]	14.98	32.42	32.42	15.24	32.42	32.42	21.32	35.94	35.30	21.58	36.59	27.56
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.12	0.41	0.38	0.11	0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.45	55.91	52.14	3.79	57.50	55.97	28.61	19.88	15.01	7.49	41.76	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	1.08	1.07	0.72	1.08	1.08	1.01	0.93	0.89	0.88	1.08	0.35
d, Delay for Lane Group [s/veh]	25.44	88.33	84.57	19.03	89.93	88.39	49.93	55.82	50.31	29.07	78.35	27.91
Lane Group LOS	C	F	F	B	F	F	F	E	D	C	F	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.89	32.16	29.70	2.84	32.51	30.48	6.75	18.10	15.55	5.68	24.03	4.20
50th-Percentile Queue Length [ft]	72.26	804.02	742.38	70.94	812.65	761.99	168.64	452.48	388.66	142.00	600.77	104.99
95th-Percentile Queue Length [veh]	5.20	43.85	40.48	5.11	44.39	41.74	11.05	25.08	22.01	9.59	33.82	7.56
95th-Percentile Queue Length [ft]	130.07	1096.16	1012.06	127.68	1109.85	1043.40	276.28	626.91	550.32	239.71	845.61	188.97

Movement, Approach, & Intersection Results

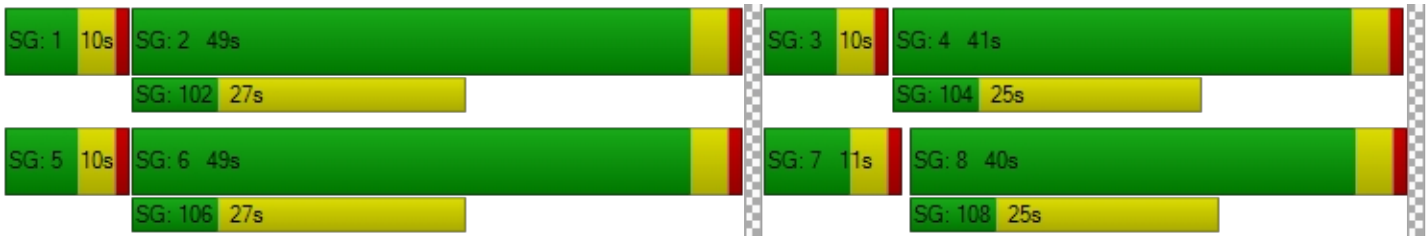
d_M, Delay for Movement [s/veh]	25.44	86.77	84.57	19.03	89.25	88.39	49.93	53.66	50.31	29.07	78.35	27.91
Movement LOS	C	F	F	B	F	F	F	D	D	C	F	C
d_A, Approach Delay [s/veh]	81.12			82.04			52.55			65.16		
Approach LOS	F			F			D			E		
d_I, Intersection Delay [s/veh]	71.29											
Intersection LOS	E											
Intersection V/C	1.119											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.192	3.191	2.997	3.096
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	818	818	655	673
d_b, Bicycle Delay [s]	19.20	19.20	24.89	24.22
I_b,int, Bicycle LOS Score for Intersection	3.035	3.068	2.692	3.107
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	46.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.946

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	174	954	222	87	709	121	138	1156	151	461	1636	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	174	954	222	87	709	121	138	1156	151	461	1636	128
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	239	56	22	177	30	35	289	38	115	409	32
Total Analysis Volume [veh/h]	174	954	222	87	709	121	138	1156	151	461	1636	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	34	0	10	29	0	13	47	0	19	53	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	40	31	31	40	27	27	9	43	43	15	49	49
g / C, Green / Cycle	0.37	0.28	0.28	0.37	0.24	0.24	0.08	0.39	0.39	0.14	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.10	0.25	0.12	0.05	0.23	0.22	0.08	0.36	0.35	0.13	0.43	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	357	1058	501	327	462	438	147	739	700	477	1685	798
d1, Uniform Delay [s]	24.51	38.25	32.68	23.27	40.90	40.28	50.21	32.02	31.47	47.25	29.91	18.34
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.40	0.38	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.70	12.26	2.83	0.43	30.23	23.66	21.92	16.01	12.94	12.60	5.42	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.90	0.44	0.27	0.95	0.90	0.94	0.92	0.89	0.97	0.97	0.16
d, Delay for Lane Group [s/veh]	29.22	50.51	35.51	23.70	71.13	63.95	72.14	48.04	44.41	59.84	35.34	18.43
Lane Group LOS	C	D	D	C	E	E	E	D	D	E	D	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.65	14.02	5.25	1.55	15.38	13.06	4.66	20.05	17.63	7.08	21.53	1.96
50th-Percentile Queue Length [ft]	91.19	350.38	131.25	38.72	384.56	326.44	116.50	501.37	440.86	176.88	538.37	49.12
95th-Percentile Queue Length [veh]	6.57	20.15	9.01	2.79	21.81	18.98	8.20	27.40	24.52	11.44	29.15	3.54
95th-Percentile Queue Length [ft]	164.13	503.87	225.19	69.70	545.36	474.59	205.00	684.98	613.03	285.93	728.63	88.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.22	50.51	35.51	23.70	68.38	63.95	72.14	46.55	44.41	59.84	35.34	18.43
Movement LOS	C	D	D	C	E	E	E	D	D	E	D	B
d_A, Approach Delay [s/veh]	45.30			63.55			48.77			39.44		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	46.77											
Intersection LOS	D											
Intersection V/C	0.946											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.896	2.726	3.032	3.154
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	455	782	891
d_b, Bicycle Delay [s]	29.09	32.84	20.40	16.91
I_b,int, Bicycle LOS Score for Intersection	2.673	2.316	2.752	3.395
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 8: Berkeley Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.831

Intersection Setup

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	12	65	61	480	64	91	60	1375	14	76	2115	473
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	65	61	480	64	91	60	1375	14	76	2115	473
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	16	15	120	16	23	15	344	4	19	529	118
Total Analysis Volume [veh/h]	12	65	61	480	64	91	60	1375	14	76	2115	473
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	3	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	6	6	0	0	6	6
Maximum Green [s]	0	30	0	30	30	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	10	0	21	31	0	10	79	0	0	69	69
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	20	0	0	20	0	0	21	21
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall		No		No	No		No	No			No	No
Maximum Recall		No		No	No		No	No			No	No
Pedestrian Recall		No		No	No		No	No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	6	6	17	27	75	75	75	66	66	87
g / C, Green / Cycle	0.05	0.05	0.05	0.15	0.24	0.68	0.68	0.68	0.60	0.60	0.79
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.03	0.14	0.09	0.03	0.38	0.37	0.04	0.56	0.26
s, saturation flow rate [veh/h]	1800	1900	1800	3500	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	66	101	95	538	438	436	1300	1232	777	2288	1426
d1, Uniform Delay [s]	49.68	51.10	51.08	45.67	34.50	5.68	8.79	8.78	9.09	19.64	3.22
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.42
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.32	6.76	6.95	5.37	0.49	0.14	1.67	1.76	0.25	7.82	0.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.65	0.64	0.89	0.35	0.14	0.55	0.55	0.10	0.92	0.33
d, Delay for Lane Group [s/veh]	51.01	57.86	58.03	51.03	34.98	5.82	10.47	10.53	9.35	27.46	3.75
Lane Group LOS	D	E	E	D	C	A	B	B	A	C	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.34	1.94	1.83	6.79	3.49	0.44	8.36	7.91	0.79	24.63	2.44
50th-Percentile Queue Length [ft]	8.47	48.55	45.72	169.84	87.30	10.95	208.97	197.86	19.78	615.77	61.07
95th-Percentile Queue Length [veh]	0.61	3.50	3.29	11.07	6.29	0.79	13.10	12.53	1.42	32.77	4.40
95th-Percentile Queue Length [ft]	15.24	87.40	82.29	276.71	157.15	19.70	327.51	313.20	35.60	819.26	109.92

Movement, Approach, & Intersection Results

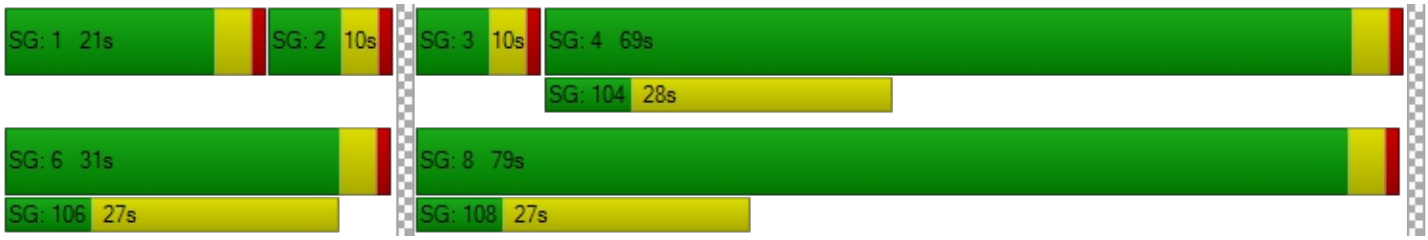
d_M, Delay for Movement [s/veh]	51.01	57.86	58.03	51.03	34.98	34.98	5.82	10.50	10.53	9.35	27.46	3.75
Movement LOS	D	E	E	D	C	C	A	B	B	A	C	A
d_A, Approach Delay [s/veh]	57.34			47.12			10.30			22.74		
Approach LOS	E			D			B			C		
d_I, Intersection Delay [s/veh]	23.20											
Intersection LOS	C											
Intersection V/C	0.831											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.320	2.494	3.042	0.000
Crosswalk LOS	B	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	109	491	1364	1182
d_b, Bicycle Delay [s]	49.16	31.31	5.57	9.20
I_b,int, Bicycle LOS Score for Intersection	1.787	2.607	2.755	3.757
Bicycle LOS	A	B	C	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Raymond Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	70.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.016

Intersection Setup

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	335	282	351	68	171	67	65	1581	163	332	2216	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	335	282	351	68	171	67	65	1581	163	332	2216	110
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	84	71	88	17	43	17	16	395	41	83	554	28
Total Analysis Volume [veh/h]	335	282	351	68	171	67	65	1581	163	332	2216	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	10	30	0	10	58	0	12	60	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	18	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	33	24	24	33	23	23	69	54	54	69	60	60
g / C, Green / Cycle	0.30	0.22	0.22	0.30	0.21	0.21	0.62	0.49	0.49	0.62	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.19	0.15	0.20	0.04	0.07	0.06	0.04	0.47	0.47	0.18	0.63	0.63
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	535	414	392	389	401	380	244	930	881	408	1029	975
d1, Uniform Delay [s]	32.92	39.53	41.81	27.85	36.67	36.53	8.02	27.23	27.01	9.48	25.22	25.22
k, delay calibration	0.22	0.12	0.24	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.41	2.13	14.51	0.21	0.44	0.43	0.58	22.56	21.80	16.20	83.29	83.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.68	0.90	0.17	0.31	0.30	0.27	0.97	0.96	0.81	1.16	1.16
d, Delay for Lane Group [s/veh]	35.34	41.66	56.33	28.06	37.11	36.96	8.59	49.79	48.82	25.67	108.51	109.04
Lane Group LOS	D	D	E	C	D	D	A	D	D	C	F	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	7.95	7.20	10.74	1.33	2.90	2.59	0.62	27.52	25.55	5.33	48.79	46.37
50th-Percentile Queue Length [ft]	198.68	180.04	268.52	33.14	72.46	64.82	15.44	688.06	638.65	133.17	1219.83	1159.25
95th-Percentile Queue Length [veh]	12.57	11.60	16.12	2.39	5.22	4.67	1.11	36.13	33.84	9.11	67.65	64.57
95th-Percentile Queue Length [ft]	314.26	290.07	402.89	59.66	130.43	116.68	27.79	903.16	845.88	227.79	1691.24	1614.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.34	41.66	56.33	28.06	37.07	36.96	8.59	49.37	48.82	25.67	108.75	109.04
Movement LOS	D	D	E	C	D	D	A	D	D	C	F	F
d_A, Approach Delay [s/veh]	44.79			35.04			47.85			98.39		
Approach LOS	D			D			D			F		
d_I, Intersection Delay [s/veh]	70.05											
Intersection LOS	E											
Intersection V/C	1.016											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.868	2.378	3.416	3.241
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	982	1018
d_b, Bicycle Delay [s]	32.07	32.07	14.25	13.25
I_b,int, Bicycle LOS Score for Intersection	3.157	1.812	3.052	3.752
Bicycle LOS	C	A	C	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 10: Acacia Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	27.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.877

Intersection Setup

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	116	252	258	58	123	76	50	1888	106	122	2273	56
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	252	258	58	123	76	50	1888	106	122	2273	56
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	63	65	15	31	19	13	472	27	31	568	14
Total Analysis Volume [veh/h]	116	252	258	58	123	76	50	1888	106	122	2273	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	31	0	0	31	0	10	68	0	11	69	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	18	18	18	18	18	84	74	74	84	75	75
g / C, Green / Cycle	0.17	0.17	0.17	0.17	0.17	0.76	0.67	0.67	0.76	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.14	0.03	0.11	0.03	0.54	0.54	0.07	0.63	0.63
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	151	319	302	108	302	465	1271	1204	749	1291	1223
d1, Uniform Delay [s]	40.69	43.89	44.44	39.34	42.80	3.28	13.07	13.07	3.42	15.25	15.25
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.91	4.38	6.80	4.07	2.44	0.10	5.52	5.81	0.47	12.69	13.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.79	0.85	0.54	0.66	0.11	0.81	0.81	0.16	0.93	0.93
d, Delay for Lane Group [s/veh]	48.61	48.27	51.24	43.41	45.24	3.38	18.59	18.88	3.88	27.94	28.49
Lane Group LOS	D	D	D	D	D	A	B	B	A	C	C
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.13	6.94	7.36	1.47	5.25	0.24	17.98	17.13	0.68	26.81	25.59
50th-Percentile Queue Length [ft]	78.16	173.40	183.96	36.83	131.18	6.07	449.46	428.22	17.05	670.27	639.64
95th-Percentile Queue Length [veh]	5.63	11.25	11.81	2.65	9.00	0.44	24.93	23.92	1.23	35.30	33.88
95th-Percentile Queue Length [ft]	140.69	281.37	295.18	66.29	225.10	10.93	623.30	597.90	30.69	882.56	847.02

Movement, Approach, & Intersection Results

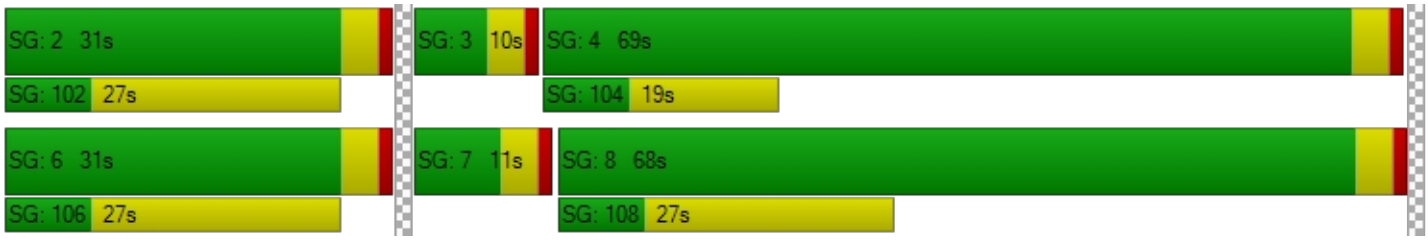
d_M, Delay for Movement [s/veh]	48.61	48.27	51.24	43.41	45.24	45.24	3.38	18.72	18.88	3.88	28.20	28.49
Movement LOS	D	D	D	D	D	D	A	B	B	A	C	C
d_A, Approach Delay [s/veh]	49.56			44.83			18.36			27.00		
Approach LOS	D			D			B			C		
d_I, Intersection Delay [s/veh]	27.19											
Intersection LOS	C											
Intersection V/C	0.877											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.498	2.199	3.354	3.300
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	491	1164	1182
d_b, Bicycle Delay [s]	31.31	31.31	9.62	9.20
I_b,int, Bicycle LOS Score for Intersection	2.593	1.984	3.246	3.582
Bicycle LOS	B	A	C	D

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: State College Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	119.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.189

Intersection Setup

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	119	610	231	327	489	620	551	1494	69	472	1735	288
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	119	610	231	327	489	620	551	1494	69	472	1735	288
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	153	58	82	122	155	138	374	17	118	434	72
Total Analysis Volume [veh/h]	119	610	231	327	489	620	551	1494	69	472	1735	288
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						3,6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	6	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	13	37	37	18	37	0	26	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	26	26	0	23	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	30	30	9	33	51	14	33	33	22	41	41
g / C, Green / Cycle	0.05	0.27	0.27	0.08	0.30	0.46	0.13	0.30	0.30	0.20	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.07	0.16	0.13	0.09	0.13	0.34	0.16	0.39	0.04	0.26	0.46	0.16
s, saturation flow rate [veh/h]	1800	3800	1800	3500	3800	1800	3500	3800	1800	1800	3800	1800
c, Capacity [veh/h]	99	1041	493	288	1144	837	446	1134	537	360	1410	668
d1, Uniform Delay [s]	52.00	34.56	33.28	50.50	30.85	24.03	48.01	38.60	28.16	44.02	34.61	25.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.20	0.11	0.42	0.17	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	110.68	2.42	3.18	71.45	1.17	5.85	110.04	145.30	0.11	155.86	106.05	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.20	0.59	0.47	1.14	0.43	0.74	1.23	1.32	0.13	1.31	1.23	0.43
d, Delay for Lane Group [s/veh]	162.68	36.97	36.46	121.95	32.01	29.88	158.05	183.90	28.26	199.88	140.66	26.35
Lane Group LOS	F	D	D	F	C	C	F	F	C	F	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	5.76	7.37	5.56	6.80	5.37	14.12	12.90	37.88	1.35	25.30	39.06	5.68
50th-Percentile Queue Length [ft]	144.05	184.25	138.89	169.91	134.36	352.88	322.56	946.90	33.64	632.43	976.40	141.88
95th-Percentile Queue Length [veh]	10.20	11.82	9.42	11.55	9.18	20.28	20.45	56.04	2.42	38.20	56.34	9.58
95th-Percentile Queue Length [ft]	254.93	295.55	235.53	288.87	229.41	506.92	511.21	1401.00	60.56	954.94	1408.42	239.56

Movement, Approach, & Intersection Results

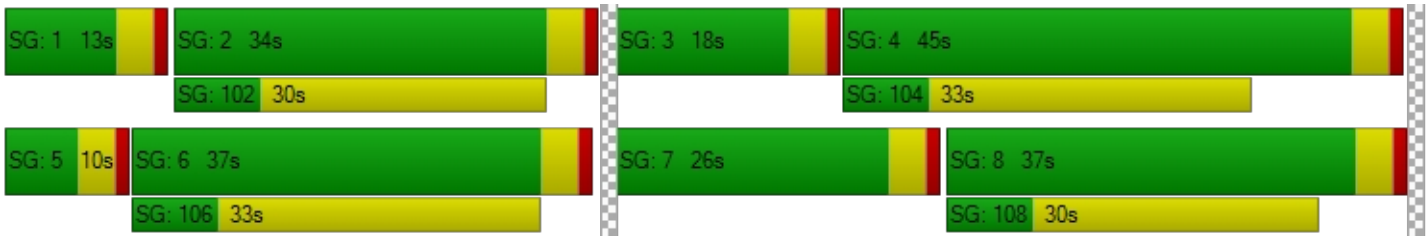
d_M, Delay for Movement [s/veh]	162.68	36.97	36.46	121.95	32.01	29.88	158.05	183.90	28.26	199.88	140.66	26.35
Movement LOS	F	D	D	F	C	C	F	F	C	F	F	C
d_A, Approach Delay [s/veh]	52.43			51.57			172.08			138.67		
Approach LOS	D			D			F			F		
d_I, Intersection Delay [s/veh]	119.08											
Intersection LOS	F											
Intersection V/C	1.189											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.786	3.005	3.243	3.201
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	600	600	745
d_b, Bicycle Delay [s]	29.09	26.95	26.95	21.64
I_b,int, Bicycle LOS Score for Intersection	2.352	2.744	3.304	3.618
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.903

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	130	235	394	0	1616	824	230	2011	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	130	235	394	0	1616	824	230	2011	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	33	59	99	0	404	206	58	503	0
Total Analysis Volume [veh/h]	0	0	0	130	235	394	0	1616	824	230	2011	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	35	0	0	60	0	15	75	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		27	27	56	56	15	75
g / C, Green / Cycle		0.24	0.24	0.51	0.51	0.14	0.69
(v / s)_i Volume / Saturation Flow Rate		0.20	0.22	0.43	0.46	0.13	0.53
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		435	435	1931	915	254	2605
d1, Uniform Delay [s]		39.67	40.49	23.14	24.53	46.50	11.54
k, delay calibration		0.25	0.29	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		9.41	16.52	4.51	13.69	11.53	2.29
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.84	0.91	0.84	0.90	0.91	0.77
d, Delay for Lane Group [s/veh]		49.08	57.01	27.65	38.22	58.03	13.83
Lane Group LOS		D	E	C	D	E	B
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		10.42	12.23	18.26	21.91	6.98	15.18
50th-Percentile Queue Length [ft]		260.57	305.67	456.59	547.82	174.39	379.57
95th-Percentile Queue Length [veh]		15.72	17.96	25.27	29.59	11.31	21.57
95th-Percentile Queue Length [ft]		392.94	449.04	631.80	739.74	282.68	539.32

Movement, Approach, & Intersection Results

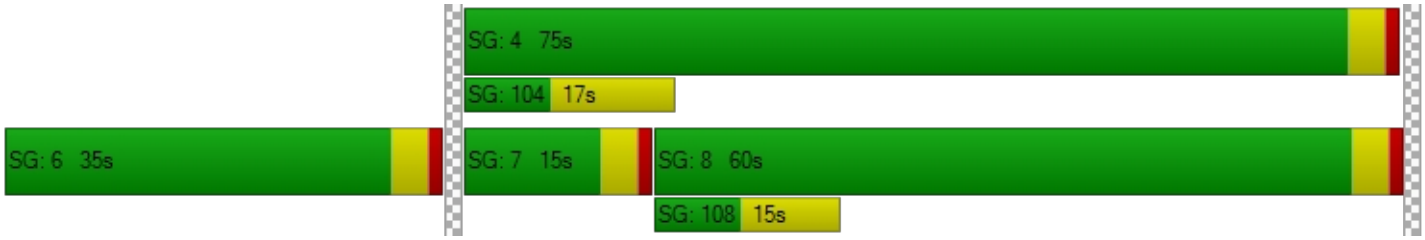
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	49.08	49.08	57.01	0.00	27.65	38.22	58.03	13.83	0.00
Movement LOS				D	D	E		C	D	E	B	
d_A, Approach Delay [s/veh]	0.00			53.19			31.22			18.36		
Approach LOS	A			D			C			B		
d_I, Intersection Delay [s/veh]	28.99											
Intersection LOS	C											
Intersection V/C	0.903											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.690	2.094	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	564	1018	1291
d_b, Bicycle Delay [s]	55.00	28.37	13.25	6.91
I_b,int, Bicycle LOS Score for Intersection	4.132	2.812	2.902	3.408
Bicycle LOS	D	C	C	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	81.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.079

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	828	0	540	0	0	0	412	1318	0	0	1503	223
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	828	0	540	0	0	0	412	1318	0	0	1503	223
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	207	0	135	0	0	0	103	330	0	0	376	56
Total Analysis Volume [veh/h]	828	0	540	0	0	0	412	1318	0	0	1503	223
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	27	0	0	0	0	0	28	83	0	0	55	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	23	23		27	79	47	47
g / C, Green / Cycle	0.21	0.21	0.21		0.25	0.72	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.25	0.25	0.25		0.23	0.35	0.45	0.48
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	377	377	377		450	2728	820	777
d1, Uniform Delay [s]	43.47	43.47	43.47		40.13	6.70	31.25	31.25
k, delay calibration	0.40	0.40	0.40		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	112.79	112.79	112.79		7.84	0.62	46.06	67.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.21	1.21	1.21		0.92	0.48	1.05	1.11
d, Delay for Lane Group [s/veh]	156.26	156.26	156.26		47.97	7.32	77.31	98.31
Lane Group LOS	F	F	F		D	A	F	F
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	21.95	21.95	21.95		11.68	6.02	31.38	34.27
50th-Percentile Queue Length [ft]	548.79	548.79	548.79		292.05	150.38	784.61	856.67
95th-Percentile Queue Length [veh]	32.67	32.67	32.67		17.29	10.04	42.17	47.35
95th-Percentile Queue Length [ft]	816.71	816.71	816.71		432.18	250.93	1054.14	1183.77

Movement, Approach, & Intersection Results

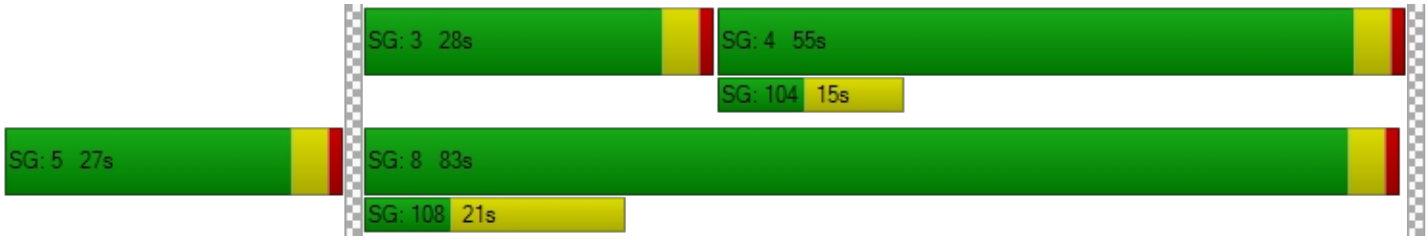
d_M, Delay for Movement [s/veh]	156.26	0.00	156.26	0.00	0.00	0.00	47.97	7.32	0.00	0.00	86.25	98.31
Movement LOS	F		F				D	A			F	F
d_A, Approach Delay [s/veh]	156.26			0.00			17.00			87.81		
Approach LOS	F			A			B			F		
d_I, Intersection Delay [s/veh]	81.83											
Intersection LOS	F											
Intersection V/C	1.079											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.394	2.052	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1436	927
d_b, Bicycle Delay [s]	55.00	55.00	4.37	15.82
I_b,int, Bicycle LOS Score for Intersection	6.390	4.132	2.987	2.984
Bicycle LOS	F	D	C	C

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Lemon Street at Wilshire Avenue

Control Type:	Signalized	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Base Volume Input [veh/h]	48	1322	85	70	1194	49	21	46	51	105	55	96
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	1322	85	70	1194	49	21	46	51	105	55	96
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	331	21	18	299	12	5	12	13	26	14	24
Total Analysis Volume [veh/h]	48	1322	85	70	1194	49	21	46	51	105	55	96
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	49	0	0	49	0	0	61	0	0	61	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	84	84	18	18
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.38	0.38	0.04	0.34	0.33	0.07	0.14
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1179	1456	1380	1132	1456	1380	328	335
d1, Uniform Delay [s]	3.07	4.85	4.80	3.11	4.52	4.49	41.35	45.05
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	1.23	1.26	0.10	0.97	1.00	0.67	3.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.50	0.49	0.06	0.44	0.44	0.36	0.76
d, Delay for Lane Group [s/veh]	3.14	6.08	6.06	3.22	5.49	5.49	42.02	48.67
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.23	5.52	5.12	0.34	4.52	4.22	2.93	7.11
50th-Percentile Queue Length [ft]	5.78	138.07	127.92	8.57	113.01	105.53	73.21	177.87
95th-Percentile Queue Length [veh]	0.42	9.38	8.83	0.62	8.01	7.59	5.27	11.49
95th-Percentile Queue Length [ft]	10.40	234.42	220.67	15.43	200.18	189.77	131.77	287.23

Movement, Approach, & Intersection Results

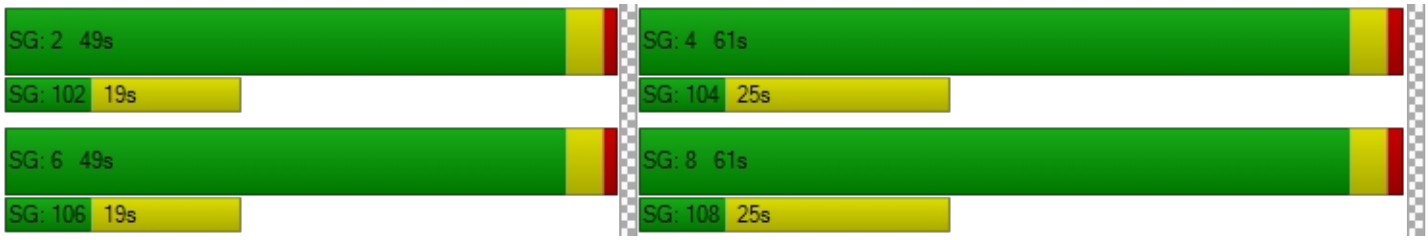
d_M, Delay for Movement [s/veh]	3.14	6.07	6.06	3.22	5.49	5.49	42.02	42.02	42.02	48.67	48.67	48.67
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.97			5.37			42.02			48.67		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.55											
Intersection LOS	B											
Intersection V/C	0.567											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.006	2.876	1.924	2.047
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	818	818	1036	1036
d_b, Bicycle Delay [s]	19.20	19.20	12.77	12.77
I_b,int, Bicycle LOS Score for Intersection	2.760	2.643	1.754	1.982
Bicycle LOS	C	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Harbor Boulevard at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	60.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.108

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	229	1502	282	115	1737	144	155	804	210	292	1187	139
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	1502	282	115	1737	144	155	804	210	292	1187	139
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	376	71	29	434	36	39	201	53	73	297	35
Total Analysis Volume [veh/h]	229	1502	282	115	1737	144	155	804	210	292	1187	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	55	0	10	55	0	10	33	0	12	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	20	0	0	22	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	61	51	51	61	51	51	41	29	29	41	31	31
g / C, Green / Cycle	0.55	0.47	0.47	0.55	0.46	0.46	0.37	0.26	0.26	0.37	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.13	0.40	0.16	0.06	0.51	0.51	0.09	0.21	0.12	0.16	0.31	0.08
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	1800	3800	1800
c, Capacity [veh/h]	264	1767	837	462	880	834	267	995	471	408	1065	505
d1, Uniform Delay [s]	12.52	26.04	18.67	11.67	29.52	29.52	23.66	38.00	33.92	25.81	39.58	30.87
k, delay calibration	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.53	1.23	0.24	0.28	60.46	61.18	2.00	7.03	3.03	10.27	64.53	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.85	0.34	0.25	1.10	1.10	0.58	0.81	0.45	0.72	1.11	0.28
d, Delay for Lane Group [s/veh]	21.05	27.26	18.91	11.95	89.97	90.70	25.65	45.03	36.95	36.08	104.11	32.22
Lane Group LOS	C	C	B	B	F	F	C	D	D	D	F	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.44	17.02	4.56	1.35	36.94	35.17	2.91	10.99	5.07	6.84	23.68	3.06
50th-Percentile Queue Length [ft]	86.01	425.42	113.89	33.85	923.60	879.16	72.72	274.73	126.69	170.94	591.89	76.61
95th-Percentile Queue Length [veh]	6.19	23.78	8.06	2.44	50.34	48.15	5.24	16.43	8.76	11.13	33.80	5.52
95th-Percentile Queue Length [ft]	154.82	594.55	201.41	60.94	1258.38	1203.75	130.90	410.64	218.98	278.15	845.10	137.90

Movement, Approach, & Intersection Results

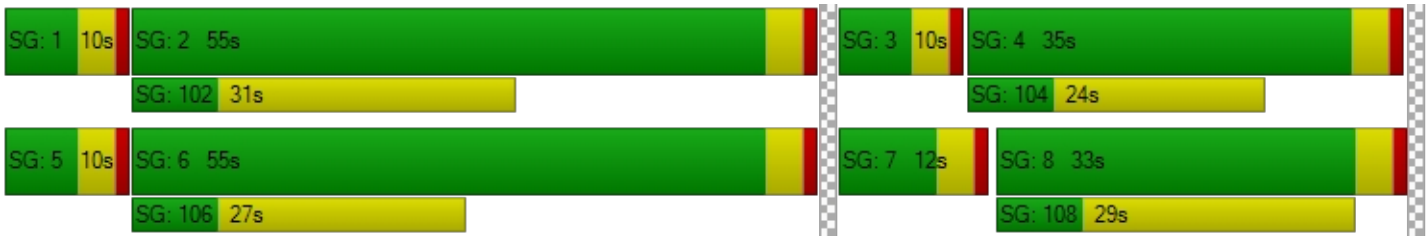
d_M, Delay for Movement [s/veh]	21.05	27.26	18.91	11.95	90.29	90.70	25.65	45.03	36.95	36.08	104.11	32.22
Movement LOS	C	C	B	B	F	F	C	D	D	D	F	C
d_A, Approach Delay [s/veh]	25.39			85.81			41.01			85.66		
Approach LOS	C			F			D			F		
d_I, Intersection Delay [s/veh]	60.17											
Intersection LOS	E											
Intersection V/C	1.108											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.284	3.115	3.063	3.000
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	927	927	527	564
d_b, Bicycle Delay [s]	15.82	15.82	29.82	28.37
I_b,int, Bicycle LOS Score for Intersection	3.220	3.206	2.524	2.894
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Lemon Street at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	51.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.000

Intersection Setup

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	153	1144	270	47	1077	122	196	949	122	521	1369	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	153	1144	270	47	1077	122	196	949	122	521	1369	90
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	286	68	12	269	31	49	237	31	130	342	23
Total Analysis Volume [veh/h]	153	1144	270	47	1077	122	196	949	122	521	1369	90
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	41	0	10	40	0	16	37	0	22	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	47	38	38	47	36	36	12	33	33	18	39	39
g / C, Green / Cycle	0.43	0.35	0.35	0.43	0.33	0.33	0.11	0.30	0.30	0.16	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.09	0.30	0.15	0.03	0.33	0.32	0.11	0.25	0.07	0.15	0.36	0.05
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	3500	3800	1800
c, Capacity [veh/h]	280	1326	628	359	621	588	200	1138	539	576	1341	635
d1, Uniform Delay [s]	19.74	33.35	27.42	18.55	37.02	36.56	48.77	35.98	28.95	45.11	35.59	24.24
k, delay calibration	0.11	0.11	0.11	0.11	0.46	0.44	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.66	1.79	0.47	0.16	36.66	28.92	25.25	7.24	0.97	5.67	29.95	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.86	0.43	0.13	1.01	0.97	0.98	0.83	0.23	0.90	1.02	0.14
d, Delay for Lane Group [s/veh]	21.40	35.14	27.89	18.71	73.68	65.48	74.02	43.22	29.93	50.78	65.54	24.71
Lane Group LOS	C	D	C	B	F	E	E	D	C	D	F	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.57	14.24	5.48	0.72	22.64	19.59	6.75	12.86	2.57	7.39	23.06	1.68
50th-Percentile Queue Length [ft]	64.35	356.11	137.05	18.05	565.98	489.77	168.69	321.40	64.23	184.67	576.45	42.01
95th-Percentile Queue Length [veh]	4.63	20.43	9.32	1.30	30.60	26.85	11.01	18.74	4.62	11.84	31.38	3.02
95th-Percentile Queue Length [ft]	115.82	510.85	233.05	32.49	765.05	671.24	275.19	468.41	115.62	296.11	784.58	75.62

Movement, Approach, & Intersection Results

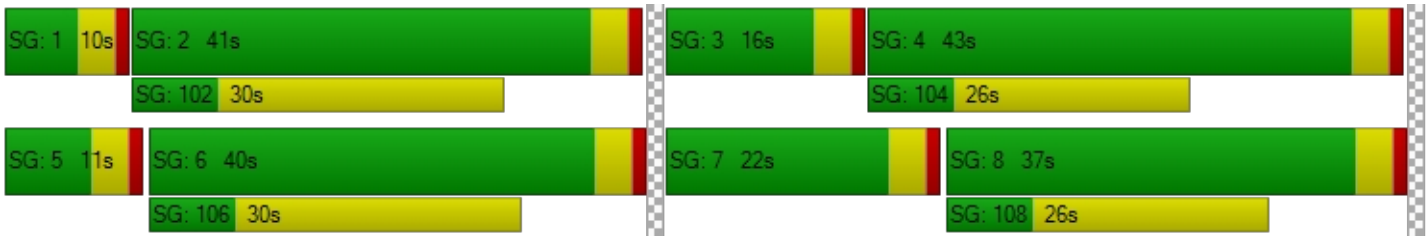
d_M, Delay for Movement [s/veh]	21.40	35.14	27.89	18.71	70.24	65.48	74.02	43.22	29.93	50.78	65.54	24.71
Movement LOS	C	D	C	B	E	E	E	D	C	D	F	C
d_A, Approach Delay [s/veh]	32.55			67.83			46.70			59.80		
Approach LOS	C			E			D			E		
d_I, Intersection Delay [s/veh]	51.67											
Intersection LOS	D											
Intersection V/C	1.000											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.997	2.831	3.011	3.080
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	673	655	600	709
d_b, Bicycle Delay [s]	24.22	24.89	26.95	22.91
I_b,int, Bicycle LOS Score for Intersection	2.852	2.588	2.605	3.193
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Harbor Boulevard at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	78.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.179

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	94	1800	65	189	524	1502	113	171	181	156	216	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	1800	65	189	524	1502	113	171	181	156	216	115
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	450	16	47	131	376	28	43	45	39	54	29
Total Analysis Volume [veh/h]	94	1800	65	189	524	1502	113	171	181	156	216	115
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	47	0	0	47	0	0	63	0	0	63	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	11	0	0	20	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	71	71	71	71	31	31	31
g / C, Green / Cycle	0.65	0.65	0.65	0.65	0.65	0.65	0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.05	0.50	0.50	0.11	0.28	0.83	0.26	0.09	0.18
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800	1800
c, Capacity [veh/h]	68	1233	1168	565	1233	1168	542	81	501
d1, Uniform Delay [s]	7.04	13.65	13.65	7.57	9.35	19.28	38.57	29.96	35.05
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	242.61	4.85	5.11	1.59	1.07	135.31	4.09	422.55	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.39	0.78	0.78	0.33	0.43	1.29	0.86	1.92	0.66
d, Delay for Lane Group [s/veh]	249.65	18.50	18.76	9.16	10.43	154.59	42.66	452.51	36.54
Lane Group LOS	F	B	B	A	B	F	D	F	D
Critical Lane Group	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	5.12	16.82	16.02	1.91	6.05	70.01	12.61	11.18	7.97
50th-Percentile Queue Length [ft]	127.98	420.55	400.50	47.70	151.22	1750.29	315.31	279.52	199.23
95th-Percentile Queue Length [veh]	9.21	23.55	22.58	3.43	10.08	101.60	18.44	20.13	12.60
95th-Percentile Queue Length [ft]	230.37	588.71	564.60	85.86	252.06	2539.89	460.92	503.13	314.97

Movement, Approach, & Intersection Results

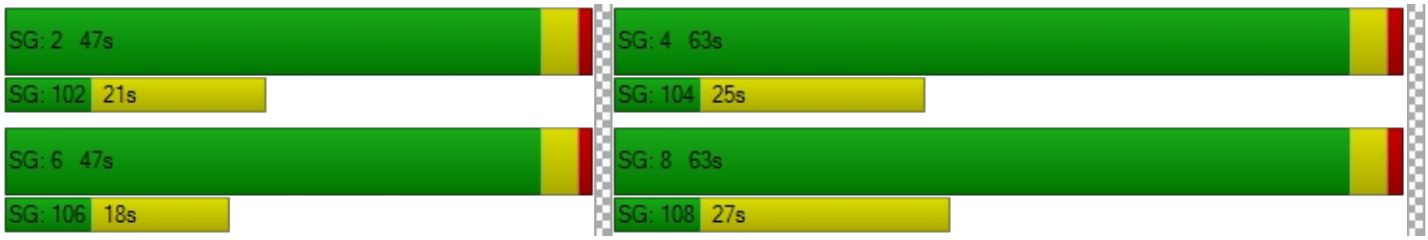
d_M, Delay for Movement [s/veh]	249.65	18.62	18.76	9.16	10.43	154.59	42.66	42.66	42.66	452.51	36.54	36.54
Movement LOS	F	B	B	A	B	F	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	29.71			108.08			42.66			169.79		
Approach LOS	C			F			D			F		
d_I, Intersection Delay [s/veh]	78.06											
Intersection LOS	E											
Intersection V/C	1.179											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.081	3.298	2.968	2.515
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	782	782	1073	1073
d_b, Bicycle Delay [s]	20.40	20.40	11.82	11.82
I_b,int, Bicycle LOS Score for Intersection	3.176	3.387	2.327	2.363
Bicycle LOS	C	C	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Lemon Street at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.727

Intersection Setup

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	222	1550	94	58	1565	203	125	43	182	105	55	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	222	1550	94	58	1565	203	125	43	182	105	55	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	388	24	15	391	51	31	11	46	26	14	12
Total Analysis Volume [veh/h]	222	1550	94	58	1565	203	125	43	182	105	55	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	36	0	0	74	0	0	74	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	11	0	0	11	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	78	78	78	78	78	78	24	24
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.71	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.12	0.45	0.44	0.03	0.48	0.48	0.19	0.12
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	840	1355	1284	901	1355	1284	430	434
d1, Uniform Delay [s]	5.15	8.14	8.12	4.67	8.69	8.61	42.12	38.38
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.77	2.18	2.28	0.14	2.69	2.75	3.80	0.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.62	0.62	0.06	0.67	0.67	0.81	0.48
d, Delay for Lane Group [s/veh]	5.92	10.32	10.40	4.81	11.38	11.37	45.92	39.21
Lane Group LOS	A	B	B	A	B	B	D	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	1.67	9.79	9.26	0.39	11.34	10.59	9.62	5.09
50th-Percentile Queue Length [ft]	41.75	244.71	231.48	9.68	283.48	264.69	240.53	127.22
95th-Percentile Queue Length [veh]	3.01	14.92	14.25	0.70	16.86	15.92	14.71	8.79
95th-Percentile Queue Length [ft]	75.15	372.99	356.24	17.42	421.54	398.09	367.71	219.71

Movement, Approach, & Intersection Results

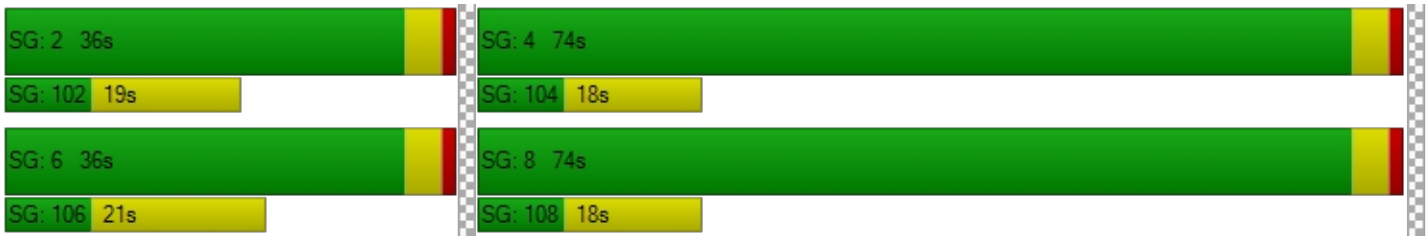
d_M, Delay for Movement [s/veh]	5.92	10.36	10.40	4.81	11.37	11.37	45.92	45.92	45.92	39.21	39.21	39.21
Movement LOS	A	B	B	A	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.83			11.17			45.92			39.21		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	14.82											
Intersection LOS	B											
Intersection V/C	0.727											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.184	3.179	2.445	2.004
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	582	582	1273	1273
d_b, Bicycle Delay [s]	27.65	27.65	7.27	7.27
I_b,int, Bicycle LOS Score for Intersection	3.099	3.066	2.137	1.904
Bicycle LOS	C	C	B	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Harbor Boulevard at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	112.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.109

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	345	1918	276	227	1717	208	237	940	236	285	1403	260
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	345	1918	276	227	1717	208	237	940	236	285	1403	260
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	480	69	57	429	52	59	235	59	71	351	65
Total Analysis Volume [veh/h]	345	1918	276	227	1717	208	237	940	236	285	1403	260
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	44	0	10	42	0	19	39	0	17	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	27	0	0	28	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	40	40	6	38	38	15	35	35	13	33	33
g / C, Green / Cycle	0.07	0.36	0.36	0.05	0.35	0.35	0.14	0.32	0.32	0.12	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.10	0.50	0.15	0.06	0.41	0.20	0.13	0.16	0.13	0.16	0.25	0.14
s, saturation flow rate [veh/h]	3500	3800	1800	3500	3800	1800	1800	5700	1800	1800	5700	1800
c, Capacity [veh/h]	255	1380	654	191	1311	621	248	1805	570	216	1703	538
d1, Uniform Delay [s]	51.00	35.02	26.34	52.00	36.02	29.50	47.07	30.76	29.56	48.40	35.88	31.62
k, delay calibration	0.11	0.23	0.11	0.11	0.16	0.15	0.11	0.50	0.50	0.14	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	165.36	177.38	0.43	96.15	89.42	1.18	17.61	1.08	2.21	152.75	4.67	3.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.35	1.39	0.42	1.19	1.19	0.58	0.95	0.52	0.41	1.32	0.82	0.48
d, Delay for Lane Group [s/veh]	216.36	212.40	26.77	148.15	125.44	30.68	64.68	31.83	31.77	201.14	40.55	34.71
Lane Group LOS	F	F	C	F	F	C	E	C	C	F	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	9.34	51.97	5.48	5.18	33.43	7.93	7.62	6.93	5.23	15.07	12.23	6.09
50th-Percentile Queue Length [ft]	233.55	1299.20	136.98	129.44	835.71	198.21	190.56	173.14	130.83	376.72	305.78	152.32
95th-Percentile Queue Length [veh]	15.71	77.39	9.32	9.32	48.00	12.55	12.15	11.24	8.98	23.82	17.97	10.14
95th-Percentile Queue Length [ft]	392.64	1934.83	232.95	232.98	1199.98	313.65	303.75	281.04	224.62	595.38	449.18	253.52

Movement, Approach, & Intersection Results

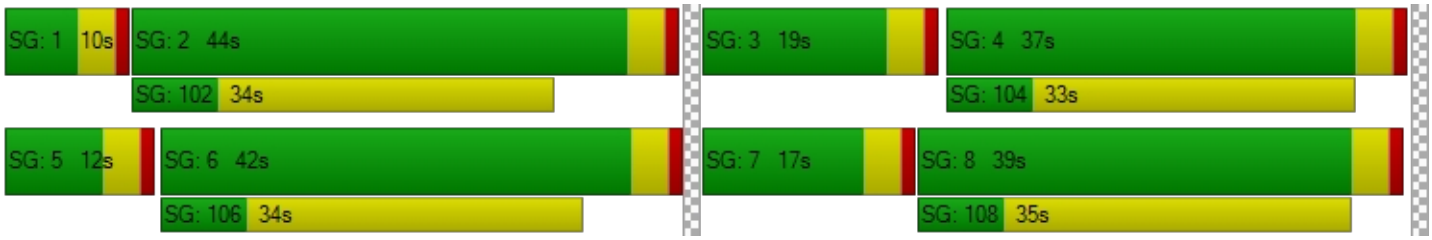
d_M, Delay for Movement [s/veh]	216.36	212.40	26.77	148.15	117.01	30.68	64.68	31.83	31.77	201.14	40.55	34.71
Movement LOS	F	F	C	F	F	C	E	C	C	F	D	C
d_A, Approach Delay [s/veh]	192.76			111.95			37.33			63.27		
Approach LOS	F			F			D			E		
d_I, Intersection Delay [s/veh]	112.56											
Intersection LOS	F											
Intersection V/C	1.109											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.317	3.240	3.146	3.148
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	727	691	636	600
d_b, Bicycle Delay [s]	22.27	23.56	25.57	26.95
I_b,int, Bicycle LOS Score for Intersection	3.654	2.743	2.337	2.631
Bicycle LOS	D	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Lemon Street at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	88.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.150

Intersection Setup

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	319	1476	121	215	1387	229	251	904	238	470	1134	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	319	1476	121	215	1387	229	251	904	238	470	1134	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	369	30	54	347	57	63	226	60	118	284	48
Total Analysis Volume [veh/h]	319	1476	121	215	1387	229	251	904	238	470	1134	190
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	40	0	15	39	0	17	35	0	20	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	25	0	0	20	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	51	37	37	51	35	35	13	31	31	16	34	34
g / C, Green / Cycle	0.46	0.34	0.34	0.46	0.32	0.32	0.12	0.28	0.28	0.15	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.18	0.39	0.07	0.12	0.37	0.13	0.14	0.24	0.13	0.13	0.36	0.36
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3800	1800	1800	3800	1800	3500	1900	1800
c, Capacity [veh/h]	362	1275	604	331	1208	572	216	1067	505	514	585	554
d1, Uniform Delay [s]	19.25	36.55	26.04	17.99	37.52	29.32	48.41	37.33	32.78	46.26	38.08	38.08
k, delay calibration	0.11	0.15	0.11	0.11	0.14	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.17	74.02	0.16	2.16	69.84	0.45	84.70	8.34	3.13	6.91	94.32	88.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	1.16	0.20	0.65	1.15	0.40	1.16	0.85	0.47	0.92	1.17	1.15
d, Delay for Lane Group [s/veh]	26.42	110.58	26.20	20.15	107.36	29.78	133.11	45.66	35.91	53.17	132.39	126.44
Lane Group LOS	C	F	C	C	F	C	F	D	D	D	F	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	5.96	29.80	2.29	3.50	27.61	4.78	10.97	12.55	5.67	6.79	30.73	28.20
50th-Percentile Queue Length [ft]	148.94	745.10	57.15	87.42	690.33	119.57	274.15	313.79	141.80	169.79	768.31	704.98
95th-Percentile Queue Length [veh]	9.96	42.56	4.12	6.29	39.51	8.37	17.42	18.36	9.58	11.07	43.91	40.33
95th-Percentile Queue Length [ft]	249.01	1064.09	102.88	157.36	987.79	209.24	435.52	459.04	239.44	276.64	1097.75	1008.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.42	110.58	26.20	20.15	107.36	29.78	133.11	45.66	35.91	53.17	130.04	126.44
Movement LOS	C	F	C	C	F	C	F	D	D	D	F	F
d_A, Approach Delay [s/veh]	91.24			87.41			59.75			109.52		
Approach LOS	F			F			E			F		
d_I, Intersection Delay [s/veh]	88.63											
Intersection LOS	F											
Intersection V/C	1.150											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.114	3.071	3.115	3.134
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	655	636	564	618
d_b, Bicycle Delay [s]	24.89	25.57	28.37	26.25
I_b,int, Bicycle LOS Score for Intersection	3.140	3.070	2.326	3.040
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.933

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	85	2538	0	0	1819	828	0	0	0	337	458	552
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	2538	0	0	1819	828	0	0	0	337	458	552
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	635	0	0	455	207	0	0	0	84	115	138
Total Analysis Volume [veh/h]	85	2538	0	0	1819	828	0	0	0	337	458	552
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	64	0	0	54	0	0	0	0	0	36	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	60	51	51		32	32	32
g / C, Green / Cycle	0.05	0.60	0.51	0.51		0.32	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.45	0.46	0.49		0.19	0.12	0.31
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	194	3421	1918	909		576	1216	576
d1, Uniform Delay [s]	45.74	14.41	22.89	24.05		28.46	26.30	33.36
k, delay calibration	0.11	0.50	0.50	0.50		0.15	0.11	0.42
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	1.49	8.69	23.62		1.29	0.19	25.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.74	0.92	0.97		0.59	0.38	0.96
d, Delay for Lane Group [s/veh]	47.30	15.91	31.58	47.67		29.75	26.49	59.10
Lane Group LOS	D	B	C	D		C	C	E
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.06	13.02	20.20	24.76		6.84	4.20	16.86
50th-Percentile Queue Length [ft]	26.50	325.45	505.10	618.90		171.10	105.01	421.51
95th-Percentile Queue Length [veh]	1.91	18.94	27.58	32.92		11.13	7.56	23.59
95th-Percentile Queue Length [ft]	47.70	473.38	689.39	822.90		278.36	189.02	589.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.30	15.91	0.00	0.00	32.06	47.67	0.00	0.00	0.00	29.75	26.49	59.10
Movement LOS	D	B			C	D				C	C	E
d_A, Approach Delay [s/veh]	16.93			36.94			0.00			40.67		
Approach LOS	B			D			A			D		
d_I, Intersection Delay [s/veh]	29.77											
Intersection LOS	C											
Intersection V/C	0.933											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.388	2.464
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1000	0	640
d_b, Bicycle Delay [s]	8.00	12.50	50.00	23.12
I_b,int, Bicycle LOS Score for Intersection	3.002	3.015	4.132	2.671
Bicycle LOS	C	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.999

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	111	1490	0	0	1510	409	0	0	0	183	776	832
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	1490	0	0	1510	409	0	0	0	183	776	832
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	373	0	0	378	102	0	0	0	46	194	208
Total Analysis Volume [veh/h]	111	1490	0	0	1510	409	0	0	0	183	776	832
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	50	0	0	40	0	0	0	0	0	50	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	46	36	36		46	46	46
g / C, Green / Cycle	0.06	0.46	0.36	0.36		0.46	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.34	0.36		0.27	0.25	0.46
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	110	2629	1369	649		826	872	826
d1, Uniform Delay [s]	46.96	19.65	30.85	31.74		20.09	19.48	27.06
k, delay calibration	0.11	0.50	0.50	0.50		0.16	0.12	0.47
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	42.99	0.89	13.00	32.14		0.99	0.59	32.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.57	0.93	0.99		0.59	0.54	1.01
d, Delay for Lane Group [s/veh]	89.94	20.54	43.84	63.88		21.09	20.07	59.32
Lane Group LOS	F	C	D	E		C	C	F
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	4.02	8.35	16.83	20.57		8.35	7.74	25.91
50th-Percentile Queue Length [ft]	100.53	208.82	420.75	514.15		208.69	193.61	647.79
95th-Percentile Queue Length [veh]	7.24	13.09	23.56	28.00		13.09	12.31	34.46
95th-Percentile Queue Length [ft]	180.95	327.32	588.95	700.08		327.15	307.70	861.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	89.94	20.54	0.00	0.00	46.90	63.88	0.00	0.00	0.00	21.09	20.47	59.32
Movement LOS	F	C			D	E				C	C	F
d_A, Approach Delay [s/veh]	25.35			50.52			0.00			38.58		
Approach LOS	C			D			A			D		
d_I, Intersection Delay [s/veh]	38.91											
Intersection LOS	D											
Intersection V/C	0.999											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.351	2.527
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	920	720	0	920
d_b, Bicycle Delay [s]	14.58	20.48	50.00	14.58
I_b,int, Bicycle LOS Score for Intersection	2.440	2.615	4.132	3.037
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.809

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1696	233	453	1756	0	998	351	158	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1696	233	453	1756	0	998	351	158	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	424	58	113	439	0	250	88	40	0	0	0
Total Analysis Volume [veh/h]	0	1696	233	453	1756	0	998	351	158	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	29	0	21	50	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	40	40	15	59	33	33	33	
g / C, Green / Cycle	0.40	0.40	0.15	0.59	0.33	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.13	0.13	0.31	0.29	0.18	0.09	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	2269	716	526	3354	1161	630	597	
d1, Uniform Delay [s]	25.79	20.81	41.47	12.25	31.25	27.40	24.49	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.30	1.21	4.29	0.59	1.99	0.77	0.23	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.75	0.33	0.86	0.52	0.86	0.56	0.26	
d, Delay for Lane Group [s/veh]	28.10	22.02	45.75	12.83	33.24	28.17	24.72	
Lane Group LOS	C	C	D	B	C	C	C	
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	11.62	3.94	5.70	7.42	11.27	6.89	2.76	
50th-Percentile Queue Length [ft]	290.42	98.56	142.62	185.40	281.70	172.18	68.88	
95th-Percentile Queue Length [veh]	17.21	7.10	9.62	11.88	16.77	11.19	4.96	
95th-Percentile Queue Length [ft]	430.16	177.41	240.54	297.05	419.33	279.78	123.98	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	28.10	22.02	45.75	12.83	0.00	33.24	28.17	24.72	0.00	0.00	0.00
Movement LOS		C	C	D	B		C	C	C			
d_A, Approach Delay [s/veh]	27.36			19.58			31.16			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	25.33											
Intersection LOS	C											
Intersection V/C	0.809											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.503	2.225
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	920	920	0
d_b, Bicycle Delay [s]	28.13	14.58	14.58	50.00
I_b,int, Bicycle LOS Score for Intersection	2.621	2.775	4.046	4.132
Bicycle LOS	B	C	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.805

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1213	229	581	1077	0	383	608	63	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1213	229	581	1077	0	383	608	63	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	303	57	145	269	0	96	152	16	0	0	0
Total Analysis Volume [veh/h]	0	1213	229	581	1077	0	383	608	63	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	25	48	0	0	52	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	38	38	19	61	31	31	31	
g / C, Green / Cycle	0.38	0.38	0.19	0.61	0.31	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.27	0.17	0.28	0.28	0.26	0.04	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1455	689	657	2320	557	588	557	
d1, Uniform Delay [s]	25.50	25.99	39.56	10.58	32.92	32.24	24.71	
k, delay calibration	0.50	0.50	0.11	0.50	0.15	0.12	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.37	5.78	4.18	0.67	6.85	3.84	0.09	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.66	0.70	0.88	0.46	0.89	0.84	0.11	
d, Delay for Lane Group [s/veh]	27.87	31.77	43.74	11.25	39.77	36.08	24.80	
Lane Group LOS	C	C	D	B	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	9.65	10.46	7.24	6.18	12.22	11.53	1.08	
50th-Percentile Queue Length [ft]	241.36	261.42	180.93	154.46	305.60	288.32	26.95	
95th-Percentile Queue Length [veh]	14.75	15.76	11.65	10.25	17.96	17.10	1.94	
95th-Percentile Queue Length [ft]	368.75	394.00	291.23	256.37	448.95	427.56	48.50	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	28.68	31.77	43.74	11.25	0.00	39.77	36.77	24.80	0.00	0.00	0.00
Movement LOS		C	C	D	B		D	D	C			
d_A, Approach Delay [s/veh]	29.17			22.64			37.14			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	28.59											
Intersection LOS	C											
Intersection V/C	0.805											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.288	2.411
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	880	960	0
d_b, Bicycle Delay [s]	32.81	15.68	13.52	50.00
I_b,int, Bicycle LOS Score for Intersection	2.353	2.927	2.429	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 25: Harbor Boulevard at Bastanchury Road

Control Type:	Signalized	Delay (sec / veh):	88.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.055

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Base Volume Input [veh/h]	354	1759	267	387	1548	467	362	1491	271	266	1317	366
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	354	1759	267	387	1548	467	362	1491	271	266	1317	366
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	440	67	97	387	117	91	373	68	67	329	92
Total Analysis Volume [veh/h]	354	1759	267	387	1548	467	362	1491	271	266	1317	366
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	42	0	10	39	0	16	46	0	12	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	24	0	0	31	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	41	41	6	38	38	12	39	39	8	35	35
g / C, Green / Cycle	0.08	0.37	0.37	0.05	0.34	0.34	0.11	0.36	0.36	0.07	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.10	0.31	0.15	0.11	0.36	0.37	0.20	0.31	0.32	0.08	0.23	0.20
s, saturation flow rate [veh/h]	3500	5700	1800	3500	3800	1800	1800	3800	1800	3500	5700	1800
c, Capacity [veh/h]	289	2114	668	194	1306	619	197	1349	639	257	1817	574
d1, Uniform Delay [s]	50.51	31.51	25.58	52.00	36.12	36.12	49.02	33.22	33.85	51.01	33.22	32.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.26	0.11	0.35	0.11	0.11	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	108.61	4.00	1.78	452.99	34.51	56.47	385.61	1.95	14.81	35.52	0.56	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.23	0.83	0.40	2.00	1.04	1.07	1.83	0.87	0.91	1.03	0.72	0.64
d, Delay for Lane Group [s/veh]	159.12	35.51	27.36	505.00	70.64	92.59	434.62	35.17	48.66	86.53	33.79	33.78
Lane Group LOS	F	D	C	F	F	F	F	D	D	F	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	8.32	14.65	5.46	14.85	23.37	25.91	26.53	14.75	17.08	4.80	10.32	8.50
50th-Percentile Queue Length [ft]	207.90	366.22	136.42	371.35	584.14	647.75	663.30	368.79	427.09	119.96	258.11	212.62
95th-Percentile Queue Length [veh]	13.94	20.93	9.29	24.50	32.05	35.87	41.99	21.05	23.86	8.48	15.59	13.29
95th-Percentile Queue Length [ft]	348.53	523.14	232.19	612.59	801.26	896.83	1049.70	526.26	596.55	212.07	389.85	332.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	159.12	35.51	27.36	505.00	73.41	92.59	434.62	37.99	48.66	86.53	33.79	33.78
Movement LOS	F	D	C	F	E	F	F	D	D	F	C	C
d_A, Approach Delay [s/veh]	52.98			146.67			106.95			40.98		
Approach LOS	D			F			F			D		
d_I, Intersection Delay [s/veh]	88.70											
Intersection LOS	F											
Intersection V/C	1.055											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.342	3.331	3.197	3.302
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	636	764	691
d_b, Bicycle Delay [s]	23.56	25.57	21.02	23.56
I_b,int, Bicycle LOS Score for Intersection	2.869	2.881	2.728	2.632
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 26: College Driveway No. 1 at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	15.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	3	5	6	615	737	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	5	6	615	737	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	2	154	184	0
Total Analysis Volume [veh/h]	3	5	6	615	737	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	15.05	13.80	9.18	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.06	0.06	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	1.54	1.54	0.52	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.27		0.09		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 27: Centennial Way at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.156

Intersection Setup

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	0	82	563	84	17	746
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	82	563	84	17	746
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	21	141	21	4	187
Total Analysis Volume [veh/h]	0	82	563	84	17	746
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.16	0.01	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	0.00	13.11	0.00	0.00	8.91	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.55	0.00	0.00	0.06	0.00
95th-Percentile Queue Length [ft]	0.00	13.72	0.00	0.00	1.38	0.00
d_A, Approach Delay [s/veh]	13.11		0.00		0.20	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.82					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 28: Lemon Street at Parking Structure

Control Type:	Two-way stop	Delay (sec / veh):	19.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.512

Intersection Setup

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Base Volume Input [veh/h]	35	952	44	0	788	12	0	0	29	0	0	265
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	952	44	0	788	12	0	0	29	0	0	265
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	238	11	0	197	3	0	0	7	0	0	66
Total Analysis Volume [veh/h]	35	952	44	0	788	12	0	0	29	0	0	265
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.51
d_M, Delay for Movement [s/veh]	9.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.31	0.00	0.00	19.01
Movement LOS	A	A	A		A	A			B			C
95th-Percentile Queue Length [veh]	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	2.88
95th-Percentile Queue Length [ft]	3.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.80	0.00	0.00	72.05
d_A, Approach Delay [s/veh]	0.33			0.00			11.31			19.01		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	2.68											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 29: Lemon Street at Fullerton College Drive

Control Type:	Signalized	Delay (sec / veh):	22.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.648

Intersection Setup

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Base Volume Input [veh/h]	0	991	233	84	694	0	48	0	57	285	0	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	991	233	84	694	0	48	0	57	285	0	77
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	248	58	21	174	0	12	0	14	71	0	19
Total Analysis Volume [veh/h]	0	991	233	84	694	0	48	0	57	285	0	77
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	6	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	30	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	10	34	0	0	10	0	66	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	7	0	0
Pedestrian Clearance [s]	0	13	0	0	14	0	0	0	0	16	0	0
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall		No		No	No			No		No		
Maximum Recall		No		No	No			No		No		
Pedestrian Recall		No		No	No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	R
C, Cycle Length [s]	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	60	60	70	70	8	20	20
g / C, Green / Cycle	0.55	0.55	0.64	0.64	0.07	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.32	0.34	0.05	0.18	0.06	0.16	0.04
s, saturation flow rate [veh/h]	1900	1800	1800	3800	1800	1800	1800
c, Capacity [veh/h]	1041	986	811	2413	135	325	325
d1, Uniform Delay [s]	16.59	17.03	7.68	8.96	49.99	43.87	38.58
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.43	2.93	0.06	0.30	9.21	7.44	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.62	0.10	0.29	0.78	0.88	0.24
d, Delay for Lane Group [s/veh]	19.02	19.97	7.74	9.26	59.20	51.31	38.95
Lane Group LOS	B	B	A	A	E	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	10.56	10.92	0.74	3.61	3.18	8.17	1.82
50th-Percentile Queue Length [ft]	263.94	273.11	18.50	90.16	79.42	204.37	45.40
95th-Percentile Queue Length [veh]	15.89	16.34	1.33	6.49	5.72	12.86	3.27
95th-Percentile Queue Length [ft]	397.15	408.62	33.30	162.29	142.95	321.60	81.71

Movement, Approach, & Intersection Results

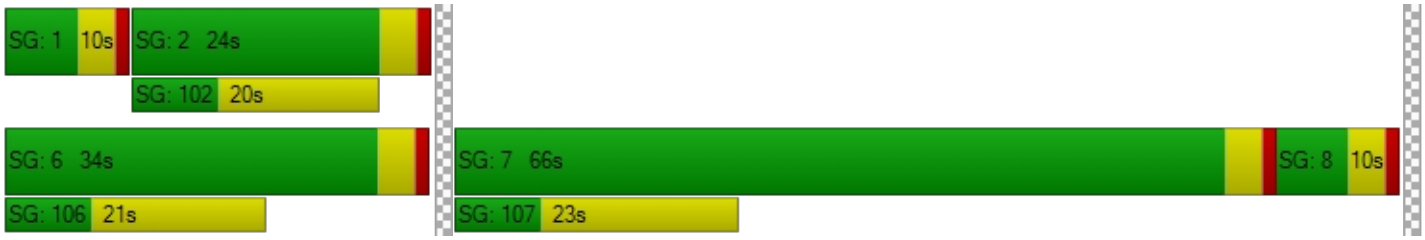
d_M, Delay for Movement [s/veh]	0.00	19.38	19.97	7.74	9.26	0.00	59.20	59.20	59.20	51.31	0.00	38.95
Movement LOS		B	B	A	A		E	E	E	D		D
d_A, Approach Delay [s/veh]	19.49			9.10			59.20			48.68		
Approach LOS	B			A			E			D		
d_I, Intersection Delay [s/veh]	22.19											
Intersection LOS	C											
Intersection V/C	0.648											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.747	1.535	2.238
Crosswalk LOS	F	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	364	545	109	0
d_b, Bicycle Delay [s]	36.82	29.09	49.16	55.00
I_b,int, Bicycle LOS Score for Intersection	2.569	2.201	1.733	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Berkeley Avenue at College Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.134

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Base Volume Input [veh/h]	28	485	380	7	64	81
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	485	380	7	64	81
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	121	95	2	16	20
Total Analysis Volume [veh/h]	28	485	380	7	64	81
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.13	0.12
d_M, Delay for Movement [s/veh]	8.15	0.00	0.00	0.00	14.69	12.59
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh]	0.07	0.00	0.00	0.00	1.01	1.01
95th-Percentile Queue Length [ft]	1.84	0.00	0.00	0.00	25.29	25.29
d_A, Approach Delay [s/veh]	0.44		0.00		13.52	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.09					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 31: Berkeley Avenue at College Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.017

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Base Volume Input [veh/h]	58	507	470	1	7	114
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	507	470	1	7	114
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	127	118	0	2	29
Total Analysis Volume [veh/h]	58	507	470	1	7	114
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.01	0.00	0.00	0.02	0.19
d_M, Delay for Movement [s/veh]	8.49	0.00	0.00	0.00	15.32	12.71
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.17	0.00	0.00	0.00	0.78	0.78
95th-Percentile Queue Length [ft]	4.21	0.00	0.00	0.00	19.56	19.56
d_A, Approach Delay [s/veh]	0.87		0.00		12.86	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.77					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 32: Berkeley Avenue at Brookdale Place

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.088

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Base Volume Input [veh/h]	554	29	44	605	33	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	554	29	44	605	33	64
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	7	11	151	8	16
Total Analysis Volume [veh/h]	554	29	44	605	33	64
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.09	0.12
d_M, Delay for Movement [s/veh]	0.00	0.00	8.80	0.00	16.67	13.97
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.14	0.00	0.79	0.79
95th-Percentile Queue Length [ft]	0.00	0.00	3.48	0.00	19.66	19.66
d_A, Approach Delay [s/veh]	0.00		0.60		14.89	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.38					
Intersection LOS	C					

APPENDIX B-IV

YEAR 2030 BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 1: Harbor Boulevard at Valley View Drive/Brea Boulevard

Control Type:	Signalized	Delay (sec / veh):	37.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.887

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Base Volume Input [veh/h]	40	1634	475	68	1772	157	65	110	34	817	141	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	1634	475	68	1772	157	65	110	34	817	141	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	409	119	17	443	39	16	28	9	204	35	0
Total Analysis Volume [veh/h]	40	1634	475	68	1772	157	65	110	34	817	141	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	34	0	24	48	0	0	10	0	0	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	20	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	48	5	49	49	8	8	8	32	32
g / C, Green / Cycle	0.04	0.44	0.05	0.45	0.45	0.08	0.08	0.08	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.02	0.29	0.04	0.41	0.20	0.04	0.06	0.02	0.27	0.27
s, saturation flow rate [veh/h]	1800	5700	1800	3800	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	71	2482	90	1695	803	138	146	138	526	526
d1, Uniform Delay [s]	51.94	24.60	51.62	28.70	21.19	48.67	49.79	47.81	37.57	37.59
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.29	0.29
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.81	1.38	11.90	9.86	1.86	2.46	7.59	0.91	14.76	14.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.66	0.75	0.92	0.45	0.47	0.75	0.25	0.91	0.91
d, Delay for Lane Group [s/veh]	58.75	25.98	63.52	38.56	23.04	51.13	57.38	48.72	52.33	52.45
Lane Group LOS	E	C	E	D	C	D	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	1.22	11.27	2.15	20.95	6.83	1.80	3.27	0.91	14.39	14.42
50th-Percentile Queue Length [ft]	30.46	281.76	53.69	523.67	170.85	45.10	81.68	22.83	359.84	360.61
95th-Percentile Queue Length [veh]	2.19	16.78	3.87	28.45	11.12	3.25	5.88	1.64	20.62	20.65
95th-Percentile Queue Length [ft]	54.82	419.41	96.64	711.32	278.03	81.17	147.03	41.10	515.39	516.32

Movement, Approach, & Intersection Results

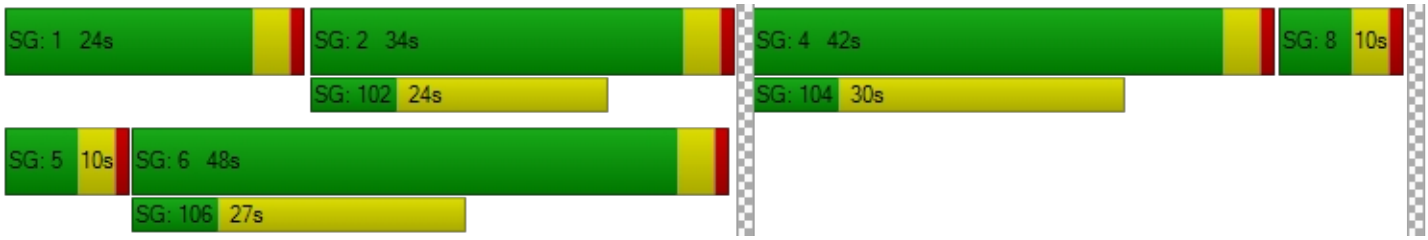
d_M, Delay for Movement [s/veh]	58.75	25.98	0.00	63.52	36.74	23.04	51.13	57.38	48.72	52.38	52.45	0.00
Movement LOS	E	C		E	D	C	D	E	D	D	D	
d_A, Approach Delay [s/veh]	26.76			36.57			54.03			52.39		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	37.07											
Intersection LOS	D											
Intersection V/C	0.887											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.211	2.274	2.319
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	800	109	691
d_b, Bicycle Delay [s]	29.09	19.80	49.16	23.56
I_b,int, Bicycle LOS Score for Intersection	2.480	2.658	1.904	3.140
Bicycle LOS	B	B	A	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Harbor Boulevard at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	44.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.966

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	166	1650	87	610	1956	18	34	321	121	53	206	472
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	166	1650	87	610	1956	18	34	321	121	53	206	472
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	413	22	153	489	5	9	80	30	13	52	118
Total Analysis Volume [veh/h]	166	1650	87	610	1956	18	34	321	121	53	206	472
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	5	2	0	1	6	0	0	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	6
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
Split [s]	14	52	0	21	59	0	0	37	0	0	37	37
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	21	0	0	22	0	0	18	0	0	26	26
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No	No		No	No			No			No	No
Maximum Recall	No	No		No	No			No			No	No
Pedestrian Recall	No	No		No	No			No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	10	55	55	17	62	62	26	26	26	26	26	47
g / C, Green / Cycle	0.09	0.50	0.50	0.16	0.56	0.56	0.23	0.23	0.23	0.23	0.23	0.43
(v / s)_i Volume / Saturation Flow Rate	0.09	0.47	0.47	0.17	0.51	0.01	0.02	0.17	0.07	0.03	0.11	0.26
s, saturation flow rate [veh/h]	1800	1900	1800	3500	3800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	166	952	902	544	2144	1016	285	445	422	173	445	767
d1, Uniform Delay [s]	49.88	25.82	25.78	46.42	21.52	10.55	32.85	38.78	34.55	33.21	36.15	24.53
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.13	0.11	0.11	0.11	0.42
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	32.03	17.53	18.01	60.16	7.37	0.03	0.18	2.70	0.37	1.00	0.75	3.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.94	0.94	1.12	0.91	0.02	0.12	0.72	0.29	0.31	0.46	0.62
d, Delay for Lane Group [s/veh]	81.91	43.34	43.80	106.58	28.88	10.58	33.03	41.48	34.92	34.20	36.90	27.64
Lane Group LOS	F	D	D	F	C	B	C	D	C	C	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	6.03	25.44	24.17	11.94	23.20	0.20	0.72	8.25	2.70	1.17	4.83	10.03
50th-Percentile Queue Length [ft]	150.65	636.11	604.24	298.51	580.01	4.96	18.12	206.20	67.53	29.16	120.66	250.74
95th-Percentile Queue Length [veh]	10.05	33.72	32.23	18.54	31.10	0.36	1.30	12.96	4.86	2.10	8.43	15.22
95th-Percentile Queue Length [ft]	251.29	842.92	805.81	463.51	777.49	8.93	32.61	323.95	121.55	52.50	210.74	380.59

Movement, Approach, & Intersection Results

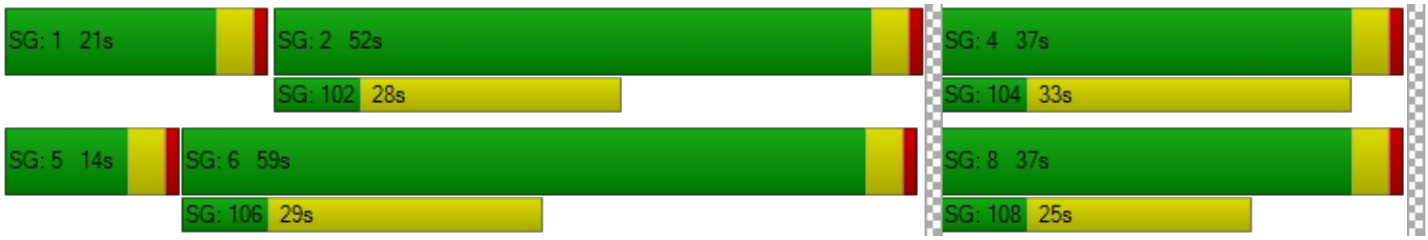
d_M, Delay for Movement [s/veh]	81.91	43.55	43.80	106.58	28.88	10.58	33.03	41.48	34.92	34.20	36.90	27.64
Movement LOS	F	D	D	F	C	B	C	D	C	C	D	C
d_A, Approach Delay [s/veh]	46.91			47.10			39.21			30.72		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	44.27											
Intersection LOS	D											
Intersection V/C	0.966											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.171	3.312	2.352	2.650
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	873	1000	600	600
d_b, Bicycle Delay [s]	17.47	13.75	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	3.130	3.691	2.345	2.766
Bicycle LOS	C	D	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Lemon Street at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	66.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.783

Intersection Setup

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	253	203	154	171	415	16	5	625	397	108	469	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	203	154	171	415	16	5	625	397	108	469	54
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	63	51	39	43	104	4	1	156	99	27	117	14
Total Analysis Volume [veh/h]	253	203	154	171	415	16	5	625	397	108	469	54
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	6	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	31	0	0	30	0	0	49	49	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	19	0	0	16	16	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		No	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	34	34	34	30	30	68	30	30	30
g / C, Green / Cycle	0.31	0.31	0.31	0.31	0.31	0.27	0.27	0.62	0.27	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.12	0.13	0.09	0.10	0.24	0.00	0.33	0.22	0.06	0.14	0.14
s, saturation flow rate [veh/h]	1800	1800	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	556	556	556	556	556	318	519	1113	70	519	492
d1, Uniform Delay [s]	29.95	30.12	28.68	28.98	34.49	29.06	39.88	10.25	30.15	33.83	33.65
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.16	2.31	1.24	1.43	10.18	0.02	108.78	0.89	255.31	0.83	0.81
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.42	0.28	0.31	0.78	0.02	1.20	0.36	1.53	0.53	0.51
d, Delay for Lane Group [s/veh]	32.11	32.43	29.92	30.42	44.67	29.08	148.66	11.14	285.46	34.66	34.47
Lane Group LOS	C	C	C	C	D	C	F	B	F	C	C
Critical Lane Group	No	Yes	No	No	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	4.98	5.22	3.26	3.66	11.89	0.10	29.49	4.74	6.41	6.27	5.72
50th-Percentile Queue Length [ft]	124.49	130.48	81.44	91.55	297.26	2.46	737.26	118.52	160.17	156.73	142.98
95th-Percentile Queue Length [veh]	8.64	8.97	5.86	6.59	17.55	0.18	42.74	8.31	11.53	10.38	9.64
95th-Percentile Queue Length [ft]	215.99	224.15	146.59	164.79	438.64	4.43	1068.39	207.79	288.30	259.39	241.03

Movement, Approach, & Intersection Results

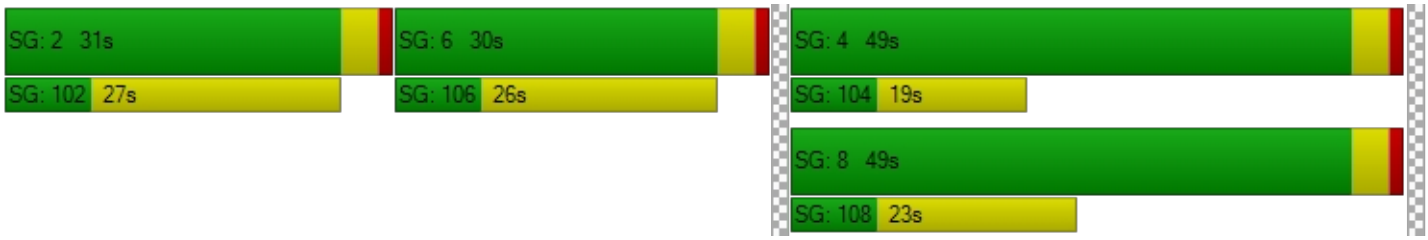
d_M, Delay for Movement [s/veh]	32.14	32.43	29.92	30.42	44.67	44.67	29.08	148.66	11.14	285.46	34.58	34.47
Movement LOS	C	C	C	C	D	D	C	F	B	F	C	C
d_A, Approach Delay [s/veh]	31.68			40.62			94.92			77.51		
Approach LOS	C			D			F			E		
d_I, Intersection Delay [s/veh]	66.26											
Intersection LOS	E											
Intersection V/C	0.783											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.667	2.238	3.013	2.769
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	473	818	818
d_b, Bicycle Delay [s]	31.31	32.07	19.20	19.20
I_b,int, Bicycle LOS Score for Intersection	2.566	2.553	3.254	2.080
Bicycle LOS	B	B	C	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Hornet Way at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.422

Intersection Setup

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	54	291	170	436	421	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	54	291	170	436	421	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	73	43	109	105	4
Total Analysis Volume [veh/h]	54	291	170	436	421	16
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	8	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	6	6	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	30	0	0	80	80	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	19	0	0	0	14	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	20	20	82	82	82	82
g / C, Green / Cycle	0.18	0.18	0.75	0.75	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.03	0.16	0.09	0.23	0.22	0.01
s, saturation flow rate [veh/h]	1800	1800	1800	1900	1900	1800
c, Capacity [veh/h]	324	324	1237	1420	1420	1345
d1, Uniform Delay [s]	38.04	44.01	3.87	4.54	4.50	3.53
k, delay calibration	0.11	0.15	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	11.86	0.23	0.56	0.53	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.90	0.14	0.31	0.30	0.01
d, Delay for Lane Group [s/veh]	38.28	55.87	4.10	5.11	5.03	3.55
Lane Group LOS	D	E	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.25	8.75	0.99	2.96	2.83	0.08
50th-Percentile Queue Length [ft]	31.33	218.63	24.71	74.00	70.70	2.10
95th-Percentile Queue Length [veh]	2.26	13.60	1.78	5.33	5.09	0.15
95th-Percentile Queue Length [ft]	56.40	339.88	44.47	133.20	127.27	3.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.28	55.87	4.10	5.11	5.03	3.55
Movement LOS	D	E	A	A	A	A
d_A, Approach Delay [s/veh]	53.11		4.82		4.98	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	16.87					
Intersection LOS	B					
Intersection V/C	0.422					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	76.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	5.25
I_p,int, Pedestrian LOS Score for Intersection	2.364	2.378	2.242
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	55.00	55.00	55.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.132	4.853
Bicycle LOS	D	F	E

Sequence

Ring 1	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Euclid Street at Malvern Avenue

Control Type:	Signalized	Delay (sec / veh):	59.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.066

Intersection Setup

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Base Volume Input [veh/h]	154	1250	128	380	1600	21	59	1040	227	201	699	167
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	154	1250	128	380	1600	21	59	1040	227	201	699	167
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	313	32	95	400	5	15	260	57	50	175	42
Total Analysis Volume [veh/h]	154	1250	128	380	1600	21	59	1040	227	201	699	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	50	0	10	50	0	10	40	0	10	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	56	46	46	56	46	46	46	36	36	46	37	37
g / C, Green / Cycle	0.51	0.42	0.42	0.51	0.42	0.42	0.42	0.33	0.33	0.42	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.09	0.38	0.37	0.21	0.44	0.44	0.03	0.35	0.33	0.11	0.24	0.23
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	260	797	755	399	797	755	455	619	586	269	636	602
d1, Uniform Delay [s]	14.40	29.71	29.31	16.69	31.92	31.92	19.35	37.09	37.09	21.07	32.12	31.45
k, delay calibration	0.50	0.50	0.50	0.28	0.50	0.50	0.11	0.50	0.47	0.11	0.25	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.55	14.89	13.64	23.96	43.89	44.74	0.13	59.82	41.50	4.16	3.61	2.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.90	0.88	0.95	1.04	1.04	0.13	1.08	1.02	0.75	0.72	0.67
d, Delay for Lane Group [s/veh]	23.95	44.60	42.95	40.66	75.80	76.66	19.48	96.91	78.59	25.23	35.73	34.07
Lane Group LOS	C	D	D	D	F	F	B	F	F	C	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.73	20.36	18.45	8.48	30.16	28.75	0.93	26.52	22.14	3.69	11.20	9.58
50th-Percentile Queue Length [ft]	68.16	509.01	461.37	212.08	753.90	718.71	23.15	662.99	553.50	92.15	280.08	239.54
95th-Percentile Queue Length [veh]	4.91	27.76	25.50	13.26	40.45	38.77	1.67	36.80	30.28	6.63	16.69	14.66
95th-Percentile Queue Length [ft]	122.68	694.02	637.50	331.50	1011.14	969.13	41.68	920.11	757.08	165.86	417.31	366.45

Movement, Approach, & Intersection Results

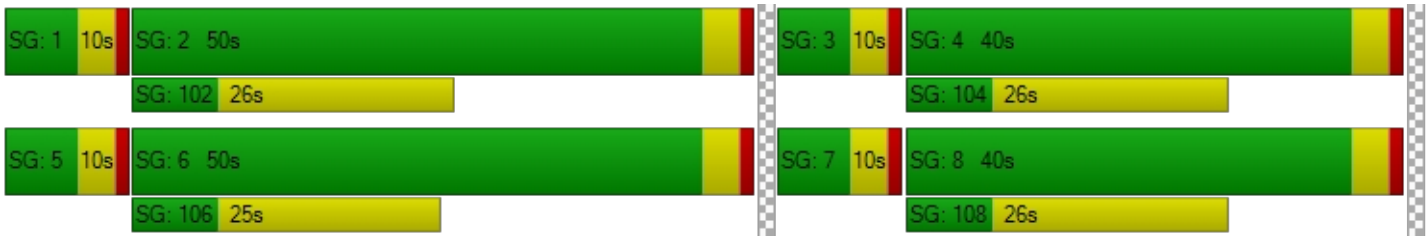
d_M, Delay for Movement [s/veh]	23.95	43.89	42.95	40.66	76.21	76.66	19.48	90.37	78.59	25.23	35.16	34.07
Movement LOS	C	D	D	D	F	E	B	F	E	C	D	C
d_A, Approach Delay [s/veh]	41.81			69.47			85.20			33.12		
Approach LOS	D			E			F			C		
d_I, Intersection Delay [s/veh]	59.29											
Intersection LOS	E											
Intersection V/C	1.066											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.102	3.017	2.834	3.127
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	655	655
d_b, Bicycle Delay [s]	18.62	18.62	24.89	24.89
I_b,int, Bicycle LOS Score for Intersection	2.824	3.210	2.654	2.440
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Harbor Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	93.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.222

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	67	1538	286	204	1582	86	176	1367	100	239	956	204
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	1538	286	204	1582	86	176	1367	100	239	956	204
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	385	72	51	396	22	44	342	25	60	239	51
Total Analysis Volume [veh/h]	67	1538	286	204	1582	86	176	1367	100	239	956	204
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	50	0	10	50	0	16	40	0	10	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	56	46	46	56	47	47	46	36	36	46	33	33
g / C, Green / Cycle	0.51	0.42	0.42	0.51	0.43	0.43	0.42	0.33	0.33	0.42	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.49	0.49	0.11	0.45	0.45	0.10	0.40	0.39	0.13	0.25	0.11
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	247	796	754	259	809	767	418	620	588	265	1135	538
d1, Uniform Delay [s]	13.72	31.96	31.96	14.90	31.57	31.57	20.69	37.05	37.05	21.53	36.15	30.51
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.70	93.91	91.58	5.30	48.66	48.56	0.67	114.05	108.30	10.69	1.79	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	1.18	1.17	0.79	1.06	1.06	0.42	1.22	1.21	0.90	0.84	0.38
d, Delay for Lane Group [s/veh]	16.42	125.87	123.54	20.20	80.24	80.13	21.37	151.10	145.35	32.22	37.94	30.96
Lane Group LOS	B	F	F	C	F	F	C	F	F	C	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.03	41.15	38.50	3.17	31.62	29.93	2.99	35.93	33.10	4.90	12.12	4.33
50th-Percentile Queue Length [ft]	25.68	1028.79	962.41	79.14	790.50	748.34	74.66	898.31	827.58	122.41	302.89	108.22
95th-Percentile Queue Length [veh]	1.85	57.99	54.38	5.70	42.66	40.55	5.38	51.79	47.77	8.53	17.82	7.74
95th-Percentile Queue Length [ft]	46.22	1449.66	1359.43	142.45	1066.41	1013.63	134.39	1294.70	1194.30	213.13	445.60	193.53

Movement, Approach, & Intersection Results

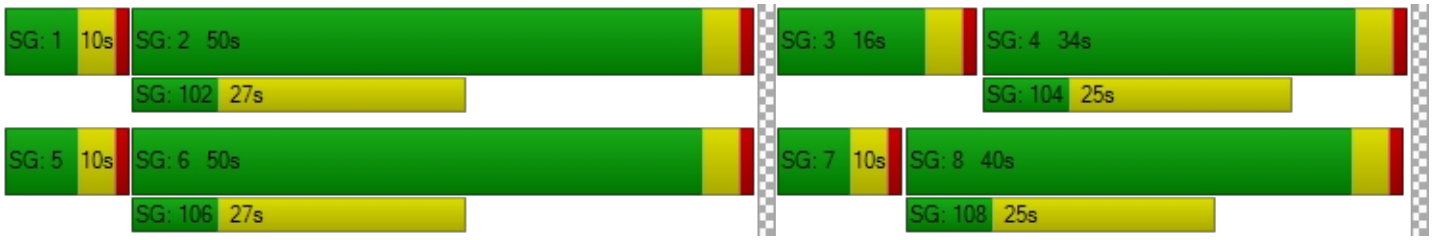
d_M, Delay for Movement [s/veh]	16.42	124.96	123.54	20.20	80.19	80.13	21.37	148.54	145.35	32.22	37.94	30.96
Movement LOS	B	F	F	C	F	F	C	F	F	C	D	C
d_A, Approach Delay [s/veh]	120.90			73.65			134.72			35.94		
Approach LOS	F			E			F			D		
d_I, Intersection Delay [s/veh]	93.77											
Intersection LOS	F											
Intersection V/C	1.222											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.170	3.128	2.888	3.118
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	655	545
d_b, Bicycle Delay [s]	18.62	18.62	24.89	29.09
I_b,int, Bicycle LOS Score for Intersection	3.120	3.104	2.915	2.714
Bicycle LOS	C	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	42.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.877

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	124	729	224	68	654	83	366	1350	170	240	1113	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	729	224	68	654	83	366	1350	170	240	1113	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	182	56	17	164	21	92	338	43	60	278	33
Total Analysis Volume [veh/h]	124	729	224	68	654	83	366	1350	170	240	1113	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	10	31	0	29	56	0	12	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	30	30	39	28	28	24	51	51	8	35	35
g / C, Green / Cycle	0.36	0.27	0.27	0.36	0.26	0.26	0.22	0.46	0.46	0.07	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.07	0.19	0.12	0.04	0.20	0.20	0.20	0.41	0.41	0.07	0.29	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	401	1038	492	430	489	463	395	873	827	257	1191	564
d1, Uniform Delay [s]	24.35	35.98	33.21	23.57	38.08	37.71	42.12	27.36	27.26	50.74	36.69	28.00
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.26	0.38	0.37	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.00	3.97	3.02	0.17	12.16	11.04	19.33	10.89	10.96	14.38	4.08	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.70	0.46	0.16	0.79	0.76	0.93	0.90	0.89	0.93	0.93	0.23
d, Delay for Lane Group [s/veh]	26.35	39.95	36.23	23.73	50.24	48.74	61.45	38.25	38.22	65.12	40.77	28.21
Lane Group LOS	C	D	D	C	D	D	E	D	D	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.45	9.29	5.36	1.20	11.24	10.06	11.76	20.77	19.55	3.79	14.91	2.61
50th-Percentile Queue Length [ft]	61.29	232.18	133.91	30.08	280.99	251.61	294.08	519.24	488.79	94.81	372.81	65.25
95th-Percentile Queue Length [veh]	4.41	14.29	9.15	2.17	16.74	15.27	17.39	28.24	26.80	6.83	21.25	4.70
95th-Percentile Queue Length [ft]	110.32	357.13	228.80	54.14	418.45	381.68	434.69	706.09	670.07	170.65	531.14	117.45

Movement, Approach, & Intersection Results

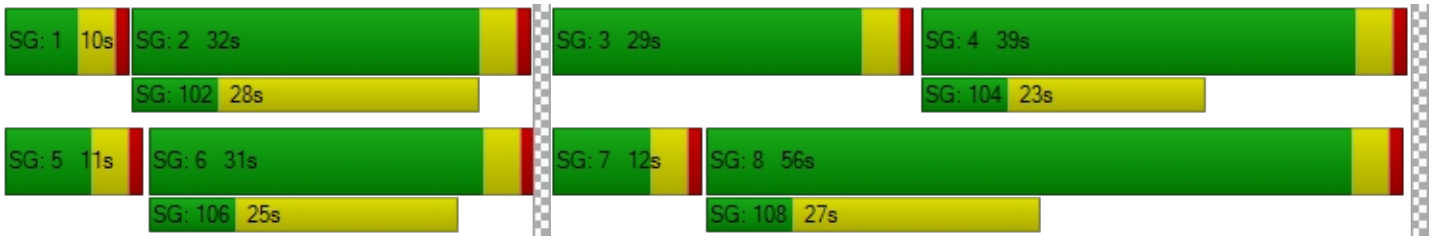
d_M, Delay for Movement [s/veh]	26.35	39.95	36.23	23.73	49.63	48.74	61.45	38.24	38.22	65.12	40.77	28.21
Movement LOS	C	D	D	C	D	D	E	D	D	E	D	C
d_A, Approach Delay [s/veh]	37.61			47.35			42.74			43.59		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.63											
Intersection LOS	D											
Intersection V/C	0.877											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.810	2.706	2.983	3.067
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	491	945	636
d_b, Bicycle Delay [s]	30.56	31.31	15.29	25.57
I_b,int, Bicycle LOS Score for Intersection	2.448	2.224	3.116	2.785
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Berkeley Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	16	99	94	391	75	96	59	1513	8	68	1420	622
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	99	94	391	75	96	59	1513	8	68	1420	622
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	25	24	98	19	24	15	378	2	17	355	156
Total Analysis Volume [veh/h]	16	99	94	391	75	96	59	1513	8	68	1420	622
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	3	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	6	6	0	0	6	6
Maximum Green [s]	0	30	0	30	30	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	10	0	58	68	0	10	42	0	0	32	32
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	20	0	0	20	0	0	21	21
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall		No		No	No		No	No			No	No
Maximum Recall		No		No	No		No	No			No	No
Pedestrian Recall		No		No	No		No	No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	8	8	8	19	31	71	71	71	62	62	85
g / C, Green / Cycle	0.07	0.07	0.07	0.17	0.28	0.65	0.65	0.65	0.57	0.57	0.77
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.05	0.11	0.10	0.03	0.41	0.41	0.04	0.37	0.35
s, saturation flow rate [veh/h]	1800	1900	1800	3500	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	66	140	132	597	505	783	1229	1164	594	2147	1389
d1, Uniform Delay [s]	47.64	49.81	49.82	42.61	31.48	7.09	11.65	11.64	10.82	16.63	4.38
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.90	6.46	6.85	1.23	0.39	0.04	2.52	2.65	0.39	1.62	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.71	0.71	0.66	0.34	0.08	0.64	0.64	0.11	0.66	0.45
d, Delay for Lane Group [s/veh]	49.54	56.28	56.67	43.84	31.87	7.13	14.17	14.29	11.22	18.25	4.90
Lane Group LOS	D	E	E	D	C	A	B	B	B	B	A
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	0.45	2.91	2.77	5.05	3.67	0.49	11.33	10.76	0.80	12.26	4.09
50th-Percentile Queue Length [ft]	11.13	72.66	69.35	126.23	91.72	12.25	283.27	268.92	19.98	306.62	102.15
95th-Percentile Queue Length [veh]	0.80	5.23	4.99	8.73	6.60	0.88	16.85	16.14	1.44	18.01	7.35
95th-Percentile Queue Length [ft]	20.03	130.80	124.83	218.36	165.09	22.05	421.28	403.39	35.96	450.21	183.86

Movement, Approach, & Intersection Results

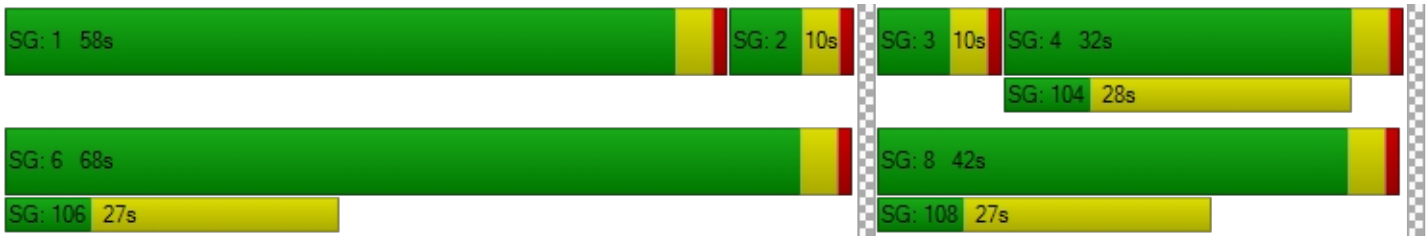
d_M, Delay for Movement [s/veh]	49.54	56.28	56.67	43.84	31.87	31.87	7.13	14.22	14.29	11.22	18.25	4.90
Movement LOS	D	E	E	D	C	C	A	B	B	B	B	A
d_A, Approach Delay [s/veh]	55.94			40.20			13.96			14.09		
Approach LOS	E			D			B			B		
d_I, Intersection Delay [s/veh]	19.29											
Intersection LOS	B											
Intersection V/C	0.646											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.325	2.517	2.939	0.000
Crosswalk LOS	B	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	109	1164	691	509
d_b, Bicycle Delay [s]	49.16	9.62	23.56	30.56
I_b,int, Bicycle LOS Score for Intersection	1.904	2.487	2.863	3.300
Bicycle LOS	A	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Raymond Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	48.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.028

Intersection Setup

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	186	279	388	205	508	90	49	1677	195	269	1810	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	279	388	205	508	90	49	1677	195	269	1810	75
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	70	97	51	127	23	12	419	49	67	453	19
Total Analysis Volume [veh/h]	186	279	388	205	508	90	49	1677	195	269	1810	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	10	30	0	42	60	0	10	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	18	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	35	25	25	35	25	25	67	56	56	67	58	58
g / C, Green / Cycle	0.32	0.23	0.23	0.32	0.23	0.23	0.60	0.51	0.51	0.60	0.53	0.53
(v / s)_i Volume / Saturation Flow Rate	0.10	0.15	0.22	0.11	0.17	0.16	0.03	0.51	0.51	0.15	0.51	0.51
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	402	440	417	439	440	417	304	965	914	277	999	947
d1, Uniform Delay [s]	28.15	38.06	41.40	28.49	38.93	38.53	8.83	26.99	26.93	10.10	25.19	25.19
k, delay calibration	0.11	0.11	0.30	0.11	0.16	0.14	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.83	1.57	20.69	0.77	3.27	2.51	0.25	28.29	28.64	47.54	21.82	22.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.63	0.93	0.47	0.72	0.68	0.16	1.00	1.00	0.97	0.97	0.97
d, Delay for Lane Group [s/veh]	28.98	39.63	62.08	29.26	42.20	41.04	9.08	55.28	55.57	57.65	47.01	47.75
Lane Group LOS	C	D	E	C	D	D	A	E	E	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	3.79	6.93	12.58	4.22	8.18	7.21	0.48	31.24	29.60	6.56	28.95	27.62
50th-Percentile Queue Length [ft]	94.70	173.15	314.54	105.40	204.38	180.14	12.10	781.02	739.96	164.02	723.68	690.49
95th-Percentile Queue Length [veh]	6.82	11.24	18.40	7.58	12.86	11.61	0.87	40.41	38.52	10.76	37.77	36.24
95th-Percentile Queue Length [ft]	170.47	281.05	459.97	189.58	321.61	290.20	21.78	1010.18	963.01	269.04	944.27	905.96

Movement, Approach, & Intersection Results

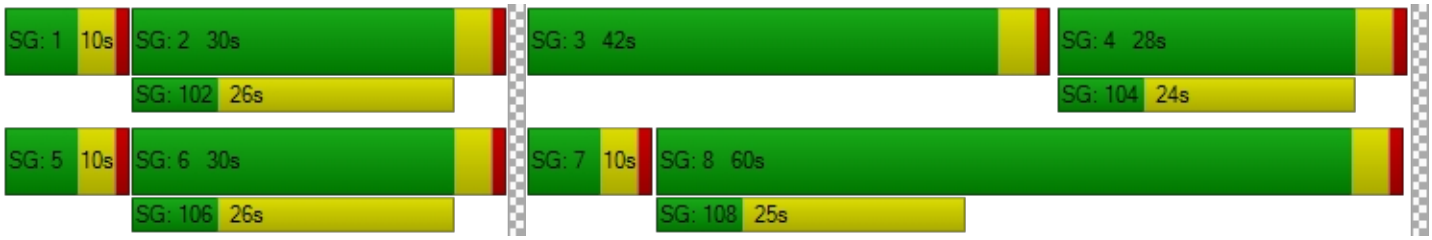
d_M, Delay for Movement [s/veh]	28.98	39.63	62.08	29.26	41.76	41.04	9.08	55.40	55.57	57.65	47.35	47.75
Movement LOS	C	D	E	C	D	D	A	E	E	E	D	D
d_A, Approach Delay [s/veh]	47.52			38.49			54.24			48.65		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	48.93											
Intersection LOS	D											
Intersection V/C	1.028											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.867	2.473	3.157	3.245
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	1018	436
d_b, Bicycle Delay [s]	32.07	32.07	13.25	33.62
I_b,int, Bicycle LOS Score for Intersection	2.967	2.222	3.144	3.337
Bicycle LOS	C	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Acacia Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	56.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.888

Intersection Setup

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	209	171	150	68	312	53	114	1836	181	207	1690	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	209	171	150	68	312	53	114	1836	181	207	1690	47
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	43	38	17	78	13	29	459	45	52	423	12
Total Analysis Volume [veh/h]	209	171	150	68	312	53	114	1836	181	207	1690	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	59	0	0	59	0	17	39	0	12	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	25	25	77	67	67	77	67	67
g / C, Green / Cycle	0.22	0.22	0.22	0.22	0.22	0.70	0.61	0.61	0.70	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.12	0.09	0.08	0.04	0.20	0.06	0.55	0.55	0.12	0.47	0.47
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	83	426	403	298	403	734	1150	1089	499	1165	1104
d1, Uniform Delay [s]	34.71	36.38	36.12	34.41	41.53	5.17	18.85	18.85	5.47	15.51	15.51
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	690.73	0.61	0.57	0.38	7.79	0.10	11.35	11.87	2.53	4.83	5.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.52	0.40	0.37	0.23	0.91	0.16	0.90	0.90	0.41	0.77	0.77
d, Delay for Lane Group [s/veh]	725.44	37.00	36.69	34.79	49.32	5.27	30.20	30.72	8.00	20.34	20.60
Lane Group LOS	F	D	D	C	D	A	C	C	A	C	C
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	17.74	3.98	3.47	1.50	10.40	0.77	24.50	23.37	1.80	16.57	15.77
50th-Percentile Queue Length [ft]	443.45	99.62	86.77	37.58	260.11	19.31	612.60	584.29	44.94	414.19	394.33
95th-Percentile Queue Length [veh]	31.61	7.17	6.25	2.71	15.69	1.39	32.62	31.30	3.24	23.24	22.29
95th-Percentile Queue Length [ft]	790.25	179.31	156.19	67.65	392.36	34.77	815.55	782.50	80.90	581.08	557.16

Movement, Approach, & Intersection Results

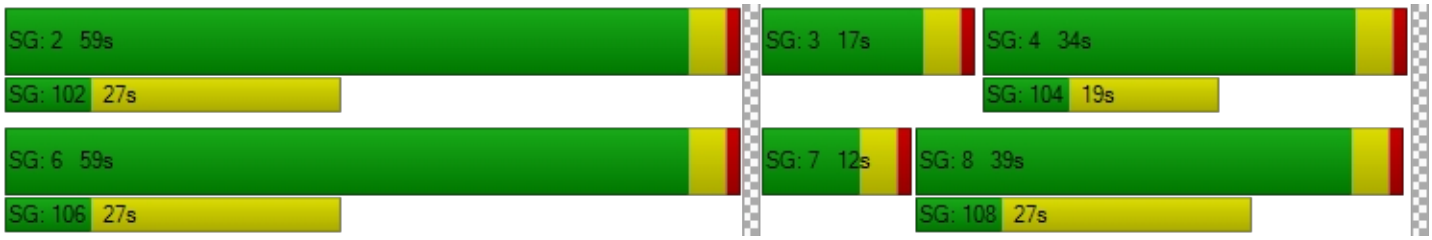
d_M, Delay for Movement [s/veh]	725.44	37.00	36.69	34.79	49.32	49.32	5.27	30.42	30.72	8.00	20.46	20.60
Movement LOS	F	D	D	C	D	D	A	C	C	A	C	C
d_A, Approach Delay [s/veh]	308.39			47.04			29.10			19.14		
Approach LOS	F			D			C			B		
d_I, Intersection Delay [s/veh]	56.18											
Intersection LOS	E											
Intersection V/C	0.888											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.624	2.301	3.403	3.186
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	1000	636	545
d_b, Bicycle Delay [s]	13.75	13.75	25.57	29.09
I_b,int, Bicycle LOS Score for Intersection	2.434	2.274	3.318	3.163
Bicycle LOS	B	B	C	C

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: State College Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	66.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.020

Intersection Setup

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	79	483	343	296	421	579	557	1615	70	193	1517	282
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	79	483	343	296	421	579	557	1615	70	193	1517	282
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	121	86	74	105	145	139	404	18	48	379	71
Total Analysis Volume [veh/h]	79	483	343	296	421	579	557	1615	70	193	1517	282
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						3,6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	6	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	13	37	37	20	48	0	15	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	26	26	0	23	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	30	30	9	33	53	16	44	44	11	39	39
g / C, Green / Cycle	0.05	0.27	0.27	0.08	0.30	0.48	0.15	0.40	0.40	0.10	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.04	0.13	0.19	0.08	0.11	0.32	0.16	0.43	0.04	0.11	0.40	0.16
s, saturation flow rate [veh/h]	1800	3800	1800	3500	3800	1800	3500	3800	1800	1800	3800	1800
c, Capacity [veh/h]	99	1042	493	287	1145	870	509	1514	717	180	1341	635
d1, Uniform Delay [s]	51.41	33.21	35.81	50.50	30.20	21.66	47.01	33.10	20.72	49.50	35.60	27.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.14	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.82	1.48	7.87	33.16	0.91	4.01	49.61	33.99	0.06	51.85	62.02	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.46	0.70	1.03	0.37	0.67	1.09	1.07	0.10	1.07	1.13	0.44
d, Delay for Lane Group [s/veh]	65.23	34.69	43.68	83.67	31.11	25.67	96.62	67.09	20.78	101.35	97.61	27.80
Lane Group LOS	E	C	D	F	C	C	F	F	C	F	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.53	5.56	9.26	5.26	4.52	12.00	10.43	26.62	1.14	7.53	29.03	5.73
50th-Percentile Queue Length [ft]	63.17	138.98	231.60	131.39	113.02	300.09	260.86	665.40	28.48	188.19	725.77	143.15
95th-Percentile Queue Length [veh]	4.55	9.43	14.26	9.11	8.01	17.69	16.37	36.74	2.05	12.34	41.08	9.65
95th-Percentile Queue Length [ft]	113.71	235.65	356.39	227.77	200.19	442.13	409.20	918.54	51.26	308.51	1026.96	241.26

Movement, Approach, & Intersection Results

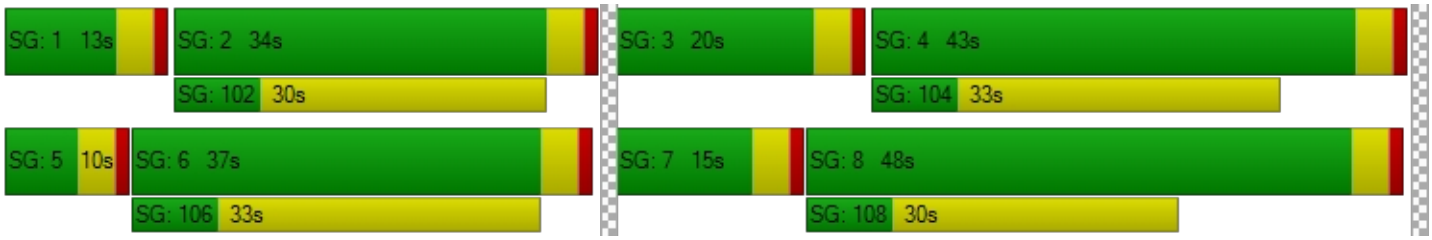
d_M, Delay for Movement [s/veh]	65.23	34.69	43.68	83.67	31.11	25.67	96.62	67.09	20.78	101.35	97.61	27.80
Movement LOS	E	C	D	F	C	C	F	F	C	F	F	C
d_A, Approach Delay [s/veh]	40.76			40.68			72.98			88.09		
Approach LOS	D			D			E			F		
d_I, Intersection Delay [s/veh]	66.62											
Intersection LOS	E											
Intersection V/C	1.020											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.721	2.968	3.219	3.152
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	600	800	709
d_b, Bicycle Delay [s]	29.09	26.95	19.80	22.91
I_b,int, Bicycle LOS Score for Intersection	2.306	2.629	3.409	3.203
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	42.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.036

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	102	109	451	0	1584	869	342	2474	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	102	109	451	0	1584	869	342	2474	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	26	27	113	0	396	217	86	619	0
Total Analysis Volume [veh/h]	0	0	0	102	109	451	0	1584	869	342	2474	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	30	0	0	55	0	25	80	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		26	26	51	51	21	76
g / C, Green / Cycle		0.24	0.24	0.46	0.46	0.19	0.69
(v / s)_i Volume / Saturation Flow Rate		0.12	0.25	0.42	0.48	0.19	0.65
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		426	426	1764	835	342	2625
d1, Uniform Delay [s]		36.30	41.98	27.07	29.46	44.52	15.08
k, delay calibration		0.11	0.39	0.50	0.50	0.23	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.89	55.16	7.70	42.04	32.66	8.48
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.50	1.06	0.90	1.04	1.00	0.94
d, Delay for Lane Group [s/veh]		37.19	97.14	34.77	71.50	77.18	23.56
Lane Group LOS		D	F	C	F	E	C
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		4.99	17.93	20.21	30.79	12.33	26.36
50th-Percentile Queue Length [ft]		124.80	448.19	505.25	769.83	308.25	658.88
95th-Percentile Queue Length [veh]		8.66	25.71	27.58	41.14	18.09	34.77
95th-Percentile Queue Length [ft]		216.40	642.76	689.57	1028.47	452.22	869.36

Movement, Approach, & Intersection Results

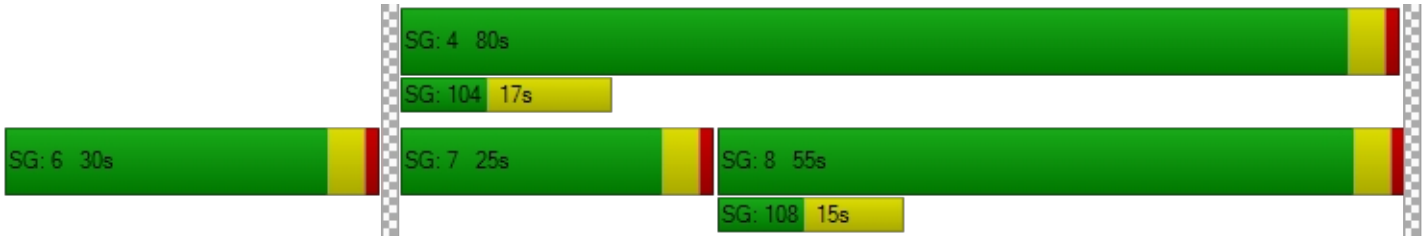
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	37.19	37.19	97.14	0.00	34.77	71.50	77.18	23.56	0.00
Movement LOS				D	D	F		C	F	E	C	
d_A, Approach Delay [s/veh]	0.00			78.03			47.78			30.07		
Approach LOS	A			E			D			C		
d_I, Intersection Delay [s/veh]	42.75											
Intersection LOS	D											
Intersection V/C	1.036											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.720	2.047	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	473	927	1382
d_b, Bicycle Delay [s]	55.00	32.07	15.82	5.25
I_b,int, Bicycle LOS Score for Intersection	4.132	2.652	2.909	3.883
Bicycle LOS	D	B	C	D

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	108.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.173

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	326	0	71	0	0	0	97	295	0	0	386	36
Total Analysis Volume [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	36	0	0	0	0	0	23	74	0	0	51	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		26	70	40	40
g / C, Green / Cycle	0.29	0.29	0.29		0.24	0.64	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.36	0.36	0.16		0.21	0.31	0.44	0.47
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	524	524	524		424	2418	693	656
d1, Uniform Delay [s]	38.99	38.99	32.80		40.93	10.54	34.94	34.94
k, delay calibration	0.50	0.50	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	125.23	125.23	0.92		7.87	0.70	111.05	140.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.24	1.24	0.54		0.91	0.49	1.22	1.29
d, Delay for Lane Group [s/veh]	164.22	164.22	33.73		48.80	11.24	145.99	174.95
Lane Group LOS	F	F	C		D	B	F	F
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	32.08	32.08	6.44		10.99	7.26	39.39	42.60
50th-Percentile Queue Length [ft]	802.11	802.11	161.01		274.67	181.46	984.84	1065.02
95th-Percentile Queue Length [veh]	46.95	46.95	10.60		16.42	11.68	56.44	62.29
95th-Percentile Queue Length [ft]	1173.63	1173.63	265.05		410.57	291.92	1410.88	1557.27

Movement, Approach, & Intersection Results

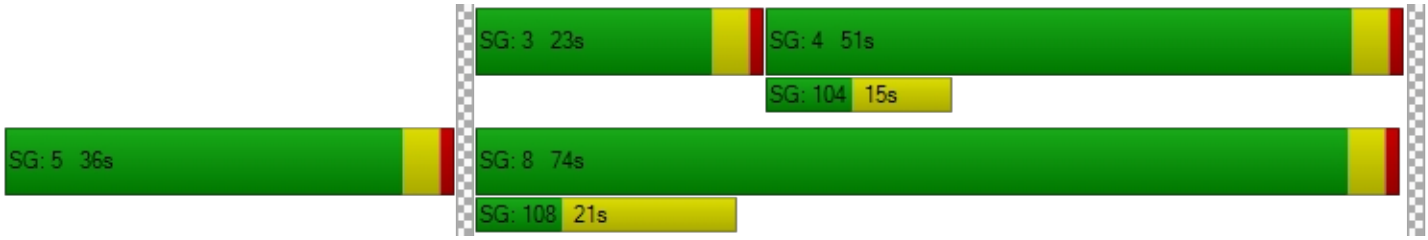
d_M, Delay for Movement [s/veh]	164.22	0.00	33.73	0.00	0.00	0.00	48.80	11.24	0.00	0.00	159.11	174.95
Movement LOS	F		C				D	B			F	F
d_A, Approach Delay [s/veh]	140.93			0.00			20.51			160.47		
Approach LOS	F			A			C			F		
d_I, Intersection Delay [s/veh]	108.82											
Intersection LOS	F											
Intersection V/C	1.173											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.465	1.951	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1273	855
d_b, Bicycle Delay [s]	55.00	55.00	7.27	18.04
I_b,int, Bicycle LOS Score for Intersection	6.749	4.132	2.850	2.952
Bicycle LOS	F	D	C	C

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Lemon Street at Wilshire Avenue

Control Type:	Signalized	Delay (sec / veh):	12.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Base Volume Input [veh/h]	46	1060	106	67	996	34	30	146	76	88	66	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	1060	106	67	996	34	30	146	76	88	66	80
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	265	27	17	249	9	8	37	19	22	17	20
Total Analysis Volume [veh/h]	46	1060	106	67	996	34	30	146	76	88	66	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	48	0	0	48	0	0	62	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	84	84	17	17
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.31	0.04	0.28	0.28	0.14	0.13
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1235	1460	1383	1201	1460	1383	322	331
d1, Uniform Delay [s]	3.02	4.33	4.27	3.06	4.09	4.07	45.13	44.61
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	0.88	0.88	0.09	0.71	0.73	4.14	2.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.42	0.40	0.06	0.36	0.36	0.78	0.71
d, Delay for Lane Group [s/veh]	3.08	5.20	5.14	3.15	4.79	4.80	49.27	47.39
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.22	4.11	3.73	0.32	3.39	3.17	7.04	6.38
50th-Percentile Queue Length [ft]	5.44	102.68	93.36	8.04	84.69	79.29	176.04	159.47
95th-Percentile Queue Length [veh]	0.39	7.39	6.72	0.58	6.10	5.71	11.39	10.52
95th-Percentile Queue Length [ft]	9.79	184.83	168.05	14.48	152.45	142.72	284.84	263.02

Movement, Approach, & Intersection Results

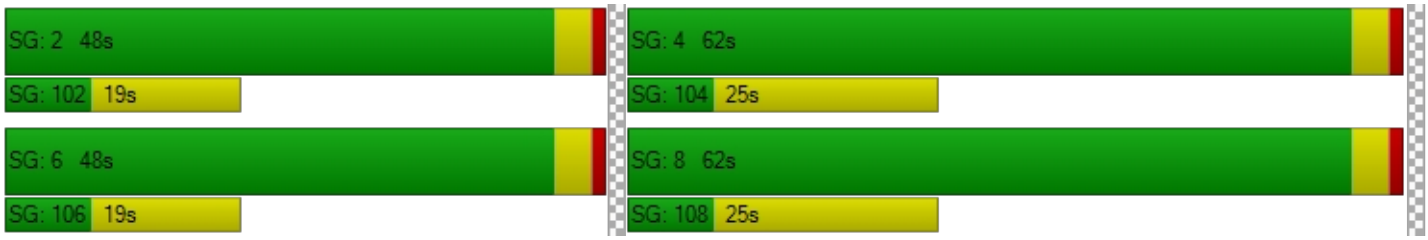
d_M, Delay for Movement [s/veh]	3.08	5.18	5.14	3.15	4.80	4.80	49.27	49.27	49.27	47.39	47.39	47.39
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.10			4.70			49.27			47.39		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.46											
Intersection LOS	B											
Intersection V/C	0.496											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.897	2.794	1.984	2.089
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	1055	1055
d_b, Bicycle Delay [s]	19.80	19.80	12.29	12.29
I_b,int, Bicycle LOS Score for Intersection	2.560	2.465	1.975	1.946
Bicycle LOS	B	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Harbor Boulevard at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	70.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.143

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	125	1731	368	85	1803	103	259	1263	174	266	763	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	1731	368	85	1803	103	259	1263	174	266	763	100
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	433	92	21	451	26	65	316	44	67	191	25
Total Analysis Volume [veh/h]	125	1731	368	85	1803	103	259	1263	174	266	763	100
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	44	0	19	53	0	10	37	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	20	0	0	22	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	59	49	49	59	49	49	43	33	33	43	33	33
g / C, Green / Cycle	0.54	0.45	0.45	0.54	0.45	0.45	0.39	0.30	0.30	0.39	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.07	0.46	0.20	0.05	0.52	0.52	0.14	0.33	0.10	0.15	0.20	0.06
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	1800	3800	1800
c, Capacity [veh/h]	261	1707	809	256	848	804	481	1135	538	267	1135	538
d1, Uniform Delay [s]	12.72	30.29	20.97	12.42	30.45	30.45	23.82	38.57	29.94	23.92	33.84	28.63
k, delay calibration	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	13.80	0.40	0.75	82.63	83.26	0.94	63.14	1.59	54.22	3.18	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	1.01	0.46	0.33	1.15	1.15	0.54	1.11	0.32	1.00	0.67	0.19
d, Delay for Lane Group [s/veh]	14.08	44.09	21.37	13.18	113.07	113.71	24.75	101.71	31.53	78.15	37.02	29.40
Lane Group LOS	B	F	C	B	F	F	C	F	C	E	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	1.61	24.88	6.54	1.06	40.96	38.94	4.88	24.96	3.81	8.93	9.34	2.08
50th-Percentile Queue Length [ft]	40.37	621.97	163.46	26.51	1023.97	973.61	122.05	623.91	95.16	223.20	233.62	51.89
95th-Percentile Queue Length [veh]	2.91	33.41	10.73	1.91	57.08	54.52	8.51	35.43	6.85	13.83	14.36	3.74
95th-Percentile Queue Length [ft]	72.66	835.33	268.30	47.72	1426.89	1363.09	212.64	885.72	171.29	345.70	358.96	93.40

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.08	44.09	21.37	13.18	113.36	113.71	24.75	101.71	31.53	78.15	37.02	29.40
Movement LOS	B	F	C	B	F	F	C	F	C	E	D	C
d_A, Approach Delay [s/veh]	38.64			109.10			82.76			46.03		
Approach LOS	D			F			F			D		
d_I, Intersection Delay [s/veh]	70.38											
Intersection LOS	E											
Intersection V/C	1.143											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.330	3.237	2.982	2.981
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	727	891	600	600
d_b, Bicycle Delay [s]	22.27	16.91	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	3.394	3.202	2.959	2.491
Bicycle LOS	C	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 16: Lemon Street at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	52.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.008

Intersection Setup

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	125	1009	354	66	965	80	167	1491	108	470	878	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	125	1009	354	66	965	80	167	1491	108	470	878	64
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	252	89	17	241	20	42	373	27	118	220	16
Total Analysis Volume [veh/h]	125	1009	354	66	965	80	167	1491	108	470	878	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	35	0	10	35	0	35	46	0	19	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	41	32	32	41	31	31	12	42	42	15	45	45
g / C, Green / Cycle	0.37	0.29	0.29	0.37	0.28	0.28	0.11	0.38	0.38	0.14	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.07	0.27	0.20	0.04	0.29	0.28	0.09	0.39	0.06	0.13	0.23	0.04
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	3500	3800	1800
c, Capacity [veh/h]	264	1097	520	303	535	507	200	1446	685	483	1547	733
d1, Uniform Delay [s]	23.28	37.88	34.63	22.49	39.52	39.35	47.87	34.08	22.46	47.20	25.14	20.05
k, delay calibration	0.11	0.11	0.22	0.11	0.46	0.44	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.32	3.68	3.15	0.36	41.70	35.13	8.68	32.14	0.49	13.58	1.52	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.92	0.68	0.22	1.02	0.99	0.83	1.03	0.16	0.97	0.57	0.09
d, Delay for Lane Group [s/veh]	24.60	41.56	37.79	22.84	81.22	74.48	56.56	66.22	22.95	60.78	26.66	20.28
Lane Group LOS	C	D	D	C	F	E	E	F	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.28	13.50	8.76	1.15	20.39	18.19	4.95	25.15	1.94	7.28	9.02	1.06
50th-Percentile Queue Length [ft]	57.12	337.59	218.97	28.65	509.72	454.75	123.77	628.82	48.38	182.09	225.60	26.47
95th-Percentile Queue Length [veh]	4.11	19.53	13.61	2.06	28.09	25.18	8.60	34.13	3.48	11.71	13.95	1.91
95th-Percentile Queue Length [ft]	102.82	488.25	340.31	51.56	702.24	629.61	215.00	853.29	87.09	292.74	348.76	47.65

Movement, Approach, & Intersection Results

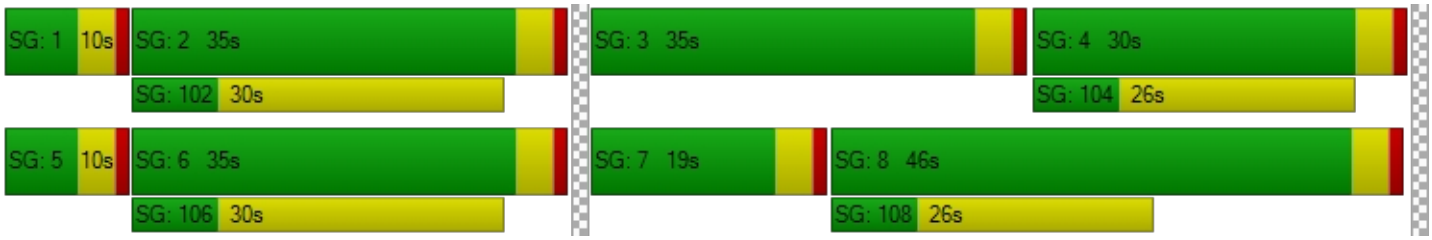
d_M, Delay for Movement [s/veh]	24.60	41.56	37.79	22.84	78.28	74.48	56.56	66.22	22.95	60.78	26.66	20.28
Movement LOS	C	D	D	C	E	E	E	F	C	E	C	C
d_A, Approach Delay [s/veh]	39.24			74.71			62.66			37.73		
Approach LOS	D			E			E			D		
d_I, Intersection Delay [s/veh]	52.85											
Intersection LOS	D											
Intersection V/C	1.008											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.955	2.768	2.979	3.095
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	564	564	764	473
d_b, Bicycle Delay [s]	28.37	28.37	21.02	32.07
I_b,int, Bicycle LOS Score for Intersection	2.787	2.476	3.017	2.725
Bicycle LOS	C	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Harbor Boulevard at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	42.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.950

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	45	1875	47	140	2024	65	192	201	176	137	176	250
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	1875	47	140	2024	65	192	201	176	137	176	250
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	469	12	35	506	16	48	50	44	34	44	63
Total Analysis Volume [veh/h]	45	1875	47	140	2024	65	192	201	176	137	176	250
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	46	0	0	46	0	0	64	0	0	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	11	0	0	20	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	65	65	65	65	65	65	37	37	37
g / C, Green / Cycle	0.59	0.59	0.59	0.59	0.59	0.59	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.03	0.52	0.52	0.08	0.56	0.56	0.32	0.08	0.24
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800	1800
c, Capacity [veh/h]	169	1124	1065	323	1124	1065	648	81	604
d1, Uniform Delay [s]	9.40	19.08	19.08	9.94	21.05	21.05	35.43	25.38	31.75
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.16	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.81	9.80	10.27	4.21	17.94	18.61	5.62	320.01	1.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.88	0.88	0.43	0.95	0.95	0.88	1.69	0.70
d, Delay for Lane Group [s/veh]	13.22	28.88	29.35	14.15	38.99	39.66	41.05	345.39	33.27
Lane Group LOS	B	C	C	B	D	D	D	F	C
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	0.62	22.79	21.73	1.84	29.27	27.93	15.47	8.70	9.95
50th-Percentile Queue Length [ft]	15.57	569.81	543.29	45.89	731.71	698.16	386.78	217.56	248.86
95th-Percentile Queue Length [veh]	1.12	30.62	29.38	3.30	38.14	36.59	21.92	15.66	15.13
95th-Percentile Queue Length [ft]	28.02	765.55	734.42	82.60	953.52	914.82	548.05	391.61	378.21

Movement, Approach, & Intersection Results

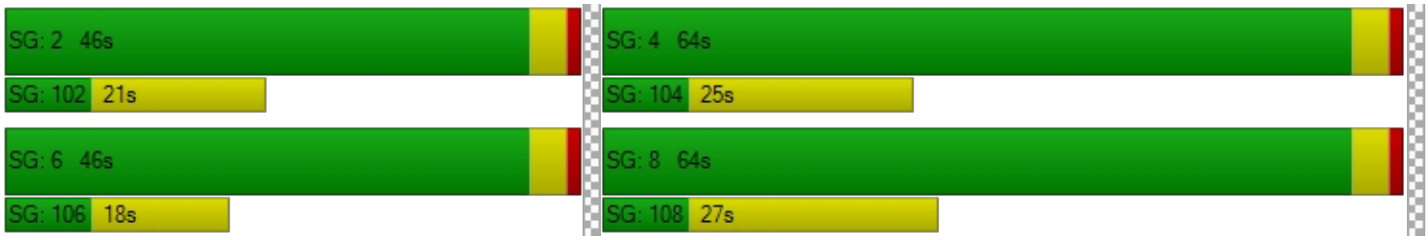
d_M, Delay for Movement [s/veh]	13.22	29.10	29.35	14.15	39.30	39.66	41.05	41.05	41.05	345.39	33.27	33.27
Movement LOS	B	C	C	B	D	D	D	D	D	F	C	C
d_A, Approach Delay [s/veh]	28.75			37.73			41.05			109.22		
Approach LOS	C			D			D			F		
d_I, Intersection Delay [s/veh]	42.32											
Intersection LOS	D											
Intersection V/C	0.950											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.344	3.469	2.205	2.458
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	764	764	1091	1091
d_b, Bicycle Delay [s]	21.02	21.02	11.36	11.36
I_b,int, Bicycle LOS Score for Intersection	3.182	3.399	2.498	2.489
Bicycle LOS	C	C	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Lemon Street at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.795

Intersection Setup

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	92	1107	8	43	1426	163	264	58	225	113	88	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	1107	8	43	1426	163	264	58	225	113	88	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	277	2	11	357	41	66	15	56	28	22	25
Total Analysis Volume [veh/h]	92	1107	8	43	1426	163	264	58	225	113	88	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	44	0	0	44	0	0	66	0	0	66	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	11	0	0	11	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	66	66	66	66	66	66	36	36
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.60	0.60	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.05	0.30	0.30	0.02	0.43	0.43	0.30	0.17
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	586	1147	1087	817	1147	1087	630	627
d1, Uniform Delay [s]	9.08	12.34	12.33	8.83	15.22	14.99	36.13	30.16
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	1.56	1.63	0.12	3.88	3.83	4.35	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.50	0.50	0.05	0.72	0.70	0.87	0.48
d, Delay for Lane Group [s/veh]	9.65	13.90	13.96	8.95	19.09	18.81	40.48	30.72
Lane Group LOS	A	B	B	A	B	B	D	C
Critical Lane Group	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	0.99	8.07	7.64	0.43	14.66	13.43	14.72	6.47
50th-Percentile Queue Length [ft]	24.69	201.78	191.12	10.86	366.54	335.82	367.94	161.65
95th-Percentile Queue Length [veh]	1.78	12.73	12.18	0.78	20.94	19.44	21.01	10.64
95th-Percentile Queue Length [ft]	44.45	318.26	304.48	19.54	523.53	486.08	525.23	265.90

Movement, Approach, & Intersection Results

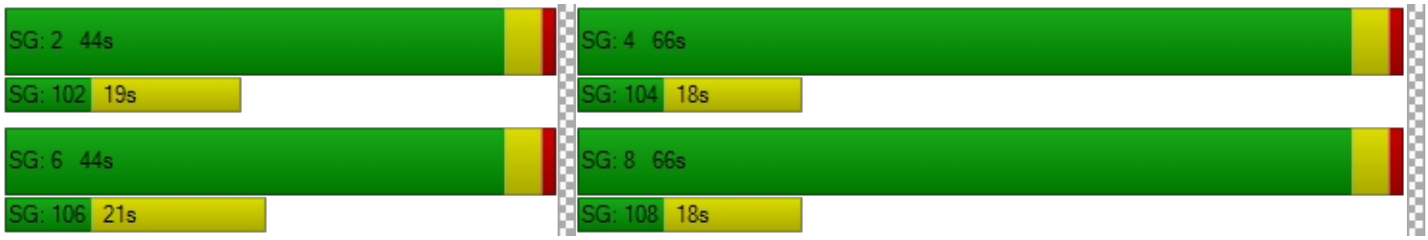
d_M, Delay for Movement [s/veh]	9.65	13.93	13.96	8.95	18.97	18.81	40.48	40.48	40.48	30.72	30.72	30.72
Movement LOS	A	B	B	A	B	B	D	D	D	C	C	C
d_A, Approach Delay [s/veh]	13.60			18.69			40.48			30.72		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	21.24											
Intersection LOS	C											
Intersection V/C	0.795											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.049	3.290	2.289	1.984
Crosswalk LOS	C	C	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	727	727	1127	1127
d_b, Bicycle Delay [s]	22.27	22.27	10.47	10.47
I_b,int, Bicycle LOS Score for Intersection	2.555	2.906	2.462	2.053
Bicycle LOS	B	C	B	B

Sequence

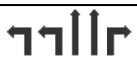
Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Harbor Boulevard at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	86.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.122

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	159	1889	361	315	2034	118	197	1700	301	132	548	177
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	159	1889	361	315	2034	118	197	1700	301	132	548	177
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	472	90	79	509	30	49	425	75	33	137	44
Total Analysis Volume [veh/h]	159	1889	361	315	2034	118	197	1700	301	132	548	177
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	47	0	12	49	0	14	40	0	11	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	27	0	0	28	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	43	43	8	45	45	10	36	36	7	33	33
g / C, Green / Cycle	0.05	0.39	0.39	0.07	0.41	0.41	0.09	0.33	0.33	0.06	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.05	0.50	0.20	0.09	0.46	0.23	0.11	0.30	0.17	0.07	0.10	0.10
s, saturation flow rate [veh/h]	3500	3800	1800	3500	3800	1800	1800	5700	1800	1800	5700	1800
c, Capacity [veh/h]	191	1484	703	255	1553	736	167	1857	587	118	1702	537
d1, Uniform Delay [s]	51.50	33.52	25.55	51.00	32.52	25.08	49.90	35.62	30.02	51.40	29.94	30.02
k, delay calibration	0.11	0.19	0.11	0.11	0.13	0.14	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.04	124.91	0.58	114.15	54.67	0.93	94.21	8.55	3.19	76.36	0.50	1.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	1.27	0.51	1.24	1.12	0.57	1.18	0.92	0.51	1.12	0.32	0.33
d, Delay for Lane Group [s/veh]	60.54	158.43	26.14	165.15	87.19	26.01	144.11	44.18	33.21	127.76	30.45	31.65
Lane Group LOS	E	F	C	F	F	C	F	D	C	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.41	44.90	7.22	7.53	31.73	8.51	8.94	15.76	6.92	5.73	3.82	3.88
50th-Percentile Queue Length [ft]	60.14	1122.59	180.45	188.28	793.18	212.64	223.56	394.06	172.91	143.35	95.61	97.06
95th-Percentile Queue Length [veh]	4.33	65.25	11.62	12.84	44.25	13.29	14.68	22.27	11.23	10.00	6.88	6.99
95th-Percentile Queue Length [ft]	108.25	1631.24	290.61	321.02	1106.17	332.21	366.96	556.84	280.74	249.98	172.10	174.70

Movement, Approach, & Intersection Results

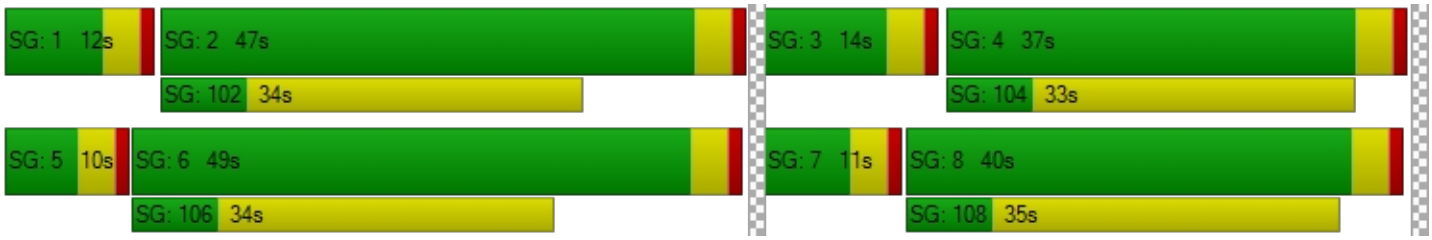
d_M, Delay for Movement [s/veh]	60.54	158.43	26.14	165.15	78.10	26.01	144.11	44.18	33.21	127.76	30.45	31.65
Movement LOS	E	F	C	F	E	C	F	D	C	F	C	C
d_A, Approach Delay [s/veh]	132.14			86.73			51.63			45.69		
Approach LOS	F			F			D			D		
d_I, Intersection Delay [s/veh]	86.36											
Intersection LOS	F											
Intersection V/C	1.122											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.329	3.262	3.103	3.129
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	782	818	655	600
d_b, Bicycle Delay [s]	20.40	19.20	24.89	26.95
I_b,int, Bicycle LOS Score for Intersection	3.547	2.916	2.769	2.031
Bicycle LOS	D	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Lemon Street at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	51.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.066

Intersection Setup

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	234	1041	190	343	1302	127	176	1868	197	150	559	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	234	1041	190	343	1302	127	176	1868	197	150	559	151
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	260	48	86	326	32	44	467	49	38	140	38
Total Analysis Volume [veh/h]	234	1041	190	343	1302	127	176	1868	197	150	559	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	37	0	13	40	0	26	50	0	10	34	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	25	0	0	20	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	46	33	33	46	36	36	13	46	46	6	39	39
g / C, Green / Cycle	0.42	0.30	0.30	0.42	0.33	0.33	0.12	0.42	0.42	0.06	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.13	0.27	0.11	0.19	0.34	0.07	0.10	0.44	0.22	0.04	0.20	0.18
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3800	1800	1800	3800	1800	3500	1900	1800
c, Capacity [veh/h]	264	1138	539	371	1242	588	208	1584	750	197	679	643
d1, Uniform Delay [s]	21.43	37.17	30.17	23.04	37.03	26.82	47.66	32.07	23.90	51.18	28.36	27.85
k, delay calibration	0.11	0.11	0.11	0.23	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.67	3.36	0.39	17.72	27.19	0.18	8.98	39.17	2.59	5.98	3.28	2.94
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.91	0.35	0.92	1.05	0.22	0.84	1.06	0.52	0.76	0.56	0.52
d, Delay for Lane Group [s/veh]	31.11	40.53	30.56	40.75	64.22	27.00	56.64	71.24	26.49	57.15	31.64	30.79
Lane Group LOS	C	D	C	D	F	C	E	F	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	4.72	13.80	3.99	8.14	21.00	2.45	5.23	28.88	8.00	2.20	8.53	7.35
50th-Percentile Queue Length [ft]	117.93	345.06	99.78	203.55	524.96	61.13	130.69	722.08	200.11	54.97	213.20	183.63
95th-Percentile Queue Length [veh]	8.28	19.90	7.18	12.82	29.42	4.40	8.98	39.26	12.64	3.96	13.32	11.79
95th-Percentile Queue Length [ft]	206.97	497.38	179.60	320.55	735.45	110.04	224.44	981.42	316.11	98.94	332.94	294.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.11	40.53	30.56	40.75	64.22	27.00	56.64	66.58	26.49	57.15	31.36	30.79
Movement LOS	C	D	C	D	F	C	E	E	C	E	C	C
d_A, Approach Delay [s/veh]	37.73			57.01			62.27			35.76		
Approach LOS	D			E			E			D		
d_I, Intersection Delay [s/veh]	51.53											
Intersection LOS	D											
Intersection V/C	1.066											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.968	2.973	3.091	3.243
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	655	836	545
d_b, Bicycle Delay [s]	26.95	24.89	18.62	29.09
I_b,int, Bicycle LOS Score for Intersection	2.768	3.022	2.792	2.269
Bicycle LOS	C	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.917

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	129	2130	0	0	2238	821	0	0	0	235	365	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	2130	0	0	2238	821	0	0	0	235	365	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	533	0	0	560	205	0	0	0	59	91	92
Total Analysis Volume [veh/h]	129	2130	0	0	2238	821	0	0	0	235	365	367
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	74	0	0	64	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	70	60	60		22	22	22
g / C, Green / Cycle	0.06	0.70	0.60	0.60		0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.37	0.54	0.57		0.13	0.10	0.20
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	207	3990	2283	1081		396	836	396
d1, Uniform Delay [s]	45.94	7.19	17.21	18.39		34.99	33.65	38.21
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.03	0.52	5.88	16.69		1.42	0.36	16.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.53	0.89	0.94		0.59	0.44	0.93
d, Delay for Lane Group [s/veh]	48.97	7.70	23.09	35.07		36.41	34.01	54.73
Lane Group LOS	D	A	C	D		D	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.65	6.37	19.89	24.28		5.23	3.83	10.48
50th-Percentile Queue Length [ft]	41.13	159.15	497.37	607.01		130.85	95.86	261.91
95th-Percentile Queue Length [veh]	2.96	10.50	27.21	32.36		8.99	6.90	15.78
95th-Percentile Queue Length [ft]	74.03	262.59	680.24	809.04		224.64	172.55	394.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.97	7.70	0.00	0.00	24.15	35.07	0.00	0.00	0.00	36.41	34.01	54.73
Movement LOS	D	A			C	D				D	C	D
d_A, Approach Delay [s/veh]	10.06			27.08			0.00			42.46		
Approach LOS	B			C			A			D		
d_I, Intersection Delay [s/veh]	23.33											
Intersection LOS	C											
Intersection V/C	0.917											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.361	2.372
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	1200	0	440
d_b, Bicycle Delay [s]	4.50	8.00	50.00	30.42
I_b,int, Bicycle LOS Score for Intersection	2.802	3.242	4.132	2.357
Bicycle LOS	C	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.948

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	75	945	0	0	1563	365	0	0	0	297	613	784
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	945	0	0	1563	365	0	0	0	297	613	784
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	236	0	0	391	91	0	0	0	74	153	196
Total Analysis Volume [veh/h]	75	945	0	0	1563	365	0	0	0	297	613	784
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	50	0	0	40	0	0	0	0	0	50	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	47	37	37		45	45	45
g / C, Green / Cycle	0.05	0.47	0.37	0.37		0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.34	0.36		0.26	0.24	0.44
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	99	2664	1414	670		815	860	815
d1, Uniform Delay [s]	46.58	17.01	29.78	30.65		20.14	19.62	26.55
k, delay calibration	0.11	0.50	0.50	0.50		0.13	0.11	0.43
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.99	0.37	10.16	26.09		0.77	0.49	21.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.35	0.91	0.96		0.57	0.52	0.96
d, Delay for Lane Group [s/veh]	57.57	17.38	39.94	56.74		20.91	20.11	47.89
Lane Group LOS	E	B	D	E		C	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	2.13	4.59	16.12	19.39		7.80	7.36	21.93
50th-Percentile Queue Length [ft]	53.33	114.84	402.98	484.80		195.02	183.96	548.27
95th-Percentile Queue Length [veh]	3.84	8.11	22.70	26.61		12.38	11.81	29.61
95th-Percentile Queue Length [ft]	96.00	202.71	567.59	665.35		309.53	295.18	740.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.57	17.38	0.00	0.00	42.92	56.74	0.00	0.00	0.00	20.91	20.33	47.89
Movement LOS	E	B			D	E				C	C	D
d_A, Approach Delay [s/veh]	20.33			45.54			0.00			33.19		
Approach LOS	C			D			A			C		
d_I, Intersection Delay [s/veh]	35.49											
Intersection LOS	D											
Intersection V/C	0.948											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.233	2.496
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	920	720	0	920
d_b, Bicycle Delay [s]	14.58	20.48	50.00	14.58
I_b,int, Bicycle LOS Score for Intersection	2.121	2.620	4.132	2.957
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1454	488	753	1673	0	760	178	173	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1454	488	753	1673	0	760	178	173	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	364	122	188	418	0	190	45	43	0	0	0
Total Analysis Volume [veh/h]	0	1454	488	753	1673	0	760	178	173	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	37	0	32	69	0	0	31	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	39	39	24	68	24	24	24	
g / C, Green / Cycle	0.39	0.39	0.24	0.68	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.27	0.22	0.29	0.22	0.09	0.10	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	2249	710	843	3849	857	465	441	
d1, Uniform Delay [s]	24.61	25.15	36.72	7.46	36.44	31.47	31.56	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.45	5.37	3.60	0.36	3.35	0.52	0.57	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.65	0.69	0.89	0.43	0.89	0.38	0.39	
d, Delay for Lane Group [s/veh]	26.06	30.52	40.32	7.82	39.79	31.99	32.13	
Lane Group LOS	C	C	D	A	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	9.37	10.39	9.16	4.97	9.18	3.62	3.53	
50th-Percentile Queue Length [ft]	234.21	259.69	228.88	124.27	229.59	90.53	88.34	
95th-Percentile Queue Length [veh]	14.39	15.67	14.12	8.63	14.15	6.52	6.36	
95th-Percentile Queue Length [ft]	359.70	391.83	352.93	215.68	353.83	162.96	159.01	

Movement, Approach, & Intersection Results

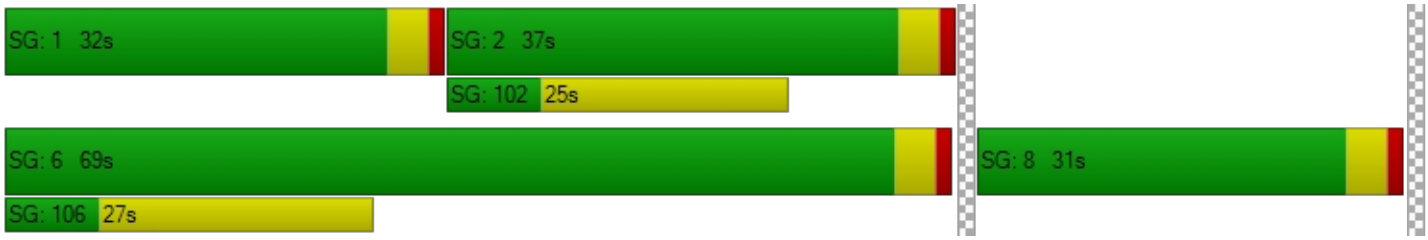
d_M, Delay for Movement [s/veh]	0.00	26.06	30.52	40.32	7.82	0.00	39.79	31.99	32.13	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	C	C			
d_A, Approach Delay [s/veh]	27.18			17.91			37.35			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	25.14											
Intersection LOS	C											
Intersection V/C	0.799											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.407	2.411
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	660	1300	540	0
d_b, Bicycle Delay [s]	22.45	6.13	26.65	50.00
I_b,int, Bicycle LOS Score for Intersection	2.628	2.894	3.393	4.132
Bicycle LOS	B	C	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	33.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.885

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	941	415	680	1079	0	102	1078	212	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	941	415	680	1079	0	102	1078	212	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	235	104	170	270	0	26	270	53	0	0	0
Total Analysis Volume [veh/h]	0	941	415	680	1079	0	102	1078	212	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	27	50	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	30	30	21	55	37	37	37	
g / C, Green / Cycle	0.30	0.30	0.21	0.55	0.37	0.37	0.37	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.25	0.19	0.28	0.33	0.31	0.12	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1126	534	752	2095	664	701	664	
d1, Uniform Delay [s]	32.48	33.06	38.25	14.06	29.89	28.69	22.59	
k, delay calibration	0.50	0.50	0.11	0.50	0.26	0.21	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	6.08	15.30	4.41	0.91	10.65	5.00	0.27	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.80	0.85	0.90	0.52	0.90	0.83	0.32	
d, Delay for Lane Group [s/veh]	38.57	48.36	42.67	14.97	40.54	33.69	22.86	
Lane Group LOS	D	D	D	B	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	10.83	12.32	8.45	7.48	15.15	13.21	3.57	
50th-Percentile Queue Length [ft]	270.80	308.07	211.19	187.05	378.66	330.27	89.30	
95th-Percentile Queue Length [veh]	16.23	18.08	13.21	11.97	21.53	19.17	6.43	
95th-Percentile Queue Length [ft]	405.74	452.00	330.36	299.19	538.23	479.29	160.73	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	38.95	48.36	42.67	14.97	0.00	40.54	36.85	22.86	0.00	0.00	0.00
Movement LOS		D	D	D	B		D	D	C			
d_A, Approach Delay [s/veh]	41.83			25.67			34.99			0.00		
Approach LOS	D			C			C			A		
d_I, Intersection Delay [s/veh]	33.41											
Intersection LOS	C											
Intersection V/C	0.885											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.397	2.779
Crosswalk LOS	F	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	920	920	0
d_b, Bicycle Delay [s]	32.81	14.58	14.58	50.00
I_b,int, Bicycle LOS Score for Intersection	2.305	3.011	2.708	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 25: Harbor Boulevard at Bastanchury Road

Control Type:	Signalized	Delay (sec / veh):	144.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.119

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Base Volume Input [veh/h]	264	1252	132	581	1804	371	444	1566	316	357	1274	255
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	264	1252	132	581	1804	371	444	1566	316	357	1274	255
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	313	33	145	451	93	111	392	79	89	319	64
Total Analysis Volume [veh/h]	264	1252	132	581	1804	371	444	1566	316	357	1274	255
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	42	0	11	43	0	15	42	0	15	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	24	0	0	31	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	38	38	7	39	39	11	38	38	11	38	38
g / C, Green / Cycle	0.05	0.35	0.35	0.06	0.36	0.36	0.10	0.34	0.34	0.10	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.22	0.07	0.17	0.38	0.41	0.25	0.33	0.35	0.10	0.22	0.14
s, saturation flow rate [veh/h]	3500	5700	1800	3500	3800	1800	1800	3800	1800	3500	5700	1800
c, Capacity [veh/h]	191	1976	624	223	1352	640	180	1308	619	350	1962	619
d1, Uniform Delay [s]	52.00	30.09	25.34	51.50	35.44	35.44	49.50	35.36	36.08	49.50	30.47	27.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.38	0.11	0.46	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	178.23	1.56	0.77	724.93	42.68	86.88	671.76	5.62	36.82	27.31	0.37	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.38	0.63	0.21	2.60	1.06	1.16	2.46	0.96	1.01	1.02	0.65	0.41
d, Delay for Lane Group [s/veh]	230.23	31.65	26.11	776.43	78.13	122.32	721.26	40.99	72.90	76.81	30.84	28.00
Lane Group LOS	F	C	C	F	F	F	F	D	F	F	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	7.37	9.43	2.57	25.52	25.66	32.17	38.54	17.13	22.52	6.12	9.44	5.17
50th-Percentile Queue Length [ft]	184.13	235.74	64.24	638.08	641.40	804.14	963.49	428.22	563.09	152.98	235.99	129.18
95th-Percentile Queue Length [veh]	12.83	14.47	4.62	40.48	35.39	45.60	60.25	23.92	30.48	10.25	14.48	8.89
95th-Percentile Queue Length [ft]	320.78	361.64	115.62	1011.95	884.84	1139.96	1506.28	597.90	761.90	256.22	361.96	222.37

Movement, Approach, & Intersection Results

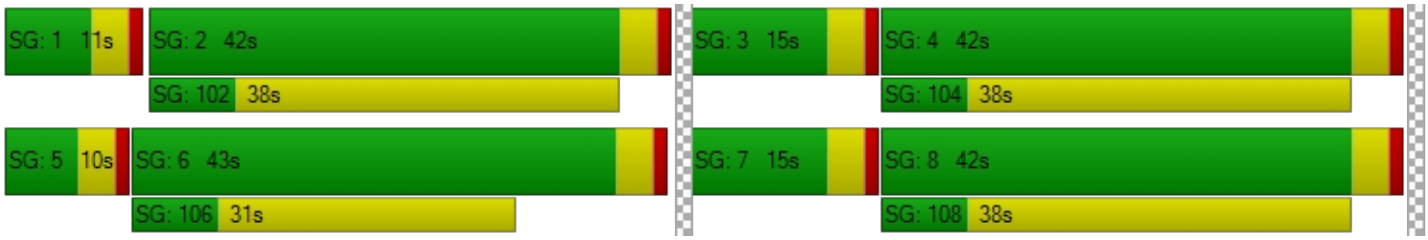
d_M, Delay for Movement [s/veh]	230.23	31.65	26.11	776.43	87.16	122.32	721.26	47.27	72.90	76.81	30.84	28.00
Movement LOS	F	C	C	F	F	F	F	D	E	F	C	C
d_A, Approach Delay [s/veh]	63.02			237.20			179.41			39.16		
Approach LOS	E			F			F			D		
d_I, Intersection Delay [s/veh]	144.93											
Intersection LOS	F											
Intersection V/C	1.119											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.306	3.309	3.193	3.310
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	709	691	691
d_b, Bicycle Delay [s]	23.56	22.91	23.56	23.56
I_b,int, Bicycle LOS Score for Intersection	2.466	3.075	2.839	2.597
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 26: College Driveway No. 1 at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	18.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.057

Intersection Setup

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	16	11	50	914	603	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	11	50	914	603	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	13	229	151	8
Total Analysis Volume [veh/h]	16	11	50	914	603	31
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.02	0.05	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	18.83	13.28	9.00	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.26	0.26	0.17	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	6.47	6.47	4.16	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.57		0.47		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.55					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 27: Centennial Way at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	13.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.155

Intersection Setup

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	0	79	586	312	57	682
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	79	586	312	57	682
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	20	147	78	14	171
Total Analysis Volume [veh/h]	0	79	586	312	57	682
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.15	0.01	0.00	0.08	0.01
d_M, Delay for Movement [s/veh]	0.00	13.34	0.00	0.00	10.15	0.00
Movement LOS		B	A	A	B	A
95th-Percentile Queue Length [veh]	0.00	0.54	0.00	0.00	0.24	0.00
95th-Percentile Queue Length [ft]	0.00	13.60	0.00	0.00	6.10	0.00
d_A, Approach Delay [s/veh]	13.34		0.00		0.78	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.95					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 28: Lemon Street at Parking Structure

Control Type:	Two-way stop	Delay (sec / veh):	13.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.180

Intersection Setup

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Base Volume Input [veh/h]	84	604	315	0	821	60	0	0	4	0	0	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	604	315	0	821	60	0	0	4	0	0	99
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	151	79	0	205	15	0	0	1	0	0	25
Total Analysis Volume [veh/h]	84	604	315	0	821	60	0	0	4	0	0	99
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.18
d_M, Delay for Movement [s/veh]	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.42	0.00	0.00	13.00
Movement LOS	B	A	A		A	A			B			B
95th-Percentile Queue Length [veh]	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.65
95th-Percentile Queue Length [ft]	9.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.00	16.33
d_A, Approach Delay [s/veh]	0.86			0.00			11.42			13.00		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.11											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 29: Lemon Street at Fullerton College Drive

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.732

Intersection Setup

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Base Volume Input [veh/h]	0	896	358	194	667	0	122	2	156	174	0	63
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	896	358	194	667	0	122	2	156	174	0	63
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	224	90	49	167	0	31	1	39	44	0	16
Total Analysis Volume [veh/h]	0	896	358	194	667	0	122	2	156	174	0	63
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	6	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	30	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	10	34	0	0	49	0	27	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	7	0	0
Pedestrian Clearance [s]	0	13	0	0	14	0	0	0	0	16	0	0
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall		No		No	No			No		No		
Maximum Recall		No		No	No			No		No		
Pedestrian Recall		No		No	No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	R
C, Cycle Length [s]	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	56	56	66	66	19	13	13
g / C, Green / Cycle	0.51	0.51	0.60	0.60	0.18	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.33	0.35	0.11	0.18	0.16	0.10	0.04
s, saturation flow rate [veh/h]	1900	1800	1800	3800	1800	1800	1800
c, Capacity [veh/h]	960	909	678	2268	319	211	211
d1, Uniform Delay [s]	20.11	20.68	10.03	10.85	44.14	47.52	44.48
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.46	4.26	0.23	0.33	7.71	7.97	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.69	0.29	0.29	0.88	0.83	0.30
d, Delay for Lane Group [s/veh]	23.57	24.95	10.26	11.18	51.85	55.49	45.27
Lane Group LOS	C	C	B	B	D	E	D
Critical Lane Group	No	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	12.35	12.83	2.09	3.92	8.07	5.11	1.62
50th-Percentile Queue Length [ft]	308.75	320.69	52.30	97.88	201.76	127.80	40.52
95th-Percentile Queue Length [veh]	18.11	18.70	3.77	7.05	12.73	8.82	2.92
95th-Percentile Queue Length [ft]	452.84	467.54	94.14	176.18	318.23	220.50	72.93

Movement, Approach, & Intersection Results

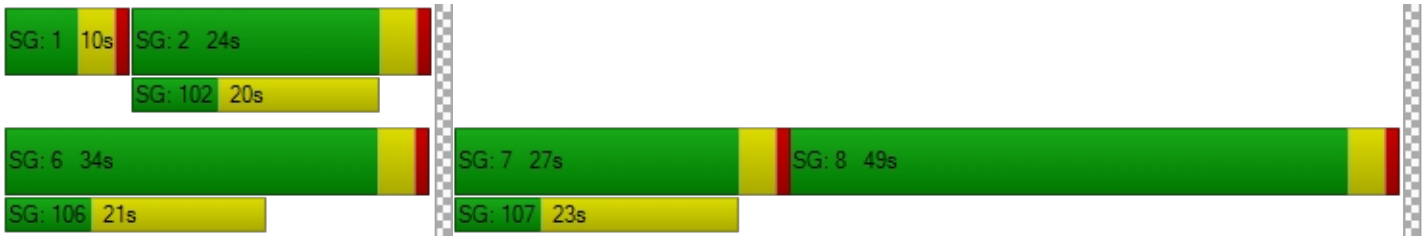
d_M, Delay for Movement [s/veh]	0.00	23.98	24.95	10.26	11.18	0.00	51.85	51.85	51.85	55.49	0.00	45.27
Movement LOS		C	C	B	B		D	D	D	E		D
d_A, Approach Delay [s/veh]	24.26			10.97			51.85			52.77		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	25.41											
Intersection LOS	C											
Intersection V/C	0.732											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.862	1.706	2.352
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	364	545	818	0
d_b, Bicycle Delay [s]	36.82	29.09	19.20	55.00
I_b,int, Bicycle LOS Score for Intersection	2.594	2.270	2.022	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Berkeley Avenue at College Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	25.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.197

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Base Volume Input [veh/h]	278	437	541	16	44	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	437	541	16	44	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	109	135	4	11	12
Total Analysis Volume [veh/h]	278	437	541	16	44	49
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.27	0.00	0.01	0.00	0.20	0.09
d_M, Delay for Movement [s/veh]	9.89	0.00	0.00	0.00	25.59	16.19
Movement LOS	A	A	A	A	D	C
95th-Percentile Queue Length [veh]	1.12	0.00	0.00	0.00	1.17	1.17
95th-Percentile Queue Length [ft]	28.00	0.00	0.00	0.00	29.23	29.23
d_A, Approach Delay [s/veh]	3.84		0.00		20.64	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.42					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 31: Berkeley Avenue at College Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Base Volume Input [veh/h]	0	652	441	0	12	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	652	441	0	12	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	163	110	0	3	27
Total Analysis Volume [veh/h]	0	652	441	0	12	108
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.03	0.18
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	14.84	12.38
Movement LOS		A	A		B	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.75	0.75
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	18.85	18.85
d_A, Approach Delay [s/veh]	0.00		0.00		12.63	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.25					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 32: Berkeley Avenue at Brookdale Place

Control Type:	Two-way stop	Delay (sec / veh):	17.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.084

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Base Volume Input [veh/h]	708	15	45	523	30	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	708	15	45	523	30	54
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	4	11	131	8	14
Total Analysis Volume [veh/h]	708	15	45	523	30	54
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.05	0.01	0.08	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	9.31	0.00	17.44	15.73
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh]	0.00	0.00	0.16	0.00	0.78	0.78
95th-Percentile Queue Length [ft]	0.00	0.00	4.04	0.00	19.49	19.49
d_A, Approach Delay [s/veh]	0.00		0.74		16.34	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.30					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: Harbor Boulevard at Valley View Drive/Brea Boulevard

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.892

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valley View Drive			Brea Boulevard		
Base Volume Input [veh/h]	12	1923	714	108	2004	59	96	193	15	664	116	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	1923	714	108	2004	59	96	193	15	664	116	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	481	179	27	501	15	24	48	4	166	29	0
Total Analysis Volume [veh/h]	12	1923	714	108	2004	59	96	193	15	664	116	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	13	50	0	13	50	0	0	10	0	0	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	17	0	0	20	0	0	0	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	47	8	53	53	12	12	12	27	27
g / C, Green / Cycle	0.02	0.43	0.07	0.48	0.48	0.11	0.11	0.11	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.01	0.34	0.06	0.44	0.22	0.05	0.10	0.01	0.22	0.22
s, saturation flow rate [veh/h]	1800	5700	1800	3800	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	31	2433	135	1841	872	199	210	199	436	436
d1, Uniform Delay [s]	53.50	27.28	50.10	25.95	18.87	45.98	48.45	43.89	40.28	40.38
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.25	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.64	2.71	10.41	7.59	1.77	1.81	14.84	0.16	13.09	14.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.79	0.80	0.90	0.46	0.48	0.92	0.08	0.89	0.90
d, Delay for Lane Group [s/veh]	61.13	29.99	60.51	33.55	20.64	47.78	63.29	44.05	53.37	54.46
Lane Group LOS	E	C	E	C	C	D	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh]	0.39	14.78	3.31	20.90	7.16	2.56	6.08	0.38	11.62	11.86
50th-Percentile Queue Length [ft]	9.85	369.51	82.69	522.46	178.88	64.04	152.03	9.40	290.57	296.52
95th-Percentile Queue Length [veh]	0.71	21.09	5.95	28.40	11.54	4.61	10.13	0.68	17.21	17.51
95th-Percentile Queue Length [ft]	17.73	527.14	148.84	709.89	288.56	115.27	253.13	16.92	430.35	437.73

Movement, Approach, & Intersection Results

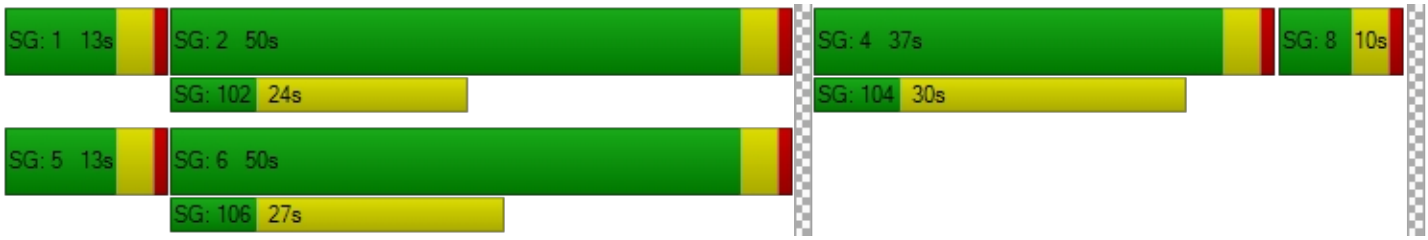
d_M, Delay for Movement [s/veh]	61.13	29.99	0.00	60.51	31.32	20.64	47.78	63.29	44.05	53.82	54.46	0.00
Movement LOS	E	C		E	C	C	D	E	D	D	D	
d_A, Approach Delay [s/veh]	30.19			32.48			57.44			53.92		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	36.31											
Intersection LOS	D											
Intersection V/C	0.892											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.324	2.260	2.301
Crosswalk LOS	F	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	836	109	600
d_b, Bicycle Delay [s]	18.62	18.62	49.16	26.95
I_b,int, Bicycle LOS Score for Intersection	2.624	2.754	2.061	2.847
Bicycle LOS	B	C	B	C

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Harbor Boulevard at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	66.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.119

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	32	1899	32	512	2097	23	28	200	76	64	273	692
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	1899	32	512	2097	23	28	200	76	64	273	692
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	475	8	128	524	6	7	50	19	16	68	173
Total Analysis Volume [veh/h]	32	1899	32	512	2097	23	28	200	76	64	273	692
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	5	2	0	1	6	0	0	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	6	6	0	0	6	0	0	6	6
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0
Split [s]	10	55	0	18	63	0	0	37	0	0	37	37
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	21	0	0	22	0	0	18	0	0	26	26
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall	No	No		No	No			No			No	No
Maximum Recall	No	No		No	No			No			No	No
Pedestrian Recall	No	No		No	No			No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	4	51	51	14	61	61	33	33	33	33	33	51
g / C, Green / Cycle	0.03	0.46	0.46	0.13	0.56	0.56	0.30	0.30	0.30	0.30	0.30	0.46
(v / s)_i Volume / Saturation Flow Rate	0.02	0.52	0.52	0.15	0.55	0.01	0.02	0.11	0.04	0.04	0.14	0.38
s, saturation flow rate [veh/h]	1800	1900	1800	3500	3800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	63	880	833	448	2113	1001	361	570	540	424	570	836
d1, Uniform Delay [s]	52.14	29.52	29.52	47.95	24.19	10.98	27.37	30.12	28.13	27.94	31.47	25.64
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.23	71.66	72.33	71.07	17.90	0.04	0.09	0.37	0.12	0.16	0.63	9.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	1.13	1.13	1.14	0.99	0.02	0.08	0.35	0.14	0.15	0.48	0.83
d, Delay for Lane Group [s/veh]	58.37	101.19	101.85	119.03	42.08	11.02	27.46	30.48	28.25	28.10	32.09	34.92
Lane Group LOS	E	F	F	F	D	B	C	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.98	39.65	37.72	10.52	30.21	0.26	0.54	4.19	1.49	1.25	6.00	17.32
50th-Percentile Queue Length [ft]	24.40	991.30	942.97	262.93	755.21	6.51	13.38	104.85	37.15	31.18	149.94	433.04
95th-Percentile Queue Length [veh]	1.76	54.64	52.23	16.74	39.22	0.47	0.96	7.55	2.67	2.24	10.01	24.15
95th-Percentile Queue Length [ft]	43.92	1366.08	1305.70	418.42	980.55	11.71	24.09	188.74	66.86	56.12	250.35	603.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.37	101.50	101.85	119.03	42.08	11.02	27.46	30.48	28.25	28.10	32.09	34.92
Movement LOS	E	F	F	F	D	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	100.81			56.78			29.65			33.74		
Approach LOS	F			E			C			C		
d_I, Intersection Delay [s/veh]	65.97											
Intersection LOS	E											
Intersection V/C	1.119											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.219	3.375	2.295	2.655
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	927	1073	600	600
d_b, Bicycle Delay [s]	15.82	11.82	26.95	26.95
I_b,int, Bicycle LOS Score for Intersection	3.179	3.731	2.061	3.257
Bicycle LOS	C	D	B	C

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Lemon Street at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	41.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Berkeley Avenue			Berkeley Avenue		
Base Volume Input [veh/h]	504	476	142	120	343	22	29	399	335	96	547	151
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	504	476	142	120	343	22	29	399	335	96	547	151
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	119	36	30	86	6	7	100	84	24	137	38
Total Analysis Volume [veh/h]	504	476	142	120	343	22	29	399	335	96	547	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Permiss	Permiss	Overlap	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									2,8			
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	6	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	0	42	0	0	33	0	0	35	35	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	20	0	0	19	0	0	16	16	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall		No			No			No	No		No	
Maximum Recall		No			No			No	No		No	
Pedestrian Recall		No			No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	36	36	36	36	36	25	25	66	25	25	25
g / C, Green / Cycle	0.33	0.33	0.33	0.33	0.33	0.23	0.23	0.60	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.27	0.27	0.08	0.07	0.20	0.02	0.21	0.19	0.05	0.20	0.18
s, saturation flow rate [veh/h]	1800	1800	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	592	592	592	592	592	133	441	1076	99	441	418
d1, Uniform Delay [s]	33.86	33.86	26.75	26.40	30.91	32.81	40.86	10.88	34.10	40.13	39.43
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.28	0.50	0.11	0.22	0.19
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.52	12.52	0.96	0.77	4.75	0.81	15.80	0.75	34.58	8.74	5.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.83	0.24	0.20	0.62	0.22	0.90	0.31	0.97	0.84	0.78
d, Delay for Lane Group [s/veh]	46.38	46.38	27.71	27.17	35.65	33.62	56.66	11.64	68.68	48.87	44.89
Lane Group LOS	D	D	C	C	D	C	E	B	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh]	13.89	13.89	2.86	2.38	8.82	0.63	12.30	4.08	3.03	10.55	8.82
50th-Percentile Queue Length [ft]	347.15	347.15	71.62	59.62	220.56	15.87	307.56	102.12	75.87	263.86	220.39
95th-Percentile Queue Length [veh]	20.00	20.00	5.16	4.29	13.69	1.14	18.05	7.35	5.46	15.88	13.69
95th-Percentile Queue Length [ft]	499.93	499.93	128.92	107.32	342.34	28.57	451.37	183.81	136.57	397.06	342.13

Movement, Approach, & Intersection Results

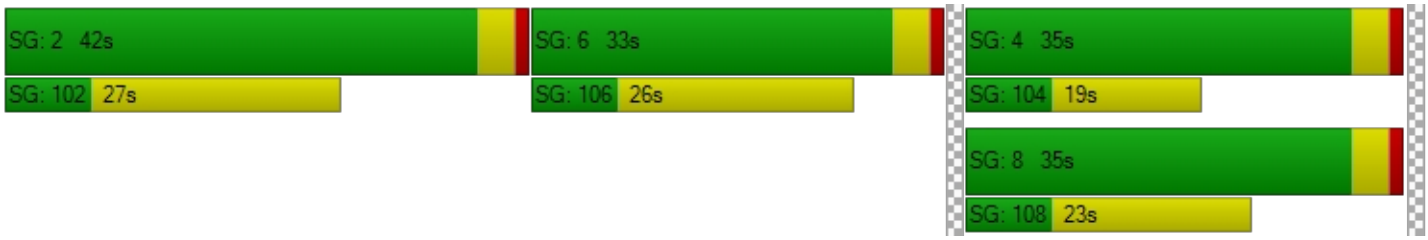
d_M, Delay for Movement [s/veh]	46.38	46.38	27.71	27.17	35.65	35.65	33.62	56.66	11.64	68.68	47.60	44.89
Movement LOS	D	D	C	C	D	D	C	E	B	E	D	D
d_A, Approach Delay [s/veh]	44.01			33.56			36.02			49.63		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	41.89											
Intersection LOS	D											
Intersection V/C	0.769											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.739	2.362	3.384	2.666
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	527	564	564
d_b, Bicycle Delay [s]	23.56	29.82	28.37	28.37
I_b,int, Bicycle LOS Score for Intersection	3.411	2.360	2.819	2.215
Bicycle LOS	C	B	C	B

Sequence

Ring 1	2	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Hornet Way at Berkeley Avenue

Control Type:	Signalized	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.453

Intersection Setup

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Hornet Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	29	244	185	456	540	24
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	244	185	456	540	24
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	61	46	114	135	6
Total Analysis Volume [veh/h]	29	244	185	456	540	24
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	8	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	6	6	0
Maximum Green [s]	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	30	0	0	80	80	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	7	0	0	0	7	0
Pedestrian Clearance [s]	19	0	0	0	14	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	17	85	85	85	85
g / C, Green / Cycle	0.15	0.15	0.77	0.77	0.77	0.77
(v / s)_i Volume / Saturation Flow Rate	0.02	0.14	0.10	0.24	0.28	0.01
s, saturation flow rate [veh/h]	1800	1800	1800	1900	1900	1800
c, Capacity [veh/h]	277	277	1247	1469	1469	1391
d1, Uniform Delay [s]	39.88	45.39	3.15	3.72	3.95	2.87
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.16	8.81	0.25	0.55	0.71	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.88	0.15	0.31	0.37	0.02
d, Delay for Lane Group [s/veh]	40.04	54.20	3.40	4.27	4.66	2.89
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.69	7.15	0.92	2.66	3.35	0.11
50th-Percentile Queue Length [ft]	17.20	178.63	23.07	66.43	83.71	2.68
95th-Percentile Queue Length [veh]	1.24	11.53	1.66	4.78	6.03	0.19
95th-Percentile Queue Length [ft]	30.95	288.23	41.53	119.57	150.68	4.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.04	54.20	3.40	4.27	4.66	2.89
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	52.69		4.02		4.59	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	13.23					
Intersection LOS	B					
Intersection V/C	0.453					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	76.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	5.25
I_p,int, Pedestrian LOS Score for Intersection	2.370	2.413	2.246
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	55.00	55.00	55.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.190	5.063
Bicycle LOS	D	F	F

Sequence

Ring 1	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Euclid Street at Malvern Avenue

Control Type:	Signalized	Delay (sec / veh):	70.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.083

Intersection Setup

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Euclid Street			Euclid Street			Malvern Avenue			Malvern Avenue		
Base Volume Input [veh/h]	231	1463	146	207	1323	38	58	876	214	190	1158	300
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	231	1463	146	207	1323	38	58	876	214	190	1158	300
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	366	37	52	331	10	15	219	54	48	290	75
Total Analysis Volume [veh/h]	231	1463	146	207	1323	38	58	876	214	190	1158	300
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	47	0	10	47	0	10	43	0	10	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	53	43	43	53	43	43	49	39	39	49	40	40
g / C, Green / Cycle	0.48	0.39	0.39	0.48	0.39	0.39	0.44	0.35	0.35	0.44	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.13	0.44	0.43	0.12	0.37	0.37	0.03	0.30	0.28	0.11	0.40	0.39
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	340	745	706	257	745	706	252	671	635	377	688	652
d1, Uniform Delay [s]	16.85	33.42	33.42	16.59	32.19	32.07	17.57	33.10	32.16	19.01	35.08	35.08
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.36	0.31	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.41	68.17	66.20	5.87	21.27	21.17	0.46	10.29	6.81	1.04	67.88	54.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	1.11	1.10	0.81	0.94	0.93	0.23	0.86	0.80	0.50	1.11	1.07
d, Delay for Lane Group [s/veh]	27.26	101.59	99.62	22.46	53.45	53.24	18.03	43.39	38.97	20.05	102.95	89.24
Lane Group LOS	C	F	F	C	D	D	B	D	D	C	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	4.41	33.38	31.24	3.44	21.85	20.52	0.88	15.94	13.25	3.10	30.88	26.77
50th-Percentile Queue Length [ft]	110.25	834.48	780.90	86.06	546.28	512.93	21.91	398.56	331.29	77.52	771.88	669.16
95th-Percentile Queue Length [veh]	7.85	46.18	43.32	6.20	29.52	27.95	1.58	22.49	19.22	5.58	42.89	36.85
95th-Percentile Queue Length [ft]	196.35	1154.45	1083.12	154.91	737.93	698.64	39.44	562.27	480.54	139.54	1072.31	921.32

Movement, Approach, & Intersection Results

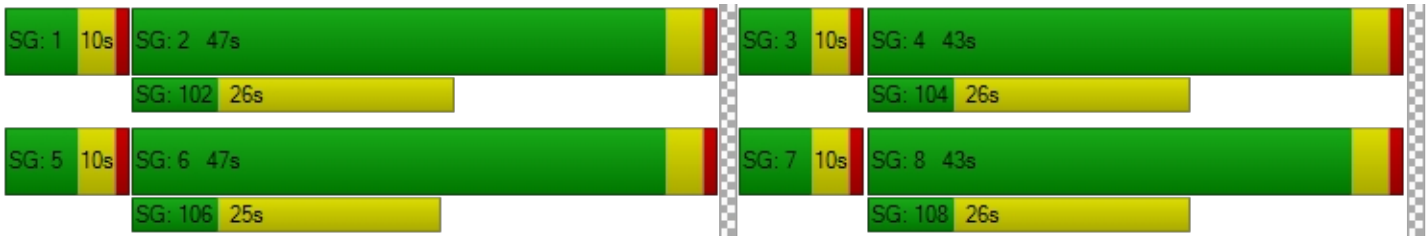
d_M, Delay for Movement [s/veh]	27.26	100.74	99.62	22.46	53.35	53.24	18.03	41.89	38.97	20.05	98.27	89.24
Movement LOS	C	F	F	C	D	D	B	D	D	C	F	F
d_A, Approach Delay [s/veh]	91.42			49.27			40.14			87.61		
Approach LOS	F			D			D			F		
d_I, Intersection Delay [s/veh]	70.27											
Intersection LOS	E											
Intersection V/C	1.083											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.105	3.002	2.946	2.991
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	782	782	709	709
d_b, Bicycle Delay [s]	20.40	20.40	22.91	22.91
I_b,int, Bicycle LOS Score for Intersection	3.078	2.853	2.507	2.919
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Harbor Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	78.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.140

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	158	1439	225	186	1517	125	270	1007	153	307	1413	210
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	1439	225	186	1517	125	270	1007	153	307	1413	210
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	360	56	47	379	31	68	252	38	77	353	53
Total Analysis Volume [veh/h]	158	1439	225	186	1517	125	270	1007	153	307	1413	210
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	49	0	10	49	0	10	40	0	11	41	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	55	45	45	55	45	45	47	36	36	47	37	37
g / C, Green / Cycle	0.50	0.41	0.41	0.50	0.41	0.41	0.43	0.33	0.33	0.43	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.09	0.45	0.45	0.10	0.45	0.44	0.15	0.32	0.31	0.17	0.37	0.12
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	258	780	739	257	780	739	268	619	586	293	1272	603
d1, Uniform Delay [s]	14.99	32.43	32.43	15.25	32.43	32.43	21.31	36.74	36.12	21.66	36.59	27.56
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.12	0.44	0.41	0.11	0.13	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.44	63.78	59.97	3.83	57.57	56.03	28.80	29.44	22.63	38.10	53.19	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	1.10	1.09	0.72	1.08	1.08	1.01	0.98	0.94	1.05	1.11	0.35
d, Delay for Lane Group [s/veh]	25.43	96.21	92.40	19.07	89.99	88.45	50.11	66.17	58.75	59.76	89.78	27.90
Lane Group LOS	C	F	F	B	F	F	F	E	E	F	F	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.89	33.86	31.30	2.84	32.51	30.49	6.75	20.83	17.83	8.22	26.06	4.20
50th-Percentile Queue Length [ft]	72.25	846.49	782.41	70.99	812.83	762.16	168.85	520.66	445.80	205.55	651.41	104.98
95th-Percentile Queue Length [veh]	5.20	46.54	43.04	5.11	44.41	41.75	11.07	28.31	24.76	13.31	36.87	7.56
95th-Percentile Queue Length [ft]	130.05	1163.59	1076.02	127.78	1110.20	1043.72	276.68	707.77	618.93	332.73	921.64	188.96

Movement, Approach, & Intersection Results

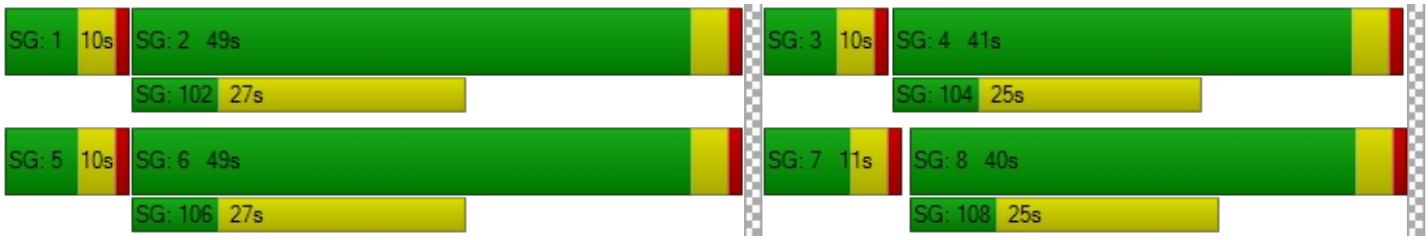
d_M, Delay for Movement [s/veh]	25.43	94.67	92.40	19.07	89.31	88.45	50.11	63.22	58.75	59.76	89.78	27.90
Movement LOS	C	F	F	B	F	F	F	E	E	F	F	C
d_A, Approach Delay [s/veh]	88.39			82.11			60.27			78.27		
Approach LOS	F			F			E			E		
d_I, Intersection Delay [s/veh]	78.23											
Intersection LOS	E											
Intersection V/C	1.140											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.231	3.191	3.015	3.120
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	818	818	655	673
d_b, Bicycle Delay [s]	19.20	19.20	24.89	24.22
I_b,int, Bicycle LOS Score for Intersection	3.063	3.068	2.739	3.152
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	53.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.022

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	174	990	222	87	730	168	218	1168	151	461	1643	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	174	990	222	87	730	168	218	1168	151	461	1643	128
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	248	56	22	183	42	55	292	38	115	411	32
Total Analysis Volume [veh/h]	174	990	222	87	730	168	218	1168	151	461	1643	128
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	33	0	10	33	0	17	48	0	19	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	39	29	29	39	29	29	13	44	44	15	46	46
g / C, Green / Cycle	0.36	0.27	0.27	0.36	0.26	0.26	0.12	0.40	0.40	0.14	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.10	0.26	0.12	0.05	0.25	0.23	0.12	0.36	0.35	0.13	0.43	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	301	1020	483	280	503	476	213	758	718	477	1585	751
d1, Uniform Delay [s]	25.28	39.81	33.58	24.00	39.70	38.85	48.50	31.12	30.65	47.25	32.07	20.12
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.39	0.38	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.86	21.93	3.13	0.62	29.00	20.79	34.99	13.60	11.47	12.60	21.77	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.97	0.46	0.31	0.95	0.89	1.02	0.91	0.88	0.97	1.04	0.17
d, Delay for Lane Group [s/veh]	33.14	61.74	36.71	24.62	68.71	59.64	83.49	44.71	42.12	59.84	53.84	20.23
Lane Group LOS	C	E	D	C	E	E	F	D	D	E	F	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.90	16.15	5.35	1.59	16.51	13.54	7.88	19.49	17.38	7.08	25.06	2.08
50th-Percentile Queue Length [ft]	97.43	403.73	133.84	39.66	412.80	338.58	196.91	487.13	434.39	176.88	626.60	51.93
95th-Percentile Queue Length [veh]	7.02	22.74	9.15	2.86	23.18	19.58	12.60	26.72	24.21	11.44	34.17	3.74
95th-Percentile Queue Length [ft]	175.38	568.49	228.71	71.39	579.40	489.46	315.08	668.11	605.29	285.93	854.32	93.47

Movement, Approach, & Intersection Results

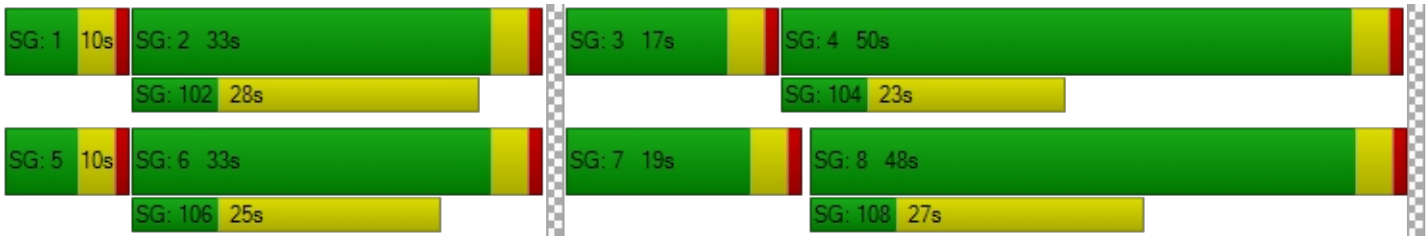
d_M, Delay for Movement [s/veh]	33.14	61.74	36.71	24.62	65.55	59.64	83.49	43.64	42.12	59.84	53.84	20.23
Movement LOS	C	E	D	C	E	E	F	D	D	E	F	C
d_A, Approach Delay [s/veh]	54.14			60.93			49.14			53.15		
Approach LOS	D			E			D			D		
d_I, Intersection Delay [s/veh]	53.62											
Intersection LOS	D											
Intersection V/C	1.022											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.906	2.762	3.066	3.155
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	527	527	800	836
d_b, Bicycle Delay [s]	29.82	29.82	19.80	18.62
I_b,int, Bicycle LOS Score for Intersection	2.703	2.372	2.828	3.401
Bicycle LOS	B	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Berkeley Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.849

Intersection Setup

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name	Berkeley Avenue			Berkeley Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	12	65	61	528	64	92	62	1379	14	76	2122	555
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	65	61	528	64	92	62	1379	14	76	2122	555
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	16	15	132	16	23	16	345	4	19	531	139
Total Analysis Volume [veh/h]	12	65	61	528	64	92	62	1379	14	76	2122	555
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Overlap
Signal group	0	2	0	1	6	0	3	8	0	0	4	4
Auxiliary Signal Groups												1,4
Lead / Lag	-	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	6	6	0	0	6	6
Maximum Green [s]	0	30	0	30	30	0	30	30	0	0	30	30
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0
Split [s]	0	10	0	21	31	0	10	79	0	0	69	69
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	7
Pedestrian Clearance [s]	0	0	0	0	20	0	0	20	0	0	21	21
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0
Minimum Recall		No		No	No		No	No			No	No
Maximum Recall		No		No	No		No	No			No	No
Pedestrian Recall		No		No	No		No	No			No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	6	6	6	17	27	75	75	75	66	66	87
g / C, Green / Cycle	0.05	0.05	0.05	0.15	0.24	0.68	0.68	0.68	0.60	0.60	0.79
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.03	0.15	0.09	0.03	0.38	0.38	0.04	0.56	0.31
s, saturation flow rate [veh/h]	1800	1900	1800	3500	1800	1800	1900	1800	1800	3800	1800
c, Capacity [veh/h]	66	100	95	541	439	426	1298	1230	773	2283	1425
d1, Uniform Delay [s]	49.70	51.11	51.10	46.30	34.44	5.71	8.85	8.84	9.16	19.86	3.45
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.32	6.82	7.01	13.02	0.49	0.16	1.69	1.77	0.25	8.25	0.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.18	0.65	0.64	0.98	0.36	0.15	0.55	0.55	0.10	0.93	0.39
d, Delay for Lane Group [s/veh]	51.02	57.93	58.10	59.32	34.93	5.87	10.54	10.61	9.41	28.10	4.25
Lane Group LOS	D	E	E	E	C	A	B	B	A	C	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	0.34	1.94	1.83	8.12	3.51	0.46	8.43	7.98	0.79	25.03	3.12
50th-Percentile Queue Length [ft]	8.47	48.58	45.75	202.88	87.80	11.38	210.81	199.60	19.87	625.80	78.02
95th-Percentile Queue Length [veh]	0.61	3.50	3.29	12.79	6.32	0.82	13.19	12.62	1.43	33.24	5.62
95th-Percentile Queue Length [ft]	15.25	87.45	82.35	319.67	158.03	20.49	329.86	315.45	35.77	830.93	140.44

Movement, Approach, & Intersection Results

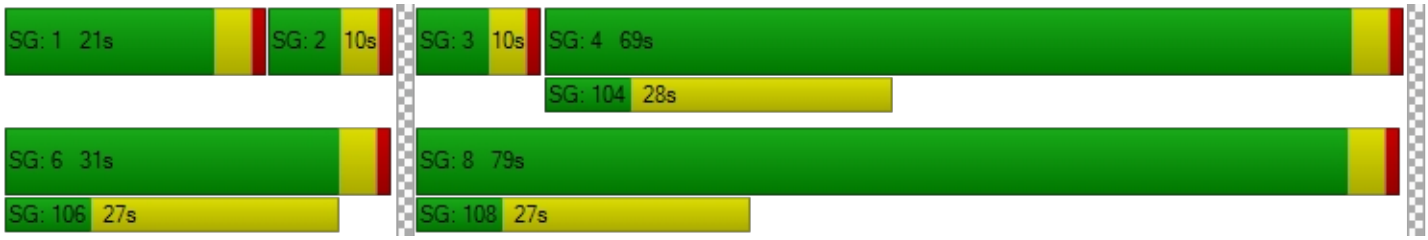
d_M, Delay for Movement [s/veh]	51.02	57.93	58.10	59.32	34.93	34.93	5.87	10.58	10.61	9.41	28.10	4.25
Movement LOS	D	E	E	E	C	C	A	B	B	A	C	A
d_A, Approach Delay [s/veh]	57.41			53.76			10.38			22.78		
Approach LOS	E			D			B			C		
d_I, Intersection Delay [s/veh]	24.35											
Intersection LOS	C											
Intersection V/C	0.849											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.320	2.528	3.044	0.000
Crosswalk LOS	B	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	109	491	1364	1182
d_b, Bicycle Delay [s]	49.16	31.31	5.57	9.20
I_b,int, Bicycle LOS Score for Intersection	1.787	2.688	2.760	3.831
Bicycle LOS	A	B	C	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Raymond Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	79.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.038

Intersection Setup

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Raymond Avenue			Raymond Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	354	282	351	68	171	67	65	1622	174	332	2286	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	354	282	351	68	171	67	65	1622	174	332	2286	110
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	71	88	17	43	17	16	406	44	83	572	28
Total Analysis Volume [veh/h]	354	282	351	68	171	67	65	1622	174	332	2286	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	30	0	10	30	0	10	58	0	12	60	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	18	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	33	24	24	33	23	23	69	54	54	69	60	60
g / C, Green / Cycle	0.30	0.22	0.22	0.30	0.21	0.21	0.62	0.49	0.49	0.62	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.20	0.15	0.20	0.04	0.07	0.06	0.04	0.49	0.48	0.18	0.65	0.65
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	536	414	392	389	401	380	244	930	881	362	1029	975
d1, Uniform Delay [s]	33.34	39.51	41.79	27.83	36.65	36.51	8.03	27.95	27.79	9.49	25.23	25.23
k, delay calibration	0.25	0.12	0.24	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.16	2.12	14.43	0.21	0.44	0.43	0.58	28.26	27.74	30.42	97.85	98.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.68	0.89	0.17	0.31	0.30	0.27	0.99	0.99	0.92	1.20	1.20
d, Delay for Lane Group [s/veh]	36.49	41.63	56.22	28.04	37.09	36.94	8.60	56.20	55.54	39.91	123.08	123.57
Lane Group LOS	D	D	E	C	D	D	A	E	E	D	F	F
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	8.59	7.20	10.73	1.33	2.90	2.59	0.62	30.19	28.23	6.55	52.94	50.29
50th-Percentile Queue Length [ft]	214.78	179.98	268.25	33.13	72.44	64.81	15.45	754.79	705.78	163.80	1323.51	1257.13
95th-Percentile Queue Length [veh]	13.40	11.60	16.10	2.39	5.22	4.67	1.11	39.20	36.95	10.75	74.35	70.91
95th-Percentile Queue Length [ft]	334.95	289.98	402.55	59.64	130.39	116.65	27.81	980.07	923.63	268.75	1858.70	1772.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.49	41.63	56.22	28.04	37.05	36.94	8.60	55.92	55.54	39.91	123.31	123.57
Movement LOS	D	D	E	C	D	D	A	E	E	D	F	F
d_A, Approach Delay [s/veh]	44.98			35.03			54.23			113.17		
Approach LOS	D			D			D			F		
d_I, Intersection Delay [s/veh]	79.01											
Intersection LOS	E											
Intersection V/C	1.038											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.874	2.378	3.470	3.262
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	982	1018
d_b, Bicycle Delay [s]	32.07	32.07	14.25	13.25
I_b,int, Bicycle LOS Score for Intersection	3.188	1.812	3.095	3.810
Bicycle LOS	C	A	C	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 10: Acacia Avenue at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	29.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.898

Intersection Setup

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Acacia Avenue			Acacia Avenue			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	116	252	258	58	123	76	50	1929	106	122	2343	56
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	252	258	58	123	76	50	1929	106	122	2343	56
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	63	65	15	31	19	13	482	27	31	586	14
Total Analysis Volume [veh/h]	116	252	258	58	123	76	50	1929	106	122	2343	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	6	0	0	6	0	6	6	0	6	6	0
Maximum Green [s]	0	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	31	0	0	31	0	10	68	0	11	69	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	20	0	0	20	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	18	18	18	18	18	84	74	74	84	75	75
g / C, Green / Cycle	0.17	0.17	0.17	0.17	0.17	0.76	0.67	0.67	0.76	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.14	0.03	0.11	0.03	0.55	0.55	0.07	0.65	0.65
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1800	1800	1900	1800	1800	1900	1800
c, Capacity [veh/h]	151	319	302	108	302	384	1271	1204	717	1291	1223
d1, Uniform Delay [s]	40.69	43.89	44.44	39.34	42.80	3.28	13.39	13.39	3.42	16.07	16.07
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.91	4.38	6.80	4.07	2.44	0.15	6.09	6.40	0.51	16.26	16.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.79	0.85	0.54	0.66	0.13	0.82	0.82	0.17	0.95	0.95
d, Delay for Lane Group [s/veh]	48.61	48.27	51.24	43.41	45.24	3.43	19.48	19.79	3.93	32.33	32.94
Lane Group LOS	D	D	D	D	D	A	B	B	A	C	C
Critical Lane Group	No	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.13	6.94	7.36	1.47	5.25	0.25	18.91	18.02	0.69	29.99	28.62
50th-Percentile Queue Length [ft]	78.16	173.40	183.96	36.83	131.18	6.15	472.75	450.50	17.18	749.79	715.59
95th-Percentile Queue Length [veh]	5.63	11.25	11.81	2.65	9.00	0.44	26.04	24.98	1.24	38.97	37.40
95th-Percentile Queue Length [ft]	140.69	281.37	295.18	66.29	225.10	11.07	651.04	624.55	30.92	974.32	934.94

Movement, Approach, & Intersection Results

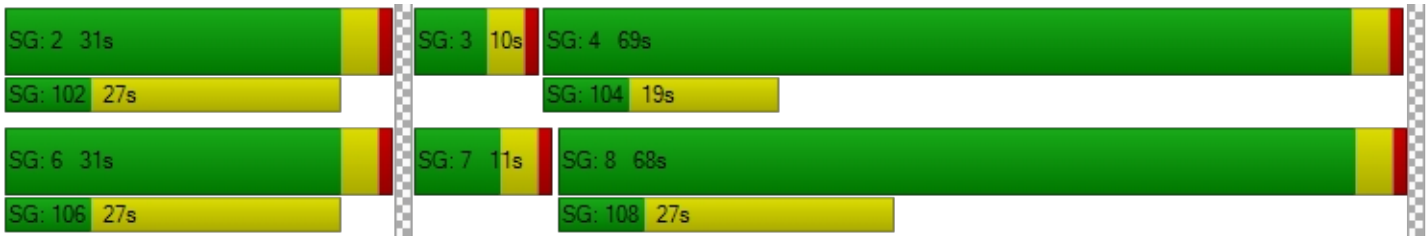
d_M, Delay for Movement [s/veh]	48.61	48.27	51.24	43.41	45.24	45.24	3.43	19.62	19.79	3.93	32.62	32.94
Movement LOS	D	D	D	D	D	D	A	B	B	A	C	C
d_A, Approach Delay [s/veh]	49.56			44.83			19.24			31.24		
Approach LOS	D			D			B			C		
d_I, Intersection Delay [s/veh]	29.41											
Intersection LOS	C											
Intersection V/C	0.898											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.498	2.199	3.375	3.321
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	491	491	1164	1182
d_b, Bicycle Delay [s]	31.31	31.31	9.62	9.20
I_b,int, Bicycle LOS Score for Intersection	2.593	1.984	3.280	3.639
Bicycle LOS	B	A	C	D

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: State College Boulevard at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	127.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.210

Intersection Setup

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	State College Boulevard			State College Boulevard			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	133	610	231	327	489	627	555	1522	78	472	1783	288
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	133	610	231	327	489	627	555	1522	78	472	1783	288
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	153	58	82	122	157	139	381	20	118	446	72
Total Analysis Volume [veh/h]	133	610	231	327	489	627	555	1522	78	472	1783	288
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						3,6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	6	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	13	37	37	18	37	0	26	45	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	26	26	0	23	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	30	30	9	33	51	14	33	33	22	41	41
g / C, Green / Cycle	0.05	0.27	0.27	0.08	0.30	0.46	0.13	0.30	0.30	0.20	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.07	0.16	0.13	0.09	0.13	0.35	0.16	0.40	0.04	0.26	0.47	0.16
s, saturation flow rate [veh/h]	1800	3800	1800	3500	3800	1800	3500	3800	1800	1800	3800	1800
c, Capacity [veh/h]	99	1041	493	288	1144	837	446	1134	537	360	1410	668
d1, Uniform Delay [s]	52.00	34.56	33.28	50.50	30.85	24.17	48.01	38.60	28.30	44.02	34.61	25.91
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.21	0.11	0.42	0.19	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	169.20	2.42	3.18	71.45	1.17	6.09	113.95	156.38	0.12	155.86	121.28	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.34	0.59	0.47	1.14	0.43	0.75	1.24	1.34	0.15	1.31	1.26	0.43
d, Delay for Lane Group [s/veh]	221.20	36.97	36.46	121.95	32.01	30.27	161.96	194.98	28.43	199.88	155.89	26.35
Lane Group LOS	F	D	D	F	C	C	F	F	C	F	F	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	7.37	7.37	5.56	6.80	5.37	14.39	13.15	39.62	1.53	25.30	42.04	5.68
50th-Percentile Queue Length [ft]	184.25	184.25	138.89	169.91	134.36	359.81	328.63	990.53	38.24	632.43	1050.98	141.88
95th-Percentile Queue Length [veh]	12.77	11.82	9.42	11.55	9.18	20.61	20.83	58.85	2.75	38.20	61.09	9.58
95th-Percentile Queue Length [ft]	319.33	295.55	235.53	288.87	229.41	515.36	520.68	1471.15	68.83	954.94	1527.29	239.56

Movement, Approach, & Intersection Results

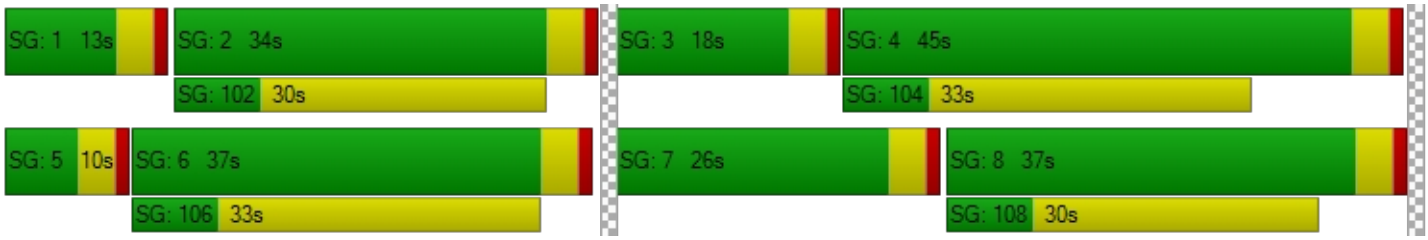
d_M, Delay for Movement [s/veh]	221.20	36.97	36.46	121.95	32.01	30.27	161.96	194.98	28.43	199.88	155.89	26.35
Movement LOS	F	D	D	F	C	C	F	F	C	F	F	C
d_A, Approach Delay [s/veh]	62.01			51.64			180.45			149.39		
Approach LOS	E			D			F			F		
d_I, Intersection Delay [s/veh]	127.01											
Intersection LOS	F											
Intersection V/C	1.210											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.790	3.007	3.258	3.214
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	545	600	600	745
d_b, Bicycle Delay [s]	29.09	26.95	26.95	21.64
I_b,int, Bicycle LOS Score for Intersection	2.363	2.750	3.337	3.658
Bicycle LOS	B	C	C	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.918

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	130	235	411	0	1637	831	230	2042	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	130	235	411	0	1637	831	230	2042	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	33	59	103	0	409	208	58	511	0
Total Analysis Volume [veh/h]	0	0	0	130	235	411	0	1637	831	230	2042	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	35	0	0	60	0	15	75	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		27	27	56	56	15	74
g / C, Green / Cycle		0.25	0.25	0.51	0.51	0.13	0.68
(v / s)_i Volume / Saturation Flow Rate		0.20	0.23	0.43	0.46	0.13	0.54
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		450	450	1930	914	239	2574
d1, Uniform Delay [s]		38.81	40.09	23.39	24.73	47.38	12.37
k, delay calibration		0.25	0.31	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		7.76	18.07	4.86	14.51	19.03	2.61
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.81	0.91	0.85	0.91	0.96	0.79
d, Delay for Lane Group [s/veh]		46.56	58.16	28.25	39.24	66.41	14.98
Lane Group LOS		D	E	C	D	E	B
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		10.14	12.93	18.75	22.42	7.49	16.33
50th-Percentile Queue Length [ft]		253.49	323.15	468.83	560.44	187.36	408.19
95th-Percentile Queue Length [veh]		15.36	18.82	25.86	30.18	11.98	22.95
95th-Percentile Queue Length [ft]		384.04	470.56	646.38	754.56	299.59	573.86

Movement, Approach, & Intersection Results

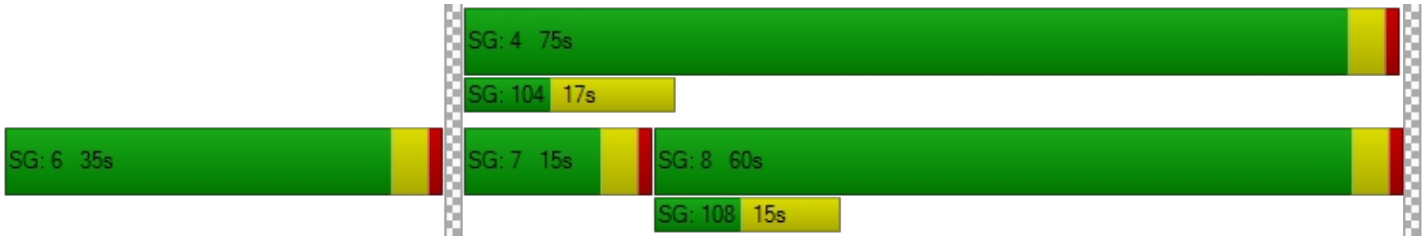
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	46.56	46.56	58.16	0.00	28.25	39.24	66.41	14.98	0.00
Movement LOS				D	D	E		C	D	E	B	
d_A, Approach Delay [s/veh]	0.00			52.71			31.95			20.19		
Approach LOS	A			D			C			C		
d_I, Intersection Delay [s/veh]	30.03											
Intersection LOS	C											
Intersection V/C	0.918											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.697	2.103	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	564	1018	1291
d_b, Bicycle Delay [s]	55.00	28.37	13.25	6.91
I_b,int, Bicycle LOS Score for Intersection	4.132	2.840	2.917	3.434
Bicycle LOS	D	C	C	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	86.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.094

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	210	0	135	0	0	0	106	332	0	0	381	56
Total Analysis Volume [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	27	0	0	0	0	0	28	83	0	0	55	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	23	23		28	79	47	47
g / C, Green / Cycle	0.21	0.21	0.21		0.26	0.72	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.26		0.23	0.35	0.46	0.48
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	377	377	377		460	2728	810	767
d1, Uniform Delay [s]	43.47	43.47	43.47		39.82	6.73	31.56	31.56
k, delay calibration	0.40	0.40	0.40		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	117.28	117.28	117.28		7.81	0.63	54.69	77.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.22	1.22	1.22		0.92	0.49	1.08	1.14
d, Delay for Lane Group [s/veh]	160.75	160.75	160.75		47.64	7.36	86.25	108.99
Lane Group LOS	F	F	F		D	A	F	F
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	22.42	22.42	22.42		11.95	6.09	32.96	36.07
50th-Percentile Queue Length [ft]	560.55	560.55	560.55		298.66	152.33	824.03	901.79
95th-Percentile Queue Length [veh]	33.41	33.41	33.41		17.61	10.14	44.80	50.35
95th-Percentile Queue Length [ft]	835.27	835.27	835.27		440.37	253.53	1119.91	1258.66

Movement, Approach, & Intersection Results

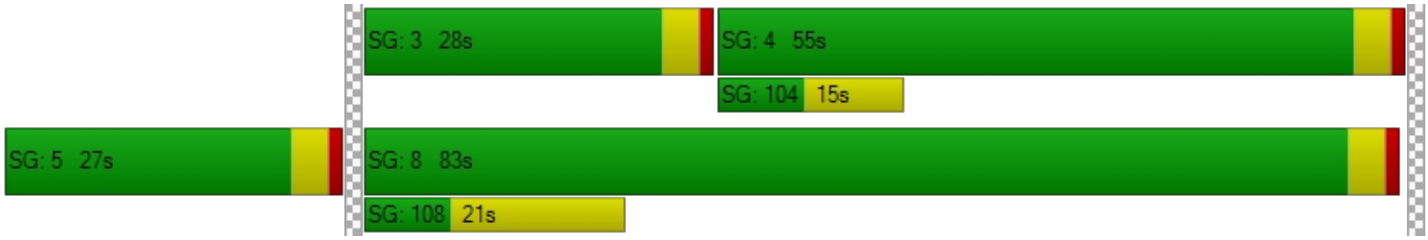
d_M, Delay for Movement [s/veh]	160.75	0.00	160.75	0.00	0.00	0.00	47.64	7.36	0.00	0.00	95.96	108.99
Movement LOS	F		F				D	A			F	F
d_A, Approach Delay [s/veh]	160.75			0.00			17.06			97.62		
Approach LOS	F			A			B			F		
d_I, Intersection Delay [s/veh]	86.56											
Intersection LOS	F											
Intersection V/C	1.094											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.398	2.062	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1436	927
d_b, Bicycle Delay [s]	55.00	55.00	4.37	15.82
I_b,int, Bicycle LOS Score for Intersection	6.409	4.132	3.004	2.999
Bicycle LOS	F	D	C	C

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Lemon Street at Wilshire Avenue

Control Type:	Signalized	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.577

Intersection Setup

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Wilshire Avenue			Wilshire Avenue		
Base Volume Input [veh/h]	48	1358	85	70	1215	49	21	46	51	105	55	96
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	1358	85	70	1215	49	21	46	51	105	55	96
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	340	21	18	304	12	5	12	13	26	14	24
Total Analysis Volume [veh/h]	48	1358	85	70	1215	49	21	46	51	105	55	96
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	49	0	0	49	0	0	61	0	0	61	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	84	84	18	18
g / C, Green / Cycle	0.77	0.77	0.77	0.77	0.77	0.77	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.39	0.39	0.04	0.34	0.34	0.07	0.14
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	1173	1456	1380	1121	1456	1380	328	335
d1, Uniform Delay [s]	3.07	4.93	4.88	3.11	4.56	4.53	41.35	45.05
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	1.29	1.32	0.11	1.00	1.03	0.67	3.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.51	0.50	0.06	0.45	0.44	0.36	0.76
d, Delay for Lane Group [s/veh]	3.14	6.22	6.20	3.22	5.56	5.56	42.02	48.67
Lane Group LOS	A	A	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	0.23	5.75	5.34	0.34	4.64	4.33	2.93	7.11
50th-Percentile Queue Length [ft]	5.78	143.87	133.51	8.58	115.93	108.31	73.21	177.87
95th-Percentile Queue Length [veh]	0.42	9.69	9.13	0.62	8.17	7.75	5.27	11.49
95th-Percentile Queue Length [ft]	10.40	242.23	228.26	15.44	204.22	193.65	131.77	287.23

Movement, Approach, & Intersection Results

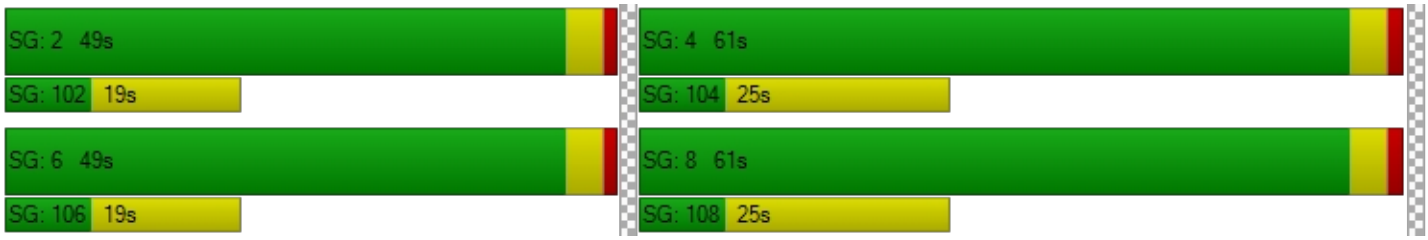
d_M, Delay for Movement [s/veh]	3.14	6.21	6.20	3.22	5.56	5.56	42.02	42.02	42.02	48.67	48.67	48.67
Movement LOS	A	A	A	A	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	6.11			5.44			42.02			48.67		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	10.56											
Intersection LOS	B											
Intersection V/C	0.577											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.017	2.887	1.924	2.047
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	818	818	1036	1036
d_b, Bicycle Delay [s]	19.20	19.20	12.77	12.77
I_b,int, Bicycle LOS Score for Intersection	2.790	2.660	1.754	1.982
Bicycle LOS	C	B	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 15: Harbor Boulevard at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	61.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.118

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	229	1529	282	115	1753	148	162	804	210	292	1187	139
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	229	1529	282	115	1753	148	162	804	210	292	1187	139
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	382	71	29	438	37	41	201	53	73	297	35
Total Analysis Volume [veh/h]	229	1529	282	115	1753	148	162	804	210	292	1187	139
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	55	0	10	55	0	10	33	0	12	35	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	20	0	0	22	0	0	17	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	61	51	51	61	51	51	41	29	29	41	31	31
g / C, Green / Cycle	0.55	0.47	0.47	0.55	0.46	0.46	0.37	0.26	0.26	0.37	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.13	0.40	0.16	0.06	0.51	0.51	0.09	0.21	0.12	0.16	0.31	0.08
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	1800	3800	1800
c, Capacity [veh/h]	264	1767	837	444	880	834	267	996	472	408	1065	505
d1, Uniform Delay [s]	12.52	26.35	18.67	11.67	29.52	29.52	23.76	37.99	33.91	25.81	39.58	30.87
k, delay calibration	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.55	1.38	0.24	0.31	64.75	65.45	2.22	7.02	3.03	10.25	64.48	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.87	0.34	0.26	1.11	1.11	0.61	0.81	0.45	0.72	1.11	0.28
d, Delay for Lane Group [s/veh]	21.07	27.73	18.91	11.98	94.27	94.96	25.98	45.01	36.94	36.05	104.06	32.22
Lane Group LOS	C	C	B	B	F	F	C	D	D	D	F	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	3.44	17.56	4.56	1.36	38.00	36.16	3.06	10.99	5.07	6.84	23.67	3.06
50th-Percentile Queue Length [ft]	86.04	438.94	113.89	33.90	949.88	903.92	76.56	274.67	126.67	170.89	591.77	76.61
95th-Percentile Queue Length [veh]	6.19	24.43	8.06	2.44	52.00	49.73	5.51	16.42	8.76	11.12	33.80	5.52
95th-Percentile Queue Length [ft]	154.87	610.74	201.40	61.03	1300.03	1243.18	137.81	410.57	218.96	278.09	844.90	137.89

Movement, Approach, & Intersection Results

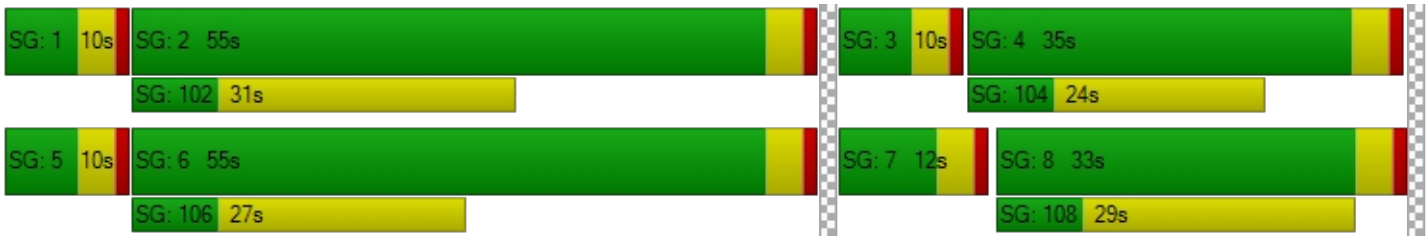
d_M, Delay for Movement [s/veh]	21.07	27.73	18.91	11.98	94.58	94.96	25.98	45.01	36.94	36.05	104.06	32.22
Movement LOS	C	C	B	B	F	F	C	D	D	D	F	C
d_A, Approach Delay [s/veh]	25.76			89.89			40.95			85.61		
Approach LOS	C			F			D			F		
d_I, Intersection Delay [s/veh]	61.38											
Intersection LOS	E											
Intersection V/C	1.118											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.292	3.128	3.065	3.000
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	927	927	527	564
d_b, Bicycle Delay [s]	15.82	15.82	29.82	28.37
I_b,int, Bicycle LOS Score for Intersection	3.243	3.223	2.530	2.894
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 16: Lemon Street at Commonwealth Avenue

Control Type:	Signalized	Delay (sec / veh):	52.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.006

Intersection Setup

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Commonwealth Avenue			Commonwealth Avenue		
Base Volume Input [veh/h]	153	1180	270	47	1098	122	196	949	122	521	1369	90
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	153	1180	270	47	1098	122	196	949	122	521	1369	90
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	295	68	12	275	31	49	237	31	130	342	23
Total Analysis Volume [veh/h]	153	1180	270	47	1098	122	196	949	122	521	1369	90
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	41	0	10	40	0	16	37	0	22	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	23	0	0	19	0	0	19	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	47	38	38	47	36	36	12	33	33	18	39	39
g / C, Green / Cycle	0.43	0.35	0.35	0.43	0.33	0.33	0.11	0.30	0.30	0.16	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.09	0.31	0.15	0.03	0.34	0.32	0.11	0.25	0.07	0.15	0.36	0.05
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3800	1800	3500	3800	1800
c, Capacity [veh/h]	280	1326	628	336	621	589	200	1138	539	576	1342	636
d1, Uniform Delay [s]	19.74	33.81	27.42	18.54	37.02	36.86	48.79	35.97	28.95	45.11	35.58	24.23
k, delay calibration	0.11	0.11	0.11	0.11	0.48	0.45	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.66	2.26	0.47	0.19	41.65	33.23	25.57	7.24	0.97	5.69	29.83	0.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.89	0.43	0.14	1.02	0.99	0.98	0.83	0.23	0.91	1.02	0.14
d, Delay for Lane Group [s/veh]	21.40	36.07	27.89	18.73	78.67	70.10	74.36	43.21	29.93	50.80	65.42	24.70
Lane Group LOS	C	D	C	B	F	E	E	D	C	D	F	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.57	14.97	5.48	0.72	23.50	20.69	6.76	12.86	2.57	7.39	23.05	1.68
50th-Percentile Queue Length [ft]	64.35	374.16	137.05	18.08	587.58	517.33	169.09	321.38	64.23	184.71	576.17	42.00
95th-Percentile Queue Length [veh]	4.63	21.31	9.32	1.30	31.98	28.15	11.03	18.74	4.62	11.85	31.36	3.02
95th-Percentile Queue Length [ft]	115.83	532.77	233.05	32.54	799.56	703.83	275.72	468.38	115.61	296.16	784.04	75.61

Movement, Approach, & Intersection Results

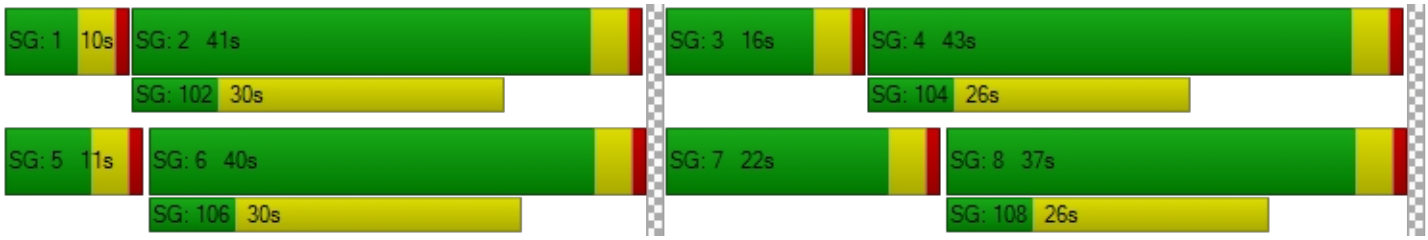
d_M, Delay for Movement [s/veh]	21.40	36.07	27.89	18.73	75.07	70.10	74.36	43.21	29.93	50.80	65.42	24.70
Movement LOS	C	D	C	B	E	E	E	D	C	D	F	C
d_A, Approach Delay [s/veh]	33.29			72.50			46.75			59.72		
Approach LOS	C			E			D			E		
d_I, Intersection Delay [s/veh]	52.75											
Intersection LOS	D											
Intersection V/C	1.006											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.006	2.842	3.011	3.080
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	673	655	600	709
d_b, Bicycle Delay [s]	24.22	24.89	26.95	22.91
I_b,int, Bicycle LOS Score for Intersection	2.882	2.605	2.605	3.193
Bicycle LOS	C	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 17: Harbor Boulevard at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	78.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.179

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	94	1827	65	189	540	1502	113	171	181	156	216	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	94	1827	65	189	540	1502	113	171	181	156	216	115
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	457	16	47	135	376	28	43	45	39	54	29
Total Analysis Volume [veh/h]	94	1827	65	189	540	1502	113	171	181	156	216	115
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	30	0	0	30	0	0	80	0	0	80	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	11	0	0	20	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	71	71	71	71	71	71	31	31	31
g / C, Green / Cycle	0.65	0.65	0.65	0.65	0.65	0.65	0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.05	0.51	0.51	0.11	0.28	0.83	0.26	0.09	0.18
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800	1800
c, Capacity [veh/h]	69	1233	1168	557	1233	1168	541	79	501
d1, Uniform Delay [s]	7.03	13.85	13.85	7.56	9.45	19.28	38.58	29.92	35.06
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	233.46	5.14	5.42	1.65	1.13	135.17	4.11	452.05	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.37	0.79	0.79	0.34	0.44	1.29	0.86	1.98	0.66
d, Delay for Lane Group [s/veh]	240.49	18.99	19.26	9.21	10.58	154.44	42.69	481.97	36.56
Lane Group LOS	F	B	B	A	B	F	D	F	D
Critical Lane Group	No	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh]	5.03	17.37	16.55	1.91	6.31	70.00	12.61	11.45	7.97
50th-Percentile Queue Length [ft]	125.63	434.34	413.68	47.84	157.78	1749.90	315.36	286.33	199.24
95th-Percentile Queue Length [veh]	9.05	24.21	23.22	3.44	10.43	101.56	18.44	20.62	12.60
95th-Percentile Queue Length [ft]	226.13	605.23	580.46	86.10	260.78	2538.99	460.98	515.40	314.98

Movement, Approach, & Intersection Results

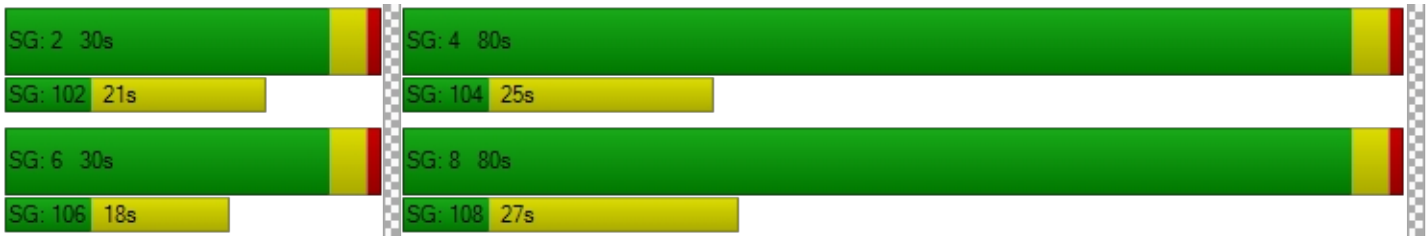
d_M, Delay for Movement [s/veh]	240.49	19.12	19.26	9.21	10.58	154.44	42.69	42.69	42.69	481.97	36.56	36.56
Movement LOS	F	B	B	A	B	F	D	D	D	F	D	D
d_A, Approach Delay [s/veh]	29.60			107.32			42.69			179.24		
Approach LOS	C			F			D			F		
d_I, Intersection Delay [s/veh]	78.42											
Intersection LOS	E											
Intersection V/C	1.179											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.090	3.306	2.968	2.515
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	1382	1382
d_b, Bicycle Delay [s]	32.07	32.07	5.25	5.25
I_b,int, Bicycle LOS Score for Intersection	3.198	3.400	2.327	2.363
Bicycle LOS	C	C	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 18: Lemon Street at Valencia Drive

Control Type:	Signalized	Delay (sec / veh):	15.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.733

Intersection Setup

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Valencia Drive			Valencia Drive		
Base Volume Input [veh/h]	222	1586	94	58	1586	203	125	43	182	105	55	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	222	1586	94	58	1586	203	125	43	182	105	55	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	56	397	24	15	397	51	31	11	46	26	14	12
Total Analysis Volume [veh/h]	222	1586	94	58	1586	203	125	43	182	105	55	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	0	6	0	0	6	0	0	6	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	36	0	0	74	0	0	74	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	12	0	0	14	0	0	11	0	0	11	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	78	78	78	78	78	78	24	24
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.71	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.12	0.45	0.45	0.03	0.49	0.48	0.19	0.12
s, saturation flow rate [veh/h]	1800	1900	1800	1800	1900	1800	1800	1800
c, Capacity [veh/h]	830	1355	1284	885	1355	1284	430	434
d1, Uniform Delay [s]	5.15	8.28	8.27	4.67	8.78	8.72	42.12	38.38
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.79	2.30	2.42	0.14	2.78	2.86	3.80	0.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.64	0.64	0.07	0.68	0.68	0.81	0.48
d, Delay for Lane Group [s/veh]	5.94	10.58	10.69	4.81	11.56	11.58	45.92	39.21
Lane Group LOS	A	B	B	A	B	B	D	D
Critical Lane Group	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh]	1.67	10.18	9.66	0.39	11.59	10.86	9.62	5.09
50th-Percentile Queue Length [ft]	41.82	254.58	241.48	9.70	289.87	271.53	240.53	127.22
95th-Percentile Queue Length [veh]	3.01	15.42	14.76	0.70	17.18	16.27	14.71	8.79
95th-Percentile Queue Length [ft]	75.28	385.42	368.90	17.45	429.48	406.65	367.71	219.71

Movement, Approach, & Intersection Results

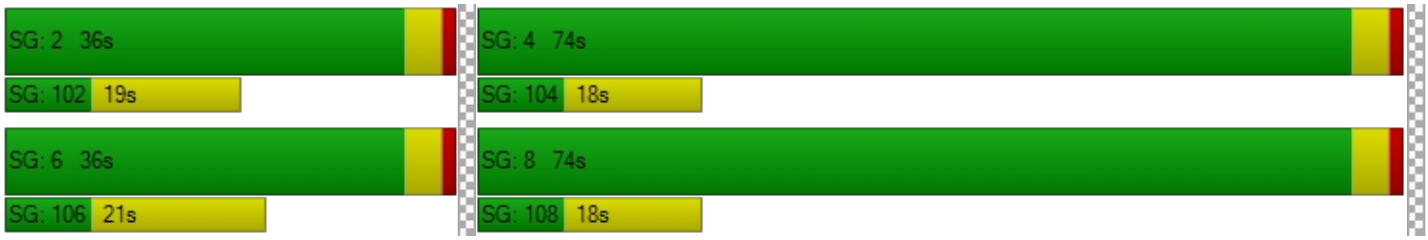
d_M, Delay for Movement [s/veh]	5.94	10.63	10.69	4.81	11.57	11.58	45.92	45.92	45.92	39.21	39.21	39.21
Movement LOS	A	B	B	A	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.09			11.35			45.92			39.21		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	14.95											
Intersection LOS	B											
Intersection V/C	0.733											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.195	3.191	2.445	2.004
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	582	582	1273	1273
d_b, Bicycle Delay [s]	27.65	27.65	7.27	7.27
I_b,int, Bicycle LOS Score for Intersection	3.129	3.083	2.137	1.904
Bicycle LOS	C	C	B	A

Sequence

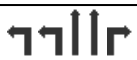
Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 19: Harbor Boulevard at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	115.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.119

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	345	1940	276	227	1730	211	242	940	236	285	1403	260
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	345	1940	276	227	1730	211	242	940	236	285	1403	260
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	485	69	57	433	53	61	235	59	71	351	65
Total Analysis Volume [veh/h]	345	1940	276	227	1730	211	242	940	236	285	1403	260
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	44	0	10	42	0	19	39	0	17	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	27	0	0	27	0	0	28	0	0	26	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	40	40	6	38	38	15	35	35	13	33	33
g / C, Green / Cycle	0.07	0.36	0.36	0.05	0.35	0.35	0.14	0.32	0.32	0.12	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.10	0.51	0.15	0.06	0.42	0.20	0.13	0.16	0.13	0.16	0.25	0.14
s, saturation flow rate [veh/h]	3500	3800	1800	3500	3800	1800	1800	5700	1800	1800	5700	1800
c, Capacity [veh/h]	255	1380	654	191	1311	621	248	1805	570	216	1703	538
d1, Uniform Delay [s]	51.00	35.02	26.34	52.00	36.02	29.57	47.22	30.75	29.56	48.40	35.88	31.62
k, delay calibration	0.11	0.24	0.11	0.11	0.16	0.15	0.11	0.50	0.50	0.14	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	165.36	184.54	0.43	96.15	93.77	1.24	21.03	1.08	2.21	152.82	4.68	3.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.35	1.41	0.42	1.19	1.20	0.59	0.97	0.52	0.41	1.32	0.82	0.48
d, Delay for Lane Group [s/veh]	216.36	219.56	26.77	148.15	129.79	30.80	68.24	31.83	31.77	201.22	40.56	34.71
Lane Group LOS	F	F	C	F	F	C	E	C	C	F	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	9.34	53.34	5.48	5.18	34.22	8.02	8.01	6.93	5.23	15.07	12.23	6.09
50th-Percentile Queue Length [ft]	233.55	1333.53	136.98	129.44	855.55	200.57	200.35	173.14	130.83	376.78	305.80	152.33
95th-Percentile Queue Length [veh]	15.71	79.65	9.32	9.32	49.24	12.67	12.66	11.24	8.98	23.82	17.97	10.14
95th-Percentile Queue Length [ft]	392.64	1991.32	232.95	232.98	1230.99	316.71	316.42	281.03	224.62	595.48	449.20	253.53

Movement, Approach, & Intersection Results

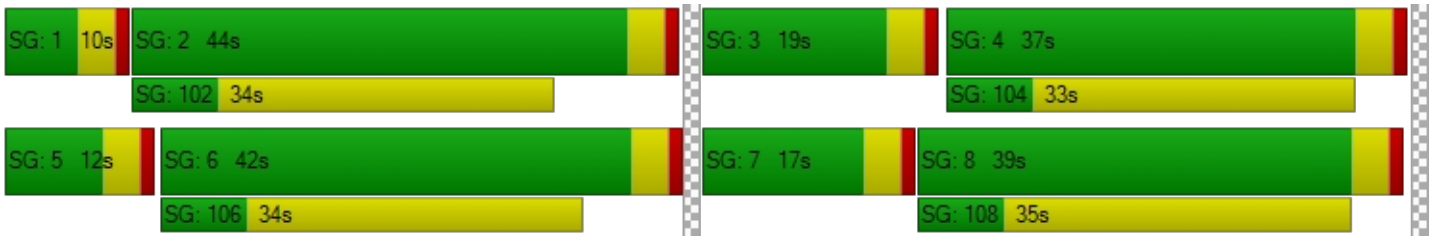
d_M, Delay for Movement [s/veh]	216.36	219.56	26.77	148.15	121.04	30.80	68.24	31.83	31.77	201.22	40.56	34.71
Movement LOS	F	F	C	F	F	C	E	C	C	F	D	C
d_A, Approach Delay [s/veh]	198.35			115.10			38.04			63.28		
Approach LOS	F			F			D			E		
d_I, Intersection Delay [s/veh]	115.47											
Intersection LOS	F											
Intersection V/C	1.119											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.321	3.246	3.147	3.148
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	727	691	636	600
d_b, Bicycle Delay [s]	22.27	23.56	25.57	26.95
I_b,int, Bicycle LOS Score for Intersection	3.672	2.752	2.340	2.631
Bicycle LOS	D	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 20: Lemon Street at Orangethorpe Avenue

Control Type:	Signalized	Delay (sec / veh):	93.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.156

Intersection Setup

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Orangethorpe Avenue			Orangethorpe Avenue		
Base Volume Input [veh/h]	319	1512	121	215	1408	229	251	904	238	470	1134	190
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	319	1512	121	215	1408	229	251	904	238	470	1134	190
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	378	30	54	352	57	63	226	60	118	284	48
Total Analysis Volume [veh/h]	319	1512	121	215	1408	229	251	904	238	470	1134	190
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	40	0	15	39	0	17	35	0	20	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	0	25	0	0	20	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	51	37	37	51	35	35	13	31	31	16	34	34
g / C, Green / Cycle	0.46	0.34	0.34	0.46	0.32	0.32	0.12	0.28	0.28	0.15	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.18	0.40	0.07	0.12	0.37	0.13	0.14	0.24	0.13	0.13	0.36	0.36
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3800	1800	1800	3800	1800	3500	1900	1800
c, Capacity [veh/h]	361	1275	604	331	1208	572	216	1067	506	514	585	554
d1, Uniform Delay [s]	19.25	36.55	26.04	17.99	37.52	29.32	48.41	37.33	32.78	46.26	38.08	38.08
k, delay calibration	0.11	0.16	0.11	0.11	0.15	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.17	86.55	0.16	2.16	77.52	0.45	84.79	8.33	3.13	6.92	94.29	88.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	1.19	0.20	0.65	1.17	0.40	1.16	0.85	0.47	0.92	1.17	1.15
d, Delay for Lane Group [s/veh]	26.42	123.10	26.20	20.15	115.04	29.78	133.20	45.66	35.91	53.18	132.36	126.41
Lane Group LOS	C	F	C	C	F	C	F	D	D	D	F	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	5.96	32.02	2.29	3.50	28.90	4.78	10.97	12.55	5.67	6.79	30.73	28.20
50th-Percentile Queue Length [ft]	148.94	800.54	57.15	87.42	722.56	119.57	274.23	313.78	141.80	169.80	768.24	704.91
95th-Percentile Queue Length [veh]	9.96	45.99	4.12	6.29	41.49	8.37	17.43	18.36	9.58	11.07	43.90	40.33
95th-Percentile Queue Length [ft]	249.02	1149.87	102.88	157.36	1037.31	209.24	435.66	459.03	239.44	276.66	1097.62	1008.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.42	123.10	26.20	20.15	115.04	29.78	133.20	45.66	35.91	53.18	130.00	126.41
Movement LOS	C	F	C	C	F	C	F	D	D	D	F	F
d_A, Approach Delay [s/veh]	101.29			93.48			59.77			109.50		
Approach LOS	F			F			E			F		
d_I, Intersection Delay [s/veh]	93.05											
Intersection LOS	F											
Intersection V/C	1.156											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.123	3.081	3.115	3.134
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	655	636	564	618
d_b, Bicycle Delay [s]	24.89	25.57	28.37	26.25
I_b,int, Bicycle LOS Score for Intersection	3.170	3.088	2.326	3.040
Bicycle LOS	C	C	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.936

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	85	2560	0	0	1826	834	0	0	0	337	467	552
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	2560	0	0	1826	834	0	0	0	337	467	552
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	640	0	0	457	209	0	0	0	84	117	138
Total Analysis Volume [veh/h]	85	2560	0	0	1826	834	0	0	0	337	467	552
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	64	0	0	54	0	0	0	0	0	36	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	60	51	51		32	32	32
g / C, Green / Cycle	0.05	0.60	0.51	0.51		0.32	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.45	0.47	0.49		0.19	0.12	0.31
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	194	3421	1918	909		576	1216	576
d1, Uniform Delay [s]	45.74	14.52	22.99	24.17		28.46	26.37	33.36
k, delay calibration	0.11	0.50	0.50	0.50		0.15	0.11	0.42
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	1.54	9.06	24.55		1.29	0.20	25.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.75	0.92	0.98		0.59	0.38	0.96
d, Delay for Lane Group [s/veh]	47.30	16.06	32.05	48.71		29.75	26.57	59.10
Lane Group LOS	D	B	C	D		C	C	E
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.06	13.23	20.47	25.17		6.84	4.29	16.86
50th-Percentile Queue Length [ft]	26.50	330.78	511.74	629.32		171.10	107.37	421.51
95th-Percentile Queue Length [veh]	1.91	19.20	27.89	33.40		11.13	7.69	23.59
95th-Percentile Queue Length [ft]	47.70	479.92	697.23	835.03		278.36	192.34	589.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.30	16.06	0.00	0.00	32.54	48.71	0.00	0.00	0.00	29.75	26.57	59.10
Movement LOS	D	B			C	D				C	C	E
d_A, Approach Delay [s/veh]	17.06			37.61			0.00			40.60		
Approach LOS	B			D			A			D		
d_I, Intersection Delay [s/veh]	30.06											
Intersection LOS	C											
Intersection V/C	0.936											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.395	2.466
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1000	0	640
d_b, Bicycle Delay [s]	8.00	12.50	50.00	23.12
I_b,int, Bicycle LOS Score for Intersection	3.014	3.023	4.132	2.678
Bicycle LOS	C	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	40.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.011

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	111	1514	0	0	1523	418	0	0	0	183	776	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	1514	0	0	1523	418	0	0	0	183	776	844
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	379	0	0	381	105	0	0	0	46	194	211
Total Analysis Volume [veh/h]	111	1514	0	0	1523	418	0	0	0	183	776	844
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	50	0	0	40	0	0	0	0	0	50	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	46	36	36		46	46	46
g / C, Green / Cycle	0.06	0.46	0.36	0.36		0.46	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.06	0.27	0.34	0.36		0.27	0.25	0.47
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	110	2629	1369	649		826	872	826
d1, Uniform Delay [s]	46.96	19.76	31.03	31.94		20.09	19.48	27.06
k, delay calibration	0.11	0.50	0.50	0.50		0.16	0.12	0.48
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	42.99	0.93	14.32	34.76		0.99	0.59	36.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.58	0.95	1.00		0.59	0.54	1.02
d, Delay for Lane Group [s/veh]	89.94	20.69	45.35	66.71		21.09	20.06	63.51
Lane Group LOS	F	C	D	E		C	C	F
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	4.02	8.54	17.33	21.30		8.35	7.74	26.87
50th-Percentile Queue Length [ft]	100.53	213.49	433.31	532.56		208.75	193.55	671.80
95th-Percentile Queue Length [veh]	7.24	13.33	24.16	28.87		13.09	12.31	35.98
95th-Percentile Queue Length [ft]	180.95	333.31	604.00	721.79		327.22	307.63	899.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	89.94	20.69	0.00	0.00	48.56	66.71	0.00	0.00	0.00	21.09	20.47	63.51
Movement LOS	F	C			D	E				C	C	F
d_A, Approach Delay [s/veh]	25.42			52.47			0.00			40.68		
Approach LOS	C			D			A			D		
d_I, Intersection Delay [s/veh]	40.32											
Intersection LOS	D											
Intersection V/C	1.011											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.356	2.531
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	920	720	0	920
d_b, Bicycle Delay [s]	14.58	20.48	50.00	14.58
I_b,int, Bicycle LOS Score for Intersection	2.453	2.627	4.132	3.047
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.815

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1708	233	453	1763	0	1008	365	158	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1708	233	453	1763	0	1008	365	158	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	427	58	113	441	0	252	91	40	0	0	0
Total Analysis Volume [veh/h]	0	1708	233	453	1763	0	1008	365	158	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	29	0	21	50	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	40	40	15	59	33	33	33	
g / C, Green / Cycle	0.40	0.40	0.15	0.59	0.33	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.13	0.13	0.31	0.29	0.19	0.09	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	2251	711	526	3336	1172	636	603	
d1, Uniform Delay [s]	26.14	21.03	41.47	12.46	31.08	27.39	24.26	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.46	1.23	4.29	0.60	1.98	0.82	0.23	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.76	0.33	0.86	0.53	0.86	0.57	0.26	
d, Delay for Lane Group [s/veh]	28.60	22.26	45.75	13.06	33.06	28.21	24.49	
Lane Group LOS	C	C	D	B	C	C	C	
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	11.83	3.97	5.70	7.54	11.36	7.19	2.74	
50th-Percentile Queue Length [ft]	295.73	99.21	142.62	188.38	284.04	179.76	68.49	
95th-Percentile Queue Length [veh]	17.47	7.14	9.62	12.04	16.89	11.59	4.93	
95th-Percentile Queue Length [ft]	436.74	178.59	240.54	300.93	422.24	289.71	123.28	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	28.60	22.26	45.75	13.06	0.00	33.06	28.21	24.49	0.00	0.00	0.00
Movement LOS		C	C	D	B		C	C	C			
d_A, Approach Delay [s/veh]	27.84			19.74			31.02			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	25.54											
Intersection LOS	C											
Intersection V/C	0.815											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.509	2.232
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	920	920	0
d_b, Bicycle Delay [s]	28.13	14.58	14.58	50.00
I_b,int, Bicycle LOS Score for Intersection	2.627	2.778	4.086	4.132
Bicycle LOS	B	C	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.814

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1223	229	588	1083	0	397	608	63	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1223	229	588	1083	0	397	608	63	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	306	57	147	271	0	99	152	16	0	0	0
Total Analysis Volume [veh/h]	0	1223	229	588	1083	0	397	608	63	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	25	48	0	0	52	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	38	38	19	61	31	31	31	
g / C, Green / Cycle	0.38	0.38	0.19	0.61	0.31	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.27	0.17	0.29	0.28	0.26	0.04	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1433	679	663	2305	564	595	564	
d1, Uniform Delay [s]	26.03	26.53	39.48	10.82	32.72	32.04	24.43	
k, delay calibration	0.50	0.50	0.11	0.50	0.15	0.13	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.57	6.28	4.23	0.69	7.08	4.01	0.09	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.68	0.71	0.89	0.47	0.89	0.84	0.11	
d, Delay for Lane Group [s/veh]	28.60	32.81	43.72	11.51	39.79	36.05	24.52	
Lane Group LOS	C	C	D	B	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	9.87	10.73	7.33	6.31	12.41	11.71	1.07	
50th-Percentile Queue Length [ft]	246.82	268.17	183.20	157.80	310.25	292.74	26.76	
95th-Percentile Queue Length [veh]	15.03	16.10	11.77	10.43	18.19	17.32	1.93	
95th-Percentile Queue Length [ft]	375.64	402.46	294.18	260.80	454.68	433.04	48.17	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	29.48	32.81	43.72	11.51	0.00	39.79	36.70	24.52	0.00	0.00	0.00
Movement LOS		C	C	D	B		D	D	C			
d_A, Approach Delay [s/veh]	30.00			22.84			37.13			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	28.97											
Intersection LOS	C											
Intersection V/C	0.814											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.292	2.414
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	880	960	0
d_b, Bicycle Delay [s]	32.81	15.68	13.52	50.00
I_b,int, Bicycle LOS Score for Intersection	2.358	2.938	2.441	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 25: Harbor Boulevard at Bastanchury Road

Control Type:	Signalized	Delay (sec / veh):	89.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.058

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			Bastanchury Road			Bastanchury Road		
Base Volume Input [veh/h]	354	1768	267	387	1562	467	362	1491	271	266	1317	366
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	354	1768	267	387	1562	467	362	1491	271	266	1317	366
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	442	67	97	391	117	91	373	68	67	329	92
Total Analysis Volume [veh/h]	354	1768	267	387	1562	467	362	1491	271	266	1317	366
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	42	0	10	39	0	16	46	0	12	42	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	31	0	0	24	0	0	31	0	0	31	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	41	41	6	38	38	12	39	39	8	35	35
g / C, Green / Cycle	0.08	0.37	0.37	0.05	0.34	0.34	0.11	0.36	0.36	0.07	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.10	0.31	0.15	0.11	0.36	0.37	0.20	0.31	0.32	0.08	0.23	0.20
s, saturation flow rate [veh/h]	3500	5700	1800	3500	3800	1800	1800	3800	1800	3500	5700	1800
c, Capacity [veh/h]	289	2114	668	194	1306	619	197	1349	639	257	1817	574
d1, Uniform Delay [s]	50.51	31.58	25.58	52.00	36.12	36.12	49.02	33.22	33.85	51.01	33.22	32.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.26	0.11	0.35	0.11	0.11	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	108.61	4.12	1.78	452.99	36.53	59.43	385.61	1.95	14.81	35.52	0.56	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.23	0.84	0.40	2.00	1.04	1.08	1.83	0.87	0.91	1.03	0.72	0.64
d, Delay for Lane Group [s/veh]	159.12	35.70	27.36	505.00	72.65	95.55	434.62	35.17	48.66	86.53	33.79	33.78
Lane Group LOS	F	D	C	F	F	F	F	D	D	F	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	8.32	14.77	5.46	14.85	23.73	26.42	26.53	14.75	17.08	4.80	10.32	8.50
50th-Percentile Queue Length [ft]	207.90	369.34	136.42	371.35	593.27	660.46	663.30	368.79	427.09	119.96	258.11	212.62
95th-Percentile Queue Length [veh]	13.94	21.08	9.29	24.50	32.63	36.69	41.99	21.05	23.86	8.48	15.59	13.29
95th-Percentile Queue Length [ft]	348.53	526.93	232.19	612.59	815.64	917.16	1049.70	526.26	596.55	212.07	389.85	332.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	159.12	35.70	27.36	505.00	75.60	95.55	434.62	37.99	48.66	86.53	33.79	33.78
Movement LOS	F	D	C	F	E	F	F	D	D	F	C	C
d_A, Approach Delay [s/veh]	53.05			148.24			106.95			40.98		
Approach LOS	D			F			F			D		
d_I, Intersection Delay [s/veh]	89.20											
Intersection LOS	F											
Intersection V/C	1.058											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	3.345	3.334	3.197	3.302
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	691	636	764	691
d_b, Bicycle Delay [s]	23.56	25.57	21.02	23.56
I_b,int, Bicycle LOS Score for Intersection	2.874	2.888	2.728	2.632
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 26: College Driveway No. 1 at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	College Driveway No. 1		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	12	22	35	629	741	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	22	35	629	741	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	6	9	157	185	4
Total Analysis Volume [veh/h]	12	22	35	629	741	15
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.05	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	16.67	14.66	9.39	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.29	0.29	0.13	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	7.30	7.30	3.20	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.37		0.50		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.59					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 27: Centennial Way at Berkeley Avenue

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.171

Intersection Setup

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Centennial Way		Berkeley Avenue		Berkeley Avenue	
Base Volume Input [veh/h]	0	89	572	98	29	765
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	89	572	98	29	765
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	22	143	25	7	191
Total Analysis Volume [veh/h]	0	89	572	98	29	765
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.17	0.01	0.00	0.03	0.01
d_M, Delay for Movement [s/veh]	0.00	13.35	0.00	0.00	9.04	0.00
Movement LOS		B	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.61	0.00	0.00	0.10	0.00
95th-Percentile Queue Length [ft]	0.00	15.33	0.00	0.00	2.44	0.00
d_A, Approach Delay [s/veh]	13.35		0.00		0.33	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.93					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 28: Lemon Street at Parking Structure

Control Type:	Two-way stop	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lemon Street			Lemon Street			FUHS Driveway			Parking Structure		
Base Volume Input [veh/h]	35	971	136	0	799	12	0	0	29	0	0	269
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	971	136	0	799	12	0	0	29	0	0	269
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	243	34	0	200	3	0	0	7	0	0	67
Total Analysis Volume [veh/h]	35	971	136	0	799	12	0	0	29	0	0	269
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.56
d_M, Delay for Movement [s/veh]	9.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.36	0.00	0.00	21.92
Movement LOS	A	A	A		A	A			B			C
95th-Percentile Queue Length [veh]	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	3.44
95th-Percentile Queue Length [ft]	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84	0.00	0.00	85.92
d_A, Approach Delay [s/veh]	0.30			0.00			11.36			21.92		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	2.92											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 29: Lemon Street at Fullerton College Drive

Control Type:	Signalized	Delay (sec / veh):	25.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.717

Intersection Setup

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Fullerton College Drive			Fullerton College Drive		
Base Volume Input [veh/h]	0	1102	233	84	705	0	48	0	57	339	0	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1102	233	84	705	0	48	0	57	339	0	77
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	276	58	21	176	0	12	0	14	85	0	19
Total Analysis Volume [veh/h]	0	1102	233	84	705	0	48	0	57	339	0	77
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	7	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	6	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	30	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
Split [s]	0	24	0	10	34	0	0	10	0	66	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	7	0	0
Pedestrian Clearance [s]	0	13	0	0	14	0	0	0	0	16	0	0
Rest In Walk		No			No			No		No		
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
Minimum Recall		No		No	No			No		No		
Maximum Recall		No		No	No			No		No		
Pedestrian Recall		No		No	No			No		No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	R
C, Cycle Length [s]	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	57	57	67	67	8	23	23
g / C, Green / Cycle	0.52	0.52	0.61	0.61	0.07	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.35	0.37	0.05	0.19	0.06	0.19	0.04
s, saturation flow rate [veh/h]	1900	1800	1800	3800	1800	1800	1800
c, Capacity [veh/h]	984	932	664	2299	135	380	380
d1, Uniform Delay [s]	19.73	20.34	9.01	10.55	50.00	42.19	35.78
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.77	4.70	0.08	0.35	9.23	7.36	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.72	0.13	0.31	0.78	0.89	0.20
d, Delay for Lane Group [s/veh]	23.50	25.05	9.10	10.89	59.23	49.55	36.04
Lane Group LOS	C	C	A	B	E	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]	13.21	13.78	0.82	4.08	3.18	9.64	1.74
50th-Percentile Queue Length [ft]	330.29	344.46	20.62	102.11	79.44	241.10	43.38
95th-Percentile Queue Length [veh]	19.17	19.87	1.48	7.35	5.72	14.74	3.12
95th-Percentile Queue Length [ft]	479.32	496.64	37.11	183.80	142.98	368.42	78.09

Movement, Approach, & Intersection Results

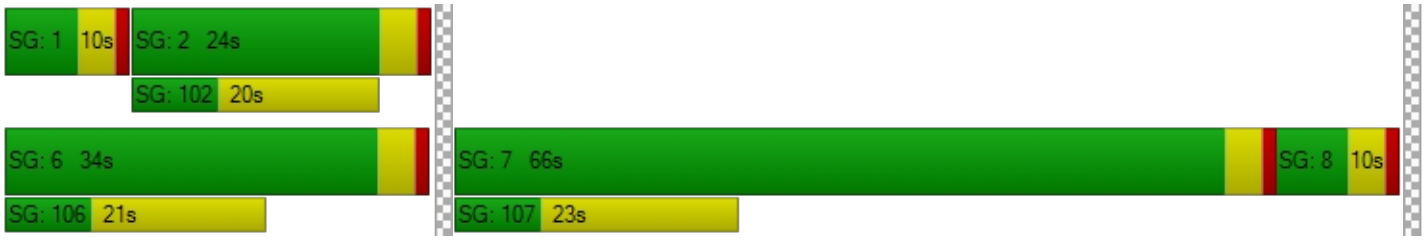
d_M, Delay for Movement [s/veh]	0.00	24.11	25.05	9.10	10.89	0.00	59.23	59.23	59.23	49.55	0.00	36.04
Movement LOS		C	C	A	B		E	E	E	D		D
d_A, Approach Delay [s/veh]	24.27			10.70			59.23			47.05		
Approach LOS	C			B			E			D		
d_I, Intersection Delay [s/veh]	25.19											
Intersection LOS	C											
Intersection V/C	0.717											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.771	1.535	2.252
Crosswalk LOS	F	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	364	545	109	0
d_b, Bicycle Delay [s]	36.82	29.09	49.16	55.00
I_b,int, Bicycle LOS Score for Intersection	2.661	2.211	1.733	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 30: Berkeley Avenue at College Driveway No. 2

Control Type:	Two-way stop	Delay (sec / veh):	19.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.197

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 2	
Base Volume Input [veh/h]	137	512	395	8	68	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	137	512	395	8	68	88
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	128	99	2	17	22
Total Analysis Volume [veh/h]	137	512	395	8	68	88
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.01	0.00	0.00	0.20	0.14
d_M, Delay for Movement [s/veh]	8.53	0.00	0.00	0.00	19.16	14.29
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh]	0.40	0.00	0.00	0.00	1.44	1.44
95th-Percentile Queue Length [ft]	10.05	0.00	0.00	0.00	35.93	35.93
d_A, Approach Delay [s/veh]	1.80		0.00		16.41	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.09					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 31: Berkeley Avenue at College Driveway No. 3

Control Type:	Two-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		College Driveway No. 3	
Base Volume Input [veh/h]	0	642	493	0	7	137
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	642	493	0	7	137
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	161	123	0	2	34
Total Analysis Volume [veh/h]	0	642	493	0	7	137
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.02	0.24
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	15.61	13.40
Movement LOS		A	A		C	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	1.00	1.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	25.10	25.10
d_A, Approach Delay [s/veh]	0.00		0.00		13.51	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.52					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 32: Berkeley Avenue at Brookdale Place

Control Type:	Two-way stop	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.095

Intersection Setup

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Berkeley Avenue		Berkeley Avenue		Brookdale Place	
Base Volume Input [veh/h]	631	29	44	650	33	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	631	29	44	650	33	64
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	158	7	11	163	8	16
Total Analysis Volume [veh/h]	631	29	44	650	33	64
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

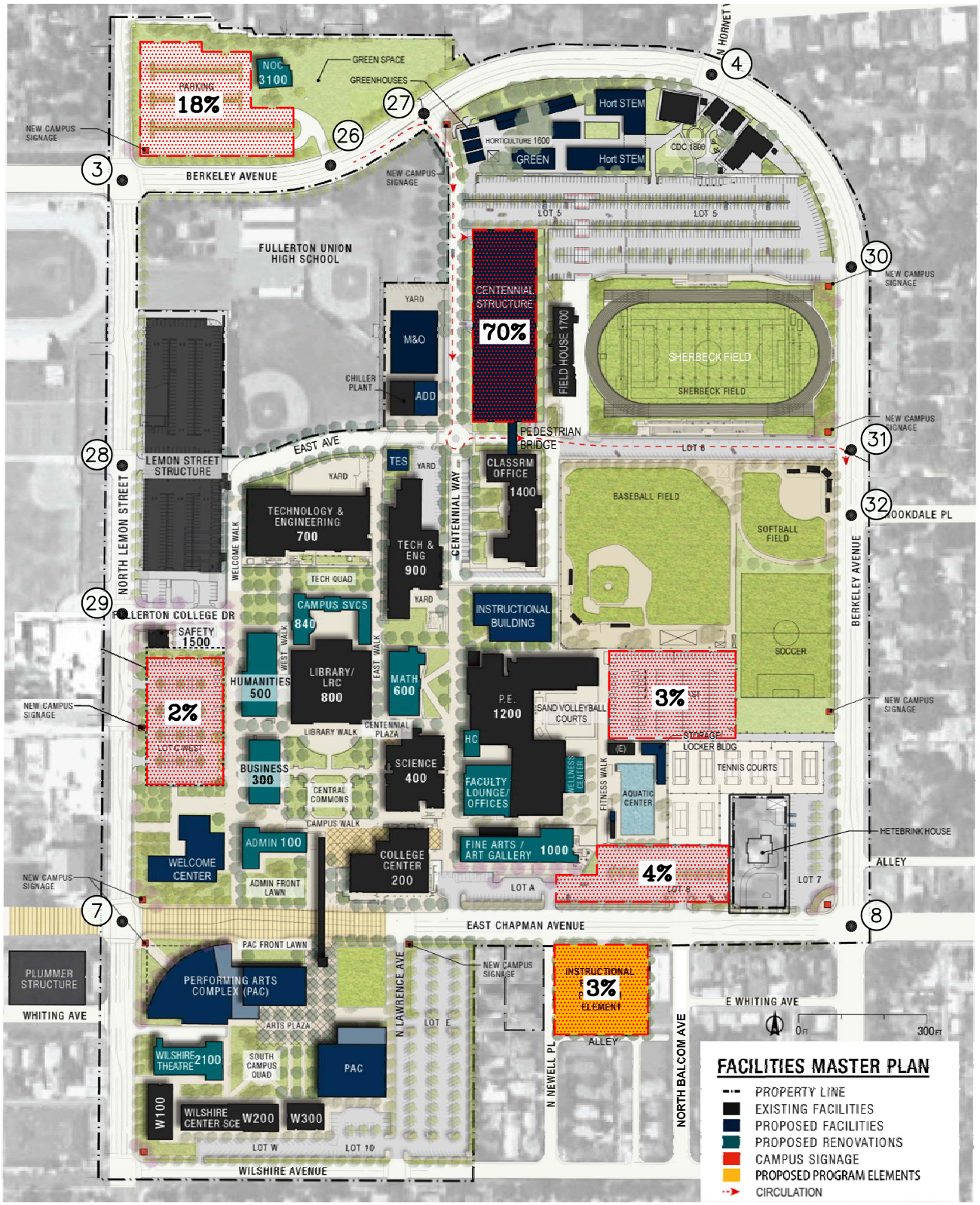
Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.05	0.01	0.10	0.14
d_M, Delay for Movement [s/veh]	0.00	0.00	9.07	0.00	17.96	15.18
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh]	0.00	0.00	0.15	0.00	0.88	0.88
95th-Percentile Queue Length [ft]	0.00	0.00	3.73	0.00	22.04	22.04
d_A, Approach Delay [s/veh]	0.00		0.58		16.13	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.35					
Intersection LOS	C					

APPENDIX C

INTERNAL PROJECT TRAFFIC DISTRIBUTION PATTERNS



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LINSCOTT LAW & GREENSPAN engineers

SOURCE: DUDEK

NO SCALE

KEY

(#) = STUDY INTERSECTION

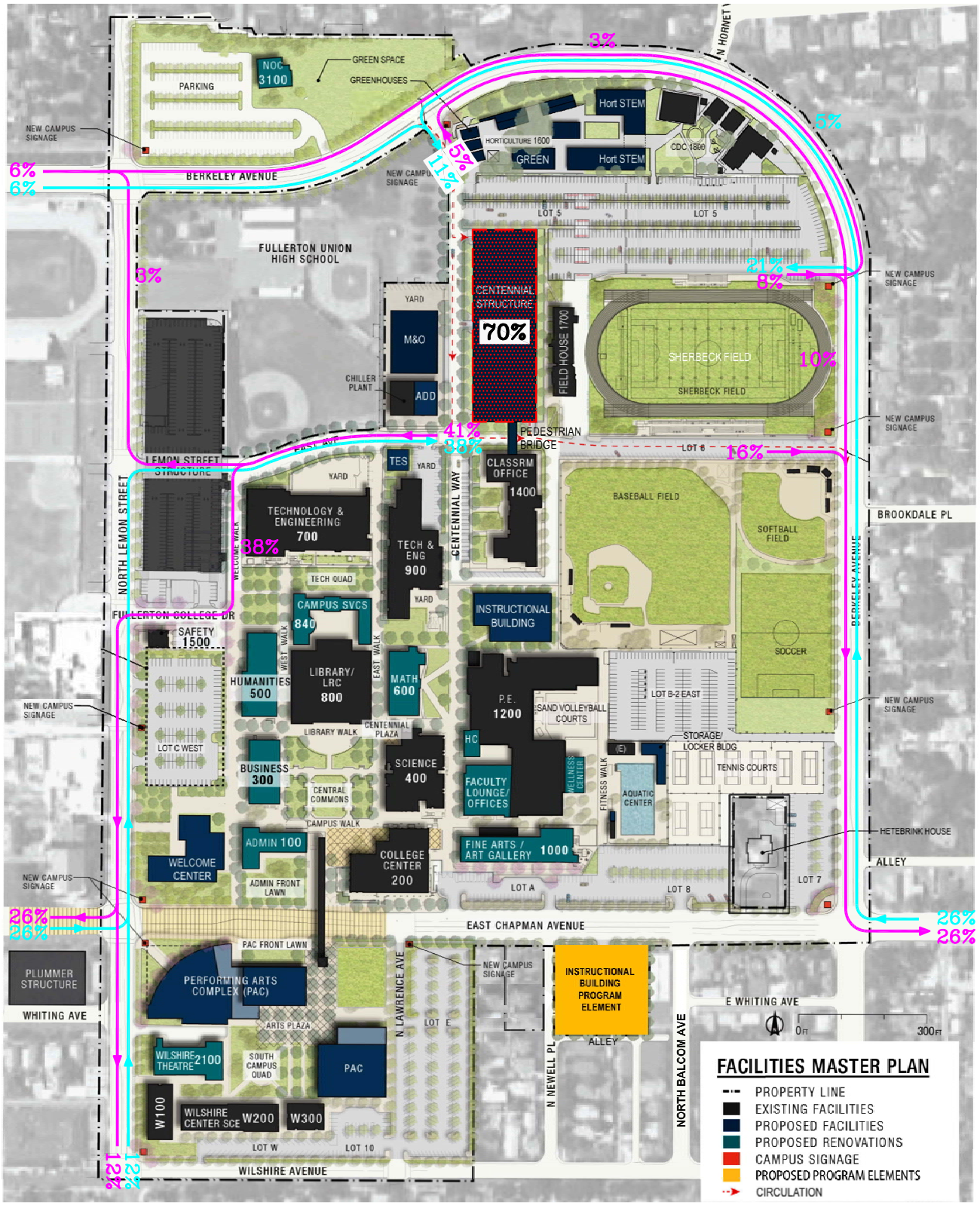
XX% = PERCENT OF NEW PARKING

= PROPOSED PARKING

APPENDIX C-1

PROPOSED PARKING LOCATIONS AND INTERNAL DISTRIBUTION ALLOCATION

FULLERTON COLLEGE MASTER PLAN, FULLERTON



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LINSCOTT LAW & GREENSPAN engineers

SOURCE: DUDEK

NO SCALE

KEY

= INBOUND PERCENTAGE

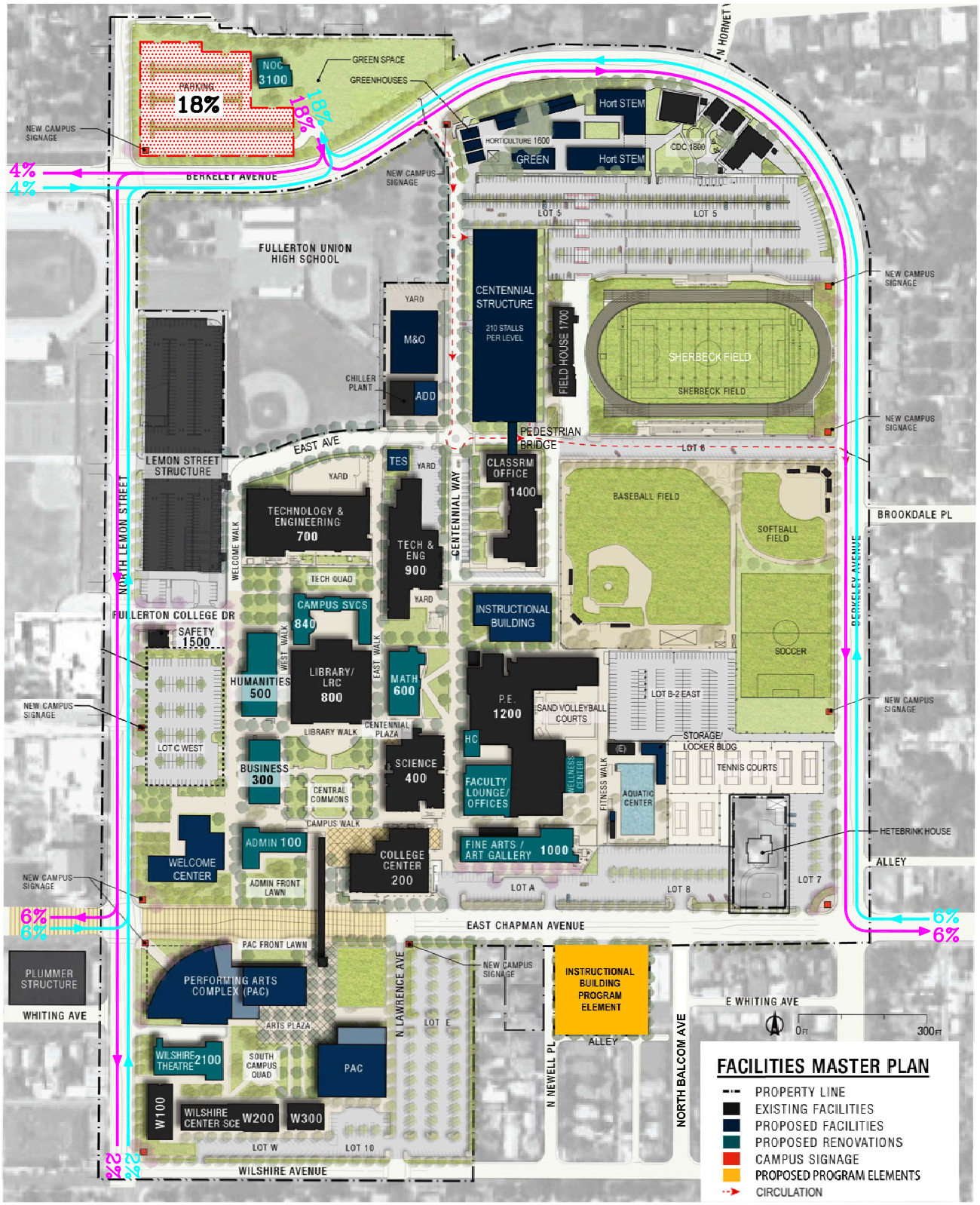
= OUTBOUND PERCENTAGE

= PROPOSED PARKING

APPENDIX C-2

CENTENNIAL STRUCTURE INTERNAL PROJECT TRAFFIC DISTRIBUTION PATTERN

FULLERTON COLLEGE MASTER PLAN, FULLERTON



LINSCOTT LAW & GREENSPAN engineers

SOURCE: DUDEK

KEY

= INBOUND PERCENTAGE

= OUTBOUND PERCENTAGE

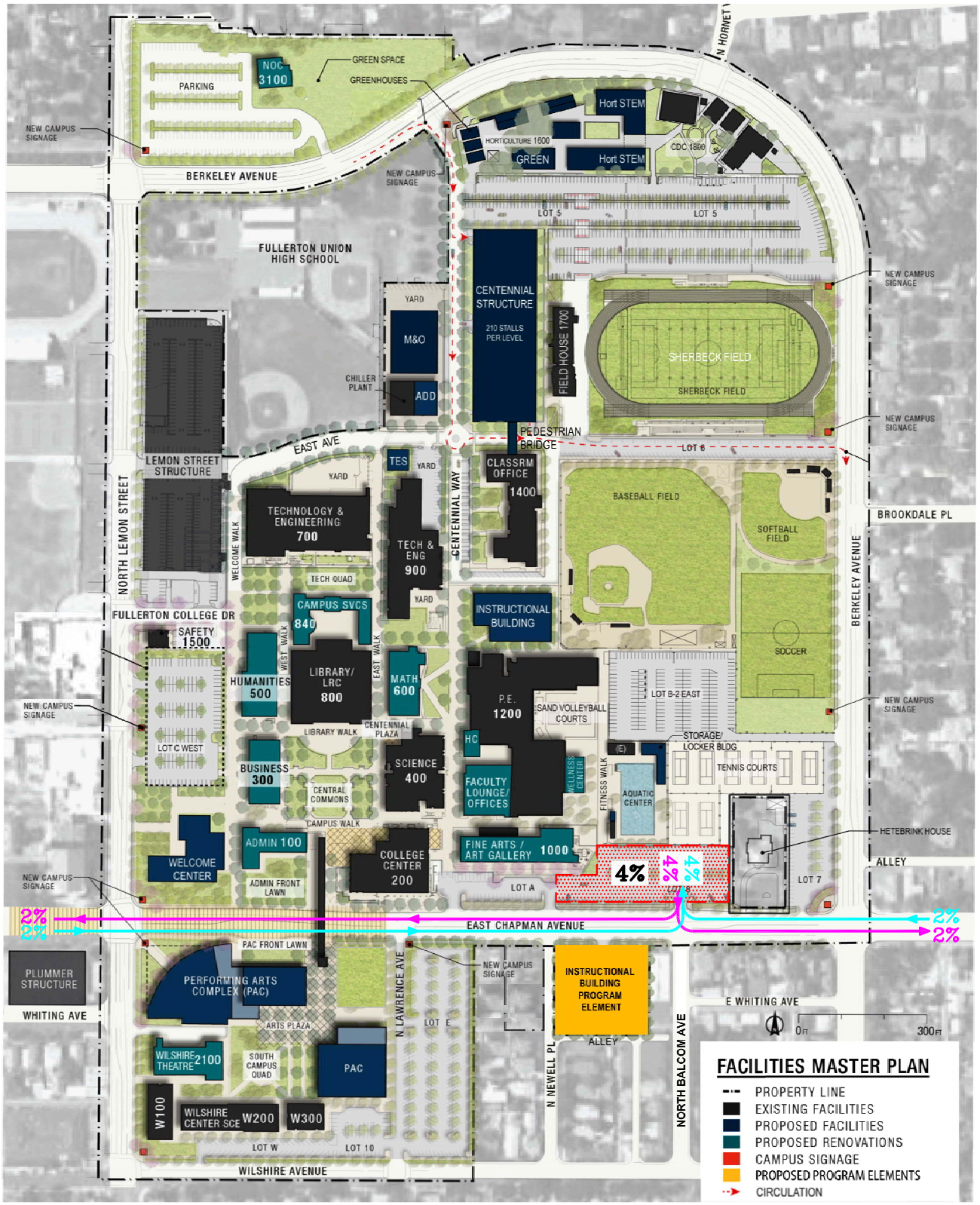
= PROPOSED PARKING

N NO SCALE

APPENDIX C-3

BUILDING 3100 PARKING LOT INTERNAL PROJECT TRAFFIC DISTRIBUTION PATTERN

FULLERTON COLLEGE MASTER PLAN, FULLERTON



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LINSCOTT LAW & GREENSPAN engineers

SOURCE: DUDEK

KEY

= INBOUND PERCENTAGE

= OUTBOUND PERCENTAGE

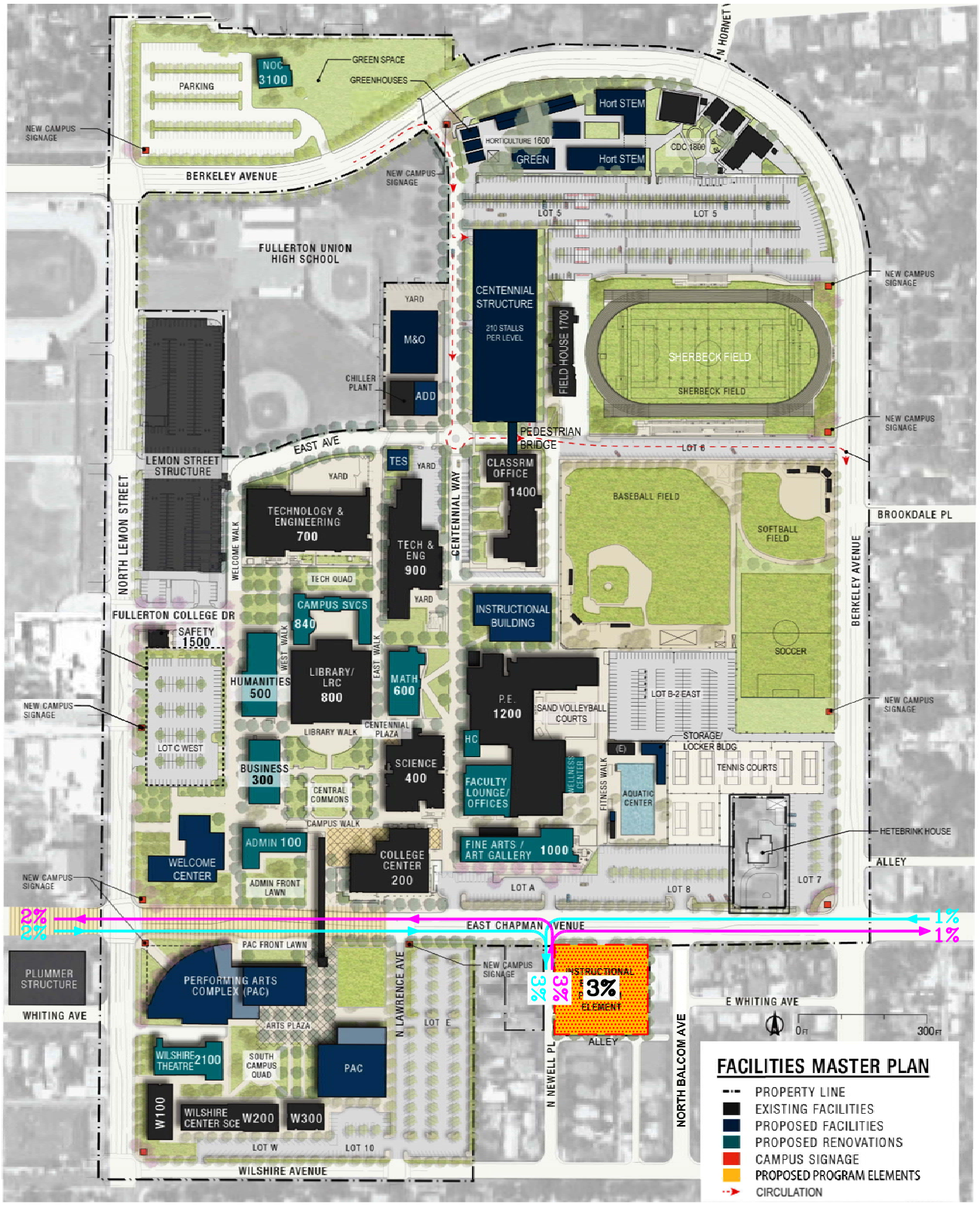
= PROPOSED PARKING

N NO SCALE

APPENDIX C-4

PARKING LOT 8 INTERNAL PROJECT TRAFFIC DISTRIBUTION PATTERN

FULLERTON COLLEGE MASTER PLAN, FULLERTON



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LINSCOTT LAW & GREENSPAN engineers

SOURCE: DUDEK

KEY

= INBOUND PERCENTAGE

= OUTBOUND PERCENTAGE

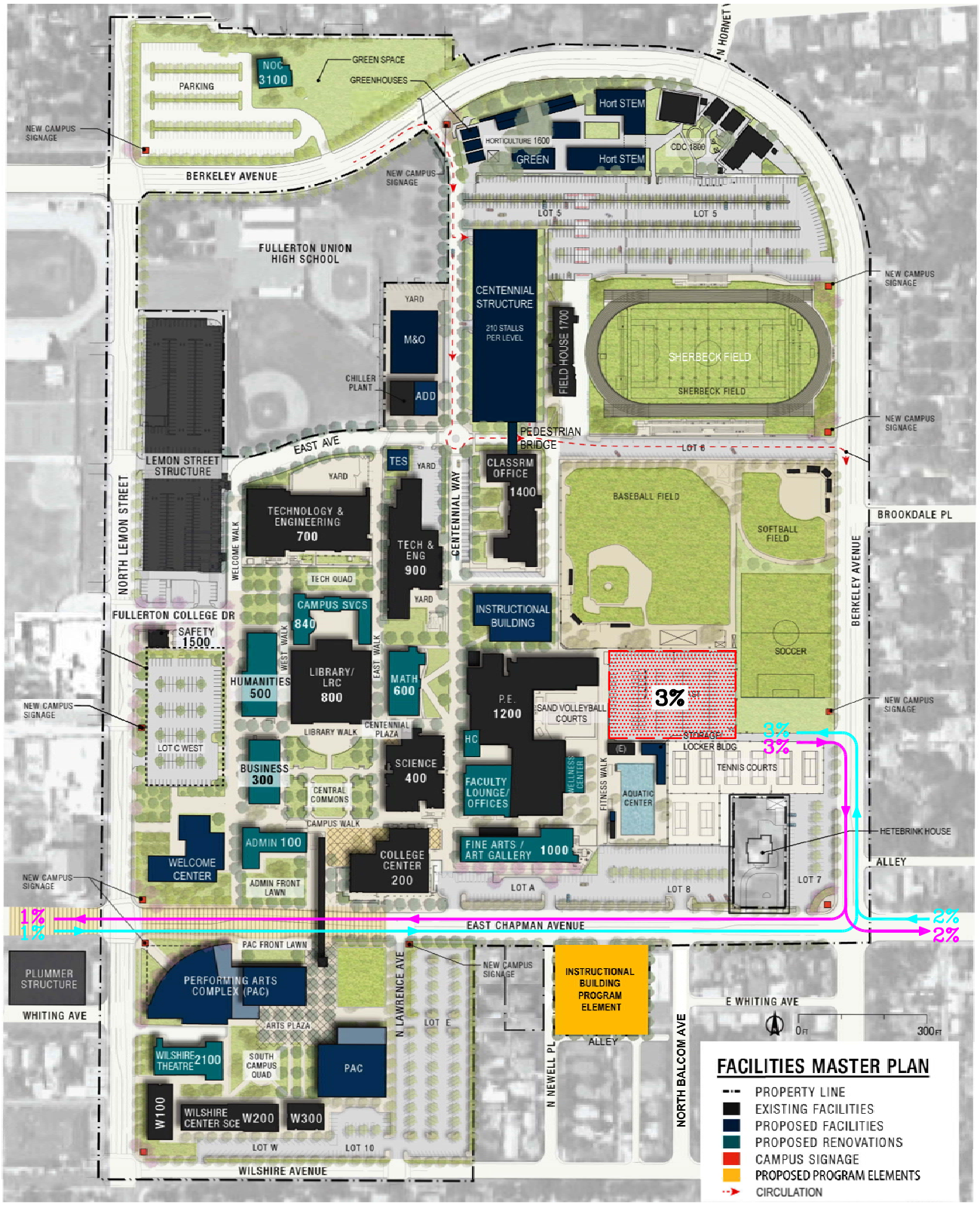
= PROPOSED PARKING

N NO SCALE

APPENDIX C-5

PARKING LOT 11 INTERNAL PROJECT TRAFFIC DISTRIBUTION PATTERN

FULLERTON COLLEGE MASTER PLAN, FULLERTON



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LINSCOTT LAW & GREENSPAN engineers

SOURCE: DUDEK

NO SCALE

KEY

= INBOUND PERCENTAGE

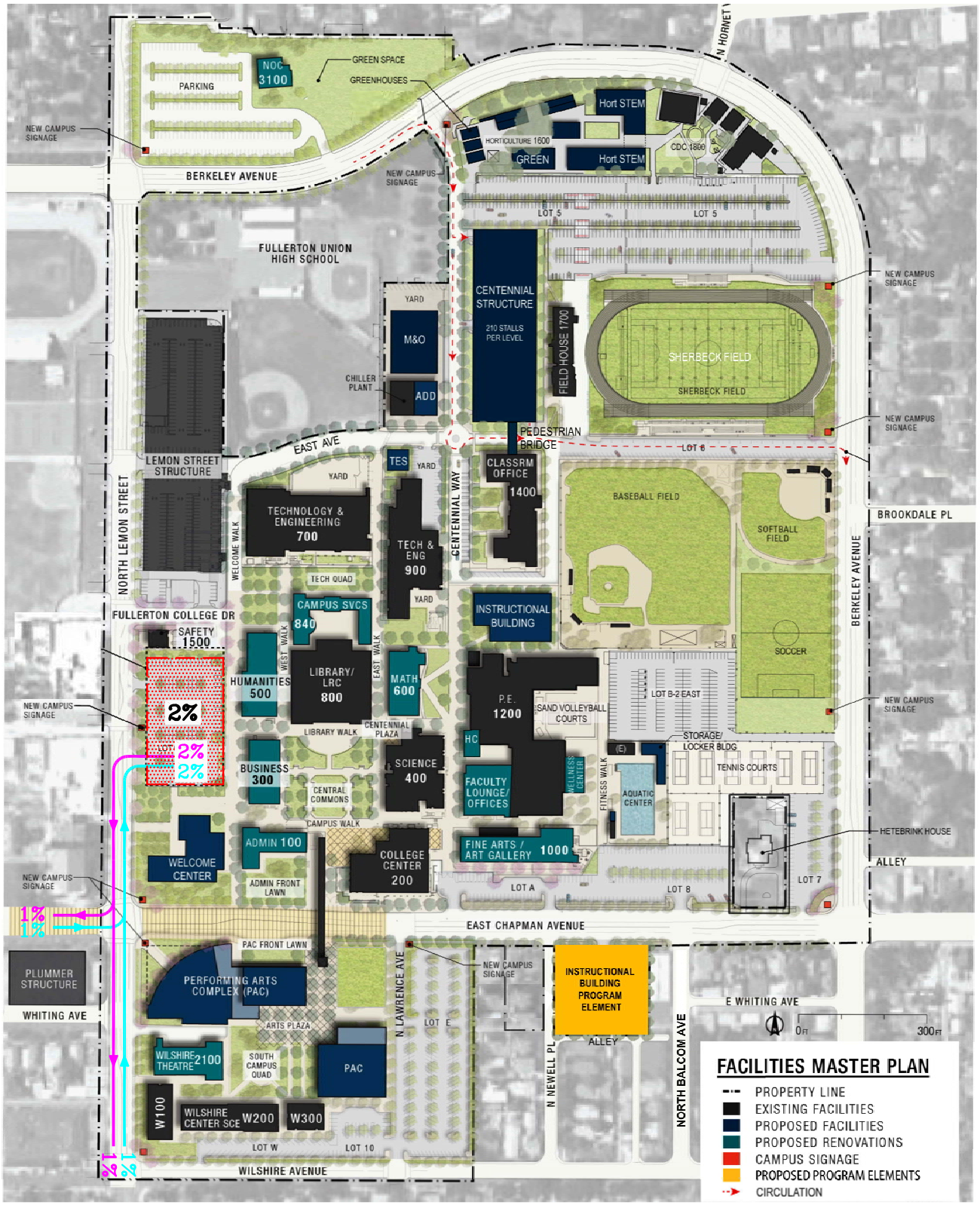
= OUTBOUND PERCENTAGE

= PROPOSED PARKING

APPENDIX C-6

PARKING LOT B-2 EAST INTERNAL PROJECT TRAFFIC DISTRIBUTION PATTERN

FULLERTON COLLEGE MASTER PLAN, FULLERTON



LINSCOTT LAW & GREENSPAN engineers

SOURCE: DUDEK

KEY

= INBOUND PERCENTAGE

= OUTBOUND PERCENTAGE

= PROPOSED PARKING

N NO SCALE

APPENDIX C-7

PARKING LOT C WEST INTERNAL PROJECT TRAFFIC DISTRIBUTION PATTERN

FULLERTON COLLEGE MASTER PLAN, FULLERTON

APPENDIX D

YEAR 2030 CUMULATIVE PROJECT TRAFFIC VOLUMES

Future Build-Out
Default Trip Distribution
AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#560 YORBA LINDA BLVD/KRAEMER BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	17	0	0	21	0	38
Total	0	0	0	0	0	0	0	17	0	0	21	0	38
#561 CHAPMAN AVE/KRAEMER BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	132	0	0	234	0	366
Total	0	0	0	0	0	0	0	132	0	0	234	0	366
#562 KRAEMER BLVD/CROWTHER AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
#563 ORANGETHORPE AVE/KRAEMER BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	29	0	0	6	0	35
Total	0	0	0	0	0	0	0	29	0	0	6	0	35
#15 #1001 HARBOR BLVD/COMMONWEALTH AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	68	560	51	34	319	18	43	139	96	56	184	39	1607
Total	68	560	51	34	319	18	43	139	96	56	184	39	1607
#6 #1004 HARBOR BLVD/CHAPMAN AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	22	484	61	50	220	23	18	243	22	68	164	61	1436
Total	22	484	61	50	220	23	18	243	22	68	164	61	1436
#2 #1006 HARBOR BLVD/BERKELEY AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	-8	568	0	14	296	-2	-2	0	-9	0	0	23	880
Total	-8	568	0	14	296	-2	-2	0	-9	0	0	23	880
#1 #1008 HARBOR BLVD/BREA BLVD-WEST VALLEY VIEW DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	-2	541	49	14	264	-2	-2	6	-4	47	0	7	918
Total	-2	541	49	14	264	-2	-2	6	-4	47	0	7	918
#25 #1010 HARBOR BLVD/BASTANCHURY RD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	60	472	18	24	252	42	73	45	44	84	76	25	1215
Total	60	472	18	24	252	42	73	45	44	84	76	25	1215

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Future Build-Out
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AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#5 #1051 EUCLID ST/MALVERN AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	9	120	10	46	92	2	8	238	47	24	168	34	798
Total	9	120	10	46	92	2	8	238	47	24	168	34	798
#1053 EUCLID ST/BASTANCHURY RD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	91	68	46	113	5	0	35	0	20	12	20	410
Total	0	91	68	46	113	5	0	35	0	20	12	20	410
#1058 CHAPMAN AVE/COMMONWEALTH AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	5	41	34	13	134	479	304	0	78	458	147	1693
Total	0	5	41	34	13	134	479	304	0	78	458	147	1693
#1062 ROSECRANS AVE/GILBERT ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	41	65	0	0	158	0	0	90	107	0	28	0	489
Total	41	65	0	0	158	0	0	90	107	0	28	0	489
#1063 GILBERT ST/PIONEER AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	105	0	0	265	0	0	0	0	0	0	0	370
Total	0	105	0	0	265	0	0	0	0	0	0	0	370
#1065 CHAPMAN AVE/HIGHLAND AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	29	0	22	0	0	0	0	301	14	6	215	0	587
Total	29	0	22	0	0	0	0	301	14	6	215	0	587
#7 #1070 CHAPMAN AVE/LEMON ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	24	40	103	3	26	0	0	342	12	55	271	1	877
Total	24	40	103	3	26	0	0	342	12	55	271	1	877
#8 #1074 CHAPMAN AVE/BERKELEY AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	32	0	0	0	0	452	0	19	324	0	827
Total	0	0	32	0	0	0	0	452	0	19	324	0	827
#3 #1076 LEMON ST/BERKELEY AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	18	23	0	0	17	5	1	0	13	0	0	0	77
Total	18	23	0	0	17	5	1	0	13	0	0	0	77

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Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1520 ORANGETHORPE AVE/SR-57 SB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	9	0	0	0	0	107	37	107	0	0	157	0	417
Total	9	0	0	0	0	107	37	107	0	0	157	0	417
#1521 ORANGETHORPE AVE/SR-57 NB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	151	0	0	0	0	0	19	29	0	0	6	0	205
Total	151	0	0	0	0	0	19	29	0	0	6	0	205
#1522													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	688	151	0	429	0	0	0	0	0	0	0	1268
Total	0	688	151	0	429	0	0	0	0	0	0	0	1268
#1523													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	688	0	0	393	107	0	0	37	0	0	19	1244
Total	0	688	0	0	393	107	0	0	37	0	0	19	1244
#1564 VALENCIA MESA DR/ST JUDE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	43	151	0	0	0	0	0	194
Total	0	0	0	0	0	43	151	0	0	0	0	0	194
#4 #1574 BERKELEY AVE/HORNET WY													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
#32 #1575 BERKELEY AVE/BROOKDALE PL													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
#1584 LEMON ST/WALNUT WAY													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	-1	183	0	0	212	-7	7	0	17	0	0	0	411
Total	-1	183	0	0	212	-7	7	0	17	0	0	0	411
#1585 HIGHLAND AVE/WALNUT AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	93	-1	0	64	0	0	0	0	8	0	9	173
Total	0	93	-1	0	64	0	0	0	0	8	0	9	173

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Future Build-Out
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Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1079 COMMONWEALTH AVE/HIGHLAND AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	20	64	19	21	43	0	0	160	0	22	285	6	640
Total	20	64	19	21	43	0	0	160	0	22	285	6	640
#16 #1082 COMMONWEALTH AVE/LEMON ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	41	105	91	2	62	19	41	228	-2	91	204	0	882
Total	41	105	91	2	62	19	41	228	-2	91	204	0	882
#1083 STATE COLLEGE BLVD/ROLLING HILLS DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	68	0	0	187	0	0	0	0	0	0	0	255
Total	0	68	0	0	187	0	0	0	0	0	0	0	255
#1084 STATE COLLEGE BLVD/BASTANCHURY RD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	23	58	0	9	178	0	0	101	97	0	188	10	664
Total	23	58	0	9	178	0	0	101	97	0	188	10	664
#1085 STATE COLLEGE BLVD/YORBA LINDA BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	81	15	0	274	0	0	0	0	71	0	0	441
Total	0	81	15	0	274	0	0	0	0	71	0	0	441
#9 #1089 CHAPMAN AVE/RAYMOND AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	14	2	114	0	1	0	0	445	46	84	327	0	1033
Total	14	2	114	0	1	0	0	445	46	84	327	0	1033
#10 #1091 CHAPMAN AVE/ACACIA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	7	0	6	0	0	0	0	498	22	42	439	0	1014
Total	7	0	6	0	0	0	0	498	22	42	439	0	1014
#1092 COMMONWEALTH AVE/RAYMOND AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	26	114	2	0	94	28	27	200	108	9	196	0	804
Total	26	114	2	0	94	28	27	200	108	9	196	0	804
#1093 COMMONWEALTH AVE/ACACIA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	8	16	3	0	60	33	50	101	29	15	133	0	448
Total	8	16	3	0	60	33	50	101	29	15	133	0	448

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Future Build-Out
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Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1014 MALVERN AVE/GILBERT ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	8	54	14	107	157	0	0	218	32	43	101	50	784
Total	8	54	14	107	157	0	0	218	32	43	101	50	784
#1017 MAGNOLIA AVE/VALENCIA DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	4	91	24	2	37	0	0	70	12	10	45	1	296
Total	4	91	24	2	37	0	0	70	12	10	45	1	296
#1018 COMMONWEALTH AVE/MAGNOLIA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	48	2	38	6	2	0	0	292	15	20	139	3	565
Total	48	2	38	6	2	0	0	292	15	20	139	3	565
#1020 ORANGETHORPE AVE/MAGNOLIA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	114	40	13	46	2	3	232	0	25	93	11	579
Total	0	114	40	13	46	2	3	232	0	25	93	11	579
#1021 COMMONWEALTH AVE/BROOKHURST RD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	75	0	31	0	0	0	0	289	31	15	105	0	546
Total	75	0	31	0	0	0	0	289	31	15	105	0	546
#1023 BROOKHURST RD/VALENCIA DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	22	116	43	5	43	1	3	85	5	15	67	2	407
Total	22	116	43	5	43	1	3	85	5	15	67	2	407
#1024 ORANGETHORPE AVE/BROOKHURST RD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	31	175	35	3	69	3	9	249	2	26	123	3	728
Total	31	175	35	3	69	3	9	249	2	26	123	3	728
#1026 STATE COLLEGE BLVD/NUTWOOD AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	69	-1	95	251	0	0	0	0	4	0	24	442
Total	0	69	-1	95	251	0	0	0	0	4	0	24	442
#11 #1027 STATE COLLEGE BLVD/CHAPMAN AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	12	30	303	0	177	77	38	481	28	133	460	0	1739
Total	12	30	303	0	177	77	38	481	28	133	460	0	1739

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Future Build-Out
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AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1307 IMPERIAL HWY/SR-57 NB OFF RAMP-BREA PLAZA													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	156	0	0	0	0	0	0	53	0	0	105	0	314
Total	156	0	0	0	0	0	0	53	0	0	105	0	314
#1309 YORBA LINDA BLVD/SR-57 SB OFF RAMP													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	28	0	75	0	81	0	0	134	0	318
Total	0	0	0	28	0	75	0	81	0	0	134	0	318
#1310 YORBA LINDA BLVD/SR-57 NB OFF RAMP													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	65	0	28	0	0	0	0	89	0	0	101	0	283
Total	65	0	28	0	0	0	0	89	0	0	101	0	283
#1311 NUTWOOD AVE/SR-57 SB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	1	227	105	0	30	12	55	42	0	472
Total	0	0	0	1	227	105	0	30	12	55	42	0	472
#1312 NUTWOOD AVE/SR-57 NB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	41	137	58	0	0	0	30	2	0	0	56	2	326
Total	41	137	58	0	0	0	30	2	0	0	56	2	326
#12 #1313 CHAPMAN AVE/SR-57 SB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	12	227	0	275	104	5	457	0	1080
Total	0	0	0	0	12	227	0	275	104	5	457	0	1080
#13 #1314 CHAPMAN AVE/SR-57 NB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	234	46	2	0	0	0	137	138	0	0	228	0	785
Total	234	46	2	0	0	0	137	138	0	0	228	0	785
#1315 MAGNOLIA AVE/SR-91 WB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	125	0	0	54	17	0	0	0	0	0	28	224
Total	0	125	0	0	54	17	0	0	0	0	0	28	224
#1317 BROOKHURST/SR-91 WB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	129	0	0	89	14	0	0	0	0	0	122	354
Total	0	129	0	0	89	14	0	0	0	0	0	122	354

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AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#281													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	11	28	27	0	15	6	23	0	24	18	0	0	152
Total	11	28	27	0	15	6	23	0	24	18	0	0	152
#283 EUCLID ST/HILL AVE-SOUTHGATE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	10	260	3	1	152	5	1	0	3	0	0	0	435
Total	10	260	3	1	152	5	1	0	3	0	0	0	435
#285 CHAPMAN AVE/MALDEN AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	46	0	31	-4	0	0	0	256	67	40	175	-6	605
Total	46	0	31	-4	0	0	0	256	67	40	175	-6	605
#286 COMMONWEALTH AVE/MALDEN AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	3	20	0	37	15	185	0	2	277	1	540
Total	0	0	3	20	0	37	15	185	0	2	277	1	540
#295 CHAPMAN AVE/POMONA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	1	0	0	1	0	0	354	0	2	293	0	651
Total	0	1	0	0	1	0	0	354	0	2	293	0	651
#296 COMMONWEALTH AVE/POMONA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	60	2	54	0	3	0	0	196	28	44	219	0	606
Total	60	2	54	0	3	0	0	196	28	44	219	0	606
#297 LEMON ST/WILSHIRE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	151	0	9	85	0	0	0	0	0	0	16	261
Total	0	151	0	9	85	0	0	0	0	0	0	16	261
#298 VALENCIA DR/POMONA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	19	0	118	52	0	83	84	21	-2	36	28	59	498
Total	19	0	118	52	0	83	84	21	-2	36	28	59	498
#320 STATE COLLEGE BLVD/WALNUT AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	48	401	0	0	285	37	6	0	9	0	0	0	786
Total	48	401	0	0	285	37	6	0	9	0	0	0	786

#14

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Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#99 HARBOR BLVD/LAS PALMAS DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	442	0	0	317	0	0	0	0	0	0	0	759
Total	0	442	0	0	317	0	0	0	0	0	0	0	759
#100 HARBOR BLVD/HERMOSA DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	-8	442	0	0	317	0	0	0	-5	0	0	0	746
Total	-8	442	0	0	317	0	0	0	-5	0	0	0	746
#101 HARBOR BLVD/VALENCIA MESA DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	-8	527	28	109	271	0	0	14	-10	16	4	23	974
Total	-8	527	28	109	271	0	0	14	-10	16	4	23	974
#102 HARBOR BLVD/EAST VALLEY VIEW DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	588	0	0	307	0	0	0	0	0	0	0	895
Total	0	588	0	0	307	0	0	0	0	0	0	0	895
#104 HARBOR BLVD/UNION AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	564	0	0	294	-6	-4	0	0	0	0	0	848
Total	0	564	0	0	294	-6	-4	0	0	0	0	0	848
#105 HARBOR BLVD/WILSHIRE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	160	527	0	0	252	58	40	0	148	0	0	0	1185
Total	160	527	0	0	252	58	40	0	148	0	0	0	1185
#106 HARBOR BLVD/AMERIGE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	642	0	0	371	28	45	6	0	0	1	0	1093
Total	0	642	0	0	371	28	45	6	0	0	1	0	1093
#107 HARBOR BLVD/VALENCIA DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	19	424	10	94	282	31	52	38	88	55	64	217	1374
Total	19	424	10	94	282	31	52	38	88	55	64	217	1374
#108 HARBOR BLVD/SOUTHGATE AVE/COSTCO													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	12	445	0	0	360	0	0	0	60	0	0	0	877
Total	12	445	0	0	360	0	0	0	60	0	0	0	877

#17

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Future Build-Out
Default Trip Distribution
AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#109 HARBOR BLVD/ORANGEFAIR AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	617	12	5	447	0	0	0	0	48	0	45	1174
Total	0	617	12	5	447	0	0	0	0	48	0	45	1174
#111 IMPERIAL HWY/MERVYN'S DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	322	0	0	194	0	516
Total	0	0	0	0	0	0	0	322	0	0	194	0	516
#112 BASTANCHURY RD/BALBOA RD/ST JUDE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	9	0	0	7	0	77	9	0	178	4	284
Total	0	0	9	0	0	7	0	77	9	0	178	4	284
#113 LAMBERT RD/PALM ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	19	34	38	0	69	19	6	24	65	130	82	0	486
Total	19	34	38	0	69	19	6	24	65	130	82	0	486
#115 BASTANCHURY RD/PUENTE ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	-2	-3	89	0	0	184	0	268
Total	0	0	0	0	0	-2	-3	89	0	0	184	0	268
#116 BREA BLVD/LEMON ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	5	0	5	0	0	0	0	19	1	11	48	0	89
Total	5	0	5	0	0	0	0	19	1	11	48	0	89
#118 LEMON ST/VALENCIA DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	45	66	-5	0	156	73	98	1	91	18	5	19	567
Total	45	66	-5	0	156	73	98	1	91	18	5	19	567
#119 LEMON ST/ORANGEFAIR AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	7	118	0	0	164	1	8	0	16	0	0	0	314
Total	7	118	0	0	164	1	8	0	16	0	0	0	314
#126 COMMONWEALTH AVE/BERKELEY AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	4	0	39	16	339	0	0	249	2	649
Total	0	0	0	4	0	39	16	339	0	0	249	2	649

#18

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Future Build-Out
Default Trip Distribution
AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1028 STATE COLLEGE BLVD/COMMONWEALTH AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	34	330	30	0	261	66	10	51	43	19	60	0	904
Total	34	330	30	0	261	66	10	51	43	19	60	0	904
#1030 BREA BLVD/ROLLING HILLS DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	70	0	0	182	0	0	0	0	0	0	0	252
Total	0	70	0	0	182	0	0	0	0	0	0	0	252
#1031 BASTANCHURY RD/BREA BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	24	0	106	54	22	11	78	0	5	162	36	498
Total	0	24	0	106	54	22	11	78	0	5	162	36	498
#19 #1035 HARBOR BLVD/ORANGETHORPE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	50	631	51	40	370	10	37	237	12	24	69	57	1588
Total	50	631	51	40	370	10	37	237	12	24	69	57	1588
#20 #1037 ORANGETHORPE AVE/LEMON ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	86	79	30	42	192	30	15	247	41	37	75	8	882
Total	86	79	30	42	192	30	15	247	41	37	75	8	882
#1042 EUCLID ST/ORANGETHORPE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	51	232	16	30	106	18	18	254	19	20	131	22	917
Total	51	232	16	30	106	18	18	254	19	20	131	22	917
#1044 EUCLID ST/VALENCIA DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	12	240	8	5	142	18	18	52	6	10	72	11	594
Total	12	240	8	5	142	18	18	52	6	10	72	11	594
#1045 COMMONWEALTH AVE/GILBERT ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	3	35	5	68	39	71	54	277	5	1	87	63	708
Total	3	35	5	68	39	71	54	277	5	1	87	63	708
#1049 EUCLID ST/COMMONWEALTH AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	64	117	88	40	87	30	10	266	48	27	79	8	864
Total	64	117	88	40	87	30	10	266	48	27	79	8	864

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Future Build-Out
Default Trip Distribution
AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1318 BROOKHURST/SR-91 EB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	88	0	28	61	0	41	0	0	0	0	0	218
Total	0	88	0	28	61	0	41	0	0	0	0	0	218
#1319 EUCLID ST/SR-91 WB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	184	0	0	141	7	0	0	0	0	0	120	452
Total	0	184	0	0	141	7	0	0	0	0	0	120	452
#1320 EUCLID ST/SR-91 EB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	160	0	33	108	0	23	0	0	0	0	0	324
Total	0	160	0	33	108	0	23	0	0	0	0	0	324
#21 #1321 HARBOR BLVD/SR-91 WB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	480	0	0	311	183	0	0	0	0	49	149	1172
Total	0	480	0	0	311	183	0	0	0	0	49	149	1172
#23 #1322 HARBOR BLVD/SR-91 EB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	232	0	190	122	0	248	8	0	0	0	0	800
Total	0	232	0	190	122	0	248	8	0	0	0	0	800
#22 #1323 LEMON ST/ANAHEIM BLVD/SR-91 WB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	234	0	0	131	49	0	0	0	0	149	104	667
Total	0	234	0	0	131	49	0	0	0	0	149	104	667
#24 #1324 LEMON ST/ANAHEIM BLVD/SR-91 EB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	226	0	96	35	0	8	190	0	0	0	0	555
Total	0	226	0	96	35	0	8	190	0	0	0	0	555
#1325 RAYMOND AVE/SR-91 WB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	293	0	0	98	23	0	0	0	4	0	110	528
Total	0	293	0	0	98	23	0	0	0	4	0	110	528
#1326 RAYMOND AVE/SR-91 EB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	189	3	33	69	0	104	0	0	0	0	0	398
Total	0	189	3	33	69	0	104	0	0	0	0	0	398

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Future Build-Out
Default Trip Distribution
AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#242 HARBOR BLVD/SANTA FE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	654	37	31	440	0	0	0	0	0	0	24	1186
Total	0	654	37	31	440	0	0	0	0	0	0	24	1186
#243 HARBOR BLVD/ORANGEFAIR MALL													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	10	653	0	10	396	0	18	0	56	0	0	62	1205
Total	10	653	0	10	396	0	18	0	56	0	0	62	1205
#244 ORANGETHORPE AVE/POMONA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	38	0	41	0	0	0	0	263	65	78	112	0	597
Total	38	0	41	0	0	0	0	263	65	78	112	0	597
#28 #247 LEMON ST/NUTWOOD PL													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	41	0	0	29	0	0	0	0	0	0	0	70
Total	0	41	0	0	29	0	0	0	0	0	0	0	70
#26,#27 #248 BERKELEY AVE/EAST-OF-LEMON ST DWY													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
#30,#31 #250 BERKELEY AVE/NORTH-OF-BROOKDALE PL DWY													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
#257 COMMONWEALTH AVE/PRITCHARD AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	1	0	1	0	0	0	0	335	2	1	161	0	501
Total	1	0	1	0	0	0	0	335	2	1	161	0	501
#272													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	2	0	-2	0	0	0	0	97	0	-3	31	0	125
Total	2	0	-2	0	0	0	0	97	0	-3	31	0	125
#273													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	3	109	0	0	155	0	0	0	9	0	0	0	276
Total	3	109	0	0	155	0	0	0	9	0	0	0	276

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Future Build-Out
Default Trip Distribution
AM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#328 YORBA LINDA BLVD/ALMIRA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	11	0	0	0	0	15	0	11	71	0	108
Total	0	0	11	0	0	0	0	15	0	11	71	0	108
#331 COMMONWEALTH AVE/COLLEGE PL													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	5	627	0	0	180	0	0	0	1	0	0	0	813
Total	5	627	0	0	180	0	0	0	1	0	0	0	813
#345													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	17	0	690	0	0	366	0	1073
Total	0	0	0	0	0	17	0	690	0	0	366	0	1073
#349													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	14	0	0	0	0	690	0	0	366	28	1098
Total	0	0	14	0	0	0	0	690	0	0	366	28	1098
#360													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	345	0	0	646	26	0	0	0	0	0	2	1019
Total	0	345	0	0	646	26	0	0	0	0	0	2	1019
#364 LEMON AVE/GROVE PL													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	41	0	0	29	0	0	0	0	0	0	0	70
Total	0	41	0	0	29	0	0	0	0	0	0	0	70
#366 IMPERIAL HWY/STATE COLLEGE BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	68	0	0	188	0	0	107	-1	0	286	0	648
Total	0	68	0	0	188	0	0	107	-1	0	286	0	648
#367 IMPERIAL HWY/BREA BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	3	61	9	2	167	12	1	96	1	16	266	4	638
Total	3	61	9	2	167	12	1	96	1	16	266	4	638
#369 STATE COLLEGE BLVD/SR-91 EB RAMPS													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	178	10	55	69	0	170	0	0	0	0	0	482
Total	0	178	10	55	69	0	170	0	0	0	0	0	482

#29

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Future Build-Out
Default Trip Distribution
PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#560 YORBA LINDA BLVD/KRAEMER BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	25	0	0	22	0	47
Total	0	0	0	0	0	0	0	25	0	0	22	0	47
#561 CHAPMAN AVE/KRAEMER BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	259	0	0	161	0	420
Total	0	0	0	0	0	0	0	259	0	0	161	0	420
#562 KRAEMER BLVD/CROWTHER AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
#563 ORANGETHORPE AVE/KRAEMER BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	17	0	0	31	0	48
Total	0	0	0	0	0	0	0	17	0	0	31	0	48
#15 #1001 HARBOR BLVD/COMMONWEALTH AVE													
Base	152	1060	156	84	1156	140	148	604	152	176	824	116	4768
Added	111	349	76	65	625	39	20	148	89	63	370	65	2020
Total	263	1409	232	149	1781	179	168	752	241	239	1194	181	6788
#6 #1004 HARBOR BLVD/CHAPMAN AVE													
Base	128	1076	164	148	1024	184	252	832	116	228	912	168	5232
Added	42	273	72	60	527	15	15	193	46	80	272	49	1644
Total	170	1349	236	208	1551	199	267	1025	162	308	1184	217	6876
#2 #1006 HARBOR BLVD/BERKELEY AVE													
Base	116	1560	52	280	1284	28	64	196	224	80	200	532	4616
Added	-53	393	0	23	658	-16	-14	0	-56	0	0	14	949
Total	63	1953	52	303	1942	12	50	196	168	80	200	546	5565
#1 #1008 HARBOR BLVD/BREA BLVD-WEST VALLEY VIEW DR													
Base	60	1388	532	128	1272	80	108	192	64	584	160	168	4736
Added	-16	366	42	6	636	-12	-11	-7	-23	53	-3	12	1043
Total	44	1754	574	134	1908	68	97	185	41	637	157	180	5779
#25 #1010 HARBOR BLVD/BASTANCHURY RD													
Base	312	1152	260	480	1064	320	352	1152	220	264	968	352	6896
Added	43	351	44	37	474	56	67	110	91	56	86	19	1434
Total	355	1503	304	517	1538	376	419	1262	311	320	1054	371	8330

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Future Build-Out
Default Trip Distribution
PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#5 #1051 EUCLID ST/MALVERN AVE													
Base	192	1168	164	160	1016	40	44	808	152	216	708	112	4780
Added	34	111	25	47	105	8	3	202	31	15	263	44	888
Total	226	1279	189	207	1121	48	47	1010	183	231	971	156	5668
#1053 EUCLID ST/BASTANCHURY RD													
Base	124	1172	304	452	664	108	140	760	72	300	684	504	5284
Added	0	114	39	40	111	-1	3	35	0	43	42	52	478
Total	124	1286	343	492	775	107	143	795	72	343	726	556	5762
#1058 CHAPMAN AVE/COMMONWEALTH AVE													
Base	36	236	408	80	232	168	108	1208	56	308	1180	148	4168
Added	0	3	90	143	51	557	171	531	0	56	373	52	2027
Total	36	239	498	223	283	725	279	1739	56	364	1553	200	6195
#1062 ROSECRANS AVE/GILBERT ST													
Base	176	792	104	80	376	192	280	572	160	124	572	100	3528
Added	108	155	0	0	108	0	0	56	82	0	61	0	570
Total	284	947	104	80	484	192	280	628	242	124	633	100	4098
#1063 GILBERT ST/PIONEER AVE													
Base	80	710	50	20	410	30	20	10	30	30	10	10	1410
Added	0	263	0	0	189	0	0	0	0	0	0	0	452
Total	80	973	50	20	599	30	20	10	30	30	10	10	1862
#1065 CHAPMAN AVE/HIGHLAND AVE													
Base	140	190	220	30	150	60	50	1140	120	170	1010	50	3330
Added	27	0	11	0	0	0	0	259	33	22	320	0	672
Total	167	190	231	30	150	60	50	1399	153	192	1330	50	4002
#7 #1070 CHAPMAN AVE/LEMON ST													
Base	144	772	176	124	480	116	312	896	108	220	936	160	4444
Added	16	40	77	1	50	0	0	306	21	165	387	3	1066
Total	160	812	253	125	530	116	312	1202	129	385	1323	163	5510
#8 #1074 CHAPMAN AVE/BERKELEY AVE													
Base	20	72	32	420	56	116	112	916	24	72	1216	440	3496
Added	0	0	16	0	0	0	0	387	0	21	555	0	979
Total	20	72	48	420	56	116	112	1303	24	93	1771	440	4475
#3 #1076 LEMON ST/BERKELEY AVE													
Base	352	584	176	152	368	24	40	320	180	112	444	140	2892
Added	12	31	0	0	33	2	5	0	18	0	0	0	101
Total	364	615	176	152	401	26	45	320	198	112	444	140	2993

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Future Build-Out
Default Trip Distribution
PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1520 ORANGETHORPE AVE/SR-57 SB RAMPS													
Base	28	12	28	156	4	268	372	1172	44	20	1332	288	3724
Added	4	0	0	0	0	24	165	354	0	0	74	0	621
Total	32	12	28	156	4	292	537	1526	44	20	1406	288	4345
#1521 ORANGETHORPE AVE/SR-57 NB RAMPS													
Base	480	0	672	0	0	0	364	1000	0	0	1008	748	4272
Added	43	0	0	0	0	0	119	17	0	0	31	0	210
Total	523	0	672	0	0	0	483	1017	0	0	1039	748	4482
#1522													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	533	43	0	956	0	0	0	0	0	0	0	1532
Total	0	533	43	0	956	0	0	0	0	0	0	0	1532
#1523													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	533	0	0	792	24	0	0	165	0	0	119	1633
Total	0	533	0	0	792	24	0	0	165	0	0	119	1633
#1564 VALENCIA MESA DR/ST JUDE AVE													
Base	60	28	8	40	12	156	104	132	52	12	392	68	1064
Added	0	0	0	0	0	154	58	0	0	0	0	0	212
Total	60	28	8	40	12	310	162	132	52	12	392	68	1276
#4 #1574 BERKELEY AVE/HORNET WY													
Base	0	0	4	48	0	168	176	416	0	0	456	32	1300
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	4	48	0	168	176	416	0	0	456	32	1300
#32 #1575 BERKELEY AVE/BROOKDALE PL													
Base	0	440	32	52	516	0	0	0	0	32	0	52	1124
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	440	32	52	516	0	0	0	0	32	0	52	1124
#1584 LEMON ST/WALNUT WAY													
Base	60	1564	0	0	1172	48	28	0	92	0	0	0	2964
Added	5	179	0	0	391	20	0	0	-1	0	0	0	594
Total	65	1743	0	0	1563	68	28	0	91	0	0	0	3558
#1585 HIGHLAND AVE/WALNUT AVE													
Base	8	388	16	40	424	80	76	20	12	36	32	64	1196
Added	0	97	5	1	83	0	0	0	0	0	0	1	187
Total	8	485	21	41	507	80	76	20	12	36	32	65	1383

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Future Build-Out
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Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1079 COMMONWEALTH AVE/HIGHLAND AVE													
Base	70	230	190	90	210	120	120	1120	100	150	1000	80	3480
Added	11	63	23	7	62	0	0	179	4	18	449	23	839
Total	81	293	213	97	272	120	120	1299	104	168	1449	103	4319
#16 #1082 COMMONWEALTH AVE/LEMON ST													
Base	144	832	224	60	660	132	132	680	160	276	996	76	4372
Added	5	48	48	-1	197	26	74	246	20	152	471	1	1287
Total	149	880	272	59	857	158	206	926	180	428	1467	77	5659
#1083 STATE COLLEGE BLVD/ROLLING HILLS DR													
Base	112	644	16	10	560	92	44	10	80	40	12	32	1652
Added	0	209	0	0	97	0	0	0	0	0	0	0	306
Total	112	853	16	10	657	92	44	10	80	40	12	32	1958
#1084 STATE COLLEGE BLVD/BASTANCHURY RD													
Base	660	1128	60	176	564	208	340	1140	340	48	1008	260	5932
Added	100	199	0	17	80	0	0	213	32	0	118	10	769
Total	760	1327	60	193	644	208	340	1353	372	48	1126	270	6701
#1085 STATE COLLEGE BLVD/YORBA LINDA BLVD													
Base	32	1192	792	292	588	96	76	192	36	684	152	316	4448
Added	1	299	56	0	112	0	0	0	0	43	0	0	511
Total	33	1491	848	292	700	96	76	192	36	727	152	316	4959
#9 #1089 CHAPMAN AVE/RAYMOND AVE													
Base	272	268	216	124	192	84	88	1004	168	144	1232	124	3916
Added	43	2	108	0	2	2	3	397	23	135	524	0	1239
Total	315	270	324	124	194	86	91	1401	191	279	1756	124	5155
#10 #1091 CHAPMAN AVE/ACACIA AVE													
Base	210	150	150	50	110	70	70	1250	110	120	1530	80	3900
Added	24	0	44	0	0	0	0	516	9	5	615	0	1213
Total	234	150	194	50	110	70	70	1766	119	125	2145	80	5113
#1092 COMMONWEALTH AVE/RAYMOND AVE													
Base	260	676	128	104	312	120	176	624	148	116	836	108	3608
Added	133	129	10	0	112	45	32	193	42	3	415	0	1114
Total	393	805	138	104	424	165	208	817	190	119	1251	108	4722
#1093 COMMONWEALTH AVE/ACACIA AVE													
Base	250	410	170	60	180	130	90	930	130	60	650	50	3110
Added	48	65	15	0	17	81	44	119	5	5	234	0	633
Total	298	475	185	60	197	211	134	1049	135	65	884	50	3743

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Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1014 MALVERN AVE/GILBERT ST													
Base	184	608	440	160	520	188	232	792	100	408	1032	188	4852
Added	27	156	35	86	101	0	0	137	8	8	232	106	896
Total	211	764	475	246	621	188	232	929	108	416	1264	294	5748
#1017 MAGNOLIA AVE/VALENCIA DR													
Base	212	796	148	92	784	60	24	308	148	108	268	88	3036
Added	12	49	12	0	94	0	0	58	12	25	69	1	332
Total	224	845	160	92	878	60	24	366	160	133	337	89	3368
#1018 COMMONWEALTH AVE/MAGNOLIA AVE													
Base	312	0	396	16	20	20	0	696	192	448	556	4	2660
Added	26	-1	20	3	-3	-1	-1	280	56	39	156	7	581
Total	338	-1	416	19	17	19	-1	976	248	487	712	11	3241
#1020 ORANGETHORPE AVE/MAGNOLIA AVE													
Base	276	908	360	120	876	80	128	468	300	212	632	144	4504
Added	0	60	39	18	115	4	3	121	0	58	248	17	683
Total	276	968	399	138	991	84	131	589	300	270	880	161	5187
#1021 COMMONWEALTH AVE/BROOKHURST RD													
Base	512	24	440	12	24	12	8	496	504	408	608	16	3064
Added	26	0	22	0	0	0	0	289	72	29	119	0	557
Total	538	24	462	12	24	12	8	785	576	437	727	16	3621
#1023 BROOKHURST RD/VALENCIA DR													
Base	144	804	108	96	700	84	104	264	104	140	284	96	2928
Added	4	49	23	1	112	3	2	85	19	55	82	3	438
Total	148	853	131	97	812	87	106	349	123	195	366	99	3366
#1024 ORANGETHORPE AVE/BROOKHURST RD													
Base	200	1004	232	116	812	88	184	668	176	260	708	140	4588
Added	28	68	28	6	207	7	3	181	5	44	265	4	846
Total	228	1072	260	122	1019	95	187	849	181	304	973	144	5434
#1026 STATE COLLEGE BLVD/NUTWOOD AVE													
Base	44	1680	256	276	1408	88	64	96	36	328	96	332	4704
Added	0	263	0	35	117	0	0	0	0	1	0	93	509
Total	44	1943	256	311	1525	88	64	96	36	329	96	425	5213
#1027 STATE COLLEGE BLVD/CHAPMAN AVE													
Base	228	1292	268	276	696	536	468	992	144	164	884	428	6376
Added	34	171	160	0	65	52	92	542	16	343	587	0	2062
Total	262	1463	428	276	761	588	560	1534	160	507	1471	428	8438

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Future Build-Out
Default Trip Distribution
PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1307 IMPERIAL HWY/SR-57 NB OFF RAMP-BREA PLAZA													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	76	0	0	0	0	0	0	78	0	0	82	0	236
Total	76	0	0	0	0	0	0	78	0	0	82	0	236
#1309 YORBA LINDA BLVD/SR-57 SB OFF RAMP													
Base	0	0	0	872	0	212	0	964	532	0	1772	528	4880
Added	0	0	0	36	0	20	0	140	0	0	138	0	334
Total	0	0	0	908	0	232	0	1104	532	0	1910	528	5214
#1310 YORBA LINDA BLVD/SR-57 NB OFF RAMP													
Base	536	0	696	0	0	0	0	1452	156	0	1568	308	4716
Added	43	0	39	0	0	0	0	112	0	0	134	0	328
Total	579	0	735	0	0	0	0	1564	156	0	1702	308	5044
#1311 NUTWOOD AVE/SR-57 SB RAMPS													
Base	0	0	0	168	256	316	0	848	772	152	692	0	3204
Added	0	0	0	2	168	43	0	101	41	77	19	0	451
Total	0	0	0	170	424	359	0	949	813	229	711	0	3655
#1312 NUTWOOD AVE/SR-57 NB RAMPS													
Base	392	472	256	0	0	0	412	596	0	0	432	116	2676
Added	18	254	71	0	0	0	100	3	0	0	79	1	526
Total	410	726	327	0	0	0	512	599	0	0	511	117	3202
#12 #1313 CHAPMAN AVE/SR-57 SB RAMPS													
Base	0	0	0	152	28	224	0	1108	488	440	1300	0	3740
Added	0	0	0	0	45	168	0	506	257	4	314	0	1294
Total	0	0	0	152	73	392	0	1614	745	444	1614	0	5034
#13 #1314 CHAPMAN AVE/SR-57 NB RAMPS													
Base	444	88	356	0	0	0	212	936	0	0	1144	288	3468
Added	148	18	5	0	0	0	254	253	0	0	170	0	848
Total	592	106	361	0	0	0	466	1189	0	0	1314	288	4316
#1315 MAGNOLIA AVE/SR-91 WB RAMPS													
Base	236	1288	0	0	1172	328	0	0	0	484	0	180	3688
Added	0	75	0	0	116	56	0	0	0	0	0	24	271
Total	236	1363	0	0	1288	384	0	0	0	484	0	204	3959
#1317 BROOKHURST/SR-91 WB RAMPS													
Base	180	1276	0	0	1104	336	0	0	0	492	0	328	3716
Added	0	94	0	0	220	45	0	0	0	0	0	38	397
Total	180	1370	0	0	1324	381	0	0	0	492	0	366	4113

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PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#281													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	29	29	23	0	33	22	8	0	13	22	0	0	179
Total	29	29	23	0	33	22	8	0	13	22	0	0	179
#283 EUCLID ST/HILL AVE-SOUTHGATE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	7	200	1	0	246	4	6	0	14	0	0	1	479
Total	7	200	1	0	246	4	6	0	14	0	0	1	479
#285 CHAPMAN AVE/MALDEN AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	57	0	41	3	0	0	0	210	59	44	285	0	699
Total	57	0	41	3	0	0	0	210	59	44	285	0	699
#286 COMMONWEALTH AVE/MALDEN AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	3	19	0	45	22	187	0	4	444	8	732
Total	0	0	3	19	0	45	22	187	0	4	444	8	732
#295 CHAPMAN AVE/POMONA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	3	3	0	3	0	0	325	0	2	401	0	737
Total	0	3	3	0	3	0	0	325	0	2	401	0	737
#296 COMMONWEALTH AVE/POMONA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	78	5	115	0	4	0	0	229	59	66	420	0	976
Total	78	5	115	0	4	0	0	229	59	66	420	0	976
#297 LEMON ST/WILSHIRE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	124	0	10	226	1	1	0	0	0	0	8	370
Total	0	124	0	10	226	1	1	0	0	0	0	8	370
#298 VALENCIA DR/POMONA AVE													
Base	48	16	140	28	8	24	16	212	16	36	284	16	844
Added	7	0	44	76	0	125	83	15	9	126	41	59	585
Total	55	16	184	104	8	149	99	227	25	162	325	75	1429
#320 STATE COLLEGE BLVD/WALNUT AVE													
Base	148	1068	72	148	888	48	44	0	92	44	0	316	2868
Added	8	374	0	0	462	6	39	0	56	0	0	0	945
Total	156	1442	72	148	1350	54	83	0	148	44	0	316	3813

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Future Build-Out
Default Trip Distribution
PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#99 HARBOR BLVD/LAS PALMAS DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	412	0	0	456	0	0	0	0	0	0	0	868
Total	0	412	0	0	456	0	0	0	0	0	0	0	868
#100 HARBOR BLVD/HERMOSA DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	412	0	0	456	0	0	0	3	0	0	0	871
Total	0	412	0	0	456	0	0	0	3	0	0	0	871
#101 HARBOR BLVD/VALENCIA MESA DR													
Base	144	1312	124	144	968	168	208	72	312	240	152	320	4164
Added	2	353	11	42	579	0	0	5	-6	56	14	84	1140
Total	146	1665	135	186	1547	168	208	77	306	296	166	404	5304
#102 HARBOR BLVD/EAST VALLEY VIEW DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	393	0	0	665	0	0	0	0	0	0	0	1058
Total	0	393	0	0	665	0	0	0	0	0	0	0	1058
#104 HARBOR BLVD/UNION AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	337	0	0	602	0	3	0	0	0	0	0	942
Total	0	337	0	0	602	0	3	0	0	0	0	0	942
#105 HARBOR BLVD/WILSHIRE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	142	335	0	0	600	54	51	1	176	0	1	0	1360
Total	142	335	0	0	600	54	51	1	176	0	1	0	1360
#106 HARBOR BLVD/AMERIGE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	4	430	0	0	725	51	47	8	5	0	10	0	1280
Total	4	430	0	0	725	51	47	8	5	0	10	0	1280
#107 HARBOR BLVD/VALENCIA DR													
Base	92	1364	72	32	1436	56	76	112	116	72	152	44	3624
Added	32	345	12	166	473	53	50	51	91	86	78	99	1536
Total	124	1709	84	198	1909	109	126	163	207	158	230	143	5160
#108 HARBOR BLVD/SOUTHGATE AVE/COSTCO													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	53	427	0	0	461	0	0	0	27	0	0	0	968
Total	53	427	0	0	461	0	0	0	27	0	0	0	968

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Future Build-Out
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PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#109 HARBOR BLVD/ORANGEFAIR AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	570	44	16	542	0	0	0	0	24	0	26	1222
Total	0	570	44	16	542	0	0	0	0	24	0	26	1222
#111 IMPERIAL HWY/MERVYN'S DR													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	0	0	303	0	0	202	0	505
Total	0	0	0	0	0	0	0	303	0	0	202	0	505
#112 BASTANCHURY RD/BALBOA RD/ST JUDE AVE													
Base	44	16	172	16	0	20	16	1672	52	100	1500	20	3628
Added	0	0	33	0	0	28	0	187	4	0	133	1	386
Total	44	16	205	16	0	48	16	1859	56	100	1633	21	4014
#113 LAMBERT RD/PALM ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	72	71	143	0	49	9	21	91	30	62	39	0	587
Total	72	71	143	0	49	9	21	91	30	62	39	0	587
#115 BASTANCHURY RD/PUENTE ST													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	1	0	219	0	0	133	0	353
Total	0	0	0	0	0	1	0	219	0	0	133	0	353
#116 BREA BLVD/LEMON ST													
Base	92	20	336	28	24	24	28	1116	84	260	640	12	2664
Added	2	0	13	0	0	0	0	39	5	9	13	0	81
Total	94	20	349	28	24	24	28	1155	89	269	653	12	2745
#118 LEMON ST/VALENCIA DR													
Base	92	1264	68	96	1076	104	96	64	116	92	56	76	3200
Added	92	136	15	0	257	133	48	2	85	1	1	1	771
Total	184	1400	83	96	1333	237	144	66	201	93	57	77	3971
#119 LEMON ST/ORANGEFAIR AVE													
Base	148	1524	92	164	1208	132	172	96	120	188	80	128	4052
Added	26	202	0	0	213	3	4	0	8	0	0	0	456
Total	174	1726	92	164	1421	135	176	96	128	188	80	128	4508
#126 COMMONWEALTH AVE/BERKELEY AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	2	0	20	18	262	0	0	619	3	924
Total	0	0	0	2	0	20	18	262	0	0	619	3	924

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Future Build-Out
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Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1028 STATE COLLEGE BLVD/COMMONWEALTH AVE													
Base	348	908	112	56	916	180	228	368	156	112	488	100	3972
Added	90	305	29	0	381	35	46	62	39	43	114	0	1144
Total	438	1213	141	56	1297	215	274	430	195	155	602	100	5116
#1030 BREA BLVD/ROLLING HILLS DR													
Base	40	540	40	70	600	380	40	60	60	90	60	50	2030
Added	0	188	0	0	92	0	0	0	0	0	0	0	280
Total	40	728	40	70	692	380	40	60	60	90	60	50	2310
#1031 BASTANCHURY RD/BREA BLVD													
Base	116	1156	432	268	788	304	544	1496	140	424	1284	432	7384
Added	0	53	-1	48	26	18	21	198	0	-5	115	114	587
Total	116	1209	431	316	814	322	565	1694	140	419	1399	546	7971
#19 #1035 HARBOR BLVD/ORANGETHORPE AVE													
Base	308	1384	284	228	1164	248	316	680	228	356	972	288	6456
Added	53	531	37	27	455	7	40	126	29	61	247	87	1700
Total	361	1915	321	255	1619	255	356	806	257	417	1219	375	8156
#20 #1037 ORANGETHORPE AVE/LEMON ST													
Base	256	1092	168	176	940	156	204	736	188	284	1020	200	5420
Added	65	164	15	19	287	32	33	128	88	204	257	46	1338
Total	321	1256	183	195	1227	188	237	864	276	488	1277	246	6758
#1042 EUCLID ST/ORANGETHORPE AVE													
Base	220	1188	252	200	1060	164	148	752	148	256	948	220	5556
Added	43	153	17	27	210	23	21	192	40	19	265	35	1045
Total	263	1341	269	227	1270	187	169	944	188	275	1213	255	6601
#1044 EUCLID ST/VALENCIA DR													
Base	104	1084	100	148	1012	224	204	216	100	164	260	164	3780
Added	5	191	11	11	229	18	25	92	11	11	62	8	674
Total	109	1275	111	159	1241	242	229	308	111	175	322	172	4454
#1045 COMMONWEALTH AVE/GILBERT ST													
Base	40	268	72	516	264	756	528	416	56	160	556	572	4204
Added	6	43	3	92	45	67	75	225	4	6	129	42	737
Total	46	311	75	608	309	823	603	641	60	166	685	614	4941
#1049 EUCLID ST/COMMONWEALTH AVE													
Base	108	1404	264	88	1000	172	232	552	84	252	664	168	4988
Added	53	110	58	26	105	14	32	295	73	80	80	20	946
Total	161	1514	322	114	1105	186	264	847	157	332	744	188	5934

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Future Build-Out
Default Trip Distribution
PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#1318 BROOKHURST/SR-91 EB RAMPS													
Base	0	984	528	296	1256	0	516	0	236	0	0	0	3816
Added	0	72	0	127	93	0	22	0	0	0	0	0	314
Total	0	1056	528	423	1349	0	538	0	236	0	0	0	4130
#1319 EUCLID ST/SR-91 WB RAMPS													
Base	300	1536	0	0	1164	328	0	0	0	568	0	404	4300
Added	0	162	0	0	251	23	0	0	0	0	0	56	492
Total	300	1698	0	0	1415	351	0	0	0	568	0	460	4792
#1320 EUCLID ST/SR-91 EB RAMPS													
Base	0	1416	856	288	1496	0	416	0	368	0	0	0	4840
Added	0	152	0	105	146	0	10	0	0	0	0	0	413
Total	0	1568	856	393	1642	0	426	0	368	0	0	0	5253
#21 #1321 HARBOR BLVD/SR-91 WB RAMPS													
Base	236	1416	0	0	1108	516	0	0	0	240	288	212	4016
Added	0	457	0	0	298	267	0	0	0	0	42	156	1220
Total	236	1873	0	0	1406	783	0	0	0	240	330	368	5236
#23 #1322 HARBOR BLVD/SR-91 EB RAMPS													
Base	0	1484	424	328	1136	0	488	212	208	0	0	0	4280
Added	0	226	0	155	143	0	232	35	0	0	0	0	791
Total	0	1710	424	483	1279	0	720	247	208	0	0	0	5071
#22 #1323 LEMON ST/ANAHEIM BLVD/SR-91 WB RAMPS													
Base	172	1296	0	0	1284	256	0	0	0	168	404	500	4080
Added	0	171	0	0	179	42	0	0	0	0	156	160	708
Total	172	1467	0	0	1463	298	0	0	0	168	560	660	4788
#24 #1324 LEMON ST/ANAHEIM BLVD/SR-91 EB RAMPS													
Base	0	1052	344	596	744	0	340	576	80	0	0	0	3732
Added	0	136	0	134	45	0	35	155	0	0	0	0	505
Total	0	1188	344	730	789	0	375	731	80	0	0	0	4237
#1325 RAYMOND AVE/SR-91 WB RAMPS													
Base	440	800	0	0	940	504	0	0	0	180	0	284	3148
Added	0	133	0	0	312	131	0	0	0	4	0	33	613
Total	440	933	0	0	1252	635	0	0	0	184	0	317	3761
#1326 RAYMOND AVE/SR-91 EB RAMPS													
Base	0	876	336	444	580	0	380	0	436	0	0	0	3052
Added	0	92	4	98	219	0	41	0	0	0	0	0	454
Total	0	968	340	542	799	0	421	0	436	0	0	0	3506

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Future Build-Out
Default Trip Distribution
PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#242 HARBOR BLVD/SANTA FE AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	465	75	43	735	0	0	0	0	0	0	71	1389
Total	0	465	75	43	735	0	0	0	0	0	0	71	1389
#243 HARBOR BLVD/ORANGEFAIR MALL													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	16	580	0	20	524	0	11	0	33	0	0	31	1215
Total	16	580	0	20	524	0	11	0	33	0	0	31	1215
#244 ORANGETHORPE AVE/POMONA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	101	0	109	0	0	0	0	140	51	61	293	0	755
Total	101	0	109	0	0	0	0	140	51	61	293	0	755
#247 LEMON ST/NUTWOOD PL													
Base	32	836	140	96	576	16	32	4	64	144	8	148	2096
Added	0	43	0	0	52	0	0	0	0	0	0	0	95
Total	32	879	140	96	628	16	32	4	64	144	8	148	2191
#248 BERKELEY AVE/EAST-OF-LEMON ST DWY													
Base	0	0	72	0	0	0	0	472	64	0	612	0	1220
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	72	0	0	0	0	472	64	0	612	0	1220
#250 BERKELEY AVE/NORTH-OF-BROOKDALE PL DWY													
Base	68	0	0	0	0	20	56	0	172	0	0	0	316
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	68	0	0	0	0	20	56	0	172	0	0	0	316
#257 COMMONWEALTH AVE/PRITCHARD AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	2	0	2	0	0	0	0	302	1	1	200	0	508
Total	2	0	2	0	0	0	0	302	1	1	200	0	508
#272													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	2	0	1	0	0	0	0	64	3	0	71	0	141
Total	2	0	1	0	0	0	0	64	3	0	71	0	141
#273													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	9	160	0	0	146	0	0	0	4	0	0	0	319
Total	9	160	0	0	146	0	0	0	4	0	0	0	319

#28

#26,#27

#30,#31

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Future Build-Out
Default Trip Distribution
PM Trips

Volume Type	Northbound Left	Northbound Thru	Northbound Right	Southbound Left	Southbound Thru	Southbound Right	Eastbound Left	Eastbound Thru	Eastbound Right	Westbound Left	Westbound Thru	Westbound Right	Total Volume
#328 YORBA LINDA BLVD/ALMIRA AVE													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	14	0	0	0	0	56	0	15	43	0	128
Total	0	0	14	0	0	0	0	56	0	15	43	0	128
#331 COMMONWEALTH AVE/COLLEGE PL													
Base	0	550	0	0	400	0	0	0	0	0	0	0	950
Added	2	225	0	0	747	0	0	0	4	0	0	0	978
Total	2	775	0	0	1147	0	0	0	4	0	0	0	1928
#345													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	0	0	0	56	0	467	0	0	774	0	1297
Total	0	0	0	0	0	56	0	467	0	0	774	0	1297
#349													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	0	35	0	0	0	0	467	0	0	774	24	1300
Total	0	0	35	0	0	0	0	467	0	0	774	24	1300
#360													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	0	738	0	0	419	12	0	0	0	0	0	9	1178
Total	0	738	0	0	419	12	0	0	0	0	0	9	1178
#29 #364 LEMON AVE/GROVE PL													
Base	84	916	80	72	680	36	4	0	4	88	0	80	2044
Added	0	43	0	0	52	0	0	0	0	0	0	0	95
Total	84	959	80	72	732	36	4	0	4	88	0	80	2139
#366 IMPERIAL HWY/STATE COLLEGE BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	-1	210	0	0	97	0	0	283	0	0	162	0	751
Total	-1	210	0	0	97	0	0	283	0	0	162	0	751
#367 IMPERIAL HWY/BREA BLVD													
Base	0	0	0	0	0	0	0	0	0	0	0	0	0
Added	2	178	8	4	82	6	5	271	4	5	153	3	721
Total	2	178	8	4	82	6	5	271	4	5	153	3	721
#369 STATE COLLEGE BLVD/SR-91 EB RAMPS													
Base	0	1100	240	404	912	0	312	0	308	0	0	0	3276
Added	0	82	13	264	215	0	53	0	0	0	0	0	627
Total	0	1182	253	668	1127	0	365	0	308	0	0	0	3903

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APPENDIX E

CALTRANS INTERSECTION LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX E-I

EXISTING TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	17.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	93	88	183	0	1182	693	306	1795	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	93	88	183	0	1182	693	306	1795	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	23	22	46	0	296	173	77	449	0
Total Analysis Volume [veh/h]	0	0	0	93	88	183	0	1182	693	306	1795	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	17	0	0	50	0	43	93	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	64	64	21	89
g / C, Green / Cycle		0.12	0.12	0.58	0.58	0.19	0.81
(v / s)_i Volume / Saturation Flow Rate		0.10	0.10	0.31	0.39	0.17	0.47
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		213	213	2214	1049	342	3074
d1, Uniform Delay [s]		47.53	47.59	13.90	15.57	43.46	3.80
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		9.17	9.74	0.93	3.27	8.22	0.82
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.85	0.86	0.53	0.66	0.89	0.58
d, Delay for Lane Group [s/veh]		56.70	57.33	14.83	18.85	51.68	4.62
Lane Group LOS		E	E	B	B	D	A
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		5.38	5.48	8.75	12.07	8.84	5.36
50th-Percentile Queue Length [ft]		134.59	136.91	218.68	301.73	221.01	134.00
95th-Percentile Queue Length [veh]		9.19	9.31	13.60	17.77	13.72	9.16
95th-Percentile Queue Length [ft]		229.72	232.86	339.94	444.17	342.91	228.92

Movement, Approach, & Intersection Results

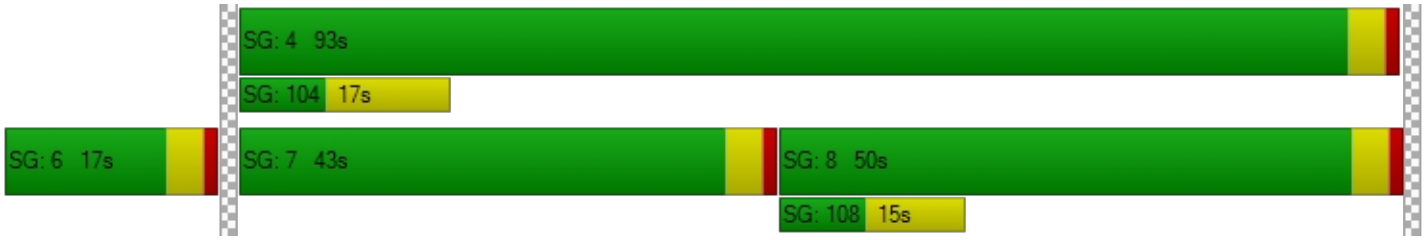
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	56.70	56.70	57.33	0.00	14.83	18.85	51.68	4.62	0.00
Movement LOS				E	E	E		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			57.02			16.31			11.47		
Approach LOS	A			E			B			B		
d_I, Intersection Delay [s/veh]	17.38											
Intersection LOS	B											
Intersection V/C	0.737											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.493	1.902	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	236	836	1618
d_b, Bicycle Delay [s]	55.00	42.77	18.62	2.00
I_b,int, Bicycle LOS Score for Intersection	4.132	2.160	2.591	3.293
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.844

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	957	0	255	0	0	0	223	941	0	0	1172	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	957	0	255	0	0	0	223	941	0	0	1172	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	239	0	64	0	0	0	56	235	0	0	293	33
Total Analysis Volume [veh/h]	957	0	255	0	0	0	223	941	0	0	1172	132
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	77	0	0	0	0	0	10	33	0	0	23	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	33		16	69	49	49
g / C, Green / Cycle	0.30	0.30	0.30		0.14	0.63	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.27	0.27	0.14		0.12	0.25	0.34	0.36
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	544	544	544		259	2376	845	801
d1, Uniform Delay [s]	36.48	36.48	31.20		46.01	10.27	25.79	26.56
k, delay calibration	0.11	0.11	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.82	4.82	0.63		8.25	0.50	6.73	8.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.88	0.47		0.86	0.40	0.77	0.81
d, Delay for Lane Group [s/veh]	41.30	41.30	31.83		54.26	10.76	32.52	35.45
Lane Group LOS	D	D	C		D	B	C	D
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	12.74	12.74	5.57		6.52	5.52	15.55	16.37
50th-Percentile Queue Length [ft]	318.55	318.55	139.29		162.92	138.09	388.85	409.21
95th-Percentile Queue Length [veh]	18.60	18.60	9.44		10.70	9.38	22.02	23.00
95th-Percentile Queue Length [ft]	464.91	464.91	236.07		267.59	234.45	550.55	575.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.30	0.00	31.83	0.00	0.00	0.00	54.26	10.76	0.00	0.00	33.82	35.45
Movement LOS	D		C				D	B			C	D
d_A, Approach Delay [s/veh]	39.31			0.00			19.10			33.98		
Approach LOS	D			A			B			C		
d_I, Intersection Delay [s/veh]	31.03											
Intersection LOS	C											
Intersection V/C	0.844											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.344	1.779	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	527	345
d_b, Bicycle Delay [s]	55.00	55.00	29.82	37.64
I_b,int, Bicycle LOS Score for Intersection	6.132	4.132	2.520	2.635
Bicycle LOS	F	D	B	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	117	1474	0	0	1749	578	0	0	0	214	284	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	1474	0	0	1749	578	0	0	0	214	284	198
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	369	0	0	437	145	0	0	0	54	71	50
Total Analysis Volume [veh/h]	117	1474	0	0	1749	578	0	0	0	214	284	198
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	39	0	0	29	0	0	0	0	0	61	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	77	67	67		15	15	15
g / C, Green / Cycle	0.06	0.77	0.67	0.67		0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.26	0.41	0.43		0.12	0.07	0.11
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	205	4381	2546	1206		273	575	273
d1, Uniform Delay [s]	45.85	3.61	9.20	9.57		40.87	38.92	40.46
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.48	0.21	1.10	2.65		4.96	0.66	3.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.34	0.61	0.64		0.79	0.49	0.73
d, Delay for Lane Group [s/veh]	48.33	3.82	10.30	12.22		45.83	39.57	44.14
Lane Group LOS	D	A	B	B		D	D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	1.48	2.43	8.60	9.43		5.40	3.23	4.88
50th-Percentile Queue Length [ft]	36.99	60.78	215.07	235.74		135.03	80.70	122.05
95th-Percentile Queue Length [veh]	2.66	4.38	13.41	14.47		9.21	5.81	8.51
95th-Percentile Queue Length [ft]	66.59	109.40	335.33	361.64		230.32	145.26	212.64

Movement, Approach, & Intersection Results

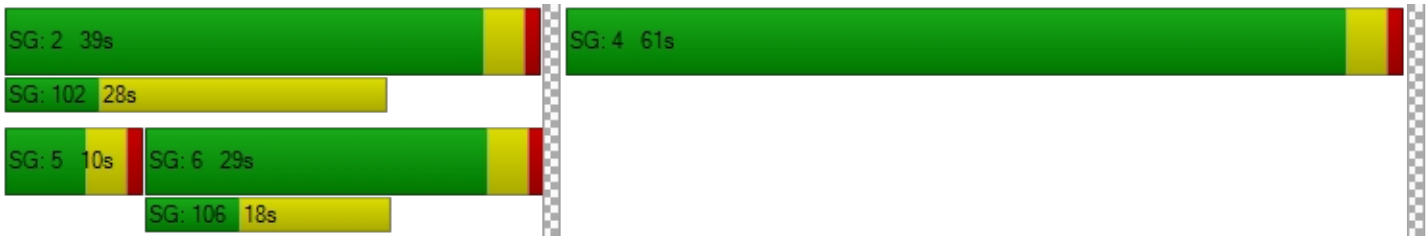
d_M, Delay for Movement [s/veh]	48.33	3.82	0.00	0.00	10.52	12.22	0.00	0.00	0.00	45.83	39.57	44.14
Movement LOS	D	A			B	B				D	D	D
d_A, Approach Delay [s/veh]	7.09			10.94			0.00			42.80		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	14.42											
Intersection LOS	B											
Intersection V/C	0.663											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.197	2.306
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	500	0	1140
d_b, Bicycle Delay [s]	21.13	28.13	50.00	9.25
I_b,int, Bicycle LOS Score for Intersection	2.435	2.839	4.132	2.134
Bicycle LOS	B	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.757

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	68	617	0	0	1297	284	0	0	0	270	422	604
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	617	0	0	1297	284	0	0	0	270	422	604
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	154	0	0	324	71	0	0	0	68	106	151
Total Analysis Volume [veh/h]	68	617	0	0	1297	284	0	0	0	270	422	604
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	33	0	0	23	0	0	0	0	0	67	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	55	45	45		37	37	37
g / C, Green / Cycle	0.05	0.55	0.45	0.45		0.37	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.28	0.29		0.19	0.18	0.34
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	93	3108	1723	816		674	712	674
d1, Uniform Delay [s]	46.71	11.59	20.67	21.12		24.22	23.89	29.43
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.27	0.14	1.63	3.92		0.61	0.51	5.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.20	0.61	0.65		0.51	0.48	0.90
d, Delay for Lane Group [s/veh]	56.98	11.74	22.30	25.05		24.83	24.40	34.42
Lane Group LOS	E	B	C	C		C	C	C
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.92	2.29	9.35	10.04		6.34	6.21	14.10
50th-Percentile Queue Length [ft]	48.12	57.23	233.76	251.12		158.57	155.15	352.61
95th-Percentile Queue Length [veh]	3.46	4.12	14.37	15.24		10.47	10.29	20.26
95th-Percentile Queue Length [ft]	86.62	103.01	359.13	381.06		261.83	257.29	506.59

Movement, Approach, & Intersection Results

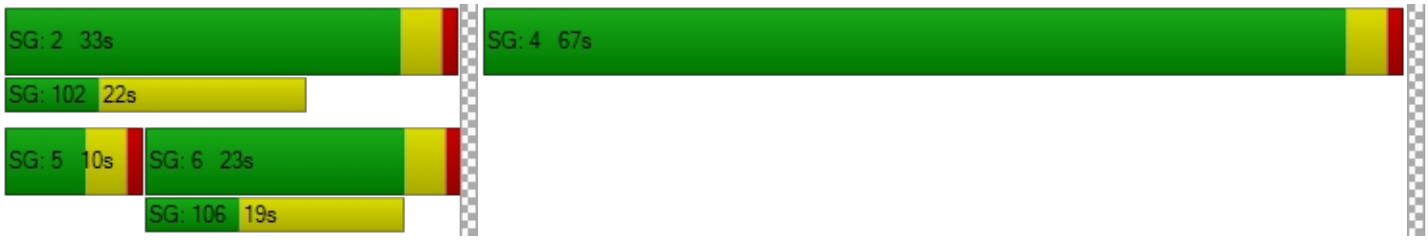
d_M, Delay for Movement [s/veh]	56.98	11.74	0.00	0.00	22.82	25.05	0.00	0.00	0.00	24.83	24.48	34.42
Movement LOS	E	B			C	C				C	C	C
d_A, Approach Delay [s/veh]	16.23			23.22			0.00			29.19		
Approach LOS	B			C			A			C		
d_I, Intersection Delay [s/veh]	24.05											
Intersection LOS	C											
Intersection V/C	0.757											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.097	2.366
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	580	380	0	1260
d_b, Bicycle Delay [s]	25.21	32.81	50.00	6.85
I_b,int, Bicycle LOS Score for Intersection	1.936	2.429	4.132	2.629
Bicycle LOS	A	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.594

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1096	444	512	1407	0	454	137	157	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1096	444	512	1407	0	454	137	157	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	274	111	128	352	0	114	34	39	0	0	0
Total Analysis Volume [veh/h]	0	1096	444	512	1407	0	454	137	157	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	39	0	38	77	0	0	23	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	55	55	18	76	16	16	16	
g / C, Green / Cycle	0.55	0.55	0.18	0.76	0.16	0.16	0.16	
(v / s)_i Volume / Saturation Flow Rate	0.19	0.25	0.15	0.25	0.13	0.07	0.09	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	3124	987	614	4352	547	297	282	
d1, Uniform Delay [s]	12.64	13.55	39.82	3.71	40.89	38.35	38.99	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.31	1.48	3.05	0.20	3.31	1.11	1.73	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.35	0.45	0.83	0.32	0.83	0.46	0.56	
d, Delay for Lane Group [s/veh]	12.95	15.04	42.87	3.91	44.20	39.46	40.71	
Lane Group LOS	B	B	D	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	4.46	6.10	6.26	2.37	5.61	3.13	3.67	
50th-Percentile Queue Length [ft]	111.51	152.54	156.60	59.27	140.32	78.17	91.76	
95th-Percentile Queue Length [veh]	7.92	10.15	10.37	4.27	9.50	5.63	6.61	
95th-Percentile Queue Length [ft]	198.10	253.82	259.22	106.68	237.45	140.70	165.16	

Movement, Approach, & Intersection Results

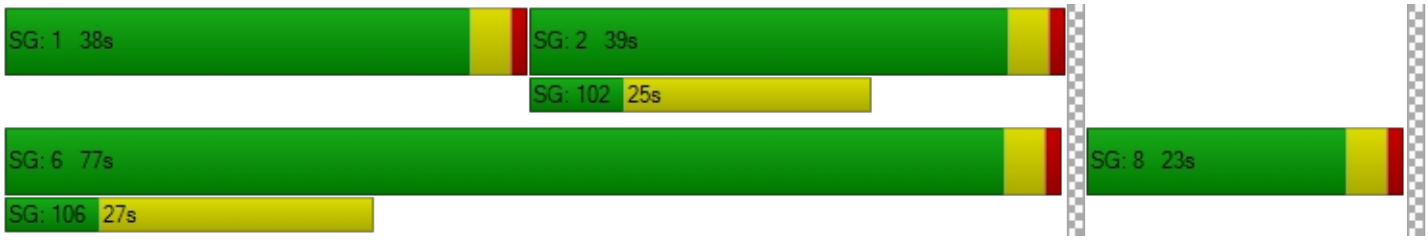
d_M, Delay for Movement [s/veh]	0.00	12.95	15.04	42.87	3.91	0.00	44.20	39.46	40.71	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	D			
d_A, Approach Delay [s/veh]	13.55			14.30			42.60			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.06											
Intersection LOS	B											
Intersection V/C	0.594											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.318	2.253
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	1460	380	0
d_b, Bicycle Delay [s]	21.13	3.65	32.81	50.00
I_b,int, Bicycle LOS Score for Intersection	2.407	2.615	2.794	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	638	377	528	947	0	68	807	193	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	638	377	528	947	0	68	807	193	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	160	94	132	237	0	17	202	48	0	0	0
Total Analysis Volume [veh/h]	0	638	377	528	947	0	68	807	193	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	24	47	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	17	64	28	28	28	
g / C, Green / Cycle	0.42	0.42	0.17	0.64	0.28	0.28	0.28	
(v / s)_i Volume / Saturation Flow Rate	0.17	0.21	0.15	0.25	0.25	0.23	0.11	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1613	764	606	2422	509	537	509	
d1, Uniform Delay [s]	19.91	20.95	40.27	8.75	34.19	33.28	28.83	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.73	2.27	4.08	0.48	4.90	2.84	0.47	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.40	0.49	0.87	0.39	0.87	0.80	0.38	
d, Delay for Lane Group [s/veh]	20.64	23.23	44.35	9.23	39.08	36.12	29.30	
Lane Group LOS	C	C	D	A	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.19	6.73	6.59	4.69	10.76	9.91	3.75	
50th-Percentile Queue Length [ft]	129.64	168.25	164.72	117.30	268.97	247.69	93.78	
95th-Percentile Queue Length [veh]	8.92	10.98	10.80	8.24	16.14	15.07	6.75	
95th-Percentile Queue Length [ft]	223.01	274.61	269.97	206.11	403.45	376.74	168.80	

Movement, Approach, & Intersection Results

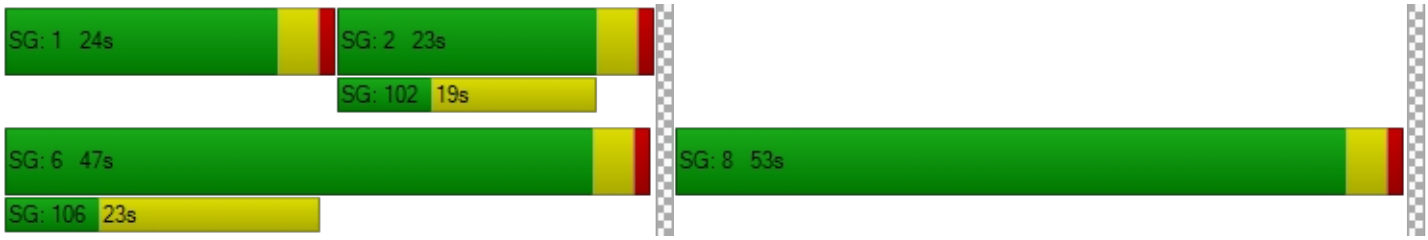
d_M, Delay for Movement [s/veh]	0.00	20.64	23.23	44.35	9.23	0.00	39.08	37.50	29.30	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	D	C			
d_A, Approach Delay [s/veh]	21.60			21.80			36.12			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	26.04											
Intersection LOS	C											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.292	2.554
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	860	980	0
d_b, Bicycle Delay [s]	32.81	16.25	13.01	50.00
I_b,int, Bicycle LOS Score for Intersection	2.118	2.776	2.441	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.637

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	118	173	205	0	1009	515	205	1543	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	118	173	205	0	1009	515	205	1543	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	30	43	51	0	252	129	51	386	0
Total Analysis Volume [veh/h]	0	0	0	118	173	205	0	1009	515	205	1543	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	69	0	0	31	0	10	41	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		21	21	63	63	15	81
g / C, Green / Cycle		0.19	0.19	0.57	0.57	0.13	0.74
(v / s)_i Volume / Saturation Flow Rate		0.16	0.11	0.27	0.29	0.11	0.41
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		335	335	2170	1028	240	2815
d1, Uniform Delay [s]		43.42	41.08	13.78	14.18	46.58	6.21
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		6.82	1.80	0.72	1.75	8.32	0.77
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.87	0.61	0.47	0.50	0.85	0.55
d, Delay for Lane Group [s/veh]		50.24	42.88	14.50	15.92	54.90	6.99
Lane Group LOS		D	D	B	B	D	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]		8.26	5.25	7.24	7.87	6.01	6.84
50th-Percentile Queue Length [ft]		206.55	131.28	181.00	196.86	150.31	171.00
95th-Percentile Queue Length [veh]		12.98	9.01	11.65	12.48	10.03	11.13
95th-Percentile Queue Length [ft]		324.40	225.23	291.31	311.91	250.84	278.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	50.24	50.24	42.88	0.00	14.50	15.92	54.90	6.99	0.00
Movement LOS				D	D	D		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			47.20			14.98			12.61		
Approach LOS	A			D			B			B		
d_I, Intersection Delay [s/veh]	18.12											
Intersection LOS	B											
Intersection V/C	0.637											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.304	1.966	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1182	491	673
d_b, Bicycle Delay [s]	55.00	9.20	31.31	24.22
I_b,int, Bicycle LOS Score for Intersection	4.132	2.378	2.398	3.002
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.760

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	618	0	486	0	0	0	144	968	0	0	1212	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	618	0	486	0	0	0	144	968	0	0	1212	203
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	155	0	122	0	0	0	36	242	0	0	303	51
Total Analysis Volume [veh/h]	618	0	486	0	0	0	144	968	0	0	1212	203
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	81	0	0	0	0	0	10	29	0	0	19	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	27		11	75	61	61
g / C, Green / Cycle	0.24	0.24	0.24		0.10	0.69	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.20	0.20	0.20		0.08	0.25	0.37	0.39
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	435	435	435		177	2605	1046	991
d1, Uniform Delay [s]	39.74	39.74	39.74		48.56	7.30	17.69	18.30
k, delay calibration	0.11	0.11	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.60	4.60	4.60		8.57	0.41	3.51	4.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.85	0.85		0.81	0.37	0.68	0.71
d, Delay for Lane Group [s/veh]	44.34	44.34	44.34		57.13	7.70	21.20	22.68
Lane Group LOS	D	D	D		E	A	C	C
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	9.94	9.94	9.94		4.28	4.52	13.25	13.85
50th-Percentile Queue Length [ft]	248.41	248.41	248.41		107.05	112.89	331.13	346.21
95th-Percentile Queue Length [veh]	15.11	15.11	15.11		7.68	8.00	19.21	19.95
95th-Percentile Queue Length [ft]	377.65	377.65	377.65		191.89	200.02	480.35	498.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.34	0.00	44.34	0.00	0.00	0.00	57.13	7.70	0.00	0.00	21.82	22.68
Movement LOS	D		D				E	A			C	C
d_A, Approach Delay [s/veh]	44.34			0.00			14.10			21.94		
Approach LOS	D			A			B			C		
d_I, Intersection Delay [s/veh]	26.35											
Intersection LOS	C											
Intersection V/C	0.760											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.309	1.771	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	455	273
d_b, Bicycle Delay [s]	55.00	55.00	32.84	41.02
I_b,int, Bicycle LOS Score for Intersection	5.954	4.132	2.477	2.727
Bicycle LOS	F	D	B	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	77	1892	0	0	1383	510	0	0	0	306	378	360
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	1892	0	0	1383	510	0	0	0	306	378	360
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	473	0	0	346	128	0	0	0	77	95	90
Total Analysis Volume [veh/h]	77	1892	0	0	1383	510	0	0	0	306	378	360
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	0	22	0	0	0	0	0	68	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	68	59	59		24	24	24
g / C, Green / Cycle	0.05	0.68	0.59	0.59		0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.02	0.33	0.33	0.35		0.17	0.10	0.20
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	189	3887	2235	1059		428	904	428
d1, Uniform Delay [s]	45.77	7.57	12.70	13.06		34.98	32.24	36.29
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.41	0.44	1.04	2.48		2.23	0.31	4.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.49	0.56	0.60		0.71	0.42	0.84
d, Delay for Lane Group [s/veh]	47.18	8.01	13.74	15.54		37.21	32.55	40.78
Lane Group LOS	D	A	B	B		D	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	0.96	5.77	8.40	9.03		7.01	3.88	8.76
50th-Percentile Queue Length [ft]	23.97	144.36	209.88	225.75		175.15	96.90	219.05
95th-Percentile Queue Length [veh]	1.73	9.72	13.15	13.96		11.35	6.98	13.62
95th-Percentile Queue Length [ft]	43.14	242.88	328.68	348.96		283.67	174.42	340.42

Movement, Approach, & Intersection Results

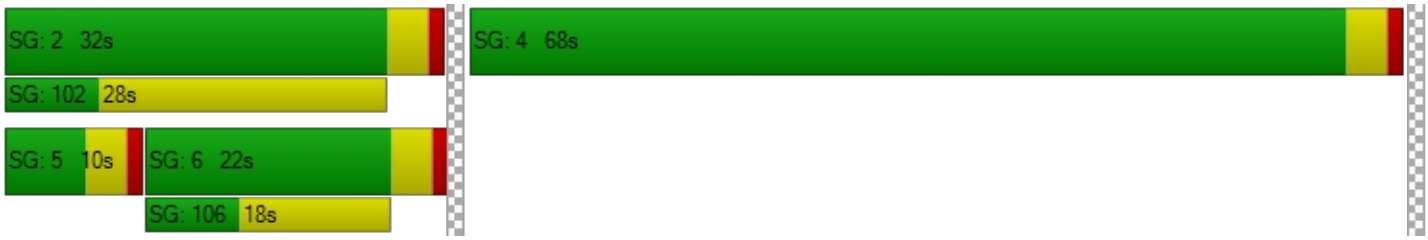
d_M, Delay for Movement [s/veh]	47.18	8.01	0.00	0.00	13.90	15.54	0.00	0.00	0.00	37.21	32.55	40.78
Movement LOS	D	A			B	B				D	C	D
d_A, Approach Delay [s/veh]	9.54			14.34			0.00			36.75		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	17.18											
Intersection LOS	B											
Intersection V/C	0.651											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.190	2.390
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	360	0	1280
d_b, Bicycle Delay [s]	25.92	33.62	50.00	6.48
I_b,int, Bicycle LOS Score for Intersection	2.643	2.601	4.132	2.421
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.774

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	101	1199	0	0	1210	334	0	0	0	166	564	611
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	101	1199	0	0	1210	334	0	0	0	166	564	611
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	300	0	0	303	84	0	0	0	42	141	153
Total Analysis Volume [veh/h]	101	1199	0	0	1210	334	0	0	0	166	564	611
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	11	46	0	0	35	0	0	0	0	0	54	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	7	54	43	43		38	38	38
g / C, Green / Cycle	0.07	0.54	0.43	0.43		0.38	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.27	0.29		0.20	0.19	0.34
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	127	3096	1643	778		678	716	678
d1, Uniform Delay [s]	45.74	13.21	22.10	22.56		24.42	23.98	29.40
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.48	0.37	1.82	4.39		0.68	0.55	9.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.39	0.63	0.66		0.54	0.50	0.90
d, Delay for Lane Group [s/veh]	56.22	13.58	23.91	26.95		25.11	24.53	38.52
Lane Group LOS	E	B	C	C		C	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	2.83	5.07	9.50	10.23		6.82	6.54	15.06
50th-Percentile Queue Length [ft]	70.64	126.70	237.52	255.66		170.54	163.57	376.59
95th-Percentile Queue Length [veh]	5.09	8.76	14.56	15.47		11.11	10.74	21.43
95th-Percentile Queue Length [ft]	127.15	219.00	363.90	386.77		277.63	268.44	535.71

Movement, Approach, & Intersection Results

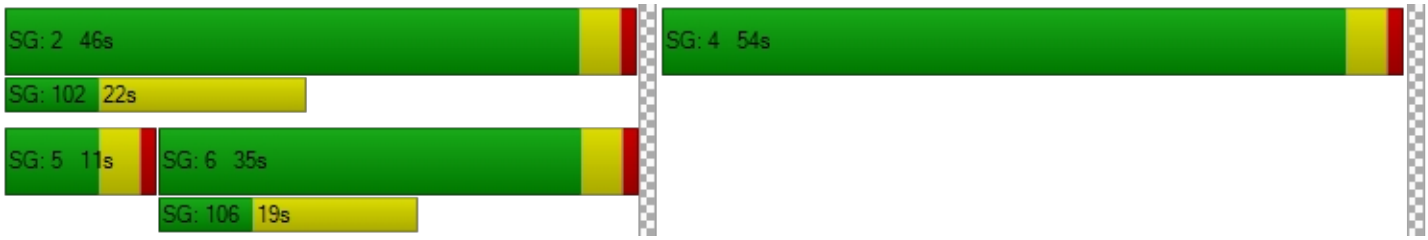
d_M, Delay for Movement [s/veh]	56.22	13.58	0.00	0.00	24.37	26.95	0.00	0.00	0.00	25.11	24.74	38.52
Movement LOS	E	B			C	C				C	C	D
d_A, Approach Delay [s/veh]	16.89			24.93			0.00			31.06		
Approach LOS	B			C			A			C		
d_I, Intersection Delay [s/veh]	24.40											
Intersection LOS	C											
Intersection V/C	0.774											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.207	2.381
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	840	620	0	1000
d_b, Bicycle Delay [s]	16.82	23.81	50.00	12.50
I_b,int, Bicycle LOS Score for Intersection	2.275	2.409	4.132	2.666
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.580

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1336	212	271	1466	0	696	287	144	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1336	212	271	1466	0	696	287	144	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	334	53	68	367	0	174	72	36	0	0	0
Total Analysis Volume [veh/h]	0	1336	212	271	1466	0	696	287	144	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	32	0	14	46	0	0	54	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	54	54	10	68	24	24	24	
g / C, Green / Cycle	0.54	0.54	0.10	0.68	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.23	0.12	0.08	0.26	0.20	0.15	0.08	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	3088	975	338	3867	846	459	435	
d1, Uniform Delay [s]	13.72	11.90	44.23	6.96	35.90	33.88	31.26	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.44	0.51	4.41	0.28	2.08	1.40	0.44	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.43	0.22	0.80	0.38	0.82	0.63	0.33	
d, Delay for Lane Group [s/veh]	14.16	12.42	48.64	7.25	37.98	35.28	31.70	
Lane Group LOS	B	B	D	A	D	D	C	
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.85	2.50	3.47	4.08	8.14	6.33	2.90	
50th-Percentile Queue Length [ft]	146.24	62.57	86.76	102.04	203.58	158.14	72.49	
95th-Percentile Queue Length [veh]	9.82	4.51	6.25	7.35	12.82	10.45	5.22	
95th-Percentile Queue Length [ft]	245.40	112.63	156.17	183.67	320.57	261.26	130.47	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	14.16	12.42	48.64	7.25	0.00	37.98	35.28	31.70	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	C			
d_A, Approach Delay [s/veh]	13.92			13.71			36.49			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.60											
Intersection LOS	B											
Intersection V/C	0.580											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.411	2.095
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	840	1000	0
d_b, Bicycle Delay [s]	25.92	16.82	12.50	50.00
I_b,int, Bicycle LOS Score for Intersection	2.411	2.515	3.419	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.611

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	979	208	406	938	0	316	412	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	979	208	406	938	0	316	412	57	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	245	52	102	235	0	79	103	14	0	0	0
Total Analysis Volume [veh/h]	0	979	208	406	938	0	316	412	57	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	24	47	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	51	51	14	69	23	23	23	
g / C, Green / Cycle	0.51	0.51	0.14	0.69	0.23	0.23	0.23	
(v / s)_i Volume / Saturation Flow Rate	0.21	0.22	0.12	0.25	0.20	0.19	0.03	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1924	912	491	2609	420	444	420	
d1, Uniform Delay [s]	15.39	15.62	41.82	6.52	36.83	36.35	30.34	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.65	1.51	3.64	0.39	5.48	3.84	0.15	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.41	0.43	0.83	0.36	0.87	0.82	0.14	
d, Delay for Lane Group [s/veh]	16.04	17.12	45.46	6.91	42.30	40.18	30.49	
Lane Group LOS	B	B	D	A	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.58	5.87	5.07	3.77	9.04	8.77	1.10	
50th-Percentile Queue Length [ft]	139.57	146.75	126.79	94.15	225.89	219.14	27.52	
95th-Percentile Queue Length [veh]	9.46	9.84	8.76	6.78	13.97	13.62	1.98	
95th-Percentile Queue Length [ft]	236.44	246.09	219.12	169.47	349.14	340.53	49.53	

Movement, Approach, & Intersection Results

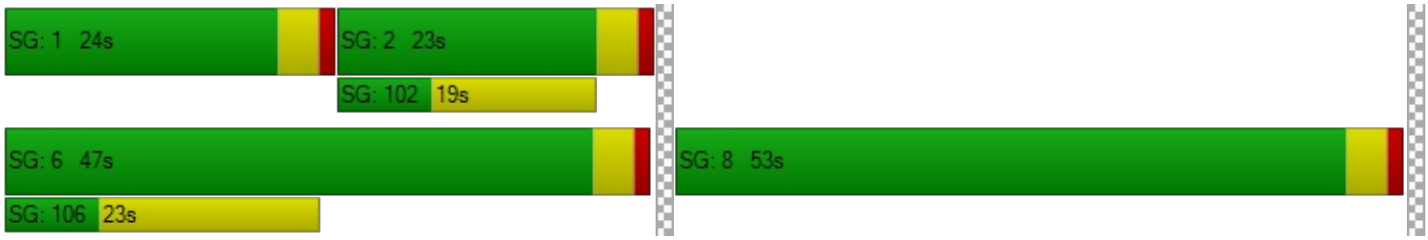
d_M, Delay for Movement [s/veh]	0.00	16.25	17.12	45.46	6.91	0.00	42.30	40.43	30.49	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	C			
d_A, Approach Delay [s/veh]	16.40			18.55			40.46			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	22.97											
Intersection LOS	C											
Intersection V/C	0.611											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.200	2.220
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	860	980	0
d_b, Bicycle Delay [s]	32.81	16.25	13.01	50.00
I_b,int, Bicycle LOS Score for Intersection	2.212	2.668	2.207	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX E-II

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.753

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	93	88	206	0	1191	696	306	1837	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	93	88	206	0	1191	696	306	1837	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	23	22	52	0	298	174	77	459	0
Total Analysis Volume [veh/h]	0	0	0	93	88	206	0	1191	696	306	1837	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	17	0	0	50	0	43	93	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		13	13	64	64	21	89
g / C, Green / Cycle		0.12	0.12	0.58	0.58	0.19	0.81
(v / s)_i Volume / Saturation Flow Rate		0.10	0.11	0.31	0.39	0.17	0.48
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		213	213	2213	1048	342	3073
d1, Uniform Delay [s]		47.51	48.25	13.97	15.64	43.46	3.89
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		9.02	21.49	0.94	3.32	8.20	0.87
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.85	0.97	0.54	0.66	0.89	0.60
d, Delay for Lane Group [s/veh]		56.53	69.74	14.92	18.96	51.66	4.76
Lane Group LOS		E	E	B	B	D	A
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		5.38	6.87	8.85	12.17	8.84	5.62
50th-Percentile Queue Length [ft]		134.38	171.71	221.36	304.30	220.97	140.54
95th-Percentile Queue Length [veh]		9.18	11.17	13.73	17.89	13.71	9.51
95th-Percentile Queue Length [ft]		229.43	279.16	343.36	447.34	342.86	237.75

Movement, Approach, & Intersection Results

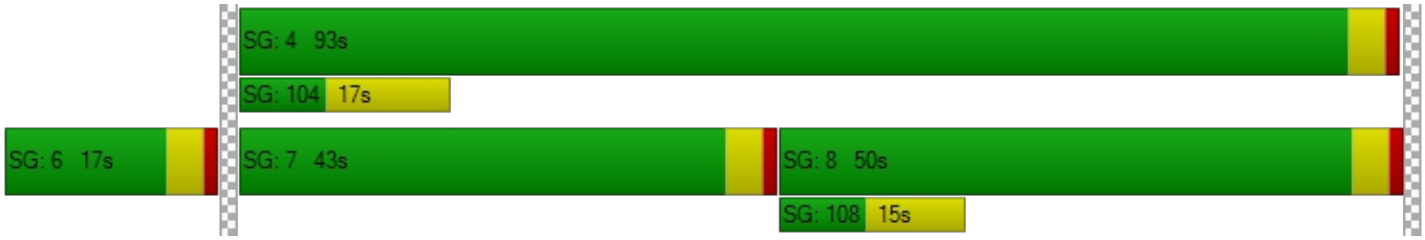
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	56.53	56.53	69.74	0.00	14.92	18.96	51.66	4.76	0.00
Movement LOS				E	E	E		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			63.56			16.41			11.46		
Approach LOS	A			E			B			B		
d_I, Intersection Delay [s/veh]	18.14											
Intersection LOS	B											
Intersection V/C	0.753											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.496	1.913	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	236	836	1618
d_b, Bicycle Delay [s]	55.00	42.77	18.62	2.00
I_b,int, Bicycle LOS Score for Intersection	4.132	2.198	2.597	3.328
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.860

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	973	0	255	0	0	0	227	946	0	0	1198	132
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	973	0	255	0	0	0	227	946	0	0	1198	132
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	243	0	64	0	0	0	57	237	0	0	300	33
Total Analysis Volume [veh/h]	973	0	255	0	0	0	227	946	0	0	1198	132
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	77	0	0	0	0	0	10	33	0	0	23	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	34		16	68	48	48
g / C, Green / Cycle	0.31	0.31	0.31		0.15	0.62	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.27	0.27	0.14		0.13	0.25	0.35	0.37
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	552	552	552		263	2358	832	789
d1, Uniform Delay [s]	36.22	36.22	30.79		45.88	10.54	26.71	27.53
k, delay calibration	0.11	0.11	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.80	4.80	0.60		8.24	0.51	7.90	10.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.88	0.46		0.86	0.40	0.80	0.84
d, Delay for Lane Group [s/veh]	41.02	41.02	31.39		54.12	11.05	34.61	38.20
Lane Group LOS	D	D	C		D	B	C	D
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	12.93	12.93	5.53		6.63	5.65	16.44	17.40
50th-Percentile Queue Length [ft]	323.28	323.28	138.17		165.73	141.36	411.09	435.11
95th-Percentile Queue Length [veh]	18.83	18.83	9.38		10.85	9.55	23.09	24.25
95th-Percentile Queue Length [ft]	470.71	470.71	234.56		271.29	238.85	577.35	606.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.02	0.00	31.39	0.00	0.00	0.00	54.12	11.05	0.00	0.00	36.21	38.20
Movement LOS	D		C				D	B			D	D
d_A, Approach Delay [s/veh]	39.02			0.00			19.39			36.40		
Approach LOS	D			A			B			D		
d_I, Intersection Delay [s/veh]	31.91											
Intersection LOS	C											
Intersection V/C	0.860											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.349	1.783	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	527	345
d_b, Bicycle Delay [s]	55.00	55.00	29.82	37.64
I_b,int, Bicycle LOS Score for Intersection	6.159	4.132	2.527	2.657
Bicycle LOS	F	D	B	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	117	1503	0	0	1752	580	0	0	0	214	288	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	117	1503	0	0	1752	580	0	0	0	214	288	198
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	376	0	0	438	145	0	0	0	54	72	50
Total Analysis Volume [veh/h]	117	1503	0	0	1752	580	0	0	0	214	288	198
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	39	0	0	29	0	0	0	0	0	61	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	77	67	67		15	15	15
g / C, Green / Cycle	0.06	0.77	0.67	0.67		0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.26	0.41	0.43		0.12	0.08	0.11
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	205	4381	2546	1206		273	576	273
d1, Uniform Delay [s]	45.85	3.64	9.22	9.59		40.86	38.95	40.45
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.48	0.21	1.10	2.66		4.95	0.67	3.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.34	0.61	0.64		0.78	0.50	0.73
d, Delay for Lane Group [s/veh]	48.33	3.85	10.32	12.25		45.81	39.63	44.12
Lane Group LOS	D	A	B	B		D	D	D
Critical Lane Group	Yes	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	1.48	2.50	8.64	9.47		5.40	3.28	4.88
50th-Percentile Queue Length [ft]	36.99	62.45	215.95	236.76		134.99	81.94	122.02
95th-Percentile Queue Length [veh]	2.66	4.50	13.46	14.52		9.21	5.90	8.50
95th-Percentile Queue Length [ft]	66.59	112.41	336.46	362.94		230.27	147.49	212.60

Movement, Approach, & Intersection Results

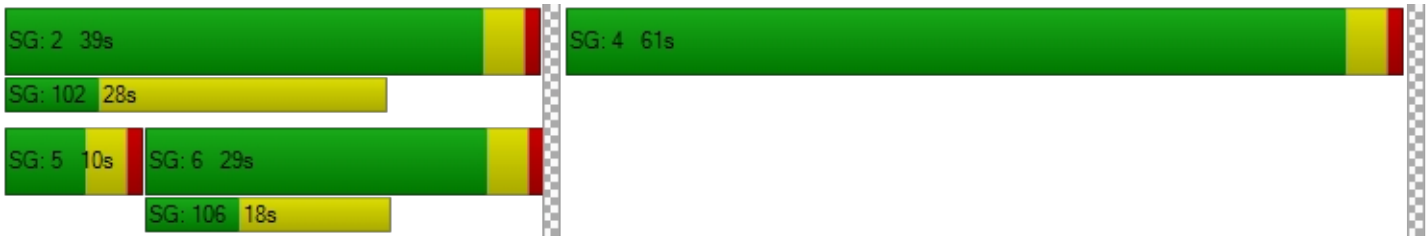
d_M, Delay for Movement [s/veh]	48.33	3.85	0.00	0.00	10.54	12.25	0.00	0.00	0.00	45.81	39.63	44.12
Movement LOS	D	A			B	B				D	D	D
d_A, Approach Delay [s/veh]	7.07			10.97			0.00			42.79		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	14.40											
Intersection LOS	B											
Intersection V/C	0.664											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.200	2.307
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	500	0	1140
d_b, Bicycle Delay [s]	21.13	28.13	50.00	9.25
I_b,int, Bicycle LOS Score for Intersection	2.451	2.842	4.132	2.137
Bicycle LOS	B	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	68	649	0	0	1302	288	0	0	0	270	422	620
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	649	0	0	1302	288	0	0	0	270	422	620
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	162	0	0	326	72	0	0	0	68	106	155
Total Analysis Volume [veh/h]	68	649	0	0	1302	288	0	0	0	270	422	620
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	33	0	0	23	0	0	0	0	0	67	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	54	45	45		38	38	38
g / C, Green / Cycle	0.05	0.54	0.45	0.45		0.38	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.28	0.29		0.19	0.18	0.34
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	93	3058	1689	800		690	729	690
d1, Uniform Delay [s]	46.71	12.12	21.39	21.86		23.54	23.22	28.99
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.13
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.27	0.16	1.78	4.29		0.57	0.48	5.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.21	0.63	0.66		0.50	0.47	0.90
d, Delay for Lane Group [s/veh]	56.98	12.28	23.17	26.15		24.11	23.70	34.40
Lane Group LOS	E	B	C	C		C	C	C
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.92	2.48	9.63	10.37		6.23	6.10	14.50
50th-Percentile Queue Length [ft]	48.12	62.11	240.70	259.19		155.84	152.41	362.62
95th-Percentile Queue Length [veh]	3.46	4.47	14.72	15.65		10.33	10.15	20.75
95th-Percentile Queue Length [ft]	86.62	111.80	367.92	391.20		258.21	253.65	518.76

Movement, Approach, & Intersection Results

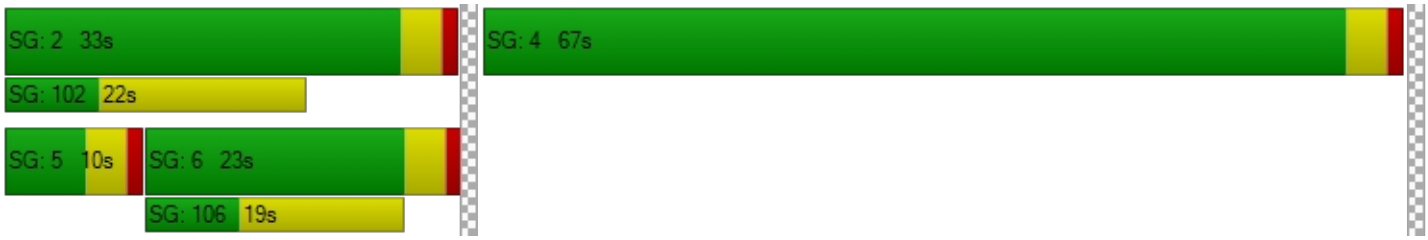
d_M, Delay for Movement [s/veh]	56.98	12.28	0.00	0.00	23.72	26.15	0.00	0.00	0.00	24.11	23.77	34.40
Movement LOS	E	B			C	C				C	C	C
d_A, Approach Delay [s/veh]	16.52			24.16			0.00			28.86		
Approach LOS	B			C			A			C		
d_I, Intersection Delay [s/veh]	24.35											
Intersection LOS	C											
Intersection V/C	0.769											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.099	2.371
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	580	380	0	1260
d_b, Bicycle Delay [s]	25.21	32.81	50.00	6.85
I_b,int, Bicycle LOS Score for Intersection	1.954	2.434	4.132	2.642
Bicycle LOS	A	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.598

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1112	444	512	1410	0	467	156	157	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1112	444	512	1410	0	467	156	157	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	278	111	128	353	0	117	39	39	0	0	0
Total Analysis Volume [veh/h]	0	1112	444	512	1410	0	467	156	157	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	29	0	47	76	0	0	24	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	54	54	18	76	16	16	16	
g / C, Green / Cycle	0.54	0.54	0.18	0.76	0.16	0.16	0.16	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.25	0.15	0.25	0.13	0.08	0.09	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	3092	976	617	4324	565	307	290	
d1, Uniform Delay [s]	13.00	13.90	39.75	3.87	40.59	38.32	38.53	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.33	1.53	2.97	0.20	3.16	1.31	1.56	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.36	0.45	0.83	0.33	0.83	0.51	0.54	
d, Delay for Lane Group [s/veh]	13.33	15.42	42.72	4.07	43.75	39.62	40.10	
Lane Group LOS	B	B	D	A	D	D	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	4.62	6.20	6.25	2.46	5.75	3.58	3.64	
50th-Percentile Queue Length [ft]	115.40	155.06	156.30	61.59	143.74	89.53	90.95	
95th-Percentile Queue Length [veh]	8.14	10.29	10.35	4.43	9.68	6.45	6.55	
95th-Percentile Queue Length [ft]	203.48	257.17	258.82	110.87	242.05	161.15	163.70	

Movement, Approach, & Intersection Results

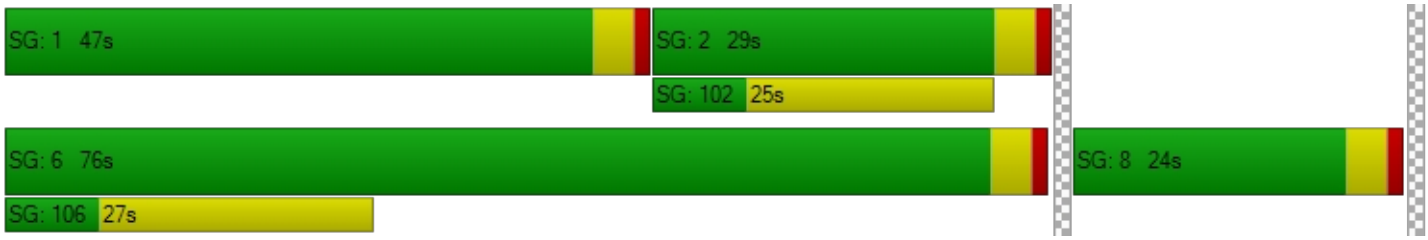
d_M, Delay for Movement [s/veh]	0.00	13.33	15.42	42.72	4.07	0.00	43.75	39.62	40.10	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	D			
d_A, Approach Delay [s/veh]	13.93			14.37			42.19			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.30											
Intersection LOS	B											
Intersection V/C	0.598											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.326	2.262
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	1440	400	0
d_b, Bicycle Delay [s]	28.13	3.92	32.00	50.00
I_b,int, Bicycle LOS Score for Intersection	2.415	2.617	2.847	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.697

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	651	377	531	949	0	87	807	193	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	651	377	531	949	0	87	807	193	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	163	94	133	237	0	22	202	48	0	0	0
Total Analysis Volume [veh/h]	0	651	377	531	949	0	87	807	193	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	24	47	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	17	63	29	29	29	
g / C, Green / Cycle	0.42	0.42	0.17	0.63	0.29	0.29	0.29	
(v / s)_i Volume / Saturation Flow Rate	0.17	0.21	0.15	0.25	0.25	0.23	0.11	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1590	753	608	2402	518	547	518	
d1, Uniform Delay [s]	20.42	21.40	40.24	9.02	33.91	33.01	28.41	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.78	2.37	4.09	0.49	4.88	2.84	0.44	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.41	0.50	0.87	0.40	0.88	0.80	0.37	
d, Delay for Lane Group [s/veh]	21.20	23.77	44.33	9.51	38.79	35.84	28.85	
Lane Group LOS	C	C	D	A	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.39	6.82	6.63	4.80	10.96	10.11	3.72	
50th-Percentile Queue Length [ft]	134.63	170.61	165.68	120.03	273.97	252.77	92.93	
95th-Percentile Queue Length [veh]	9.19	11.11	10.85	8.39	16.39	15.33	6.69	
95th-Percentile Queue Length [ft]	229.78	277.72	271.23	209.86	409.69	383.14	167.28	

Movement, Approach, & Intersection Results

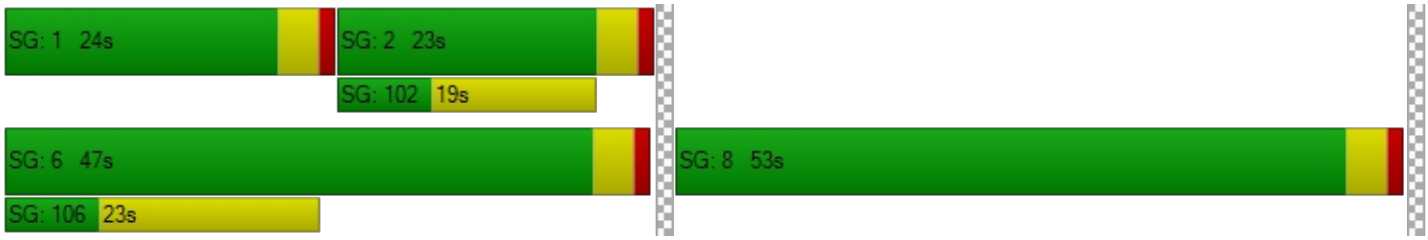
d_M, Delay for Movement [s/veh]	0.00	21.20	23.77	44.33	9.51	0.00	38.79	37.18	28.85	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	D	C			
d_A, Approach Delay [s/veh]	22.14			22.00			35.83			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	26.22											
Intersection LOS	C											
Intersection V/C	0.697											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.298	2.556
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	860	980	0
d_b, Bicycle Delay [s]	32.81	16.25	13.01	50.00
I_b,int, Bicycle LOS Score for Intersection	2.125	2.781	2.456	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	18.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	118	173	222	0	1030	522	205	1574	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	118	173	222	0	1030	522	205	1574	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	30	43	56	0	258	131	51	394	0
Total Analysis Volume [veh/h]	0	0	0	118	173	222	0	1030	522	205	1574	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	69	0	0	31	0	10	41	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		21	21	63	63	15	81
g / C, Green / Cycle		0.19	0.19	0.57	0.57	0.13	0.74
(v / s)_i Volume / Saturation Flow Rate		0.16	0.12	0.27	0.29	0.11	0.41
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		336	336	2168	1027	240	2814
d1, Uniform Delay [s]		43.38	41.48	13.91	14.28	46.58	6.32
k, delay calibration		0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		6.71	2.22	0.75	1.80	8.32	0.81
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.87	0.66	0.48	0.51	0.85	0.56
d, Delay for Lane Group [s/veh]		50.09	43.70	14.66	16.08	54.90	7.13
Lane Group LOS		D	D	B	B	D	A
Critical Lane Group		Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]		8.25	5.77	7.46	8.04	6.01	7.09
50th-Percentile Queue Length [ft]		206.23	144.20	186.45	200.97	150.31	177.37
95th-Percentile Queue Length [veh]		12.96	9.71	11.94	12.69	10.03	11.46
95th-Percentile Queue Length [ft]		323.99	242.67	298.41	317.22	250.84	286.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	50.09	50.09	43.70	0.00	14.66	16.08	54.90	7.13	0.00
Movement LOS				D	D	D		B	B	D	A	
d_A, Approach Delay [s/veh]	0.00			47.33			15.14			12.63		
Approach LOS	A			D			B			B		
d_I, Intersection Delay [s/veh]	18.27											
Intersection LOS	B											
Intersection V/C	0.646											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.310	1.975	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	1182	491	673
d_b, Bicycle Delay [s]	55.00	9.20	31.31	24.22
I_b,int, Bicycle LOS Score for Intersection	4.132	2.406	2.413	3.027
Bicycle LOS	D	B	B	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	26.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.775

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	630	0	486	0	0	0	154	979	0	0	1231	203
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	630	0	486	0	0	0	154	979	0	0	1231	203
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	158	0	122	0	0	0	39	245	0	0	308	51
Total Analysis Volume [veh/h]	630	0	486	0	0	0	154	979	0	0	1231	203
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	81	0	0	0	0	0	10	29	0	0	19	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	27		11	75	60	60
g / C, Green / Cycle	0.24	0.24	0.24		0.10	0.68	0.54	0.54
(v / s)_i Volume / Saturation Flow Rate	0.21	0.21	0.21		0.09	0.26	0.38	0.40
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	439	439	439		188	2596	1030	976
d1, Uniform Delay [s]	39.60	39.60	39.60		48.23	7.44	18.50	19.14
k, delay calibration	0.11	0.11	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.58	4.58	4.58		8.49	0.42	3.89	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.85	0.85		0.82	0.38	0.70	0.73
d, Delay for Lane Group [s/veh]	44.18	44.18	44.18		56.72	7.86	22.38	24.04
Lane Group LOS	D	D	D		E	A	C	C
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	10.03	10.03	10.03		4.57	4.63	13.89	14.55
50th-Percentile Queue Length [ft]	250.83	250.83	250.83		114.15	115.87	347.32	363.87
95th-Percentile Queue Length [veh]	15.23	15.23	15.23		8.07	8.17	20.01	20.81
95th-Percentile Queue Length [ft]	380.70	380.70	380.70		201.76	204.14	500.14	520.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.18	0.00	44.18	0.00	0.00	0.00	56.72	7.86	0.00	0.00	23.08	24.04
Movement LOS	D		D				E	A			C	C
d_A, Approach Delay [s/veh]	44.18			0.00			14.50			23.21		
Approach LOS	D			A			B			C		
d_I, Intersection Delay [s/veh]	26.88											
Intersection LOS	C											
Intersection V/C	0.775											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.312	1.781	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	455	273
d_b, Bicycle Delay [s]	55.00	55.00	32.84	41.02
I_b,int, Bicycle LOS Score for Intersection	5.974	4.132	2.494	2.743
Bicycle LOS	F	D	B	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	77	1914	0	0	1390	516	0	0	0	306	387	360
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	1914	0	0	1390	516	0	0	0	306	387	360
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	479	0	0	348	129	0	0	0	77	97	90
Total Analysis Volume [veh/h]	77	1914	0	0	1390	516	0	0	0	306	387	360
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	0	22	0	0	0	0	0	68	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	68	59	59		24	24	24
g / C, Green / Cycle	0.05	0.68	0.59	0.59		0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.02	0.34	0.33	0.35		0.17	0.10	0.20
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	189	3886	2234	1058		429	905	429
d1, Uniform Delay [s]	45.77	7.62	12.76	13.13		34.96	32.31	36.27
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.41	0.45	1.06	2.52		2.22	0.32	4.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.49	0.57	0.60		0.71	0.43	0.84
d, Delay for Lane Group [s/veh]	47.18	8.07	13.82	15.65		37.18	32.63	40.74
Lane Group LOS	D	A	B	B		D	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	0.96	5.88	8.49	9.14		7.00	3.98	8.76
50th-Percentile Queue Length [ft]	23.97	147.05	212.24	228.42		175.07	99.45	218.92
95th-Percentile Queue Length [veh]	1.73	9.86	13.27	14.09		11.34	7.16	13.61
95th-Percentile Queue Length [ft]	43.14	246.49	331.70	352.35		283.57	179.01	340.25

Movement, Approach, & Intersection Results

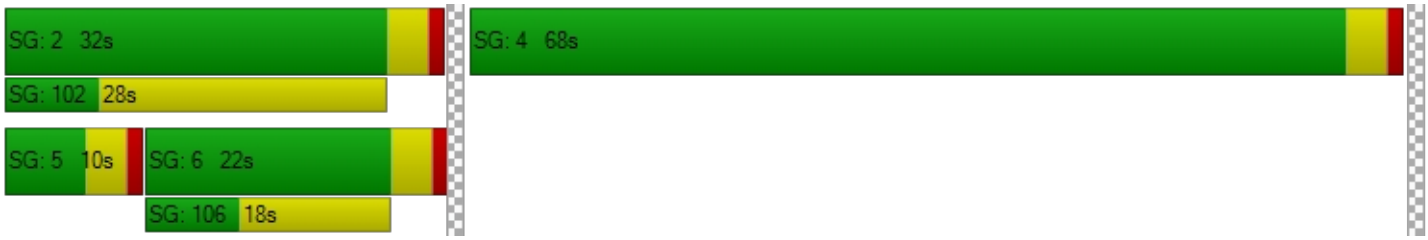
d_M, Delay for Movement [s/veh]	47.18	8.07	0.00	0.00	13.97	15.65	0.00	0.00	0.00	37.18	32.63	40.74
Movement LOS	D	A			B	B				D	C	D
d_A, Approach Delay [s/veh]	9.59			14.43			0.00			36.72		
Approach LOS	A			B			A			D		
d_I, Intersection Delay [s/veh]	17.22											
Intersection LOS	B											
Intersection V/C	0.653											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.197	2.393
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	360	0	1280
d_b, Bicycle Delay [s]	25.92	33.62	50.00	6.48
I_b,int, Bicycle LOS Score for Intersection	2.655	2.608	4.132	2.428
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	24.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.787

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	101	1223	0	0	1223	343	0	0	0	166	564	623
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	101	1223	0	0	1223	343	0	0	0	166	564	623
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	306	0	0	306	86	0	0	0	42	141	156
Total Analysis Volume [veh/h]	101	1223	0	0	1223	343	0	0	0	166	564	623
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	11	47	0	0	36	0	0	0	0	0	53	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	7	54	43	43		38	38	38
g / C, Green / Cycle	0.07	0.54	0.43	0.43		0.38	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.27	0.29		0.20	0.19	0.35
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	127	3063	1621	768		689	727	689
d1, Uniform Delay [s]	45.74	13.63	22.67	23.16		23.97	23.53	29.14
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.48	0.39	1.99	4.82		0.65	0.53	9.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.40	0.64	0.68		0.54	0.50	0.90
d, Delay for Lane Group [s/veh]	56.22	14.02	24.66	27.98		24.62	24.05	39.11
Lane Group LOS	E	B	C	C		C	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	2.83	5.28	9.83	10.61		6.74	6.47	15.50
50th-Percentile Queue Length [ft]	70.64	132.11	245.71	265.27		168.57	161.65	387.45
95th-Percentile Queue Length [veh]	5.09	9.05	14.97	15.95		11.00	10.64	21.95
95th-Percentile Queue Length [ft]	127.15	226.35	374.25	398.83		275.04	265.91	548.86

Movement, Approach, & Intersection Results

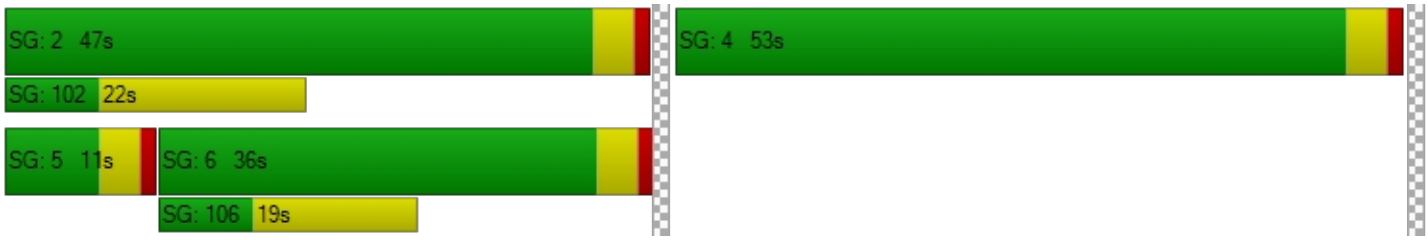
d_M, Delay for Movement [s/veh]	56.22	14.02	0.00	0.00	25.15	27.98	0.00	0.00	0.00	24.62	24.26	39.11
Movement LOS	E	B			C	C				C	C	D
d_A, Approach Delay [s/veh]	17.24			25.77			0.00			31.14		
Approach LOS	B			C			A			C		
d_I, Intersection Delay [s/veh]	24.82											
Intersection LOS	C											
Intersection V/C	0.787											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.211	2.385
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	860	640	0	980
d_b, Bicycle Delay [s]	16.25	23.12	50.00	13.01
I_b,int, Bicycle LOS Score for Intersection	2.288	2.421	4.132	2.676
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	19.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.586

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1348	212	271	1473	0	706	301	144	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1348	212	271	1473	0	706	301	144	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	337	53	68	368	0	177	75	36	0	0	0
Total Analysis Volume [veh/h]	0	1348	212	271	1473	0	706	301	144	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	32	0	14	46	0	0	54	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	54	54	10	68	24	24	24	
g / C, Green / Cycle	0.54	0.54	0.10	0.68	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.12	0.08	0.26	0.20	0.16	0.08	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	3069	969	338	3848	857	465	441	
d1, Uniform Delay [s]	13.96	12.08	44.23	7.12	35.71	33.87	30.98	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.46	0.52	4.41	0.29	2.06	1.51	0.43	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.44	0.22	0.80	0.38	0.82	0.65	0.33	
d, Delay for Lane Group [s/veh]	14.41	12.60	48.64	7.41	37.77	35.39	31.41	
Lane Group LOS	B	B	D	A	D	D	C	
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.98	2.53	3.47	4.17	8.24	6.67	2.88	
50th-Percentile Queue Length [ft]	149.38	63.16	86.76	104.26	206.12	166.65	72.09	
95th-Percentile Queue Length [veh]	9.98	4.55	6.25	7.51	12.95	10.90	5.19	
95th-Percentile Queue Length [ft]	249.60	113.69	156.17	187.67	323.85	272.50	129.77	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	14.41	12.60	48.64	7.41	0.00	37.77	35.39	31.41	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	C			
d_A, Approach Delay [s/veh]	14.17			13.82			36.35			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	19.76											
Intersection LOS	B											
Intersection V/C	0.586											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.416	2.102
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	840	1000	0
d_b, Bicycle Delay [s]	25.92	16.82	12.50	50.00
I_b,int, Bicycle LOS Score for Intersection	2.418	2.519	3.459	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.620

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	989	208	413	944	0	330	412	57	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	989	208	413	944	0	330	412	57	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	247	52	103	236	0	83	103	14	0	0	0
Total Analysis Volume [veh/h]	0	989	208	413	944	0	330	412	57	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	24	47	0	0	53	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	50	50	14	68	24	24	24	
g / C, Green / Cycle	0.50	0.50	0.14	0.68	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.21	0.22	0.12	0.25	0.21	0.20	0.03	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1902	901	497	2594	427	451	427	
d1, Uniform Delay [s]	15.79	16.03	41.72	6.70	36.62	36.15	30.03	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.68	1.58	3.65	0.40	5.45	3.83	0.14	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.42	0.44	0.83	0.36	0.87	0.82	0.13	
d, Delay for Lane Group [s/veh]	16.47	17.61	45.38	7.10	42.08	39.98	30.17	
Lane Group LOS	B	B	D	A	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	5.73	6.03	5.16	3.87	9.19	8.93	1.09	
50th-Percentile Queue Length [ft]	143.23	150.68	128.94	96.70	229.73	223.19	27.35	
95th-Percentile Queue Length [veh]	9.65	10.05	8.88	6.96	14.16	13.83	1.97	
95th-Percentile Queue Length [ft]	241.37	251.34	222.05	174.07	354.02	345.69	49.22	

Movement, Approach, & Intersection Results

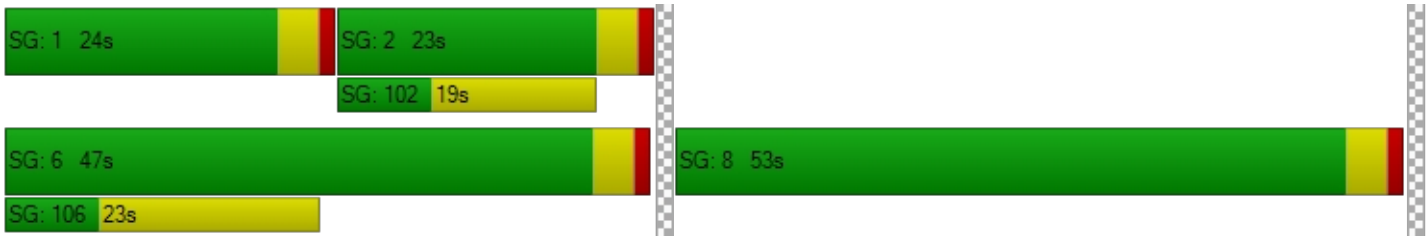
d_M, Delay for Movement [s/veh]	0.00	16.69	17.61	45.38	7.10	0.00	42.08	40.19	30.17	0.00	0.00	0.00
Movement LOS		B	B	D	A		D	D	C			
d_A, Approach Delay [s/veh]	16.85			18.75			40.25			0.00		
Approach LOS	B			B			D			A		
d_I, Intersection Delay [s/veh]	23.20											
Intersection LOS	C											
Intersection V/C	0.620											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.205	2.223
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	860	980	0
d_b, Bicycle Delay [s]	32.81	16.25	13.01	50.00
I_b,int, Bicycle LOS Score for Intersection	2.218	2.679	2.219	4.132
Bicycle LOS	B	B	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX E-III

YEAR 2030 BUILDOUT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	40.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.020

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	102	109	428	0	1575	866	342	2432	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	102	109	428	0	1575	866	342	2432	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	26	27	107	0	394	217	86	608	0
Total Analysis Volume [veh/h]	0	0	0	102	109	428	0	1575	866	342	2432	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	30	0	0	55	0	25	80	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		26	26	51	51	21	76
g / C, Green / Cycle		0.24	0.24	0.46	0.46	0.19	0.69
(v / s)_i Volume / Saturation Flow Rate		0.12	0.24	0.41	0.48	0.19	0.64
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		426	426	1764	835	342	2625
d1, Uniform Delay [s]		36.30	41.98	26.96	29.46	44.52	14.61
k, delay calibration		0.11	0.36	0.50	0.50	0.23	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.89	38.09	7.38	40.97	32.66	7.12
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.50	1.01	0.89	1.04	1.00	0.93
d, Delay for Lane Group [s/veh]		37.19	80.07	34.34	70.43	77.18	21.74
Lane Group LOS		D	F	C	F	E	C
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		4.99	15.91	19.95	30.54	12.33	24.76
50th-Percentile Queue Length [ft]		124.80	397.71	498.87	763.61	308.25	619.08
95th-Percentile Queue Length [veh]		8.66	22.52	27.28	40.74	18.09	32.92
95th-Percentile Queue Length [ft]		216.40	562.93	682.02	1018.41	452.22	823.11

Movement, Approach, & Intersection Results

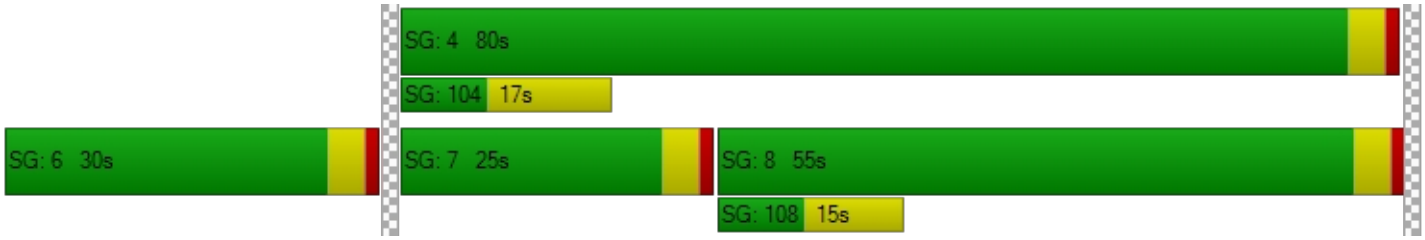
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	37.19	37.19	80.07	0.00	34.34	70.43	77.18	21.74	0.00
Movement LOS				D	D	F		C	F	E	C	
d_A, Approach Delay [s/veh]	0.00			65.91			47.15			28.57		
Approach LOS	A			E			D			C		
d_I, Intersection Delay [s/veh]	40.39											
Intersection LOS	D											
Intersection V/C	1.020											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.717	2.036	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	473	927	1382
d_b, Bicycle Delay [s]	55.00	32.07	15.82	5.25
I_b,int, Bicycle LOS Score for Intersection	4.132	2.614	2.902	3.848
Bicycle LOS	D	B	C	D

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	102.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.158

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	1287	0	283	0	0	0	382	1173	0	0	1517	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1287	0	283	0	0	0	382	1173	0	0	1517	145
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	322	0	71	0	0	0	96	293	0	0	379	36
Total Analysis Volume [veh/h]	1287	0	283	0	0	0	382	1173	0	0	1517	145
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	36	0	0	0	0	0	23	74	0	0	51	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		26	70	40	40
g / C, Green / Cycle	0.29	0.29	0.29		0.23	0.64	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.36	0.36	0.16		0.21	0.31	0.44	0.46
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	524	524	524		420	2418	697	660
d1, Uniform Delay [s]	38.99	38.99	32.80		41.05	10.52	34.81	34.81
k, delay calibration	0.50	0.50	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	118.96	118.96	0.92		7.88	0.70	100.30	128.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.23	1.23	0.54		0.91	0.49	1.19	1.26
d, Delay for Lane Group [s/veh]	157.95	157.95	33.73		48.93	11.22	135.11	163.13
Lane Group LOS	F	F	C		D	B	F	F
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	31.17	31.17	6.44		10.88	7.21	37.54	40.71
50th-Percentile Queue Length [ft]	779.33	779.33	161.01		272.00	180.34	938.56	1017.66
95th-Percentile Queue Length [veh]	45.48	45.48	10.60		16.29	11.62	53.40	59.14
95th-Percentile Queue Length [ft]	1136.91	1136.91	265.05		407.24	290.45	1335.11	1478.55

Movement, Approach, & Intersection Results

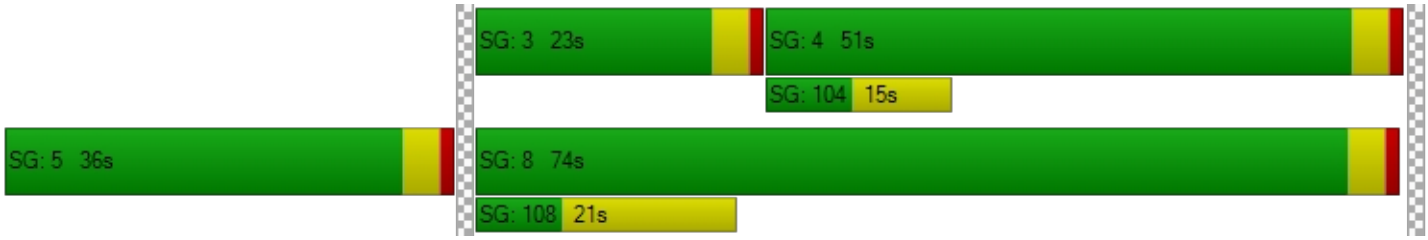
d_M, Delay for Movement [s/veh]	157.95	0.00	33.73	0.00	0.00	0.00	48.93	11.22	0.00	0.00	147.78	163.13
Movement LOS	F		C				D	B			F	F
d_A, Approach Delay [s/veh]	135.56			0.00			20.48			149.12		
Approach LOS	F			A			C			F		
d_I, Intersection Delay [s/veh]	102.89											
Intersection LOS	F											
Intersection V/C	1.158											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.460	1.947	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1273	855
d_b, Bicycle Delay [s]	55.00	55.00	7.27	18.04
I_b,int, Bicycle LOS Score for Intersection	6.723	4.132	2.842	2.931
Bicycle LOS	F	D	C	C

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.916

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	129	2101	0	0	2235	819	0	0	0	235	361	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	2101	0	0	2235	819	0	0	0	235	361	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	525	0	0	559	205	0	0	0	59	90	92
Total Analysis Volume [veh/h]	129	2101	0	0	2235	819	0	0	0	235	361	367
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	74	0	0	64	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	70	60	60		22	22	22
g / C, Green / Cycle	0.06	0.70	0.60	0.60		0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.37	0.54	0.57		0.13	0.10	0.20
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	207	3990	2283	1081		396	836	396
d1, Uniform Delay [s]	45.94	7.13	17.17	18.35		34.99	33.62	38.21
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.03	0.50	5.81	16.47		1.42	0.35	16.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.53	0.89	0.94		0.59	0.43	0.93
d, Delay for Lane Group [s/veh]	48.97	7.63	22.98	34.82		36.41	33.97	54.73
Lane Group LOS	D	A	C	C		D	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.65	6.23	19.81	24.14		5.23	3.79	10.48
50th-Percentile Queue Length [ft]	41.13	155.68	495.20	603.59		130.85	94.69	261.91
95th-Percentile Queue Length [veh]	2.96	10.32	27.11	32.20		8.99	6.82	15.78
95th-Percentile Queue Length [ft]	74.03	258.00	677.68	805.05		224.64	170.44	394.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.97	7.63	0.00	0.00	24.04	34.82	0.00	0.00	0.00	36.41	33.97	54.73
Movement LOS	D	A			C	C				D	C	D
d_A, Approach Delay [s/veh]	10.02			26.93			0.00			42.48		
Approach LOS	B			C			A			D		
d_I, Intersection Delay [s/veh]	23.29											
Intersection LOS	C											
Intersection V/C	0.916											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.358	2.371
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	1200	0	440
d_b, Bicycle Delay [s]	4.50	8.00	50.00	30.42
I_b,int, Bicycle LOS Score for Intersection	2.786	3.239	4.132	2.354
Bicycle LOS	C	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	34.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.936

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	75	913	0	0	1558	361	0	0	0	297	613	768
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	913	0	0	1558	361	0	0	0	297	613	768
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	228	0	0	390	90	0	0	0	74	153	192
Total Analysis Volume [veh/h]	75	913	0	0	1558	361	0	0	0	297	613	768
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	49	0	0	39	0	0	0	0	0	51	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	47	38	38		45	45	45
g / C, Green / Cycle	0.05	0.47	0.38	0.38		0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.34	0.36		0.26	0.24	0.43
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	98	2673	1424	674		812	857	812
d1, Uniform Delay [s]	46.66	16.79	29.48	30.33		20.26	19.74	26.29
k, delay calibration	0.11	0.50	0.50	0.50		0.13	0.11	0.40
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	11.77	0.35	9.30	24.09		0.73	0.50	17.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.34	0.90	0.95		0.57	0.52	0.95
d, Delay for Lane Group [s/veh]	58.43	17.14	38.78	54.42		20.98	20.24	44.15
Lane Group LOS	E	B	D	D		C	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	2.15	4.39	15.80	18.88		7.82	7.40	20.59
50th-Percentile Queue Length [ft]	53.77	109.67	394.96	471.93		195.51	184.89	514.82
95th-Percentile Queue Length [veh]	3.87	7.82	22.32	26.00		12.41	11.86	28.03
95th-Percentile Queue Length [ft]	96.78	195.54	557.93	650.06		310.17	296.38	700.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.43	17.14	0.00	0.00	41.57	54.42	0.00	0.00	0.00	20.98	20.44	44.15
Movement LOS	E	B			D	D				C	C	D
d_A, Approach Delay [s/veh]	20.27			43.99			0.00			31.39		
Approach LOS	C			D			A			C		
d_I, Intersection Delay [s/veh]	34.27											
Intersection LOS	C											
Intersection V/C	0.936											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.231	2.490
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	700	0	940
d_b, Bicycle Delay [s]	15.13	21.13	50.00	14.05
I_b,int, Bicycle LOS Score for Intersection	2.103	2.615	4.132	2.944
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.795

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1438	488	753	1670	0	747	159	173	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1438	488	753	1670	0	747	159	173	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	360	122	188	418	0	187	40	43	0	0	0
Total Analysis Volume [veh/h]	0	1438	488	753	1670	0	747	159	173	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	29	0	38	67	0	0	33	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	39	39	25	67	25	25	25	
g / C, Green / Cycle	0.39	0.39	0.25	0.67	0.25	0.25	0.25	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.27	0.22	0.29	0.21	0.08	0.10	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	2216	700	861	3847	858	466	441	
d1, Uniform Delay [s]	24.98	25.62	36.22	7.48	36.22	31.09	31.52	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.49	5.68	2.99	0.36	2.90	0.43	0.57	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.65	0.70	0.87	0.43	0.87	0.34	0.39	
d, Delay for Lane Group [s/veh]	26.46	31.31	39.22	7.84	39.12	31.52	32.09	
Lane Group LOS	C	C	D	A	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	9.34	10.54	9.02	4.97	8.93	3.19	3.53	
50th-Percentile Queue Length [ft]	233.45	263.48	225.57	124.20	223.33	79.85	88.27	
95th-Percentile Queue Length [veh]	14.35	15.86	13.95	8.62	13.84	5.75	6.36	
95th-Percentile Queue Length [ft]	358.74	396.58	348.73	215.59	345.88	143.73	158.89	

Movement, Approach, & Intersection Results

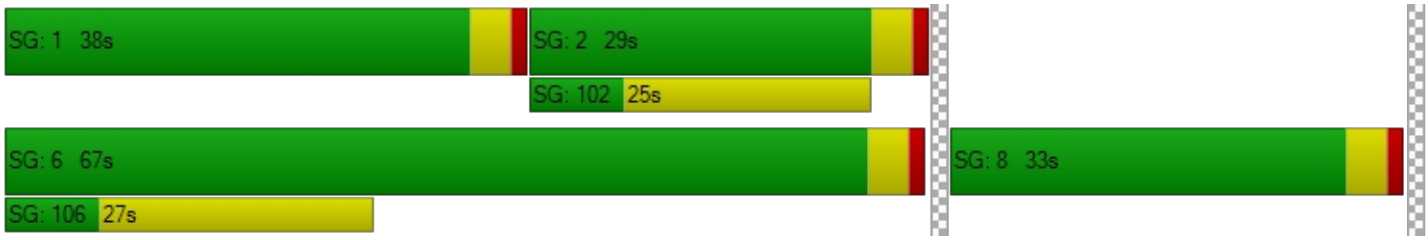
d_M, Delay for Movement [s/veh]	0.00	26.46	31.31	39.22	7.84	0.00	39.12	31.52	32.09	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	C	C			
d_A, Approach Delay [s/veh]	27.69			17.59			36.87			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	25.01											
Intersection LOS	C											
Intersection V/C	0.795											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.399	2.402
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	1260	580	0
d_b, Bicycle Delay [s]	28.13	6.85	25.21	50.00
I_b,int, Bicycle LOS Score for Intersection	2.619	2.892	3.340	4.132
Bicycle LOS	B	C	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	32.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.875

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	928	415	677	1077	0	83	1078	212	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	928	415	677	1077	0	83	1078	212	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	232	104	169	269	0	21	270	53	0	0	0
Total Analysis Volume [veh/h]	0	928	415	677	1077	0	83	1078	212	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	27	50	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	30	30	21	56	36	36	36	
g / C, Green / Cycle	0.30	0.30	0.21	0.56	0.36	0.36	0.36	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.25	0.19	0.28	0.33	0.30	0.12	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1148	544	750	2114	655	691	655	
d1, Uniform Delay [s]	31.86	32.42	38.28	13.74	30.13	28.94	22.95	
k, delay calibration	0.50	0.50	0.11	0.50	0.25	0.21	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	5.27	13.22	4.38	0.88	10.33	4.80	0.28	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.78	0.82	0.90	0.51	0.90	0.83	0.32	
d, Delay for Lane Group [s/veh]	37.14	45.63	42.66	14.62	40.47	33.74	23.24	
Lane Group LOS	D	D	D	B	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	10.50	11.83	8.41	7.35	14.88	12.98	3.61	
50th-Percentile Queue Length [ft]	262.61	295.71	210.19	183.81	371.97	324.57	90.16	
95th-Percentile Queue Length [veh]	15.82	17.47	13.16	11.80	21.20	18.89	6.49	
95th-Percentile Queue Length [ft]	395.49	436.72	329.07	294.99	530.12	472.29	162.29	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	37.43	45.63	42.66	14.62	0.00	40.47	36.91	23.24	0.00	0.00	0.00
Movement LOS		D	D	D	B		D	D	C			
d_A, Approach Delay [s/veh]	39.97			25.44			35.01			0.00		
Approach LOS	D			C			D			A		
d_I, Intersection Delay [s/veh]	32.74											
Intersection LOS	C											
Intersection V/C	0.875											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.391	2.778
Crosswalk LOS	F	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	920	920	0
d_b, Bicycle Delay [s]	32.81	14.58	14.58	50.00
I_b,int, Bicycle LOS Score for Intersection	2.298	3.007	2.692	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.903

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	130	235	394	0	1616	824	230	2011	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	130	235	394	0	1616	824	230	2011	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	33	59	99	0	404	206	58	503	0
Total Analysis Volume [veh/h]	0	0	0	130	235	394	0	1616	824	230	2011	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	35	0	0	60	0	15	75	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		27	27	56	56	15	75
g / C, Green / Cycle		0.24	0.24	0.51	0.51	0.14	0.69
(v / s)_i Volume / Saturation Flow Rate		0.20	0.22	0.43	0.46	0.13	0.53
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		435	435	1931	915	254	2605
d1, Uniform Delay [s]		39.67	40.49	23.14	24.53	46.50	11.54
k, delay calibration		0.25	0.29	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		9.41	16.52	4.51	13.69	11.53	2.29
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.84	0.91	0.84	0.90	0.91	0.77
d, Delay for Lane Group [s/veh]		49.08	57.01	27.65	38.22	58.03	13.83
Lane Group LOS		D	E	C	D	E	B
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		10.42	12.23	18.26	21.91	6.98	15.18
50th-Percentile Queue Length [ft]		260.57	305.67	456.59	547.82	174.39	379.57
95th-Percentile Queue Length [veh]		15.72	17.96	25.27	29.59	11.31	21.57
95th-Percentile Queue Length [ft]		392.94	449.04	631.80	739.74	282.68	539.32

Movement, Approach, & Intersection Results

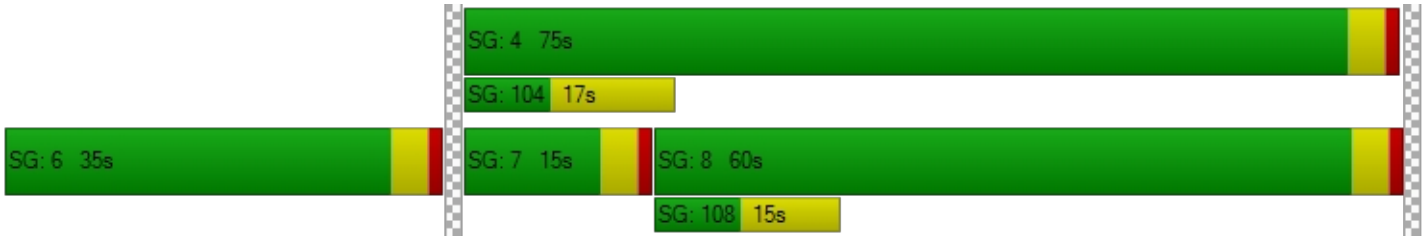
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	49.08	49.08	57.01	0.00	27.65	38.22	58.03	13.83	0.00
Movement LOS				D	D	E		C	D	E	B	
d_A, Approach Delay [s/veh]	0.00			53.19			31.22			18.36		
Approach LOS	A			D			C			B		
d_I, Intersection Delay [s/veh]	28.99											
Intersection LOS	C											
Intersection V/C	0.903											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.690	2.094	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	564	1018	1291
d_b, Bicycle Delay [s]	55.00	28.37	13.25	6.91
I_b,int, Bicycle LOS Score for Intersection	4.132	2.812	2.902	3.408
Bicycle LOS	D	C	C	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	81.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.079

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	828	0	540	0	0	0	412	1318	0	0	1503	223
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	828	0	540	0	0	0	412	1318	0	0	1503	223
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	207	0	135	0	0	0	103	330	0	0	376	56
Total Analysis Volume [veh/h]	828	0	540	0	0	0	412	1318	0	0	1503	223
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	27	0	0	0	0	0	28	83	0	0	55	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	23	23		27	79	47	47
g / C, Green / Cycle	0.21	0.21	0.21		0.25	0.72	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.25	0.25	0.25		0.23	0.35	0.45	0.48
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	377	377	377		450	2728	820	777
d1, Uniform Delay [s]	43.47	43.47	43.47		40.13	6.70	31.25	31.25
k, delay calibration	0.40	0.40	0.40		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	112.79	112.79	112.79		7.84	0.62	46.06	67.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.21	1.21	1.21		0.92	0.48	1.05	1.11
d, Delay for Lane Group [s/veh]	156.26	156.26	156.26		47.97	7.32	77.31	98.31
Lane Group LOS	F	F	F		D	A	F	F
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	21.95	21.95	21.95		11.68	6.02	31.38	34.27
50th-Percentile Queue Length [ft]	548.79	548.79	548.79		292.05	150.38	784.61	856.67
95th-Percentile Queue Length [veh]	32.67	32.67	32.67		17.29	10.04	42.17	47.35
95th-Percentile Queue Length [ft]	816.71	816.71	816.71		432.18	250.93	1054.14	1183.77

Movement, Approach, & Intersection Results

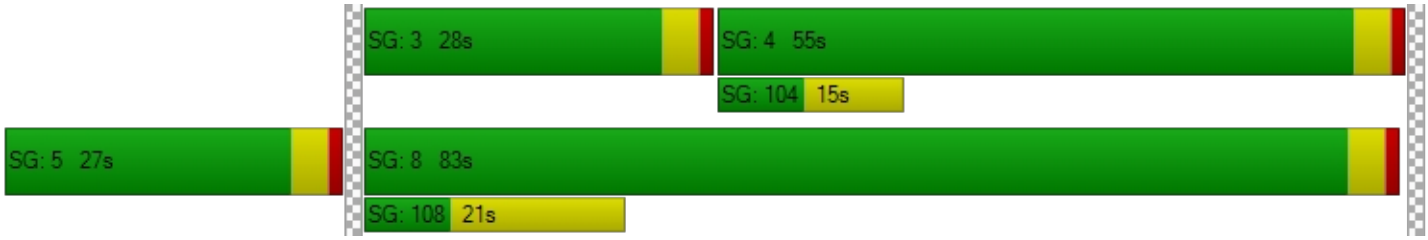
d_M, Delay for Movement [s/veh]	156.26	0.00	156.26	0.00	0.00	0.00	47.97	7.32	0.00	0.00	86.25	98.31
Movement LOS	F		F				D	A			F	F
d_A, Approach Delay [s/veh]	156.26			0.00			17.00			87.81		
Approach LOS	F			A			B			F		
d_I, Intersection Delay [s/veh]	81.83											
Intersection LOS	F											
Intersection V/C	1.079											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.394	2.052	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1436	927
d_b, Bicycle Delay [s]	55.00	55.00	4.37	15.82
I_b,int, Bicycle LOS Score for Intersection	6.390	4.132	2.987	2.984
Bicycle LOS	F	D	C	C

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.933

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	85	2538	0	0	1819	828	0	0	0	337	458	552
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	2538	0	0	1819	828	0	0	0	337	458	552
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	635	0	0	455	207	0	0	0	84	115	138
Total Analysis Volume [veh/h]	85	2538	0	0	1819	828	0	0	0	337	458	552
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	64	0	0	54	0	0	0	0	0	36	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	60	51	51		32	32	32
g / C, Green / Cycle	0.05	0.60	0.51	0.51		0.32	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.45	0.46	0.49		0.19	0.12	0.31
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	194	3421	1918	909		576	1216	576
d1, Uniform Delay [s]	45.74	14.41	22.89	24.05		28.46	26.30	33.36
k, delay calibration	0.11	0.50	0.50	0.50		0.15	0.11	0.42
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	1.49	8.69	23.62		1.29	0.19	25.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.74	0.92	0.97		0.59	0.38	0.96
d, Delay for Lane Group [s/veh]	47.30	15.91	31.58	47.67		29.75	26.49	59.10
Lane Group LOS	D	B	C	D		C	C	E
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.06	13.02	20.20	24.76		6.84	4.20	16.86
50th-Percentile Queue Length [ft]	26.50	325.45	505.10	618.90		171.10	105.01	421.51
95th-Percentile Queue Length [veh]	1.91	18.94	27.58	32.92		11.13	7.56	23.59
95th-Percentile Queue Length [ft]	47.70	473.38	689.39	822.90		278.36	189.02	589.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.30	15.91	0.00	0.00	32.06	47.67	0.00	0.00	0.00	29.75	26.49	59.10
Movement LOS	D	B			C	D				C	C	E
d_A, Approach Delay [s/veh]	16.93			36.94			0.00			40.67		
Approach LOS	B			D			A			D		
d_I, Intersection Delay [s/veh]	29.77											
Intersection LOS	C											
Intersection V/C	0.933											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.388	2.464
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1000	0	640
d_b, Bicycle Delay [s]	8.00	12.50	50.00	23.12
I_b,int, Bicycle LOS Score for Intersection	3.002	3.015	4.132	2.671
Bicycle LOS	C	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.999

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	111	1490	0	0	1510	409	0	0	0	183	776	832
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	1490	0	0	1510	409	0	0	0	183	776	832
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	373	0	0	378	102	0	0	0	46	194	208
Total Analysis Volume [veh/h]	111	1490	0	0	1510	409	0	0	0	183	776	832
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	50	0	0	40	0	0	0	0	0	50	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	46	36	36		46	46	46
g / C, Green / Cycle	0.06	0.46	0.36	0.36		0.46	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.06	0.26	0.34	0.36		0.27	0.25	0.46
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	110	2629	1369	649		826	872	826
d1, Uniform Delay [s]	46.96	19.65	30.85	31.74		20.09	19.48	27.06
k, delay calibration	0.11	0.50	0.50	0.50		0.16	0.12	0.47
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	42.99	0.89	13.00	32.14		0.99	0.59	32.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.57	0.93	0.99		0.59	0.54	1.01
d, Delay for Lane Group [s/veh]	89.94	20.54	43.84	63.88		21.09	20.07	59.32
Lane Group LOS	F	C	D	E		C	C	F
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	4.02	8.35	16.83	20.57		8.35	7.74	25.91
50th-Percentile Queue Length [ft]	100.53	208.82	420.75	514.15		208.69	193.61	647.79
95th-Percentile Queue Length [veh]	7.24	13.09	23.56	28.00		13.09	12.31	34.46
95th-Percentile Queue Length [ft]	180.95	327.32	588.95	700.08		327.15	307.70	861.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	89.94	20.54	0.00	0.00	46.90	63.88	0.00	0.00	0.00	21.09	20.47	59.32
Movement LOS	F	C			D	E				C	C	F
d_A, Approach Delay [s/veh]	25.35			50.52			0.00			38.58		
Approach LOS	C			D			A			D		
d_I, Intersection Delay [s/veh]	38.91											
Intersection LOS	D											
Intersection V/C	0.999											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.351	2.527
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	920	720	0	920
d_b, Bicycle Delay [s]	14.58	20.48	50.00	14.58
I_b,int, Bicycle LOS Score for Intersection	2.440	2.615	4.132	3.037
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.809

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1696	233	453	1756	0	998	351	158	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1696	233	453	1756	0	998	351	158	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	424	58	113	439	0	250	88	40	0	0	0
Total Analysis Volume [veh/h]	0	1696	233	453	1756	0	998	351	158	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	29	0	21	50	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	40	40	15	59	33	33	33	
g / C, Green / Cycle	0.40	0.40	0.15	0.59	0.33	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.13	0.13	0.31	0.29	0.18	0.09	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	2269	716	526	3354	1161	630	597	
d1, Uniform Delay [s]	25.79	20.81	41.47	12.25	31.25	27.40	24.49	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.30	1.21	4.29	0.59	1.99	0.77	0.23	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.75	0.33	0.86	0.52	0.86	0.56	0.26	
d, Delay for Lane Group [s/veh]	28.10	22.02	45.75	12.83	33.24	28.17	24.72	
Lane Group LOS	C	C	D	B	C	C	C	
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	11.62	3.94	5.70	7.42	11.27	6.89	2.76	
50th-Percentile Queue Length [ft]	290.42	98.56	142.62	185.40	281.70	172.18	68.88	
95th-Percentile Queue Length [veh]	17.21	7.10	9.62	11.88	16.77	11.19	4.96	
95th-Percentile Queue Length [ft]	430.16	177.41	240.54	297.05	419.33	279.78	123.98	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	28.10	22.02	45.75	12.83	0.00	33.24	28.17	24.72	0.00	0.00	0.00
Movement LOS		C	C	D	B		C	C	C			
d_A, Approach Delay [s/veh]	27.36			19.58			31.16			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	25.33											
Intersection LOS	C											
Intersection V/C	0.809											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.503	2.225
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	920	920	0
d_b, Bicycle Delay [s]	28.13	14.58	14.58	50.00
I_b,int, Bicycle LOS Score for Intersection	2.621	2.775	4.046	4.132
Bicycle LOS	B	C	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	28.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.805

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1213	229	581	1077	0	383	608	63	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1213	229	581	1077	0	383	608	63	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	303	57	145	269	0	96	152	16	0	0	0
Total Analysis Volume [veh/h]	0	1213	229	581	1077	0	383	608	63	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	25	48	0	0	52	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	38	38	19	61	31	31	31	
g / C, Green / Cycle	0.38	0.38	0.19	0.61	0.31	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.27	0.17	0.28	0.28	0.26	0.04	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1455	689	657	2320	557	588	557	
d1, Uniform Delay [s]	25.50	25.99	39.56	10.58	32.92	32.24	24.71	
k, delay calibration	0.50	0.50	0.11	0.50	0.15	0.12	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.37	5.78	4.18	0.67	6.85	3.84	0.09	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.66	0.70	0.88	0.46	0.89	0.84	0.11	
d, Delay for Lane Group [s/veh]	27.87	31.77	43.74	11.25	39.77	36.08	24.80	
Lane Group LOS	C	C	D	B	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	9.65	10.46	7.24	6.18	12.22	11.53	1.08	
50th-Percentile Queue Length [ft]	241.36	261.42	180.93	154.46	305.60	288.32	26.95	
95th-Percentile Queue Length [veh]	14.75	15.76	11.65	10.25	17.96	17.10	1.94	
95th-Percentile Queue Length [ft]	368.75	394.00	291.23	256.37	448.95	427.56	48.50	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	28.68	31.77	43.74	11.25	0.00	39.77	36.77	24.80	0.00	0.00	0.00
Movement LOS		C	C	D	B		D	D	C			
d_A, Approach Delay [s/veh]	29.17			22.64			37.14			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	28.59											
Intersection LOS	C											
Intersection V/C	0.805											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.288	2.411
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	880	960	0
d_b, Bicycle Delay [s]	32.81	15.68	13.52	50.00
I_b,int, Bicycle LOS Score for Intersection	2.353	2.927	2.429	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX E-IV

YEAR 2030 BUILDOUT PLUS PROJECT TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	42.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.036

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	102	109	451	0	1584	869	342	2474	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	102	109	451	0	1584	869	342	2474	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	26	27	113	0	396	217	86	619	0
Total Analysis Volume [veh/h]	0	0	0	102	109	451	0	1584	869	342	2474	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	30	0	0	55	0	25	80	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		26	26	51	51	21	76
g / C, Green / Cycle		0.24	0.24	0.46	0.46	0.19	0.69
(v / s)_i Volume / Saturation Flow Rate		0.12	0.25	0.42	0.48	0.19	0.65
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		426	426	1764	835	342	2625
d1, Uniform Delay [s]		36.30	41.98	27.07	29.46	44.52	15.08
k, delay calibration		0.11	0.39	0.50	0.50	0.23	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.89	55.16	7.70	42.04	32.66	8.48
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.50	1.06	0.90	1.04	1.00	0.94
d, Delay for Lane Group [s/veh]		37.19	97.14	34.77	71.50	77.18	23.56
Lane Group LOS		D	F	C	F	E	C
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		4.99	17.93	20.21	30.79	12.33	26.36
50th-Percentile Queue Length [ft]		124.80	448.19	505.25	769.83	308.25	658.88
95th-Percentile Queue Length [veh]		8.66	25.71	27.58	41.14	18.09	34.77
95th-Percentile Queue Length [ft]		216.40	642.76	689.57	1028.47	452.22	869.36

Movement, Approach, & Intersection Results

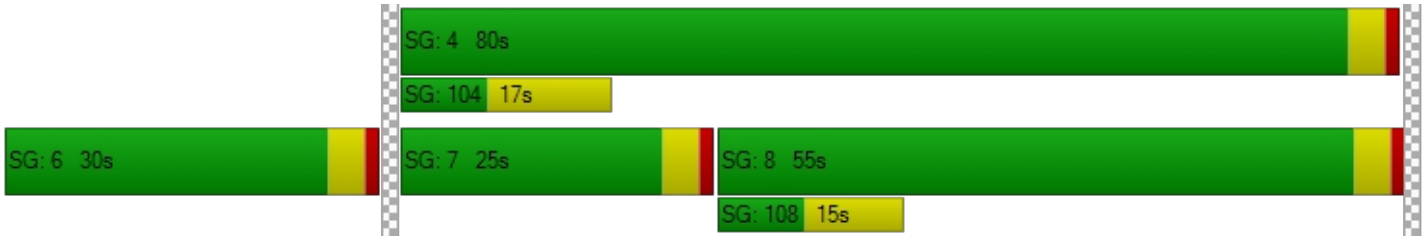
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	37.19	37.19	97.14	0.00	34.77	71.50	77.18	23.56	0.00
Movement LOS				D	D	F		C	F	E	C	
d_A, Approach Delay [s/veh]	0.00			78.03			47.78			30.07		
Approach LOS	A			E			D			C		
d_I, Intersection Delay [s/veh]	42.75											
Intersection LOS	D											
Intersection V/C	1.036											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.720	2.047	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	473	927	1382
d_b, Bicycle Delay [s]	55.00	32.07	15.82	5.25
I_b,int, Bicycle LOS Score for Intersection	4.132	2.652	2.909	3.883
Bicycle LOS	D	B	C	D

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	108.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.173

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	326	0	71	0	0	0	97	295	0	0	386	36
Total Analysis Volume [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	36	0	0	0	0	0	23	74	0	0	51	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		26	70	40	40
g / C, Green / Cycle	0.29	0.29	0.29		0.24	0.64	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.36	0.36	0.16		0.21	0.31	0.44	0.47
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	524	524	524		424	2418	693	656
d1, Uniform Delay [s]	38.99	38.99	32.80		40.93	10.54	34.94	34.94
k, delay calibration	0.50	0.50	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	125.23	125.23	0.92		7.87	0.70	111.05	140.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.24	1.24	0.54		0.91	0.49	1.22	1.29
d, Delay for Lane Group [s/veh]	164.22	164.22	33.73		48.80	11.24	145.99	174.95
Lane Group LOS	F	F	C		D	B	F	F
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	32.08	32.08	6.44		10.99	7.26	39.39	42.60
50th-Percentile Queue Length [ft]	802.11	802.11	161.01		274.67	181.46	984.84	1065.02
95th-Percentile Queue Length [veh]	46.95	46.95	10.60		16.42	11.68	56.44	62.29
95th-Percentile Queue Length [ft]	1173.63	1173.63	265.05		410.57	291.92	1410.88	1557.27

Movement, Approach, & Intersection Results

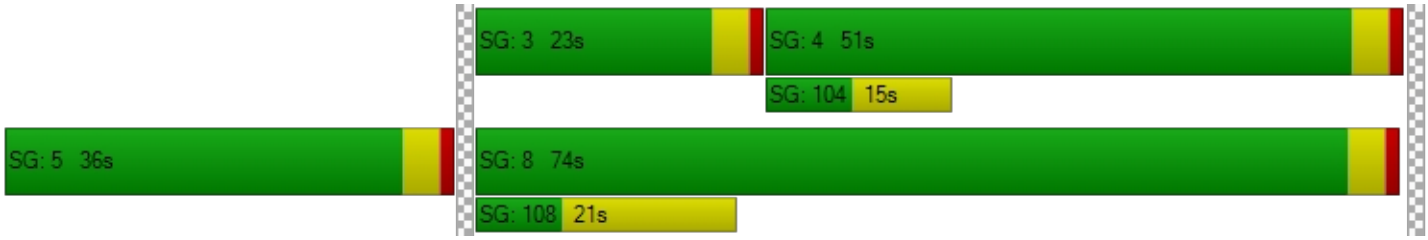
d_M, Delay for Movement [s/veh]	164.22	0.00	33.73	0.00	0.00	0.00	48.80	11.24	0.00	0.00	159.11	174.95
Movement LOS	F		C				D	B			F	F
d_A, Approach Delay [s/veh]	140.93			0.00			20.51			160.47		
Approach LOS	F			A			C			F		
d_I, Intersection Delay [s/veh]	108.82											
Intersection LOS	F											
Intersection V/C	1.173											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.465	1.951	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1273	855
d_b, Bicycle Delay [s]	55.00	55.00	7.27	18.04
I_b,int, Bicycle LOS Score for Intersection	6.749	4.132	2.850	2.952
Bicycle LOS	F	D	C	C

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	23.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.917

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	129	2130	0	0	2238	821	0	0	0	235	365	367
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	2130	0	0	2238	821	0	0	0	235	365	367
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	533	0	0	560	205	0	0	0	59	91	92
Total Analysis Volume [veh/h]	129	2130	0	0	2238	821	0	0	0	235	365	367
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	74	0	0	64	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	70	60	60		22	22	22
g / C, Green / Cycle	0.06	0.70	0.60	0.60		0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.37	0.54	0.57		0.13	0.10	0.20
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	207	3990	2283	1081		396	836	396
d1, Uniform Delay [s]	45.94	7.19	17.21	18.39		34.99	33.65	38.21
k, delay calibration	0.11	0.50	0.50	0.50		0.11	0.11	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.03	0.52	5.88	16.69		1.42	0.36	16.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.53	0.89	0.94		0.59	0.44	0.93
d, Delay for Lane Group [s/veh]	48.97	7.70	23.09	35.07		36.41	34.01	54.73
Lane Group LOS	D	A	C	D		D	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.65	6.37	19.89	24.28		5.23	3.83	10.48
50th-Percentile Queue Length [ft]	41.13	159.15	497.37	607.01		130.85	95.86	261.91
95th-Percentile Queue Length [veh]	2.96	10.50	27.21	32.36		8.99	6.90	15.78
95th-Percentile Queue Length [ft]	74.03	262.59	680.24	809.04		224.64	172.55	394.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.97	7.70	0.00	0.00	24.15	35.07	0.00	0.00	0.00	36.41	34.01	54.73
Movement LOS	D	A			C	D				D	C	D
d_A, Approach Delay [s/veh]	10.06			27.08			0.00			42.46		
Approach LOS	B			C			A			D		
d_I, Intersection Delay [s/veh]	23.33											
Intersection LOS	C											
Intersection V/C	0.917											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.361	2.372
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	1200	0	440
d_b, Bicycle Delay [s]	4.50	8.00	50.00	30.42
I_b,int, Bicycle LOS Score for Intersection	2.802	3.242	4.132	2.357
Bicycle LOS	C	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.948

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	75	945	0	0	1563	365	0	0	0	297	613	784
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	945	0	0	1563	365	0	0	0	297	613	784
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	236	0	0	391	91	0	0	0	74	153	196
Total Analysis Volume [veh/h]	75	945	0	0	1563	365	0	0	0	297	613	784
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	50	0	0	40	0	0	0	0	0	50	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	47	37	37		45	45	45
g / C, Green / Cycle	0.05	0.47	0.37	0.37		0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.04	0.17	0.34	0.36		0.26	0.24	0.44
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	99	2664	1414	670		815	860	815
d1, Uniform Delay [s]	46.58	17.01	29.78	30.65		20.14	19.62	26.55
k, delay calibration	0.11	0.50	0.50	0.50		0.13	0.11	0.43
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	10.99	0.37	10.16	26.09		0.77	0.49	21.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.76	0.35	0.91	0.96		0.57	0.52	0.96
d, Delay for Lane Group [s/veh]	57.57	17.38	39.94	56.74		20.91	20.11	47.89
Lane Group LOS	E	B	D	E		C	C	D
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	2.13	4.59	16.12	19.39		7.80	7.36	21.93
50th-Percentile Queue Length [ft]	53.33	114.84	402.98	484.80		195.02	183.96	548.27
95th-Percentile Queue Length [veh]	3.84	8.11	22.70	26.61		12.38	11.81	29.61
95th-Percentile Queue Length [ft]	96.00	202.71	567.59	665.35		309.53	295.18	740.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.57	17.38	0.00	0.00	42.92	56.74	0.00	0.00	0.00	20.91	20.33	47.89
Movement LOS	E	B			D	E				C	C	D
d_A, Approach Delay [s/veh]	20.33			45.54			0.00			33.19		
Approach LOS	C			D			A			C		
d_I, Intersection Delay [s/veh]	35.49											
Intersection LOS	D											
Intersection V/C	0.948											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.233	2.496
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	920	720	0	920
d_b, Bicycle Delay [s]	14.58	20.48	50.00	14.58
I_b,int, Bicycle LOS Score for Intersection	2.121	2.620	4.132	2.957
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1454	488	753	1673	0	760	178	173	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1454	488	753	1673	0	760	178	173	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	364	122	188	418	0	190	45	43	0	0	0
Total Analysis Volume [veh/h]	0	1454	488	753	1673	0	760	178	173	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	37	0	32	69	0	0	31	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	39	39	24	68	24	24	24	
g / C, Green / Cycle	0.39	0.39	0.24	0.68	0.24	0.24	0.24	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.27	0.22	0.29	0.22	0.09	0.10	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	2249	710	843	3849	857	465	441	
d1, Uniform Delay [s]	24.61	25.15	36.72	7.46	36.44	31.47	31.56	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.45	5.37	3.60	0.36	3.35	0.52	0.57	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.65	0.69	0.89	0.43	0.89	0.38	0.39	
d, Delay for Lane Group [s/veh]	26.06	30.52	40.32	7.82	39.79	31.99	32.13	
Lane Group LOS	C	C	D	A	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	9.37	10.39	9.16	4.97	9.18	3.62	3.53	
50th-Percentile Queue Length [ft]	234.21	259.69	228.88	124.27	229.59	90.53	88.34	
95th-Percentile Queue Length [veh]	14.39	15.67	14.12	8.63	14.15	6.52	6.36	
95th-Percentile Queue Length [ft]	359.70	391.83	352.93	215.68	353.83	162.96	159.01	

Movement, Approach, & Intersection Results

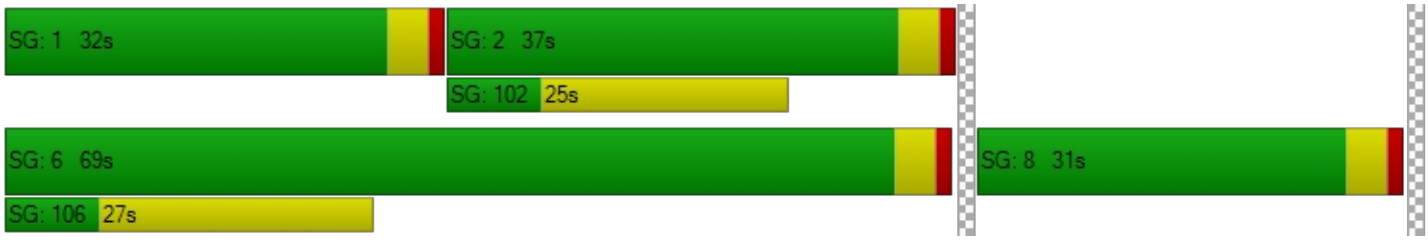
d_M, Delay for Movement [s/veh]	0.00	26.06	30.52	40.32	7.82	0.00	39.79	31.99	32.13	0.00	0.00	0.00
Movement LOS		C	C	D	A		D	C	C			
d_A, Approach Delay [s/veh]	27.18			17.91			37.35			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	25.14											
Intersection LOS	C											
Intersection V/C	0.799											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.407	2.411
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	660	1300	540	0
d_b, Bicycle Delay [s]	22.45	6.13	26.65	50.00
I_b,int, Bicycle LOS Score for Intersection	2.628	2.894	3.393	4.132
Bicycle LOS	B	C	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	33.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.885

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	941	415	680	1079	0	102	1078	212	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	941	415	680	1079	0	102	1078	212	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	235	104	170	270	0	26	270	53	0	0	0
Total Analysis Volume [veh/h]	0	941	415	680	1079	0	102	1078	212	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	27	50	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	30	30	21	55	37	37	37	
g / C, Green / Cycle	0.30	0.30	0.21	0.55	0.37	0.37	0.37	
(v / s)_i Volume / Saturation Flow Rate	0.24	0.25	0.19	0.28	0.33	0.31	0.12	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1126	534	752	2095	664	701	664	
d1, Uniform Delay [s]	32.48	33.06	38.25	14.06	29.89	28.69	22.59	
k, delay calibration	0.50	0.50	0.11	0.50	0.26	0.21	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	6.08	15.30	4.41	0.91	10.65	5.00	0.27	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.80	0.85	0.90	0.52	0.90	0.83	0.32	
d, Delay for Lane Group [s/veh]	38.57	48.36	42.67	14.97	40.54	33.69	22.86	
Lane Group LOS	D	D	D	B	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	10.83	12.32	8.45	7.48	15.15	13.21	3.57	
50th-Percentile Queue Length [ft]	270.80	308.07	211.19	187.05	378.66	330.27	89.30	
95th-Percentile Queue Length [veh]	16.23	18.08	13.21	11.97	21.53	19.17	6.43	
95th-Percentile Queue Length [ft]	405.74	452.00	330.36	299.19	538.23	479.29	160.73	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	38.95	48.36	42.67	14.97	0.00	40.54	36.85	22.86	0.00	0.00	0.00
Movement LOS		D	D	D	B		D	D	C			
d_A, Approach Delay [s/veh]	41.83			25.67			34.99			0.00		
Approach LOS	D			C			C			A		
d_I, Intersection Delay [s/veh]	33.41											
Intersection LOS	C											
Intersection V/C	0.885											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.397	2.779
Crosswalk LOS	F	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	920	920	0
d_b, Bicycle Delay [s]	32.81	14.58	14.58	50.00
I_b,int, Bicycle LOS Score for Intersection	2.305	3.011	2.708	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 12: SR-57 SB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.918

Intersection Setup

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present				No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 SB Ramps			SR-57 SB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	0	0	0	130	235	411	0	1637	831	230	2042	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	130	235	411	0	1637	831	230	2042	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	33	59	103	0	409	208	58	511	0
Total Analysis Volume [veh/h]	0	0	0	130	235	411	0	1637	831	230	2042	0
Presence of On-Street Parking				No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	0	0	0	6	0	0	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	6	0	0	6	0	6	6	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	35	0	0	60	0	15	75	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	8	0	0	10	0
Rest In Walk					No			No			No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall					No			No		No	No	
Maximum Recall					No			No		No	No	
Pedestrian Recall					No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	R	C	C	L	C
C, Cycle Length [s]		110	110	110	110	110	110
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		27	27	56	56	15	74
g / C, Green / Cycle		0.25	0.25	0.51	0.51	0.13	0.68
(v / s)_i Volume / Saturation Flow Rate		0.20	0.23	0.43	0.46	0.13	0.54
s, saturation flow rate [veh/h]		1800	1800	3800	1800	1800	3800
c, Capacity [veh/h]		450	450	1930	914	239	2574
d1, Uniform Delay [s]		38.81	40.09	23.39	24.73	47.38	12.37
k, delay calibration		0.25	0.31	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		7.76	18.07	4.86	14.51	19.03	2.61
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.81	0.91	0.85	0.91	0.96	0.79
d, Delay for Lane Group [s/veh]		46.56	58.16	28.25	39.24	66.41	14.98
Lane Group LOS		D	E	C	D	E	B
Critical Lane Group		No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh]		10.14	12.93	18.75	22.42	7.49	16.33
50th-Percentile Queue Length [ft]		253.49	323.15	468.83	560.44	187.36	408.19
95th-Percentile Queue Length [veh]		15.36	18.82	25.86	30.18	11.98	22.95
95th-Percentile Queue Length [ft]		384.04	470.56	646.38	754.56	299.59	573.86

Movement, Approach, & Intersection Results

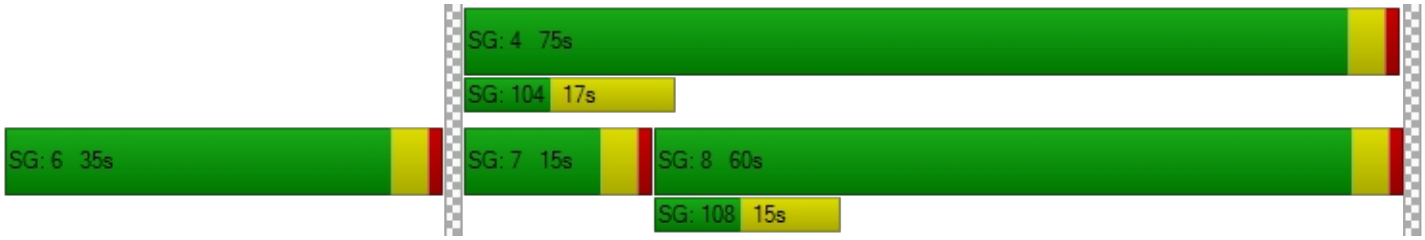
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	46.56	46.56	58.16	0.00	28.25	39.24	66.41	14.98	0.00
Movement LOS				D	D	E		C	D	E	B	
d_A, Approach Delay [s/veh]	0.00			52.71			31.95			20.19		
Approach LOS	A			D			C			C		
d_I, Intersection Delay [s/veh]	30.03											
Intersection LOS	C											
Intersection V/C	0.918											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.697	2.103	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	564	1018	1291
d_b, Bicycle Delay [s]	55.00	28.37	13.25	6.91
I_b,int, Bicycle LOS Score for Intersection	4.132	2.840	2.917	3.434
Bicycle LOS	D	C	C	C

Sequence

Ring 1	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	86.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.094

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	210	0	135	0	0	0	106	332	0	0	381	56
Total Analysis Volume [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	27	0	0	0	0	0	28	83	0	0	55	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	23	23		28	79	47	47
g / C, Green / Cycle	0.21	0.21	0.21		0.26	0.72	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.26		0.23	0.35	0.46	0.48
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	1900	1800
c, Capacity [veh/h]	377	377	377		460	2728	810	767
d1, Uniform Delay [s]	43.47	43.47	43.47		39.82	6.73	31.56	31.56
k, delay calibration	0.40	0.40	0.40		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	117.28	117.28	117.28		7.81	0.63	54.69	77.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.22	1.22	1.22		0.92	0.49	1.08	1.14
d, Delay for Lane Group [s/veh]	160.75	160.75	160.75		47.64	7.36	86.25	108.99
Lane Group LOS	F	F	F		D	A	F	F
Critical Lane Group	Yes	No	No		Yes	No	No	Yes
50th-Percentile Queue Length [veh]	22.42	22.42	22.42		11.95	6.09	32.96	36.07
50th-Percentile Queue Length [ft]	560.55	560.55	560.55		298.66	152.33	824.03	901.79
95th-Percentile Queue Length [veh]	33.41	33.41	33.41		17.61	10.14	44.80	50.35
95th-Percentile Queue Length [ft]	835.27	835.27	835.27		440.37	253.53	1119.91	1258.66

Movement, Approach, & Intersection Results

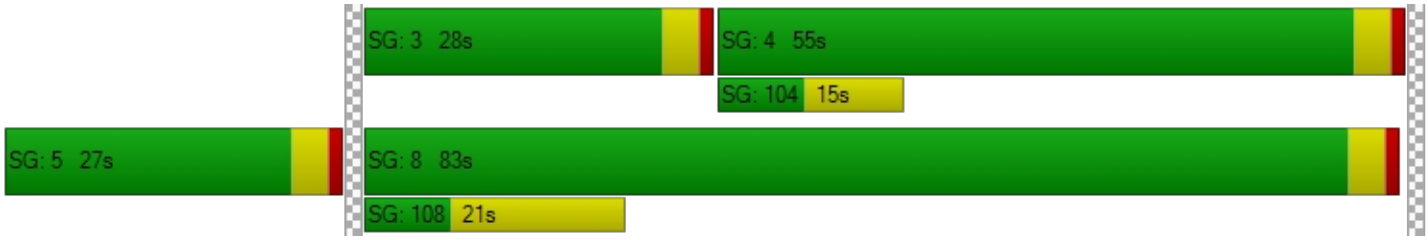
d_M, Delay for Movement [s/veh]	160.75	0.00	160.75	0.00	0.00	0.00	47.64	7.36	0.00	0.00	95.96	108.99
Movement LOS	F		F				D	A			F	F
d_A, Approach Delay [s/veh]	160.75			0.00			17.06			97.62		
Approach LOS	F			A			B			F		
d_I, Intersection Delay [s/veh]	86.56											
Intersection LOS	F											
Intersection V/C	1.094											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.398	2.062	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1436	927
d_b, Bicycle Delay [s]	55.00	55.00	4.37	15.82
I_b,int, Bicycle LOS Score for Intersection	6.409	4.132	3.004	2.999
Bicycle LOS	F	D	C	C

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 21: Harbor Boulevard at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.936

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	85	2560	0	0	1826	834	0	0	0	337	467	552
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	2560	0	0	1826	834	0	0	0	337	467	552
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	640	0	0	457	209	0	0	0	84	117	138
Total Analysis Volume [veh/h]	85	2560	0	0	1826	834	0	0	0	337	467	552
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	64	0	0	54	0	0	0	0	0	36	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	21	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		L	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	5	60	51	51		32	32	32
g / C, Green / Cycle	0.05	0.60	0.51	0.51		0.32	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.45	0.47	0.49		0.19	0.12	0.31
s, saturation flow rate [veh/h]	3500	5700	3800	1800		1800	3800	1800
c, Capacity [veh/h]	194	3421	1918	909		576	1216	576
d1, Uniform Delay [s]	45.74	14.52	22.99	24.17		28.46	26.37	33.36
k, delay calibration	0.11	0.50	0.50	0.50		0.15	0.11	0.42
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	1.54	9.06	24.55		1.29	0.20	25.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.75	0.92	0.98		0.59	0.38	0.96
d, Delay for Lane Group [s/veh]	47.30	16.06	32.05	48.71		29.75	26.57	59.10
Lane Group LOS	D	B	C	D		C	C	E
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	1.06	13.23	20.47	25.17		6.84	4.29	16.86
50th-Percentile Queue Length [ft]	26.50	330.78	511.74	629.32		171.10	107.37	421.51
95th-Percentile Queue Length [veh]	1.91	19.20	27.89	33.40		11.13	7.69	23.59
95th-Percentile Queue Length [ft]	47.70	479.92	697.23	835.03		278.36	192.34	589.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.30	16.06	0.00	0.00	32.54	48.71	0.00	0.00	0.00	29.75	26.57	59.10
Movement LOS	D	B			C	D				C	C	E
d_A, Approach Delay [s/veh]	17.06			37.61			0.00			40.60		
Approach LOS	B			D			A			D		
d_I, Intersection Delay [s/veh]	30.06											
Intersection LOS	C											
Intersection V/C	0.936											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.395	2.466
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1200	1000	0	640
d_b, Bicycle Delay [s]	8.00	12.50	50.00	23.12
I_b,int, Bicycle LOS Score for Intersection	3.014	3.023	4.132	2.678
Bicycle LOS	C	C	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 22: Lemon Street at SR-91 WB Ramps

Control Type:	Signalized	Delay (sec / veh):	40.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.011

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 WB Ramps			SR-91 WB Ramps		
Base Volume Input [veh/h]	111	1514	0	0	1523	418	0	0	0	183	776	844
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	1514	0	0	1523	418	0	0	0	183	776	844
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	379	0	0	381	105	0	0	0	46	194	211
Total Analysis Volume [veh/h]	111	1514	0	0	1523	418	0	0	0	183	776	844
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	6	6	0	0	6	0	0	0	0	0	6	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	10	50	0	0	40	0	0	0	0	0	50	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	12	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C		C	C	R
C, Cycle Length [s]	100	100	100	100		100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	6	46	36	36		46	46	46
g / C, Green / Cycle	0.06	0.46	0.36	0.36		0.46	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.06	0.27	0.34	0.36		0.27	0.25	0.47
s, saturation flow rate [veh/h]	1800	5700	3800	1800		1800	1900	1800
c, Capacity [veh/h]	110	2629	1369	649		826	872	826
d1, Uniform Delay [s]	46.96	19.76	31.03	31.94		20.09	19.48	27.06
k, delay calibration	0.11	0.50	0.50	0.50		0.16	0.12	0.48
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	42.99	0.93	14.32	34.76		0.99	0.59	36.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.58	0.95	1.00		0.59	0.54	1.02
d, Delay for Lane Group [s/veh]	89.94	20.69	45.35	66.71		21.09	20.06	63.51
Lane Group LOS	F	C	D	E		C	C	F
Critical Lane Group	Yes	No	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh]	4.02	8.54	17.33	21.30		8.35	7.74	26.87
50th-Percentile Queue Length [ft]	100.53	213.49	433.31	532.56		208.75	193.55	671.80
95th-Percentile Queue Length [veh]	7.24	13.33	24.16	28.87		13.09	12.31	35.98
95th-Percentile Queue Length [ft]	180.95	333.31	604.00	721.79		327.22	307.63	899.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	89.94	20.69	0.00	0.00	48.56	66.71	0.00	0.00	0.00	21.09	20.47	63.51
Movement LOS	F	C			D	E				C	C	F
d_A, Approach Delay [s/veh]	25.42			52.47			0.00			40.68		
Approach LOS	C			D			A			D		
d_I, Intersection Delay [s/veh]	40.32											
Intersection LOS	D											
Intersection V/C	1.011											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.356	2.531
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	920	720	0	920
d_b, Bicycle Delay [s]	14.58	20.48	50.00	14.58
I_b,int, Bicycle LOS Score for Intersection	2.453	2.627	4.132	3.047
Bicycle LOS	B	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 23: Harbor Boulevard at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.815

Intersection Setup

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Harbor Boulevard			Harbor Boulevard			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1708	233	453	1763	0	1008	365	158	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1708	233	453	1763	0	1008	365	158	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	427	58	113	441	0	252	91	40	0	0	0
Total Analysis Volume [veh/h]	0	1708	233	453	1763	0	1008	365	158	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	29	0	21	50	0	0	50	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	18	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	40	40	15	59	33	33	33	
g / C, Green / Cycle	0.40	0.40	0.15	0.59	0.33	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.30	0.13	0.13	0.31	0.29	0.19	0.09	
s, saturation flow rate [veh/h]	5700	1800	3500	5700	3500	1900	1800	
c, Capacity [veh/h]	2251	711	526	3336	1172	636	603	
d1, Uniform Delay [s]	26.14	21.03	41.47	12.46	31.08	27.39	24.26	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.46	1.23	4.29	0.60	1.98	0.82	0.23	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.76	0.33	0.86	0.53	0.86	0.57	0.26	
d, Delay for Lane Group [s/veh]	28.60	22.26	45.75	13.06	33.06	28.21	24.49	
Lane Group LOS	C	C	D	B	C	C	C	
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	11.83	3.97	5.70	7.54	11.36	7.19	2.74	
50th-Percentile Queue Length [ft]	295.73	99.21	142.62	188.38	284.04	179.76	68.49	
95th-Percentile Queue Length [veh]	17.47	7.14	9.62	12.04	16.89	11.59	4.93	
95th-Percentile Queue Length [ft]	436.74	178.59	240.54	300.93	422.24	289.71	123.28	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	28.60	22.26	45.75	13.06	0.00	33.06	28.21	24.49	0.00	0.00	0.00
Movement LOS		C	C	D	B		C	C	C			
d_A, Approach Delay [s/veh]	27.84			19.74			31.02			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	25.54											
Intersection LOS	C											
Intersection V/C	0.815											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.509	2.232
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	920	920	0
d_b, Bicycle Delay [s]	28.13	14.58	14.58	50.00
I_b,int, Bicycle LOS Score for Intersection	2.627	2.778	4.086	4.132
Bicycle LOS	B	C	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 24: Lemon Street at SR-91 EB Ramps

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.814

Intersection Setup

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			SR-91 EB Ramps			SR-91 EB Ramps		
Base Volume Input [veh/h]	0	1223	229	588	1083	0	397	608	63	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1223	229	588	1083	0	397	608	63	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	306	57	147	271	0	99	152	16	0	0	0
Total Analysis Volume [veh/h]	0	1223	229	588	1083	0	397	608	63	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	6	0	6	6	0	0	6	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	25	48	0	0	52	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	12	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	C	R	
C, Cycle Length [s]	100	100	100	100	100	100	100	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	38	38	19	61	31	31	31	
g / C, Green / Cycle	0.38	0.38	0.19	0.61	0.31	0.31	0.31	
(v / s)_i Volume / Saturation Flow Rate	0.25	0.27	0.17	0.29	0.28	0.26	0.04	
s, saturation flow rate [veh/h]	3800	1800	3500	3800	1800	1900	1800	
c, Capacity [veh/h]	1433	679	663	2305	564	595	564	
d1, Uniform Delay [s]	26.03	26.53	39.48	10.82	32.72	32.04	24.43	
k, delay calibration	0.50	0.50	0.11	0.50	0.15	0.13	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.57	6.28	4.23	0.69	7.08	4.01	0.09	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.68	0.71	0.89	0.47	0.89	0.84	0.11	
d, Delay for Lane Group [s/veh]	28.60	32.81	43.72	11.51	39.79	36.05	24.52	
Lane Group LOS	C	C	D	B	D	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh]	9.87	10.73	7.33	6.31	12.41	11.71	1.07	
50th-Percentile Queue Length [ft]	246.82	268.17	183.20	157.80	310.25	292.74	26.76	
95th-Percentile Queue Length [veh]	15.03	16.10	11.77	10.43	18.19	17.32	1.93	
95th-Percentile Queue Length [ft]	375.64	402.46	294.18	260.80	454.68	433.04	48.17	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	29.48	32.81	43.72	11.51	0.00	39.79	36.70	24.52	0.00	0.00	0.00
Movement LOS		C	C	D	B		D	D	C			
d_A, Approach Delay [s/veh]	30.00			22.84			37.13			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	28.97											
Intersection LOS	C											
Intersection V/C	0.814											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.292	2.414
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	380	880	960	0
d_b, Bicycle Delay [s]	32.81	15.68	13.52	50.00
I_b,int, Bicycle LOS Score for Intersection	2.358	2.938	2.441	4.132
Bicycle LOS	B	C	B	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX E-V

YEAR 2030 BUILDOUT PLUS PROJECT WITH IMPROVEMENTS TRAFFIC CONDITIONS

Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	53.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.979

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	326	0	71	0	0	0	97	295	0	0	386	36
Total Analysis Volume [veh/h]	1303	0	283	0	0	0	386	1178	0	0	1543	145
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	44	0	0	0	0	0	28	66	0	0	38	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	40	40	40		26	62	32	32
g / C, Green / Cycle	0.36	0.36	0.36		0.24	0.56	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.36	0.36	0.16		0.21	0.31	0.30	0.30
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	3800	1900
c, Capacity [veh/h]	654	654	654		424	2143	1110	555
d1, Uniform Delay [s]	34.94	34.94	26.45		40.92	15.15	38.92	38.92
k, delay calibration	0.46	0.46	0.11		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	32.88	32.88	0.45		7.84	1.02	30.38	41.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	1.00	0.43		0.91	0.55	1.01	1.01
d, Delay for Lane Group [s/veh]	67.83	67.83	26.91		48.76	16.17	69.30	80.51
Lane Group LOS	E	E	C		D	B	F	F
Critical Lane Group	Yes	No	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh]	22.88	22.88	5.64		10.98	9.22	19.39	21.12
50th-Percentile Queue Length [ft]	572.12	572.12	141.11		274.55	230.41	484.79	528.02
95th-Percentile Queue Length [veh]	30.73	30.73	9.54		16.42	14.20	26.84	28.91
95th-Percentile Queue Length [ft]	768.26	768.26	238.52		410.42	354.88	671.12	722.74

Movement, Approach, & Intersection Results

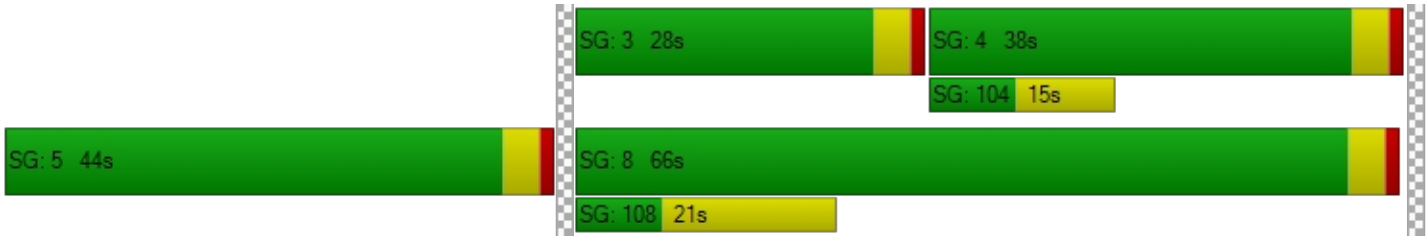
d_M, Delay for Movement [s/veh]	67.83	0.00	26.91	0.00	0.00	0.00	48.76	16.17	0.00	0.00	72.33	80.51
Movement LOS	E		C				D	B			E	F
d_A, Approach Delay [s/veh]	60.53			0.00			24.21			73.03		
Approach LOS	E			A			C			E		
d_I, Intersection Delay [s/veh]	53.15											
Intersection LOS	D											
Intersection V/C	0.979											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.465	1.951	0.000	0.000
Crosswalk LOS	B	A	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1127	618
d_b, Bicycle Delay [s]	55.00	55.00	10.47	26.25
I_b,int, Bicycle LOS Score for Intersection	6.749	4.132	2.850	2.488
Bicycle LOS	F	D	C	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: SR-57 NB Ramps at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	37.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.894

Intersection Setup

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No						No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	SR-57 NB Ramps			SR-57 NB Ramps			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	210	0	135	0	0	0	106	332	0	0	381	56
Total Analysis Volume [veh/h]	840	0	540	0	0	0	422	1329	0	0	1522	223
Presence of On-Street Parking	No		No				No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	0	0	0	0	0	3	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	6	0	0	0	0	0	6	6	0	0	6	0
Maximum Green [s]	30	0	0	0	0	0	30	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	47	0	0	0	0	0	44	63	0	0	19	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	14	0	0	8	0
Rest In Walk	No							No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No						No	No			No	
Maximum Recall	No						No	No			No	
Pedestrian Recall	No						No	No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R		L	C	C	C
C, Cycle Length [s]	110	110	110		110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	32	32	32		28	70	38	38
g / C, Green / Cycle	0.29	0.29	0.29		0.26	0.63	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.26		0.23	0.35	0.31	0.31
s, saturation flow rate [veh/h]	1800	1800	1800		1800	3800	3800	1900
c, Capacity [veh/h]	529	529	529		460	2408	1298	649
d1, Uniform Delay [s]	36.85	36.85	36.85		39.80	11.35	34.36	34.36
k, delay calibration	0.21	0.21	0.21		0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.23	8.23	8.23		7.75	0.92	9.89	17.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.87	0.87		0.92	0.55	0.90	0.90
d, Delay for Lane Group [s/veh]	45.07	45.07	45.07		47.54	12.27	44.25	51.80
Lane Group LOS	D	D	D		D	B	D	D
Critical Lane Group	Yes	No	No		Yes	No	Yes	No
50th-Percentile Queue Length [veh]	12.76	12.76	12.76		11.93	8.80	16.23	17.60
50th-Percentile Queue Length [ft]	318.95	318.95	318.95		298.36	220.05	405.82	439.88
95th-Percentile Queue Length [veh]	18.62	18.62	18.62		17.60	13.67	22.84	24.47
95th-Percentile Queue Length [ft]	465.39	465.39	465.39		440.00	341.69	571.01	611.87

Movement, Approach, & Intersection Results

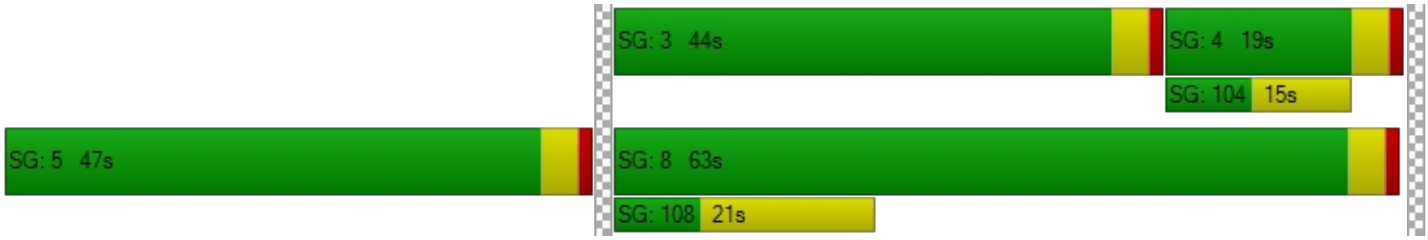
d_M, Delay for Movement [s/veh]	45.07	0.00	45.07	0.00	0.00	0.00	47.54	12.27	0.00	0.00	46.03	51.80
Movement LOS	D		D				D	B			D	D
d_A, Approach Delay [s/veh]	45.07			0.00			20.77			46.76		
Approach LOS	D			A			C			D		
d_I, Intersection Delay [s/veh]	36.95											
Intersection LOS	D											
Intersection V/C	0.894											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	0.00	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.398	2.062	0.000	0.000
Crosswalk LOS	B	B	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	1073	273
d_b, Bicycle Delay [s]	55.00	55.00	11.82	41.02
I_b,int, Bicycle LOS Score for Intersection	6.409	4.132	3.004	2.519
Bicycle LOS	F	D	C	B

Sequence

Ring 1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX F

TRAFFIC AND PEDESTRIAN COUNT DATA – SPECIAL ISSUES

APPENDIX F-I

SPECIAL ISSUE #1:
LAWRENCE AVENUE/CHAPMAN AVENUE

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: TRAFFIC SIGNAL E/O LEMON
E-W Direction: CHAPMAN AVENUE

File Name : H1611012
Site Code : 00001944
Start Date : 11/15/2016
Page No : 1

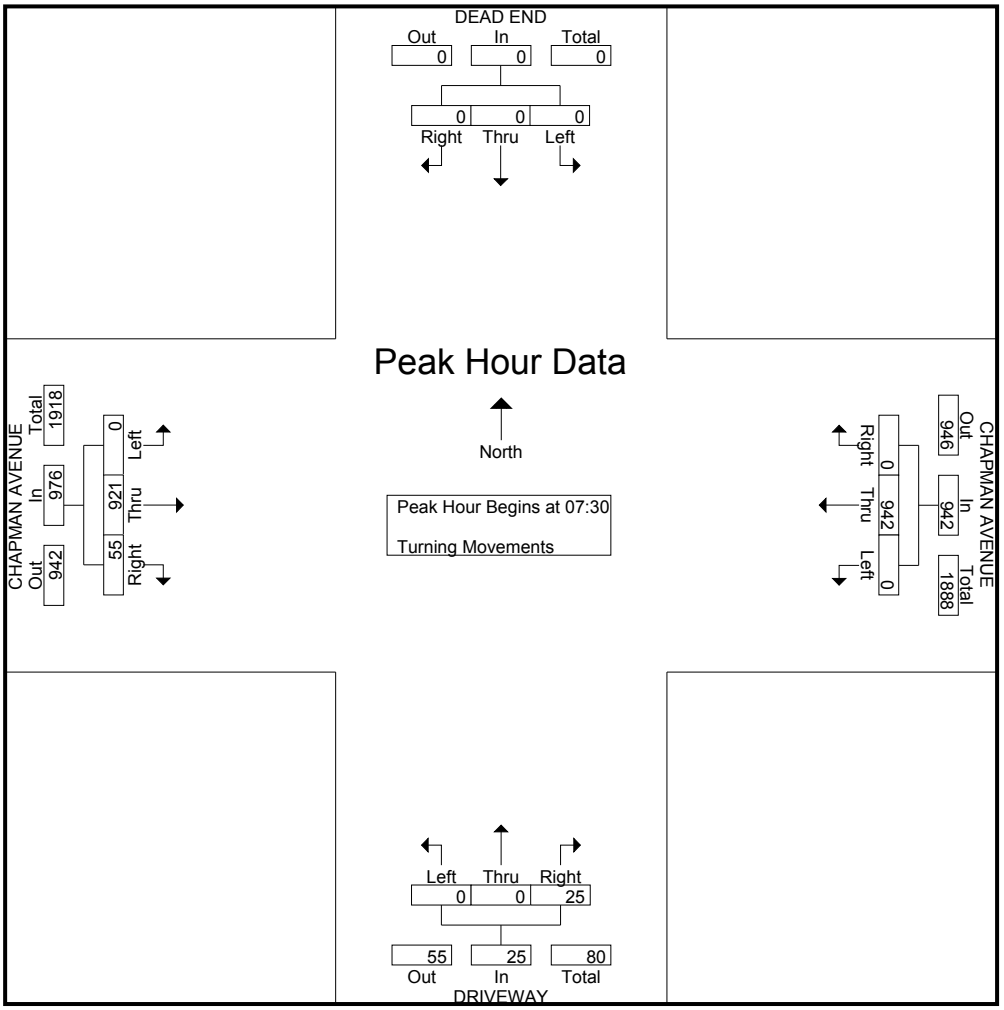
Groups Printed- Turning Movements

	DEAD END Southbound			CHAPMAN AVENUE Westbound			DRIVEWAY Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	0	236	0	6	0	0	21	186	0	449
07:15	0	0	0	0	194	1	7	0	0	13	190	0	405
07:30	0	0	0	0	227	0	6	0	0	17	236	0	486
07:45	0	0	0	0	227	0	8	0	0	11	254	0	500
Total	0	0	0	0	884	1	27	0	0	62	866	0	1840
08:00	0	0	0	0	272	0	3	0	0	17	217	0	509
08:15	0	0	0	0	216	0	8	0	0	10	214	0	448
08:30	0	0	0	0	199	0	6	0	0	13	199	0	417
08:45	0	0	0	0	156	0	4	0	0	13	172	0	345
Total	0	0	0	0	843	0	21	0	0	53	802	0	1719
16:00	0	0	0	0	330	0	15	0	0	12	183	0	540
16:15	0	0	0	0	320	1	7	0	0	17	212	0	557
16:30	0	0	0	0	272	0	9	0	0	10	175	0	466
16:45	0	0	0	0	307	0	6	0	0	10	208	0	531
Total	0	0	0	0	1229	1	37	0	0	49	778	0	2094
17:00	0	0	0	0	342	2	11	0	0	11	225	0	591
17:15	0	0	0	0	371	0	12	0	0	11	218	0	612
17:30	0	0	0	0	354	0	15	0	0	14	224	0	607
17:45	0	0	0	0	356	0	9	0	0	14	175	0	554
Total	0	0	0	0	1423	2	47	0	0	50	842	0	2364
Grand Total	0	0	0	0	4379	4	132	0	0	214	3288	0	8017
Apprch %	0	0	0	0	99.9	0.1	100	0	0	6.1	93.9	0	
Total %	0	0	0	0	54.6	0	1.6	0	0	2.7	41	0	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1611012
Site Code : 00001944
Start Date : 11/15/2016
Page No : 2

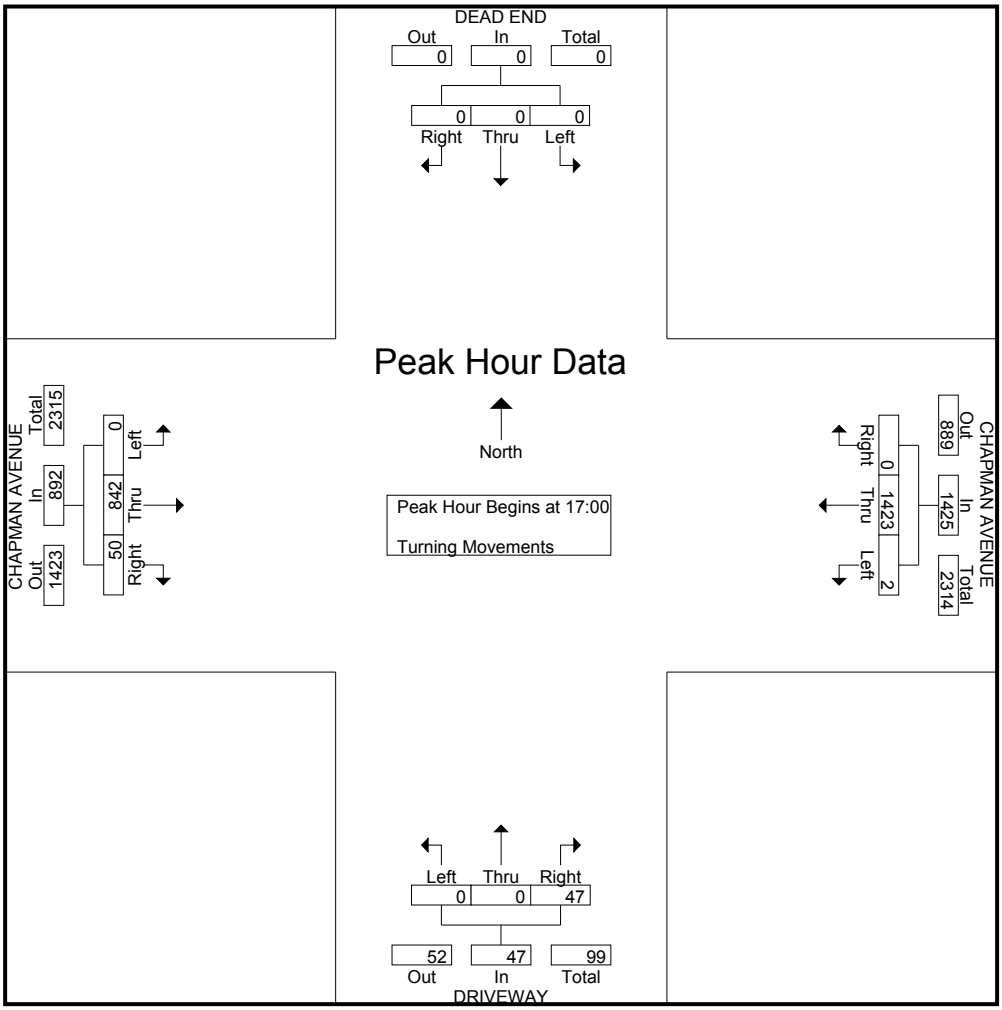
	DEAD END Southbound				CHAPMAN AVENUE Westbound				DRIVEWAY Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	227	0	227	6	0	0	6	**17**	236	0	253	486
07:45	0	0	0	0	0	227	0	227	**8**	0	0	**8**	11	**254**	0	**265**	500
08:00	0	0	0	0	0	**272**	0	**272**	3	0	0	3	17	217	0	234	**509**
08:15	0	0	0	0	0	216	0	216	8	0	0	8	10	214	0	224	448
Total Volume	0	0	0	0	0	942	0	942	25	0	0	25	55	921	0	976	1943
% App. Total	0	0	0		0	100	0		100	0	0		5.6	94.4	0		
PHF	.000	.000	.000	.000	.000	.866	.000	.866	.781	.000	.000	.781	.809	.906	.000	.921	.954



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1611012
Site Code : 00001944
Start Date : 11/15/2016
Page No : 3

	DEAD END Southbound				CHAPMAN AVENUE Westbound				DRIVEWAY Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	0	0	0	0	342	**2**	344	11	0	0	11	11	**225**	0	236	591
17:15	0	0	0	0	0	**371**	0	**371**	12	0	0	12	11	218	0	229	**612**
17:30	0	0	0	0	0	354	0	354	**15**	0	0	**15**	**14**	224	0	**238**	607
17:45	0	0	0	0	0	356	0	356	9	0	0	9	14	175	0	189	554
Total Volume	0	0	0	0	0	1423	2	1425	47	0	0	47	50	842	0	892	2364
% App. Total	0	0	0		0	99.9	0.1		100	0	0		5.6	94.4	0		
PHF	.000	.000	.000	.000	.000	.959	.250	.960	.783	.000	.000	.783	.893	.936	.000	.937	.966



TRANSPORTATION STUDIES, INC.

File: P1611012
Location Traffic Signal E/O Lemon-Chapman Avenue
Date: 11/15/16
City: Fullerton

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		WEST LEG		EAST LEG		Total	
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
7:00 AM	0	0	1	6	6	1	47	7	54		7		61	
7:15 AM	0	0	1	9	8	1	38	2	40		9		49	
7:30 AM	0	0	2	14	4	1	28	10	38		5		43	
7:45 AM	0	0	3	12	18	2	34	15	49	181	20	41	69	222
8:00 AM	0	0	3	11	21	3	49	7	56	183	24	58	80	241
8:15 AM	0	0	4	8	2	3	53	36	89	232	5	54	94	286
8:30 AM	0	0	4	8	4	3	40	27	67	**261**	7	**56**	74	**317**
8:45 AM	0	0	4	5	6	10	31	17	48	260	16	52	64	312
TOTALS	0	0	22	73	69	24	320	121						

PEDESTRIANS

TIME	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		WEST LEG		EAST LEG		Total	
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 PM	0	0	0	0	0	0	0	0						
12:15 PM	0	0	0	0	0	0	0	0						
12:30 PM	0	0	0	0	0	0	0	0						
12:45 PM	0	0	0	0	0	0	0	0						
1:00 PM	0	0	0	0	0	0	0	0						
1:15 PM	0	0	0	0	0	0	0	0						
1:30 PM	0	0	0	0	0	0	0	0						
1:45 PM	0	0	0	0	0	0	0	0						
2:00 PM	0	0	0	0	0	0	0	0						
2:15 PM	0	0	0	0	0	0	0	0						
2:30 PM	0	0	0	0	0	0	0	0						
2:45 PM	0	0	0	0	0	0	0	0						
3:00 PM	0	0	0	0	0	0	0	0						
3:15 PM	0	0	0	0	0	0	0	0						
3:30 PM	0	0	0	0	0	0	0	0						
3:45 PM	0	0	0	0	0	0	0	0						
4:00 PM	0	0	17	21	6	24	40	47	87		30		117	
4:15 PM	0	0	8	10	6	18	18	18	36		24		60	
4:30 PM	0	0	10	8	10	11	19	23	42		21		63	
4:45 PM	0	0	14	2	5	6	13	33	46	**211**	11	**86**	57	**297**
5:00 PM	0	0	14	12	10	17	18	32	50	174	27	83	77	257
5:15 PM	0	0	9	11	6	18	26	21	47	185	24	83	71	268
5:30 PM	0	0	10	5	10	11	17	31	48	191	21	83	69	274
5:45 PM	0	0	10	11	2	4	19	29	48	193	6	78	54	271
TOTALS	0	0	92	80	55	109	170	234						

APPENDIX F-II

SPECIAL ISSUE #3:
LEMON STREET INTERSECTION WITH WILSHIRE AVENUE AND CHAPMAN AVENUE

Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.715

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	158	29	16	143	20	89	230	38	44	192	31
Total Analysis Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	10	31	0	37	57	0	11	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	49	40	40	49	39	39	24	42	42	7	25	25
g / C, Green / Cycle	0.44	0.36	0.36	0.44	0.35	0.35	0.22	0.38	0.38	0.06	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.06	0.03	0.18	0.17	0.20	0.29	0.28	0.05	0.20	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	630	1364	646	655	672	637	390	730	691	225	881	417
d1, Uniform Delay [s]	18.06	27.13	24.16	17.72	28.02	27.78	42.06	29.60	29.12	50.74	40.69	34.91
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.20	0.18	0.16	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	1.13	0.60	0.06	2.73	2.66	13.76	2.83	2.30	5.81	2.81	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.46	0.18	0.09	0.51	0.49	0.91	0.77	0.74	0.78	0.87	0.30
d, Delay for Lane Group [s/veh]	18.56	28.26	24.77	17.78	30.75	30.43	55.82	32.42	31.42	56.55	43.49	35.31
Lane Group LOS	B	C	C	B	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.51	6.53	2.16	0.92	7.52	6.79	10.78	13.21	11.76	2.57	10.23	2.81
50th-Percentile Queue Length [ft]	37.67	163.15	53.94	22.98	188.08	169.71	269.40	330.24	293.91	64.15	255.69	70.35
95th-Percentile Queue Length [veh]	2.71	10.72	3.88	1.65	12.02	11.06	16.16	19.17	17.38	4.62	15.47	5.07
95th-Percentile Queue Length [ft]	67.81	267.89	97.10	41.37	300.53	276.54	403.99	479.26	434.49	115.46	386.81	126.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.56	28.26	24.77	17.78	30.62	30.43	55.82	32.03	31.42	56.55	43.49	35.31
Movement LOS	B	C	C	B	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	26.68			29.49			37.89			44.69		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.87											
Intersection LOS	D											
Intersection V/C	0.715											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.745	2.665	2.821	2.938
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	491	964	491
d_b, Bicycle Delay [s]	30.56	31.31	14.77	31.31
I_b,int, Bicycle LOS Score for Intersection	2.253	2.149	2.733	2.440
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	43.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.805

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	217	35	21	155	41	53	196	31	71	286	30
Total Analysis Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	32	0	10	31	0	13	53	0	15	55	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	52	42	42	52	41	41	9	36	36	11	37	37
g / C, Green / Cycle	0.47	0.38	0.38	0.47	0.37	0.37	0.08	0.32	0.32	0.10	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.08	0.05	0.22	0.20	0.12	0.25	0.24	0.08	0.30	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	614	1447	685	603	698	661	148	617	585	344	1294	613
d1, Uniform Delay [s]	17.00	27.36	22.87	16.32	28.22	27.66	50.51	33.53	33.01	48.69	34.23	25.64
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.94	1.84	0.66	0.10	3.73	3.32	197.95	2.74	2.05	4.88	2.17	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.60	0.20	0.14	0.60	0.55	1.42	0.77	0.74	0.82	0.88	0.19
d, Delay for Lane Group [s/veh]	17.94	29.20	23.53	16.43	31.95	30.98	248.46	36.27	35.06	53.57	36.40	25.79
Lane Group LOS	B	C	C	B	C	C	F	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.35	9.37	2.52	1.17	9.48	8.16	12.24	11.81	10.41	4.02	14.50	2.23
50th-Percentile Queue Length [ft]	58.70	234.21	63.01	29.13	236.94	203.94	305.95	295.15	260.15	100.49	362.42	55.70
95th-Percentile Queue Length [veh]	4.23	14.39	4.54	2.10	14.53	12.84	20.04	17.44	15.70	7.24	20.74	4.01
95th-Percentile Queue Length [ft]	105.67	359.70	113.42	52.44	363.16	321.05	500.96	436.03	392.40	180.89	518.53	100.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.94	29.20	23.53	16.43	31.63	30.98	248.46	35.80	35.06	53.57	36.40	25.79
Movement LOS	B	C	C	B	C	C	F	D	D	D	D	C
d_A, Approach Delay [s/veh]	27.06			30.07			75.78			38.72		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	43.11											
Intersection LOS	D											
Intersection V/C	0.805											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.817	2.711	2.894	3.005
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	491	891	927
d_b, Bicycle Delay [s]	30.56	31.31	16.91	15.82
I_b,int, Bicycle LOS Score for Intersection	2.512	2.272	2.484	2.833
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.691

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	158	29	16	143	20	89	230	38	44	192	31
Total Analysis Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	32	0	10	32	0	36	57	0	11	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	49	40	40	49	39	39	24	42	42	7	25	25
g / C, Green / Cycle	0.44	0.36	0.36	0.44	0.35	0.35	0.22	0.38	0.38	0.06	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.06	0.03	0.16	0.04	0.20	0.29	0.28	0.05	0.20	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3600	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	666	1365	647	656	1275	637	389	729	691	225	881	417
d1, Uniform Delay [s]	18.04	27.11	24.15	17.70	27.31	24.04	42.08	29.62	29.14	50.74	40.68	34.91
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.22	0.18	0.16	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	1.13	0.60	0.06	1.14	0.40	14.65	2.83	2.30	5.81	2.81	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.46	0.18	0.09	0.45	0.13	0.91	0.77	0.74	0.78	0.87	0.30
d, Delay for Lane Group [s/veh]	18.49	28.23	24.75	17.76	28.45	24.44	56.74	32.45	31.45	56.55	43.49	35.31
Lane Group LOS	B	C	C	B	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.50	6.52	2.16	0.92	5.93	1.48	10.87	13.22	11.76	2.57	10.23	2.81
50th-Percentile Queue Length [ft]	37.52	163.08	53.92	22.97	148.17	37.03	271.86	330.42	294.07	64.15	255.69	70.35
95th-Percentile Queue Length [veh]	2.70	10.71	3.88	1.65	9.92	2.67	16.28	19.18	17.39	4.62	15.47	5.07
95th-Percentile Queue Length [ft]	67.53	267.79	97.05	41.35	247.99	66.65	407.07	479.48	434.68	115.46	386.81	126.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.49	28.23	24.75	17.76	28.45	24.44	56.74	32.06	31.45	56.55	43.49	35.31
Movement LOS	B	C	C	B	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	26.66			27.07			38.14			44.69		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	35.52											
Intersection LOS	D											
Intersection V/C	0.691											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.745	2.759	2.821	2.938
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	509	964	509
d_b, Bicycle Delay [s]	30.56	30.56	14.77	30.56
I_b,int, Bicycle LOS Score for Intersection	2.253	2.149	2.733	2.440
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	36.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.779

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	217	35	21	155	41	53	196	31	71	286	30
Total Analysis Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	32	0	10	32	0	22	62	0	16	56	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	18	0	0	20	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	52	42	42	52	42	42	16	45	45	12	40	40
g / C, Green / Cycle	0.43	0.35	0.35	0.43	0.35	0.35	0.13	0.37	0.37	0.10	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.08	0.05	0.17	0.09	0.12	0.25	0.24	0.08	0.30	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3600	1800	1800	1900	1800	3500	3800	1800
c, Capacity [veh/h]	613	1327	628	511	1245	623	239	709	672	339	1281	607
d1, Uniform Delay [s]	21.28	32.95	27.55	20.44	31.03	28.23	51.11	31.49	31.00	53.27	37.72	28.25
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.95	2.52	0.80	0.15	1.42	1.01	10.13	1.13	1.03	5.34	2.38	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.65	0.22	0.16	0.50	0.26	0.88	0.67	0.64	0.83	0.89	0.20
d, Delay for Lane Group [s/veh]	22.23	35.47	28.35	20.58	32.45	29.24	61.24	32.62	32.03	58.61	40.10	28.41
Lane Group LOS	C	D	C	C	C	C	E	C	C	E	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.80	11.02	2.95	1.41	7.33	3.54	6.90	11.72	10.41	4.43	16.12	2.48
50th-Percentile Queue Length [ft]	69.95	275.53	73.74	35.13	183.15	88.52	172.38	292.94	260.15	110.72	402.88	61.89
95th-Percentile Queue Length [veh]	5.04	16.47	5.31	2.53	11.76	6.37	11.20	17.33	15.70	7.88	22.70	4.46
95th-Percentile Queue Length [ft]	125.92	411.64	132.74	63.23	294.12	159.33	280.04	433.29	392.41	197.00	567.46	111.41

Movement, Approach, & Intersection Results

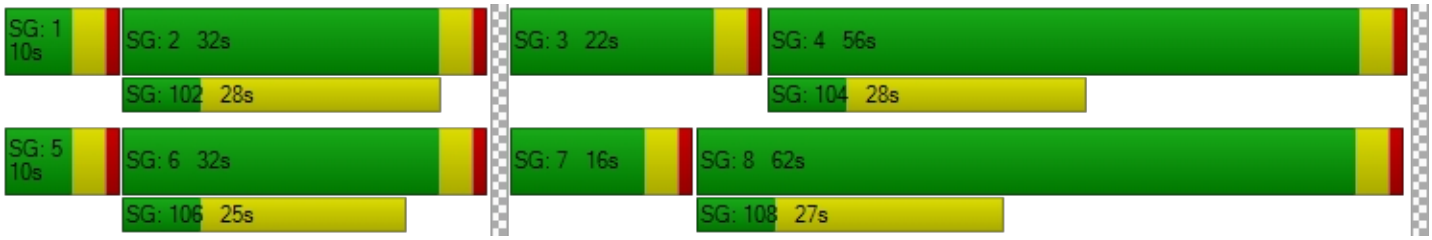
d_M, Delay for Movement [s/veh]	22.23	35.47	28.35	20.58	32.45	29.24	61.24	32.39	32.03	58.61	40.10	28.41
Movement LOS	C	D	C	C	C	C	E	C	C	E	D	C
d_A, Approach Delay [s/veh]	32.90			30.72			37.79			42.58		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.86											
Intersection LOS	D											
Intersection V/C	0.779											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
I_p,int, Pedestrian LOS Score for Intersection	2.821	2.802	2.893	3.005
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	467	967	867
d_b, Bicycle Delay [s]	35.27	35.27	16.02	19.27
I_b,int, Bicycle LOS Score for Intersection	2.512	2.272	2.484	2.833
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	33.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	158	29	16	143	20	89	230	38	44	192	31
Total Analysis Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	32	0	10	32	0	36	52	0	11	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	46	37	37	46	36	36	23	40	40	7	24	24
g / C, Green / Cycle	0.44	0.35	0.35	0.44	0.34	0.34	0.22	0.38	0.38	0.07	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.06	0.03	0.18	0.17	0.20	0.26	0.08	0.05	0.20	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3600	1800	3500	3800	1800
c, Capacity [veh/h]	619	1328	629	645	653	619	392	1375	688	236	881	417
d1, Uniform Delay [s]	17.62	26.66	23.75	17.29	27.58	27.34	40.05	26.95	21.90	48.13	38.85	33.34
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.19	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.53	1.22	0.64	0.06	2.98	2.89	12.81	0.57	0.16	4.64	2.81	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.47	0.18	0.10	0.52	0.50	0.90	0.67	0.22	0.75	0.87	0.30
d, Delay for Lane Group [s/veh]	18.15	27.88	24.39	17.35	30.56	30.23	52.86	27.51	22.06	52.77	41.67	33.73
Lane Group LOS	B	C	C	B	C	C	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.45	6.30	2.09	0.88	7.30	6.59	10.19	9.45	2.51	2.41	9.72	2.67
50th-Percentile Queue Length [ft]	36.23	157.59	52.14	22.03	182.51	164.69	254.73	236.18	62.76	60.19	242.96	66.78
95th-Percentile Queue Length [veh]	2.61	10.42	3.75	1.59	11.73	10.80	15.42	14.49	4.52	4.33	14.83	4.81
95th-Percentile Queue Length [ft]	65.21	260.53	93.85	39.66	293.29	269.92	385.61	362.19	112.97	108.35	370.78	120.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.15	27.88	24.39	17.35	30.43	30.23	52.86	27.51	22.06	52.77	41.67	33.73
Movement LOS	B	C	C	B	C	C	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	26.30			29.27			33.25			42.57		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	33.56											
Intersection LOS	C											
Intersection V/C	0.721											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.08	42.08	42.08	42.08
I_p,int, Pedestrian LOS Score for Intersection	2.743	2.663	2.893	2.935
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	533	533	914	438
d_b, Bicycle Delay [s]	28.23	28.23	15.47	32.02
I_b,int, Bicycle LOS Score for Intersection	2.253	2.149	2.733	2.440
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.803

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	217	35	21	155	41	53	196	31	71	286	30
Total Analysis Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	33	0	10	32	0	21	37	0	35	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	20	0	0	16	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	49	39	39	49	38	38	15	42	42	12	39	39
g / C, Green / Cycle	0.43	0.34	0.34	0.43	0.33	0.33	0.13	0.37	0.37	0.10	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.08	0.05	0.22	0.20	0.12	0.22	0.07	0.08	0.30	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	1900	1800	1800	3600	1800	3500	3800	1800
c, Capacity [veh/h]	515	1298	615	503	625	592	241	1322	661	360	1279	606
d1, Uniform Delay [s]	20.72	32.33	27.02	19.90	33.16	32.51	48.92	29.45	24.73	50.36	36.20	27.11
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.43	2.74	0.85	0.15	5.52	4.78	9.81	0.43	0.14	3.75	2.41	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.67	0.22	0.16	0.67	0.62	0.88	0.59	0.19	0.78	0.89	0.20
d, Delay for Lane Group [s/veh]	22.15	35.07	27.87	20.05	38.68	37.29	58.73	29.88	24.87	54.11	38.61	27.27
Lane Group LOS	C	D	C	C	D	D	E	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.74	10.68	2.86	1.35	10.83	9.30	6.59	8.78	2.33	4.14	15.38	2.36
50th-Percentile Queue Length [ft]	68.38	267.01	71.38	33.75	270.81	232.48	164.63	219.50	58.34	103.57	384.52	59.01
95th-Percentile Queue Length [veh]	4.92	16.04	5.14	2.43	16.23	14.30	10.79	13.64	4.20	7.46	21.81	4.25
95th-Percentile Queue Length [ft]	123.08	401.00	128.48	60.74	405.76	357.51	269.84	340.99	105.01	186.43	545.32	106.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.15	35.07	27.87	20.05	38.22	37.29	58.73	29.88	24.87	54.11	38.61	27.27
Movement LOS	C	D	C	C	D	D	E	C	C	D	D	C
d_A, Approach Delay [s/veh]	32.53			36.32			34.76			40.57		
Approach LOS	C			D			C			D		
d_I, Intersection Delay [s/veh]	36.41											
Intersection LOS	D											
Intersection V/C	0.803											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	47.03
I_p,int, Pedestrian LOS Score for Intersection	2.819	2.713	2.957	3.002
Crosswalk LOS	C	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	504	487	574	817
d_b, Bicycle Delay [s]	32.16	32.91	29.23	20.10
I_b,int, Bicycle LOS Score for Intersection	2.512	2.272	2.484	2.833
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	34.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.691

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	158	29	16	143	20	89	230	38	44	192	31
Total Analysis Volume [veh/h]	95	631	115	62	572	80	354	918	150	176	766	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	32	0	10	32	0	36	57	0	11	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	20	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	49	40	40	49	39	39	24	42	42	7	25	25
g / C, Green / Cycle	0.44	0.36	0.36	0.44	0.35	0.35	0.22	0.38	0.38	0.06	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.05	0.17	0.06	0.03	0.16	0.04	0.20	0.26	0.08	0.05	0.20	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3600	1800	1800	3600	1800	3500	3800	1800
c, Capacity [veh/h]	666	1365	647	656	1275	637	389	1382	691	225	881	417
d1, Uniform Delay [s]	18.04	27.11	24.15	17.70	27.31	24.04	42.08	28.06	22.80	50.74	40.68	34.91
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.22	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	1.13	0.60	0.06	1.14	0.40	14.65	0.56	0.16	5.81	2.81	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.46	0.18	0.09	0.45	0.13	0.91	0.66	0.22	0.78	0.87	0.30
d, Delay for Lane Group [s/veh]	18.49	28.23	24.75	17.76	28.45	24.44	56.74	28.61	22.96	56.55	43.49	35.31
Lane Group LOS	B	C	C	B	C	C	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	1.50	6.52	2.16	0.92	5.93	1.48	10.87	9.94	2.64	2.57	10.23	2.81
50th-Percentile Queue Length [ft]	37.52	163.08	53.92	22.97	148.17	37.03	271.86	248.45	66.03	64.15	255.69	70.35
95th-Percentile Queue Length [veh]	2.70	10.71	3.88	1.65	9.92	2.67	16.28	15.11	4.75	4.62	15.47	5.07
95th-Percentile Queue Length [ft]	67.53	267.79	97.05	41.35	247.99	66.65	407.07	377.70	118.85	115.46	386.81	126.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.49	28.23	24.75	17.76	28.45	24.44	56.74	28.61	22.96	56.55	43.49	35.31
Movement LOS	B	C	C	B	C	C	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	26.66			27.07			35.02			44.69		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	34.43											
Intersection LOS	C											
Intersection V/C	0.691											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
I_p,int, Pedestrian LOS Score for Intersection	2.745	2.759	2.897	2.938
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	509	964	509
d_b, Bicycle Delay [s]	30.56	30.56	14.77	30.56
I_b,int, Bicycle LOS Score for Intersection	2.253	2.149	2.733	2.440
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 7: Lemon Street at Chapman Avenue

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.784

Intersection Setup

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lemon Street			Lemon Street			Chapman Avenue			Chapman Avenue		
Base Volume Input [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	217	35	21	155	41	53	196	31	71	286	30
Total Analysis Volume [veh/h]	150	867	138	82	620	162	211	785	124	282	1142	119
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	6	0	6	6	0	6	6	0	6	6	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	33	0	10	32	0	21	37	0	35	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	20	0	0	21	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	49	39	39	49	38	38	15	42	42	12	39	39
g / C, Green / Cycle	0.43	0.34	0.34	0.43	0.33	0.33	0.13	0.37	0.37	0.10	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.23	0.08	0.05	0.17	0.09	0.12	0.22	0.07	0.08	0.30	0.07
s, saturation flow rate [veh/h]	1800	3800	1800	1800	3600	1800	1800	3600	1800	3500	3800	1800
c, Capacity [veh/h]	603	1298	615	503	1185	592	241	1322	661	360	1279	606
d1, Uniform Delay [s]	20.72	32.33	27.02	19.90	31.29	28.46	48.92	29.45	24.73	50.36	36.20	27.11
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.98	2.74	0.85	0.15	1.66	1.14	9.81	0.43	0.14	3.75	2.41	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.67	0.22	0.16	0.52	0.27	0.88	0.59	0.19	0.78	0.89	0.20
d, Delay for Lane Group [s/veh]	21.70	35.07	27.87	20.05	32.94	29.60	58.73	29.88	24.87	54.11	38.61	27.27
Lane Group LOS	C	D	C	C	C	C	E	C	C	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh]	2.70	10.68	2.86	1.35	7.21	3.49	6.59	8.78	2.33	4.14	15.38	2.36
50th-Percentile Queue Length [ft]	67.39	267.01	71.38	33.75	180.33	87.18	164.63	219.50	58.34	103.57	384.52	59.01
95th-Percentile Queue Length [veh]	4.85	16.04	5.14	2.43	11.62	6.28	10.79	13.64	4.20	7.46	21.81	4.25
95th-Percentile Queue Length [ft]	121.31	401.00	128.48	60.74	290.45	156.92	269.84	340.99	105.01	186.43	545.32	106.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.70	35.07	27.87	20.05	32.94	29.60	58.73	29.88	24.87	54.11	38.61	27.27
Movement LOS	C	D	C	C	C	C	E	C	C	D	D	C
d_A, Approach Delay [s/veh]	32.47			31.09			34.76			40.57		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	35.43											
Intersection LOS	D											
Intersection V/C	0.784											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	47.03
I_p,int, Pedestrian LOS Score for Intersection	2.819	2.800	2.957	3.002
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	504	487	574	817
d_b, Bicycle Delay [s]	32.16	32.91	29.23	20.10
I_b,int, Bicycle LOS Score for Intersection	2.512	2.272	2.484	2.833
Bicycle LOS	B	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX F-III

SPECIAL ISSUE #5: LOT 7 ACCESS

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: BERKELEY AVENUE
E-W Direction: DRIVEWAY A

File Name : H1703033
Site Code : 00005060
Start Date : 3/15/2017
Page No : 1

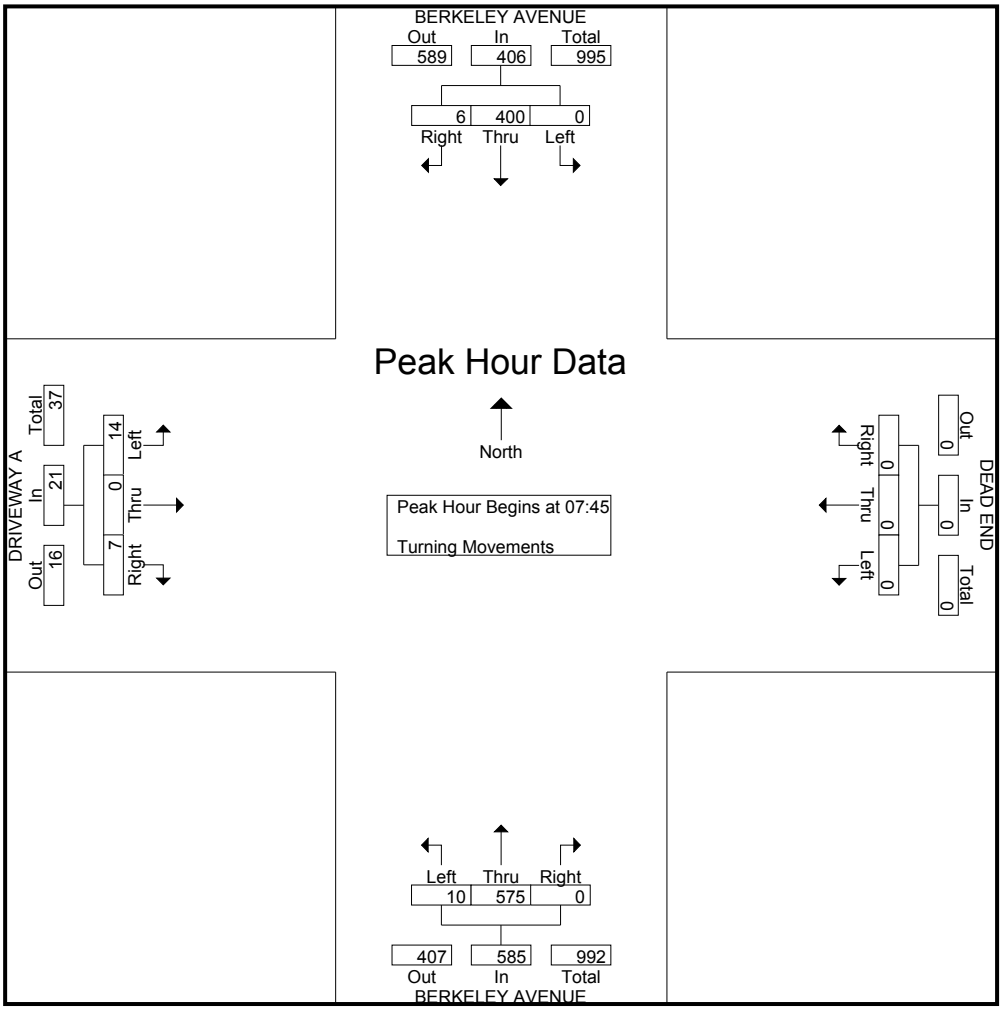
Groups Printed- Turning Movements

	BERKELEY AVENUE Southbound			DEAD END Westbound			BERKELEY AVENUE Northbound			DRIVEWAY A Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	5	58	0	0	0	0	0	125	5	1	0	0	194
07:15	1	69	0	0	0	0	0	96	3	0	0	0	169
07:30	0	78	0	0	0	0	0	114	4	0	0	0	196
07:45	1	105	0	0	0	0	0	144	3	2	0	4	259
Total	7	310	0	0	0	0	0	479	15	3	0	4	818
08:00	1	106	0	0	0	0	0	148	3	2	0	0	260
08:15	1	105	0	0	0	0	0	156	2	1	0	4	269
08:30	3	84	0	0	0	0	0	127	2	2	0	6	224
08:45	1	76	0	0	0	0	0	105	0	2	0	4	188
Total	6	371	0	0	0	0	0	536	7	7	0	14	941
16:00	2	140	0	0	0	0	0	106	3	5	0	2	258
16:15	2	132	0	0	0	0	0	117	2	4	0	2	259
16:30	0	135	0	0	0	0	0	145	2	3	0	0	285
16:45	1	144	0	0	0	0	0	141	2	3	0	1	292
Total	5	551	0	0	0	0	0	509	9	15	0	5	1094
17:00	2	161	0	0	0	0	0	118	2	1	0	0	284
17:15	0	134	0	0	0	0	0	107	1	3	0	1	246
17:30	0	114	0	0	0	0	0	139	2	1	0	1	257
17:45	0	105	0	0	0	0	0	112	3	0	0	0	220
Total	2	514	0	0	0	0	0	476	8	5	0	2	1007
Grand Total	20	1746	0	0	0	0	0	2000	39	30	0	25	3860
Apprch %	1.1	98.9	0	0	0	0	0	98.1	1.9	54.5	0	45.5	
Total %	0.5	45.2	0	0	0	0	0	51.8	1	0.8	0	0.6	

Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1703033
Site Code : 00005060
Start Date : 3/15/2017
Page No : 2

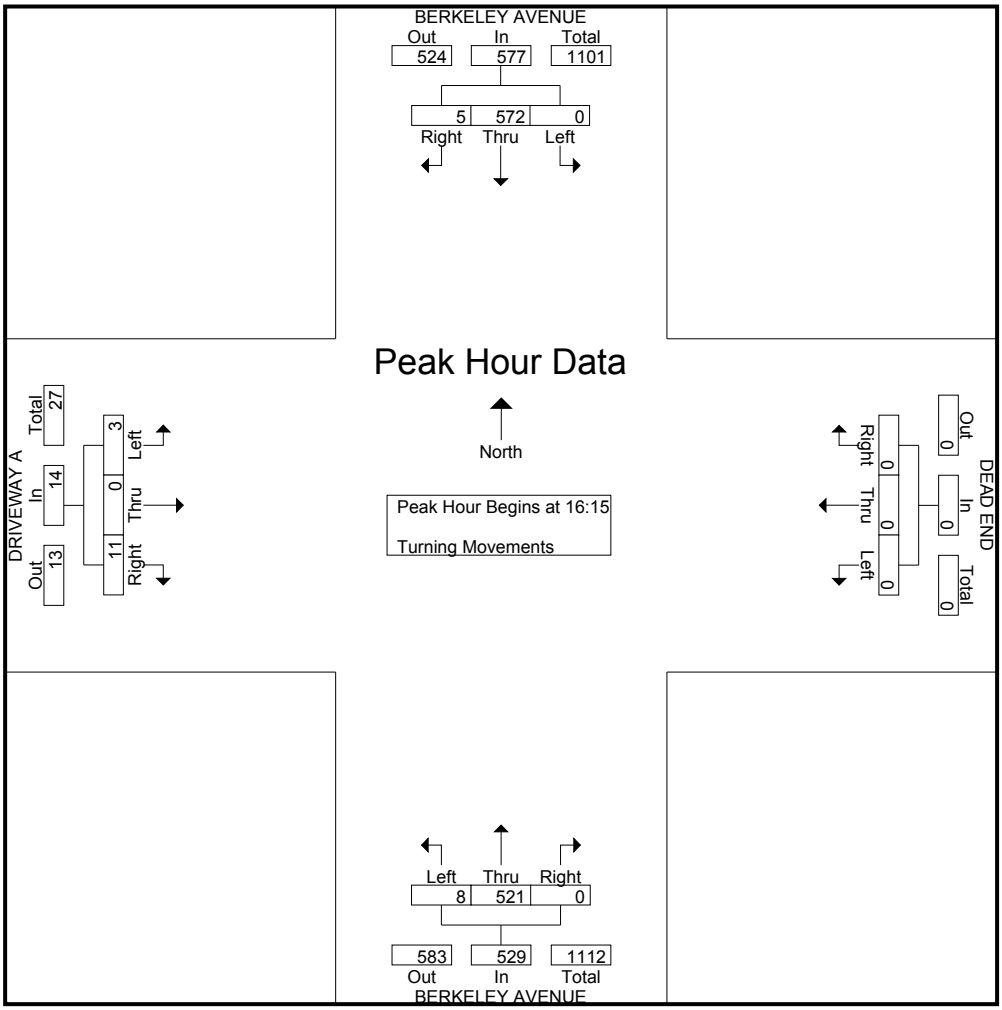
	BERKELEY AVENUE Southbound				DEAD END Westbound				BERKELEY AVENUE Northbound				DRIVEWAY A Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	1	105	0	106	0	0	0	0	0	144	**3**	147	**2**	0	4	6	259
08:00	1	**106**	0	**107**	0	0	0	0	0	148	3	151	2	0	0	2	260
08:15	1	105	0	106	0	0	0	0	0	**156**	2	**158**	1	0	4	5	**269**
08:30	**3**	84	0	87	0	0	0	0	0	127	2	129	2	0	**6**	**8**	224
Total Volume	6	400	0	406	0	0	0	0	0	575	10	585	7	0	14	21	1012
% App. Total	1.5	98.5	0		0	0	0		0	98.3	1.7		33.3	0	66.7		
PHF	.500	.943	.000	.949	.000	.000	.000	.000	.000	.921	.833	.926	.875	.000	.583	.656	.941



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1703033
Site Code : 00005060
Start Date : 3/15/2017
Page No : 3

	BERKELEY AVENUE Southbound				DEAD END Westbound				BERKELEY AVENUE Northbound				DRIVEWAY A Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:15																	
16:15	**2**	132	0	134	0	0	0	0	0	117	**2**	119	**4**	0	**2**	**6**	259
16:30	0	135	0	135	0	0	0	0	0	**145**	2	**147**	3	0	0	3	285
16:45	1	144	0	145	0	0	0	0	0	141	2	143	3	0	1	4	**292**
17:00	2	**161**	0	**163**	0	0	0	0	0	118	2	120	1	0	0	1	284
Total Volume	5	572	0	577	0	0	0	0	0	521	8	529	11	0	3	14	1120
% App. Total	0.9	99.1	0		0	0	0		0	98.5	1.5		78.6	0	21.4		
PHF	.625	.888	.000	.885	.000	.000	.000	.000	.000	.898	1.00	.900	.688	.000	.375	.583	.959



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

City: FULLERTON
N-S Direction: DRIVEWAY B
E-W Direction: CHAPMAN AVENUE

File Name : H1703034
Site Code : 00005060
Start Date : 3/15/2017
Page No : 1

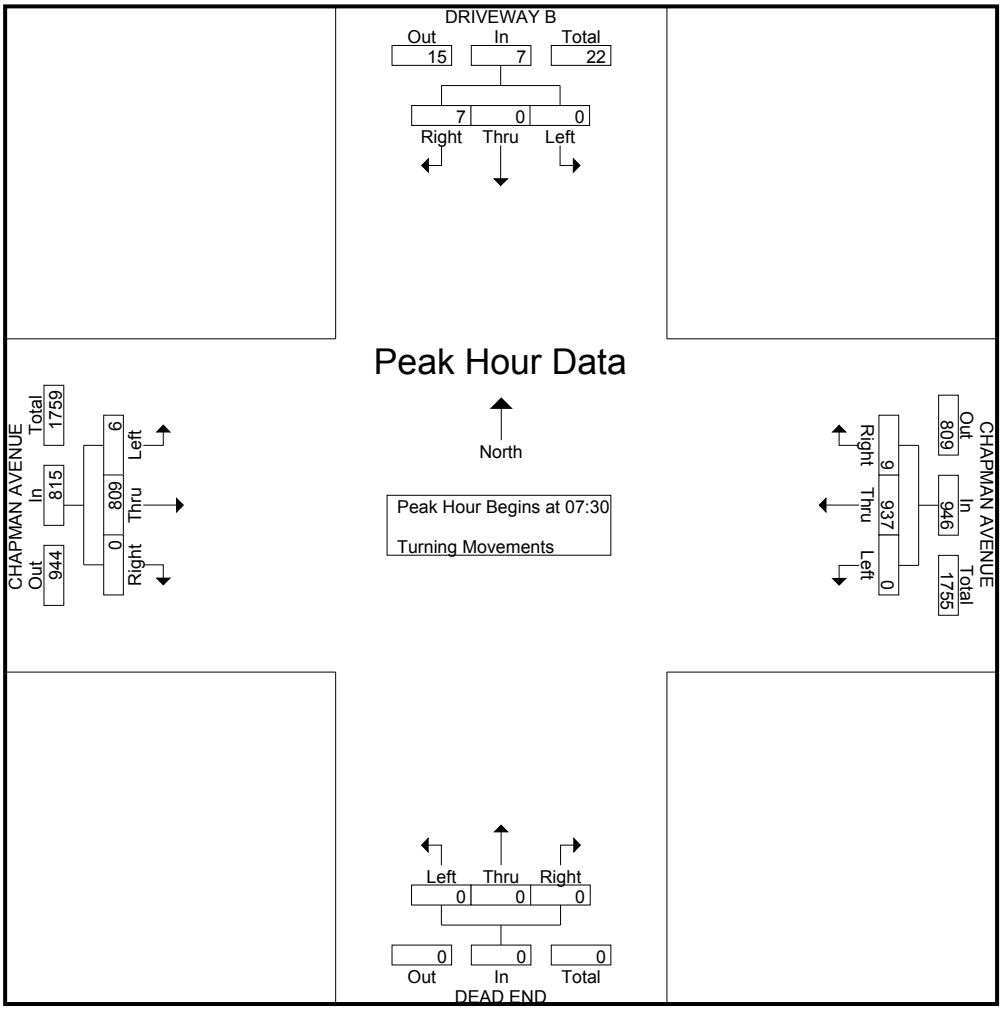
Groups Printed- Turning Movements

	DRIVEWAY B Southbound			CHAPMAN AVENUE Westbound			DEAD END Northbound			CHAPMAN AVENUE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	0	0	3	229	0	0	0	0	0	157	9	398
07:15	0	0	0	3	197	0	0	0	0	0	140	3	343
07:30	0	0	0	0	205	0	0	0	0	0	214	1	420
07:45	1	0	0	3	266	0	0	0	0	0	252	0	522
Total	1	0	0	9	897	0	0	0	0	0	763	13	1683
08:00	3	0	0	3	239	0	0	0	0	0	185	3	433
08:15	3	0	0	3	227	0	0	0	0	0	158	2	393
08:30	3	0	0	2	202	0	0	0	0	0	171	1	379
08:45	1	0	0	1	191	0	0	0	0	0	207	0	400
Total	10	0	0	9	859	0	0	0	0	0	721	6	1605
16:00	2	0	0	7	312	0	0	0	0	0	196	4	521
16:15	3	0	0	3	294	0	0	0	0	0	175	5	480
16:30	2	0	0	1	334	0	0	0	0	0	220	1	558
16:45	2	0	3	1	316	0	0	0	0	0	218	3	543
Total	9	0	3	12	1256	0	0	0	0	0	809	13	2102
17:00	2	0	0	2	339	0	0	0	0	0	223	2	568
17:15	4	0	1	2	379	0	0	0	0	0	192	1	579
17:30	1	0	0	5	339	0	0	0	0	0	215	1	561
17:45	2	0	0	0	319	0	0	0	0	0	193	1	515
Total	9	0	1	9	1376	0	0	0	0	0	823	5	2223
Grand Total	29	0	4	39	4388	0	0	0	0	0	3116	37	7613
Apprch %	87.9	0	12.1	0.9	99.1	0	0	0	0	0	98.8	1.2	
Total %	0.4	0	0.1	0.5	57.6	0	0	0	0	0	40.9	0.5	

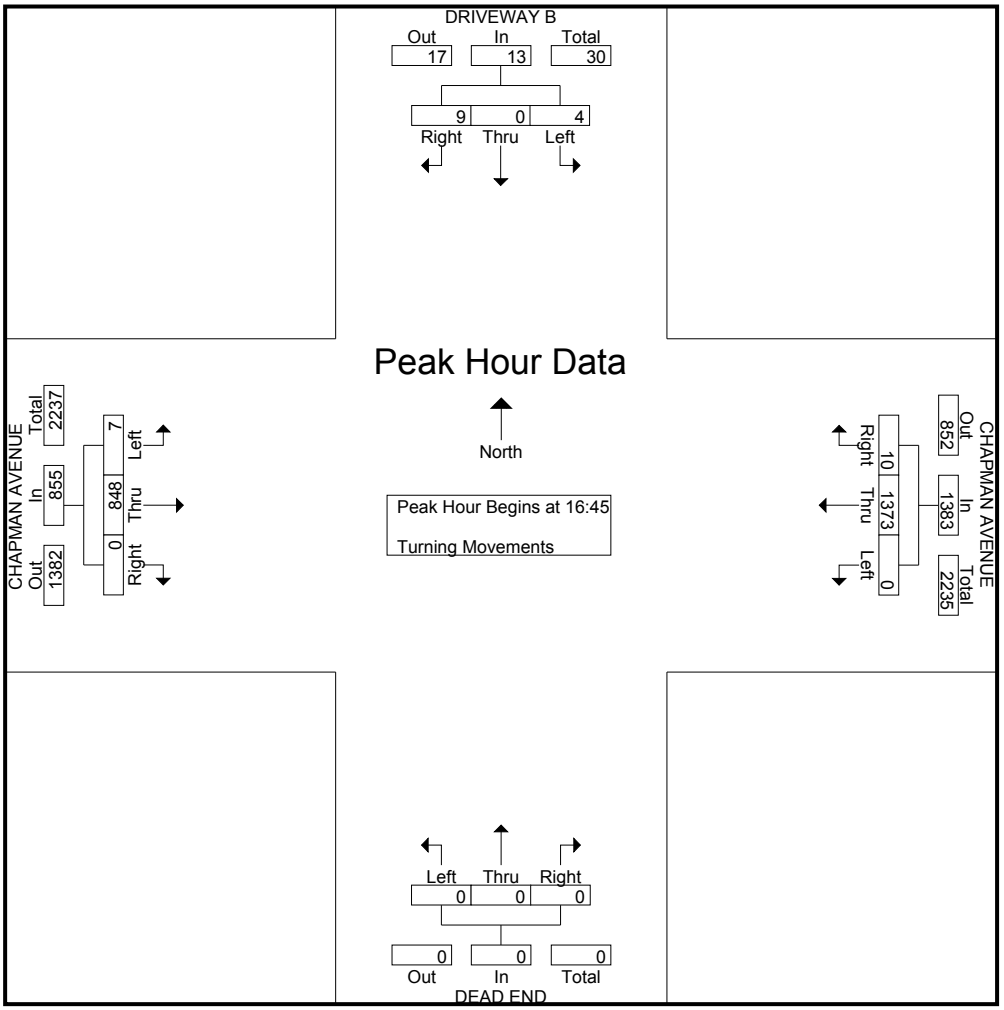
Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1703034
Site Code : 00005060
Start Date : 3/15/2017
Page No : 2

	DRIVEWAY B Southbound				CHAPMAN AVENUE Westbound				DEAD END Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	205	0	205	0	0	0	0	0	214	1	215	420
07:45	1	0	0	1	**3**	**266**	0	**269**	0	0	0	0	0	**252**	0	**252**	**522**
08:00	**3**	0	0	**3**	3	239	0	242	0	0	0	0	0	185	**3**	188	433
08:15	3	0	0	3	3	227	0	230	0	0	0	0	0	158	2	160	393
Total Volume	7	0	0	7	9	937	0	946	0	0	0	0	0	809	6	815	1768
% App. Total	100	0	0		1	99	0		0	0	0		0	99.3	0.7		
PHF	.583	.000	.000	.583	.750	.881	.000	.879	.000	.000	.000	.000	.000	.803	.500	.809	.847



Transportation Studies, Inc.
2640 Walnut Avenue, Suite L
Tustin, CA. 92780

File Name : H1703034
Site Code : 00005060
Start Date : 3/15/2017
Page No : 3

	DRIVEWAY B Southbound				CHAPMAN AVENUE Westbound				DEAD END Northbound				CHAPMAN AVENUE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	2	0	**3**	**5**	1	316	0	317	0	0	0	0	0	218	**3**	221	543
17:00	2	0	0	2	2	339	0	341	0	0	0	0	0	**223**	2	**225**	568
17:15	**4**	0	1	5	2	**379**	0	**381**	0	0	0	0	0	192	1	193	**579**
17:30	1	0	0	1	**5**	339	0	344	0	0	0	0	0	215	1	216	561
Total Volume	9	0	4	13	10	1373	0	1383	0	0	0	0	0	848	7	855	2251
% App. Total	69.2	0	30.8		0.7	99.3	0		0	0	0		0	99.2	0.8		
PHF	.563	.000	.333	.650	.500	.906	.000	.907	.000	.000	.000	.000	.000	.951	.583	.950	.972