

QUIKTRIP #4245

FINAL TRAFFIC STUDY

E. ALAMEDA AVENUE AND CRYSTAL STREET

Project No. 0222026.01-119

Date: OCTOBER 9, 2023

FINAL TRAFFIC STUDY

QUIKTRIP - AURORA

E. ALAMEDA AVENUE AND CRYSTAL STREET

AURORA, COLORADO

OCTOBER 2023

Prepared for:

**QUIKTRIP
&
CITY OF AURORA**

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INTRODUCTION

1.1 Study Background, Purpose and Goals

This report summarized the findings and recommendations of a traffic study for the proposed QuikTrip development in Aurora, Colorado. This property currently includes an office building with the site bounded by existing commercial properties to the north and east, Crystal Street to the west, and E. Alameda Avenue to the south. The location of this proposed development is shown in Figure 1.

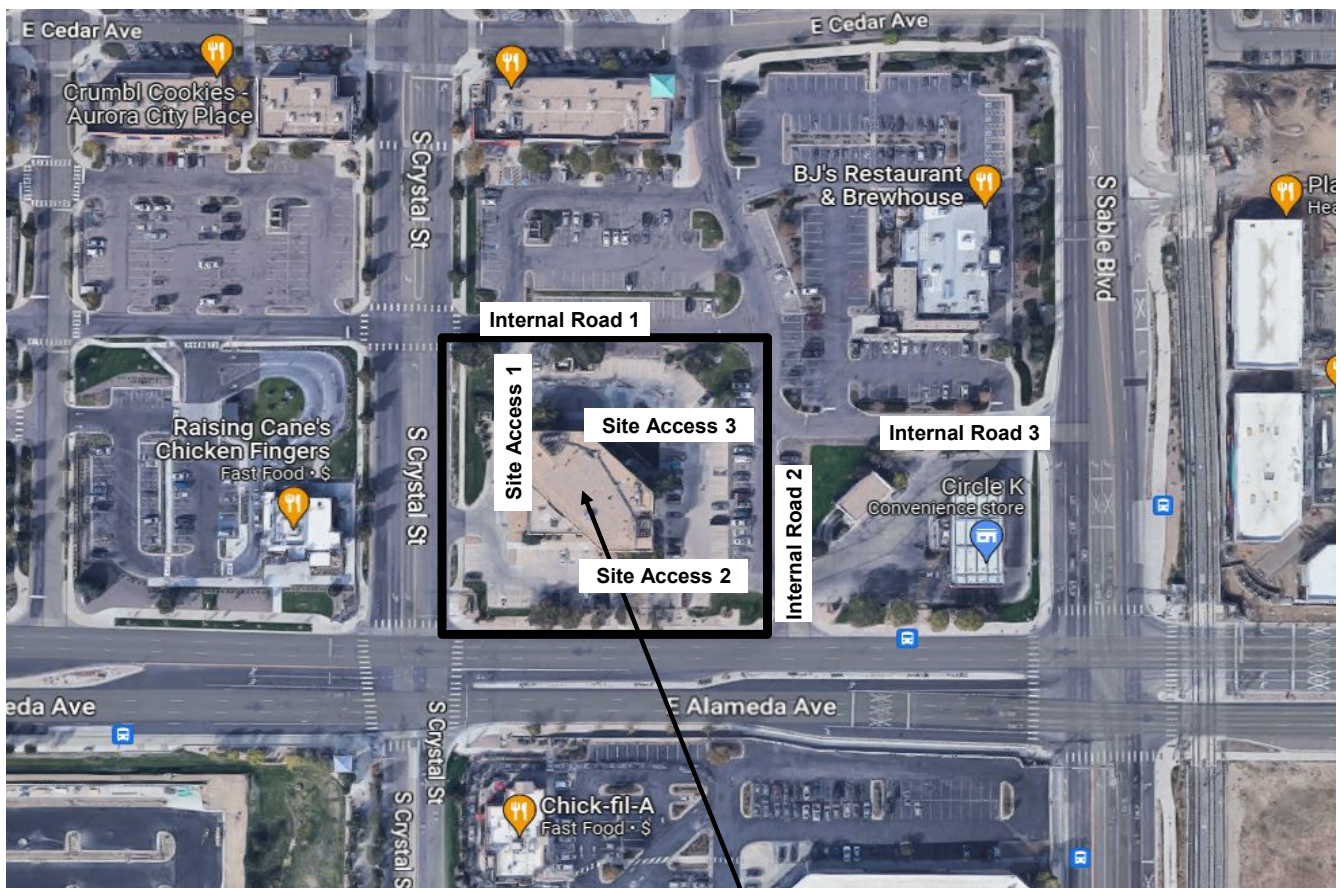
The proposed layout of the overall site is shown in Figure 2. The site will consist of a 16-pump gas station and convenience store. The land uses and resulting trip generation is shown in Table 1.

The purpose of this study was to assess the capacity of the existing roadway system to handle the background traffic and the impacts of the proposed development on E. Alameda Avenue along with S. Sable Boulevard and Crystal Street in the vicinity of the site. Another objective of this study was to look at right and left turn lane warrants, along with signal warrants, at all intersections. These roadways and intersections will provide the primary access for traffic generated from the development on a daily basis.

1.2 Data Gathering

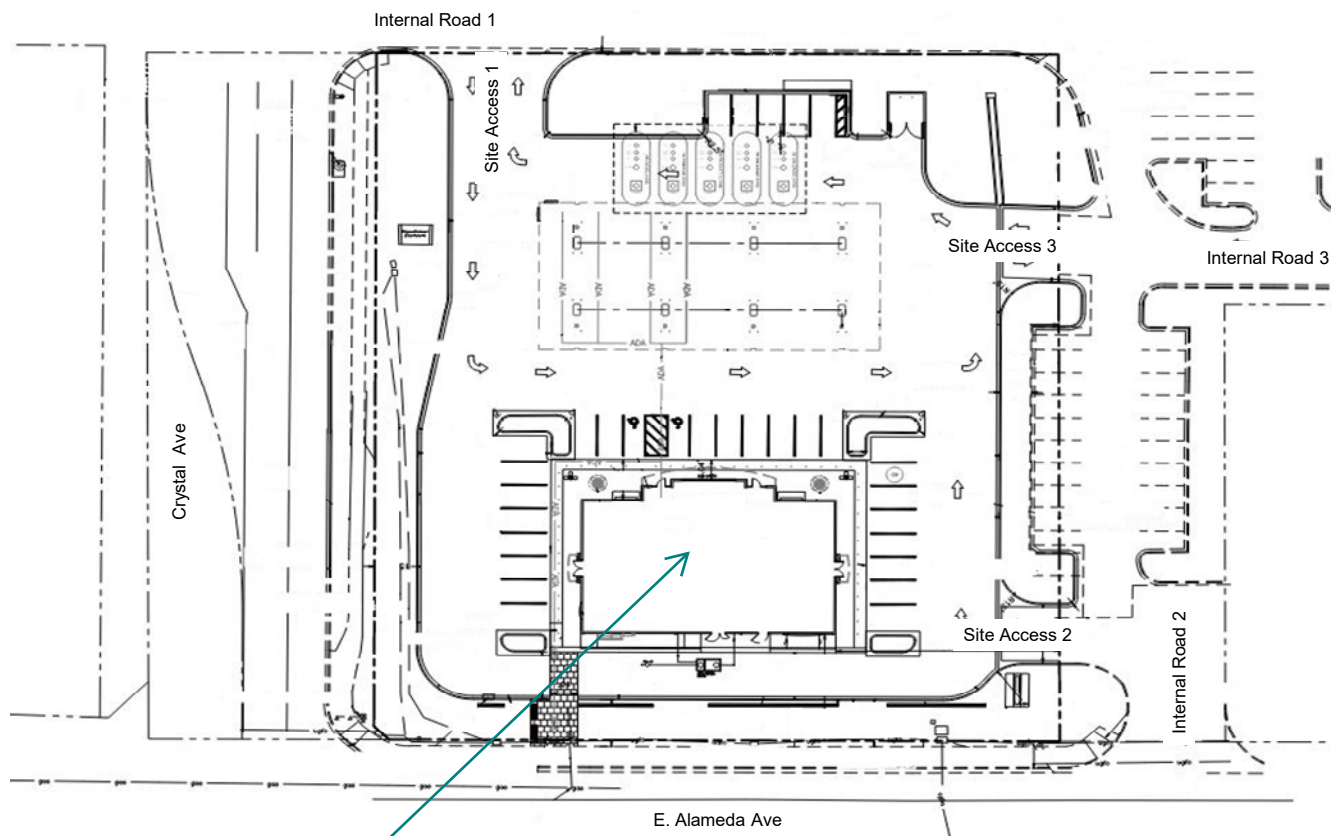
The following bullet chart summarizes the data and the source of the data used to complete this study:

- 2023 Existing Traffic Count at the intersections of E. Alameda Avenue and S. Sable Boulevard, E. Alameda Avenue and Internal Road 2, Crystal Street and E. Alameda Avenue and Crystal Street and Site Entrance 1 in February 2023
- Site generated trips – *ITE Trip Generation Manual, 11th Edition, 2021*.



PROJECT LOCATION

FIGURE 1
SITE LOCATION



Please
update with
the latest
site plan

Response:

1.3 Overview of Study Approach

To achieve the main goal of the study, the following tasks were accomplished:

- Field inspection to observe the current lane configuration, signal operation and geometry.
- Traffic counts were conducted at the intersections of E. Alameda Avenue and S. Sable Boulevard, E. Alameda Avenue and Internal Road 2, Crystal Street and E. Alameda Avenue and Crystal Street and Site Entrance 1 in February 2023.
- Determine site generated traffic, distribution and assignment including internal trips for the site.
- Determine total traffic volumes (site and background) for the peak hours in the year 2023, year 2028 and year 2040.
- Determine year 2023, year 2028 and year 2040 intersection capacity to handle background traffic using Synchro Version 11 and SimTraffic Software.
- Determine year 2023, year 2028 and year 2040 intersection capacity to handle opening day (build-out site + background traffic) and future horizon year traffic, using Synchro Version 11 and SimTraffic.
- Queue analysis; and
- Development of recommendations for roadway and traffic control improvements.

CHAPTER 2: ROADWAY NETWORK CHARACTERISTICS

2.1 Site and Study Area Boundaries

The study area is shown on Figure 1. The site is located in Aurora, Colorado on the northeast corner of E. Alameda Avenue and Crystal Street. Access to I-225 is provided at E. Alameda Ave and is located approximately one quarter mile west of the site. This site is a current office building bounded by existing commercial properties to the north and east, Crystal Street to the west and E. Alameda Avenue to the south. The main intersections analyzed as a part of this study are:

- E. Alameda Avenue and S. Sable Boulevard
- E. Alameda Avenue and Internal Road 2
- E. Alameda Avenue and Crystal Street
- Crystal Street and Internal Road 1
- S. Sable Boulevard and Internal Road 3
- Internal Road 1 and Internal Road 2
- Internal Road 2 and Internal Road 3/Site Access 3
- Internal Road 1 and Site Access 1
- Internal Road 2 and Site Access 2

The proposed site is anticipated to have three access points. Two of the three access points are anticipated to be located on the east side of the site and provides access to Internal Road 2 that is accessible from Site Access 2 and Site Access 3. The third access point is along the Internal Road 1 and the access will be just east of the intersection of Crystal Street and Internal Road 1. This intersection is labeled as Site Access 1.

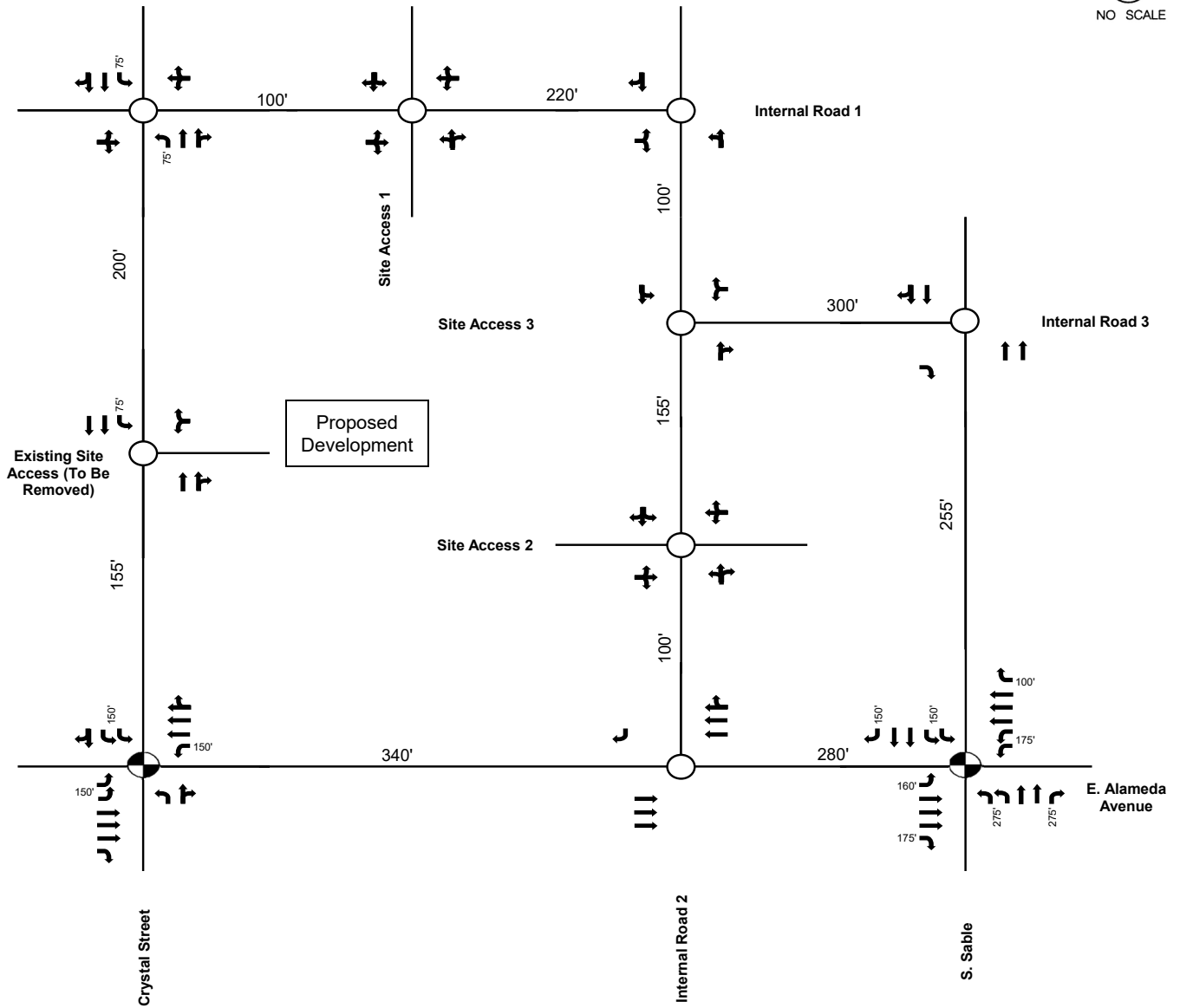
2.2 Existing Roadway Configuration

E. Alameda Avenue is a major arterial in the City of Aurora. Near the site, this roadway has three lanes in each through direction. At the Crystal Street

intersection, there are dual eastbound left turn lanes, a single westbound left turn lane and an eastbound right turn lane. At the S. Sable Boulevard intersection, E. Alameda Avenue still has three through lanes, dual westbound left turning lanes, a westbound right turn lane and an eastbound left and right turn lane. The posted speed limit along this roadway is 40 miles per hour.

S. Sable Boulevard at E. Alameda Avenue is a major arterial that has two through lanes in each direction, dual southbound left turn lanes and a single northbound left turn lane along with a southbound and northbound right turn lane. The speed limit along S. Sable Boulevard near the site is 35 miles per hour. There is light rail on the east side of S. Sable Boulevard with a station located south of the E. Alameda Avenue intersection.

Crystal Street is a collector road adjacent to the site. The posted speed limit along Crystal Street is 20 miles per hour. On the north side of the intersection of Crystal Street and E. Alameda Ave, the roadway is a five-lane road with two through lanes in each direction along with a left turn lane. The existing geometry is shown in Figure 3.



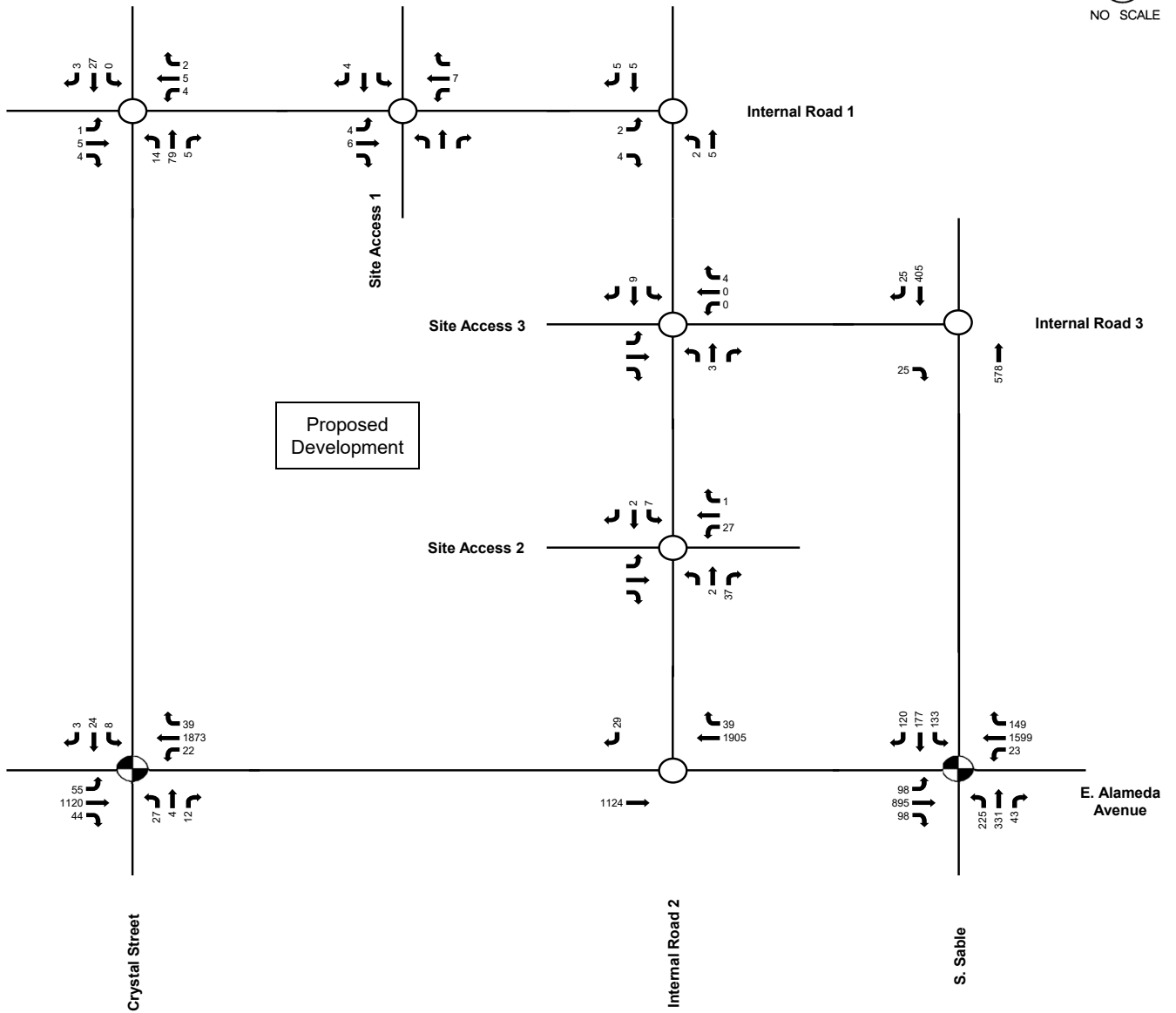
LEGEND		
	Unsignalized Intersection	100'
	Signalized Intersection	Through Traffic Lane
	Future Intersection Leg	Turning Traffic Lane (Right or Left Lane)

CHAPTER 3: BACKGROUND TRAFFIC VOLUMES

3.1 Year 2023, year 2028 and year 2040 Background Traffic Volumes

A traffic count was conducted at the intersections of E. Alameda Avenue and S. Sable Boulevard, E. Alameda Avenue and Internal Road 2, Crystal Street and E. Alameda Avenue and Crystal Street and Site Entrance 1 in February of 2023. These intersections were counted in the morning from 7:00 am to 9:00 am and in the evening from 4:00 pm to 6:00 pm. The peak hour of the area was found to occur during the PM peak hour from 4:45 pm to 5:45 pm. The AM peak hour was observed from 7:15 am to 8:15 am. The 2023 background traffic for the AM peak hour is included in Figure 4 and the PM peak hour volumes in Figure 5.

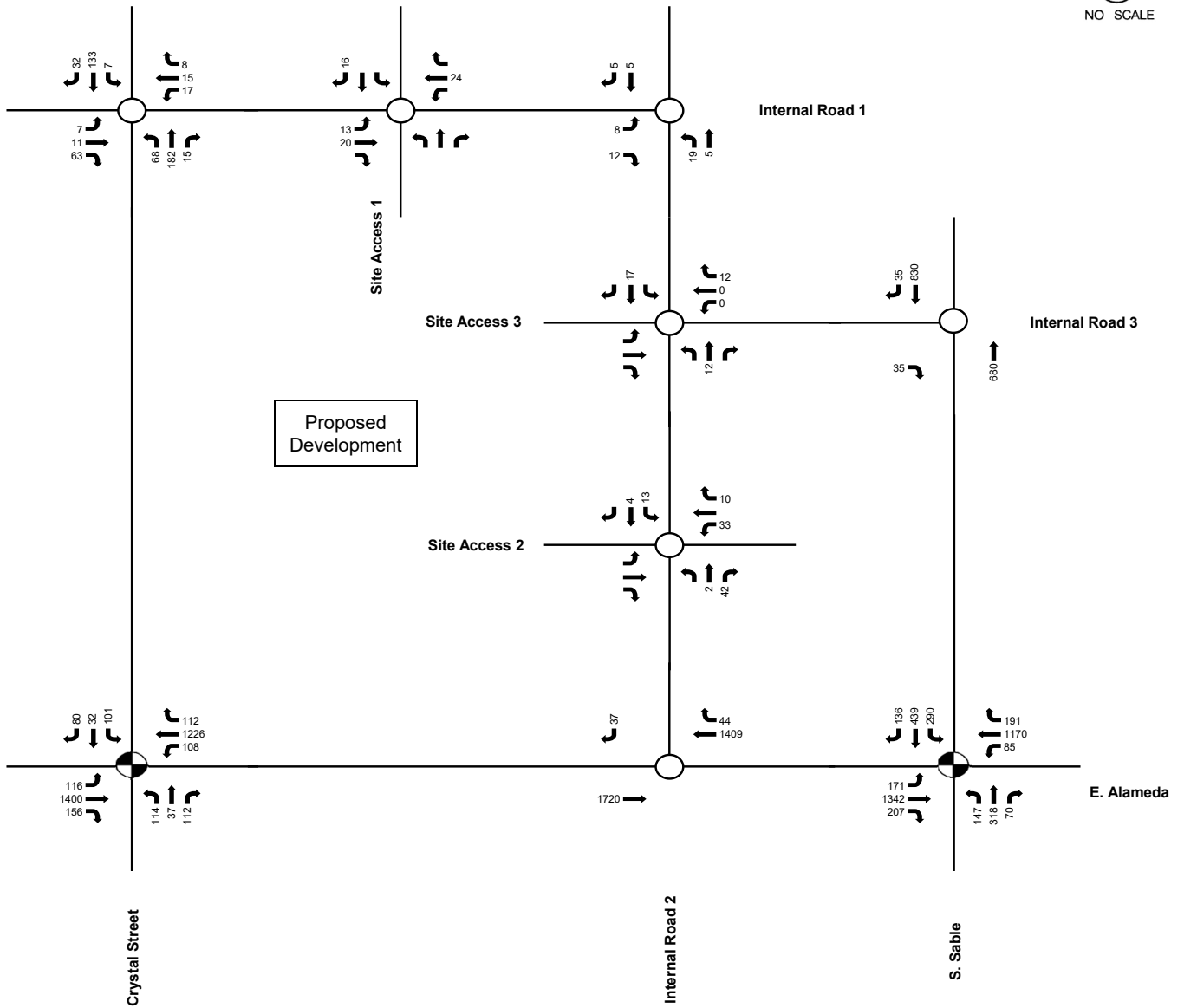
An estimated overall growth factor of 2 percent was applied to the traffic volumes in the area around the site. This growth rate was obtained from the previously completed Fieldhouse at Aurora Town Center Traffic Study. Using this growth factor, background traffic was developed for the years 2028 and 2040. The year 2028 was selected as a 5-year horizon from full build-out. The year 2040 was selected as a future horizon year. Figures 6 and 7 include the background volumes for the peak hours in the year 2026 volumes. The 2040 background volumes can be found in Figures 8 and 9.



LEGEND

- Unsignalized Intersection
- ◐ Signalized Intersection
- Future Intersection Leg
- 155 Traffic Volume
- ↑ Through Traffic Lane
- ↩ Turning Traffic Lane (Right or Left Lane)

FIGURE 4
2023 AM PEAK HOUR
BACKGROUND VOLUMES



LEGEND		
	Unsignalized Intersection	155 Traffic Volume
	Signalized Intersection	Through Traffic Lane
	Future Intersection Leg	Turning Traffic Lane (Right or Left Lane)

FIGURE 5
2023 PM PEAK HOUR
BACKGROUND VOLUMES

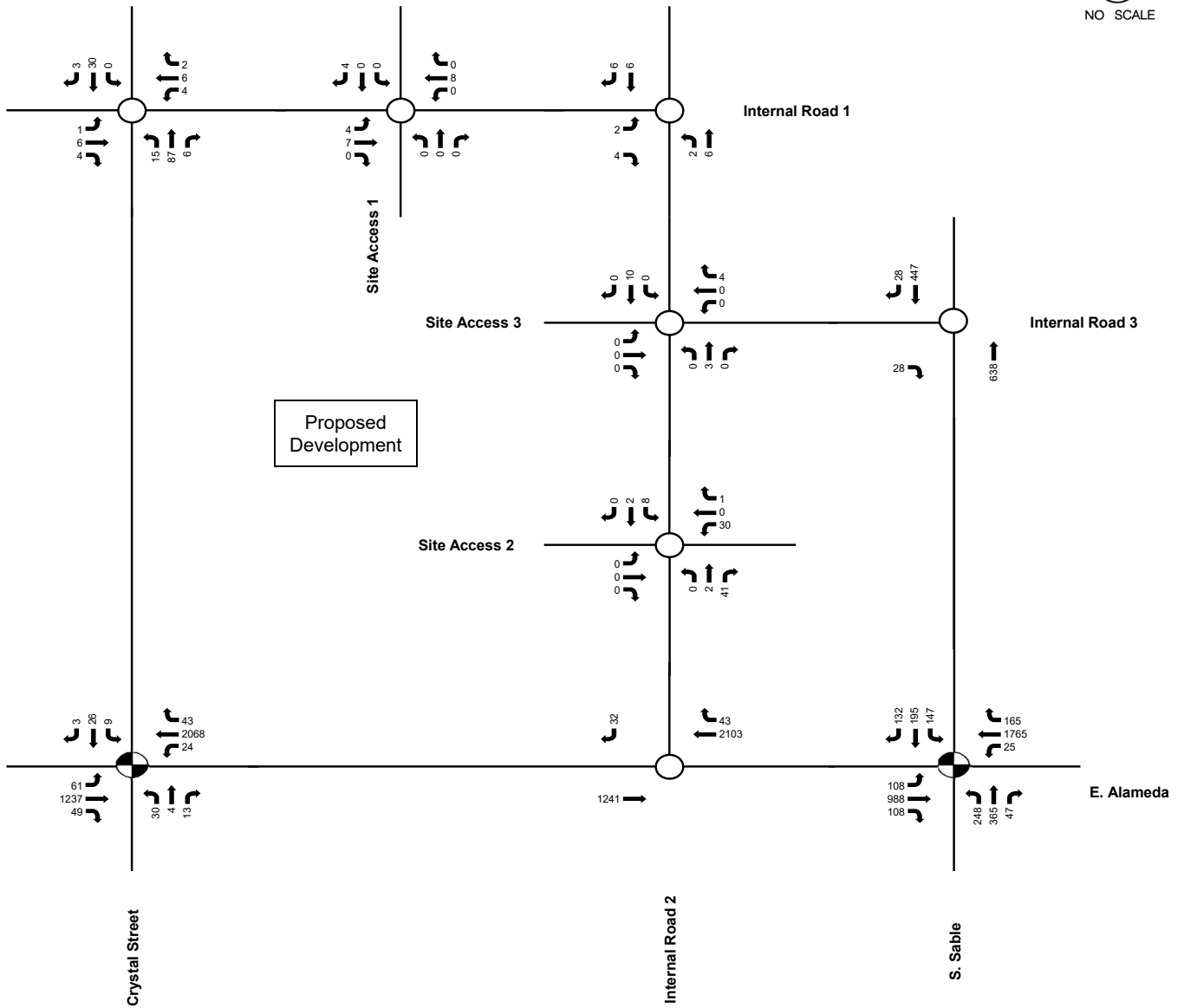
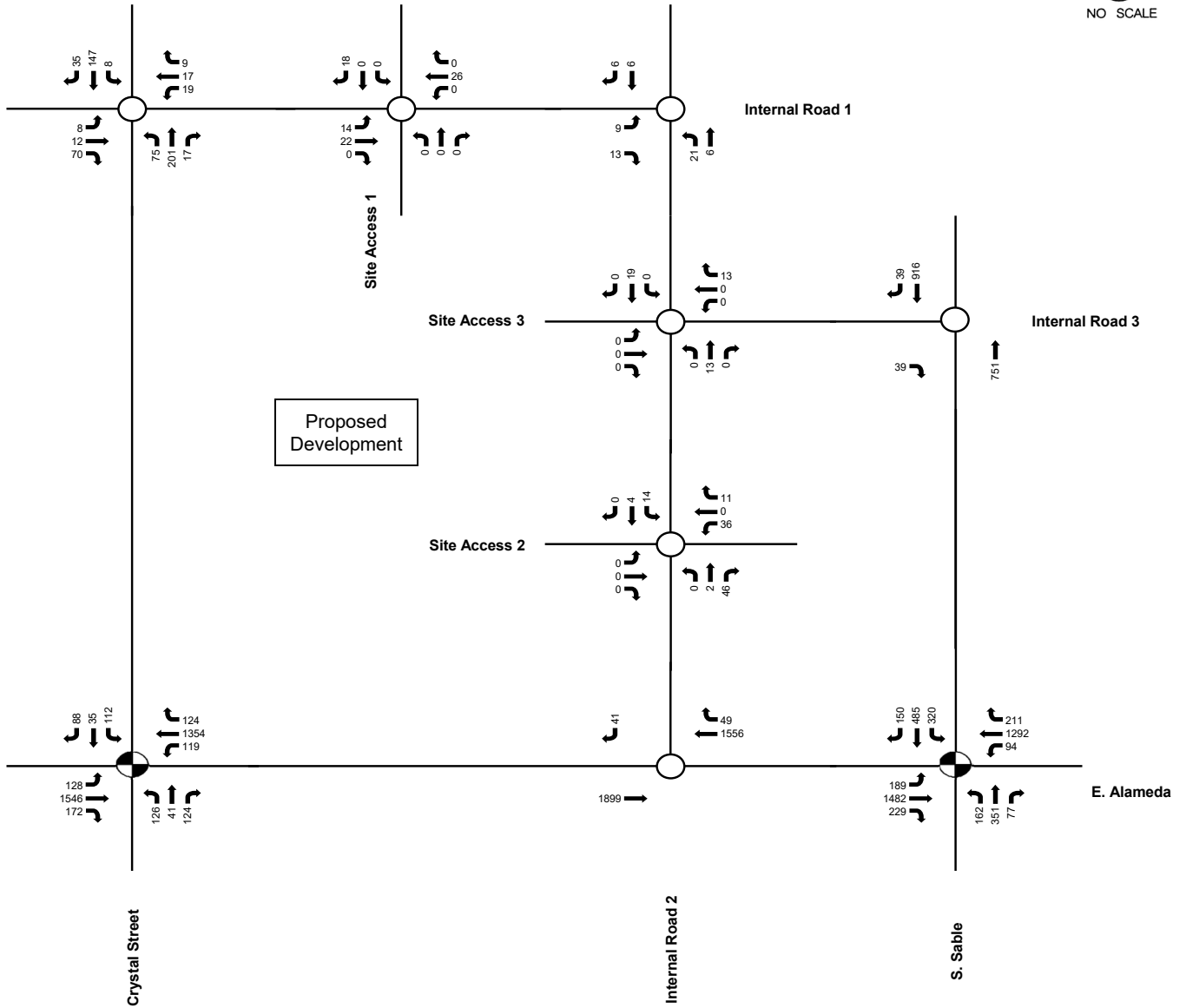
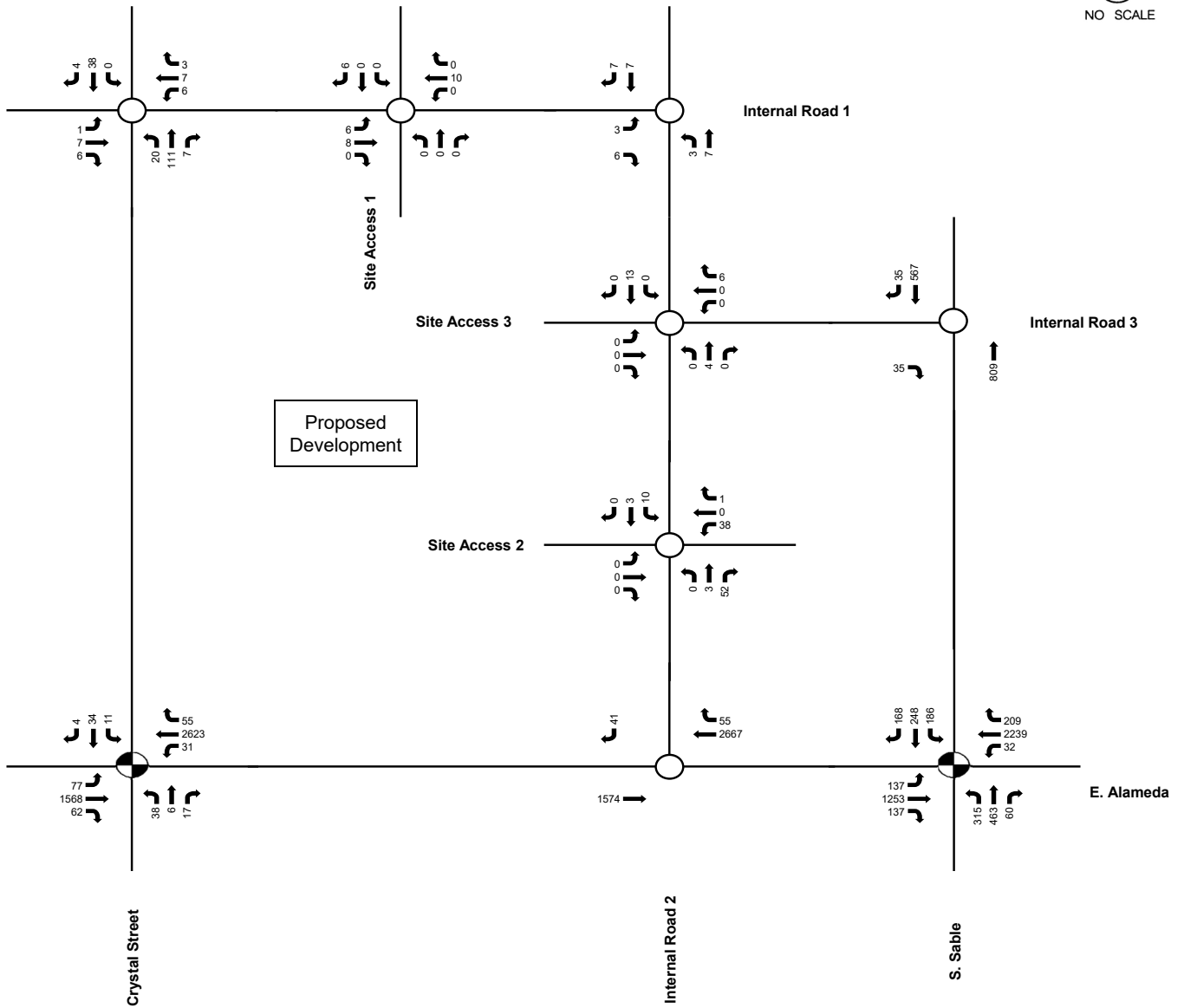


FIGURE 6
2028 AM PEAK HOUR
BACKGROUND VOLUMES



LEGEND		
	Unsignalized Intersection	155 Traffic Volume
	Signalized Intersection	Through Traffic Lane
	Future Intersection Leg	Turning Traffic Lane (Right or Left Lane)

FIGURE 7
2028 PM PEAK HOUR
BACKGROUND VOLUMES



LEGEND		
	Unsignalized Intersection	155 Traffic Volume
	Signalized Intersection	Through Traffic Lane
	Future Intersection Leg	Turning Traffic Lane (Right or Left Lane)

FIGURE 8
2040 AM PEAK HOUR
BACKGROUND VOLUMES

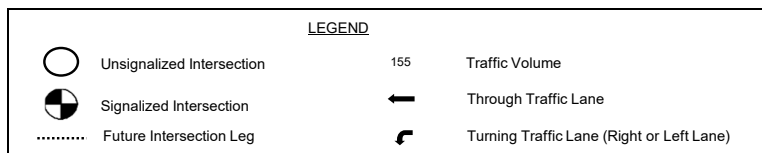
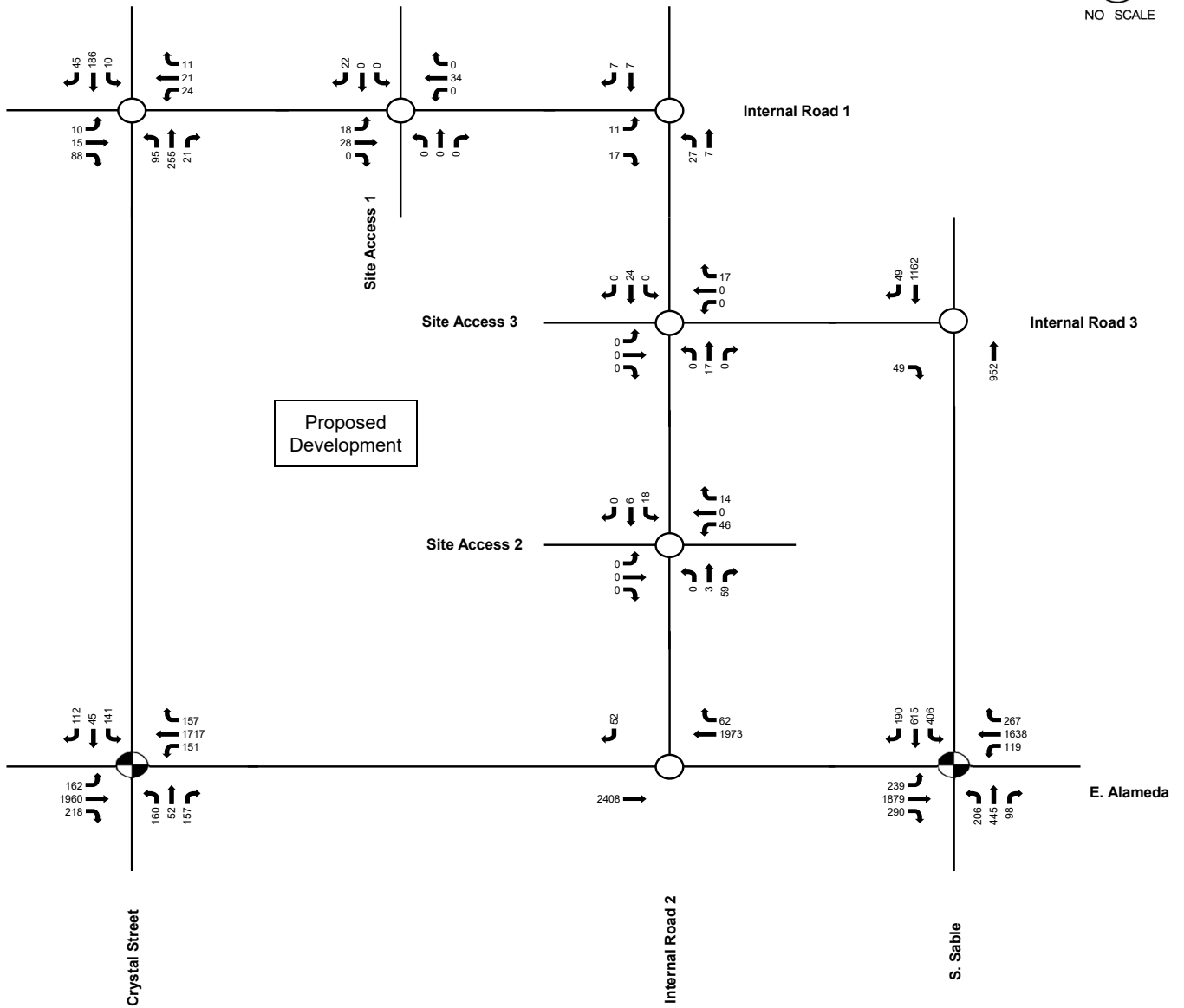


FIGURE 9
2040 PM PEAK HOUR
BACKGROUND VOLUMES

CHAPTER 4: SITE TRIP ANALYSIS

4.1 Proposed Access Locations

There are three proposed access points into the site. Two of them are located along the north/south internal road on the east side of the site. These intersections can be accessed from S. Sable Boulevard via Internal Road 3 or from the intersection of E. Alameda Avenue and Internal Road 2. The third access is located just east of the intersection of Crystal Street and Internal Road 1.

4.2 Trip Generation

4.2.1 Site Trip Generation

The proposed development is planned to consist of a 16-pump gas station and convenience store. The trip generation rates, as published in the ITE *Trip Generation Manual*, 11th Edition, 2021, were used to estimate the vehicle trips generated by the proposed site. When possible, the formulas for trip generation estimates were used instead of average rates. A detailed breakdown of the trip generation rate is shown in Table 1 for the daily AM and PM peak hour. Table 1 also summarizes the land use type, the quantity, and the units of the land use for the development as illustrated in Figure 2.

4.2.2 Primary Trips

Primary trips are net new trips added to the study area as a result of the proposed development or stated otherwise, trips made for the specific purpose of coming to or leaving the site. For example, a home-to-school-to-home is considered a primary trip. Primary trips are of major importance since this is the net increase in traffic volume that the system must be designed to handle. Table 1 shows the primary trip generation for the site. For the AM peak hour, the site is anticipated to generate 433 vehicle trips with 216 of those trips entering the site and the remaining 217 trips exiting the site. For the PM peak hour, the site is anticipated

to generate 364 vehicle trips, with 182 of those trips entering the site and 182 trips exiting the site.

4.2.3 Pass-by Trips

Pass-by trips diverted from existing traffic flow are those trips that are attracted to the site from the adjacent traffic stream. The pass-by trips represent those vehicles already on the roadway that will enter and exit the development. An example would be a vehicle that currently passes by the site on E. Alameda Avenue, turns into the development to stop at the convenience store and then exits back onto E. Alameda Avenue to continue with their previous route. While the trip is new to the driveway system and must be designed for, it is not a newly generated trip on E. Alameda Avenue. The pass-by trip reduction percentages for the corresponding land uses in the proposed development are shown in each table. Pass-by trips were derived from data in the *ITE Trip Generation Handbook, An ITE Proposed Recommended Practice, 3rd Edition, August 2014*.

**Site Trips For Proposed Development
QuikTrip Aurora**

Land Use No.	Land Use	Intensity	Unit	Daily Trip Rate	ADT	Pass-by/Reduced Trips																
						AM Peak Hour				PM Peak Hour				AM Peak Hour				PM Peak Hour				
						Rate	In	Out	Total	Rate	In	Out	Total	Rate	In	Out	Total	Rate	In	Out	Total	
945	Convenience Store/Gas Station (GFA 4-5.5k)	16	VFP	257.13	/VFP 4114	27.04	216	217	433	22.76	182	182	364	76%	52	52	104	75%	46	46	91	
Total Traffic							216	217	433		182	182	364		52	52	104		46	46	91	

Notes:

1. All trip generation rates based on "Trip Generation", Institute of Transportation Engineers, 11th Edition
2. Peak hour directional splits from "Trip Generation":

Convenience Store/Gas Station AM Peak Hour 50% PM Peak Hour 50%



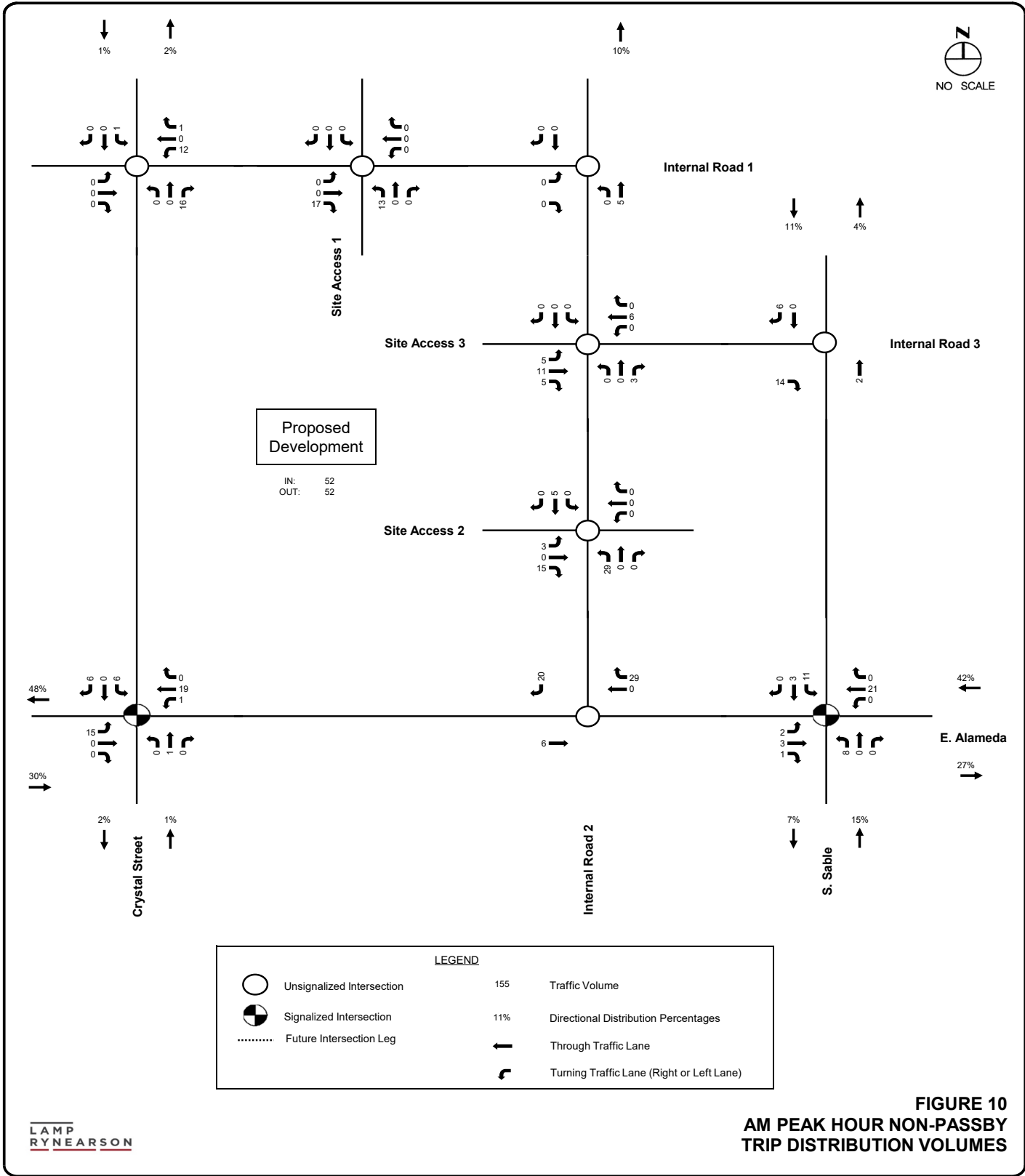
TABLE 1
Trip Generation

4.3 Trip Distribution and Assignment

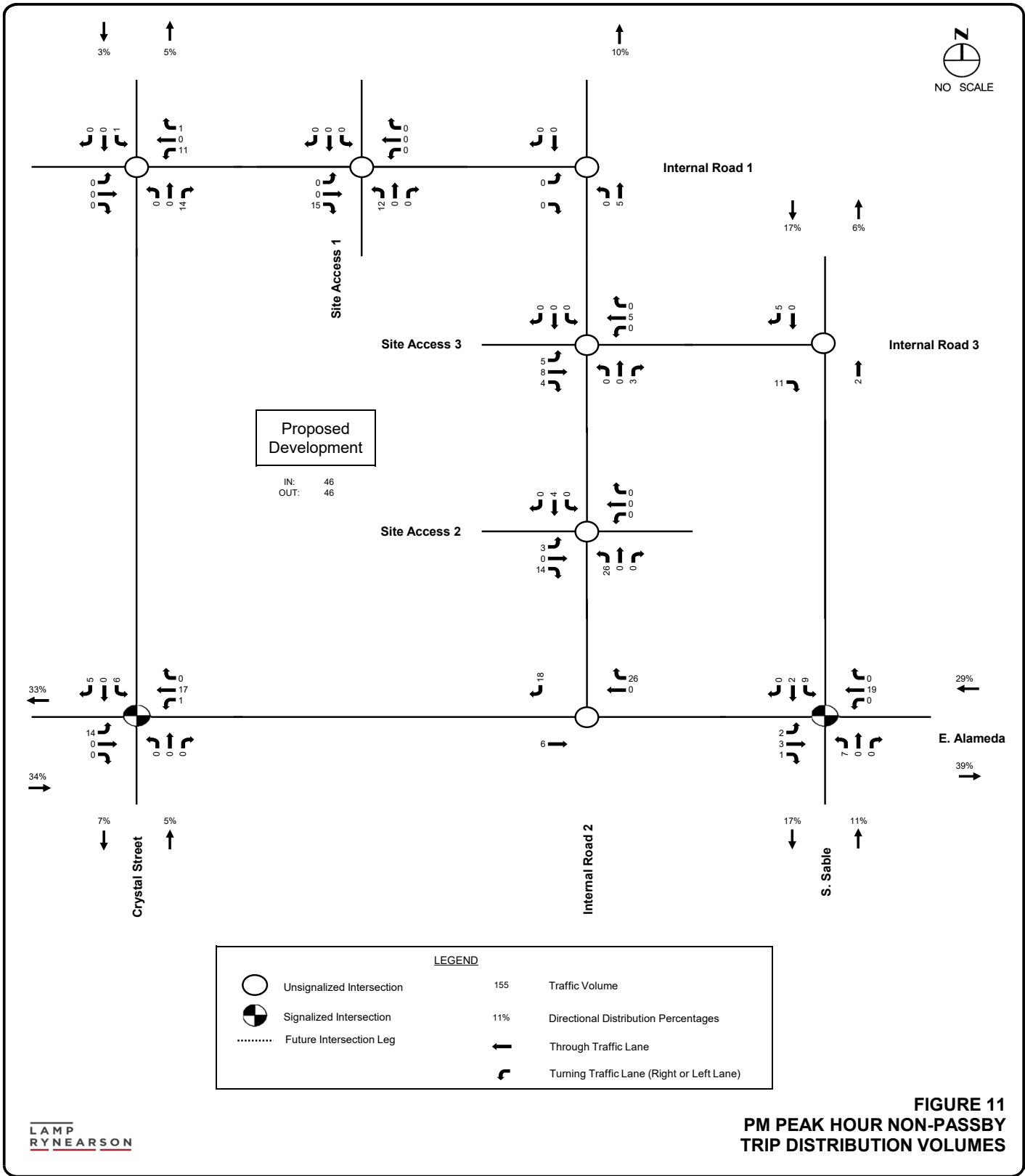
Trip distribution is the process of determining a pattern of distribution of existing (background) traffic within the existing system. Traffic assignment is the process of allocating the site-generated trips to the adjacent roadway system.

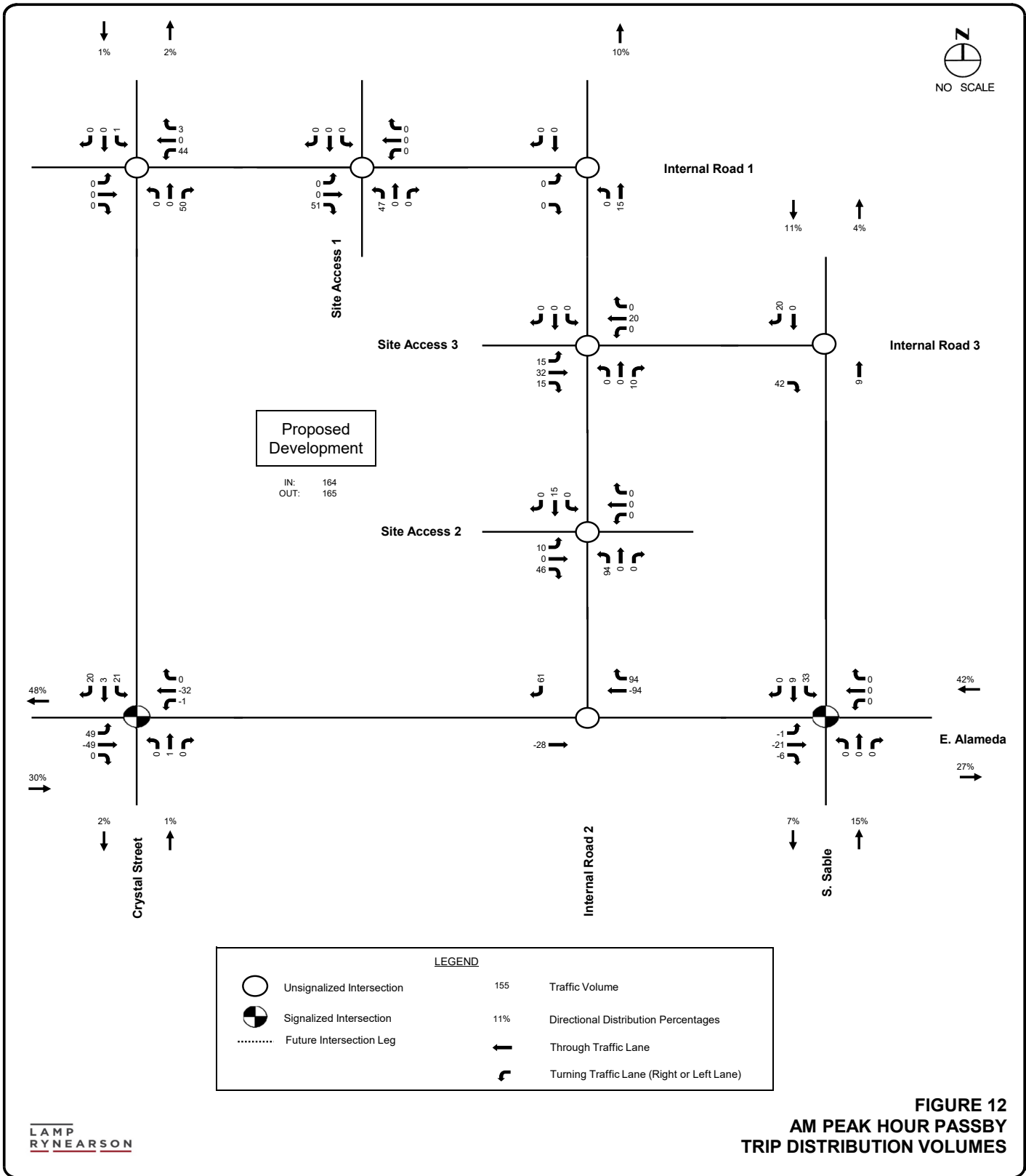
The orientation of site-generated traffic is a function of trip purposes, surrounding land uses, and the configuration and accessibility of the street network. The vehicle trips estimated by the trip generation process are directionally distributed onto the roadway network using directional percentages calculated from the existing travel patterns found from the background traffic volumes collected in the traffic counts. This process involves using a cordon line around the proposed site and finding the total number of vehicles passing over the cordon line. It is anticipated that the development would be built-out this year (2023). For this study, there would be three main intersections where vehicles were assumed to travel through to leave and return to the site. These were the intersections of E. Alameda Avenue and S. Sable Boulevard, E. Alameda Avenue and Crystal Street and Crystal Street and Internal Road 1. It was assumed that some vehicles would utilize the internal north/south roadway between S. Sable Boulevard and Crystal Street in order to travel northbound on S. Sable Boulevard. The AM peak hour trip non-pass-by trip distribution is shown in Figure 10 with the PM shown in Figure 11. The AM peak hour pass-by trip distributions are included in Figure 12. Figure 13 shows the PM peak hour pass-by trip distributions.

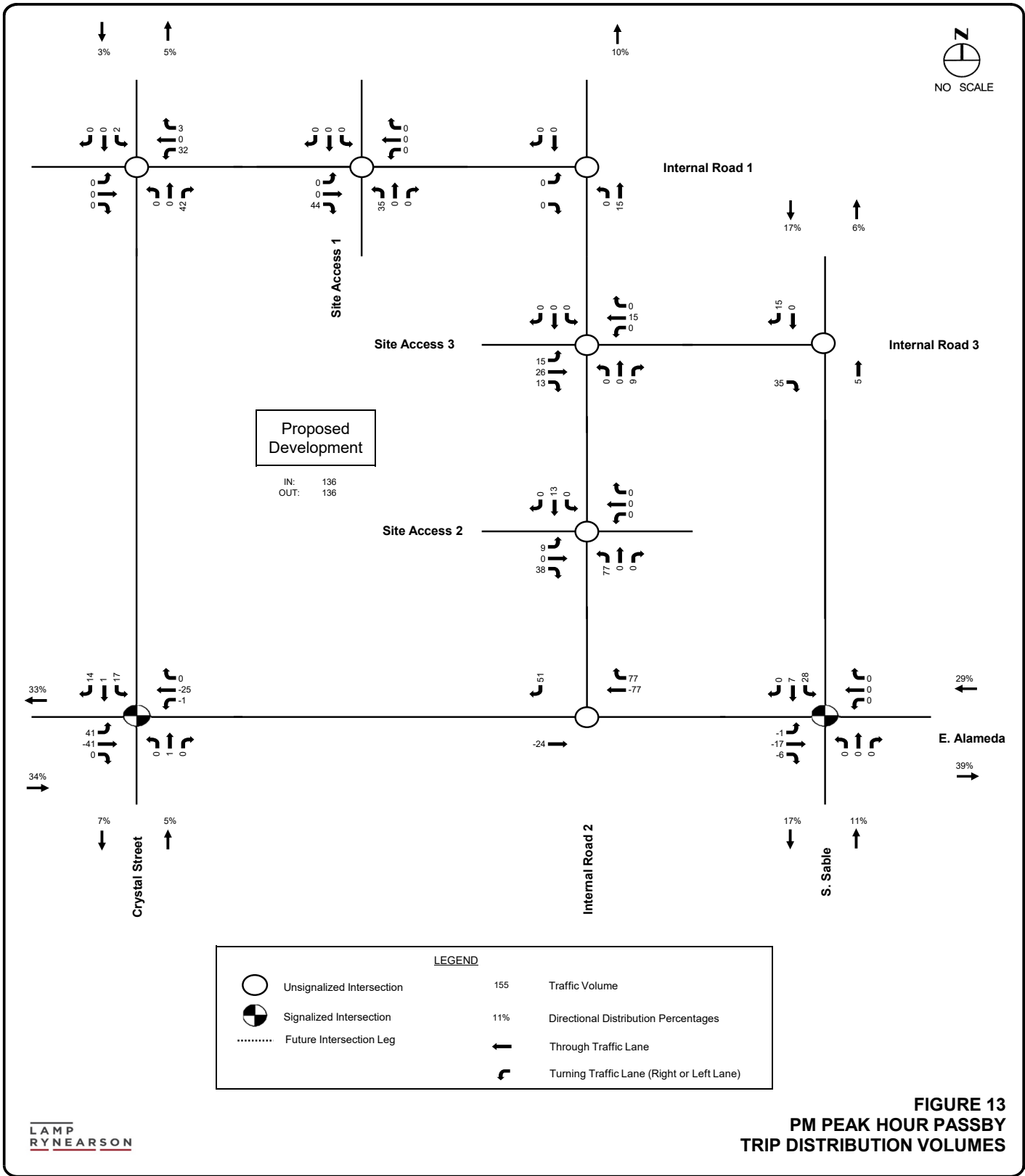
These site generated trips are then added to the corresponding background trips to establish build-out volumes for both the AM and PM peak hours. The build-out volumes for the AM peak hour in 2023 are included in Figure 14 and for the PM peak hour in Figure 15. Figure 16 shows the 2028 AM build-out volumes with Figure 17 showing the 2028 PM build-out volumes. The volumes for the future build-out year of 2040 are shown in Figure 18 for the AM peak hour and Figure 19 for the PM peak hour.

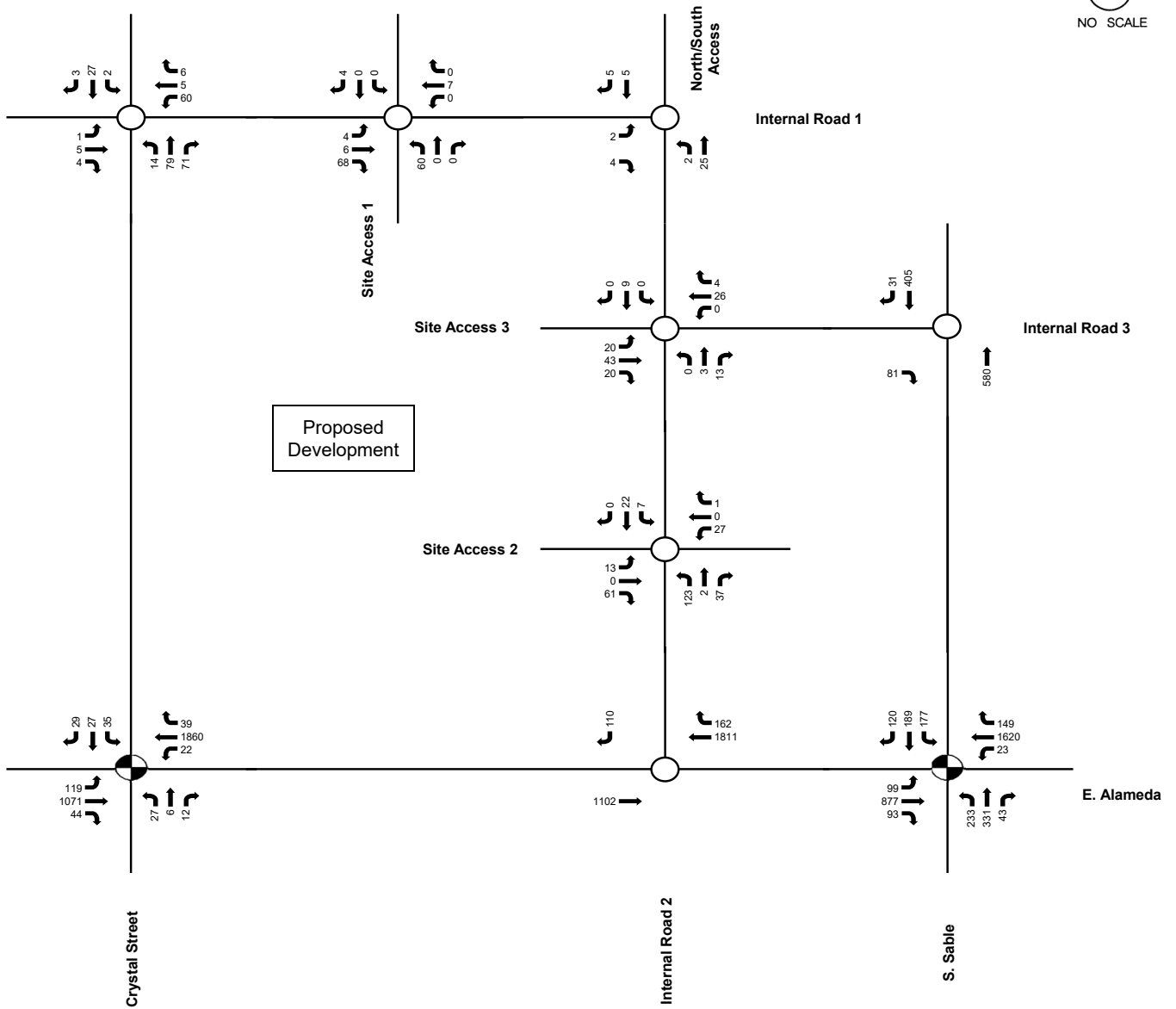


10/5/23 10:10 AM









LEGEND		
	Unsignalized Intersection	155 Traffic Volume
	Signalized Intersection	Through Traffic Lane
	Future Intersection Leg	Turning Traffic Lane (Right or Left Lane)

FIGURE 14
2023 AM PEAK HOUR
BUILD-OUT VOLUMES

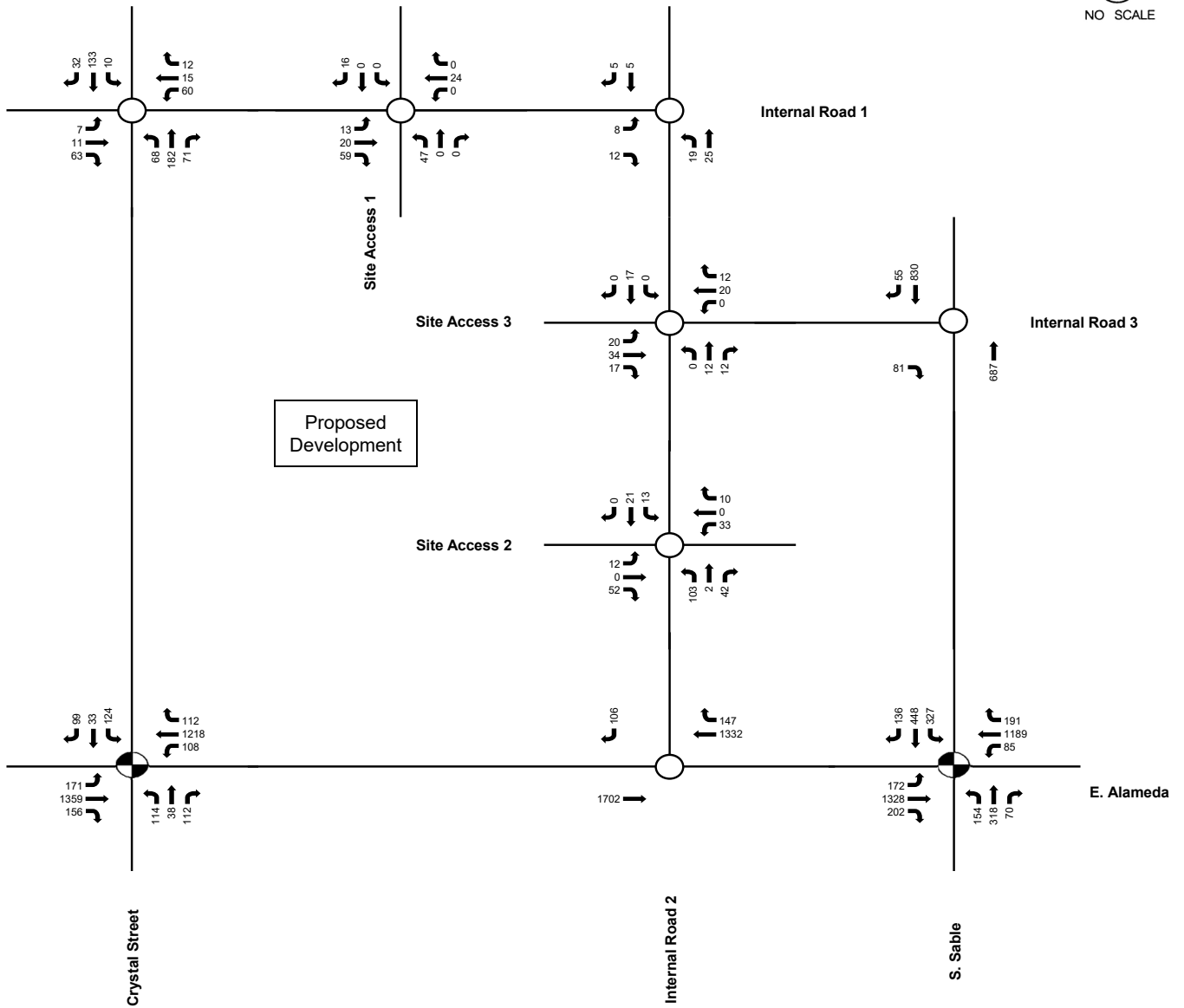


FIGURE 15
2023 PM PEAK HOUR
BUILD-OUT VOLUMES

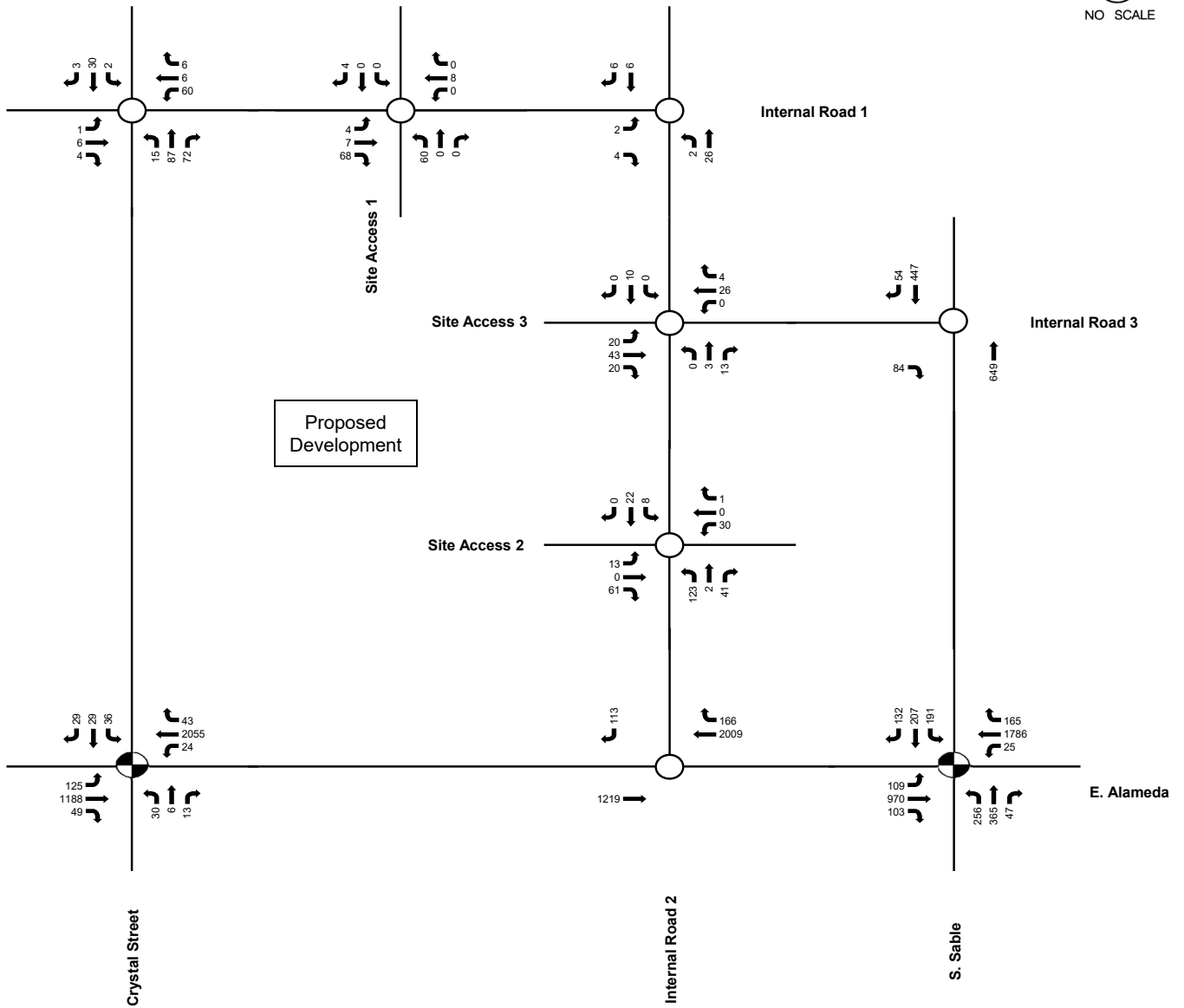


FIGURE 16
2028 AM PEAK HOUR
BUILD-OUT VOLUMES

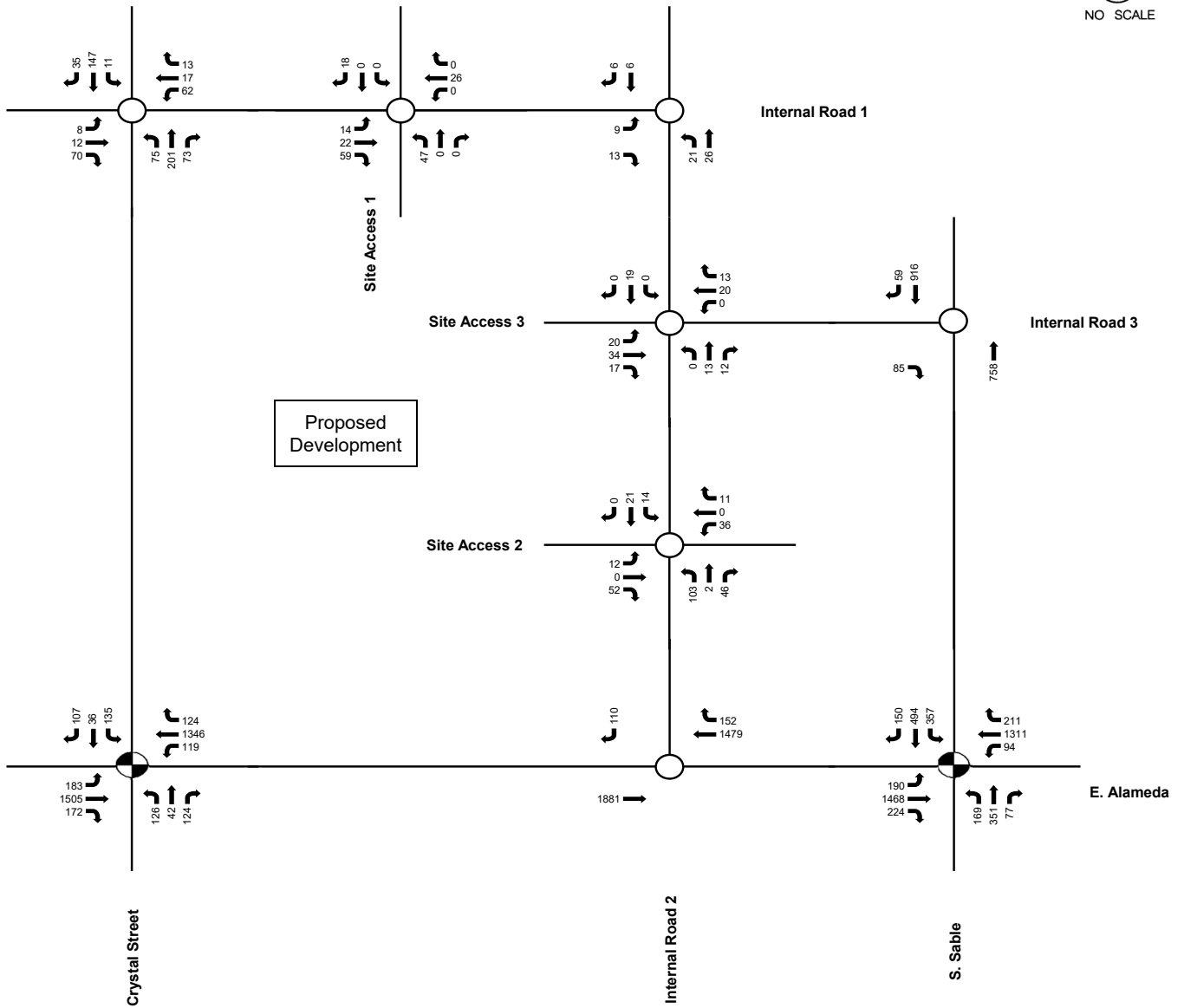
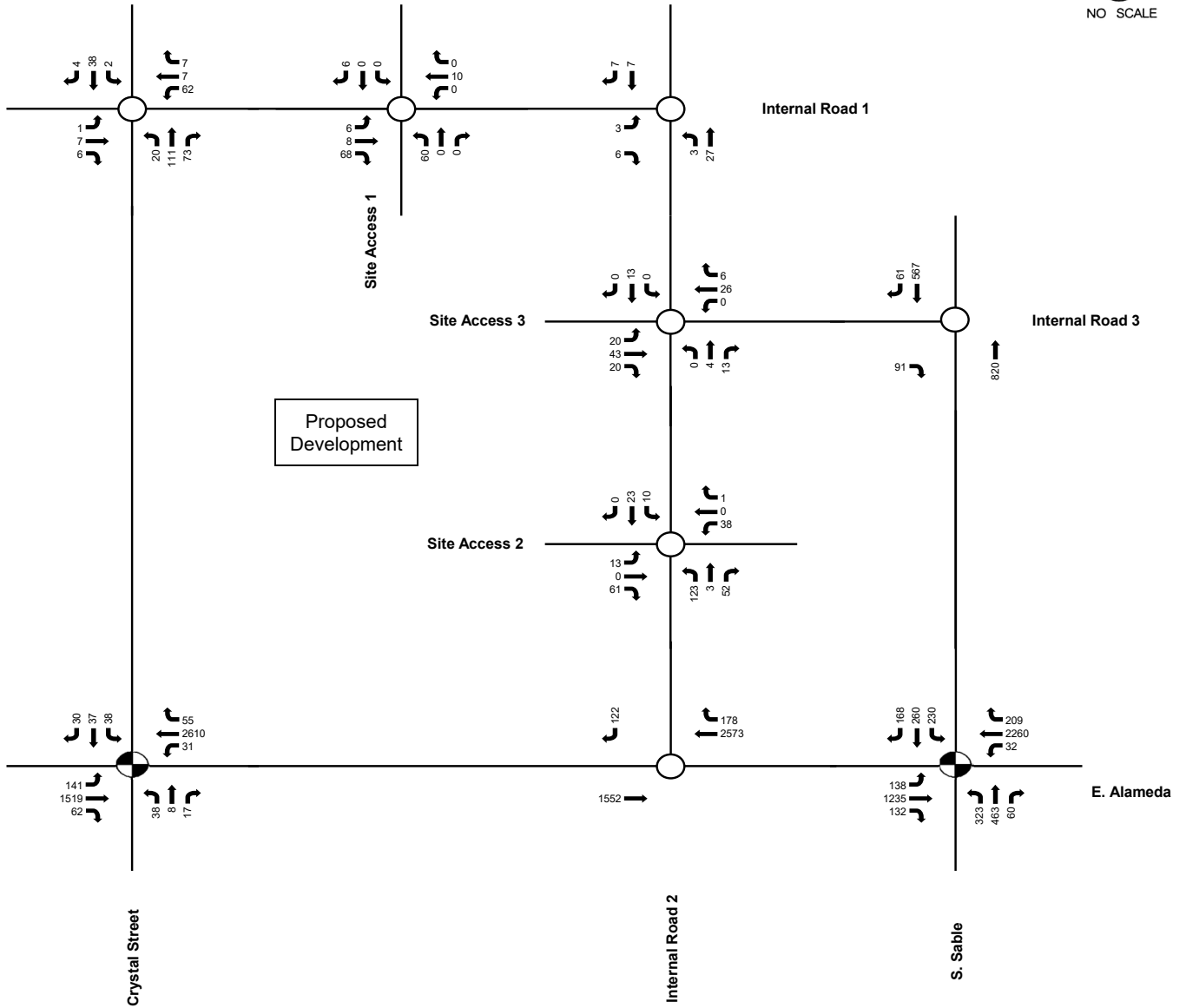


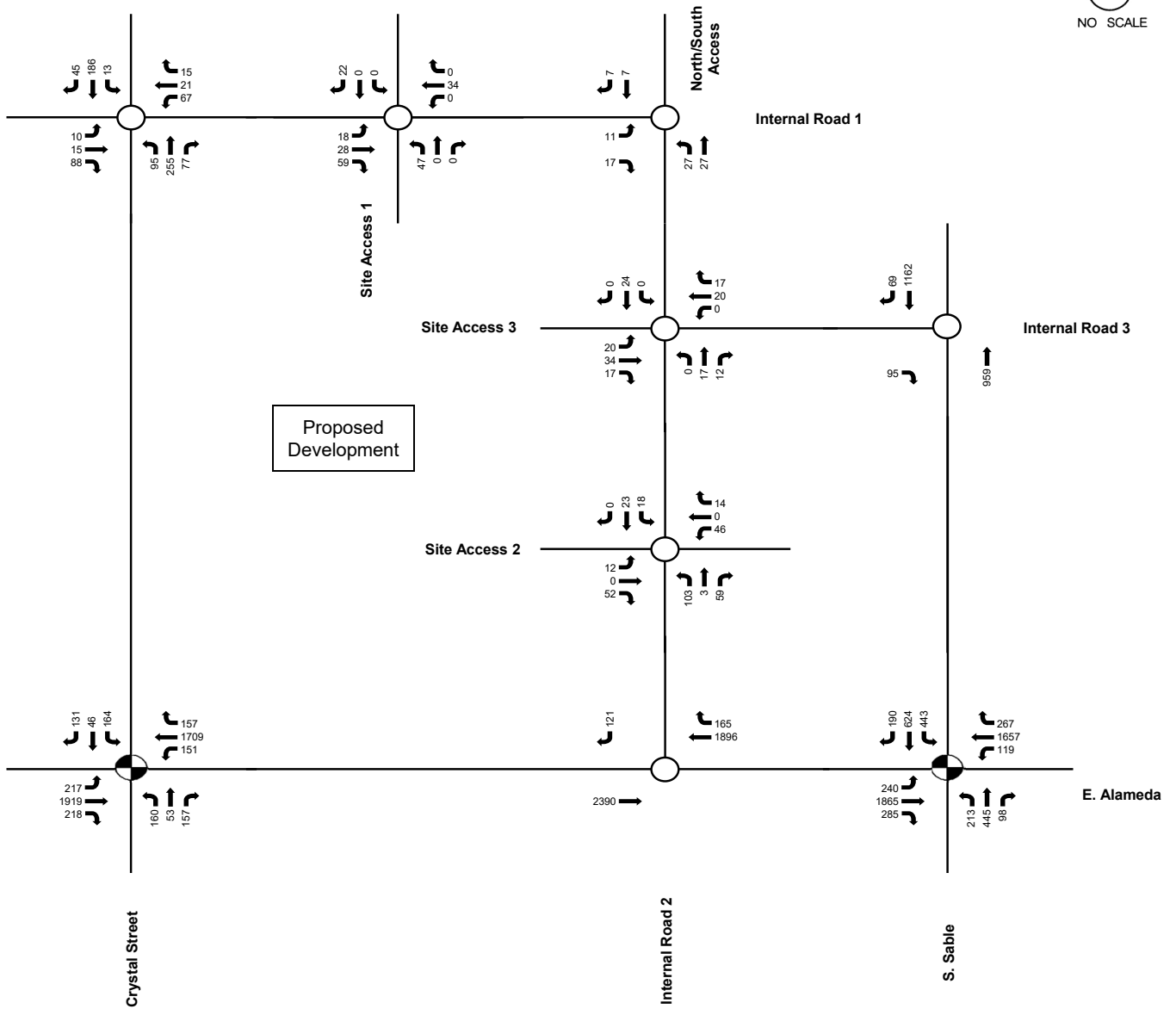
FIGURE 17
2028 PM PEAK HOUR
BUILD-OUT VOLUMES



LEGEND

	Unsignalized Intersection	155	Traffic Volume
	Signalized Intersection		Through Traffic Lane
	Future Intersection Leg		Turning Traffic Lane (Right or Left Lane)

FIGURE 18
2040 AM PEAK HOUR
BUILD-OUT VOLUMES



LEGEND		
	Unsignalized Intersection	155 Traffic Volume
	Signalized Intersection	Through Traffic Lane
	Future Intersection Leg	Turning Traffic Lane (Right or Left Lane)

FIGURE 19
2040 PM PEAK HOUR
BUILD-OUT VOLUMES

CHAPTER 5: TRAFFIC ANALYSIS

5.1 Background Traffic Intersection Performance Analysis

An analysis of all the signalized intersections capacity performance was performed using Synchro 11.0. Synchro is a macroscopic traffic software program that replicates the signalized intersection capacity analysis. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the intersections. Equations are used to determine measures of effectiveness such as delay and queue length. Effect of queues was observed with SimTraffic simulation.

While observations of traffic volumes provide an understanding of the general nature of traffic in the area, they are insufficient to indicate either the ability of the street network to carry additional traffic or the quality of service provided by the street facilities. For this reason, the concept of level of service (LOS) has been developed to correlate numerical traffic-volume data to subjective descriptions of traffic performance at intersections. Each lane of traffic has delay associated with it and therefore a correlating LOS. The overall LOS of a signalized intersection is made up of the weighted average delay for each lane of traffic for all of the approaches.

LOS is a measure of effectiveness for intersection operating conditions and is based on delay experience by vehicles passing through the intersection. LOS ranges from “A” to “F”, with LOS “A” representing little or no delay, and LOS “F” representing extreme delay. LOS “C” or better is considered desirable, LOS “D” being acceptable in some urban situations. The qualitative definition of each category can be found in the appendix. The following Table 3 shows the intersection LOS Criteria for both signalized and unsignalized intersections. (HCM 2010):

Table 2 – Intersection LOS Criteria

Level of Service	Signalized Control Delay Range	Unsignalized Control Delay Range
A	≤ 10 seconds	≤10 seconds
B	>10 and ≤ 20 seconds	>10 and ≤ 15 seconds
C	>20 and ≤ 35 seconds	>15 and ≤ 25 seconds
D	>35 and ≤ 55 seconds	>25 and ≤ 35 seconds
E	>55 and ≤ 80 seconds	>35 and ≤ 50 seconds
F	>80 seconds	>50 seconds

The AM and PM weekday peak performance analysis of background traffic with existing conditions was performed for all of the intersections on the roadway network for the background scenarios in the year 2023, year 2028 and year 2040. For the background figures, potential improvements were shown in a separate figure. For the build-out figures, the improvements to the roadway that were made in previous scenarios (background or build-out) were assumed for the following build-out scenarios. The build out scenarios include the traffic anticipated to be generated from the site at all of the entrances. The Synchro outputs are included in the appendix of this study. The results of the background traffic analysis for the existing intersections are summarized below:

Background Year 2023 Analysis

- E. Alameda Avenue and S. Sable Boulevard: This signalized intersection is anticipated to operate at an overall LOS of B in the AM peak hour and a LOS of C in the PM peak hour. All of the individual movements are anticipated to operate at a LOS of D or better.
- E. Alameda Avenue and Crystal Street: This intersection is also a signalized intersection. The overall LOS for this intersection is anticipated to be an A in the AM peak hour and a B in the PM peak hour. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.

- Crystal Street and Internal Road 1: All of the individual movements at this unsignalized intersection are anticipated to operate at a LOS of B or better in both the AM and PM peak hour.
- Remaining Intersections: The remaining individual movements are anticipated to operate at a LOS of B or better in both peak hours.

The 2023 Background LOS and the corresponding delays are included in Figure 20.

Background Year 2028 Analysis

- E. Alameda Avenue and S. Sable Boulevard: Similar to the previous scenario, this signalized intersection is anticipated to operate at an overall LOS of B in the AM peak hour and a LOS of C in the PM peak hour. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.
- E. Alameda Avenue and Crystal Street: This intersection is anticipated to operate at a LOS of B in both peak hours. This is a slight decrease in the AM peak hour from the previous scenario. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.
- Crystal Street and Internal Road 1: Similar to the previous scenario, all of the individual movements at this unsignalized intersection are anticipated to operate at a LOS of B or better in both the AM and PM peak hour.
- Remaining Intersections: The remaining individual movements are anticipated to operate at a LOS of B or better in both peak hours, which is similar to the previous scenario.

The 2028 Background LOS and the corresponding delays are included in Figure 21.

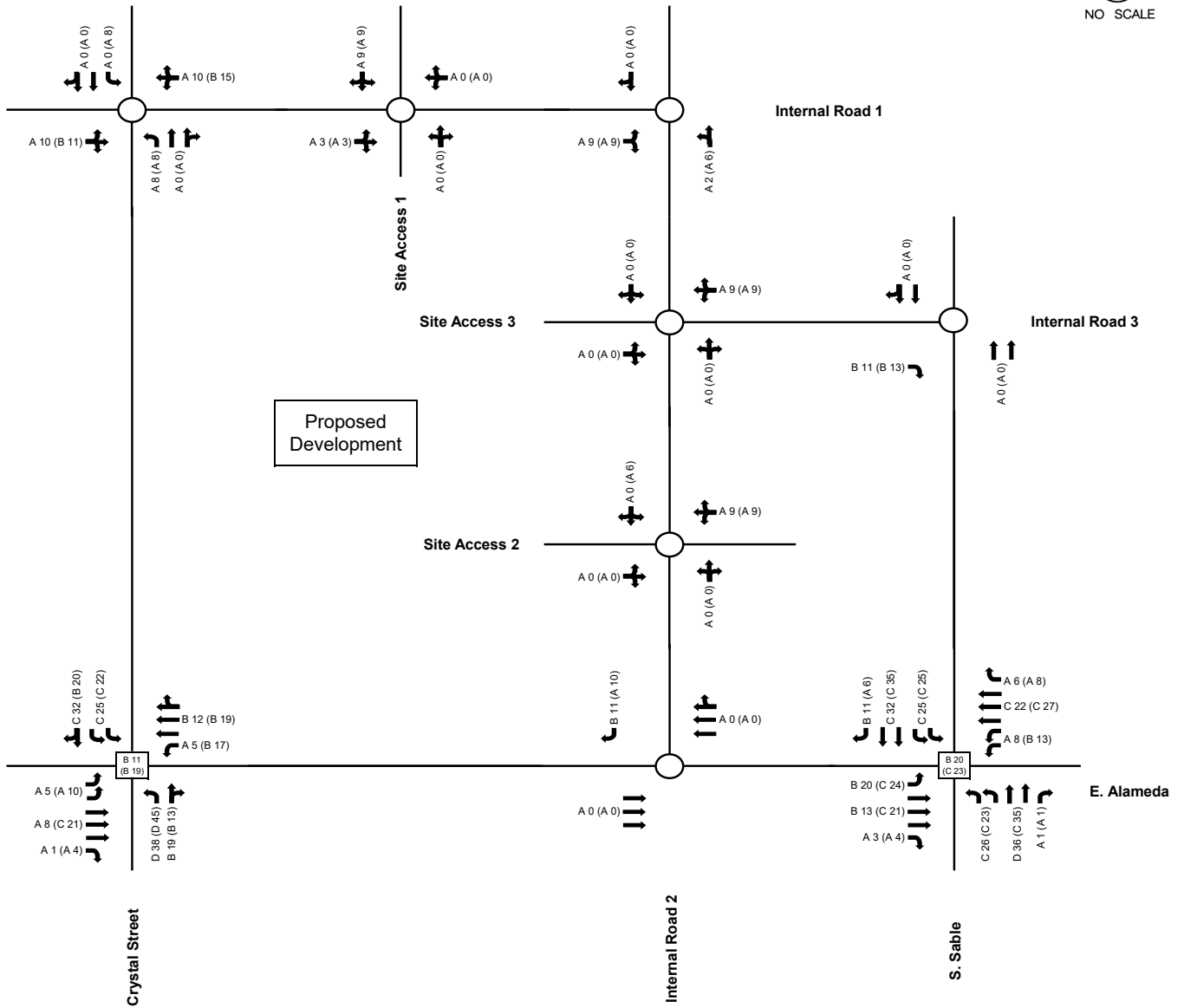
Background Year 2040 Analysis

- E. Alameda Avenue and S. Sable Boulevard: This signalized intersection is anticipated to operate at an overall LOS of C in both peak hours which is a

decrease in the AM peak hour from the previous 2028 background scenario. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.

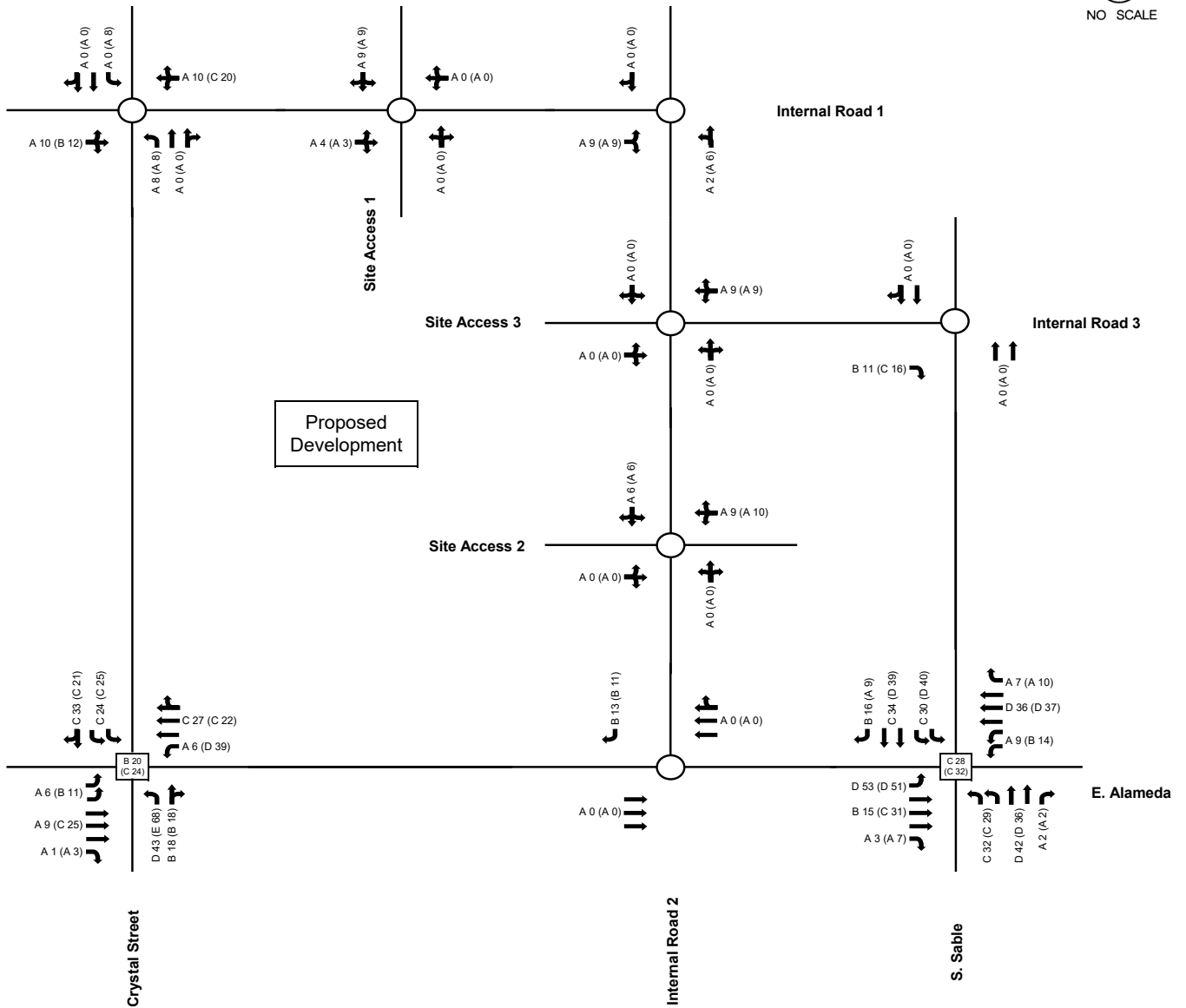
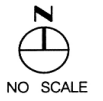
- E. Alameda Avenue and Crystal Street: The overall LOS for this intersection is anticipated to be a B in the AM peak hour and decrease to a LOS of C in the PM peak hour. All of the individual movements except for one are anticipated to operate at a LOS of D or better in both peak hours. The northbound left turning movement is anticipated to operate at a LOS of E in the PM peak hour.
- Crystal Street and Internal Road 1: All of the individual movements at this unsignalized intersection are anticipated to operate at a LOS of C or better in both the AM and PM peak hour. The westbound movement is anticipated to decrease in performance from the 2028 background scenario in the PM peak hour.
- Remaining Intersections: The remaining individual movements at both intersections are anticipated to operate at a LOS of C or better in both peak hours.

The 2040 Background LOS and the corresponding delays are included in Figure 22.



LEGEND	
	Unsignalized Intersection
	Signalized Intersection
	Future Intersection Leg
	Through Traffic Lane
	Turning Traffic Lane (Right or Left Lane)
B 12 (C 21)	Level of Service AM(PM), delay seconds

FIGURE 21
2028 BACKGROUND PEAK HOUR
LEVEL OF SERVICE



LEGEND			
	Unsignalized Intersection	B 12 (C 21)	Level of Service AM(PM), delay seconds
	Signalized Intersection		Through Traffic Lane
	Future Intersection Leg		Turning Traffic Lane (Right or Left Lane)

FIGURE 22
2040 BACKGROUND PEAK HOUR
LEVEL OF SERVICE

5.2 ***Build-out (2023, 2028 and 2040) Intersection Performance Analysis***

The analysis of the transportation impacts of the site on the surrounding roadway network is based on the distribution of the opening day site generated traffic onto the existing volumes as previously discussed. The procedure involved intersection capacity analysis for all intersections directly impacted by the proposed site. This analysis was performed for the design year of 2023, year 2028 and year 2040 scenarios. If there are any potential improvements to the intersections, the improvements were carried through to the following scenarios. The intersections were analyzed to determine intersection delay, LOS and vehicle queue lengths to determine blocking problems. Synchro was used to determine the anticipated delay, LOS and queue lengths at the intersections. See Appendix for Synchro outputs. Queuing and blocking issues are discussed in section 5.3 later on in the report.

Build-out Year 2023 Analysis

For this scenario, no improvements to the roadway were assumed.

- E. Alameda Avenue and S. Sable Boulevard: This signalized intersection is anticipated to operate at an overall LOS of B in the AM peak hour and a LOS of C in the PM peak hour, which is similar to the 2023 background scenario. All of the individual movements are anticipated to operate at a LOS of C or better in both peak hours.
- E. Alameda Avenue and Crystal Street: The overall LOS for this intersection is anticipated to be a B in both the AM and PM peak hour, which is similar to the 2023 background peak hour. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.
- Crystal Street and Internal Road 1: All of the individual movements at this unsignalized intersection are anticipated to operate at a LOS of C or better in both the AM and PM peak hour. The westbound movement is anticipated to decrease in performance in the PM peak hour from the 2023 build-out scenario.

- Remaining Intersections: The remaining individual movements at both intersections are anticipated to operate at a LOS of B or better in both peak hours.

The 2023 Build-out LOS and the corresponding delays are included in Figure 23.

Build-out Year 2028 Analysis

- E. Alameda Avenue and S. Sable Boulevard: This signalized intersection is anticipated to operate similarly to the background 2028 scenario. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.
- E. Alameda Avenue and Crystal Street: The overall LOS for this intersection is anticipated to be a B in both the AM and PM peak hour, which is similar to the 2028 background peak hour. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.
- Crystal Street and Internal Road 1: All of the individual movements at this unsignalized intersection are anticipated to operate at a LOS of C or better in both the AM and PM peak hour.
- Remaining Intersections: The remaining individual movements at both intersections are anticipated to operate at a LOS of B or better in both peak hours.

Figure 24 shows the 2028 Build-out LOS and the corresponding delays.

Build-out Year 2040 Analysis

- E. Alameda Avenue and S. Sable Boulevard: This signalized intersection is anticipated to operate at an overall LOS of C in both peak hours. This is very similar to the 2040 background scenario. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.
- E. Alameda Avenue and Crystal Street: The overall LOS for this intersection is anticipated to be a C in both the AM and PM peak hour, which is a slight

decrease in performance in the AM peak hour from the 2040 background scenario. All of the individual movements except for one are anticipated to operate at a LOS of D or better in both peak hours. The northbound left turning movement is anticipated to operate at a LOS of E in the PM peak hour. This is similar to the 2040 background scenario.

- Crystal Street and Internal Road 1: All of the individual movements at this unsignalized intersection are anticipated to operate at a LOS of D or better in both the AM and PM peak hour. The westbound full movement is anticipated to decrease in performance to a LOS of D from a LOS of C in the 2040 background scenario.
- Remaining Intersections: The remaining individual movements at both intersections are anticipated to operate at a LOS of C or better in both peak hours.

Figure 25 shows the 2040 Build-out LOS and the corresponding delays.

5.3 **Queue Length Analysis**

Based on volumes used in the previous analysis, the anticipated vehicle queue lengths were determined using the Synchro Software. The purpose for this analysis is to determine if added trips create situations where turning vehicles queue up and block through traffic or if through lanes queues block entrances to the left-turn or right-turn storage bays for given signal operating parameters. Synchro only calculates the 95th percentile queues for unsignalized intersections, thus the 95th percentile queues were analyzed.

Although there are some movements where the queue is long, there appears to be one instance where a queue would be long enough to block an intersection. This is anticipated to occur in both the 2040 background and 2040 build-out scenarios. The longest calculated queue in the vicinity of the site is the westbound through movement at the intersection of Crystal Street and E. Alameda Avenue. This movement is anticipated to have a 95th percentile queue length of 700 feet in the 2040 PM background scenario and a 95th percentile queue length of 715 feet in the 2040 PM build-out scenario. The traffic from the site is only anticipated to increase the queue length by 15 feet in this scenario. The closest intersection to the east of this is the existing intersection of E. Alameda Avenue and Internal Road 2 which is a right in/right out intersection on the north side of the road approximately 340 feet east of the intersection. This intersection would be affected and would essentially back up to the intersection of E. Alameda Avenue and S. Sable Street, however, it would only be for a short period of time during the peak hour and is not caused by the additional QuikTrip traffic. There are also alternative routes to provide access to and from the site during this time.

The queue lengths for all background and build-out scenarios are shown in Figures 26 through Figure 31.

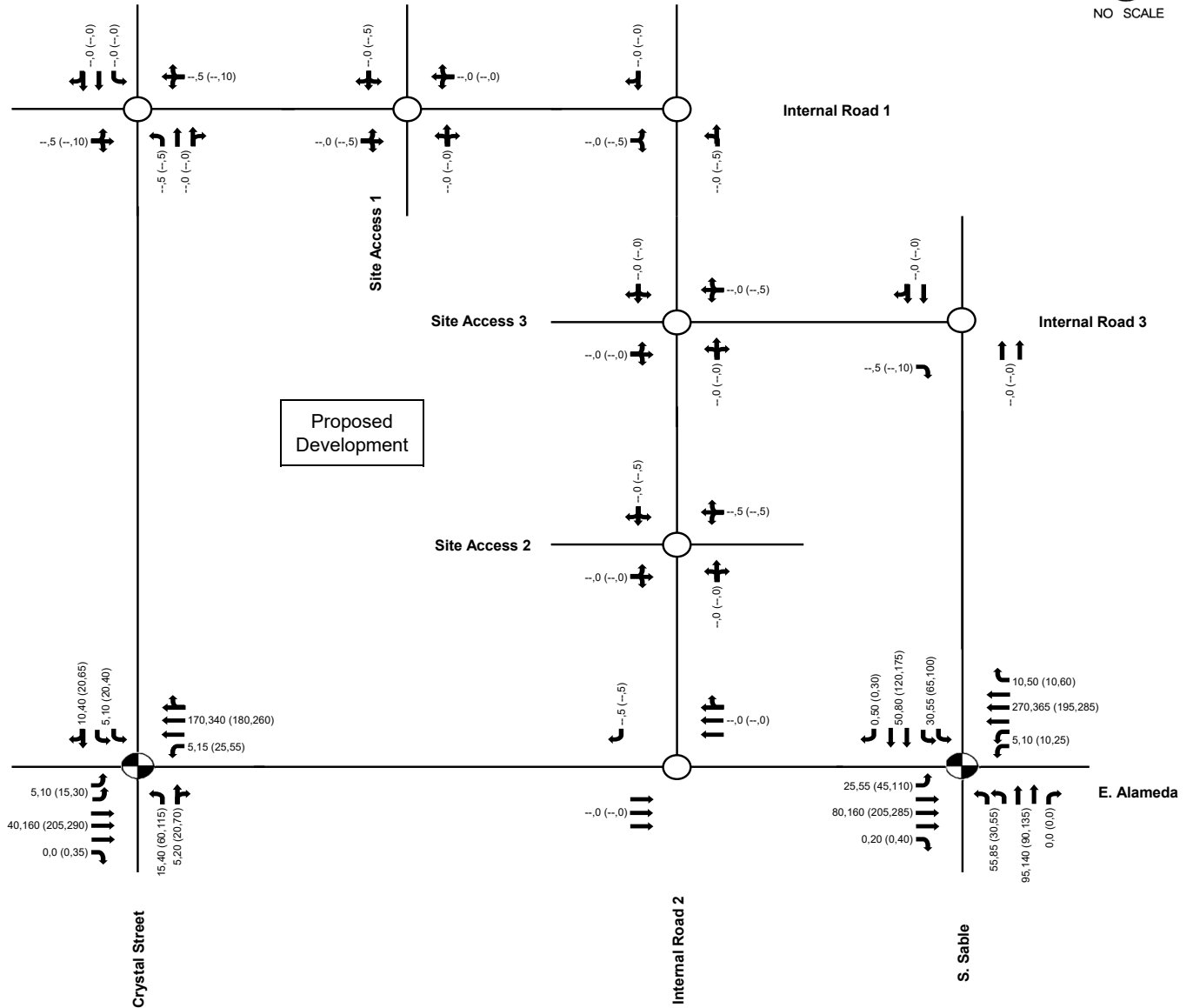
5.4 Turn Lane Warrants

Right turn lane warrants were checked at three intersections around the site. The intersection of E. Alameda Avenue and Crystal Street was checked for right turn lane warrants, and it is anticipated to be above the threshold for a westbound right turn lane in the 2023 background scenario, according to the CDOT State Highway Access Code. This turn lane is not necessarily warranted based on performance in any scenario as the intersection is anticipated to operate at a LOS C in both peak hours the 2040 build-out scenario. Right turn lane warrants were also checked at the right in/right out intersections of Internal Road 3 and S. Sable Boulevard along with Internal Road 2 and E. Alameda Avenue. Based off of the CDOT State Highway Access Code, both of these intersections are anticipated to be above the threshold for a right turn lane in the 2023 background scenario. As these movements are both free movements, both intersections are not anticipated to necessitate a right turn lane based off of performance. In addition to the performance, similar intersections of this type along these corridors do not appear to have right turn lanes.

5.5 Pedestrian Mobility

There is an existing 10-foot-wide sidewalk facility along E. Alameda Avenue. This sidewalk extends to the east to the S. Sable Boulevard Intersection and to the west to Interstate 225. There is a dedicated crossing and path from E. Alameda Avenue to provide access for pedestrians to the QuikTrip site. Along the west side of the site adjacent to Crystal Street, there is a 5-foot sidewalk that is offset 6 feet from the roadway. There is a bus stop near the site between Internal Road 2 and S. Sable Boulevard on the north side of the road. The bus stop on the south side of E. Alameda Avenue is located west of the Crystal Street intersection. There is also bus stops near the site located along S. Sable Boulevard just north of the E. Alameda Avenue intersection on the east side of the road. The southbound bus stop along S. Sable Boulevard is located just south of E. Alameda Avenue intersection. Both of the major intersections along E. Alameda Avenue, Crystal

Street and S. Sable Boulevard, have crosswalks on all four intersection legs. The nearest light rail stop is located along S. Sable Boulevard, south of E. Alameda Avenue on the east side of the road. Access to this station is provided through the sidewalk system along E. Alameda Avenue and S. Sable Boulevard.



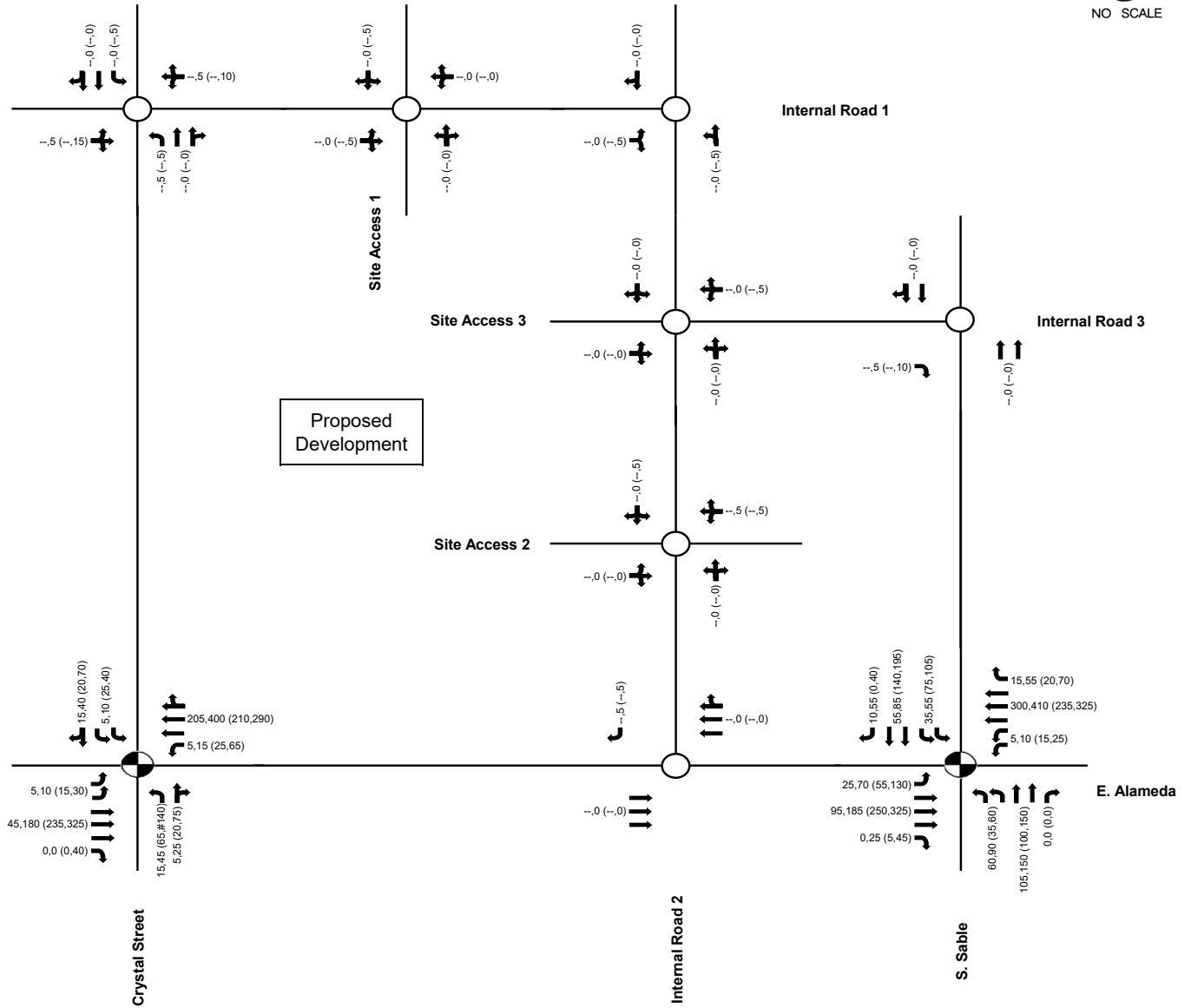
Unsignalized Intersection
 Signalized Intersection
 Future Intersection Leg
 Through Traffic Lane

LEGEND

5,15 (25,55) Queue Length AM 50th,95th (PM 50th,95th)
Err: error
#: 95th percentile volume exceeds capacity, queue may be longer
m: Volume for 95th percentile queue is metered by upstream signal
~: Volume exceeds capacity, queue is theoretically infinite

Turning Traffic Lane (Right or Left Lane)

FIGURE 26
2023 BACKGROUND PEAK HOUR
QUEUE LENGTHS



LEGEND		
	Unsignalized Intersection	5,15 (25,55)
	Signalized Intersection	Queue Length AM 50th,95th (PM 50th,95th)
	Future Intersection Leg	Err: error
	Through Traffic Lane	#: 95th percentile volume exceeds capacity, queue may be longer
	Turning Traffic Lane (Right or Left Lane)	m: Volume for 95th percentile queue is metered by upstream signal
		~: Volume exceeds capacity, queue is theoretically infinite

FIGURE 27
2028 BACKGROUND PEAK HOUR
QUEUE LENGTHS

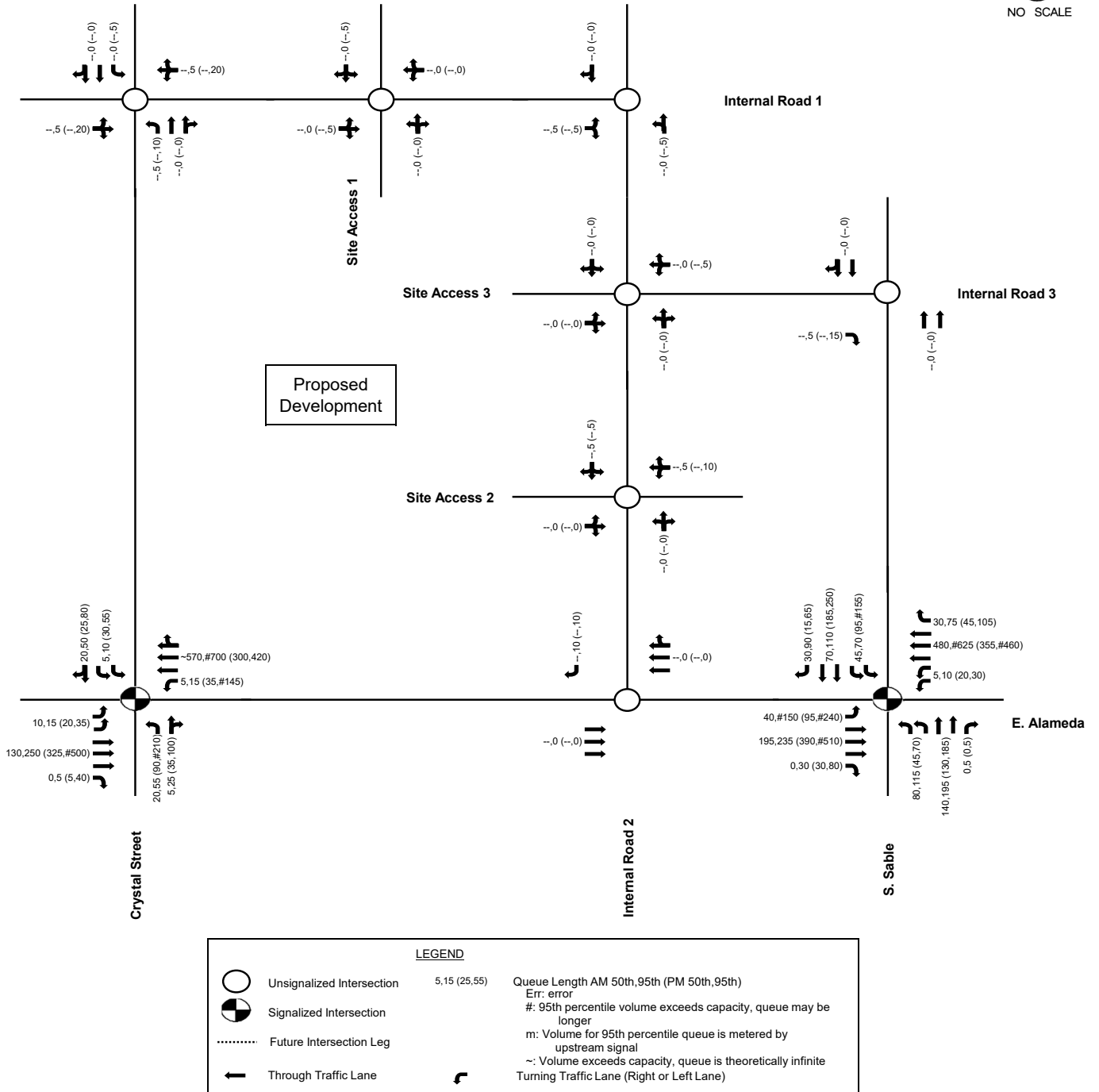
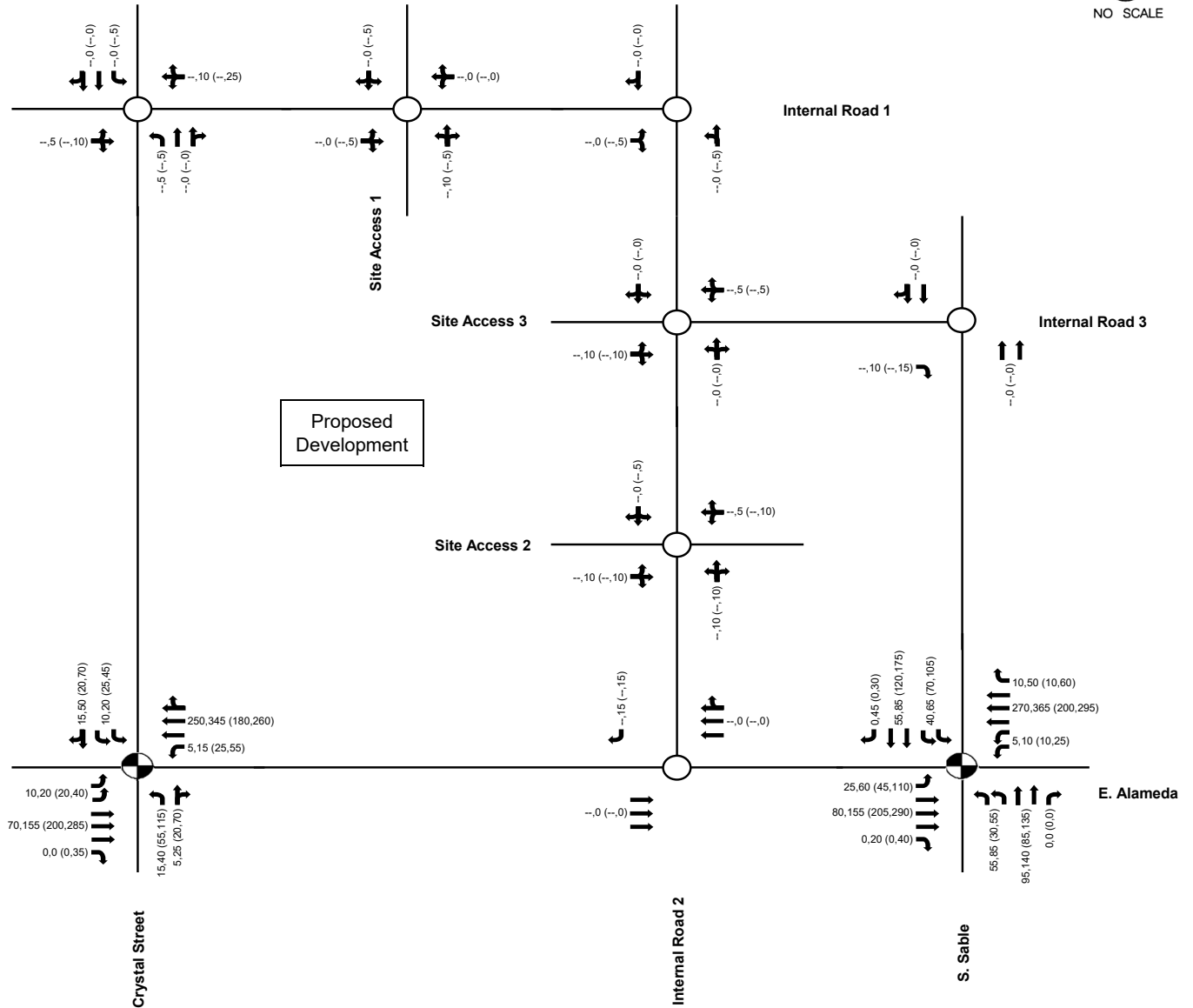
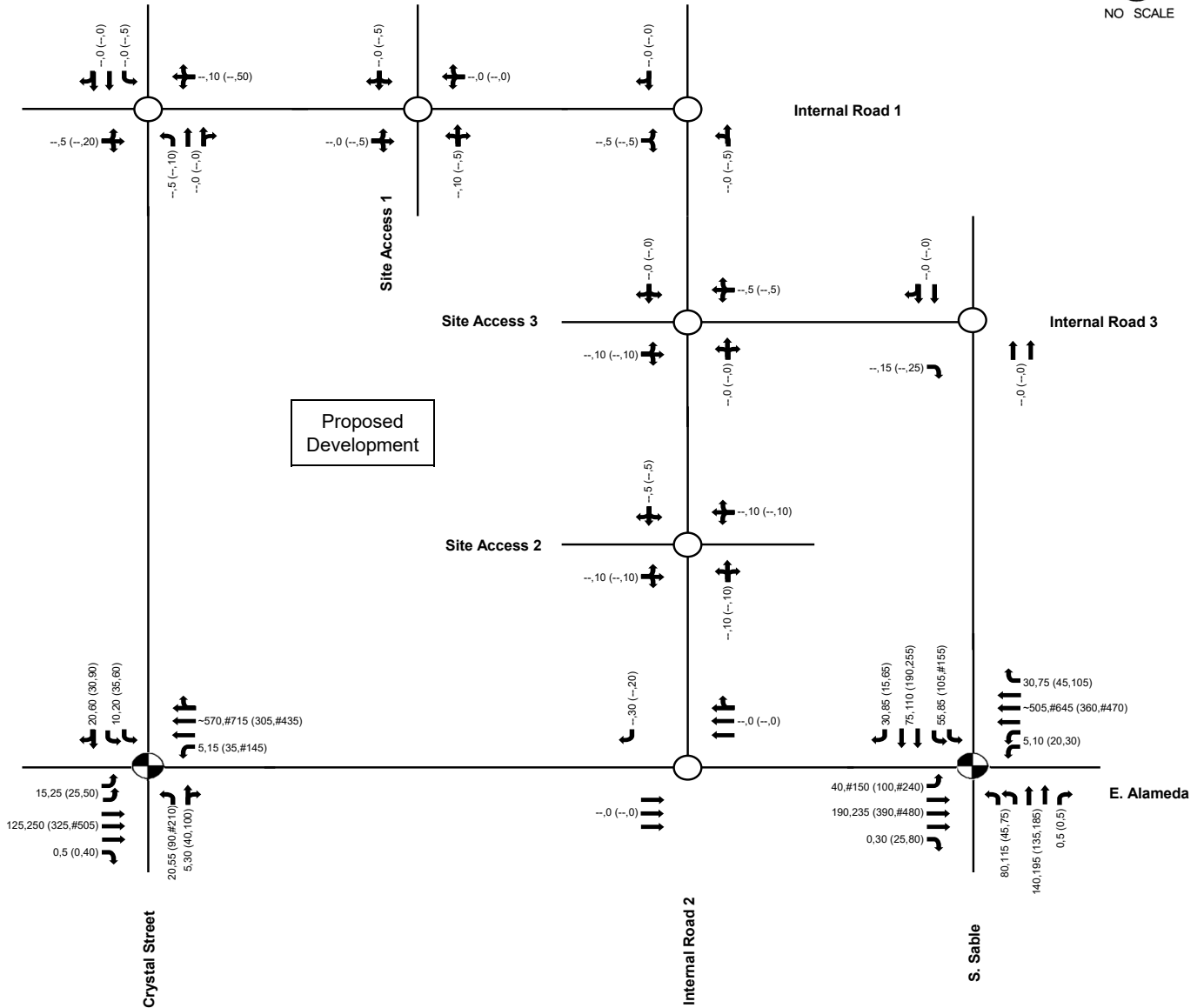


FIGURE 28
2040 BACKGROUND PEAK HOUR
QUEUE LENGTHS



LEGEND		
	Unsignalized Intersection	5,15 (25,55)
	Signalized Intersection	Queue Length AM 50th,95th (PM 50th,95th)
	Future Intersection Leg	Err: error
	Through Traffic Lane	#: 95th percentile volume exceeds capacity, queue may be longer
	Turning Traffic Lane (Right or Left Lane)	m: Volume for 95th percentile queue is metered by upstream signal
		~: Volume exceeds capacity, queue is theoretically infinite

FIGURE 29
2023 BUILD-OUT PEAK HOUR
QUEUE LENGTHS



LEGEND		
	Unsignalized Intersection	5,15 (25,55)
	Signalized Intersection	Queue Length AM 50th,95th (PM 50th,95th)
	Future Intersection Leg	Err: error
	Through Traffic Lane	#: 95th percentile volume exceeds capacity, queue may be longer
	Turning Traffic Lane (Right or Left Lane)	m: Volume for 95th percentile queue is metered by upstream signal
		~: Volume exceeds capacity, queue is theoretically infinite

FIGURE 31
2040 BUILD-OUT PEAK HOUR
QUEUE LENGTHS

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

Following are the main conclusions and potential improvements:

- The site is anticipated to generate a total of 433 trips in the AM peak hour and 364 trips in the PM peak hour. In the AM peak hour, 216 vehicle trips will be entering the site and 217 trips exiting the site. For the PM peak hour, there will be 182 trips entering the site and 182 trips exiting the site. Approximately 25 percent of these trips are new trips to the roadway network with the remaining 75 percent of trips being pass-by trips.
- An annual growth rate of 2 percent was used around the site.
- Synchro analysis shows that the adjacent roadway system has the capacity to handle the additional QuikTrip traffic with minimal effect. When comparing the 2040 background scenario with the 2040 build-out scenario, the queue lengths are very similar with the additional site trips increasing the longest 95th percentile queue by only 10 feet in the year 2040 scenarios.
- According to the CDOT State Highway Access Code, there are three movements that are anticipated to be above the threshold for a right turn lane in various scenarios. However, these are not necessarily warranted based on performance. The intersection of E. Alameda Avenue and Crystal Street is anticipated to be above the threshold for a westbound right turn lane in the 2023 background scenario. In this same scenario, the intersection of E. Alameda Avenue and Internal Road 2 is also anticipated to be above the threshold for a westbound right turn lane. This is also the case for southbound right turn lane at the intersection of S. Sable Boulevard and Internal Road 3. However, none of these movements are anticipated to necessitate a right turn lane based on performance as all of the individual movements are anticipated to operate at a LOS of C or better in every scenario. In addition to the performance, similar right in/right out intersections along the corridors in the area do not have dedicated right turn lanes.
- There is only anticipated to be one queueing problem in the vicinity of the site and it is not anticipated to be caused by the additional QuikTrip traffic. The longest queue length is anticipated to occur in the 2040 scenario at the east leg of the

intersection of E. Alameda Avenue and Crystal Street. This 95th percentile queue is anticipated to be 700 feet in the 2040 PM background scenario. With the additional QuikTrip traffic, this 95th percentile queue is increased to 715 feet. This potentially backs up past the intersection of E. Alameda Avenue and S. Sable Boulevard but would only occur for a short period of time in the peak hour.

- This site has a dedicated path to the existing sidewalk along E. Alameda Avenue. There are bus stops located along E. Alameda Avenue along with S. Sable Boulevard. There is also a light rail station located along the east side of S. Sable Boulevard south of the E. Alameda Avenue intersection. With the addition of this path, access to the QuikTrip site is provided for the pedestrians, bus users and light rail users.

APPENDIX

DEFINITION OF LEVEL OF SERVICE

Signalized Intersection

Level of service for signalized intersections is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Specifically, level-of-service criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period. Delay is a complex measure and is dependent on a number of variables.

Level of Service A - Describes operations with very low delay, i.e., less than 10.0 sec per vehicle. Progression is extremely favorable, and no approach phase is fully utilized. Most vehicles do not stop at all and no vehicle waits longer than one red indication.

Level of Service B - Describes operations with delay in the range of 10.1 to 20 sec per vehicle. This generally occurs with good progression. More vehicles stop than for LOS A, causing higher levels of average delay. An occasional phase is fully utilized.

Level of Service C - Describes operations with delay in the range of 20.1 to 35 sec per vehicle. These higher delays may result from fair progression. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping. Occasionally drivers may have to wait through more than one red signal indication.

Level of Service D - Describes operations with delay in the range of 35.1 to 55.0 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from unfavorable progression. Many vehicles stop, and the proportion of vehicles not stopping declines. Delays may be substantial during short peaks within the peak period.

Level of Service E - Describes operations with delay in the range of 55.1 to 80.0 sec per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression. There may be long queues of vehicles waiting upstream of the intersection. Delays may be as much as several cycles.

Level of Service F - Describes operations with delay in excess of 80.1 sec per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over saturation, i.e., when arrival flow rates exceed the capacity of the intersection. Volumes are not predictable under these conditions.

Unsignalized Intersections

Unsignalized intersections base the level of service on the amount of delay experienced by vehicles turning out of or into the minor, stop sign controlled street. There are no agreed upon quantitative measures of levels of service for unsignalized intersections, but some qualitative measures are given below:

Level of Service A - Little or no delay to vehicles. A very high level of service usually found only in rural areas or during off-peak hours.

Level of Service B - Short delays to vehicles. Still a very good level of service.

Level of Service C - Average delays to vehicles. Waiting time becomes noticeable. Freedom to enter major street traffic is slightly restricted.

Level of Service D - Long delays to vehicles. Due to heavy volumes on the major street, vehicles on minor streets are restricted in their ability to enter the traffic stream.

Level of Service E - Very long delays to vehicles. Tolerable for short periods of time. If the level of service present for long period, the queue build-up on minor street becomes noticeable.

Level of Service F - Represents jammed conditions. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration; hence, volumes carried are not predictable.

TRAFFIC COUNTS



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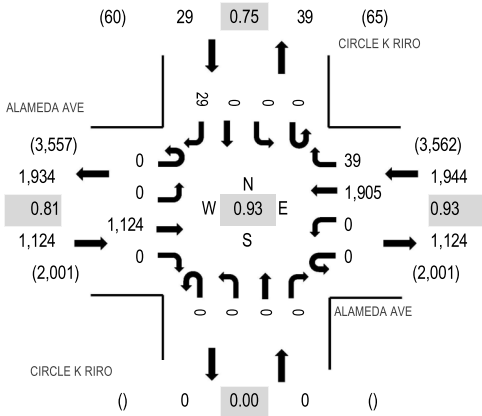
Location: 2 CIRCLE K RIRO & ALAMEDA AVE AM

Date: Tuesday, February 7, 2023

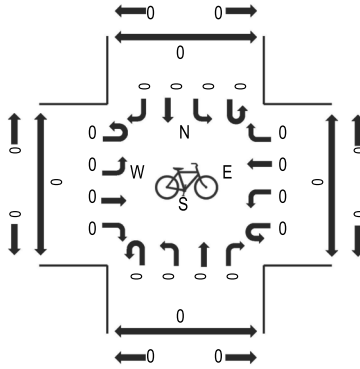
Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

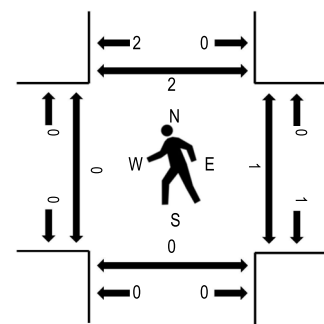
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				CIRCLE K RIRO Northbound				CIRCLE K RIRO Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	219	0	0	0	336	5	0	0	0	0	0	0	0	10	570	2,914	0	0	0	0
7:15 AM	0	0	235	0	0	0	438	8	0	0	0	0	0	0	0	10	691	3,097	0	0	0	1
7:30 AM	0	0	293	0	0	0	514	11	0	0	0	0	0	0	0	4	822	3,089	0	0	0	1
7:45 AM	0	0	348	0	0	0	465	12	0	0	0	0	0	0	0	6	831	2,873	0	0	0	0
8:00 AM	0	0	248	0	0	0	488	8	0	0	0	0	0	0	0	9	753	2,709	0	1	0	0
8:15 AM	0	0	238	0	0	0	429	7	0	0	0	0	0	0	0	9	683		0	0	0	0
8:30 AM	0	0	205	0	0	0	393	4	0	0	0	0	0	0	0	4	606		0	0	0	0
8:45 AM	0	0	215	0	0	0	434	10	0	0	0	0	0	0	0	8	667		0	0	0	0
Count Total	0	0	2,001	0	0	0	3,497	65	0	0	0	0	0	0	0	60	5,623		0	1	0	2
Peak Hour	0	0	1,124	0	0	0	1,905	39	0	0	0	0	0	0	0	29	3,097		0	1	0	2



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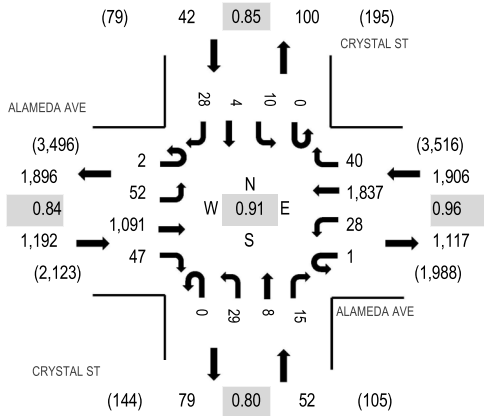
Location: 3 CRYSTAL ST & ALAMEDA AVE AM

Date: Tuesday, February 7, 2023

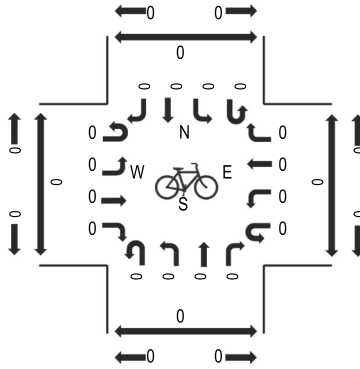
Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

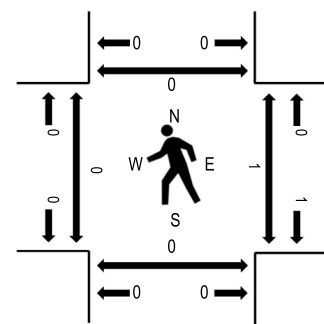
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				CRYSTAL ST Northbound				CRYSTAL ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	7	203	5	0	2	346	7	0	10	1	5	0	3	0	4	593	3,001	1	0	0	1
7:15 AM	1	11	238	9	0	1	424	8	0	3	1	2	0	1	0	1	700	3,180	1	0	0	0
7:30 AM	0	10	300	9	0	5	471	13	0	7	1	4	0	2	1	5	828	3,192	0	0	0	0
7:45 AM	0	16	329	19	1	8	476	10	0	8	0	2	0	2	1	8	880	3,011	0	0	0	0
8:00 AM	1	18	253	7	0	8	449	7	0	9	2	4	0	3	1	10	772	2,822	0	0	0	0
8:15 AM	1	8	209	12	0	7	441	10	0	5	5	5	0	3	1	5	712		0	1	0	0
8:30 AM	0	17	204	10	0	11	360	13	0	11	2	6	0	4	4	5	647		0	0	0	0
8:45 AM	0	16	197	13	0	9	417	12	0	6	0	6	0	2	1	12	691		0	0	0	0
Count Total	3	103	1,933	84	1	51	3,384	80	0	59	12	34	0	20	9	50	5,823		2	1	0	1
Peak Hour	2	52	1,091	47	1	28	1,837	40	0	29	8	15	0	10	4	28	3,192		0	1	0	0



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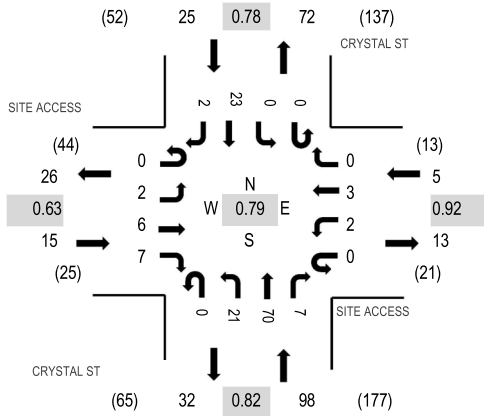
Location: 4 CRYSTAL ST & SITE ACCESS AM

Date: Tuesday, February 7, 2023

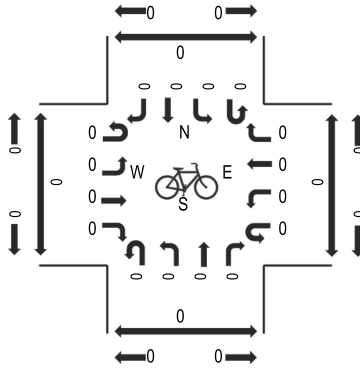
Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:45 AM - 09:00 AM

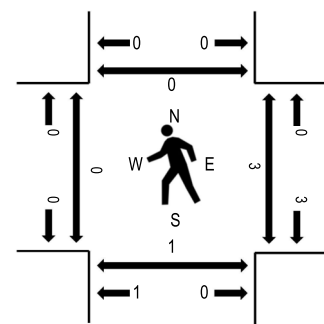
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SITE ACCESS Eastbound				SITE ACCESS Westbound				CRYSTAL ST Northbound				CRYSTAL ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	1	1	0	0	0	0	0	4	10	0	0	0	6	0	22	124	1	0	0	0
7:15 AM	0	0	2	0	0	3	0	0	0	2	21	1	0	0	6	0	35	133	0	0	0	0
7:30 AM	0	0	1	2	0	0	2	0	0	3	11	1	0	0	8	1	29	132	0	0	0	0
7:45 AM	0	0	1	2	0	0	1	2	0	4	21	1	0	0	5	1	38	136	0	0	0	0
8:00 AM	0	1	1	0	0	1	2	0	0	3	15	1	0	0	6	1	31	143	0	1	1	0
8:15 AM	0	1	1	3	0	0	0	0	0	5	18	2	0	0	4	0	34		0	0	0	0
8:30 AM	0	0	1	1	0	1	0	0	0	5	17	2	0	0	6	0	33		0	2	0	0
8:45 AM	0	0	3	3	0	0	1	0	0	8	20	2	0	0	7	1	45		0	0	0	0
Count Total	0	2	11	12	0	5	6	2	0	34	133	10	0	0	48	4	267		1	3	1	0
Peak Hour	0	2	6	7	0	2	3	0	0	21	70	7	0	0	23	2	143		0	3	1	0



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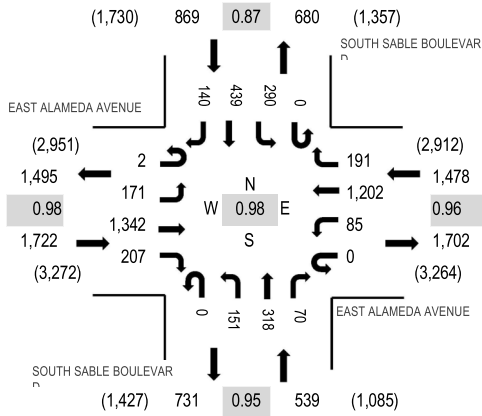
Location: 1 SOUTH SABLE BOULEVARD & EAST ALAMEDA AVENUE PM

Date: Tuesday, February 7, 2023

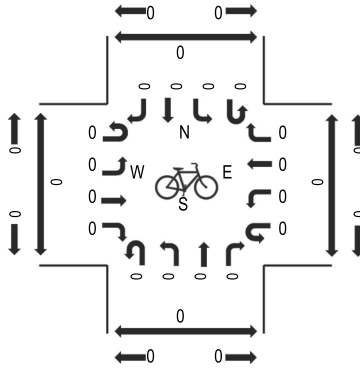
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

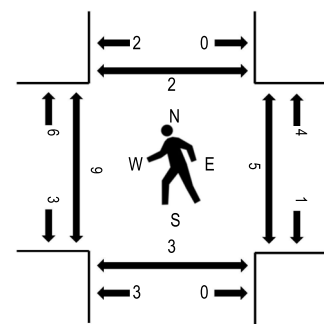
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	EAST ALAMEDA AVENUE				EAST ALAMEDA AVENUE				SOUTH SABLE BOULEVARD				SOUTH SABLE BOULEVARD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
4:00 PM	1	41	339	48	1	25	298	46	0	30	92	21	0	77	95	42	1,156	4,474	4	5	2	1
4:15 PM	1	35	311	48	1	17	291	35	0	35	93	21	0	74	108	38	1,108	4,488	4	3	1	1
4:30 PM	0	27	271	46	0	30	308	51	0	31	81	18	0	74	110	43	1,090	4,550	0	2	0	0
4:45 PM	0	44	314	60	0	26	296	43	0	38	87	20	0	57	108	27	1,120	4,608	2	1	0	1
5:00 PM	2	38	339	61	0	25	320	49	0	40	81	23	0	70	80	42	1,170	4,525	2	3	1	1
5:15 PM	0	45	346	44	0	23	292	50	0	42	64	11	0	89	119	45	1,170		5	0	2	0
5:30 PM	0	44	343	42	0	11	294	49	0	31	86	16	0	74	132	26	1,148		0	1	0	0
5:45 PM	0	46	283	53	0	16	267	48	0	33	82	9	0	62	100	38	1,037		1	0	1	1
Count Total	4	320	2,546	402	2	173	2,366	371	0	280	666	139	0	577	852	301	8,999		18	15	7	5
Peak Hour	2	171	1,342	207	0	85	1,202	191	0	151	318	70	0	290	439	140	4,608		9	5	3	2



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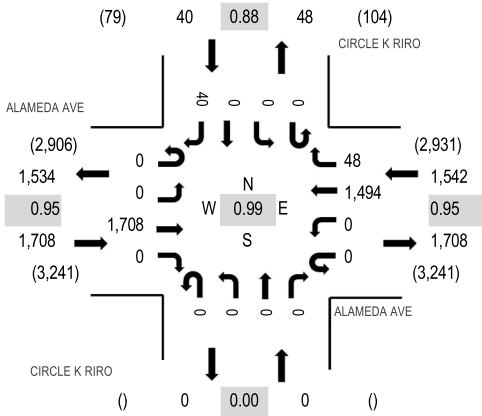
Location: 2 CIRCLE K RIRO & ALAMEDA AVE PM

Date: Tuesday, February 7, 2023

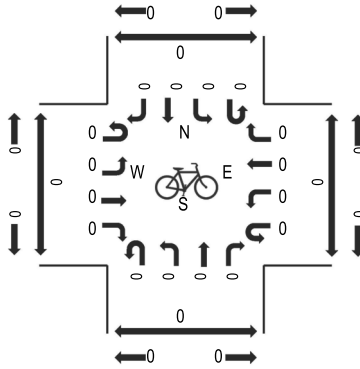
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

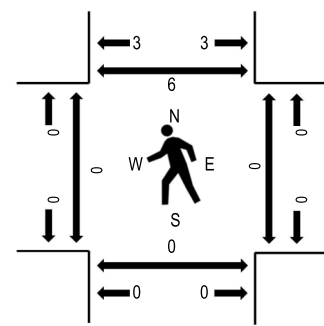
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				CIRCLE K RIRO Northbound				CIRCLE K RIRO Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	353	0	0	0	371	14	0	0	0	0	0	0	0	11	749	3,162	0	0	0	1
4:15 PM	0	0	399	0	0	0	352	19	0	0	0	0	0	0	0	10	780	3,235	0	0	0	6
4:30 PM	0	0	406	0	0	0	389	17	0	0	0	0	0	0	0	13	825	3,290	0	0	0	1
4:45 PM	0	0	416	0	0	0	370	10	0	0	0	0	0	0	0	12	808	3,189	0	0	0	4
5:00 PM	0	0	448	0	0	0	358	13	0	0	0	0	0	0	0	3	822	3,089	0	0	0	0
5:15 PM	0	0	438	0	0	0	377	8	0	0	0	0	0	0	0	12	835		0	0	0	1
5:30 PM	0	0	397	0	0	0	304	13	0	0	0	0	0	0	0	10	724		0	1	0	3
5:45 PM	0	0	384	0	0	0	306	10	0	0	0	0	0	0	0	8	708		0	0	0	0
Count Total	0	0	3,241	0	0	0	2,827	104	0	0	0	0	0	0	0	79	6,251		0	1	0	16
Peak Hour	0	0	1,708	0	0	0	1,494	48	0	0	0	0	0	0	0	40	3,290		0	0	0	6



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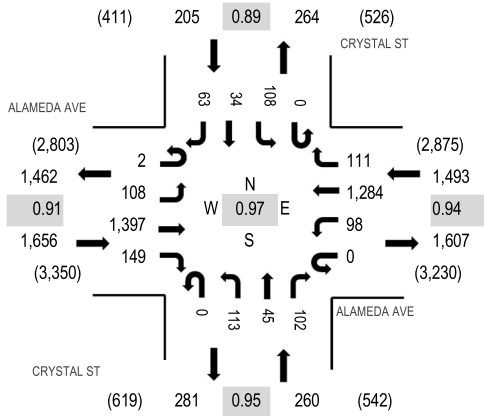
Location: 3 CRYSTAL ST & ALAMEDA AVE PM

Date: Tuesday, February 7, 2023

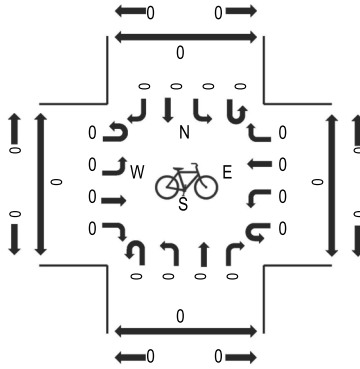
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

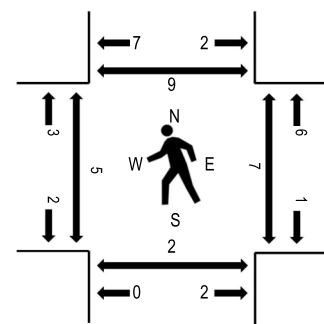
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				CRYSTAL ST Northbound				CRYSTAL ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	30	325	47	0	32	332	35	0	22	9	32	0	22	10	18	914	3,598	1	0	0	2
4:15 PM	0	28	332	40	0	23	305	18	0	28	17	29	0	22	8	17	867	3,550	0	1	0	6
4:30 PM	1	19	347	39	0	22	340	23	0	29	16	21	0	27	11	10	905	3,614	2	3	0	2
4:45 PM	0	33	369	35	0	23	319	34	0	22	7	22	0	21	8	19	912	3,588	1	1	0	3
5:00 PM	0	25	322	37	0	23	295	28	0	36	9	30	0	31	13	17	866	3,580	1	1	0	1
5:15 PM	1	31	359	38	0	30	330	26	0	26	13	29	0	29	2	17	931		1	2	2	3
5:30 PM	0	27	350	46	0	32	276	23	0	30	8	31	0	20	9	27	879		0	0	0	1
5:45 PM	0	27	399	43	1	36	239	30	0	29	10	37	0	23	12	18	904		1	0	0	0
Count Total	2	220	2,803	325	1	221	2,436	217	0	222	89	231	0	195	73	143	7,178		7	8	2	18
Peak Hour	2	108	1,397	149	0	98	1,284	111	0	113	45	102	0	108	34	63	3,614		5	7	2	9



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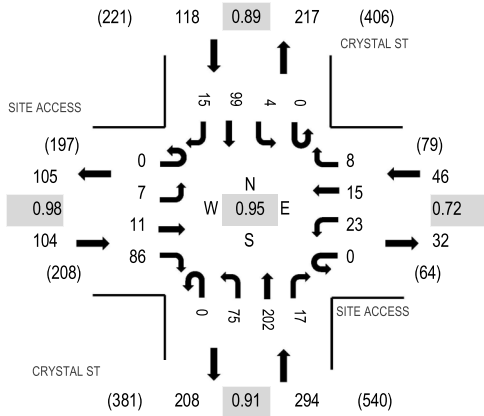
Location: 4 CRYSTAL ST & SITE ACCESS PM

Date: Tuesday, February 7, 2023

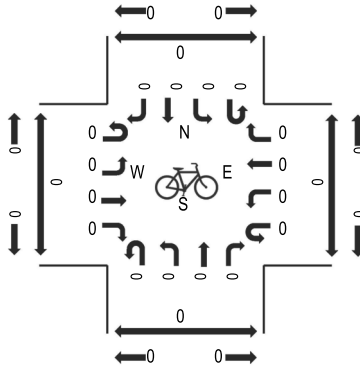
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 04:45 PM - 05:00 PM

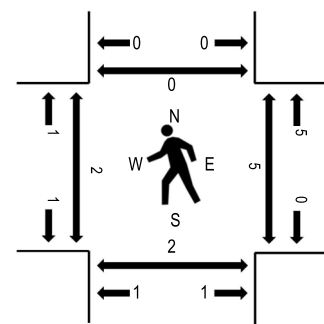
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SITE ACCESS Eastbound				SITE ACCESS Westbound				CRYSTAL ST Northbound				CRYSTAL ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	7	1	19	0	3	6	0	0	18	41	8	0	1	20	3	127	512	0	1	0	0
4:15 PM	0	5	5	18	0	2	7	1	0	15	34	4	0	1	16	8	116	530	1	0	0	0
4:30 PM	0	1	4	22	0	2	3	1	0	8	48	2	0	0	27	3	121	554	0	1	0	0
4:45 PM	0	0	6	22	0	5	1	3	0	24	52	5	0	1	24	5	148	562	0	1	1	0
5:00 PM	0	1	0	16	0	7	7	2	0	15	59	4	0	3	27	4	145	536	2	0	1	0
5:15 PM	0	3	1	27	0	9	2	3	0	20	45	3	0	0	24	3	140		0	3	0	0
5:30 PM	0	3	4	21	0	2	5	0	0	16	46	5	0	0	24	3	129		0	1	0	0
5:45 PM	0	2	0	20	0	4	3	1	0	15	48	5	0	1	20	3	122		0	1	0	0
Count Total	0	22	21	165	0	34	34	11	0	131	373	36	0	7	182	32	1,048		3	8	2	0
Peak Hour	0	7	11	86	0	23	15	8	0	75	202	17	0	4	99	15	562		2	5	2	0

























SYNCHRO

2023 AM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	895	98	23	1599	149	225	331	43	133	177	120
Future Volume (vph)	98	895	98	23	1599	149	225	331	43	133	177	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.094			0.280			0.612			0.411		
Satd. Flow (perm)	175	5085	1583	1012	5085	1583	2212	3539	1583	1485	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			127			127			130
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	973	107	25	1738	162	245	360	47	145	192	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	973	107	25	1738	162	245	360	47	145	192	130
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	13.6	47.9	47.9	9.5	43.8	43.8	10.0	23.0	23.0	9.6	22.6	22.6
Total Split (%)	15.1%	53.2%	53.2%	10.6%	48.7%	48.7%	11.1%	25.6%	25.6%	10.7%	25.1%	25.1%
Maximum Green (s)	9.1	43.4	43.4	5.0	39.3	39.3	5.5	18.5	18.5	5.1	18.1	18.1
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	46.1	42.9	42.9	40.1	36.4	36.4	19.3	13.6	13.6	18.5	13.2	13.2
Actuated g/C Ratio	0.58	0.54	0.54	0.51	0.46	0.46	0.24	0.17	0.17	0.23	0.17	0.17
v/c Ratio	0.39	0.35	0.12	0.04	0.74	0.20	0.39	0.59	0.12	0.30	0.33	0.35
Control Delay	12.8	11.4	2.2	7.6	20.9	5.3	25.4	36.1	0.7	24.6	32.5	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	11.4	2.2	7.6	20.9	5.3	25.4	36.1	0.7	24.6	32.5	9.1
LOS	B	B	A	A	C	A	C	D	A	C	C	A
Approach Delay		10.7			19.4			29.5			23.5	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	21	80	0	2	267	10	53	95	0	30	48	0
Queue Length 95th (ft)	54	156	20	7	361	47	82	139	0	52	79	46
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	292	3102	1015	671	2623	878	627	859	480	476	840	475
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.31	0.11	0.04	0.66	0.18	0.39	0.42	0.10	0.30	0.23	0.27

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.2

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 19.0









Intersection LOS: B

Intersection Capacity Utilization 64.6%

ICU Level of Service C























Analysis Period (min) 15

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
9.6 s	23 s	9.5 s	47.9 s
			
Ø5	Ø6	Ø7	Ø8
10 s	22.6 s	13.6 s	43.8 s

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	1120	44	22	1873	39	27	4	12	8	24	3
Future Volume (vph)	55	1120	44	22	1873	39	27	4	12	8	24	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.997			0.885			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5070	0	1770	1649	0	3433	1833	0
Flt Permitted	0.097			0.196			0.950			0.746		
Satd. Flow (perm)	351	5085	1583	365	5070	0	1770	1649	0	2696	1833	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		4			13			3	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	1217	48	24	2036	42	29	4	13	9	26	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1217	48	24	2078	0	29	17	0	9	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.6	47.0	47.0	9.6	47.0		9.8	23.8		9.6	23.6	
Total Split (%)	10.7%	52.2%	52.2%	10.7%	52.2%		10.9%	26.4%		10.7%	26.2%	
Maximum Green (s)	5.1	42.5	42.5	5.1	42.5		5.3	19.3		5.1	19.1	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings

9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	42.9	41.3	41.3	42.1	39.5		5.6	8.5		8.5	6.8	
Actuated g/C Ratio	0.67	0.65	0.65	0.66	0.62		0.09	0.13		0.13	0.11	
v/c Ratio	0.12	0.37	0.05	0.07	0.66		0.19	0.07		0.02	0.15	
Control Delay	4.5	7.3	0.1	4.6	11.1		36.6	18.9		24.6	31.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	4.5	7.3	0.1	4.6	11.1		36.6	18.9		24.6	31.0	
LOS	A	A	A	A	B		D	B		C	C	
Approach Delay		6.9			11.0			30.0			29.5	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	2	38	0	2	170		12	2		1	10	
Queue Length 95th (ft)	10	158	0	11	336		40	20		7	36	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	496	3700	1186	359	3546		155	538		420	584	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.33	0.04	0.07	0.59		0.19	0.03		0.02	0.05	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 64

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 9.9









Intersection LOS: A

Intersection Capacity Utilization 52.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: S. Crystal Street & E. Alameda Ave




 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	23.8 s	9.6 s	47 s
 Ø5	 Ø6	 Ø7	 Ø8
9.8 s	23.6 s	9.6 s	47 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Access 3

10/05/2023

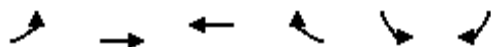


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	25	0	578	405	25
Future Volume (Veh/h)	0	25	0	578	405	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	27	0	628	440	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				250		
pX, platoon unblocked	0.91					
vC, conflicting volume	768	234	467			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	546	234	467			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	426	768	1091			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	27	314	314	293	174	
Volume Left	0	0	0	0	0	
Volume Right	27	0	0	0	27	
cSH	768	1700	1700	1700	1700	
Volume to Capacity	0.04	0.18	0.18	0.17	0.10	
Queue Length 95th (ft)	3	0	0	0	0	
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.9	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay		0.2				
Intersection Capacity Utilization		22.0%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Traffic Volume (veh/h)	0	1124	1905	39	0	29	
Future Volume (Veh/h)	0	1124	1905	39	0	29	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	1222	2071	42	0	32	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.70				0.76	0.70	
vC, conflicting volume	2113				2499	711	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1083				763	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	96	
cM capacity (veh/h)	447				259	757	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	407	407	407	828	828	456	32
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	42	32
cSH	1700	1700	1700	1700	1700	1700	757
Volume to Capacity	0.24	0.24	0.24	0.49	0.49	0.27	0.04
Queue Length 95th (ft)	0	0	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.0
Lane LOS							A
Approach Delay (s)	0.0			0.0			10.0
Approach LOS							A
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			47.7%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	27	0	1	0	2	37	7	2	0
Future Volume (Veh/h)	0	0	0	27	0	1	0	2	37	7	2	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	29	0	1	0	2	40	8	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	41	60	2	40	40	22	2			42		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	41	60	2	40	40	22	2			42		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	100	100			99		
cM capacity (veh/h)	958	827	1082	960	848	1055	1620			1567		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	30	42	10								
Volume Left	0	29	0	8								
Volume Right	0	1	40	0								
cSH	1700	963	1620	1567								
Volume to Capacity	0.00	0.03	0.00	0.01								
Queue Length 95th (ft)	0	2	0	0								
Control Delay (s)	0.0	8.9	0.0	5.9								
Lane LOS	A	A		A								
Approach Delay (s)	0.0	8.9	0.0	5.9								
Approach LOS	A	A										
Intersection Summary												
Average Delay				4.0								
Intersection Capacity Utilization				16.2%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	5	4	4	5	2	14	79	5	0	27	3
Future Volume (Veh/h)	1	5	4	4	5	2	14	79	5	0	27	3
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	4	4	5	2	15	86	5	0	29	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	340											
pX, platoon unblocked												
vC, conflicting volume	108	152	16	140	150	46	32				91	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	108	152	16	140	150	46	32				91	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	99	100	100	99	100	99				100	
cM capacity (veh/h)	847	732	1059	804	733	1014	1579				1502	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	10	11	15	57	34	0	19	13				
Volume Left	1	4	15	0	0	0	0	0				
Volume Right	4	2	0	0	5	0	0	3				
cSH	848	799	1579	1700	1700	1700	1700	1700				
Volume to Capacity	0.01	0.01	0.01	0.03	0.02	0.00	0.01	0.01				
Queue Length 95th (ft)	1	1	1	0	0	0	0	0				
Control Delay (s)	9.3	9.6	7.3	0.0	0.0	0.0	0.0	0.0				
Lane LOS	A	A	A									
Approach Delay (s)	9.3	9.6	1.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	1.9											
Intersection Capacity Utilization	17.4%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	6	0	0	7	0	0	0	0	0	0	4
Future Volume (Veh/h)	4	6	0	0	7	0	0	0	0	0	0	4
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	7	0	0	8	0	0	0	0	0	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	8			7			27	23	7	23	23	8
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	8			7			27	23	7	23	23	8
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1612			1614			977	868	1075	987	868	1074
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	8	0	4								
Volume Left	4	0	0	0								
Volume Right	0	0	0	4								
cSH	1612	1614	1700	1074								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	2.6	0.0	0.0	8.4								
Lane LOS	A		A	A								
Approach Delay (s)	2.6	0.0	0.0	8.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay				2.7								
Intersection Capacity Utilization				13.9%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3

10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	4	0	3	0	0	9	0
Future Volume (Veh/h)	0	0	0	0	0	4	0	3	0	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	4	0	3	0	0	10	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	17	13	10	13	13	3	10			3		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	17	13	10	13	13	3	10			3		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	994	881	1071	1004	881	1081	1610			1619		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	4	3	10								
Volume Left	0	0	0	0								
Volume Right	0	4	0	0								
cSH	1700	1081	1610	1619								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	0.0	8.3	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	0.0	8.3	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			13.3%	ICU Level of Service						A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023




































Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	4	2	5	5	5
Future Volume (Veh/h)	2	4	2	5	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	4	2	5	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	16	8	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	8	10			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1000	1075	1610			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	7	10			
Volume Left	2	2	0			
Volume Right	4	0	5			
cSH	1049	1610	1700			
Volume to Capacity	0.01	0.00	0.01			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	8.5	2.1	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.5	2.1	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

2023 PM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	171	1342	207	85	1170	191	147	318	70	290	439	136
Future Volume (vph)	171	1342	207	85	1170	191	147	318	70	290	439	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.117			0.135			0.387			0.355		
Satd. Flow (perm)	218	5085	1583	488	5085	1583	1399	3539	1583	1283	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			225			182			182			182
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	1459	225	92	1272	208	160	346	76	315	477	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	186	1459	225	92	1272	208	160	346	76	315	477	148
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.4	43.8	43.8	9.6	35.0	35.0	9.6	24.0	24.0	12.6	27.0	27.0
Total Split (%)	20.4%	48.7%	48.7%	10.7%	38.9%	38.9%	10.7%	26.7%	26.7%	14.0%	30.0%	30.0%
Maximum Green (s)	13.9	39.3	39.3	5.1	30.5	30.5	5.1	19.5	19.5	8.1	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	43.1	35.9	35.9	33.7	28.5	28.5	19.3	14.1	14.1	25.2	17.1	17.1
Actuated g/C Ratio	0.54	0.45	0.45	0.42	0.36	0.36	0.24	0.18	0.18	0.32	0.22	0.22
v/c Ratio	0.58	0.63	0.27	0.23	0.70	0.30	0.34	0.55	0.18	0.50	0.63	0.31
Control Delay	20.1	19.0	3.2	11.3	24.7	6.0	21.6	33.9	0.9	22.9	32.8	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	19.0	3.2	11.3	24.7	6.0	21.6	33.9	0.9	22.9	32.8	4.3
LOS	C	B	A	B	C	A	C	C	A	C	C	A
Approach Delay		17.2			21.4			26.2			25.0	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	43	205	0	10	191	8	29	86	0	61	118	0
Queue Length 95th (ft)	109	282	40	22	284	57	53	133	0	96	173	29
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	396	2566	910	399	2035	742	473	886	532	633	1022	587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.57	0.25	0.23	0.63	0.28	0.34	0.39	0.14	0.50	0.47	0.25

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.3

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 21.1









Intersection LOS: C

Intersection Capacity Utilization 64.1%

ICU Level of Service C






















Analysis Period (min) 15

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
12.6 s	24 s	9.6 s	43.8 s
			
Ø5	Ø6	Ø7	Ø8
9.6 s	27 s	18.4 s	35 s

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	1400	156	108	1226	112	114	37	112	101	32	80
Future Volume (vph)	116	1400	156	108	1226	112	114	37	112	101	32	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.987			0.887			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5019	0	1770	1652	0	3433	1663	0
Flt Permitted	0.126			0.120			0.950			0.654		
Satd. Flow (perm)	455	5085	1583	224	5019	0	1770	1652	0	2363	1663	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182		20			122			87	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	1522	170	117	1333	122	124	40	122	110	35	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	1522	170	117	1455	0	124	162	0	110	122	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.6	38.0	38.0	12.0	40.4		16.0	30.5		9.5	24.0	
Total Split (%)	10.7%	42.2%	42.2%	13.3%	44.9%		17.8%	33.9%		10.6%	26.7%	
Maximum Green (s)	5.1	33.5	33.5	7.5	35.9		11.5	26.0		5.0	19.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings

9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	35.3	31.7	31.7	38.5	33.2		10.1	12.0		11.6	8.0	
Actuated g/C Ratio	0.51	0.46	0.46	0.56	0.48		0.15	0.17		0.17	0.12	
v/c Ratio	0.26	0.65	0.21	0.40	0.60		0.48	0.42		0.23	0.45	
Control Delay	9.4	18.3	3.1	12.2	15.9		38.3	13.2		21.2	18.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.4	18.3	3.1	12.2	15.9		38.3	13.2		21.2	18.9	
LOS	A	B	A	B	B		D	B		C	B	
Approach Delay		16.2			15.6			24.0			20.0	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	11	205	0	22	178		56	17		19	16	
Queue Length 95th (ft)	26	290	31	52	256		114	66		37	64	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	476	2723	932	311	2889		325	758		482	578	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.56	0.18	0.38	0.50		0.38	0.21		0.23	0.21	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 68.8

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 16.8









Intersection LOS: B

Intersection Capacity Utilization 61.0%

ICU Level of Service B

Analysis Period (min) 15










Splits and Phases: 9: S. Crystal Street & E. Alameda Ave

 Ø1	 Ø2	 Ø3	 Ø4
9.5 s	30.5 s	12 s	38 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	24 s	9.6 s	40.4 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

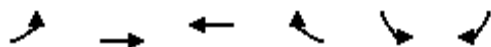
10/05/2023

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	35	0	680	830	35
Future Volume (Veh/h)	0	35	0	680	830	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	0	739	902	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				250		
pX, platoon unblocked	0.91					
vC, conflicting volume	1290	470	940			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1132	470	940			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	93	100			
cM capacity (veh/h)	180	540	725			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	38	370	370	601	339	
Volume Left	0	0	0	0	0	
Volume Right	38	0	0	0	38	
cSH	540	1700	1700	1700	1700	
Volume to Capacity	0.07	0.22	0.22	0.35	0.20	
Queue Length 95th (ft)	6	0	0	0	0	
Control Delay (s)	12.2	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	12.2	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			34.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Traffic Volume (veh/h)	0	1720	1409	44	0	37	
Future Volume (Veh/h)	0	1720	1409	44	0	37	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	1870	1532	48	0	40	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.79				0.87	0.79	
vC, conflicting volume	1580				2179	535	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	812				214	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	95	
cM capacity (veh/h)	641				656	859	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	623	623	623	613	613	354	40
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	48	40
cSH	1700	1700	1700	1700	1700	1700	859
Volume to Capacity	0.37	0.37	0.37	0.36	0.36	0.21	0.05
Queue Length 95th (ft)	0	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.4
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.4
Approach LOS							A
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			38.2%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	33	0	10	0	2	42	13	4	0
Future Volume (Veh/h)	0	0	0	33	0	10	0	2	42	13	4	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	36	0	11	0	2	46	14	4	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	68	80	4	57	57	25	4				48	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68	80	4	57	57	25	4				48	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	96	100	99	100				99	
cM capacity (veh/h)	909	803	1080	933	827	1051	1618				1559	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	47	48	18								
Volume Left	0	36	0	14								
Volume Right	0	11	46	0								
cSH	1700	959	1618	1559								
Volume to Capacity	0.00	0.05	0.00	0.01								
Queue Length 95th (ft)	0	4	0	1								
Control Delay (s)	0.0	8.9	0.0	5.7								
Lane LOS	A	A		A								
Approach Delay (s)	0.0	8.9	0.0	5.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay				4.6								
Intersection Capacity Utilization				17.6%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	11	63	17	15	8	68	182	15	7	133	32
Future Volume (Veh/h)	7	11	63	17	15	8	68	182	15	7	133	32
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	12	68	18	16	9	74	198	16	8	145	35
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (ft)	340											
pX, platoon unblocked												
vC, conflicting volume	442	540	90	516	550	107	180				214	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	442	540	90	516	550	107	180				214	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	97	93	95	96	99	95				99	
cM capacity (veh/h)	458	421	950	383	415	926	1393				1353	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	88	43	74	132	82	8	97	83				
Volume Left	8	18	74	0	0	8	0	0				
Volume Right	68	9	0	0	16	0	0	35				
cSH	748	452	1393	1700	1700	1353	1700	1700				
Volume to Capacity	0.12	0.10	0.05	0.08	0.05	0.01	0.06	0.05				
Queue Length 95th (ft)	10	8	4	0	0	0	0	0				
Control Delay (s)	10.5	13.8	7.7	0.0	0.0	7.7	0.0	0.0				
Lane LOS	B	B	A				A					
Approach Delay (s)	10.5	13.8	2.0				0.3					
Approach LOS	B	B										
Intersection Summary												
Average Delay				3.5								
Intersection Capacity Utilization				25.6%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	20	0	0	24	0	0	0	0	0	0	16
Future Volume (Veh/h)	13	20	0	0	24	0	0	0	0	0	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	22	0	0	26	0	0	0	0	0	0	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	26			22			93	76	22	76	76	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26			22			93	76	22	76	76	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	100	100	98
cM capacity (veh/h)	1588			1593			870	807	1055	907	807	1050
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	36	26	0	17								
Volume Left	14	0	0	0								
Volume Right	0	0	0	17								
cSH	1588	1593	1700	1050								
Volume to Capacity	0.01	0.00	0.00	0.02								
Queue Length 95th (ft)	1	0	0	1								
Control Delay (s)	2.9	0.0	0.0	8.5								
Lane LOS	A		A	A								
Approach Delay (s)	2.9	0.0	0.0	8.5								
Approach LOS			A	A								
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			18.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3










10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	12	0	12	0	0	17	0
Future Volume (Veh/h)	0	0	0	0	0	12	0	12	0	0	17	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	13	0	13	0	0	18	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	44	31	18	31	31	13	18				13	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	44	31	18	31	31	13	18				13	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	100	100	99	100				100	
cM capacity (veh/h)	947	862	1061	977	862	1067	1599				1606	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	13	13	18								
Volume Left	0	0	0	0								
Volume Right	0	13	0	0								
cSH	1700	1067	1599	1606								
Volume to Capacity	0.00	0.01	0.00	0.00								
Queue Length 95th (ft)	0	1	0	0								
Control Delay (s)	0.0	8.4	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	0.0	8.4	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay				2.5								
Intersection Capacity Utilization				13.3%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023

























						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	12	19	5	5	5
Future Volume (Veh/h)	8	12	19	5	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	13	21	5	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	54	8	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	8	10			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	941	1075	1610			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	26	10			
Volume Left	9	21	0			
Volume Right	13	0	5			
cSH	1016	1610	1700			
Volume to Capacity	0.02	0.01	0.01			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	8.6	5.9	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.6	5.9	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			5.9			
Intersection Capacity Utilization		18.0%		ICU Level of Service		A
Analysis Period (min)		15				

2028 AM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	988	108	25	1765	165	248	365	47	147	195	132
Future Volume (vph)	108	988	108	25	1765	165	248	365	47	147	195	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.092			0.232			0.618			0.361		
Satd. Flow (perm)	171	5085	1583	838	5085	1583	2233	3539	1583	1305	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			127			127			129
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	1074	117	27	1918	179	270	397	51	160	212	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	1074	117	27	1918	179	270	397	51	160	212	143
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	11.0	46.5	46.5	9.5	45.0	45.0	9.6	24.4	24.4	9.6	24.4	24.4
Total Split (%)	12.2%	51.7%	51.7%	10.6%	50.0%	50.0%	10.7%	27.1%	27.1%	10.7%	27.1%	27.1%
Maximum Green (s)	6.5	42.0	42.0	5.0	40.5	40.5	5.1	19.9	19.9	5.1	19.9	19.9
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	45.9	43.5	43.5	42.5	38.7	38.7	20.0	14.8	14.8	20.0	14.8	14.8
Actuated g/C Ratio	0.57	0.54	0.54	0.53	0.48	0.48	0.25	0.18	0.18	0.25	0.18	0.18
v/c Ratio	0.51	0.39	0.13	0.04	0.79	0.22	0.43	0.61	0.13	0.35	0.33	0.36
Control Delay	19.1	12.4	2.7	8.0	21.5	5.7	25.4	35.7	0.7	24.2	31.2	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	12.4	2.7	8.0	21.5	5.7	25.4	35.7	0.7	24.2	31.2	10.2
LOS	B	B	A	A	C	A	C	D	A	C	C	B
Approach Delay		12.1			20.0			29.3			23.2	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	24	94	0	2	299	14	57	104	0	32	52	6
Queue Length 95th (ft)	70	181	25	8	408	53	87	150	0	55	84	53
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	228	2937	968	605	2610	874	630	892	494	460	892	495
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.37	0.12	0.04	0.73	0.20	0.43	0.45	0.10	0.35	0.24	0.29

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 80.8

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.6









Intersection LOS: B

Intersection Capacity Utilization 69.4%

ICU Level of Service C























Analysis Period (min) 15

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
9.6 s	24.4 s	9.5 s	46.5 s
			
Ø5	Ø6	Ø7	Ø8
9.6 s	24.4 s	11 s	45 s

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1237	49	24	2068	43	30	4	13	9	26	3
Future Volume (vph)	61	1237	49	24	2068	43	30	4	13	9	26	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.997			0.883			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5070	0	1770	1645	0	3433	1835	0
Flt Permitted	0.091			0.167			0.950			0.746		
Satd. Flow (perm)	329	5085	1583	311	5070	0	1770	1645	0	2696	1835	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		4			14			3	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	1345	53	26	2248	47	33	4	14	10	28	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	1345	53	26	2295	0	33	18	0	10	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.6	47.0	47.0	9.6	47.0		9.6	23.8		9.6	23.8	
Total Split (%)	10.7%	52.2%	52.2%	10.7%	52.2%		10.7%	26.4%		10.7%	26.4%	
Maximum Green (s)	5.1	42.5	42.5	5.1	42.5		5.1	19.3		5.1	19.3	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings

9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	45.6	43.8	43.8	44.7	41.9		5.3	8.4		8.5	6.8	
Actuated g/C Ratio	0.69	0.66	0.66	0.67	0.63		0.08	0.13		0.13	0.10	
v/c Ratio	0.14	0.40	0.05	0.08	0.72		0.24	0.08		0.02	0.16	
Control Delay	4.6	7.4	0.1	4.7	12.0		38.0	18.6		24.7	31.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	4.6	7.4	0.1	4.7	12.0		38.0	18.6		24.7	31.3	
LOS	A	A	A	A	B		D	B		C	C	
Approach Delay		7.0			11.9			31.2			29.7	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	2	45	0	2	205		13	2		2	11	
Queue Length 95th (ft)	10	178	0	11	397		43	21		8	38	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	472	3508	1131	325	3355		140	503		403	553	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.38	0.05	0.08	0.68		0.24	0.04		0.02	0.06	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 66.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 10.5









Intersection LOS: B

Intersection Capacity Utilization 56.7%

ICU Level of Service B

Analysis Period (min) 15










Splits and Phases: 9: S. Crystal Street & E. Alameda Ave

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	23.8 s	9.6 s	47 s
 Ø5	 Ø6	 Ø7	 Ø8
9.6 s	23.8 s	9.6 s	47 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

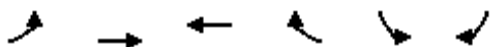
10/05/2023

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	28	0	638	447	28
Future Volume (Veh/h)	0	28	0	638	447	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	30	0	693	486	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				250		
pX, platoon unblocked	0.90					
vC, conflicting volume	848	258	516			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	607	258	516			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	385	741	1046			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	30	346	346	324	192	
Volume Left	0	0	0	0	0	
Volume Right	30	0	0	0	30	
cSH	741	1700	1700	1700	1700	
Volume to Capacity	0.04	0.20	0.20	0.19	0.11	
Queue Length 95th (ft)	3	0	0	0	0	
Control Delay (s)	10.1	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.1	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			23.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Traffic Volume (veh/h)	0	1241	2103	43	0	32	
Future Volume (Veh/h)	0	1241	2103	43	0	32	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	1349	2286	47	0	35	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.65				0.72	0.65	
vC, conflicting volume	2333				2759	786	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1187				793	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	95	
cM capacity (veh/h)	382				236	709	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	450	450	450	914	914	504	35
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	47	35
cSH	1700	1700	1700	1700	1700	1700	709
Volume to Capacity	0.26	0.26	0.26	0.54	0.54	0.30	0.05
Queue Length 95th (ft)	0	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.3
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			51.6%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	30	0	1	0	2	41	8	2	0
Future Volume (Veh/h)	0	0	0	30	0	1	0	2	41	8	2	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	33	0	1	0	2	45	9	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	46	67	2	44	44	24	2			47		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	46	67	2	44	44	24	2			47		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	100	100			99		
cM capacity (veh/h)	951	819	1082	953	842	1052	1620			1560		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	34	47	11								
Volume Left	0	33	0	9								
Volume Right	0	1	45	0								
cSH	1700	956	1620	1560								
Volume to Capacity	0.00	0.04	0.00	0.01								
Queue Length 95th (ft)	0	3	0	0								
Control Delay (s)	0.0	8.9	0.0	6.0								
Lane LOS	A	A		A								
Approach Delay (s)	0.0	8.9	0.0	6.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	4.0											
Intersection Capacity Utilization	17.0%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	6	4	4	6	2	15	87	6	0	30	3
Future Volume (Veh/h)	1	6	4	4	6	2	15	87	6	0	30	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	4	4	7	2	16	95	7	0	33	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (ft)	340											
pX, platoon unblocked												
vC, conflicting volume	120	168	18	154	166	51	36	102				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	120	168	18	154	166	51	36	102				
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1	4.1				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2				
p0 queue free %	100	99	100	99	99	100	99	100				
cM capacity (veh/h)	829	716	1056	782	718	1006	1573	1488				
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	12	13	16	63	39	0	22	14				
Volume Left	1	4	16	0	0	0	0	0				
Volume Right	4	2	0	0	7	0	0	3				
cSH	812	771	1573	1700	1700	1700	1700	1700				
Volume to Capacity	0.01	0.02	0.01	0.04	0.02	0.00	0.01	0.01				
Queue Length 95th (ft)	1	1	1	0	0	0	0	0				
Control Delay (s)	9.5	9.7	7.3	0.0	0.0	0.0	0.0	0.0				
Lane LOS	A	A	A									
Approach Delay (s)	9.5	9.7	1.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	2.0											
Intersection Capacity Utilization	17.5%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	7	0	0	8	0	0	0	0	0	0	4
Future Volume (Veh/h)	4	7	0	0	8	0	0	0	0	0	0	4
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	8	0	0	9	0	0	0	0	0	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	9			8			29	25	8	25	25	9
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	9			8			29	25	8	25	25	9
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1611			1612			975	866	1074	984	866	1073
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	12	9	0	4								
Volume Left	4	0	0	0								
Volume Right	0	0	0	4								
cSH	1611	1612	1700	1073								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	2.4	0.0	0.0	8.4								
Lane LOS	A		A	A								
Approach Delay (s)	2.4	0.0	0.0	8.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay				2.5								
Intersection Capacity Utilization				13.9%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3










10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	4	0	3	0	0	10	0
Future Volume (Veh/h)	0	0	0	0	0	4	0	3	0	0	10	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	4	0	3	0	0	11	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	18	14	11	14	14	3	11			3		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	18	14	11	14	14	3	11			3		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	993	880	1070	1002	880	1081	1608			1619		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	4	3	11								
Volume Left	0	0	0	0								
Volume Right	0	4	0	0								
cSH	1700	1081	1608	1619								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	0.0	8.3	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	0.0	8.3	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023


































						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	4	2	6	6	6
Future Volume (Veh/h)	2	4	2	6	6	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	4	2	7	7	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22	10	14			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22	10	14			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	994	1071	1604			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	9	14			
Volume Left	2	2	0			
Volume Right	4	0	7			
cSH	1044	1604	1700			
Volume to Capacity	0.01	0.00	0.01			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	8.5	1.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.5	1.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

2028 PM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	189	1482	229	94	1292	211	162	351	77	320	485	150
Future Volume (vph)	189	1482	229	94	1292	211	162	351	77	320	485	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.112			0.128			0.327			0.324		
Satd. Flow (perm)	209	5085	1583	463	5085	1583	1182	3539	1583	1171	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			240			182			182			182
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	1611	249	102	1404	229	176	382	84	348	527	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	1611	249	102	1404	229	176	382	84	348	527	163
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.4	43.8	43.8	9.6	35.0	35.0	9.6	24.0	24.0	12.6	27.0	27.0
Total Split (%)	20.4%	48.7%	48.7%	10.7%	38.9%	38.9%	10.7%	26.7%	26.7%	14.0%	30.0%	30.0%
Maximum Green (s)	13.9	39.3	39.3	5.1	30.5	30.5	5.1	19.5	19.5	8.1	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	45.4	38.2	38.2	35.3	30.1	30.1	20.6	15.4	15.4	26.7	18.5	18.5
Actuated g/C Ratio	0.55	0.46	0.46	0.43	0.36	0.36	0.25	0.19	0.19	0.32	0.22	0.22
v/c Ratio	0.64	0.69	0.29	0.27	0.76	0.33	0.41	0.58	0.19	0.58	0.67	0.33
Control Delay	23.9	20.5	3.5	12.1	27.0	7.1	23.0	34.9	0.9	24.9	34.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	20.5	3.5	12.1	27.0	7.1	23.0	34.9	0.9	24.9	34.4	5.4
LOS	C	C	A	B	C	A	C	C	A	C	C	A
Approach Delay		18.8			23.5			27.2			26.7	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	52	251	3	12	233	16	34	101	0	72	139	0
Queue Length 95th (ft)	127	324	45	24	322	69	57	146	0	105	192	38
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	380	2443	885	382	1961	722	434	843	515	600	973	567
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.66	0.28	0.27	0.72	0.32	0.41	0.45	0.16	0.58	0.54	0.29

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.8

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 22.7









Intersection LOS: C

Intersection Capacity Utilization 69.3%

ICU Level of Service C






















Analysis Period (min) 15

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

 Ø1	 Ø2	 Ø3	 Ø4
12.6 s	24 s	9.6 s	43.8 s
 Ø5	 Ø6	 Ø7	 Ø8
9.6 s	27 s	18.4 s	35 s

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1546	172	119	1354	124	126	41	124	112	35	88
Future Volume (vph)	128	1546	172	119	1354	124	126	41	124	112	35	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.987			0.887			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5019	0	1770	1652	0	3433	1663	0
Flt Permitted	0.120			0.115			0.950			0.644		
Satd. Flow (perm)	434	5085	1583	214	5019	0	1770	1652	0	2327	1663	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			187		20			135			96	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	1680	187	129	1472	135	137	45	135	122	38	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	1680	187	129	1607	0	137	180	0	122	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.6	39.0	39.0	11.2	40.6		15.0	30.3		9.5	24.8	
Total Split (%)	10.7%	43.3%	43.3%	12.4%	45.1%		16.7%	33.7%		10.6%	27.6%	
Maximum Green (s)	5.1	34.5	34.5	6.7	36.1		10.5	25.8		5.0	20.3	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings

9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	38.4	33.2	33.2	41.3	34.7		9.7	14.6		12.8	7.8	
Actuated g/C Ratio	0.51	0.44	0.44	0.55	0.46		0.13	0.19		0.17	0.10	
v/c Ratio	0.33	0.75	0.23	0.51	0.69		0.60	0.42		0.26	0.52	
Control Delay	9.8	20.6	3.2	16.5	18.2		44.5	12.4		21.8	19.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.8	20.6	3.2	16.5	18.2		44.5	12.4		21.8	19.9	
LOS	A	C	A	B	B		D	B		C	B	
Approach Delay		18.2			18.0			26.3			20.8	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	12	232	0	24	206		62	19		22	17	
Queue Length 95th (ft)	27	322	36	64	290		#136	71		40	67	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	425	2340	829	256	2427		247	657		468	520	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.72	0.23	0.50	0.66		0.55	0.27		0.26	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 75.4

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 18.9

Intersection LOS: B

Intersection Capacity Utilization 65.7%









ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: S. Crystal Street & E. Alameda Ave

 Ø1	 Ø2	 Ø3	 Ø4
9.5 s	30.3 s	11.2 s	39 s
 Ø5	 Ø6	 Ø7	 Ø8
15 s	24.8 s	9.6 s	40.6 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

10/05/2023

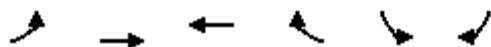


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑↗	
Traffic Volume (veh/h)	0	39	0	751	916	39
Future Volume (Veh/h)	0	39	0	751	916	39
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	42	0	816	996	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				250		
pX, platoon unblocked	0.90					
vC, conflicting volume	1425	519	1038			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1260	519	1038			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	92	100			
cM capacity (veh/h)	147	502	665			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	42	408	408	664	374	
Volume Left	0	0	0	0	0	
Volume Right	42	0	0	0	42	
cSH	502	1700	1700	1700	1700	
Volume to Capacity	0.08	0.24	0.24	0.39	0.22	
Queue Length 95th (ft)	7	0	0	0	0	
Control Delay (s)	12.8	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	12.8	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		36.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Traffic Volume (veh/h)	0	1899	1556	49	0	41	
Future Volume (Veh/h)	0	1899	1556	49	0	41	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	2064	1691	53	0	45	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.76				0.84	0.76	
vC, conflicting volume	1744				2406	590	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	872				78	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	95	
cM capacity (veh/h)	584				770	824	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	688	688	688	676	676	391	45
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	53	45
cSH	1700	1700	1700	1700	1700	1700	824
Volume to Capacity	0.40	0.40	0.40	0.40	0.40	0.23	0.05
Queue Length 95th (ft)	0	0	0	0	0	0	4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.6
Approach LOS							A
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			41.2%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2




















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	36	0	11	0	2	46	14	4	0
Future Volume (Veh/h)	0	0	0	36	0	11	0	2	46	14	4	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	39	0	12	0	2	50	15	4	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	73	86	4	61	61	27	4				52	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	73	86	4	61	61	27	4				52	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	96	100	99	100				99	
cM capacity (veh/h)	901	796	1080	927	822	1048	1618				1554	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	51	52	19								
Volume Left	0	39	0	15								
Volume Right	0	12	50	0								
cSH	1700	953	1618	1554								
Volume to Capacity	0.00	0.05	0.00	0.01								
Queue Length 95th (ft)	0	4	0	1								
Control Delay (s)	0.0	9.0	0.0	5.8								
Lane LOS	A	A		A								
Approach Delay (s)	0.0	9.0	0.0	5.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay				4.7								
Intersection Capacity Utilization				17.7%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	12	70	19	17	9	75	201	17	8	147	35
Future Volume (Veh/h)	8	12	70	19	17	9	75	201	17	8	147	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	13	76	21	18	10	82	218	18	9	160	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								340				
pX, platoon unblocked												
vC, conflicting volume	489	597	99	572	607	118	198			236		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	489	597	99	572	607	118	198			236		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	97	92	94	95	99	94			99		
cM capacity (veh/h)	418	387	937	343	382	912	1372			1328		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	98	49	82	145	91	9	107	91				
Volume Left	9	21	82	0	0	9	0	0				
Volume Right	76	10	0	0	18	0	0	38				
cSH	720	411	1372	1700	1700	1328	1700	1700				
Volume to Capacity	0.14	0.12	0.06	0.09	0.05	0.01	0.06	0.05				
Queue Length 95th (ft)	12	10	5	0	0	1	0	0				
Control Delay (s)	10.8	14.9	7.8	0.0	0.0	7.7	0.0	0.0				
Lane LOS	B	B	A			A						
Approach Delay (s)	10.8	14.9	2.0			0.3						
Approach LOS	B	B										
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			26.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1
















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	22	0	0	26	0	0	0	0	0	0	18
Future Volume (Veh/h)	14	22	0	0	26	0	0	0	0	0	0	18
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	24	0	0	28	0	0	0	0	0	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	28			24			102	82	24	82	82	28
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			24			102	82	24	82	82	28
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	100	100	98
cM capacity (veh/h)	1585			1591			856	801	1052	899	801	1047
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	39	28	0	20								
Volume Left	15	0	0	0								
Volume Right	0	0	0	20								
cSH	1585	1591	1700	1047								
Volume to Capacity	0.01	0.00	0.00	0.02								
Queue Length 95th (ft)	1	0	0	1								
Control Delay (s)	2.8	0.0	0.0	8.5								
Lane LOS	A		A	A								
Approach Delay (s)	2.8	0.0	0.0	8.5								
Approach LOS			A	A								
Intersection Summary												
Average Delay				3.2								
Intersection Capacity Utilization				18.6%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3

10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	13	0	13	0	0	19	0
Future Volume (Veh/h)	0	0	0	0	0	13	0	13	0	0	19	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	14	0	14	0	0	21	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	49	35	21	35	35	14	21				14	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	49	35	21	35	35	14	21				14	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	100	100	99	100				100	
cM capacity (veh/h)	939	857	1056	971	857	1066	1595				1604	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	14	14	21								
Volume Left	0	0	0	0								
Volume Right	0	14	0	0								
cSH	1700	1066	1595	1604								
Volume to Capacity	0.00	0.01	0.00	0.00								
Queue Length 95th (ft)	0	1	0	0								
Control Delay (s)	0.0	8.4	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	0.0	8.4	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay				2.4								
Intersection Capacity Utilization				13.3%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023




































Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	13	21	6	6	6
Future Volume (Veh/h)	9	13	21	6	6	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	14	23	7	7	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	64	10	14			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	64	10	14			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	929	1071	1604			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	24	30	14			
Volume Left	10	23	0			
Volume Right	14	0	7			
cSH	1007	1604	1700			
Volume to Capacity	0.02	0.01	0.01			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	8.7	5.6	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.7	5.6	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization			18.1%	ICU Level of Service		A
Analysis Period (min)			15			

2040 AM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	137	1253	137	32	2239	209	315	463	60	186	248	168
Future Volume (vph)	137	1253	137	32	2239	209	315	463	60	186	248	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.084			0.147			0.520			0.242		
Satd. Flow (perm)	156	5085	1583	531	5085	1583	1879	3539	1583	875	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149			127			127			127
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	1362	149	35	2434	227	342	503	65	202	270	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	1362	149	35	2434	227	342	503	65	202	270	183
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	48.0	48.0	9.5	48.0	48.0	9.6	23.0	23.0	9.5	22.9	22.9
Total Split (%)	10.6%	53.3%	53.3%	10.6%	53.3%	53.3%	10.7%	25.6%	25.6%	10.6%	25.4%	25.4%
Maximum Green (s)	5.0	43.5	43.5	5.0	43.5	43.5	5.1	18.5	18.5	5.0	18.4	18.4
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.4	47.4	47.4	48.5	43.5	43.5	21.9	16.8	16.8	21.7	16.7	16.7
Actuated g/C Ratio	0.57	0.54	0.54	0.55	0.49	0.49	0.25	0.19	0.19	0.25	0.19	0.19
v/c Ratio	0.83	0.50	0.16	0.08	0.97	0.27	0.62	0.75	0.16	0.56	0.40	0.46
Control Delay	52.2	14.7	2.8	8.1	35.4	7.0	31.1	41.4	1.1	30.0	33.3	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	14.7	2.8	8.1	35.4	7.0	31.1	41.4	1.1	30.0	33.3	15.1
LOS	D	B	A	A	D	A	C	D	A	C	C	B
Approach Delay		17.0			32.6			34.7			27.2	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	37	191	0	4	480	30	76	140	0	42	70	26
Queue Length 95th (ft)	#148	234	30	9	#623	72	112	194	3	69	107	86
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	180	2731	919	456	2506	844	554	741	432	359	737	430
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.50	0.16	0.08	0.97	0.27	0.62	0.68	0.15	0.56	0.37	0.43

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 88.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 28.0

Intersection LOS: C

Intersection Capacity Utilization 84.0%









ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
9.5 s	23 s	9.5 s	48 s
			
Ø5	Ø6	Ø7	Ø8
9.6 s	22.9 s	9.5 s	48 s













Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	1568	62	31	2623	55	38	6	17	11	34	4
Future Volume (vph)	77	1568	62	31	2623	55	38	6	17	11	34	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.997			0.892			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5070	0	1770	1662	0	3433	1835	0
Flt Permitted	0.085			0.101			0.950			0.741		
Satd. Flow (perm)	307	5085	1583	188	5070	0	1770	1662	0	2678	1835	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		5			18			4	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	1704	67	34	2851	60	41	7	18	12	37	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	1704	67	34	2911	0	41	25	0	12	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.5	47.0	47.0	9.5	47.0		9.5	24.0		9.5	24.0	
Total Split (%)	10.6%	52.2%	52.2%	10.6%	52.2%		10.6%	26.7%		10.6%	26.7%	
Maximum Green (s)	5.0	42.5	42.5	5.0	42.5		5.0	19.5		5.0	19.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	48.8	47.0	47.0	47.0	43.2		5.1	10.6		9.8	7.1	
Actuated g/C Ratio	0.68	0.65	0.65	0.65	0.60		0.07	0.15		0.14	0.10	
v/c Ratio	0.20	0.51	0.06	0.15	0.96		0.33	0.10		0.03	0.22	
Control Delay	5.5	9.0	0.4	6.0	26.1		42.4	17.5		24.0	32.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	5.5	9.0	0.4	6.0	26.1		42.4	17.5		24.0	32.9	
LOS	A	A	A	A	C		D	B		C	C	
Approach Delay		8.6			25.9			33.0			30.9	
Approach LOS		A			C			C			C	
Queue Length 50th (ft)	6	127	0	5	~569		19	3		2	17	
Queue Length 95th (ft)	13	249	3	14	#698		51	25		8	46	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	429	3324	1078	234	3048		125	471		418	508	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.20	0.51	0.06	0.15	0.96		0.33	0.05		0.03	0.08	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 71.9

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 68.2%

ICU Level of Service C

Analysis Period (min) 15









~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: S. Crystal Street & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
9.5 s	24 s	9.5 s	47 s
			
Ø5	Ø6	Ø7	Ø8
9.5 s	24 s	9.5 s	47 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

10/05/2023

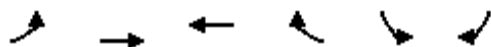


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑↗	
Traffic Volume (veh/h)	0	35	0	809	567	35
Future Volume (Veh/h)	0	35	0	809	567	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	0	879	616	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				250		
pX, platoon unblocked	0.87					
vC, conflicting volume	1074	327	654			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	781	327	654			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	94	100			
cM capacity (veh/h)	288	669	929			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	38	440	440	411	243	
Volume Left	0	0	0	0	0	
Volume Right	38	0	0	0	38	
cSH	669	1700	1700	1700	1700	
Volume to Capacity	0.06	0.26	0.26	0.24	0.14	
Queue Length 95th (ft)	5	0	0	0	0	
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.7	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		26.8%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑	↑↑↑			↗	
Traffic Volume (veh/h)	0	1574	2667	55	0	41	
Future Volume (Veh/h)	0	1574	2667	55	0	41	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	1711	2899	60	0	45	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.48				0.58	0.48	
vC, conflicting volume	2959				3499	996	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1273				414	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	91	
cM capacity (veh/h)	259				328	518	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	570	570	570	1160	1160	640	45
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	60	45
cSH	1700	1700	1700	1700	1700	1700	518
Volume to Capacity	0.34	0.34	0.34	0.68	0.68	0.38	0.09
Queue Length 95th (ft)	0	0	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	12.6
Lane LOS							B
Approach Delay (s)	0.0			0.0			12.6
Approach LOS							B
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			62.8%		ICU Level of Service		B
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	38	0	1	0	3	52	10	3	0
Future Volume (Veh/h)	0	0	0	38	0	1	0	3	52	10	3	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	41	0	1	0	3	57	11	3	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	58	85	3	56	56	32	3			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	58	85	3	56	56	32	3			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	100	100	100			99		
cM capacity (veh/h)	933	799	1081	936	829	1043	1619			1544		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	42	60	14								
Volume Left	0	41	0	11								
Volume Right	0	1	57	0								
cSH	1700	938	1619	1544								
Volume to Capacity	0.00	0.04	0.00	0.01								
Queue Length 95th (ft)	0	4	0	1								
Control Delay (s)	0.0	9.0	0.0	5.8								
Lane LOS	A	A		A								
Approach Delay (s)	0.0	9.0	0.0	5.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay	4.0											
Intersection Capacity Utilization	17.4%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	7	6	6	7	3	20	11	7	0	38	4
Future Volume (Veh/h)	1	7	6	6	7	3	20	11	7	0	38	4
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	8	7	7	8	3	22	12	8	0	41	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	340											
pX, platoon unblocked												
vC, conflicting volume	100	107	22	92	105	10	45				20	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	100	107	22	92	105	10	45				20	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	99	99	99	99	100	99				100	
cM capacity (veh/h)	852	771	1049	861	773	1069	1561				1595	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	16	18	22	8	12	0	27	18				
Volume Left	1	7	22	0	0	0	0	0				
Volume Right	7	3	0	0	8	0	0	4				
cSH	878	846	1561	1700	1700	1700	1700	1700				
Volume to Capacity	0.02	0.02	0.01	0.00	0.01	0.00	0.02	0.01				
Queue Length 95th (ft)	1	2	1	0	0	0	0	0				
Control Delay (s)	9.2	9.4	7.3	0.0	0.0	0.0	0.0	0.0				
Lane LOS	A	A	A									
Approach Delay (s)	9.2	9.4	3.8	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	3.9											
Intersection Capacity Utilization	17.8%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1
















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	8	0	0	10	0	0	0	0	0	0	6
Future Volume (Veh/h)	6	8	0	0	10	0	0	0	0	0	0	6
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	9	0	0	11	0	0	0	0	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	11			9			41	34	9	34	34	11
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			9			41	34	9	34	34	11
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	99
cM capacity (veh/h)	1608			1611			953	855	1073	970	855	1070
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	16	11	0	7								
Volume Left	7	0	0	0								
Volume Right	0	0	0	7								
cSH	1608	1611	1700	1070								
Volume to Capacity	0.00	0.00	0.00	0.01								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	3.2	0.0	0.0	8.4								
Lane LOS	A		A	A								
Approach Delay (s)	3.2	0.0	0.0	8.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay				3.2								
Intersection Capacity Utilization				15.8%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3

10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	6	0	4	0	0	13	0
Future Volume (Veh/h)	0	0	0	0	0	6	0	4	0	0	13	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	7	0	4	0	0	14	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	25	18	14	18	18	4	14				4	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	25	18	14	18	18	4	14				4	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	100	100	99	100				100	
cM capacity (veh/h)	979	876	1066	996	876	1080	1604				1618	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	7	4	14								
Volume Left	0	0	0	0								
Volume Right	0	7	0	0								
cSH	1700	1080	1604	1618								
Volume to Capacity	0.00	0.01	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	0.0	8.4	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	0.0	8.4	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay				2.3								
Intersection Capacity Utilization				13.3%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023




































Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Volume (veh/h)	3	6	3	7	7	7
Future Volume (Veh/h)	3	6	3	7	7	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	7	3	8	8	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	26	12	16			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	26	12	16			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	988	1069	1602			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	11	16			
Volume Left	3	3	0			
Volume Right	7	0	8			
cSH	1043	1602	1700			
Volume to Capacity	0.01	0.00	0.01			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	8.5	2.0	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.5	2.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

2040 PM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	239	1879	290	119	1638	267	206	445	98	406	615	190
Future Volume (vph)	239	1879	290	119	1638	267	206	445	98	406	615	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.105			0.119			0.212			0.267		
Satd. Flow (perm)	196	5085	1583	430	5085	1583	766	3539	1583	965	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			237			182			182			182
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	260	2042	315	129	1780	290	224	484	107	441	668	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	2042	315	129	1780	290	224	484	107	441	668	207
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	15.0	43.5	43.5	9.5	38.0	38.0	9.6	25.0	25.0	12.0	27.4	27.4
Total Split (%)	16.7%	48.3%	48.3%	10.6%	42.2%	42.2%	10.7%	27.8%	27.8%	13.3%	30.4%	30.4%
Maximum Green (s)	10.5	39.0	39.0	5.0	33.5	33.5	5.1	20.5	20.5	7.5	22.9	22.9
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	48.5	39.0	39.0	38.5	33.5	33.5	24.0	18.9	18.9	28.8	21.3	21.3
Actuated g/C Ratio	0.55	0.44	0.44	0.44	0.38	0.38	0.27	0.21	0.21	0.33	0.24	0.24
v/c Ratio	0.88	0.91	0.38	0.36	0.92	0.41	0.62	0.64	0.22	0.84	0.78	0.40
Control Delay	51.0	30.9	6.1	13.6	36.2	9.7	28.9	35.9	1.5	39.2	38.8	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	30.9	6.1	13.6	36.2	9.7	28.9	35.9	1.5	39.2	38.8	8.6
LOS	D	C	A	B	D	A	C	D	A	D	D	A
Approach Delay		29.9			31.3			29.5			34.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	95	390	26	17	352	41	44	130	0	93	184	11
Queue Length 95th (ft)	#238	#507	79	30	#460	103	70	182	5	#153	246	65
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	294	2244	831	357	1927	713	361	821	507	523	917	545
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.91	0.38	0.36	0.92	0.41	0.62	0.59	0.21	0.84	0.73	0.38

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 88.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 83.8%

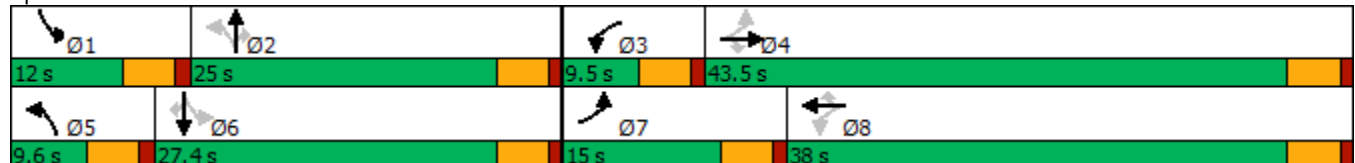
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave















Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	1960	218	151	1717	157	160	52	157	141	45	112
Future Volume (vph)	162	1960	218	151	1717	157	160	52	157	141	45	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.987			0.887			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5019	0	1770	1652	0	3433	1663	0
Flt Permitted	0.104			0.103			0.950			0.556		
Satd. Flow (perm)	376	5085	1583	192	5019	0	1770	1652	0	2009	1663	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			234		21			152			122	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	2130	237	164	1866	171	174	57	171	153	49	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	2130	237	164	2037	0	174	228	0	153	171	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.6	43.0	43.0	9.9	43.3		14.0	27.5		9.6	23.1	
Total Split (%)	10.7%	47.8%	47.8%	11.0%	48.1%		15.6%	30.6%		10.7%	25.7%	
Maximum Green (s)	5.1	38.5	38.5	5.4	38.8		9.5	23.0		5.1	18.6	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	43.7	38.6	38.6	44.3	38.9		9.5	12.9		13.6	8.5	
Actuated g/C Ratio	0.55	0.48	0.48	0.55	0.49		0.12	0.16		0.17	0.11	
v/c Ratio	0.44	0.87	0.27	0.77	0.83		0.83	0.58		0.35	0.60	
Control Delay	11.0	24.1	2.9	38.4	22.0		67.6	17.6		24.2	21.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.0	24.1	2.9	38.4	22.0		67.6	17.6		24.2	21.0	
LOS	B	C	A	D	C		E	B		C	C	
Approach Delay		21.2			23.2			39.2			22.5	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	16	324	1	31	297		86	34		29	23	
Queue Length 95th (ft)	34	#500	39	#143	420		#209	99		51	80	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	400	2451	884	212	2449		210	584		432	480	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.44	0.87	0.27	0.77	0.83		0.83	0.39		0.35	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 80

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 23.4

Intersection LOS: C

Intersection Capacity Utilization 79.4%









ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: S. Crystal Street & E. Alameda Ave




			
Ø1	Ø2	Ø3	Ø4
9.6 s	27.5 s	9.9 s	43 s
			
Ø5	Ø6	Ø7	Ø8
14 s	23.1 s	9.6 s	43.3 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

10/05/2023

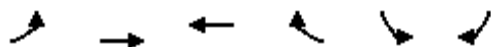


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	49	0	952	1162	49
Future Volume (Veh/h)	0	49	0	952	1162	49
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	53	0	1035	1263	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				250		
pX, platoon unblocked	0.88					
vC, conflicting volume	1807	658	1316			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1641	658	1316			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	80	407	521			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	53	518	518	842	474	
Volume Left	0	0	0	0	0	
Volume Right	53	0	0	0	53	
cSH	407	1700	1700	1700	1700	
Volume to Capacity	0.13	0.30	0.30	0.50	0.28	
Queue Length 95th (ft)	11	0	0	0	0	
Control Delay (s)	15.2	0.0	0.0	0.0	0.0	
Lane LOS						
Approach Delay (s)	15.2	0.0	0.0			
Approach LOS						
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			43.7%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑			↗		
Traffic Volume (veh/h)	0	2408	1973	62	0	52		
Future Volume (Veh/h)	0	2408	1973	62	0	52		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	0	2617	2145	67	0	57		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh								
Upstream signal (ft)		340	280					
pX, platoon unblocked	0.65				0.80	0.65		
vC, conflicting volume	2212				3051	748		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	962				0	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	92		
cM capacity (veh/h)	460				814	701		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	
Volume Total	872	872	872	858	858	496	57	
Volume Left	0	0	0	0	0	0	0	
Volume Right	0	0	0	0	0	67	57	
cSH	1700	1700	1700	1700	1700	1700	701	
Volume to Capacity	0.51	0.51	0.51	0.50	0.50	0.29	0.08	
Queue Length 95th (ft)	0	0	0	0	0	0	7	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.6	
Lane LOS							B	
Approach Delay (s)	0.0			0.0			10.6	
Approach LOS							B	
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			49.9%			ICU Level of Service		A
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	46	0	14	0	3	59	18	6	0
Future Volume (Veh/h)	0	0	0	46	0	14	0	3	59	18	6	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	50	0	15	0	3	64	20	7	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	97	114	7	82	82	35	7			67		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	97	114	7	82	82	35	7			67		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	94	100	99	100			99		
cM capacity (veh/h)	864	766	1075	896	798	1038	1614			1535		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	65	67	27								
Volume Left	0	50	0	20								
Volume Right	0	15	64	0								
cSH	1700	926	1614	1535								
Volume to Capacity	0.00	0.07	0.00	0.01								
Queue Length 95th (ft)	0	6	0	1								
Control Delay (s)	0.0	9.2	0.0	5.5								
Lane LOS	A	A		A								
Approach Delay (s)	0.0	9.2	0.0	5.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay	4.7											
Intersection Capacity Utilization	18.0%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	15	88	24	21	11	95	255	21	10	186	45
Future Volume (Veh/h)	10	15	88	24	21	11	95	255	21	10	186	45
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	16	96	26	23	12	103	277	23	11	202	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								340				
pX, platoon unblocked												
vC, conflicting volume	616	754	126	722	768	150	251			300		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	616	754	126	722	768	150	251			300		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	95	89	90	92	99	92			99		
cM capacity (veh/h)	325	307	902	252	302	870	1311			1258		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	123	61	103	185	115	11	135	116				
Volume Left	11	26	103	0	0	11	0	0				
Volume Right	96	12	0	0	23	0	0	49				
cSH	639	316	1311	1700	1700	1258	1700	1700				
Volume to Capacity	0.19	0.19	0.08	0.11	0.07	0.01	0.08	0.07				
Queue Length 95th (ft)	18	18	6	0	0	1	0	0				
Control Delay (s)	12.0	19.1	8.0	0.0	0.0	7.9	0.0	0.0				
Lane LOS	B	C	A			A						
Approach Delay (s)	12.0	19.1	2.0			0.3						
Approach LOS	B	C										
Intersection Summary												
Average Delay			4.2									
Intersection Capacity Utilization			31.3%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1
















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	28	0	0	34	0	0	0	0	0	0	22
Future Volume (Veh/h)	18	28	0	0	34	0	0	0	0	0	0	22
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	30	0	0	37	0	0	0	0	0	0	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	37			30			131	107	30	107	107	37
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	37			30			131	107	30	107	107	37
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	100	100	98
cM capacity (veh/h)	1574			1583			814	773	1044	864	773	1035
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	50	37	0	24								
Volume Left	20	0	0	0								
Volume Right	0	0	0	24								
cSH	1574	1583	1700	1035								
Volume to Capacity	0.01	0.00	0.00	0.02								
Queue Length 95th (ft)	1	0	0	2								
Control Delay (s)	3.0	0.0	0.0	8.6								
Lane LOS	A		A	A								
Approach Delay (s)	3.0	0.0	0.0	8.6								
Approach LOS			A	A								
Intersection Summary												
Average Delay				3.2								
Intersection Capacity Utilization				19.1%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3

10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	0	17	0	17	0	0	24	0
Future Volume (Veh/h)	0	0	0	0	0	17	0	17	0	0	24	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	18	0	18	0	0	26	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	62	44	26	44	44	18	26			18		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62	44	26	44	44	18	26			18		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	98	100			100		
cM capacity (veh/h)	917	848	1050	958	848	1061	1588			1599		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	18	18	26								
Volume Left	0	0	0	0								
Volume Right	0	18	0	0								
cSH	1700	1061	1588	1599								
Volume to Capacity	0.00	0.02	0.00	0.00								
Queue Length 95th (ft)	0	1	0	0								
Control Delay (s)	0.0	8.5	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	0.0	8.5	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			13.3%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023



























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Volume (veh/h)	11	17	27	7	7	7
Future Volume (Veh/h)	11	17	27	7	7	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	18	29	8	8	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	78	12	16			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	78	12	16			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	98			
cM capacity (veh/h)	908	1069	1602			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	30	37	16			
Volume Left	12	29	0			
Volume Right	18	0	8			
cSH	998	1602	1700			
Volume to Capacity	0.03	0.02	0.01			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	8.7	5.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.7	5.7	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			5.7			
Intersection Capacity Utilization			18.5%	ICU Level of Service		A
Analysis Period (min)			15			

2023 AM PEAK HOUR BUILD-OUT

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	877	93	23	1620	149	233	331	43	177	189	120
Future Volume (vph)	99	877	93	23	1620	149	233	331	43	177	189	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.094			0.284			0.614			0.407		
Satd. Flow (perm)	175	5085	1583	1026	5085	1583	2219	3539	1583	1471	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			127			127			130
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	953	101	25	1761	162	253	360	47	192	205	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	953	101	25	1761	162	253	360	47	192	205	130
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	12.8	46.9	46.9	9.5	43.6	43.6	9.8	24.0	24.0	9.6	23.8	23.8
Total Split (%)	14.2%	52.1%	52.1%	10.6%	48.4%	48.4%	10.9%	26.7%	26.7%	10.7%	26.4%	26.4%
Maximum Green (s)	8.3	42.4	42.4	5.0	39.1	39.1	5.3	19.5	19.5	5.1	19.3	19.3
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	45.6	42.6	42.6	40.2	36.5	36.5	19.2	13.7	13.7	18.8	13.5	13.5
Actuated g/C Ratio	0.58	0.54	0.54	0.51	0.46	0.46	0.24	0.17	0.17	0.24	0.17	0.17
v/c Ratio	0.41	0.35	0.11	0.04	0.75	0.20	0.41	0.59	0.12	0.40	0.34	0.34
Control Delay	13.8	11.5	1.9	7.7	20.8	5.3	25.4	35.6	0.7	25.4	32.1	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	11.5	1.9	7.7	20.8	5.3	25.4	35.6	0.7	25.4	32.1	8.8
LOS	B	B	A	A	C	A	C	D	A	C	C	A
Approach Delay		10.9			19.3			29.2			23.9	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	21	78	0	2	267	10	53	94	0	40	51	0
Queue Length 95th (ft)	56	154	17	7	365	47	83	137	0	65	83	45
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	274	3065	1004	680	2612	875	623	906	500	480	897	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.31	0.10	0.04	0.67	0.19	0.41	0.40	0.09	0.40	0.23	0.26

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.1









Intersection LOS: B

Intersection Capacity Utilization 66.0%

ICU Level of Service C























Analysis Period (min) 15

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
9.6 s	24 s	9.5 s	46.9 s
			
Ø5	Ø6	Ø7	Ø8
9.8 s	23.8 s	12.8 s	43.6 s

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	1071	44	22	1860	39	27	6	12	35	27	29
Future Volume (vph)	119	1071	44	22	1860	39	27	6	12	35	27	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.997			0.902			0.921	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5070	0	1770	1680	0	3433	1716	0
Flt Permitted	0.092			0.215			0.950			0.667		
Satd. Flow (perm)	332	5085	1583	400	5070	0	1770	1680	0	2410	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		4			13			32	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	1164	48	24	2022	42	29	7	13	38	29	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	1164	48	24	2064	0	29	20	0	38	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.6	46.0	46.0	9.6	46.0		9.8	24.8		9.6	24.6	
Total Split (%)	10.7%	51.1%	51.1%	10.7%	51.1%		10.9%	27.6%		10.7%	27.3%	
Maximum Green (s)	5.1	41.5	41.5	5.1	41.5		5.3	20.3		5.1	20.1	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings

9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	45.2	43.4	43.4	43.4	39.6		5.5	7.0		10.4	8.7	
Actuated g/C Ratio	0.66	0.64	0.64	0.64	0.58		0.08	0.10		0.15	0.13	
v/c Ratio	0.28	0.36	0.05	0.07	0.70		0.20	0.11		0.08	0.25	
Control Delay	6.2	7.9	0.1	5.3	13.4		37.8	21.7		24.2	20.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.2	7.9	0.1	5.3	13.4		37.8	21.7		24.2	20.9	
LOS	A	A	A	A	B		D	C		C	C	
Approach Delay		7.5			13.3			31.2			22.1	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	8	70	0	3	247		13	3		7	11	
Queue Length 95th (ft)	19	155	0	11	344		40	23		19	47	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	461	3460	1117	361	3219		143	530		448	549	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.28	0.34	0.04	0.07	0.64		0.20	0.04		0.08	0.11	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 68.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 11.6









Intersection LOS: B

Intersection Capacity Utilization 60.4%

ICU Level of Service B

Analysis Period (min) 15










Splits and Phases: 9: S. Crystal Street & E. Alameda Ave

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	24.8 s	9.6 s	46 s
 Ø5	 Ø6	 Ø7	 Ø8
9.8 s	24.6 s	9.6 s	46 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Site Access 3

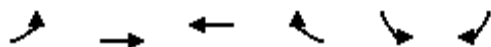
10/05/2023

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	81	0	560	405	31
Future Volume (Veh/h)	0	81	0	560	405	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	88	0	609	440	34
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				250		
pX, platoon unblocked	0.91					
vC, conflicting volume	762	237	474			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	544	237	474			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	88	100			
cM capacity (veh/h)	427	764	1084			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	88	304	304	293	181	
Volume Left	0	0	0	0	0	
Volume Right	88	0	0	0	34	
cSH	764	1700	1700	1700	1700	
Volume to Capacity	0.12	0.18	0.18	0.17	0.11	
Queue Length 95th (ft)	10	0	0	0	0	
Control Delay (s)	10.3	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.3	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			23.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑↑	↑↑↑↑			↗		
Traffic Volume (veh/h)	0	1102	1811	162	0	110		
Future Volume (Veh/h)	0	1102	1811	162	0	110		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	0	1198	1968	176	0	120		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh								
Upstream signal (ft)		340	280					
pX, platoon unblocked	0.69				0.75	0.69		
vC, conflicting volume	2144				2455	744		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1097				725	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	84		
cM capacity (veh/h)	437				270	751		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	
Volume Total	399	399	399	787	787	570	120	
Volume Left	0	0	0	0	0	0	0	
Volume Right	0	0	0	0	0	176	120	
cSH	1700	1700	1700	1700	1700	1700	751	
Volume to Capacity	0.23	0.23	0.23	0.46	0.46	0.34	0.16	
Queue Length 95th (ft)	0	0	0	0	0	0	14	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.7	
Lane LOS							B	
Approach Delay (s)	0.0			0.0			10.7	
Approach LOS							B	
Intersection Summary								
Average Delay			0.4					
Intersection Capacity Utilization			52.1%			ICU Level of Service		A
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	61	27	0	1	123	2	37	7	22	0
Future Volume (Veh/h)	13	0	61	27	0	1	123	2	37	7	22	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	0	66	29	0	1	134	2	40	8	24	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	331	350	24	396	330	22	24				42	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	331	350	24	396	330	22	24				42	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	100	94	94	100	100	92				99	
cM capacity (veh/h)	579	523	1052	493	537	1055	1591				1567	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	80	30	176	32								
Volume Left	14	29	134	8								
Volume Right	66	1	40	0								
cSH	921	501	1591	1567								
Volume to Capacity	0.09	0.06	0.08	0.01								
Queue Length 95th (ft)	7	5	7	0								
Control Delay (s)	9.3	12.6	5.8	1.9								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.3	12.6	5.8	1.9								
Approach LOS	A	B										
Intersection Summary												
Average Delay			6.9									
Intersection Capacity Utilization			28.7%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	5	4	60	5	6	14	79	71	2	27	3
Future Volume (Veh/h)	1	5	4	60	5	6	14	79	71	2	27	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	4	65	5	7	15	86	77	2	29	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								340				
pX, platoon unblocked												
vC, conflicting volume	117	228	16	180	190	82	32			163		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	117	228	16	180	190	82	32			163		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	100	91	99	99	99			100		
cM capacity (veh/h)	829	663	1059	752	696	962	1579			1413		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	10	77	15	57	106	2	19	13				
Volume Left	1	65	15	0	0	2	0	0				
Volume Right	4	7	0	0	77	0	0	3				
cSH	799	763	1579	1700	1700	1413	1700	1700				
Volume to Capacity	0.01	0.10	0.01	0.03	0.06	0.00	0.01	0.01				
Queue Length 95th (ft)	1	8	1	0	0	0	0	0				
Control Delay (s)	9.6	10.2	7.3	0.0	0.0	7.6	0.0	0.0				
Lane LOS	A	B	A			A						
Approach Delay (s)	9.6	10.2	0.6			0.4						
Approach LOS	A	B										
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			24.7%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	6	68	0	7	0	60	0	0	0	0	4
Future Volume (Veh/h)	4	6	68	0	7	0	60	0	0	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	7	74	0	8	0	65	0	0	0	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	8			81			64	60	44	60	97	8
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	8			81			64	60	44	60	97	8
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			93	100	100	100	100	100
cM capacity (veh/h)	1612			1517			925	829	1026	934	791	1074
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	85	8	65	4								
Volume Left	4	0	65	0								
Volume Right	74	0	0	4								
cSH	1612	1517	925	1074								
Volume to Capacity	0.00	0.00	0.07	0.00								
Queue Length 95th (ft)	0	0	6	0								
Control Delay (s)	0.4	0.0	9.2	8.4								
Lane LOS	A		A	A								
Approach Delay (s)	0.4	0.0	9.2	8.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			24.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3










10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	43	20	0	26	4	0	3	13	0	9	0
Future Volume (Veh/h)	20	43	20	0	26	4	0	3	13	0	9	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	47	22	0	28	4	0	3	14	0	10	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	38	27	10	66	20	10	10			17		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	38	27	10	66	20	10	10			17		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	95	98	100	97	100	100			100		
cM capacity (veh/h)	940	866	1071	871	874	1071	1610			1600		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	91	32	17	10								
Volume Left	22	0	0	0								
Volume Right	22	4	14	0								
cSH	927	894	1610	1600								
Volume to Capacity	0.10	0.04	0.00	0.00								
Queue Length 95th (ft)	8	3	0	0								
Control Delay (s)	9.3	9.2	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.3	9.2	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay				7.6								
Intersection Capacity Utilization				21.3%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1


































10/05/2023

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	4	2	25	5	5
Future Volume (Veh/h)	2	4	2	25	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	4	2	27	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	38	8	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	38	8	10			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	972	1075	1610			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	29	10			
Volume Left	2	2	0			
Volume Right	4	0	5			
cSH	1038	1610	1700			
Volume to Capacity	0.01	0.00	0.01			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	8.5	0.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.5	0.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

2023 PM PEAK HOUR BUILD-OUT

Lanes, Volumes, Timings
1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	172	1328	202	85	1189	191	154	318	70	327	448	136
Future Volume (vph)	172	1328	202	85	1189	191	154	318	70	327	448	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.120			0.139			0.393			0.349		
Satd. Flow (perm)	224	5085	1583	502	5085	1583	1420	3539	1583	1261	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			220			182			182			182
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	1443	220	92	1292	208	167	346	76	355	487	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	1443	220	92	1292	208	167	346	76	355	487	148
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	42.5	42.5	9.5	34.0	34.0	9.6	25.0	25.0	13.0	28.4	28.4
Total Split (%)	20.0%	47.2%	47.2%	10.6%	37.8%	37.8%	10.7%	27.8%	27.8%	14.4%	31.6%	31.6%
Maximum Green (s)	13.5	38.0	38.0	5.0	29.5	29.5	5.1	20.5	20.5	8.5	23.9	23.9
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	42.2	35.1	35.1	32.7	27.6	27.6	19.3	14.1	14.1	26.1	17.5	17.5
Actuated g/C Ratio	0.54	0.45	0.45	0.41	0.35	0.35	0.24	0.18	0.18	0.33	0.22	0.22
v/c Ratio	0.58	0.64	0.27	0.23	0.73	0.31	0.35	0.55	0.18	0.54	0.62	0.30
Control Delay	20.1	19.4	3.3	11.7	25.7	6.2	21.1	33.4	0.9	22.9	31.9	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	19.4	3.3	11.7	25.7	6.2	21.1	33.4	0.9	22.9	31.9	4.1
LOS	C	B	A	B	C	A	C	C	A	C	C	A
Approach Delay		17.6			22.3			25.7			24.5	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	44	202	0	10	196	8	30	85	0	68	118	0
Queue Length 95th (ft)	110	286	40	23	294	58	53	131	0	104	173	29
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	389	2491	887	397	1969	724	479	935	552	656	1090	613
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.58	0.25	0.23	0.66	0.29	0.35	0.37	0.14	0.54	0.45	0.24

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 78.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 21.4









Intersection LOS: C

Intersection Capacity Utilization 65.6%

ICU Level of Service C






















Analysis Period (min) 15

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

 Ø1	 Ø2	 Ø3	 Ø4
13 s	25 s	9.5 s	42.5 s
 Ø5	 Ø6	 Ø7	 Ø8
9.6 s	28.4 s	18 s	34 s













Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	1359	156	108	1218	112	114	38	112	124	33	99
Future Volume (vph)	171	1359	156	108	1218	112	114	38	112	124	33	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.987			0.888			0.887	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5019	0	1770	1654	0	3433	1652	0
Flt Permitted	0.122			0.123			0.950			0.654		
Satd. Flow (perm)	441	5085	1583	229	5019	0	1770	1654	0	2363	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182		19			122			108	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	1477	170	117	1324	122	124	41	122	135	36	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	186	1477	170	117	1446	0	124	163	0	135	144	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	10.0	37.0	37.0	12.0	39.0		16.0	31.4		9.6	25.0	
Total Split (%)	11.1%	41.1%	41.1%	13.3%	43.3%		17.8%	34.9%		10.7%	27.8%	
Maximum Green (s)	5.5	32.5	32.5	7.5	34.5		11.5	26.9		5.1	20.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	37.0	32.9	32.9	38.3	31.2		9.8	11.9		11.6	7.9	
Actuated g/C Ratio	0.53	0.47	0.47	0.55	0.45		0.14	0.17		0.17	0.11	
v/c Ratio	0.39	0.62	0.20	0.41	0.64		0.50	0.43		0.28	0.51	
Control Delay	10.6	18.1	3.1	12.8	17.4		38.8	13.1		21.2	18.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.6	18.1	3.1	12.8	17.4		38.8	13.1		21.2	18.5	
LOS	B	B	A	B	B		D	B		C	B	
Approach Delay		15.9			17.0			24.2			19.8	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	18	197	0	22	179		55	17		23	16	
Queue Length 95th (ft)	37	282	32	52	260		113	66		43	68	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	478	2464	860	300	2591		303	736		474	580	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.39	0.60	0.20	0.39	0.56		0.41	0.22		0.28	0.25	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 70

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 17.2









Intersection LOS: B

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: S. Crystal Street & E. Alameda Ave

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	31.4 s	12 s	37 s
 Ø5	 Ø6	 Ø7	 Ø8
16 s	25 s	10 s	39 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

10/05/2023

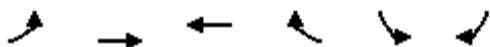


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕↗	
Traffic Volume (veh/h)	0	81	0	687	830	55
Future Volume (Veh/h)	0	81	0	687	830	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	88	0	747	902	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				250		
pX, platoon unblocked	0.92					
vC, conflicting volume	1306	481	962			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1148	481	962			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	83	100			
cM capacity (veh/h)	176	531	711			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	88	374	374	601	361	
Volume Left	0	0	0	0	0	
Volume Right	88	0	0	0	60	
cSH	531	1700	1700	1700	1700	
Volume to Capacity	0.17	0.22	0.22	0.35	0.21	
Queue Length 95th (ft)	15	0	0	0	0	
Control Delay (s)	13.1	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	13.1	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			36.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Traffic Volume (veh/h)	0	1702	1332	147	0	106	
Future Volume (Veh/h)	0	1702	1332	147	0	106	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	1850	1448	160	0	115	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.78				0.89	0.78	
vC, conflicting volume	1608				2145	563	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	812				199	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	86	
cM capacity (veh/h)	635				683	850	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	617	617	617	579	579	450	115
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	160	115
cSH	1700	1700	1700	1700	1700	1700	850
Volume to Capacity	0.36	0.36	0.36	0.34	0.34	0.26	0.14
Queue Length 95th (ft)	0	0	0	0	0	0	12
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.9
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.9
Approach LOS							A
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utilization			42.2%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	52	33	0	10	103	2	42	13	21	0
Future Volume (Veh/h)	12	0	52	33	0	10	103	2	42	13	21	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	0	57	36	0	11	112	2	46	14	23	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	311	323	23	357	300	25	23			48		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	311	323	23	357	300	25	23			48		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	95	93	100	99	93			99		
cM capacity (veh/h)	597	548	1054	532	564	1051	1592			1559		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	70	47	160	37								
Volume Left	13	36	112	14								
Volume Right	57	11	46	0								
cSH	923	601	1592	1559								
Volume to Capacity	0.08	0.08	0.07	0.01								
Queue Length 95th (ft)	6	6	6	1								
Control Delay (s)	9.2	11.5	5.4	2.8								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.2	11.5	5.4	2.8								
Approach LOS	A	B										
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			29.1%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	11	63	60	15	12	68	182	71	10	133	32
Future Volume (Veh/h)	7	11	63	60	15	12	68	182	71	10	133	32
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	12	68	65	16	13	74	198	77	11	145	35
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	340											
pX, platoon unblocked												
vC, conflicting volume	452	608	90	553	586	138	180				275	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	452	608	90	553	586	138	180				275	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	97	93	82	96	99	95				99	
cM capacity (veh/h)	447	384	950	359	395	886	1393				1285	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	88	94	74	132	143	11	97	83				
Volume Left	8	65	74	0	0	11	0	0				
Volume Right	68	13	0	0	77	0	0	35				
cSH	729	398	1393	1700	1700	1285	1700	1700				
Volume to Capacity	0.12	0.24	0.05	0.08	0.08	0.01	0.06	0.05				
Queue Length 95th (ft)	10	23	4	0	0	1	0	0				
Control Delay (s)	10.6	16.8	7.7	0.0	0.0	7.8	0.0	0.0				
Lane LOS	B	C	A				A					
Approach Delay (s)	10.6	16.8	1.6				0.5					
Approach LOS	B	C										
Intersection Summary												
Average Delay				4.4								
Intersection Capacity Utilization				32.1%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	20	59	0	24	0	47	0	0	0	0	16
Future Volume (Veh/h)	13	20	59	0	24	0	47	0	0	0	0	16
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	22	64	0	26	0	51	0	0	0	0	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	26			86			125	108	54	108	140	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26			86			125	108	54	108	140	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			94	100	100	100	100	98
cM capacity (veh/h)	1588			1510			830	775	1013	865	744	1050
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	100	26	51	17								
Volume Left	14	0	51	0								
Volume Right	64	0	0	17								
cSH	1588	1510	830	1050								
Volume to Capacity	0.01	0.00	0.06	0.02								
Queue Length 95th (ft)	1	0	5	1								
Control Delay (s)	1.1	0.0	9.6	8.5								
Lane LOS	A		A	A								
Approach Delay (s)	1.1	0.0	9.6	8.5								
Approach LOS			A	A								
Intersection Summary												
Average Delay				3.8								
Intersection Capacity Utilization				28.0%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3










10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	34	17	0	20	12	0	12	12	0	17	0
Future Volume (Veh/h)	20	34	17	0	20	12	0	12	12	0	17	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	37	18	0	22	13	0	13	13	0	18	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	62	44	18	74	38	20	18			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62	44	18	74	38	20	18			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	96	98	100	97	99	100			100		
cM capacity (veh/h)	904	848	1061	871	855	1058	1599			1588		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	77	35	26	18								
Volume Left	22	0	0	0								
Volume Right	18	13	13	0								
cSH	906	921	1599	1588								
Volume to Capacity	0.08	0.04	0.00	0.00								
Queue Length 95th (ft)	7	3	0	0								
Control Delay (s)	9.3	9.1	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.3	9.1	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	6.6											
Intersection Capacity Utilization	20.6%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023


































						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	12	19	25	5	5
Future Volume (Veh/h)	8	12	19	25	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	13	21	27	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	76	8	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76	8	10			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	915	1075	1610			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	48	10			
Volume Left	9	21	0			
Volume Right	13	0	5			
cSH	1003	1610	1700			
Volume to Capacity	0.02	0.01	0.01			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	8.7	3.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.7	3.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization		19.0%		ICU Level of Service		A
Analysis Period (min)		15				

2028 AM PEAK HOUR BUILD-OUT

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	109	970	103	25	1786	165	256	365	47	191	207	132
Future Volume (vph)	109	970	103	25	1786	165	256	365	47	191	207	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.089			0.239			0.595			0.356		
Satd. Flow (perm)	166	5085	1583	864	5085	1583	2150	3539	1583	1286	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			127			127			127
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	1054	112	27	1941	179	278	397	51	208	225	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	1054	112	27	1941	179	278	397	51	208	225	143
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	11.0	46.5	46.5	9.5	45.0	45.0	9.6	24.4	24.4	9.6	24.4	24.4
Total Split (%)	12.2%	51.7%	51.7%	10.6%	50.0%	50.0%	10.7%	27.1%	27.1%	10.7%	27.1%	27.1%
Maximum Green (s)	6.5	42.0	42.0	5.0	40.5	40.5	5.1	19.9	19.9	5.1	19.9	19.9
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	47.1	44.7	44.7	43.6	39.8	39.8	20.1	14.9	14.9	20.1	14.9	14.9
Actuated g/C Ratio	0.57	0.55	0.55	0.53	0.49	0.49	0.25	0.18	0.18	0.25	0.18	0.18
v/c Ratio	0.53	0.38	0.12	0.04	0.79	0.21	0.46	0.62	0.13	0.46	0.35	0.37
Control Delay	20.0	12.2	2.5	8.0	21.5	5.7	26.0	36.0	0.7	26.1	31.6	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	12.2	2.5	8.0	21.5	5.7	26.0	36.0	0.7	26.1	31.6	10.4
LOS	C	B	A	A	C	A	C	D	A	C	C	B
Approach Delay		12.1			20.0			29.7			24.3	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	24	91	0	2	304	14	59	104	0	43	56	7
Queue Length 95th (ft)	#74	177	22	8	415	53	89	150	0	69	88	54
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	224	2872	949	618	2547	856	607	871	485	450	871	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.37	0.12	0.04	0.76	0.21	0.46	0.46	0.11	0.46	0.26	0.29

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.9

Intersection LOS: B

Intersection Capacity Utilization 71.1%









ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
9.6 s	24.4 s	9.5 s	46.5 s
			
Ø5	Ø6	Ø7	Ø8
9.6 s	24.4 s	11 s	45 s













Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	1188	49	24	2055	43	30	6	13	36	29	29
Future Volume (vph)	125	1188	49	24	2055	43	30	6	13	36	29	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.997			0.900			0.925	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5070	0	1770	1676	0	3433	1723	0
Flt Permitted	0.082			0.188			0.950			0.659		
Satd. Flow (perm)	296	5085	1583	350	5070	0	1770	1676	0	2381	1723	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		5			14			32	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1291	53	26	2234	47	33	7	14	39	32	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	136	1291	53	26	2281	0	33	21	0	39	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.6	47.0	47.0	9.6	47.0		9.6	23.8		9.6	23.8	
Total Split (%)	10.7%	52.2%	52.2%	10.7%	52.2%		10.7%	26.4%		10.7%	26.4%	
Maximum Green (s)	5.1	42.5	42.5	5.1	42.5		5.1	19.3		5.1	19.3	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	50.4	48.5	48.5	47.5	42.4		5.1	6.9		10.6	8.8	
Actuated g/C Ratio	0.69	0.66	0.66	0.65	0.58		0.07	0.09		0.14	0.12	
v/c Ratio	0.32	0.38	0.05	0.08	0.78		0.27	0.12		0.09	0.27	
Control Delay	6.6	7.9	0.1	5.3	15.4		40.7	21.6		24.9	21.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	6.6	7.9	0.1	5.3	15.4		40.7	21.6		24.9	21.9	
LOS	A	A	A	A	B		D	C		C	C	
Approach Delay		7.5			15.3			33.3			23.1	
Approach LOS		A			B			C			C	
Queue Length 50th (ft)	9	81	0	3	295		15	3		7	13	
Queue Length 95th (ft)	20	176	0	12	410		44	23		19	50	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	422	3359	1089	326	2962		124	454		418	480	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.38	0.05	0.08	0.77		0.27	0.05		0.09	0.13	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 73.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 12.8









Intersection LOS: B

Intersection Capacity Utilization 64.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 9: S. Crystal Street & E. Alameda Ave




			
Ø1	Ø2	Ø3	Ø4
9.6 s	23.8 s	9.6 s	47 s
			
Ø5	Ø6	Ø7	Ø8
9.6 s	23.8 s	9.6 s	47 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

10/05/2023

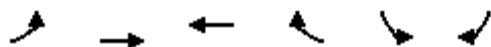


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	84	0	649	447	54
Future Volume (Veh/h)	0	84	0	649	447	54
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	91	0	705	486	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				250		
pX, platoon unblocked	0.90					
vC, conflicting volume	868	272	545			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	629	272	545			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	373	725	1020			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	91	352	352	324	221	
Volume Left	0	0	0	0	0	
Volume Right	91	0	0	0	59	
cSH	725	1700	1700	1700	1700	
Volume to Capacity	0.13	0.21	0.21	0.19	0.13	
Queue Length 95th (ft)	11	0	0	0	0	
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.7	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		25.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Traffic Volume (veh/h)	0	1219	2009	166	0	113	
Future Volume (Veh/h)	0	1219	2009	166	0	113	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	1325	2184	180	0	123	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.65				0.71	0.65	
vC, conflicting volume	2364				2716	818	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1208				785	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	83	
cM capacity (veh/h)	372				235	704	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	442	442	442	874	874	617	123
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	180	123
cSH	1700	1700	1700	1700	1700	1700	704
Volume to Capacity	0.26	0.26	0.26	0.51	0.51	0.36	0.17
Queue Length 95th (ft)	0	0	0	0	0	0	16
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.2
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.2
Approach LOS							B
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilization			56.2%		ICU Level of Service		B
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	61	30	0	1	123	2	41	8	22	0
Future Volume (Veh/h)	13	0	61	30	0	1	123	2	41	8	22	0
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	0	66	33	0	1	134	2	45	9	24	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	336	357	24	400	334	24	24				47	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	336	357	24	400	334	24	24				47	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	100	94	93	100	100	92				99	
cM capacity (veh/h)	575	518	1052	489	533	1052	1591				1560	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	80	34	181	33								
Volume Left	14	33	134	9								
Volume Right	66	1	45	0								
cSH	919	497	1591	1560								
Volume to Capacity	0.09	0.07	0.08	0.01								
Queue Length 95th (ft)	7	5	7	0								
Control Delay (s)	9.3	12.8	5.7	2.0								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.3	12.8	5.7	2.0								
Approach LOS	A	B										
Intersection Summary												
Average Delay			6.9									
Intersection Capacity Utilization			29.7%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	6	4	60	6	6	15	87	72	2	30	3
Future Volume (Veh/h)	1	6	4	60	6	6	15	87	72	2	30	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	7	4	65	7	7	16	95	78	2	33	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh)												
Upstream signal (ft)	340											
pX, platoon unblocked												
vC, conflicting volume	128	244	18	194	206	86	36			173		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128	244	18	194	206	86	36			173		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	100	91	99	99	99			100		
cM capacity (veh/h)	812	650	1056	732	682	955	1573			1401		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	12	79	16	63	110	2	22	14				
Volume Left	1	65	16	0	0	2	0	0				
Volume Right	4	7	0	0	78	0	0	3				
cSH	760	743	1573	1700	1700	1401	1700	1700				
Volume to Capacity	0.02	0.11	0.01	0.04	0.06	0.00	0.01	0.01				
Queue Length 95th (ft)	1	9	1	0	0	0	0	0				
Control Delay (s)	9.8	10.4	7.3	0.0	0.0	7.6	0.0	0.0				
Lane LOS	A	B	A			A						
Approach Delay (s)	9.8	10.4	0.6			0.4						
Approach LOS	A	B										
Intersection Summary												
Average Delay	3.4											
Intersection Capacity Utilization	24.8%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

















12: Site Access 1 & Internal Road 1

10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	7	68	0	8	0	60	0	0	0	0	4
Future Volume (Veh/h)	4	7	68	0	8	0	60	0	0	0	0	4
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	8	74	0	9	0	65	0	0	0	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	9			82			66	62	45	62	99	9
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	9			82			66	62	45	62	99	9
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			93	100	100	100	100	100
cM capacity (veh/h)	1611			1515			922	827	1025	931	789	1073
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	86	9	65	4								
Volume Left	4	0	65	0								
Volume Right	74	0	0	4								
cSH	1611	1515	922	1073								
Volume to Capacity	0.00	0.00	0.07	0.00								
Queue Length 95th (ft)	0	0	6	0								
Control Delay (s)	0.4	0.0	9.2	8.4								
Lane LOS	A		A	A								
Approach Delay (s)	0.4	0.0	9.2	8.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay				4.0								
Intersection Capacity Utilization				24.9%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis 17: Internal Road 2 & Site Access 3/Internal Road 3










10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	43	20	0	26	4	0	3	13	0	10	0
Future Volume (Veh/h)	20	43	20	0	26	4	0	3	13	0	10	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	47	22	0	28	4	0	3	14	0	11	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	39	28	11	66	21	10	11	17				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	39	28	11	66	21	10	11	17				
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2				
p0 queue free %	98	95	98	100	97	100	100	100				
cM capacity (veh/h)	938	865	1070	870	873	1071	1608	1600				
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	91	32	17	11								
Volume Left	22	0	0	0								
Volume Right	22	4	14	0								
cSH	925	893	1608	1600								
Volume to Capacity	0.10	0.04	0.00	0.00								
Queue Length 95th (ft)	8	3	0	0								
Control Delay (s)	9.3	9.2	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.3	9.2	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	7.6											
Intersection Capacity Utilization	21.3%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023


































						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	4	2	26	6	6
Future Volume (Veh/h)	2	4	2	26	6	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	4	2	28	7	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	42	10	14			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	42	10	14			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	967	1071	1604			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	30	14			
Volume Left	2	2	0			
Volume Right	4	0	7			
cSH	1034	1604	1700			
Volume to Capacity	0.01	0.00	0.01			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	8.5	0.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.5	0.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

2028 PM PEAK HOUR BUILD-OUT

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	190	1468	224	94	1311	211	169	351	77	357	494	150
Future Volume (vph)	190	1468	224	94	1311	211	169	351	77	357	494	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.113			0.130			0.321			0.329		
Satd. Flow (perm)	210	5085	1583	470	5085	1583	1160	3539	1583	1189	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			230			182			182			182
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	1596	243	102	1425	229	184	382	84	388	537	163
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	1596	243	102	1425	229	184	382	84	388	537	163
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	17.0	42.5	42.5	9.5	35.0	35.0	10.0	25.0	25.0	13.0	28.0	28.0
Total Split (%)	18.9%	47.2%	47.2%	10.6%	38.9%	38.9%	11.1%	27.8%	27.8%	14.4%	31.1%	31.1%
Maximum Green (s)	12.5	38.0	38.0	5.0	30.5	30.5	5.5	20.5	20.5	8.5	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	44.7	37.5	37.5	34.8	29.7	29.7	21.3	15.7	15.7	27.3	18.8	18.8
Actuated g/C Ratio	0.54	0.45	0.45	0.42	0.36	0.36	0.26	0.19	0.19	0.33	0.23	0.23
v/c Ratio	0.67	0.69	0.29	0.27	0.78	0.33	0.41	0.57	0.19	0.62	0.67	0.33
Control Delay	25.6	21.1	3.8	12.4	27.8	7.2	22.2	34.2	0.9	25.1	34.0	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	21.1	3.8	12.4	27.8	7.2	22.2	34.2	0.9	25.1	34.0	5.3
LOS	C	C	A	B	C	A	C	C	A	C	C	A
Approach Delay		19.5			24.3			26.5			26.5	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	53	250	4	12	241	16	35	99	0	78	140	0
Queue Length 95th (ft)	132	329	47	25	328	69	57	143	0	114	192	37
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	351	2360	857	378	1930	713	451	886	532	625	1015	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.68	0.28	0.27	0.74	0.32	0.41	0.43	0.16	0.62	0.53	0.28

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.7

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 23.2
















Intersection LOS: C

Intersection Capacity Utilization 70.7%

ICU Level of Service C






















Analysis Period (min) 15

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

														
Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15
13 s	25 s	9.5 s	42.5 s	10 s	28 s	17 s	35 s							













Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	1505	172	119	1346	124	126	42	124	135	36	107
Future Volume (vph)	183	1505	172	119	1346	124	126	42	124	135	36	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.987			0.888			0.888	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5019	0	1770	1654	0	3433	1654	0
Flt Permitted	0.122			0.118			0.950			0.643		
Satd. Flow (perm)	441	5085	1583	220	5019	0	1770	1654	0	2324	1654	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			187		20			135			116	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	1636	187	129	1463	135	137	46	135	147	39	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	199	1636	187	129	1598	0	137	181	0	147	155	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	10.0	39.0	39.0	11.2	40.2		15.0	30.2		9.6	24.8	
Total Split (%)	11.1%	43.3%	43.3%	12.4%	44.7%		16.7%	33.6%		10.7%	27.6%	
Maximum Green (s)	5.5	34.5	34.5	6.7	35.7		10.5	25.7		5.1	20.3	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	38.4	32.9	32.9	40.6	33.9		9.7	12.5		13.1	8.0	
Actuated g/C Ratio	0.51	0.44	0.44	0.54	0.45		0.13	0.17		0.17	0.11	
v/c Ratio	0.45	0.74	0.23	0.51	0.70		0.60	0.47		0.31	0.56	
Control Delay	11.2	20.4	3.3	16.4	18.8		44.6	13.5		22.2	19.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.2	20.4	3.3	16.4	18.8		44.6	13.5		22.2	19.2	
LOS	B	C	A	B	B		D	B		C	B	
Approach Delay		17.9			18.6			26.9			20.7	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	19	224	0	24	207		62	19		26	18	
Queue Length 95th (ft)	38	314	36	63	294		#137	72		47	71	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	445	2350	832	258	2410		248	657		480	534	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.45	0.70	0.22	0.50	0.66		0.55	0.28		0.31	0.29	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 75.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 66.1%









ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: S. Crystal Street & E. Alameda Ave




			
Ø1	Ø2	Ø3	Ø4
9.6 s	30.2 s	11.2 s	39 s
			
Ø5	Ø6	Ø7	Ø8
15 s	24.8 s	10 s	40.2 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

10/05/2023

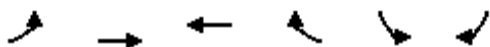


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	85	0	758	916	59
Future Volume (Veh/h)	0	85	0	758	916	59
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	92	0	824	996	64
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				250		
pX, platoon unblocked	0.91					
vC, conflicting volume	1440	530	1060			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1277	530	1060			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	81	100			
cM capacity (veh/h)	143	493	653			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	92	412	412	664	396	
Volume Left	0	0	0	0	0	
Volume Right	92	0	0	0	64	
cSH	493	1700	1700	1700	1700	
Volume to Capacity	0.19	0.24	0.24	0.39	0.23	
Queue Length 95th (ft)	17	0	0	0	0	
Control Delay (s)	14.0	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	14.0	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		39.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Traffic Volume (veh/h)	0	1881	1479	152	0	110	
Future Volume (Veh/h)	0	1881	1479	152	0	110	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	2045	1608	165	0	120	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.75				0.86	0.75	
vC, conflicting volume	1773				2372	618	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	866				51	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	85	
cM capacity (veh/h)	580				815	814	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	682	682	682	643	643	487	120
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	165	120
cSH	1700	1700	1700	1700	1700	1700	814
Volume to Capacity	0.40	0.40	0.40	0.38	0.38	0.29	0.15
Queue Length 95th (ft)	0	0	0	0	0	0	13
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.2
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.2
Approach LOS							B
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utilization			45.4%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	52	36	0	11	103	2	46	14	21	0
Future Volume (Veh/h)	12	0	52	36	0	11	103	2	46	14	21	0
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	0	57	39	0	12	112	2	50	15	23	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	316	329	23	361	304	27	23				52	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	316	329	23	361	304	27	23				52	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	100	95	93	100	99	93				99	
cM capacity (veh/h)	591	543	1054	528	561	1048	1592				1554	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	70	51	164	38								
Volume Left	13	39	112	15								
Volume Right	57	12	50	0								
cSH	920	598	1592	1554								
Volume to Capacity	0.08	0.09	0.07	0.01								
Queue Length 95th (ft)	6	7	6	1								
Control Delay (s)	9.2	11.6	5.2	2.9								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.2	11.6	5.2	2.9								
Approach LOS	A	B										
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			29.5%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	12	70	62	17	13	75	201	73	11	147	35
Future Volume (Veh/h)	8	12	70	62	17	13	75	201	73	11	147	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	13	76	67	18	14	82	218	79	12	160	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								340				
pX, platoon unblocked												
vC, conflicting volume	499	664	99	608	644	148	198			297		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	499	664	99	608	644	148	198			297		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	96	92	79	95	98	94			99		
cM capacity (veh/h)	408	353	937	321	363	871	1372			1261		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	98	99	82	145	152	12	107	91				
Volume Left	9	67	82	0	0	12	0	0				
Volume Right	76	14	0	0	79	0	0	38				
cSH	700	361	1372	1700	1700	1261	1700	1700				
Volume to Capacity	0.14	0.27	0.06	0.09	0.09	0.01	0.06	0.05				
Queue Length 95th (ft)	12	27	5	0	0	1	0	0				
Control Delay (s)	11.0	18.7	7.8	0.0	0.0	7.9	0.0	0.0				
Lane LOS	B	C	A			A						
Approach Delay (s)	11.0	18.7	1.7			0.5						
Approach LOS	B	C										
Intersection Summary												
Average Delay			4.7									
Intersection Capacity Utilization			33.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1
















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	22	59	0	26	0	47	0	0	0	0	18
Future Volume (Veh/h)	14	22	59	0	26	0	47	0	0	0	0	18
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	24	64	0	28	0	51	0	0	0	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	28			88			134	114	56	114	146	28
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			88			134	114	56	114	146	28
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			94	100	100	100	100	98
cM capacity (veh/h)	1585			1508			816	769	1011	857	738	1047
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	103	28	51	20								
Volume Left	15	0	51	0								
Volume Right	64	0	0	20								
cSH	1585	1508	816	1047								
Volume to Capacity	0.01	0.00	0.06	0.02								
Queue Length 95th (ft)	1	0	5	1								
Control Delay (s)	1.1	0.0	9.7	8.5								
Lane LOS	A		A	A								
Approach Delay (s)	1.1	0.0	9.7	8.5								
Approach LOS			A	A								
Intersection Summary												
Average Delay				3.9								
Intersection Capacity Utilization				28.2%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Site Access 3/Internal Road 3










10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	34	17	0	20	13	0	13	12	0	19	0
Future Volume (Veh/h)	20	34	17	0	20	13	0	13	12	0	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	37	18	0	22	14	0	14	13	0	21	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	66	48	21	78	42	20	21			27		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	66	48	21	78	42	20	21			27		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	96	98	100	97	99	100			100		
cM capacity (veh/h)	896	844	1056	865	850	1057	1595			1587		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	77	36	27	21								
Volume Left	22	0	0	0								
Volume Right	18	14	13	0								
cSH	901	920	1595	1587								
Volume to Capacity	0.09	0.04	0.00	0.00								
Queue Length 95th (ft)	7	3	0	0								
Control Delay (s)	9.4	9.1	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.4	9.1	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	6.5											
Intersection Capacity Utilization	20.6%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2 & Internal Road 1

10/05/2023


































						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	13	21	26	6	6
Future Volume (Veh/h)	9	13	21	26	6	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	14	23	28	7	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	84	10	14			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84	10	14			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	904	1071	1604			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	24	51	14			
Volume Left	10	23	0			
Volume Right	14	0	7			
cSH	994	1604	1700			
Volume to Capacity	0.02	0.01	0.01			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	8.7	3.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.7	3.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization		19.2%		ICU Level of Service		A
Analysis Period (min)		15				

2040 AM PEAK HOUR BUILD-OUT

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	138	1235	132	32	2260	209	323	463	60	230	260	168
Future Volume (vph)	138	1235	132	32	2260	209	323	463	60	230	260	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.086			0.150			0.509			0.249		
Satd. Flow (perm)	160	5085	1583	542	5085	1583	1839	3539	1583	900	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			127			127			127
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	1342	143	35	2457	227	351	503	65	250	283	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	1342	143	35	2457	227	351	503	65	250	283	183
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	9.5	47.0	47.0	9.5	47.0	47.0	9.6	23.9	23.9	9.6	23.9	23.9
Total Split (%)	10.6%	52.2%	52.2%	10.6%	52.2%	52.2%	10.7%	26.6%	26.6%	10.7%	26.6%	26.6%
Maximum Green (s)	5.0	42.5	42.5	5.0	42.5	42.5	5.1	19.4	19.4	5.1	19.4	19.4
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	49.4	46.5	46.5	47.5	42.5	42.5	22.2	17.1	17.1	22.2	17.1	17.1
Actuated g/C Ratio	0.56	0.53	0.53	0.54	0.48	0.48	0.25	0.19	0.19	0.25	0.19	0.19
v/c Ratio	0.83	0.50	0.16	0.08	1.00	0.27	0.63	0.73	0.16	0.67	0.41	0.45
Control Delay	51.6	15.1	2.9	8.5	41.2	7.2	30.9	40.0	1.1	33.3	32.7	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	15.1	2.9	8.5	41.2	7.2	30.9	40.0	1.1	33.3	32.7	14.6
LOS	D	B	A	A	D	A	C	D	A	C	C	B
Approach Delay		17.4			38.0			33.8			28.3	
Approach LOS		B			D			C			C	
Queue Length 50th (ft)	37	189	0	4	~505	30	76	138	0	53	72	26
Queue Length 95th (ft)	#149	235	30	10	#645	74	112	192	3	82	110	84
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	181	2694	906	458	2466	832	557	783	449	374	783	449
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.50	0.16	0.08	1.00	0.27	0.63	0.64	0.14	0.67	0.36	0.41

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 87.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 30.5

Intersection LOS: C

Intersection Capacity Utilization 85.7%

ICU Level of Service E

Analysis Period (min) 15









~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	23.9 s	9.5 s	47 s
 Ø5	 Ø6	 Ø7	 Ø8
9.6 s	23.9 s	9.5 s	47 s













Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	1519	62	31	2610	55	38	8	17	38	37	30
Future Volume (vph)	141	1519	62	31	2610	55	38	8	17	38	37	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.997			0.900			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5070	0	1770	1676	0	3433	1736	0
Flt Permitted	0.082			0.115			0.950			0.740		
Satd. Flow (perm)	296	5085	1583	214	5070	0	1770	1676	0	2674	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		5			18			33	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	153	1651	67	34	2837	60	41	9	18	41	40	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	1651	67	34	2897	0	41	27	0	41	73	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.5	46.9	46.9	9.6	47.0		9.5	24.0		9.5	24.0	
Total Split (%)	10.6%	52.1%	52.1%	10.7%	52.2%		10.6%	26.7%		10.6%	26.7%	
Maximum Green (s)	5.0	42.4	42.4	5.1	42.5		5.0	19.5		5.0	19.5	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	50.7	48.8	48.8	47.9	42.8		5.0	7.4		10.2	7.4	
Actuated g/C Ratio	0.68	0.66	0.66	0.65	0.58		0.07	0.10		0.14	0.10	
v/c Ratio	0.37	0.49	0.06	0.14	0.99		0.34	0.15		0.10	0.36	
Control Delay	7.4	9.1	0.4	6.1	32.8		43.6	20.6		24.7	25.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.4	9.1	0.4	6.1	32.8		43.6	20.6		24.7	25.7	
LOS	A	A	A	A	C		D	C		C	C	
Approach Delay		8.6			32.5			34.4			25.3	
Approach LOS		A			C			C			C	
Queue Length 50th (ft)	11	122	0	5	~567		20	4		8	18	
Queue Length 95th (ft)	23	248	3	15	#711		51	27		20	56	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	415	3345	1084	246	2927		120	457		419	483	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.37	0.49	0.06	0.14	0.99		0.34	0.06		0.10	0.15	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 74.2

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 23.4

Intersection LOS: C

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15









~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.










Splits and Phases: 9: S. Crystal Street & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
9.5 s	24 s	9.6 s	46.9 s
			
Ø5	Ø6	Ø7	Ø8
9.5 s	24 s	9.5 s	47 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Internal Road 3

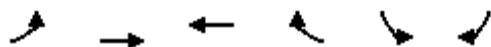
10/05/2023

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	91	0	820	567	61
Future Volume (Veh/h)	0	91	0	820	567	61
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	99	0	891	616	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				250		
pX, platoon unblocked	0.87					
vC, conflicting volume	1094	341	682			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	806	341	682			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	85	100			
cM capacity (veh/h)	278	655	907			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	99	446	446	411	271	
Volume Left	0	0	0	0	0	
Volume Right	99	0	0	0	66	
cSH	655	1700	1700	1700	1700	
Volume to Capacity	0.15	0.26	0.26	0.24	0.16	
Queue Length 95th (ft)	13	0	0	0	0	
Control Delay (s)	11.5	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	11.5	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			29.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Internal Road 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↑			↗	
Traffic Volume (veh/h)	0	1552	2573	178	0	122	
Future Volume (Veh/h)	0	1552	2573	178	0	122	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	1687	2797	193	0	133	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.46				0.56	0.46	
vC, conflicting volume	2990				3456	1029	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1249				398	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	74	
cM capacity (veh/h)	257				322	504	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	562	562	562	1119	1119	752	133
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	193	133
cSH	1700	1700	1700	1700	1700	1700	504
Volume to Capacity	0.33	0.33	0.33	0.66	0.66	0.44	0.26
Queue Length 95th (ft)	0	0	0	0	0	0	26
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.7
Lane LOS							B
Approach Delay (s)	0.0			0.0			14.7
Approach LOS							B
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilization			67.9%		ICU Level of Service		C
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Internal Road 2 & Site Access 2



















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	0	61	38	0	1	123	3	52	10	23	0
Future Volume (Veh/h)	13	0	61	38	0	1	123	3	52	10	23	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	0	66	41	0	1	134	3	57	11	25	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	348	375	25	412	346	32	25				60	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	348	375	25	412	346	32	25				60	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	100	94	91	100	100	92				99	
cM capacity (veh/h)	564	505	1051	480	524	1043	1589				1544	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	80	42	194	36								
Volume Left	14	41	134	11								
Volume Right	66	1	57	0								
cSH	913	486	1589	1544								
Volume to Capacity	0.09	0.09	0.08	0.01								
Queue Length 95th (ft)	7	7	7	1								
Control Delay (s)	9.3	13.1	5.4	2.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.3	13.1	5.4	2.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay				6.9								
Intersection Capacity Utilization				32.2%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	7	6	62	7	7	20	111	73	2	38	4
Future Volume (Veh/h)	1	7	6	62	7	7	20	111	73	2	38	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	8	7	67	8	8	22	121	79	2	41	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								340				
pX, platoon unblocked												
vC, conflicting volume	164	291	22	240	254	100	45			200		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	164	291	22	240	254	100	45			200		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	90	99	99	99			100		
cM capacity (veh/h)	762	609	1049	674	639	936	1561			1370		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	16	83	22	81	119	2	27	18				
Volume Left	1	67	22	0	0	2	0	0				
Volume Right	7	8	0	0	79	0	0	4				
cSH	757	689	1561	1700	1700	1370	1700	1700				
Volume to Capacity	0.02	0.12	0.01	0.05	0.07	0.00	0.02	0.01				
Queue Length 95th (ft)	2	10	1	0	0	0	0	0				
Control Delay (s)	9.9	10.9	7.3	0.0	0.0	7.6	0.0	0.0				
Lane LOS	A	B	A			A						
Approach Delay (s)	9.9	10.9	0.7			0.3						
Approach LOS	A	B										
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Utilization			25.3%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1 & Internal Road 1

















10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	8	68	0	10	0	60	0	0	0	0	6
Future Volume (Veh/h)	6	8	68	0	10	0	60	0	0	0	0	6
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	9	74	0	11	0	65	0	0	0	0	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	11			83			78	71	46	71	108	11
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			83			78	71	46	71	108	11
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			93	100	100	100	100	99
cM capacity (veh/h)	1608			1514			902	816	1023	917	779	1070
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	90	11	65	7								
Volume Left	7	0	65	0								
Volume Right	74	0	0	7								
cSH	1608	1514	902	1070								
Volume to Capacity	0.00	0.00	0.07	0.01								
Queue Length 95th (ft)	0	0	6	0								
Control Delay (s)	0.6	0.0	9.3	8.4								
Lane LOS	A		A	A								
Approach Delay (s)	0.6	0.0	9.3	8.4								
Approach LOS			A	A								
Intersection Summary												
Average Delay				4.1								
Intersection Capacity Utilization				26.9%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17: Internal Road 2 & Internal Road 3

10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	43	20	0	26	4	0	4	13	0	13	0
Future Volume (Veh/h)	20	43	20	0	26	4	0	4	13	0	13	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	47	22	0	28	4	0	4	14	0	14	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	43	32	14	70	25	11	14	18				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	43	32	14	70	25	11	14	18				
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2				
p0 queue free %	98	95	98	100	97	100	100	100				
cM capacity (veh/h)	933	861	1066	864	868	1070	1604	1599				
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	91	32	18	14								
Volume Left	22	0	0	0								
Volume Right	22	4	14	0								
cSH	921	889	1604	1599								
Volume to Capacity	0.10	0.04	0.00	0.00								
Queue Length 95th (ft)	8	3	0	0								
Control Delay (s)	9.3	9.2	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.3	9.2	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	7.4											
Intersection Capacity Utilization	21.3%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

25: Internal Road 2/North/South Internal Road & Internal Road 1

10/05/2023



























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	6	3	27	7	7
Future Volume (Veh/h)	3	6	3	27	7	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	7	3	29	8	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	47	12	16			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	47	12	16			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	961	1069	1602			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	32	16			
Volume Left	3	3	0			
Volume Right	7	0	8			
cSH	1034	1602	1700			
Volume to Capacity	0.01	0.00	0.01			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	8.5	0.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.5	0.7	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization		13.9%		ICU Level of Service		A
Analysis Period (min)		15				

2040 PM PEAK HOUR BUILD-OUT

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	1865	285	119	1657	267	213	445	98	443	624	190
Future Volume (vph)	240	1865	285	119	1657	267	213	445	98	443	624	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160		175	175		100	275		275	150		150
Storage Lanes	1		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.105			0.119			0.220			0.249		
Satd. Flow (perm)	196	5085	1583	430	5085	1583	795	3539	1583	900	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			236			182			182			182
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		280			250			250			250	
Travel Time (s)		4.8			4.3			4.9			4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	2027	310	129	1801	290	232	484	107	482	678	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	261	2027	310	129	1801	290	232	484	107	482	678	207
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	15.0	43.5	43.5	9.5	38.0	38.0	10.0	24.0	24.0	13.0	27.0	27.0
Total Split (%)	16.7%	48.3%	48.3%	10.6%	42.2%	42.2%	11.1%	26.7%	26.7%	14.4%	30.0%	30.0%
Maximum Green (s)	10.5	39.0	39.0	5.0	33.5	33.5	5.5	19.5	19.5	8.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	48.5	39.0	39.0	38.5	33.5	33.5	23.7	18.2	18.2	29.7	21.2	21.2
Actuated g/C Ratio	0.55	0.44	0.44	0.43	0.38	0.38	0.27	0.21	0.21	0.33	0.24	0.24
v/c Ratio	0.89	0.91	0.37	0.36	0.94	0.41	0.62	0.67	0.23	0.89	0.80	0.40
Control Delay	52.3	30.7	5.9	13.7	37.9	9.8	28.5	37.5	1.6	43.3	40.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	30.7	5.9	13.7	37.9	9.8	28.5	37.5	1.6	43.3	40.0	8.7
LOS	D	C	A	B	D	A	C	D	A	D	D	A
Approach Delay		29.9			32.8			30.3			36.4	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)	96	386	24	17	357	41	45	132	0	103	188	11
Queue Length 95th (ft)	#239	#476	77	30	#469	103	72	185	5	#152	253	65
Internal Link Dist (ft)		200			170			170			170	
Turn Bay Length (ft)	160		175	175		100	275		275	150		150
Base Capacity (vph)	293	2236	828	355	1921	711	376	778	489	544	897	537
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.91	0.37	0.36	0.94	0.41	0.62	0.62	0.22	0.89	0.76	0.39

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 88.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 32.2

Intersection LOS: C

Intersection Capacity Utilization 85.3%









ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

Splits and Phases: 1: S. Sable Boulevard & E. Alameda Ave

			
Ø1	Ø2	Ø3	Ø4
13 s	24 s	9.5 s	43.5 s
			
Ø5	Ø6	Ø7	Ø8
10 s	27 s	15 s	38 s

Lanes, Volumes, Timings
9: S. Crystal Street & E. Alameda Ave













10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	1919	218	151	1709	157	160	53	157	164	46	131
Future Volume (vph)	217	1919	218	151	1709	157	160	53	157	164	46	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	150		0
Storage Lanes	2		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.987			0.888			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5085	1583	1770	5019	0	1770	1654	0	3433	1656	0
Flt Permitted	0.105			0.104			0.950			0.579		
Satd. Flow (perm)	379	5085	1583	194	5019	0	1770	1654	0	2092	1656	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			236		21			149			132	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		250			340			250			340	
Travel Time (s)		4.3			5.8			6.8			9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	236	2086	237	164	1858	171	174	58	171	178	50	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	236	2086	237	164	2029	0	174	229	0	178	192	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	9.6	42.4	42.4	10.2	43.0		14.3	27.8		9.6	23.1	
Total Split (%)	10.7%	47.1%	47.1%	11.3%	47.8%		15.9%	30.9%		10.7%	25.7%	
Maximum Green (s)	5.1	37.9	37.9	5.7	38.5		9.8	23.3		5.1	18.6	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	

Lanes, Volumes, Timings

9: S. Crystal Street & E. Alameda Ave

10/05/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	43.1	38.0	38.0	44.3	38.6		9.8	13.8		14.2	9.1	
Actuated g/C Ratio	0.53	0.47	0.47	0.55	0.48		0.12	0.17		0.18	0.11	
v/c Ratio	0.60	0.87	0.27	0.75	0.84		0.81	0.56		0.39	0.63	
Control Delay	15.6	25.0	3.0	36.1	23.0		64.8	17.2		24.4	22.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.6	25.0	3.0	36.1	23.0		64.8	17.2		24.4	22.1	
LOS	B	C	A	D	C		E	B		C	C	
Approach Delay		22.1			24.0			37.7			23.2	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	23	324	0	32	303		86	36		34	28	
Queue Length 95th (ft)	50	#501	40	#142	#434		#209	100		57	90	
Internal Link Dist (ft)		170			260			170			260	
Turn Bay Length (ft)	150			150						150		
Base Capacity (vph)	396	2395	870	218	2412		215	584		453	484	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.60	0.87	0.27	0.75	0.84		0.81	0.39		0.39	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 80.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 24.0

Intersection LOS: C

Intersection Capacity Utilization 79.8%









ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: S. Crystal Street & E. Alameda Ave




 Ø1	 Ø2	 Ø3	 Ø4
9.6 s	27.8 s	10.2 s	42.4 s
 Ø5	 Ø6	 Ø7	 Ø8
14.3 s	23.1 s	9.6 s	43 s

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Site Access 3

10/05/2023

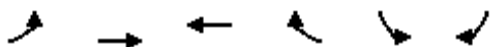


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	95	0	959	1162	69
Future Volume (Veh/h)	0	95	0	959	1162	69
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	103	0	1042	1263	75
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				250		
pX, platoon unblocked	0.88					
vC, conflicting volume	1822	669	1338			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1656	669	1338			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	74	100			
cM capacity (veh/h)	78	400	511			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	103	521	521	842	496	
Volume Left	0	0	0	0	0	
Volume Right	103	0	0	0	75	
cSH	400	1700	1700	1700	1700	
Volume to Capacity	0.26	0.31	0.31	0.50	0.29	
Queue Length 95th (ft)	25	0	0	0	0	
Control Delay (s)	17.1	0.0	0.0	0.0	0.0	
Lane LOS	C					
Approach Delay (s)	17.1	0.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			46.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Site Access 2

10/05/2023



















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑↑↑	↑↑↑↓			↗	
Traffic Volume (veh/h)	0	2390	1896	165	0	121	
Future Volume (Veh/h)	0	2390	1896	165	0	121	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	2598	2061	179	0	132	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh							
Upstream signal (ft)		340	280				
pX, platoon unblocked	0.64				0.81	0.64	
vC, conflicting volume	2240				3016	776	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	951				0	0	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	81	
cM capacity (veh/h)	457				825	690	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	866	866	866	824	824	591	132
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	179	132
cSH	1700	1700	1700	1700	1700	1700	690
Volume to Capacity	0.51	0.51	0.51	0.48	0.48	0.35	0.19
Queue Length 95th (ft)	0	0	0	0	0	0	18
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.4
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.4
Approach LOS							B
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utilization			54.5%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

8: Site Access 2



















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	52	46	0	14	103	3	59	18	23	0
Future Volume (Veh/h)	12	0	52	46	0	14	103	3	59	18	23	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	0	57	50	0	15	112	3	64	20	25	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	339	356	25	381	324	35	25			67		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	339	356	25	381	324	35	25			67		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	95	90	100	99	93			99		
cM capacity (veh/h)	568	523	1051	511	545	1038	1589			1535		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	70	65	179	45								
Volume Left	13	50	112	20								
Volume Right	57	15	64	0								
cSH	908	579	1589	1535								
Volume to Capacity	0.08	0.11	0.07	0.01								
Queue Length 95th (ft)	6	9	6	1								
Control Delay (s)	9.3	12.0	4.9	3.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.3	12.0	4.9	3.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			30.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

10: S. Crystal Street & Site Access 1

















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	15	88	67	21	15	95	255	77	13	186	45
Future Volume (Veh/h)	10	15	88	67	21	15	95	255	77	13	186	45
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	16	96	73	23	16	103	277	84	14	202	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								340				
pX, platoon unblocked												
vC, conflicting volume	626	822	126	758	804	180	251			361		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	626	822	126	758	804	180	251			361		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	94	89	69	92	98	92			99		
cM capacity (veh/h)	316	280	902	236	287	831	1311			1194		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total	123	112	103	185	176	14	135	116				
Volume Left	11	73	103	0	0	14	0	0				
Volume Right	96	16	0	0	84	0	0	49				
cSH	620	274	1311	1700	1700	1194	1700	1700				
Volume to Capacity	0.20	0.41	0.08	0.11	0.10	0.01	0.08	0.07				
Queue Length 95th (ft)	18	47	6	0	0	1	0	0				
Control Delay (s)	12.2	27.0	8.0	0.0	0.0	8.1	0.0	0.0				
Lane LOS	B	D	A			A						
Approach Delay (s)	12.2	27.0	1.8			0.4						
Approach LOS	B	D										
Intersection Summary												
Average Delay			5.7									
Intersection Capacity Utilization			35.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

12: Site Access 1

















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	28	59	0	34	0	47	0	0	0	0	22
Future Volume (Veh/h)	18	28	59	0	34	0	47	0	0	0	0	22
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	30	64	0	37	0	51	0	0	0	0	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	37			94			163	139	62	139	171	37
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	37			94			163	139	62	139	171	37
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			93	100	100	100	100	98
cM capacity (veh/h)	1574			1500			776	742	1003	823	713	1035
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	114	37	51	24								
Volume Left	20	0	51	0								
Volume Right	64	0	0	24								
cSH	1574	1500	776	1035								
Volume to Capacity	0.01	0.00	0.07	0.02								
Queue Length 95th (ft)	1	0	5	2								
Control Delay (s)	1.4	0.0	10.0	8.6								
Lane LOS	A		A	A								
Approach Delay (s)	1.4	0.0	10.0	8.6								
Approach LOS			A	A								
Intersection Summary												
Average Delay				3.8								
Intersection Capacity Utilization				28.7%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

17:










10/05/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	34	17	0	20	17	0	17	12	0	24	0
Future Volume (Veh/h)	20	34	17	0	20	17	0	17	12	0	24	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	37	18	0	22	18	0	18	13	0	26	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	80	57	26	87	50	24	26			31		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	80	57	26	87	50	24	26			31		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	96	98	100	97	98	100			100		
cM capacity (veh/h)	875	834	1050	853	841	1052	1588			1582		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	77	40	31	26								
Volume Left	22	0	0	0								
Volume Right	18	18	13	0								
cSH	889	924	1588	1582								
Volume to Capacity	0.09	0.04	0.00	0.00								
Queue Length 95th (ft)	7	3	0	0								
Control Delay (s)	9.4	9.1	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	9.4	9.1	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	6.3											
Intersection Capacity Utilization	20.6%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

25:

10/05/2023

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	17	27	27	7	7
Future Volume (Veh/h)	11	17	27	27	7	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	18	29	29	8	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	99	12	16			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	99	12	16			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	98	98			
cM capacity (veh/h)	884	1069	1602			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	30	58	16			
Volume Left	12	29	0			
Volume Right	18	0	8			
cSH	986	1602	1700			
Volume to Capacity	0.03	0.02	0.01			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	8.8	3.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.8	3.7	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			4.6			
Intersection Capacity Utilization		19.6%		ICU Level of Service		A
Analysis Period (min)		15				

REFERENCED TIS



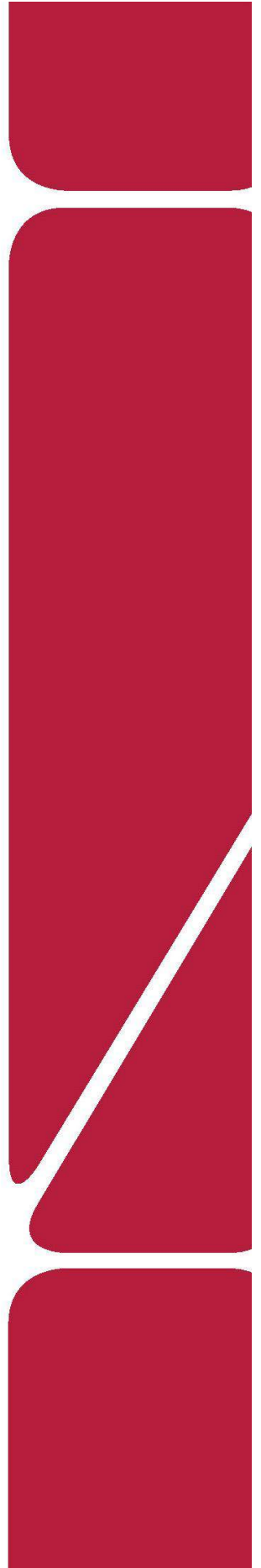
Traffic Impact Study

Fieldhouse at Aurora Town Center Aurora, Colorado

Prepared for:

Nelson

Kimley»Horn



T R A F F I C I M P A C T S T U D Y

Fieldhouse at Aurora Town Center

Aurora, Colorado

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March 2020



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1.0 EXECUTIVE SUMMARY

Fieldhouse at Aurora Town Center is proposed to be located within the existing Town Center at Aurora Mall located on the southwest corner of Alameda Avenue and Sable Boulevard intersection in Aurora, Colorado. The Fieldhouse is anticipated to occupy the previous Sears store within the northern portion of the mall. The approximate 91,960 square feet of building space for the Fieldhouse is proposed to include eight volleyball/basketball courts, a fitness facility, a sports training facility, and an adventure park. The hours of operation for the Aurora Fieldhouse will be Monday through Friday 2:00 PM to 9:00PM, Saturday 9:00 AM to 9:00 PM and Sunday 1:00 PM to 6:00 PM. Weekday peak traffic at the facility is expected to occur between 4:45 PM and 9:30 PM when activities are typically booked on hour or half-hour increments. Therefore, trip generation and traffic analysis were only conducted for the typical weekday afternoon peak hour. It is expected that the project construction will be completed within the next year; therefore, analysis will be conducted for the 2021 short term build out horizon as well as the 2040 long-term horizon.

The purpose of this study is to identify project traffic generation characteristics, to identify potential project traffic related impacts on the local street system, and to develop mitigation measures required for identified impacts. The following intersections were incorporated into this traffic study in accordance with the City of Aurora standards and requirements:

- West Mall Entrance and Abilene Street
- Alameda Avenue and Abilene Street
- Alameda Avenue and Crystal Street
- Alameda Avenue and Sable Boulevard
- Centrepoint Drive and Sable Boulevard
- West Mall Entrance and Mall Ring Road
- Mall Ring Road and Crystal Street
- Centrepoint Drive and Mall Ring Road

Regional access to the project will be provided by Interstate 225 (I-225) while primary access will be provided by Alameda Parkway, Sable Boulevard, Abilene Street, and Centrepoint Drive. Direct access to the site will be provided by the following existing intersections: West Mall Entrance/Mall Ring Road, Mall Ring Road/Crystal Street, and Centrepoint Drive/Mall Ring Road.

Based on the most applicable ITE Land Use Code, the approximate 91,960 square foot Fieldhouse at Aurora Town Center is anticipated to generate approximately 2,628 daily weekday trips with 211 trips occurring during the afternoon peak hour. Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, anticipated surrounding development areas, and the proposed access system for the project. Assignment of project traffic was based upon the trip generation described previously and the distributions developed.

Based on the analysis presented in this report, Kimley-Horn believes the proposed Fieldhouse at Aurora Town Center project will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network and the proposed project development with expected traffic volumes resulted in the following recommendations:

- The eastbound left-turn movement at the intersection of Crystal Street and Mall Ring Road operates with a LOS E without project traffic and at a LOS F with project traffic with the existing intersection traffic control of incoming traffic having free flow movements. Therefore, it is recommended that the intersection be considered for All-Way Stop Control (AWSC) or a roundabout. With the AWSC improvement, a R1-1 "STOP" sign is recommended to be installed on the southbound Crystal Street approach. When this occurs, it is recommended that the "INCOMING TRAFFIC DOES NOT STOP" signs underneath the existing "STOP" signs for the eastbound and westbound Mall Ring Road approaches be removed. It is recommended that all three "STOP" signs include R1-4 "ALL WAY" plaques under the "STOP" signs. In addition, orange flags should be affixed to the top of the new "STOP" sign on the southbound Crystal Street approach.
- The continuous northbound approach for the through/right turn movement at Alameda Avenue and Crystal Street may have queues of approximately 200 feet to 225 feet, which exceed the 160-feet available back to the internal Ring Road intersection with the existing signal timing. If this occurs, timing modifications to maximize the green time for the Crystal Street northbound approach may be needed to allocate an additional 12 seconds of green time for the northbound minor phase bringing the anticipated queue length down to 172 feet, which is close to being met by the existing 160-foot length available. This should be monitored to determine if timing modifications for max-green need to be changed in the controller with the In-N-Out Burger and Fieldhouse projects traffic added.

- Any on-site and off-site roadway improvements should be incorporated into the Civil Drawings, and conform to the City of Aurora Standards, Institute of Transportation Engineers (ITE), and the Manual on Traffic Control Devices (MUTCD) – 2009 Edition.

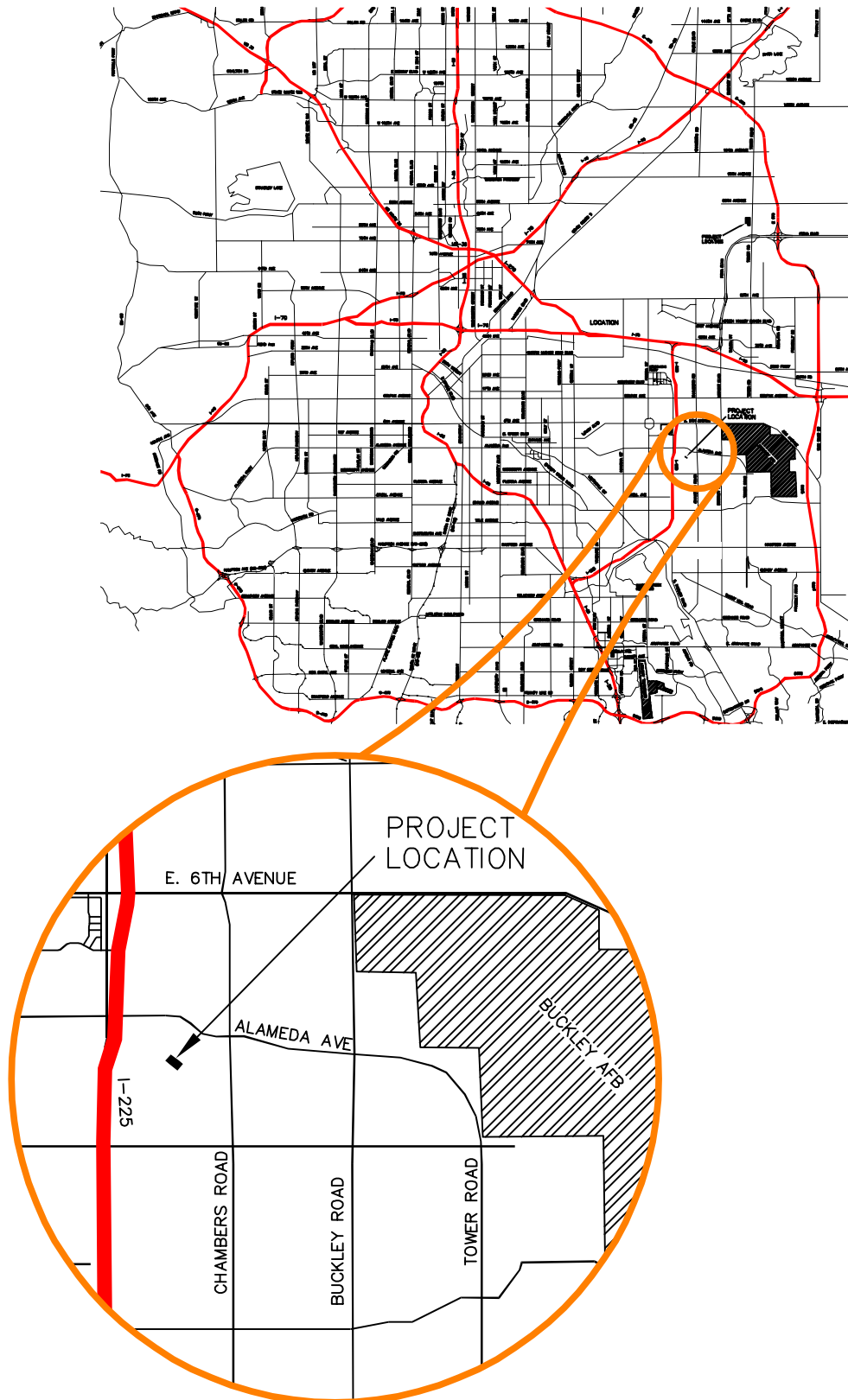
2.0 INTRODUCTION

Kimley-Horn and Associates, Inc. (Kimley-Horn) has prepared this report to document the results of a Traffic Impact Study of future traffic conditions associated with the proposed Fieldhouse at Aurora Town Center development to be located within the existing Town Center at Aurora Mall located on the southwest corner of Alameda Avenue and Sable Boulevard intersection in Aurora, Colorado. A vicinity map illustrating the project location with respect to the surrounding area is shown in **Figure 1**.

The Fieldhouse is anticipated to occupy the previous Sears store within the northern portion of the mall. The approximate 91,960 square feet of building space for the Fieldhouse is proposed to include eight volleyball/basketball courts, a fitness facility, a sports training facility, and an adventure park. A conceptual site plan of the proposed development is provided in **Appendix F**. It is expected that the project construction will be completed within the next year; therefore, analysis will be conducted for the 2021 short term build out horizon as well as the 2040 long-term horizon.

The purpose of this study is to identify project traffic generation characteristics, to identify potential project traffic related impacts on the local street system, and to develop mitigation measures required for identified impacts. The following intersections were incorporated into this traffic study in accordance with the City of Aurora standards and requirements:

- West Mall Entrance and Abilene Street
- Alameda Avenue and Abilene Street
- Alameda Avenue and Crystal Street
- Alameda Avenue and Sable Boulevard
- Centrepoint Drive and Sable Boulevard
- West Mall Entrance and Mall Ring Road
- Mall Ring Road and Crystal Street
- Centrepoint Drive and Mall Ring Road



AURORA FIELDHOUSE
VICINITY MAP

FIGURE 1

The hours of operation for the Aurora Fieldhouse will be Monday through Friday 2:00 PM to 9:00PM, Saturday 9:00 AM to 9:00 PM and Sunday 1:00 PM to 6:00 PM. Weekday peak traffic at the facility is expected to occur between 4:45 PM and 9:30 PM when activities are typically booked on hour or half-hour increments. Therefore, trip generation and traffic analysis were only conducted for the typical weekday afternoon peak hour.

Regional access to the project will be provided by I-225 while primary access will be provided by Alameda Parkway, Sable Boulevard, Abilene Street, and Centrepont Drive. Direct access to the site will be provided by the following existing intersections: West Mall Entrance/Mall Ring Road, Mall Ring Road/Crystal Street, and Centrepont Drive/Mall Ring Road.

3.0 EXISTING CONDITIONS

3.1 Existing Study Area

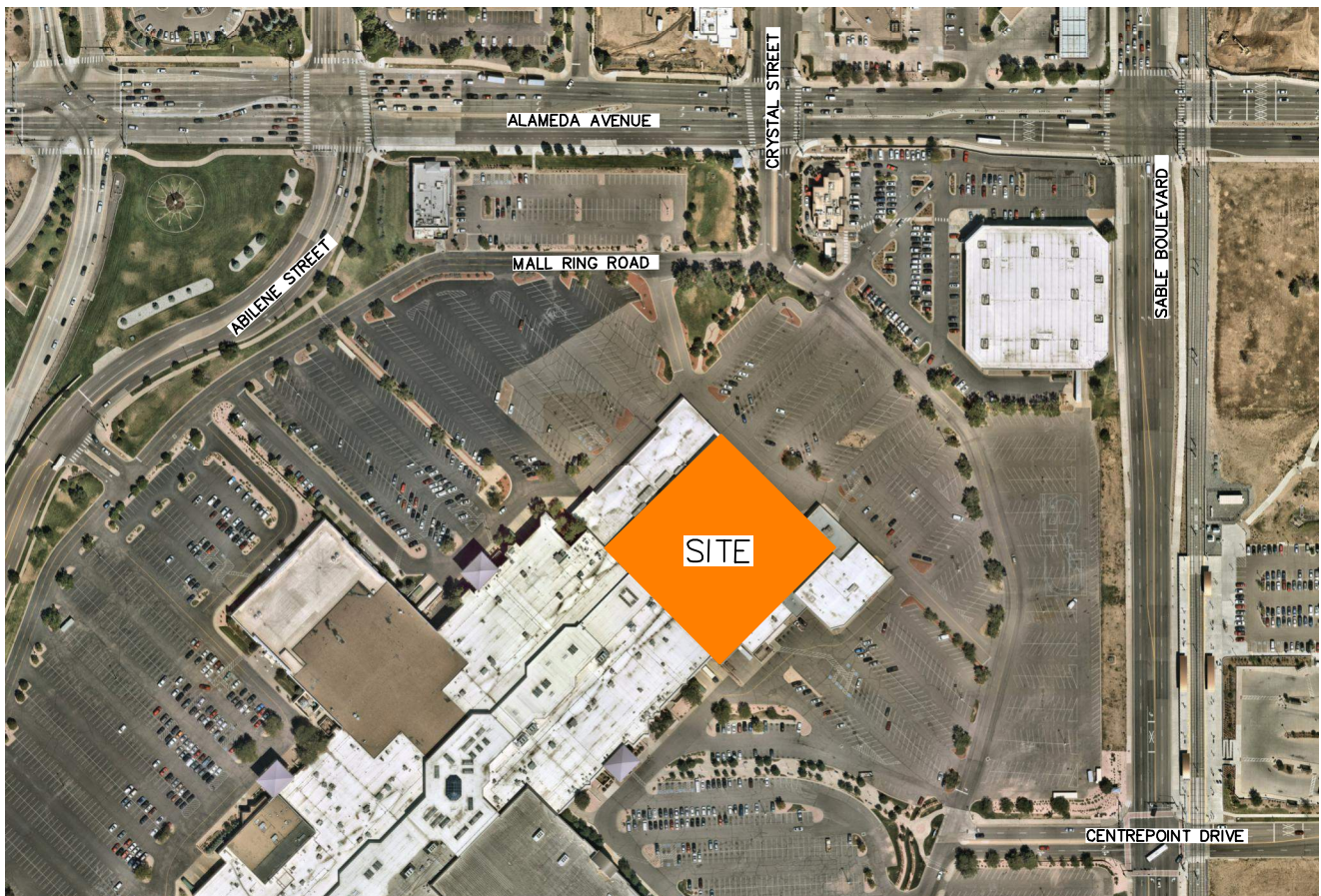
The existing project site is an unoccupied, vacant space at the existing Town Center at Aurora shopping center. This space was previously a Sears retail store. The extended surrounding area north and south of the site consists of retail and restaurants. The area east of the existing Town Center at Aurora site mainly consists of undeveloped land parcels. West of the site, across I-225, are single family homes. The land uses and roadway network surrounding the site within the study area are shown in the aerial of **Figure 2**.

3.2 Existing Roadway Network

Alameda Avenue extends east-west with three through lanes in each direction, a raised median and a posted speed limit of 40 miles per hour. Abilene Street extends north-south with two through lanes in each direction, a raised median and striped median providing left turn lanes at major intersections with a posted speed limit of 30 miles per hour. Crystal Street extends north-south for approximately a quarter-mile with two lanes in each direction and no observed posted speed limit. Sable Boulevard extends north-south with two through lanes in each direction and a posted speed limit of 35 miles per hour. Centrepont Drive extends east-west for approximately half-mile with two lanes in each direction of travel, a center two-way left turn lane (TWLTL) or designated left turn lanes and a posted speed limit of 30 miles per hour. Mall Ring Road loops around Aurora Town Center shopping center with one through lane in each direction, a center TWLTL and a posted speed limit of 25 miles per hour.

The intersection of West Mall Access and Abilene Street is signalized with protected-permitted left-turn phasing in the southbound approach. The westbound approach provides a left-turn lane and a right-turn lane. The northbound approach provides a through lane and a shared through/right-turn lane. The southbound approach provides of a left-turn lane and two through lanes.

The intersection of Alameda Avenue and Abilene Street is signalized with protected only left-turn phasing on all four approaches. The eastbound and westbound approaches provide dual left-turn lanes, three through lanes and a right turn lane. The northbound approach provides dual left-turn lanes, a through lane, and a right-turn lane. The southbound approach provides a left-turn lane, two through lanes, and a right-turn lane.



AURORA FIELDHOUSE
SITE AREA

FIGURE 2

The intersection of Alameda Avenue and Crystal Street is signalized with protected-permitted left turn phasing in the eastbound and westbound approaches and permitted left-turn phasing in the northbound and southbound approaches. The eastbound approach provides dual left-turn lanes, three through lanes, and a continuous right-turn lane. The westbound approach provides a left-turn lane, two through lanes, and a shared through/right-turn lane. The northbound approach provides of a left-turn lane and a shared through/right-turn lane. The southbound approach provides dual left-turn lanes and a shared through/right-turn lane.

The intersection of Alameda Avenue and Sable Boulevard is signalized with protected-permitted left-turn phasing on all approaches. RTD Lightrail railroad tracks run north-south on the east leg of the intersection, therefore the signalized intersection operates with railroad pre-emption. The eastbound approach provides a left-turn lane, three trough lanes, and a right-turn lane. The westbound approach provides dual left-turn lanes, three through lanes, and a right-turn lane. The northbound and southbound approaches provide dual left-turn lanes, two through lanes, and a right-turn lane.

The intersection of Centrepont Drive and Sable Boulevard is signalized with protected-permitted left-turn phasing on the westbound, northbound, and southbound approaches and protected only left-turn phasing on the eastbound approach. The RTD Lightrail railroad tracks run north-south on the east leg of this intersection too, therefore the signalized intersection operates with railroad pre-emption. The eastbound approach provides a left-turn lane and a shared through/right-turn lane. The westbound approach provides a left-turn lane, a through lane, and a shared through/right-turn lane. The northbound approach provides a left-turn lane, two through lanes and a right-turn lane. The southbound approach provides a left-turn lane, a through lane, and a shared through/right-turn lane.

The intersection of West Mall Access and the Mall Ring Road operates with stop control in the northbound and southbound Mall Ring Road approaches. The eastbound entrance approach provides a left-turn lane and a right-turn lane and free flow movements. The northbound approach consists of a left-turn lane and a through lane. The southbound approach consists of a shared through/right-turn lane.

The intersection of Mall Ring Road and Crystal Street operates with stop control in the eastbound and westbound Mall Ring Road approaches. The eastbound approach consists of a left turn lane and a through lane. The westbound approach consists of a shared through/right-turn lane. The southbound entrance approach consists of a left-turn lane and a right-turn lane operating with free movements.

The intersection of Centrepoint Drive and Mall Ring Road operates with all-way stop control. The westbound approach consists of a left-turn lane and a right-turn lane. The northbound approach consists of a shared through/right-turn lane. The southbound approach consists of a left-turn lane and a through lane. The existing intersection lane configurations and control for the study area are shown in **Figure 3**.

3.3 Existing Traffic Volumes

Existing peak hour turning movement counts were conducted on Thursday, January 16, 2020 at the following key study area intersections during the afternoon peak hours:

- Alameda Avenue and Sable Boulevard
- Centrepoint Drive and Sable Boulevard
- Centrepoint Drive and Mall Ring Road

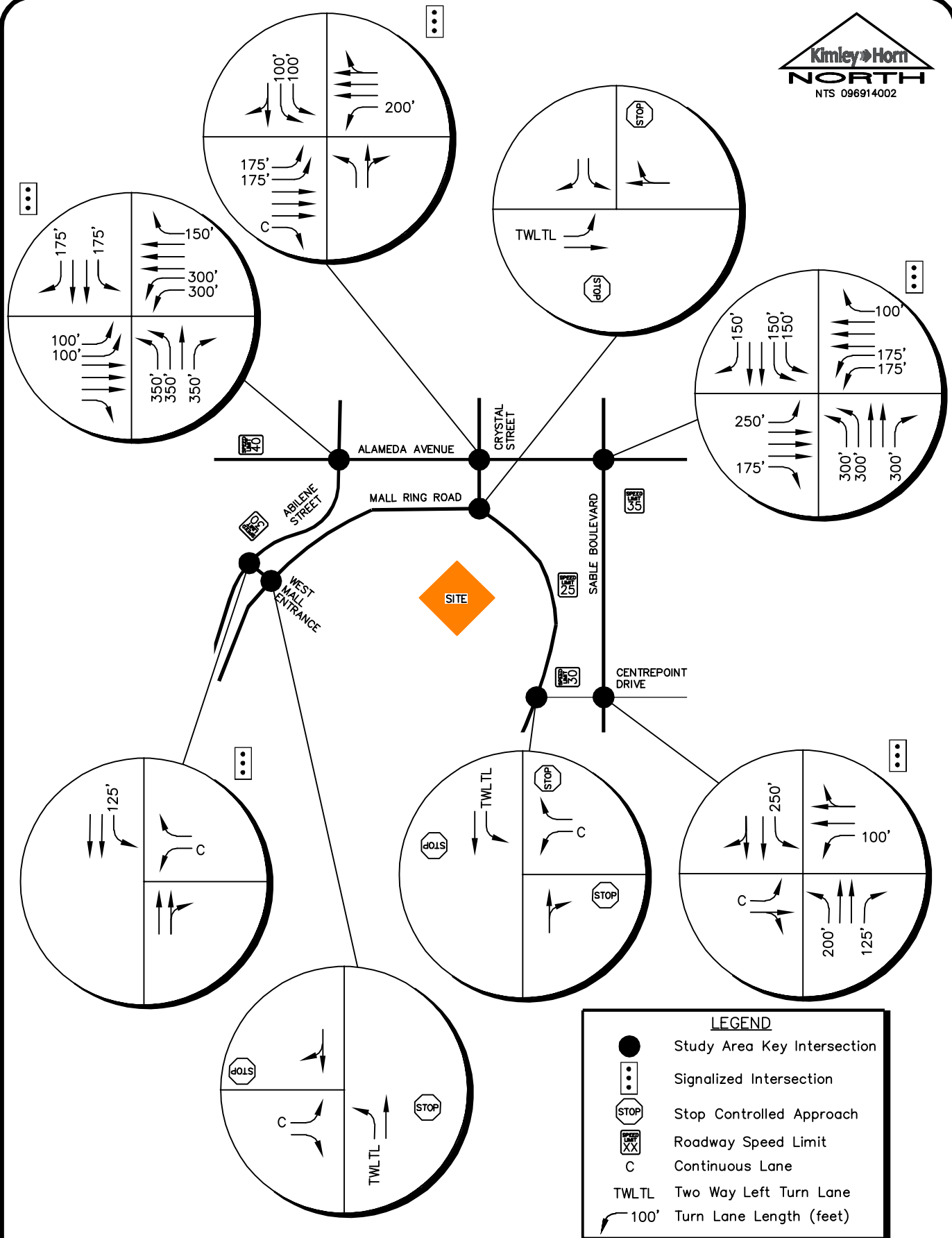
Turning movement counts were conducted on Thursday, September 5, 2019 at the following key study area intersections during the afternoon peak hours:

- West Mall Entrance and Abilene Street

Turning movement counts were conducted on Wednesday, August 28, 2019 at the following key study area intersections during the afternoon peak hours:

- Alameda Avenue and Abilene Street
- Alameda Avenue and Crystal Street
- West Mall Entrance and Mall Ring Road
- Mall Ring Road and Crystal Street

Based on all traffic counts being collected within a span of less than a half year and the mall not having any significant changes in occupancy during this time, it is anticipated that traffic patterns have remained consistent.



AURORA FIELDHOUSE
EXISTING LANE CONFIGURATIONS

FIGURE 3

The counts were obtained in 15-minute intervals during the afternoon peak hours of adjacent street traffic from 4:00 PM to 7:00 PM. Counts conducted in 2019 were grown by the two percent (2%) growth factor per year set forth by the City of Aurora *Traffic Impact Study* guidelines to reflect current 2020 traffic conditions.

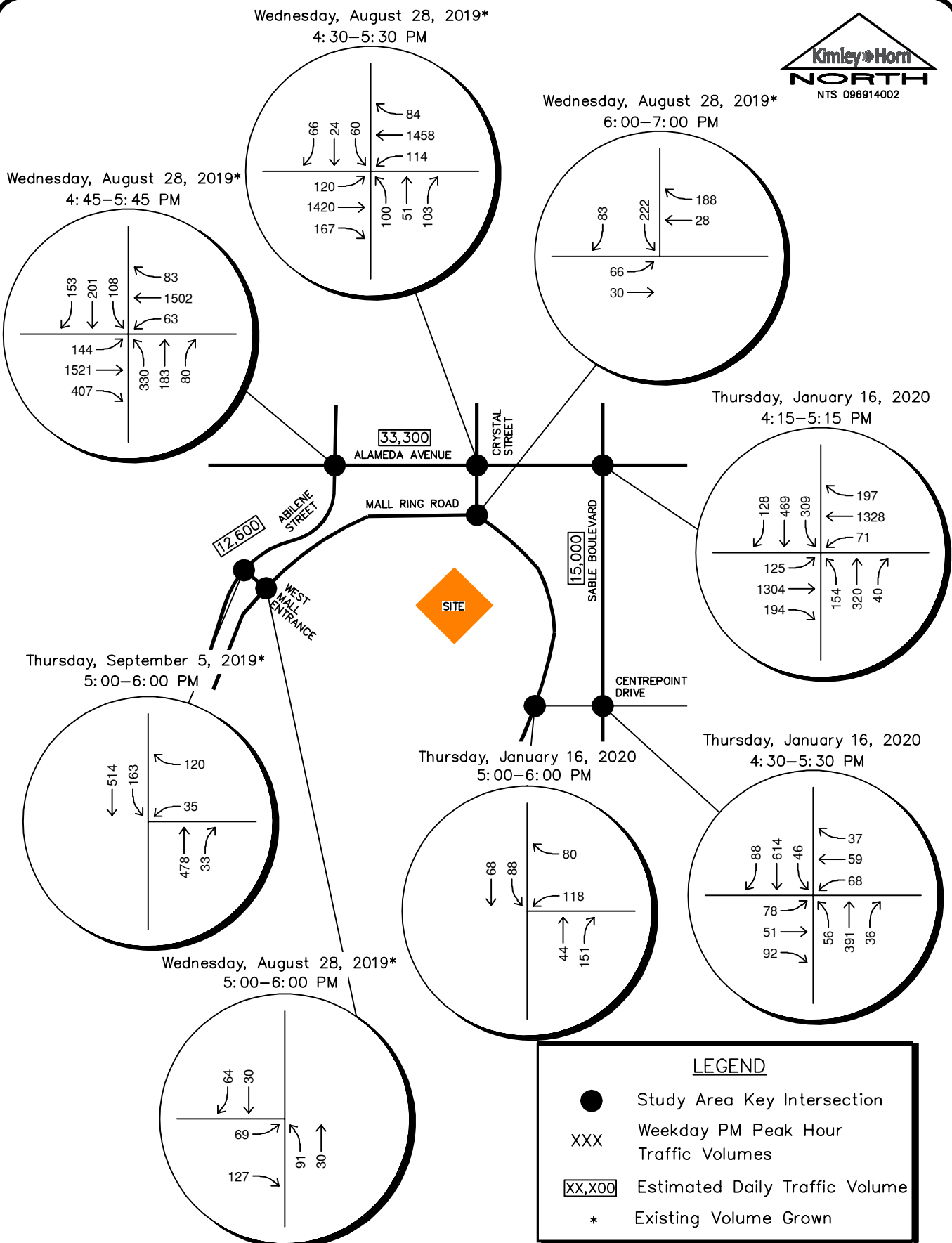
The turning movement counts are shown in **Figure 4** with count sheets provided in **Appendix A**. In addition, daily traffic volumes were estimated along the study area roadways and are shown on **Figure 4** based on the rule of thumb approach that the daily volume equals ten times the afternoon peak hour volume on each roadway segment.

3.4 Unspecified Development Traffic Growth

To be consistent with the City of Aurora Traffic Impact Study Guidelines, a two percent annual growth rate was used to estimate future traffic volume conditions. This annual growth rate of two percent was used to estimate short term 2021 and long term 2040 traffic volumes for all movements along the major arterials. Likewise, site traffic generated by the redevelopment of the parcel on the southwest corner of the Alameda Avenue and Crystal Street intersection has been submitted as a traffic impact study (*Aurora Drive-Thru Fast Food*, November 2019) and approved by the City of Aurora has been included as background traffic in this study. Excerpts from the studies will be included in **Appendix B**.

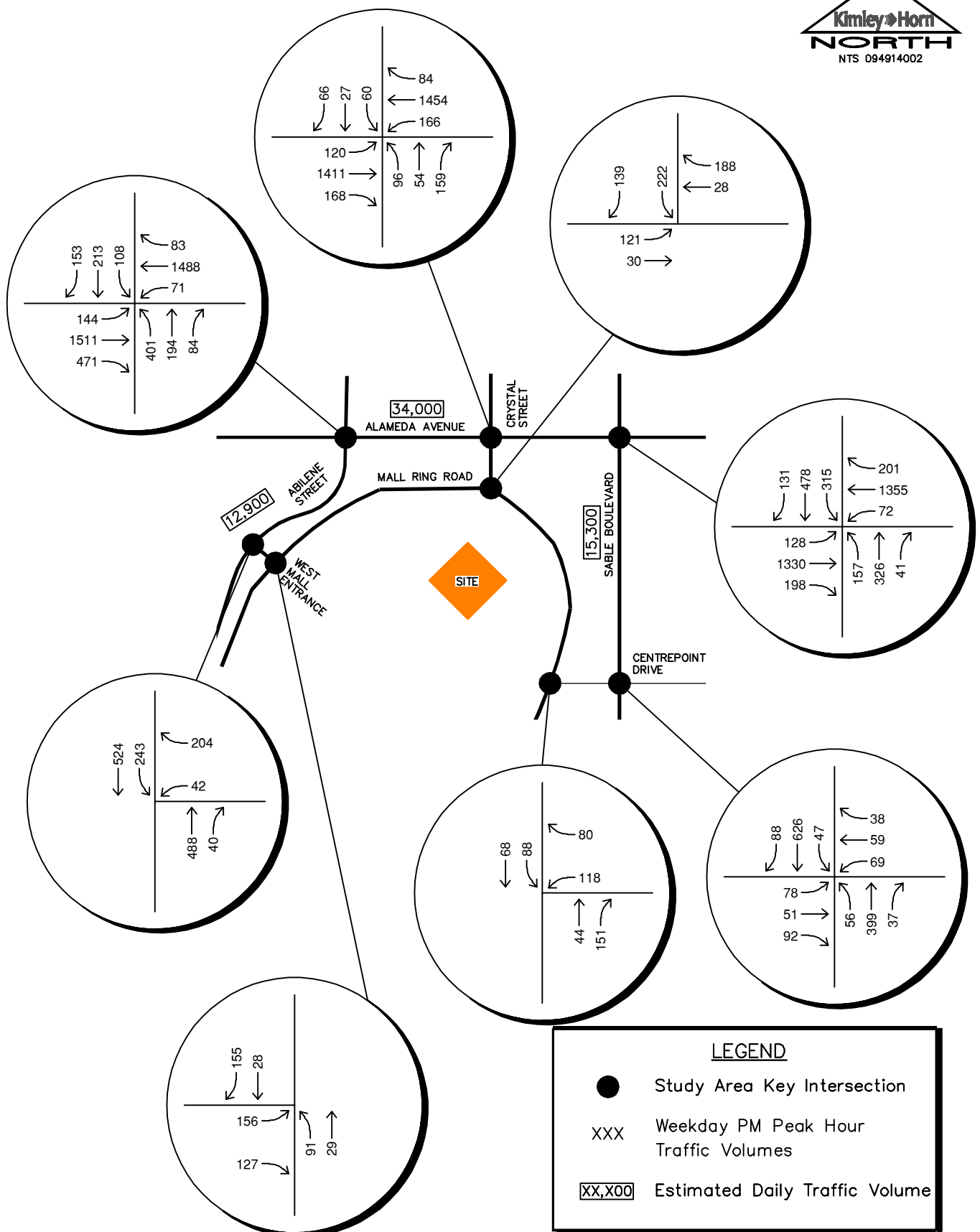
The *Aurora Drive-Thru Fast Food* building will redevelop an existing sit-down restaurant at a northern outparcel to the Town Center at Aurora. The development is expected to be built-out by 2021 and will generate approximately 3,637 weekday daily trips with 403 trips occurring during the morning peak hour and 325 trips occurring during the afternoon peak hour. The total future traffic provided in Figure 6-1 and Figure 6-2 of the *Aurora Drive-Thru Fast Food Traffic Impact Study* was incorporated into the roadway network and study intersections for the background traffic of each horizon year, respectively.

Background traffic volumes for 2021 and 2040 are shown in **Figure 5** and **Figure 6**, respectively.



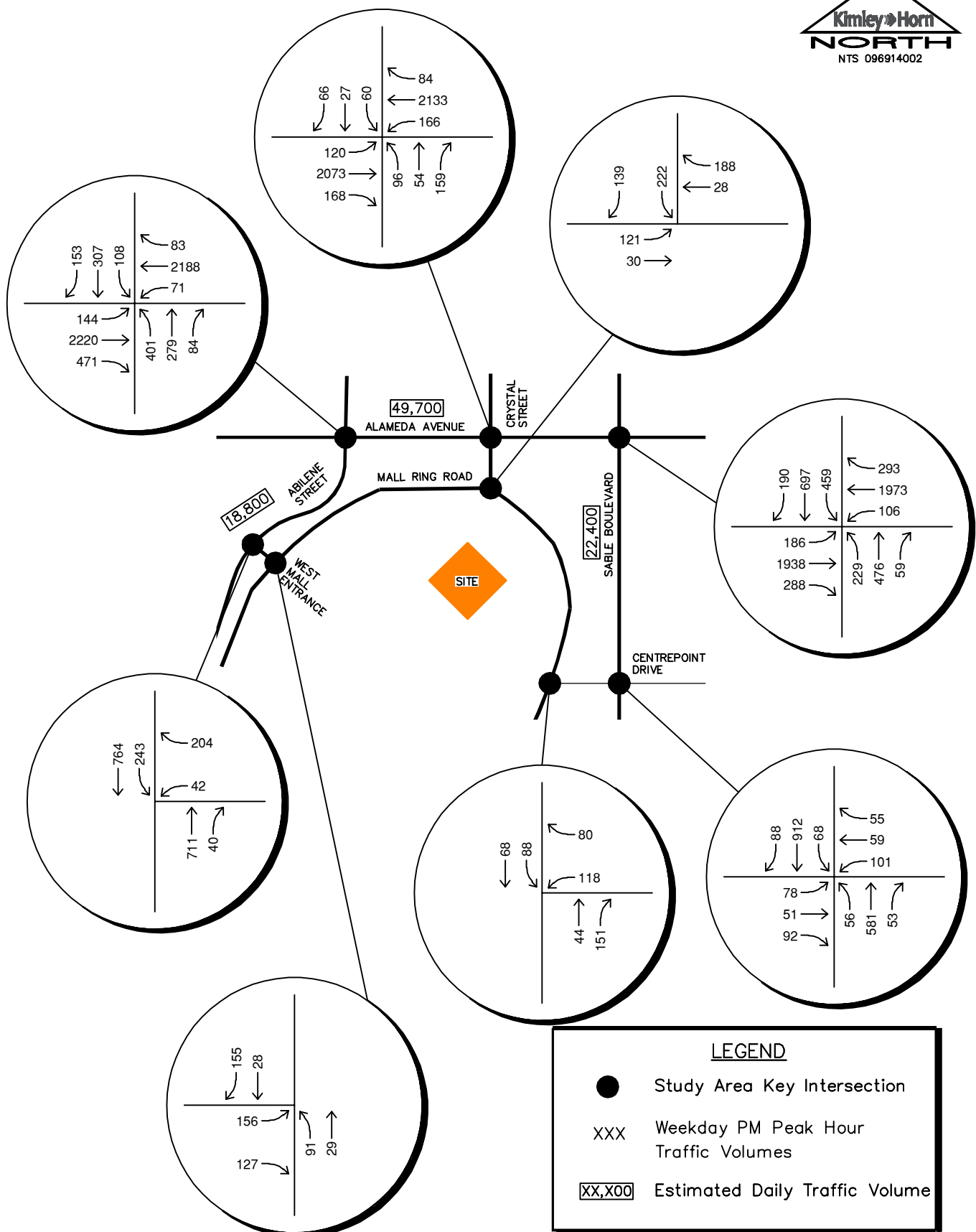
AURORA FIELDHOUSE
EXISTING TRAFFIC VOLUMES

FIGURE 4



AURORA FIELDHOUSE
2021 BACKGROUND TRAFFIC VOLUMES

FIGURE 5



AURORA FIELDHOUSE
2040 BACKGROUND TRAFFIC VOLUMES

FIGURE 6

4.0 PROJECT TRAFFIC CHARACTERISTICS

4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*¹ published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For this study, Kimley-Horn used the ITE Trip Generation Report average rate that apply to Recreational Community Center (ITE Land Use Code 495) for traffic associated with the development.

ITE Land Use Code 495 for Recreational Community Center was used for this development since it is most closely matching the description for the Aurora Fieldhouse provided by the client. In correspondence with the client, the Aurora Fieldhouse was described to provide volleyball courts, basketball courts, fitness facilities, sports training facilities, and an adventure park. Additionally, the weekday hours for the facility are 2:00 PM to 9:00 PM on Monday through Friday. The client described that historically, weekday traffic peaks between 4:45 PM to 9:30 PM. Therefore, the trip generation was only calculated for the PM peak hour.

Based on the most applicable ITE Land Use Code, the approximate 91,960 square foot Fieldhouse at Aurora Town Center is anticipated to generate approximately 2,628 daily weekday trips with 211 trips occurring during the afternoon peak hour. This number of entering trips is believed to be conservative for the overall facility trip generation. **Table 1** summarizes the estimated traffic generation for the proposed development. The trip generation worksheet is included in **Appendix C**. These calculations illustrate the rates used, directional distribution of trips, and number of daily trips based on the published ITE *Trip Generation Report*.

Table 1 – Fieldhouse at Aurora Town Center Traffic Generation

Land Use	Size	Vehicles Trips			
		Daily	Weekday PM Peak Hour		
			In	Out	Total
Fieldhouse (ITE 495)	91,960 SF	2,628	120	91	211

¹ Institute of Transportation Engineers, *Trip Generation Manual: An Information Report*, Tenth Edition, Washington DC, 2017.

For reference, the previous Sears retail store would be considered to generate approximately 2,106 weekday daily trips with 179 of these trips occurring during the weekday afternoon peak hour based on ITE average rate equations for the Department Store (875) code use, which is very similar to the traffic anticipated to be generated by this project (an 18 percent increase during the afternoon peak hour is expected).

4.2 Trip Distribution

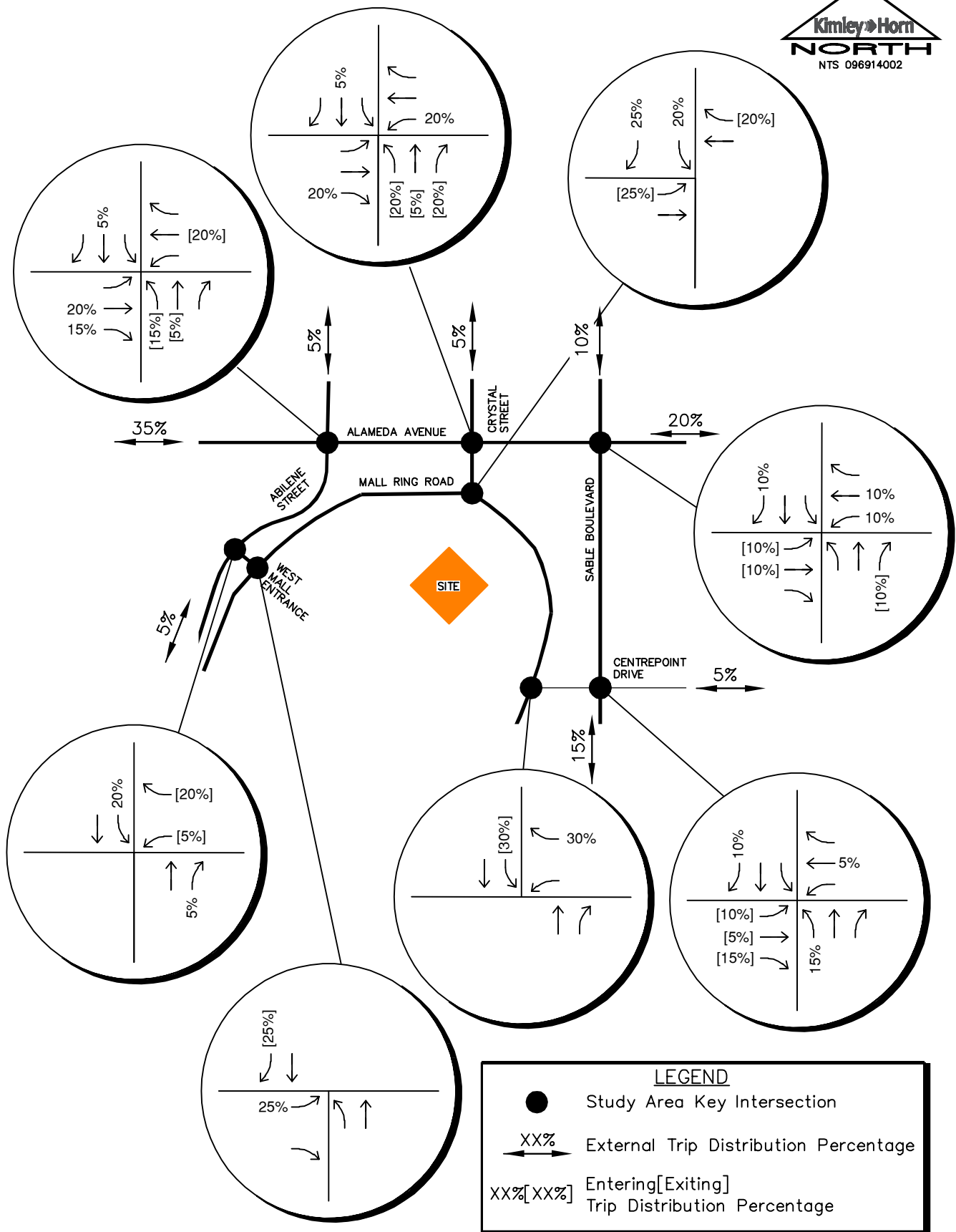
Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source direction. Existing traffic patterns were used as a basis for trip distribution; however, the existing Aurora Town Center is a regional attraction, whereas this facility is a more localized use to account for arrival and departure patterns from surrounding demographic areas. As such, a higher trip distribution was assigned to and from the west due to a higher number of households being located to the west and the proximity to I-25. A higher density of households are located to the east and to the south compared to the north. **Figure 7** illustrates the expected trip distribution for the project.

4.3 Traffic Assignment

Traffic assignment was obtained by applying the distributions of **Figure 7** to the estimated traffic generation of the project shown in **Table 1**. The Fieldhouse at Aurora Town Center traffic assignment is shown in **Figure 8**.

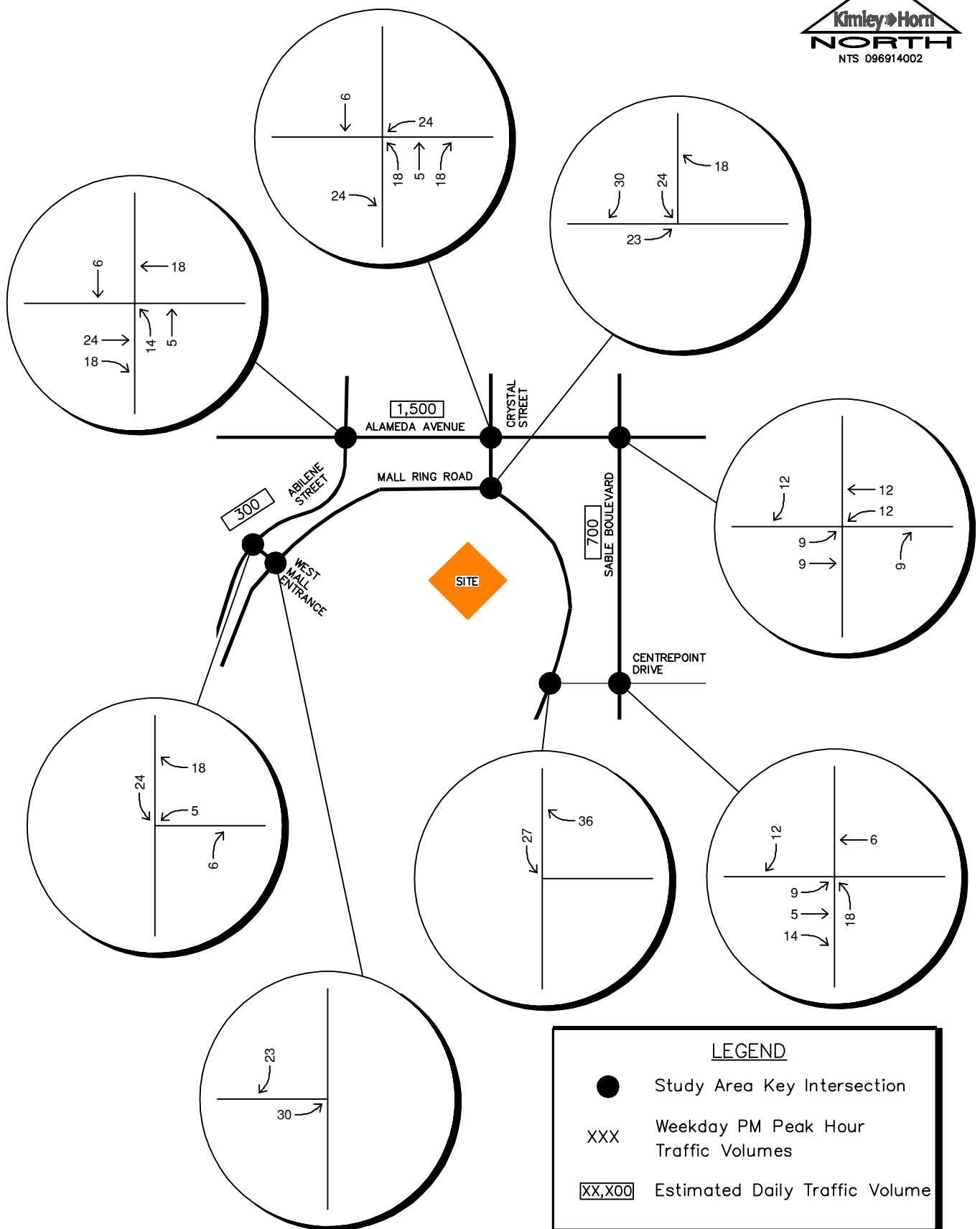
4.4 Total (Background Plus Project) Traffic

Project traffic volumes were added to the background volumes to represent estimated traffic conditions for the 2021 build out horizon and long term 2040 horizon. These background plus project traffic volumes for the project are illustrated for the 2020 and 2040 horizon years in **Figures 9** and **10**, respectively.



AURORA FIELDHOUSE
TRIP DISTRIBUTION

FIGURE 7

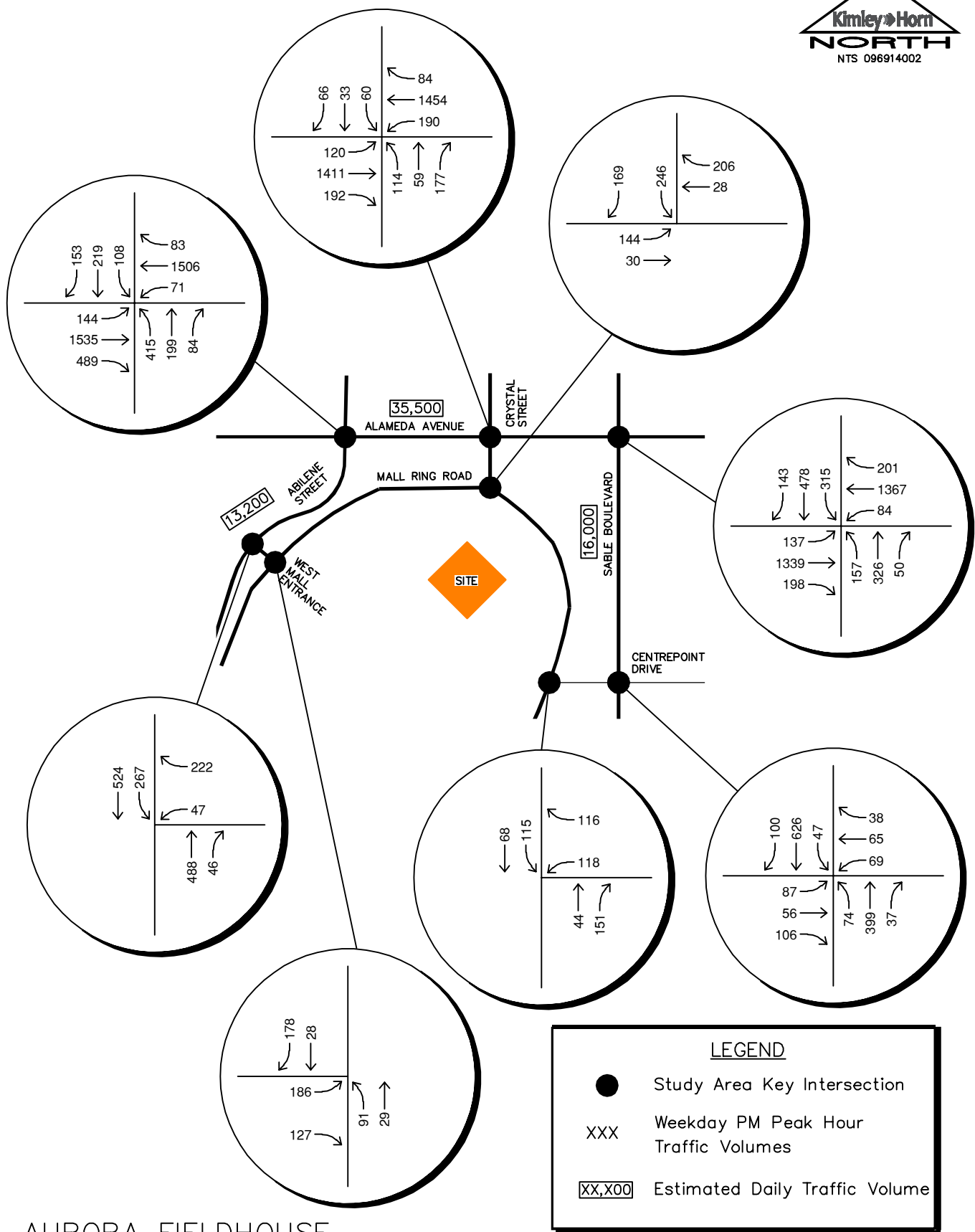


LEGEND

- Study Area Key Intersection
- XXX Weekday PM Peak Hour Traffic Volumes
- XX,X00 Estimated Daily Traffic Volume

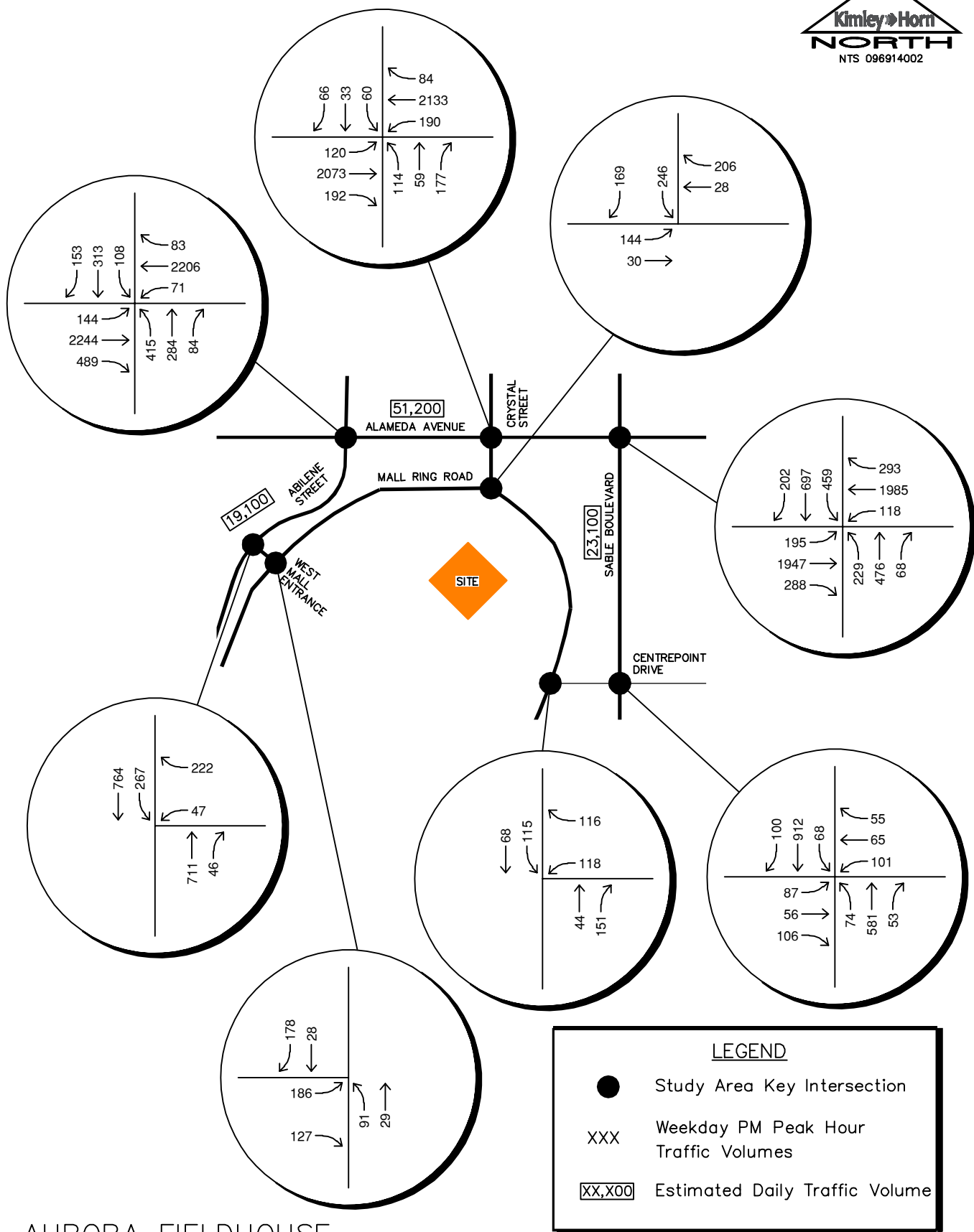
AURORA FIELDHOUSE
 TRAFFIC ASSIGNMENT

FIGURE 8



AURORA FIELDHOUSE
 2021 BACKGROUND PLUS
 PROJECT TRAFFIC VOLUMES

FIGURE 9



AURORA FIELDHOUSE
2040 BACKGROUND PLUS
PROJECT TRAFFIC VOLUMES

FIGURE 10

5.0 TRAFFIC OPERATIONS ANALYSIS

Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2021 and 2040 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the *Highway Capacity Manual*².

5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). City of Aurora and typical traffic study practice identifies LOS D or better for acceptable operations of movements, approaches, and for the overall intersection. **Table 2** shows the definition of level of service for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the level of service (LOS) for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service for a two-way stop-controlled intersection is not defined for the intersection as a whole. Level of service for a signalized and four-way stop controlled intersection is defined for each approach and for the intersection.

² Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

5.2 Intersection Operational Analysis

The study area intersections were analyzed based on average delay analysis for signalized and unsignalized intersections. Level of Service (LOS) was calculated using Synchro 10 Software providing the HCM results. Calculations for the level of service at the key intersections for the study area are provided in **Appendix D**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 3**. LOS for the intersections was calculated using Synchro software presenting the HCM results.

West Mall Entrance and Abilene Street

The intersection of West Mall Entrance and Abilene Street is a signalized “T” intersection with protected-permitted left-turn phasing in the southbound approach. The intersection currently operates acceptably with LOS A during the afternoon peak hour. With the existing lane configuration, the intersection is expected to continue to operate acceptably with LOS B during the afternoon peak hour in horizon year 2021 and 2040 with or without the addition of Fieldhouse project traffic. Therefore, no modifications are anticipated to be required at this intersection. **Table 3** provides the level of service at this intersection.

Table 3 – West Mall Entrance and Abilene Street LOS Results

Scenario	PM Peak Hour	
	Delay (sec)	LOS
2020 Existing		
Westbound Approach	39.4	D
Northbound Approach	6.2	A
Southbound Approach	2.8	A
Overall	8.6	A
2021 Background		
Westbound Approach	39.1	D
Northbound Approach	9.8	A
Southbound Approach	4.7	A
Overall	12.3	B
2021 Background Plus Project		
Westbound Approach	41.5	D
Northbound Approach	10.8	B
Southbound Approach	5.2	A
Overall	13.7	B
2040 Background		
Westbound Approach	40.5	D
Northbound Approach	10.1	B
Southbound Approach	4.8	A
Overall	11.3	B
2040 Background Plus Project		
Westbound Approach	43.2	D
Northbound Approach	11.1	B
Southbound Approach	5.2	A
Overall	12.6	B

Alameda Avenue and Abilene Street

The intersection of Alameda Avenue and Abilene Street is signalized with protected only left-turn phasing on all four approaches. The intersection currently operates acceptably with LOS C during the afternoon peak hour. With the existing lane configuration, the intersection continues to operate with a LOS C during the afternoon peak hours in horizon year 2021 with and without project traffic. During horizon year 2040, with existing lane configuration, the intersection continues to operate acceptably with LOS C without project traffic and LOS D with project traffic in the afternoon peak hour. Likewise, no modifications are anticipated to be required at this intersection. **Table 4** provides the results of the level of service at this intersection.

Table 4 – Alameda Avenue and Abilene Street LOS Results

Scenario	PM Peak Hour	
	Delay (sec)	LOS
2020 Existing		
Eastbound Approach	28.6	C
Westbound Approach	6.2	A
Northbound Approach	54.7	D
Southbound Approach	53.1	D
Overall	26.1	C
2021 Background		
Eastbound Approach	29.4	C
Westbound Approach	7.2	A
Northbound Approach	52.2	D
Southbound Approach	53.5	D
Overall	27.1	C
2021 Background Plus Project		
Eastbound Approach	29.6	C
Westbound Approach	7.0	A
Northbound Approach	52.2	D
Southbound Approach	53.9	D
Overall	27.2	C
2040 Background		
Eastbound Approach	39.6	D
Westbound Approach	15.1	B
Northbound Approach	54.3	D
Southbound Approach	54.5	D
Overall	33.5	C
2040 Background Plus Project		
Eastbound Approach	45.2	D
Westbound Approach	24.1	C
Northbound Approach	54.6	D
Southbound Approach	53.7	D
Overall	39.1	D

Alameda Avenue and Crystal Street

The intersection of Alameda Avenue and Crystal Street is signalized with protected-permitted left turn phasing in the eastbound and westbound approaches and permitted left-turn phasing in the northbound and southbound approaches. The intersection currently operates acceptably with LOS A during the afternoon peak hour. With the existing lane configuration, the intersection is expected to continue to operate acceptably with LOS B during the afternoon peak hour in horizon year 2021 and 2040 with the addition of Fieldhouse project traffic. Of note, an additional 12 seconds of green time was allocated along the northbound Crystal Street approach to shorten vehicles queues along this approach exiting the Aurora Town Center. **Table 5** provides the results of the level of service at this intersection.

Table 5 – Alameda Avenue and Crystal Street LOS Results

Scenario	PM Peak Hour	
	Delay (sec)	LOS
2020 Existing		
Eastbound Approach	1.0	A
Westbound Approach	1.7	A
Northbound Approach	48.5	D
Southbound Approach	47.9	D
Overall	6.8	A
2021 Background		
Eastbound Approach	1.1	A
Westbound Approach	2.1	A
Northbound Approach	53.9	D
Southbound Approach	47.0	D
Overall	8.0	A
2021 Background Plus Project #		
Eastbound Approach	8.5	A
Westbound Approach	6.7	A
Northbound Approach	36.4	D
Southbound Approach	34.1	C
Overall	11.5	B
2040 Background		
Eastbound Approach	0.7	A
Westbound Approach	2.5	A
Northbound Approach	54.3	D
Southbound Approach	46.9	D
Overall	6.1	A
2040 Background Plus Project #		
Eastbound Approach	20.7	A
Westbound Approach	10.8	A
Northbound Approach	37.9	D
Southbound Approach	35.3	D
Overall	17.8	B

= Additional 12-seconds Northbound Green Time to Improve Vehicles Queues

Alameda Avenue and Sable Boulevard

The intersection of Alameda Avenue and Sable Boulevard is signalized with protected-permitted left-turn phasing on all approaches. The intersection currently operates acceptably with LOS C during the afternoon peak hours. With the existing lane configuration, the intersection is expected to continue to operate with LOS C during the afternoon peak hour with or without the addition of project traffic in 2021 and 2040. No modifications are anticipated to be required at this intersection. **Table 6** provides the results of the level of service at this intersection.

Table 6 – Alameda Avenue and Sable Boulevard LOS Results

Scenario	PM Peak Hour	
	Delay (sec)	LOS
2020 Existing		
Eastbound Approach	2.0	A
Westbound Approach	21.2	C
Northbound Approach	45.3	D
Southbound Approach	43.6	D
Overall	21.4	C
2021 Background		
Eastbound Approach	2.1	A
Westbound Approach	21.8	C
Northbound Approach	45.1	D
Southbound Approach	43.5	D
Overall	21.6	C
2021 Background Plus Project		
Eastbound Approach	2.1	A
Westbound Approach	22.1	C
Northbound Approach	45.1	D
Southbound Approach	43.5	D
Overall	21.7	C
2040 Background		
Eastbound Approach	4.7	A
Westbound Approach	31.5	C
Northbound Approach	63.3	E
Southbound Approach	59.2	E
Overall	30.9	C
2040 Background Plus Project		
Eastbound Approach	3.2	A
Westbound Approach	31.3	C
Northbound Approach	64.0	E
Southbound Approach	64.6	E
Overall	31.5	C

Centrepont Drive and Sable Boulevard

The intersection of Centrepont Drive and Sable Boulevard is signalized with protected/permitted left-turn phasing on the westbound, northbound, and southbound approaches and protected only left-turn phasing on the eastbound approach. The intersection currently operates acceptably with LOS C during the weekday afternoon peak hour with existing lane configurations. The intersection is expected to continue to operate with LOS C during the afternoon peak hour with or without the addition of project traffic. Therefore, no modifications are anticipated to be required at this intersection. Note that the delay at the intersection improves over the existing and horizon years due to the optimization of signal splits that allow for the high volumes along Sable Boulevard to operate with minimal delay through the intersection. **Table 7** provides the results of the level of service at this intersection.

Table 7 – Centrepont Drive and Sable Boulevard LOS Results

Scenario	PM Peak Hour	
	Delay (sec)	LOS
2020 Existing		
Eastbound Approach	47.2	D
Westbound Approach	36.5	D
Northbound Approach	18.3	B
Southbound Approach	10.9	B
Overall	21.0	C
2021 Background		
Eastbound Approach	47.2	D
Westbound Approach	36.4	D
Northbound Approach	18.4	B
Southbound Approach	11.0	B
Overall	21.0	C
2021 Background Plus Project		
Eastbound Approach	46.3	D
Westbound Approach	35.9	D
Northbound Approach	19.2	B
Southbound Approach	12.1	B
Overall	22.0	C
2040 Background		
Eastbound Approach	48.1	D
Westbound Approach	35.1	C
Northbound Approach	18.9	B
Southbound Approach	13.1	B
Overall	20.6	C
2040 Background Plus Project		
Eastbound Approach	40.7	D
Westbound Approach	34.1	C
Northbound Approach	19.8	B
Southbound Approach	14.3	B
Overall	21.0	C

West Mall Entrance and Mall Ring Road

The intersection of West Mall Entrance and Mall Ring Road currently operates with stop control in the northbound and southbound Mall Ring Road approaches. As such, all movements currently operate with acceptably with LOS B or better in the afternoon peak hour. With existing lane configurations, the movements at the intersection continue to operate acceptably with LOS C or better with or without the addition of project traffic during the afternoon peak hour throughout 2040. No modifications are anticipated to be required at this intersection. **Table 8** provides the results of the level of service at this intersection.

Table 8 – West Mall Entrance and Mall Ring Road LOS Results

Scenario	PM Peak Hour	
	Delay (sec)	LOS
2020 Existing		
Eastbound Approach	2.6	A
Northbound Left	12.2	B
Northbound Through	10.4	B
Southbound Through/Right	9.9	A
2021 Background		
Eastbound Approach	4.1	A
Northbound Left	19.7	C
Northbound Through	12.4	B
Southbound Through/Right	10.2	B
2021 Background Plus Project		
Eastbound Approach	4.5	A
Northbound Left	24.3	C
Northbound Through	13.2	B
Southbound Through/Right	10.5	B
2040 Background		
Eastbound Approach	4.1	A
Northbound Left	19.7	C
Northbound Through	12.4	B
Southbound Through/Right	10.2	B
2040 Background Plus Project		
Eastbound Approach	4.5	A
Northbound Left	24.3	C
Northbound Through	13.2	B
Southbound Through/Right	10.5	B

Mall Ring Road and Crystal Street

The intersection of Mall Ring Road and Crystal Street currently operates with stop control in the eastbound and westbound approaches. All movements currently operate with LOS D or better during the afternoon peak hours. With existing lane configurations prior to the Fieldhouse project traffic, all movements operate acceptably in horizon year 2021 and 2040 except for the eastbound left-turn movement. With the existing lane configuration in 2021, the eastbound left turn movement at the intersection operates with LOS E during the PM peak hour prior to the addition of project traffic and with LOS F with project traffic. It is recommended that in short-term horizon year 2021 that all approaches be stop-controlled, or a roundabout be installed. With all-way stop control, a R1-1 “STOP” sign is recommended to be installed on the southbound approach on Crystal Street. When this occurs, it is recommended that the “INCOMING TRAFFIC DOES NOT STOP” signs underneath the existing “STOP” signs for the eastbound and westbound Mall Ring Road approaches be removed. It is recommended that all three “STOP” signs include R1-4 “ALL WAY” plaques under the “STOP” signs. In addition, orange flags should be affixed to the top of the new “STOP” sign on the southbound Crystal Street approach.

As directed by the City of Aurora, this intersection was also evaluated with roundabout control. With roundabout control, this intersection is expected to operate with acceptably with LOS A during the afternoon peak throughout the 2040 horizon. So, either control condition is anticipated to work acceptably in horizon year 2021 and 2040 with the addition of project traffic. **Table 9** provides the results of the level of service at this intersection.

Table 9 – Mall Ring Road and Crystal Street LOS Results

Scenario	PM Peak Hour	
	Delay (sec)	LOS
2020 Existing		
Eastbound Left	33.0	D
Eastbound Through	15.3	C
Westbound Through/Right	11.0	B
Southbound Approach	5.6	A
2021 Background		
Eastbound Left	37.6	E
Eastbound Through	14.5	C
Westbound Through/Right	10.9	B
Southbound Approach	4.7	A
2021 Background Plus Project		
Eastbound Left	65.7	F
Eastbound Through	15.4	C
Westbound Through/Right	11.3	B
Southbound Approach	4.5	A
2021 Background Plus Project #		
Eastbound Left	12.1	B
Southbound Left	14.5	B
Eastbound Through	9.2	A
Westbound Through/Right	11.5	B
Southbound Right	9.6	A
Overall	12.0	B
2021 Background Plus Project ##	4.6	A
2040 Background		
Eastbound Left	37.6	E
Eastbound Through	14.5	C
Westbound Through/Right	10.9	B
Southbound Approach	4.7	A
2040 Background Plus Project		
Eastbound Left	65.7	F
Eastbound Through	15.4	C
Westbound Through/Right	11.3	B
Southbound Approach	7.7	A
2040 Background Plus Project #		
Eastbound Left	12.1	B
Southbound Left	14.5	B
Eastbound Through	9.2	A
Westbound Through/Right	11.5	B
Southbound Right	9.6	A
Overall	12.0	B
2040 Background Plus Project ##	4.6	A

= Stop-control on all approaches

= Roundabout Control

Centrepont Drive and Mall Ring Road

The intersection of Centrepont Drive and Mall Ring Road intersection currently operates with all-way stop control. All movements currently operate with acceptably with LOS B or better in the afternoon peak hour. With existing lane configurations, the movements at the intersection continue to operate acceptably with LOS B or better with or without the addition of project traffic during the afternoon peak hour. No modifications are anticipated to be required at this intersection. **Table 10** provides the results of the level of service at this intersection.

Table 10 – Centrepont Drive and Mall Ring Road LOS Results

Scenario	PM Peak Hour	
	Delay (sec)	LOS
2020 Existing		
Westbound Left	10.5	B
Westbound Right	8.2	A
Northbound Through/Right	9.7	A
Southbound Left	9.8	A
Southbound Through	8.8	A
Overall	9.6	A
2021 Background		
Westbound Left	10.3	B
Westbound Right	8.1	A
Northbound Through/Right	9.5	A
Southbound Left	9.6	A
Southbound Through	8.7	A
Overall	9.4	A
2021 Background Plus Project		
Westbound Left	10.7	B
Westbound Right	8.8	A
Northbound Through/Right	10.0	A
Southbound Left	10.4	B
Southbound Through	9.0	A
Overall	9.9	A
2040 Background		
Westbound Left	10.3	B
Westbound Right	8.1	A
Northbound Through/Right	9.5	A
Southbound Left	9.6	A
Southbound Through	8.7	A
Overall	9.4	A
2040 Background Plus Project		
Westbound Left	10.5	B
Westbound Right	8.6	A
Northbound Through/Right	9.7	A
Southbound Left	10.2	B
Southbound Through	8.8	A
Overall	9.7	A

5.3 Vehicle Queuing Analysis

An intersection queuing analysis was performed for the study area intersections in 2021 and 2040. The queuing analysis was performed using the Synchro analysis software presenting the results of the 95th percentile queue length. Queue analysis worksheets at the signalized intersections are provided in **Appendix E**. Queue length calculations for unsignalized intersections are provided within the level of service operational sheets provided in **Appendix D**. Results of the queuing analysis and recommendations at the study area intersections are provided in **Table 11**. Note, any queue lengths calculated at less than one vehicle were rounded up to 25 feet to account for one vehicle of storage needed.

Table 11 – Queuing Analysis Results

Intersection Turn Lane	Existing Turn Lane Length (feet)	2021 Calculated Queue Length (feet)	2040 Calculated Queue Length (feet)	2040 Recommended Turn Lane Length (feet)
West Mall Entrance & Abilene St				
Southbound Left	125'	62'	61'	125'
Westbound Left	75' C	53'	53'	75' C
Westbound Right	75' C	52'	60'	75' C
Abilene St & Alameda Ave				
Eastbound Left	100' DL	99' DL	100' DL	100' DL
Eastbound Right	300' C	168'	243'	300' C
Westbound Left	300' DL	51' DL	38' DL	300' DL
Westbound Right	150'	25'	25'	150'
Northbound Left	350' DL	239' DL	241' DL	350' DL
Northbound Right	350'	25'	25'	350'
Southbound Left	175' DL	158' DL	159' DL	175' DL
Southbound Right	175'	58'	65'	175'
Alameda Ave & Crystal St				
Eastbound Left	175' DL	25' DL	25' DL	175' DL
Eastbound Right	625' C	25'	25'	625' C
Westbound Left	200'	166'	166'	200'
Northbound Left	160' C	117'	117'	160' C
Northbound Through/Right	160' C	172'	172'	160' C
Southbound Left	100' DL	34' DL	37' DL	100' DL
Alameda Ave & Sable Blvd				
Eastbound Left	250'	136'	155'	250'
Eastbound Right	175'	25'	25'	175'
Westbound Left	175' DL	27' DL	37' DL	175' DL
Westbound Right	100'	82'	149'	150'
Northbound Left	300' DL	81' DL	127' DL	300' DL
Northbound Right	300'	25'	25'	300'
Southbound Left	150' DL	150' DL	276' DL	275' DL
Southbound Right	150'	65'	144'	150'

Centrepont Dr & Sable Blvd				
Eastbound Left	250' C	97'	76'	250' C
Eastbound Through/Right	250' C	97'	102'	250' C
Westbound Left	100'	65'	86'	100'
Northbound Left	200'	49'	53'	200'
Northbound Right	125'	25'	25'	125'
Southbound Left	250'	37'	47'	250'
West Mall Ring Road				
Eastbound Left	75' C	25'	25'	75' C
Eastbound Right	75' C	25'	25'	75' C
Northbound Left	TWLTL	38'	38'	TWLTL
Mall Ring Road & Crystal St#				
Eastbound Left	TWLTL	50'	50'	TWLTL
Southbound Left	150' C	75'	75'	150' C
Southbound Right	150' C	25'	25'	150' C
Mall Ring Road & Centerpoint				
Southbound Left	TWLTL	25'	25'	TWLTL
Westbound Left	250' C	50'	50'	250' C
Westbound Right	250' C	25'	25'	250' C

= All Way Stop Control Improvement

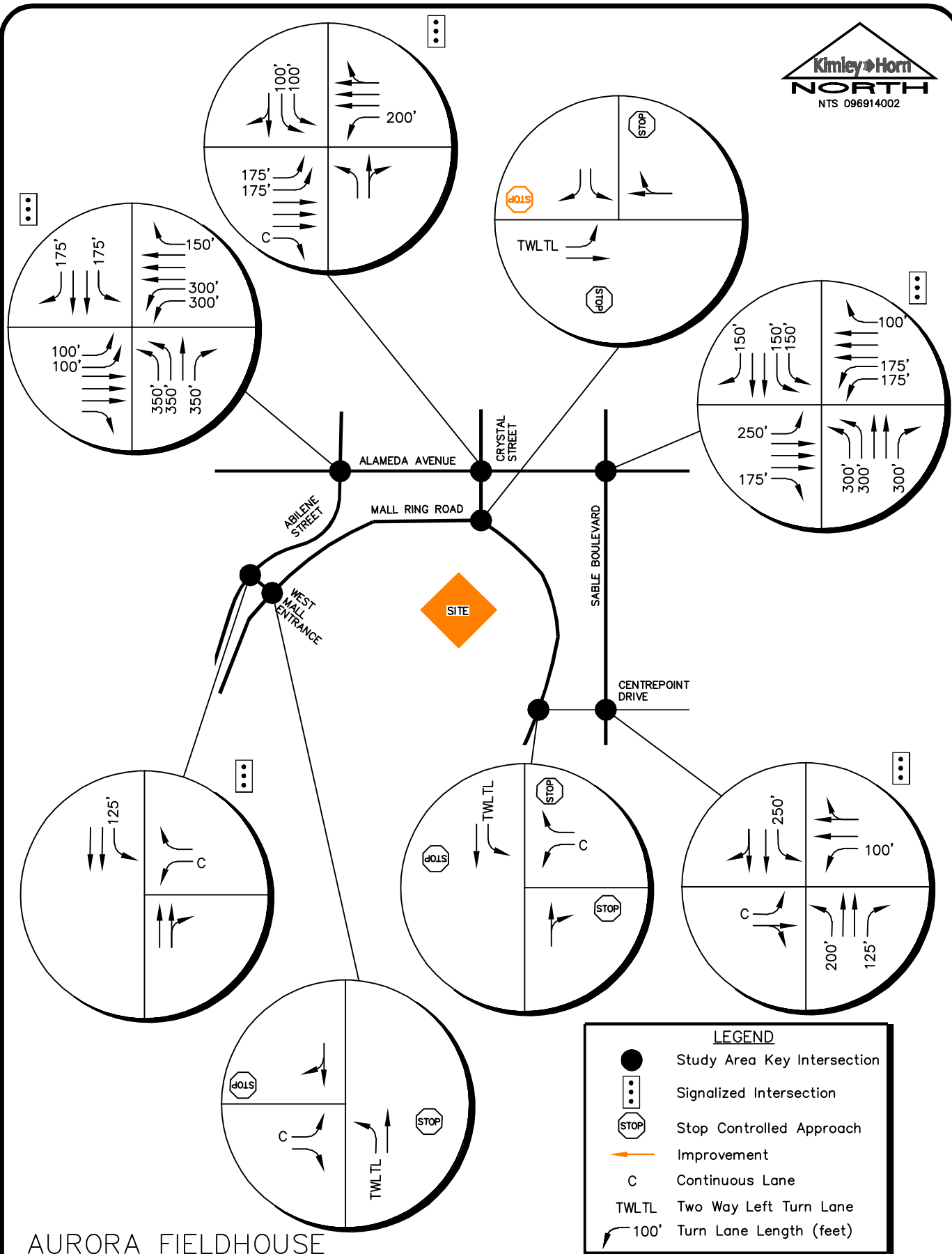
DL = Dual Left Turn Lanes; C=Continuous; TWLTL= Two-Way Left-Turn Lane

As shown in the vehicle queueing table, most vehicle queues are expected to be contained within existing lane lengths in the short term 2021 and long term 2040 horizon. The following provides a description of turn lanes that may not have adequate queue lengths:

- The continuous northbound approach for the through/right turn movement at Alameda Avenue and Crystal Street may have queues of approximately 172 feet, which exceed the 160-feet available back to the internal Ring Road intersection. An additional 12 seconds of green time was allocated to the northbound approach to achieve this reported 172 feet of storage while only slightly impacting delays along Alameda Avenue. Therefore, timing modifications may be needed at the existing signal to allocate additional green time for the northbound minor phase by increasing the max-green. Of note, it requires adding 18 seconds of additional northbound green time to report an expected vehicle queue length of 160 feet. This amount of additional green time significantly impacts the through movements along Alameda Avenue and is not recommended.
- The southbound left-turn lane at the Alameda Avenue and Sable Boulevard intersection is expected to exceed existing striped storage in the long-term horizon year. The combined striped storage and taper provide approximately 400-feet of length; therefore, shortening the left turn lane taper is recommended to designate 275-foot southbound left turn lanes. It should be noted that project traffic does not contribute to this movement.

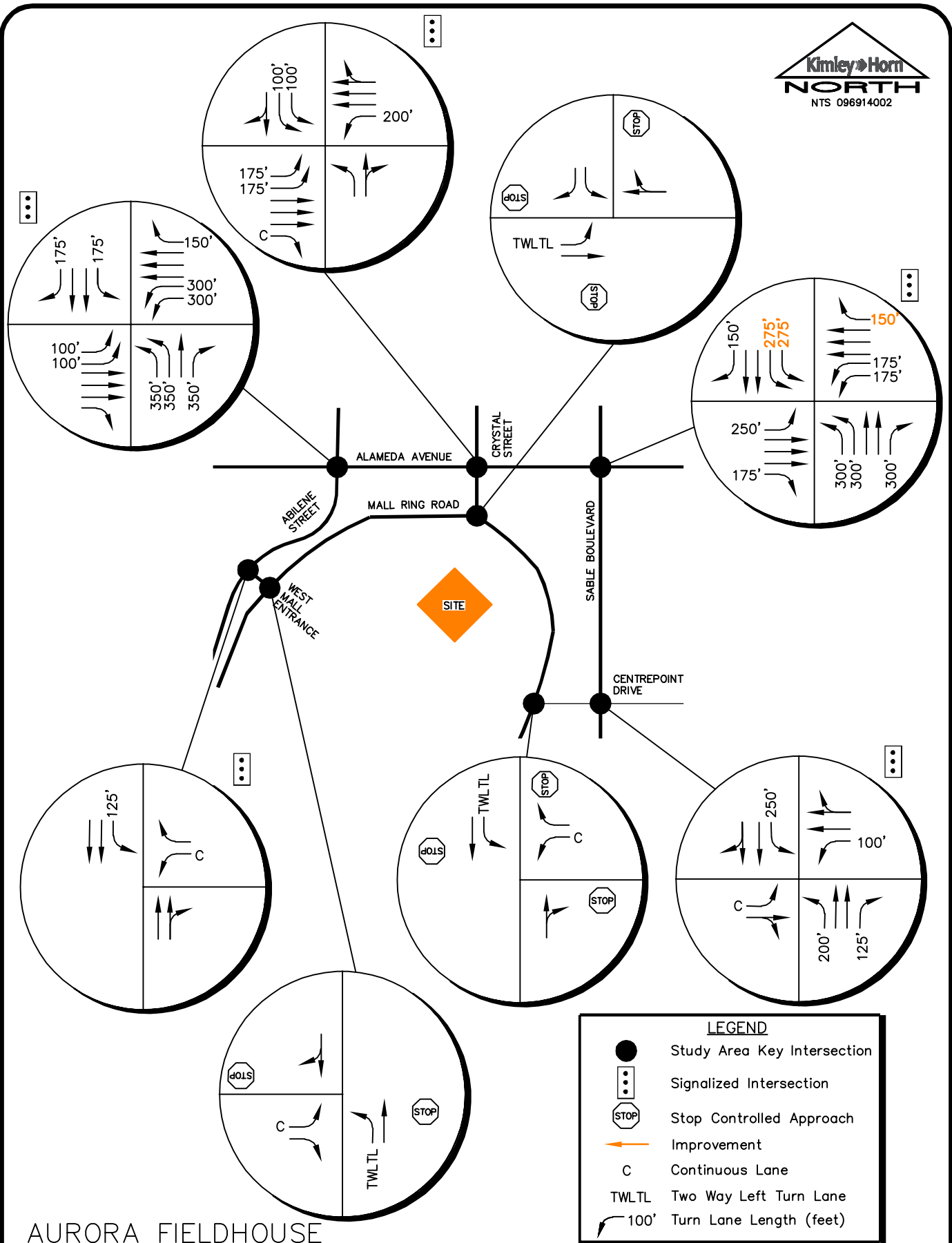
- The 100-foot westbound right-turn lane at the Alameda Avenue and Sable Boulevard intersection may have volumes that exceed existing storage in long term horizon year 2040, so a right turn lane extension to 150 feet should be considered if found to be needed in the future. It should be noted that project traffic does not contribute to this movement.

Based on the results of the intersection operational and turn lane queuing analysis, the recommended lane configurations and control of the study key intersections is shown in **Figure 11** for the 2021 buildout year and **Figure 12** for the long-term 2040 horizon.



AURORA FIELDHOUSE
2021 RECOMMENDED
LANE CONFIGURATIONS AND CONTROL

FIGURE 11



AURORA FIELDHOUSE
2040 RECOMMENDED
LANE CONFIGURATIONS AND CONTROL

FIGURE 12

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes the proposed Fieldhouse at Aurora Town Center project will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network and the proposed project development with expected traffic volumes resulted in the following recommendations:

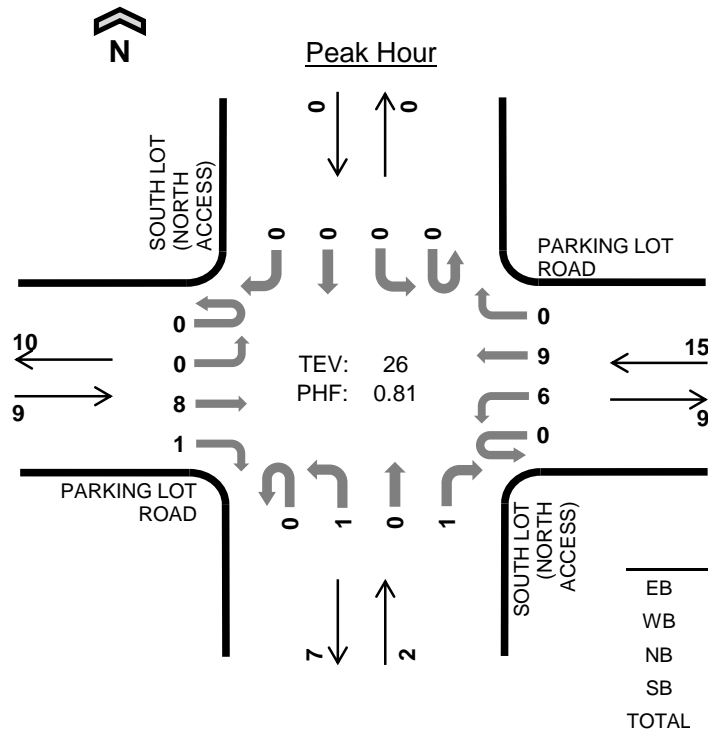
- The eastbound left-turn movement at the intersection of Crystal Street and Mall Ring Road operates with a LOS E without project traffic and at a LOS F with project traffic with the existing intersection traffic control of incoming traffic having free flow movements. Therefore, it is recommended that the intersection be considered for All-Way Stop Control (AWSC) or a roundabout. With the AWSC improvement, a R1-1 “STOP” sign is recommended to be installed on the southbound Crystal Street approach. When this occurs, it is recommended that the “INCOMING TRAFFIC DOES NOT STOP” signs underneath the existing “STOP” signs for the eastbound and westbound Mall Ring Road approaches be removed. It is recommended that all three “STOP” signs include R1-4 “ALL WAY” plaques under the “STOP” signs. In addition, orange flags should be affixed to the top of the new “STOP” sign on the southbound Crystal Street approach.
- The continuous northbound approach for the through/right turn movement at Alameda Avenue and Crystal Street may have queues of approximately 200 feet to 225 feet, which exceed the 160-feet available back to the internal Ring Road intersection with the existing signal timing. If this occurs, timing modifications to maximize the green time for the Crystal Street northbound approach may be needed to allocate an additional 12 seconds of green time for the northbound minor phase bringing the anticipated queue length down to 172 feet, which is close to being met by the existing 160-foot length available. This should be monitored to determine if timing modifications for max-green need to be changed in the controller with the In-N-Out Burger and Fieldhouse projects traffic added.
- Any on-site and off-site roadway improvements should be incorporated into the Civil Drawings, and conform to the City of Aurora Standards, Institute of Transportation Engineers (ITE), and the Manual on Traffic Control Devices (MUTCD) – 2009 Edition.

APPENDICES

APPENDIX A

Intersection Count Sheets

SOUTH LOT (NORTH ACCESS) PARKING LOT ROAD



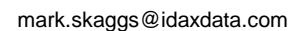
Three-Hour Count Summaries

Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				SOUTH LOT (NORTH ACCESS)				SOUTH LOT (NORTH ACCESS)				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
8:00 AM	0	0	3	0	0	1	2	0	0	0	0	1	0	0	0	0	7	0
8:15 AM	0	0	1	0	0	1	2	0	0	1	0	0	0	0	0	0	5	0
8:30 AM	0	0	3	0	0	1	2	0	0	0	0	0	0	0	0	0	6	0
8:45 AM	0	0	1	1	0	3	3	0	0	0	0	0	0	0	0	0	8	26
Peak Hour	0	0	8	1	0	6	9	0	0	1	0	1	0	0	0	0	26	0

Note: For all three-hour count summary, see next page.

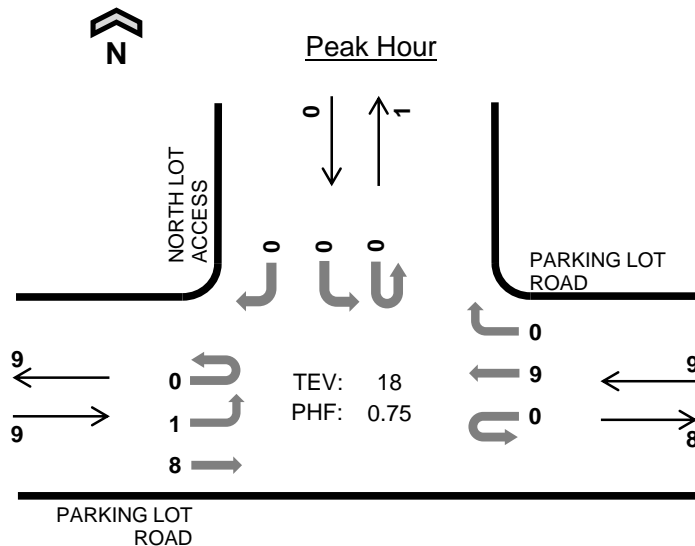
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Peak Hour	4	2	0	0	6	0	0	0	0	0	0	0	0	0	0

Three-Hour Count Summaries																		
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				SOUTH LOT (NORTH ACCESS)				SOUTH LOT (NORTH ACCESS)				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
6:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
6:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	7
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	7
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	7
7:45 AM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	4	7
8:00 AM	0	0	3	0	0	1	2	0	0	0	0	1	0	0	0	0	7	13
8:15 AM	0	0	1	0	0	1	2	0	0	1	0	0	0	0	0	0	5	17
8:30 AM	0	0	3	0	0	1	2	0	0	0	0	0	0	0	0	0	6	22
8:45 AM	0	0	1	1	0	3	3	0	0	0	0	0	0	0	0	0	8	26
Count Total	0	0	11	1	0	9	16	0	0	1	0	2	0	0	0	0	40	0
Peak Hour	0	0	8	1	0	6	9	0	0	1	0	1	0	0	0	0	26	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	5	5	1	0	11	0	0	0	0	0	0	0	0	0	1	0	1	1
Peak Hour	4	2	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0

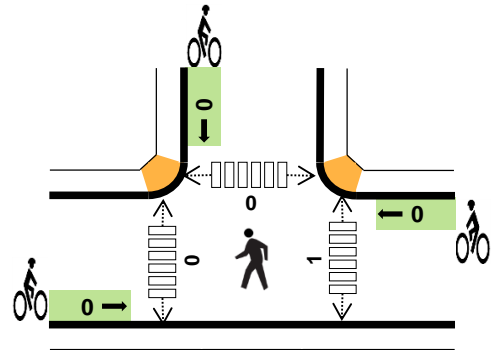


Three-Hour Count Summaries																		
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				SOUTH LOT (NORTH ACCESS)				SOUTH LOT (NORTH ACCESS)				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	13	0	0	8	17	2	0	0	0	4	0	1	0	0	45	0
4:15 PM	0	0	12	0	0	5	25	1	0	2	0	5	0	1	0	0	51	0
4:30 PM	0	0	18	2	0	2	8	2	0	0	0	0	0	3	0	0	35	0
4:45 PM	0	0	17	0	0	4	11	6	0	0	0	1	0	4	1	0	44	175
5:00 PM	0	0	16	0	0	3	16	1	0	0	0	6	0	1	0	0	43	173
5:15 PM	0	0	20	0	0	4	16	0	0	0	1	7	0	0	0	0	48	170
5:30 PM	0	1	13	0	0	3	18	1	0	0	0	4	0	0	0	0	40	175
5:45 PM	0	0	23	0	0	2	20	6	0	3	0	4	0	5	0	0	63	194
6:00 PM	0	0	15	1	0	7	23	0	0	2	1	4	0	2	0	1	56	207
6:15 PM	0	0	24	0	1	10	17	3	0	0	0	2	0	0	0	0	57	216
6:30 PM	0	0	12	0	0	2	6	2	0	0	0	5	0	0	0	1	28	204
6:45 PM	0	0	12	2	0	8	16	2	0	0	0	4	0	2	0	1	47	188
Count Total	0	1	195	5	1	58	193	26	0	7	2	46	0	19	1	3	557	0
Peak Hour	0	1	75	1	1	22	78	10	0	5	1	14	0	7	0	1	216	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	0	1	0	0	1	0	2	0	1	3	0	0	0	0	0	0		
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
5:00 PM	1	0	1	0	2	0	0	0	1	1	2	0	0	0	0	0		
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3			
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
Count Total	1	2	1	0	4	0	2	0	2	4	3	1	1	1	1	6		
Peak Hour	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3			

NORTH LOT ACCESS PARKING LOT ROAD



Date: Thu, Sep 05, 2019
Count Period: 6:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	44.4%	0.56
WB	22.2%	0.75
NB	-	-
SB	-	-
TOTAL	33.3%	0.75

Three-Hour Count Summaries

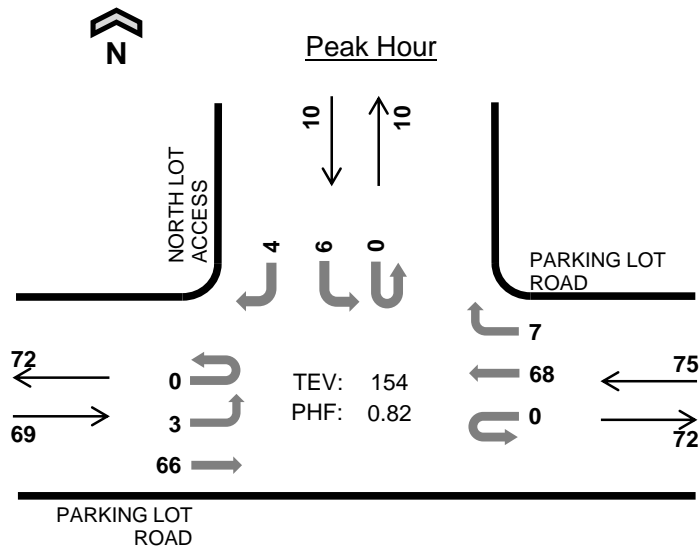
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				0				NORTH LOT ACCESS				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
8:00 AM	0	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	6	0
8:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0
8:30 AM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	0
8:45 AM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	18
Peak Hour	0	1	8	0	0	0	9	0	0	0	0	0	0	0	0	0	18	0

Note: For all three-hour count summary, see next page.

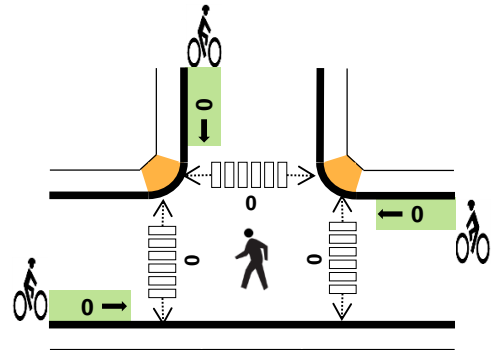
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	1	0	0	3	0	0	0	0	0	1	0	0	1	2
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Peak Hour	4	2	0	0	6	0	0	0	0	0	1	0	0	1	2

Three-Hour Count Summaries																		
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				0				NORTH LOT ACCESS				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
6:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	6
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	6
7:45 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
8:00 AM	0	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	6	9
8:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	11
8:30 AM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	15
8:45 AM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	18
Count Total	0	1	11	0	0	0	16	0	0	0	0	0	0	0	0	0	28	0
Peak Hour	0	1	8	0	0	0	9	0	0	0	0	0	0	0	0	0	18	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	1	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	1	0	0	3	0	0	0	0	0	1	0	0	1	2	0	2	2
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	5	4	0	0	9	0	0	0	0	0	1	0	1	1	3	0	3	3
Peak Hr	4	2	0	0	6	0	0	0	0	0	1	0	0	1	2	0	2	2

NORTH LOT ACCESS PARKING LOT ROAD



Date: Thu, Sep 05, 2019
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:30 PM to 6:30 PM



	HV %:	PHF
EB	0.0%	0.78
WB	0.0%	0.85
NB	-	-
SB	0.0%	0.83
TOTAL	0.0%	0.82

Three-Hour Count Summaries

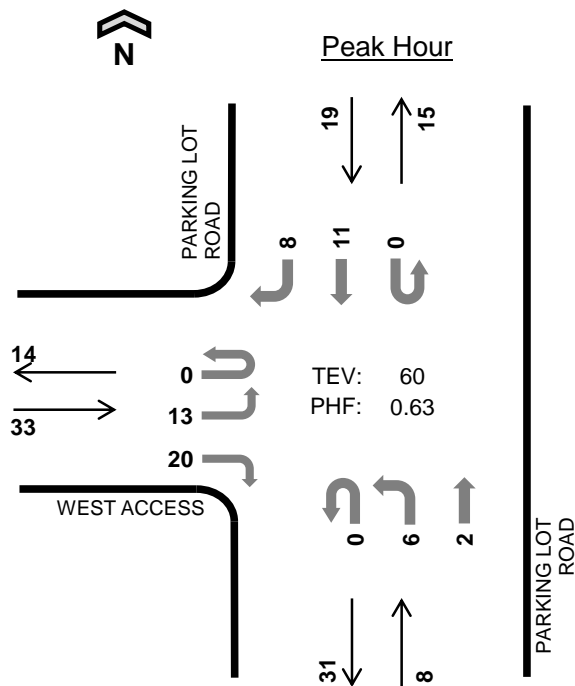
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				0				NORTH LOT ACCESS				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:30 PM	0	1	13	0	0	0	11	4	0	0	0	0	0	2	0	0	31	0
5:45 PM	0	2	20	0	0	0	21	1	0	0	0	0	0	2	0	1	47	0
6:00 PM	0	0	13	0	0	0	20	1	0	0	0	0	0	1	0	1	36	0
6:15 PM	0	0	20	0	0	0	16	1	0	0	0	0	0	1	0	2	40	154
Peak Hour	0	3	66	0	0	0	68	7	0	0	0	0	0	6	0	4	154	0

Note: For all three-hour count summary, see next page.

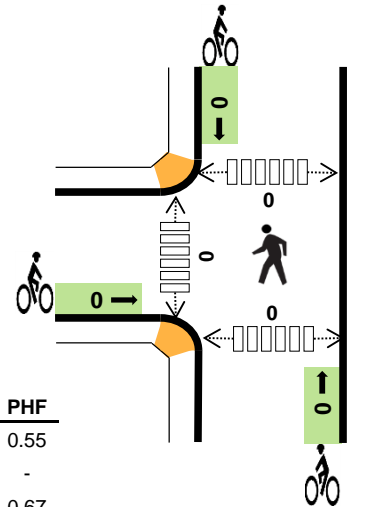
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Three-Hour Count Summaries																		
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				0				NORTH LOT ACCESS				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	12	0	0	0	15	2	0	0	0	0	0	0	0	1	31	0
4:15 PM	0	2	10	0	0	0	21	4	0	0	0	0	0	0	0	0	37	0
4:30 PM	0	1	20	0	0	0	5	0	0	0	0	0	0	2	0	0	28	0
4:45 PM	0	2	13	0	0	0	10	0	0	0	0	0	0	2	0	1	28	124
5:00 PM	0	2	16	0	0	0	15	0	0	0	0	0	0	1	0	1	35	128
5:15 PM	0	0	17	0	0	0	18	1	0	0	0	0	0	1	0	1	38	129
5:30 PM	0	1	13	0	0	0	11	4	0	0	0	0	0	2	0	0	31	132
5:45 PM	0	2	20	0	0	0	21	1	0	0	0	0	0	2	0	1	47	151
6:00 PM	0	0	13	0	0	0	20	1	0	0	0	0	0	1	0	1	36	152
6:15 PM	0	0	20	0	0	0	16	1	0	0	0	0	0	1	0	2	40	154
6:30 PM	0	3	11	0	0	0	8	0	0	0	0	0	0	2	0	1	25	148
6:45 PM	0	0	11	0	0	0	14	1	0	0	0	0	0	1	0	1	28	129
Count Total	0	14	176	0	0	0	174	15	0	0	0	0	0	15	0	10	404	0
Peak Hour	0	3	66	0	0	0	68	7	0	0	0	0	0	6	0	4	154	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0		
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1		
4:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		
5:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
Count Total	2	2	0	0	4	0	2	0	0	2	1	0	0	1	2	2		
Peak Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

PARKING LOT ROAD WEST ACCESS



Date: Wed, Aug 28, 2019
Count Period: 6:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	0.0%	0.55
WB	-	-
NB	0.0%	0.67
SB	5.3%	0.79
TOTAL	1.7%	0.63

Three-Hour Count Summaries

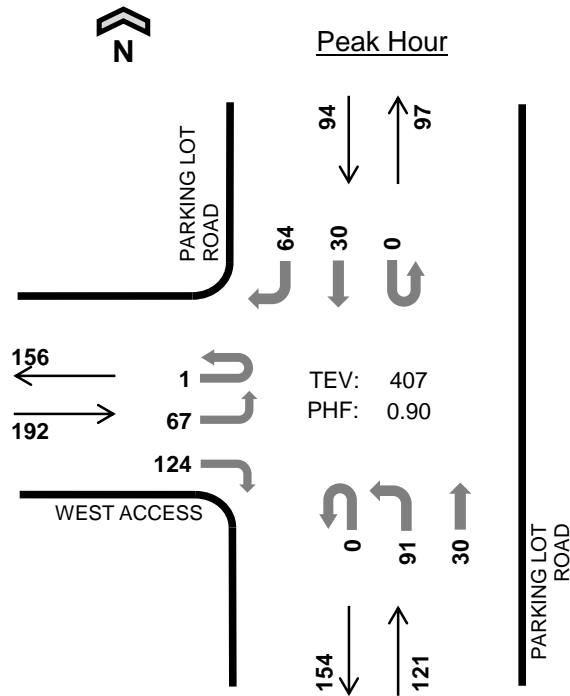
Interval Start	WEST ACCESS				0				PARKING LOT ROAD				PARKING LOT ROAD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
8:00 AM	0	4	0	4	0	0	0	0	0	2	0	0	0	0	0	4	14	0
8:15 AM	0	0	0	2	0	0	0	0	0	0	1	0	0	0	1	3	7	0
8:30 AM	0	6	0	9	0	0	0	0	0	3	0	0	0	0	6	0	24	0
8:45 AM	0	3	0	5	0	0	0	0	0	1	1	0	0	0	4	1	15	60
Peak Hour	0	13	0	20	0	0	0	0	0	6	2	0	0	0	11	8	60	0

Note: For all three-hour count summary, see next page.

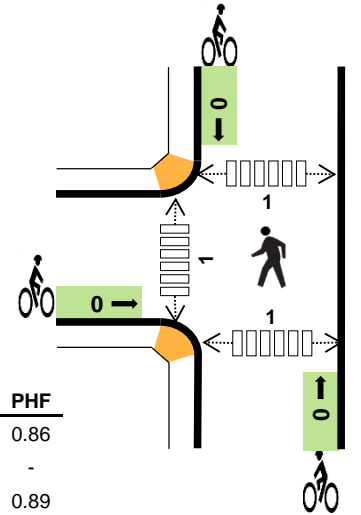
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0

Three-Hour Count Summaries																		
Interval Start	WEST ACCESS				0				PARKING LOT ROAD				PARKING LOT ROAD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:00 AM	0	2	0	1	0	0	0	0	0	0	1	0	0	0	2	0	6	0
6:15 AM	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0
6:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
7:00 AM	0	2	0	2	0	0	0	0	0	1	0	0	0	0	2	3	10	14
7:15 AM	0	1	0	4	0	0	0	0	0	1	0	0	0	0	1	1	8	19
7:30 AM	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4	22
7:45 AM	0	2	0	3	0	0	0	0	0	1	1	0	0	0	0	4	11	33
8:00 AM	0	4	0	4	0	0	0	0	0	2	0	0	0	0	0	4	14	37
8:15 AM	0	0	0	2	0	0	0	0	0	0	1	0	0	0	1	3	7	36
8:30 AM	0	6	0	9	0	0	0	0	0	3	0	0	0	0	6	0	24	56
8:45 AM	0	3	0	5	0	0	0	0	0	1	1	0	0	0	4	1	15	60
Count Total	0	23	0	35	0	0	0	0	0	9	4	0	0	0	16	16	103	0
Peak Hour	0	13	0	20	0	0	0	0	0	6	2	0	0	0	11	8	60	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
6:00 AM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	1	0	1	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hr	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

PARKING LOT ROAD WEST ACCESS



Date: Wed, Aug 28, 2019
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.0%	0.86
WB	-	-
NB	0.0%	0.89
SB	0.0%	0.87
TOTAL	0.0%	0.90

Three-Hour Count Summaries

Interval Start	WEST ACCESS				0				PARKING LOT ROAD				PARKING LOT ROAD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM	0	18	0	38	0	0	0	0	0	26	8	0	0	0	10	13	113	0
5:15 PM	0	14	0	31	0	0	0	0	0	24	4	0	0	0	10	17	100	0
5:30 PM	0	20	0	26	0	0	0	0	0	17	9	0	0	0	6	21	99	0
5:45 PM	1	15	0	29	0	0	0	0	0	24	9	0	0	0	4	13	95	407
Peak Hour	1	67	0	124	0	0	0	0	0	91	30	0	0	0	30	64	407	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3

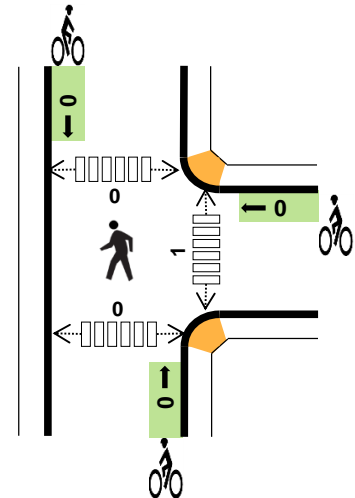
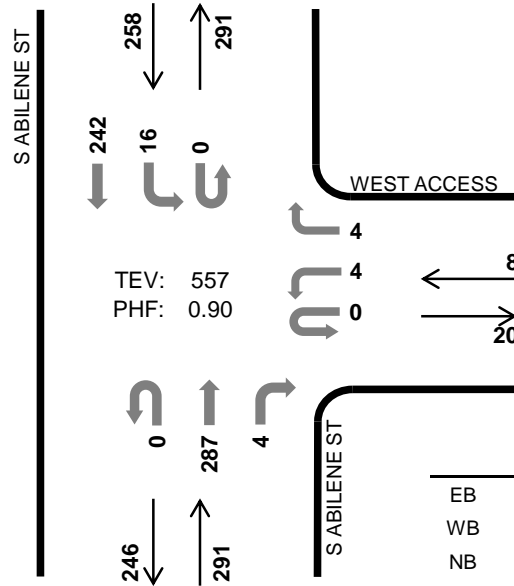
Three-Hour Count Summaries																		
Interval Start	WEST ACCESS				0				PARKING LOT ROAD				PARKING LOT ROAD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	16	0	22	0	0	0	0	0	23	7	0	0	0	16	23	107	0
4:15 PM	0	15	0	22	0	0	0	0	0	19	6	0	0	0	5	22	89	0
4:30 PM	0	15	0	24	0	0	0	0	0	20	3	0	0	0	4	20	86	0
4:45 PM	1	12	0	28	0	0	0	0	0	18	6	0	0	0	5	16	86	368
5:00 PM	0	18	0	38	0	0	0	0	0	26	8	0	0	0	10	13	113	374
5:15 PM	0	14	0	31	0	0	0	0	0	24	4	0	0	0	10	17	100	385
5:30 PM	0	20	0	26	0	0	0	0	0	17	9	0	0	0	6	21	99	398
5:45 PM	1	15	0	29	0	0	0	0	0	24	9	0	0	0	4	13	95	407
6:00 PM	0	14	0	25	0	0	0	0	0	37	6	0	0	0	5	16	103	397
6:15 PM	0	13	0	28	0	0	0	0	0	32	5	0	0	0	4	13	95	392
6:30 PM	0	15	0	25	0	0	0	0	0	16	8	0	0	0	6	16	86	379
6:45 PM	0	19	0	27	0	0	0	0	0	35	5	0	0	0	8	12	106	390
Count Total	2	186	0	325	0	0	0	0	0	291	76	0	0	0	83	202	1,165	0
Peak Hour	1	67	0	124	0	0	0	0	0	91	30	0	0	0	30	64	407	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	0	
Peak Hr	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	0	

S ABILENE ST WEST ACCESS



Peak Hour

Date: Thu, Sep 05, 2019
Count Period: 6:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	-	-
WB	0.0%	0.50
NB	1.0%	0.82
SB	2.7%	0.83
TOTAL	1.8%	0.90

Three-Hour Count Summaries

Interval Start	0				WEST ACCESS				S ABILENE ST				S ABILENE ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM	0	0	0	0	0	0	0	1	0	0	77	0	0	4	46	0	128	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	86	3	0	4	61	0	154	0
8:00 AM	0	0	0	0	0	0	0	3	0	0	61	1	0	3	75	0	143	0
8:15 AM	0	0	0	0	0	4	0	0	0	0	63	0	0	5	60	0	132	557
Peak Hour	0	0	0	0	0	4	0	4	0	0	287	4	0	16	242	0	557	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:30 AM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	2	3	0	0	0	0	0	1	0	0	0	1
Peak Hour	0	0	3	7	10	0	0	0	0	0	1	0	0	0	1

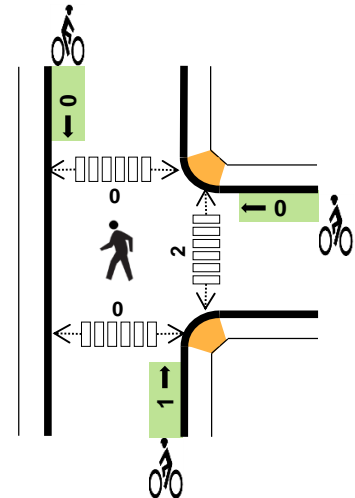
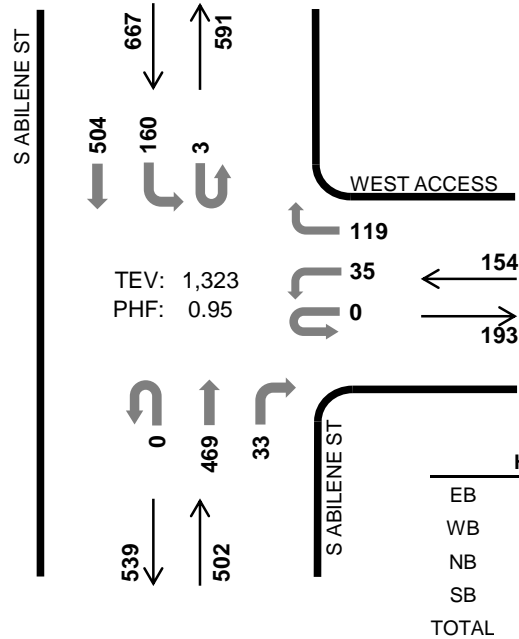
Three-Hour Count Summaries																		
Interval Start	0				WEST ACCESS				S ABILENE ST				S ABILENE ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:00 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	4	21	0	37	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	19	1	0	2	25	0	47	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	37	0	0	1	20	0	58	0
6:45 AM	0	0	0	0	0	2	0	1	0	0	37	2	0	3	38	0	83	225
7:00 AM	0	0	0	0	0	1	0	1	0	0	45	0	1	4	32	0	84	272
7:15 AM	0	0	0	0	0	0	0	1	0	0	54	0	0	2	36	0	93	318
7:30 AM	0	0	0	0	0	0	0	1	0	0	77	0	0	4	46	0	128	388
7:45 AM	0	0	0	0	0	0	0	0	0	0	86	3	0	4	61	0	154	459
8:00 AM	0	0	0	0	0	0	0	3	0	0	61	1	0	3	75	0	143	518
8:15 AM	0	0	0	0	0	4	0	0	0	0	63	0	0	5	60	0	132	557
8:30 AM	0	0	0	0	1	0	0	2	0	0	66	3	0	5	50	0	127	556
8:45 AM	0	0	0	0	0	2	0	7	0	0	56	0	1	19	67	0	152	554
Count Total	0	0	0	0	1	9	0	16	0	0	613	10	2	56	531	0	1,238	0
Peak Hour	0	0	0	0	0	4	0	4	0	0	287	4	0	16	242	0	557	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
6:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	1	1	2	0	0	1	0	1	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	2	1	3	0	0	0	0	0	1	0	0	0	0	1	1	1
7:30 AM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	2	3	0	0	0	0	0	1	0	0	0	0	1	1	1
8:30 AM	0	2	3	1	6	0	0	0	0	0	1	0	0	0	0	1	1	1
8:45 AM	0	1	2	2	5	0	0	0	0	0	1	0	0	0	0	1	1	1
Count Total	0	3	14	16	33	0	0	1	0	1	4	0	0	0	0	4	4	4
Peak Hr	0	0	3	7	10	0	0	0	0	0	1	0	0	0	0	1	1	1

S ABILENE ST WEST ACCESS



Peak Hour

Date: Thu, Sep 05, 2019
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM



Three-Hour Count Summaries

Interval Start	0				WEST ACCESS				S ABILENE ST				S ABILENE ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM	0	0	0	0	0	9	0	36	0	0	130	7	0	37	129	0	348	0
5:15 PM	0	0	0	0	0	8	0	30	0	0	138	13	0	37	124	0	350	0
5:30 PM	0	0	0	0	0	9	0	21	0	0	106	7	3	42	127	0	315	0
5:45 PM	0	0	0	0	0	9	0	32	0	0	95	6	0	44	124	0	310	1,323
Peak Hour	0	0	0	0	0	35	0	119	0	0	469	33	3	160	504	0	1,323	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1
5:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Peak Hour	0	0	2	3	5	0	0	1	0	1	2	0	0	0	2

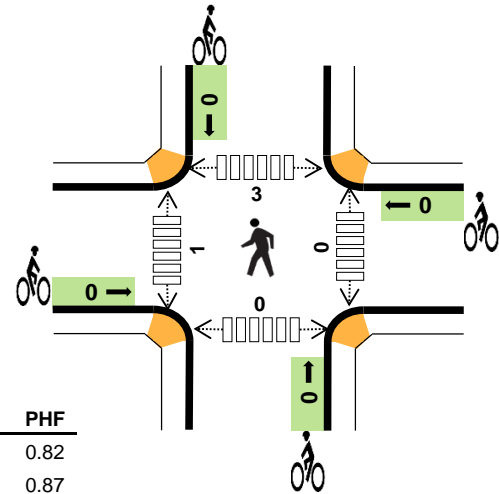
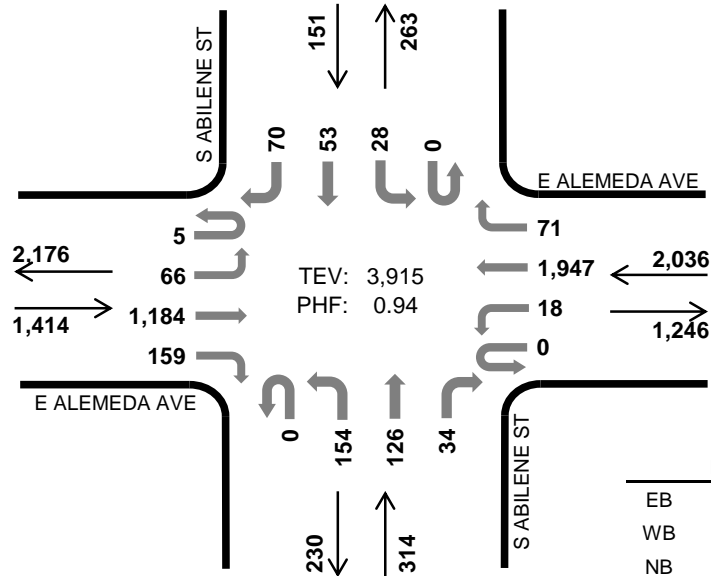
Three-Hour Count Summaries																		
Interval Start	0				WEST ACCESS				S ABILENE ST				S ABILENE ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	6	0	26	0	0	109	5	1	41	124	0	312	0
4:15 PM	0	0	0	0	0	11	0	30	0	0	115	10	1	30	150	0	347	0
4:30 PM	0	0	0	0	0	7	0	26	0	0	132	13	0	33	100	0	311	0
4:45 PM	0	0	0	0	0	13	0	25	0	0	87	7	0	35	136	0	303	1,273
5:00 PM	0	0	0	0	0	9	0	36	0	0	130	7	0	37	129	0	348	1,309
5:15 PM	0	0	0	0	0	8	0	30	0	0	138	13	0	37	124	0	350	1,312
5:30 PM	0	0	0	0	0	9	0	21	0	0	106	7	3	42	127	0	315	1,316
5:45 PM	0	0	0	0	0	9	0	32	0	0	95	6	0	44	124	0	310	1,323
6:00 PM	0	0	0	0	0	14	0	45	0	0	115	4	0	30	102	0	310	1,285
6:15 PM	0	0	0	0	0	5	0	39	0	0	109	9	0	30	97	0	289	1,224
6:30 PM	0	0	0	0	0	3	0	31	0	0	97	3	0	38	119	0	291	1,200
6:45 PM	0	0	0	0	0	5	0	46	0	0	85	7	1	35	90	0	269	1,159
Count Total	0	0	0	0	0	99	0	387	0	0	1,318	91	6	432	1,422	0	3,755	0
Peak Hour	0	0	0	0	0	35	0	119	0	0	469	33	3	160	504	0	1,323	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	0	2	1	1	4	0	1	0	0	1	1	0	0	0	1			
4:15 PM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0			
4:30 PM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0			
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5:00 PM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0			
5:15 PM	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1			
5:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0			
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1			
6:00 PM	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1			
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1			
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6:45 PM	0	1	1	0	2	0	0	0	0	0	1	0	0	0	1			
Count Total	0	3	6	8	17	0	1	1	0	2	6	0	0	0	6			
Peak Hr	0	0	2	3	5	0	0	1	0	1	2	0	0	0	2			

S ABILENE ST E ALEMEDA AVE



Peak Hour

Date: Wed, Aug 28, 2019
Count Period: 6:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	1.3%	0.82
WB	1.3%	0.87
NB	0.6%	0.82
SB	2.0%	0.84
TOTAL	1.3%	0.94

Three-Hour Count Summaries

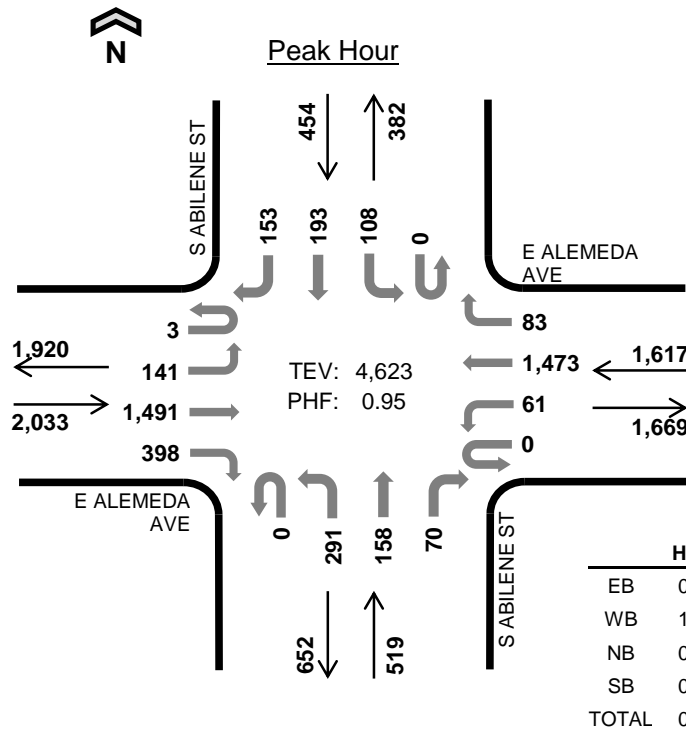
Interval Start	E ALEMEDA AVE				E ALEMEDA AVE				S ABILENE ST				S ABILENE ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:15 AM	2	13	252	20	0	3	565	18	0	39	22	6	0	6	11	15	972	0
7:30 AM	1	13	290	29	0	2	476	11	0	42	39	15	0	7	12	14	951	0
7:45 AM	2	23	343	61	0	3	471	20	0	39	34	7	0	5	11	25	1,044	0
8:00 AM	0	17	299	49	0	10	435	22	0	34	31	6	0	10	19	16	948	3,915
Peak Hour	5	66	1,184	159	0	18	1,947	71	0	154	126	34	0	28	53	70	3,915	0

Note: For all three-hour count summary, see next page.

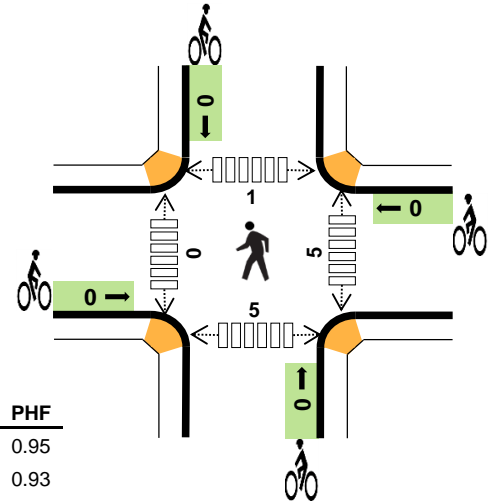
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:15 AM	3	8	2	0	13	0	0	0	0	0	0	0	1	0	1
7:30 AM	6	3	0	2	11	0	0	0	0	0	0	1	0	0	1
7:45 AM	5	5	0	0	10	0	0	0	0	0	0	0	1	0	1
8:00 AM	5	11	0	1	17	0	0	0	0	0	0	0	1	0	1
Peak Hour	19	27	2	3	51	0	0	0	0	0	0	1	3	0	4

Three-Hour Count Summaries																		
Interval Start	E ALEMEDA AVE				E ALEMEDA AVE				S ABILENE ST				S ABILENE ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:00 AM	3	2	101	19	0	0	223	2	0	4	3	4	0	2	3	7	373	0
6:15 AM	0	6	145	27	0	1	326	8	0	15	5	3	0	1	4	18	559	0
6:30 AM	1	10	161	20	0	1	390	7	0	21	15	1	0	2	5	23	657	0
6:45 AM	0	9	198	27	0	0	428	5	0	17	13	5	0	4	9	21	736	2,325
7:00 AM	0	8	252	31	0	3	426	16	0	28	24	8	0	4	7	22	829	2,781
7:15 AM	2	13	252	20	0	3	565	18	0	39	22	6	0	6	11	15	972	3,194
7:30 AM	1	13	290	29	0	2	476	11	0	42	39	15	0	7	12	14	951	3,488
7:45 AM	2	23	343	61	0	3	471	20	0	39	34	7	0	5	11	25	1,044	3,796
8:00 AM	0	17	299	49	0	10	435	22	0	34	31	6	0	10	19	16	948	3,915
8:15 AM	2	22	277	61	1	3	378	13	0	43	12	7	0	5	18	13	855	3,798
8:30 AM	0	29	223	44	0	3	315	14	0	31	20	9	0	10	21	23	742	3,589
8:45 AM	1	25	230	61	0	5	282	10	0	34	16	10	0	8	13	11	706	3,251
Count Total	12	177	2,771	449	1	34	4,715	146	0	347	234	81	0	64	133	208	9,372	0
Peak Hour	5	66	1,184	159	0	18	1,947	71	0	154	126	34	0	28	53	70	3,915	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
6:00 AM	3	1	0	1	5	1	0	0	0	1	0	0	0	0	0	0	0	0
6:15 AM	8	2	1	2	13	0	0	0	0	0	1	0	0	0	0	0	1	1
6:30 AM	4	6	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	6	6	0	1	13	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	5	4	2	0	11	0	0	0	0	0	0	0	0	0	2	2	2	2
7:15 AM	3	8	2	0	13	0	0	0	0	0	0	0	1	0	0	1	1	1
7:30 AM	6	3	0	2	11	0	0	0	0	0	0	1	0	0	0	1	1	1
7:45 AM	5	5	0	0	10	0	0	0	0	0	0	0	1	0	0	1	1	1
8:00 AM	5	11	0	1	17	0	0	0	0	0	0	0	1	0	0	1	1	1
8:15 AM	3	5	4	1	13	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	9	0	0	11	0	0	0	0	0	2	0	0	2	4	4	4	4
8:45 AM	6	4	0	2	12	0	0	0	0	0	0	0	2	2	2	4	4	4
Count Total	56	64	9	10	139	1	0	0	0	1	3	1	5	6	15	15	15	15
Peak Hour	19	27	2	3	51	0	0	0	0	0	0	1	3	0	4	4	4	4

S ABILENE ST E ALEMEDA AVE



Date: Wed, Aug 28, 2019
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:45 PM to 5:45 PM



Three-Hour Count Summaries

Interval Start	E ALEMEDA AVE				E ALEMEDA AVE				S ABILENE ST				S ABILENE ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:45 PM	1	31	416	88	0	16	376	20	0	70	30	19	0	28	45	35	1,175	0
5:00 PM	2	32	358	93	0	20	361	23	0	82	43	16	0	25	49	28	1,132	0
5:15 PM	0	46	370	99	0	17	398	20	0	68	46	18	0	26	55	49	1,212	0
5:30 PM	0	32	347	118	0	8	338	20	0	71	39	17	0	29	44	41	1,104	4,623
Peak Hour	3	141	1,491	398	0	61	1,473	83	0	291	158	70	0	108	193	153	4,623	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:45 PM	3	8	1	1	13	0	0	0	0	0	1	0	0	3	4
5:00 PM	4	5	0	1	10	0	0	0	0	0	1	0	1	2	4
5:15 PM	0	2	0	1	3	0	0	0	0	0	1	0	0	0	1
5:30 PM	1	5	1	0	7	0	0	0	0	0	2	0	0	0	2
Peak Hour	8	20	2	3	33	0	0	0	0	0	5	0	1	5	11

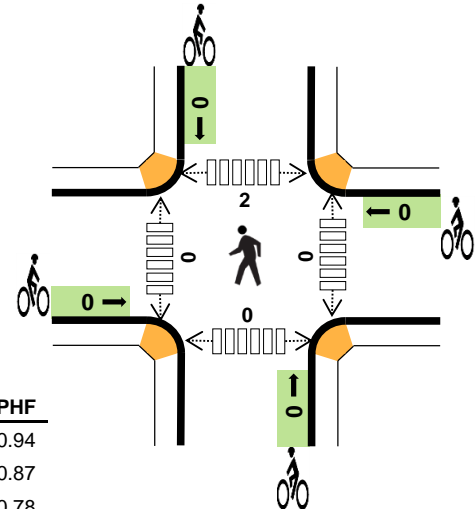
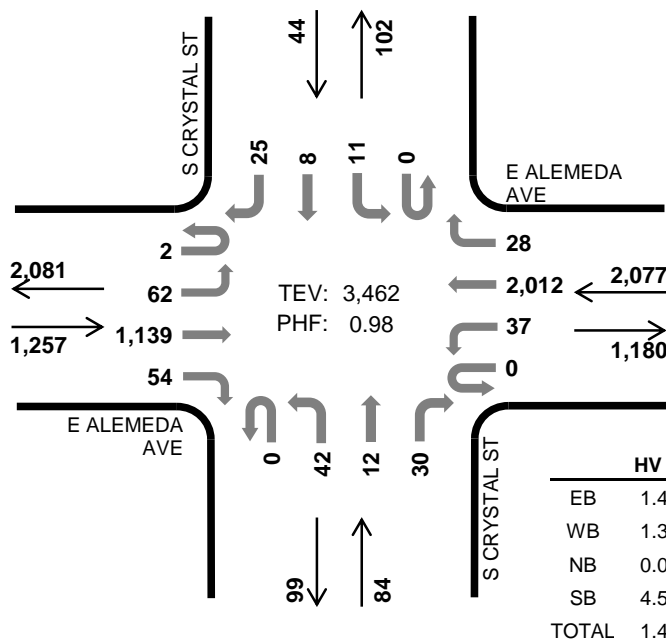
Three-Hour Count Summaries																		
Interval Start	E ALEMEDA AVE				E ALEMEDA AVE				S ABILENE ST				S ABILENE ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	28	385	87	0	10	341	12	0	63	37	21	0	30	44	44	1,102	0
4:15 PM	0	40	371	75	0	14	302	18	0	84	44	14	0	34	45	32	1,073	0
4:30 PM	0	41	333	106	0	18	342	18	0	76	40	14	0	38	44	29	1,099	0
4:45 PM	1	31	416	88	0	16	376	20	0	70	30	19	0	28	45	35	1,175	4,449
5:00 PM	2	32	358	93	0	20	361	23	0	82	43	16	0	25	49	28	1,132	4,479
5:15 PM	0	46	370	99	0	17	398	20	0	68	46	18	0	26	55	49	1,212	4,618
5:30 PM	0	32	347	118	0	8	338	20	0	71	39	17	0	29	44	41	1,104	4,623
5:45 PM	2	36	315	101	0	8	286	15	0	84	54	11	0	19	38	33	1,002	4,450
6:00 PM	1	42	305	82	0	11	299	17	0	82	54	18	0	14	44	34	1,003	4,321
6:15 PM	1	35	343	88	0	14	294	14	1	72	39	19	0	19	26	46	1,011	4,120
6:30 PM	1	48	281	102	0	7	280	14	0	75	45	14	0	19	36	40	962	3,978
6:45 PM	1	33	315	113	0	17	290	19	0	78	43	15	0	19	29	42	1,014	3,990
Count Total	9	444	4,139	1,152	0	160	3,907	210	1	905	514	196	0	300	499	453	12,889	0
Peak Hour	3	141	1,491	398	0	61	1,473	83	0	291	158	70	0	108	193	153	4,623	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	2	5	1	2	10	0	0	0	0	0	2	0	0	1	3			
4:15 PM	2	8	1	0	11	0	0	0	0	0	0	0	2	0	2			
4:30 PM	2	4	0	2	8	0	0	0	0	0	4	0	6	2	12			
4:45 PM	3	8	1	1	13	0	0	0	0	0	1	0	0	3	4			
5:00 PM	4	5	0	1	10	0	0	0	0	0	1	0	1	2	4			
5:15 PM	0	2	0	1	3	0	0	0	0	0	1	0	0	0	1			
5:30 PM	1	5	1	0	7	0	0	0	0	0	2	0	0	0	2			
5:45 PM	2	3	0	1	6	0	0	0	0	0	0	1	0	1	2			
6:00 PM	2	6	0	1	9	0	0	0	0	0	2	0	0	2	4			
6:15 PM	2	7	0	2	11	0	0	0	0	0	0	0	2	4	6			
6:30 PM	2	6	0	2	10	0	0	0	0	0	3	0	0	1	4			
6:45 PM	3	5	0	1	9	0	0	0	0	0	1	0	3	1	5			
Count Total	25	64	4	14	107	0	0	0	0	0	17	1	14	17	49			
Peak Hour	8	20	2	3	33	0	0	0	0	0	5	0	1	5	11			

S CRYSTAL ST E ALEMEDA AVE



Peak Hour

Date: Wed, Aug 28, 2019
Count Period: 6:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	1.4%	0.94
WB	1.3%	0.87
NB	0.0%	0.78
SB	4.5%	0.65
TOTAL	1.4%	0.98

Three-Hour Count Summaries

Interval Start	E ALEMEDA AVE				E ALEMEDA AVE				S CRYSTAL ST				S CRYSTAL ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:15 AM	0	8	242	14	0	15	576	5	0	10	3	3	0	2	3	5	886	0
7:30 AM	0	20	293	11	0	8	485	5	0	9	2	6	0	2	1	4	846	0
7:45 AM	1	15	306	13	0	7	465	8	0	12	5	7	0	3	2	5	849	0
8:00 AM	1	19	298	16	0	7	486	10	0	11	2	14	0	4	2	11	881	3,462
Peak Hour	2	62	1,139	54	0	37	2,012	28	0	42	12	30	0	11	8	25	3,462	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:15 AM	4	9	0	0	13	0	0	0	0	0	0	0	1	0	1
7:30 AM	4	2	0	1	7	0	0	0	0	0	0	0	0	0	0
7:45 AM	5	5	0	0	10	0	0	0	0	0	0	0	0	0	0
8:00 AM	5	11	0	1	17	0	0	0	0	0	0	0	1	0	1
Peak Hour	18	27	0	2	47	0	0	0	0	0	0	0	2	0	2

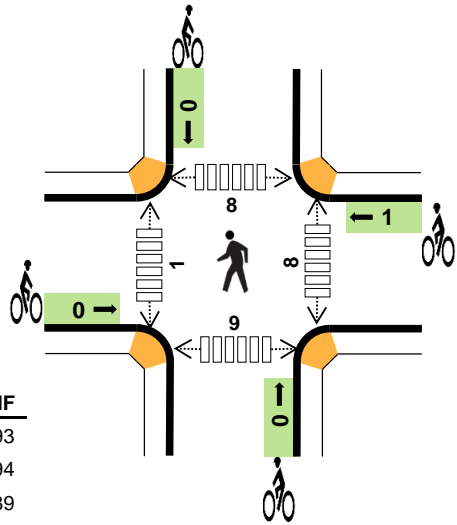
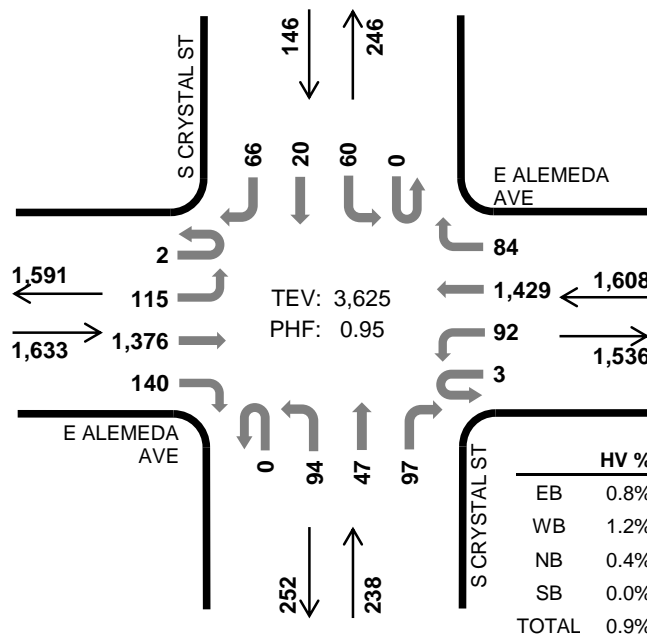
Three-Hour Count Summaries																		
Interval Start	E ALEMEDA AVE				E ALEMEDA AVE				S CRYSTAL ST				S CRYSTAL ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:00 AM	0	7	103	9	0	3	209	3	0	1	1	5	0	0	0	0	341	0
6:15 AM	0	8	120	8	0	2	339	2	0	6	1	2	0	1	0	6	495	0
6:30 AM	1	11	138	11	0	7	383	2	0	4	2	9	0	2	0	0	570	0
6:45 AM	0	12	198	12	0	8	424	8	0	11	2	4	0	2	1	3	685	2,091
7:00 AM	2	12	226	7	0	11	402	9	0	11	2	1	0	5	0	2	690	2,440
7:15 AM	0	8	242	14	0	15	576	5	0	10	3	3	0	2	3	5	886	2,831
7:30 AM	0	20	293	11	0	8	485	5	0	9	2	6	0	2	1	4	846	3,107
7:45 AM	1	15	306	13	0	7	465	8	0	12	5	7	0	3	2	5	849	3,271
8:00 AM	1	19	298	16	0	7	486	10	0	11	2	14	0	4	2	11	881	3,462
8:15 AM	0	21	246	19	0	7	330	9	0	7	1	10	0	2	1	4	657	3,233
8:30 AM	0	17	222	27	1	11	337	14	0	12	2	7	0	2	1	12	665	3,052
8:45 AM	0	17	190	18	1	24	253	13	0	12	2	11	0	4	0	14	559	2,762
Count Total	5	167	2,582	165	2	110	4,689	88	0	106	25	79	0	29	11	66	8,124	0
Peak Hour	2	62	1,139	54	0	37	2,012	28	0	42	12	30	0	11	8	25	3,462	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
6:00 AM	5	3	1	0	9	1	0	0	0	1	0	0	1	0	1			
6:15 AM	7	2	0	0	9	0	0	0	0	0	0	0	0	0	0			
6:30 AM	3	5	0	0	8	0	0	0	0	0	0	0	0	0	0			
6:45 AM	9	6	0	0	15	1	0	0	0	1	0	0	0	2	2			
7:00 AM	4	4	0	0	8	0	0	0	0	0	0	0	0	3	3			
7:15 AM	4	9	0	0	13	0	0	0	0	0	0	0	0	0	1	0	1	
7:30 AM	4	2	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	5	5	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	5	11	0	1	17	0	0	0	0	0	0	0	0	0	1	0	1	
8:15 AM	2	3	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	2	8	0	1	11	0	0	0	0	0	2	0	0	2	4			
8:45 AM	4	4	0	0	8	0	0	0	0	0	1	0	1	0	2			
Count Total	54	62	1	4	121	2	0	0	0	2	3	0	4	7	14			
Peak Hour	18	27	0	2	47	0	0	0	0	0	0	0	2	0	2			

S CRYSTAL ST E ALEMEDA AVE



Peak Hour

Date: Wed, Aug 28, 2019
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:30 PM to 5:30 PM



Three-Hour Count Summaries

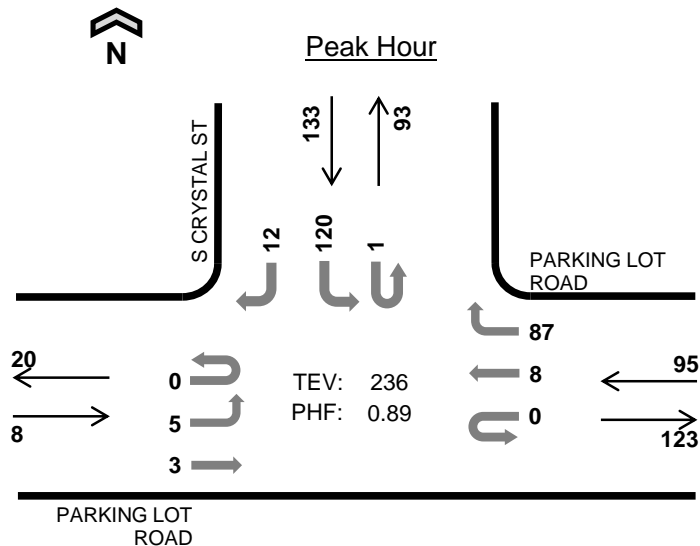
Interval Start	E ALEMEDA AVE				E ALEMEDA AVE				S CRYSTAL ST				S CRYSTAL ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	1	31	322	26	0	22	328	17	0	28	15	24	0	14	4	13	845	0
4:45 PM	0	29	368	44	1	27	357	18	0	24	7	23	0	17	5	10	930	0
5:00 PM	1	25	321	33	0	27	360	23	0	20	11	32	0	15	6	25	899	0
5:15 PM	0	30	365	37	2	16	384	26	0	22	14	18	0	14	5	18	951	3,625
Peak Hour	2	115	1,376	140	3	92	1,429	84	0	94	47	97	0	60	20	66	3,625	0

Note: For all three-hour count summary, see next page.

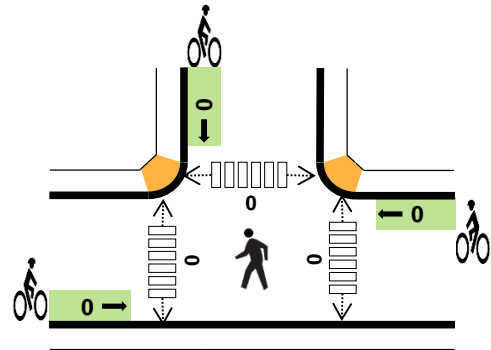
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	3	4	1	0	8	0	0	0	0	0	1	0	3	0	4
4:45 PM	4	8	0	0	12	0	1	0	0	1	4	1	3	5	13
5:00 PM	5	5	0	0	10	0	0	0	0	0	1	0	2	2	5
5:15 PM	1	2	0	0	3	0	0	0	0	0	2	0	0	2	4
Peak Hour	13	19	1	0	33	0	1	0	0	1	8	1	8	9	26

Three-Hour Count Summaries																		
Interval Start	E ALEMEDA AVE				E ALEMEDA AVE				S CRYSTAL ST				S CRYSTAL ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	16	345	41	0	29	297	20	0	24	14	29	0	18	8	20	861	0
4:15 PM	0	31	351	39	0	18	308	27	0	16	6	25	0	22	8	14	865	0
4:30 PM	1	31	322	26	0	22	328	17	0	28	15	24	0	14	4	13	845	0
4:45 PM	0	29	368	44	1	27	357	18	0	24	7	23	0	17	5	10	930	3,501
5:00 PM	1	25	321	33	0	27	360	23	0	20	11	32	0	15	6	25	899	3,539
5:15 PM	0	30	365	37	2	16	384	26	0	22	14	18	0	14	5	18	951	3,625
5:30 PM	0	18	291	38	1	24	304	21	0	30	7	27	0	16	6	10	793	3,573
5:45 PM	0	23	294	29	0	24	261	19	0	19	10	32	0	20	6	22	759	3,402
6:00 PM	0	26	250	35	0	29	275	19	0	29	6	25	0	18	6	15	733	3,236
6:15 PM	0	31	304	35	0	34	273	20	0	22	5	19	0	12	3	12	770	3,055
6:30 PM	0	34	285	29	0	30	270	22	0	37	8	24	0	13	4	17	773	3,035
6:45 PM	1	25	250	51	0	25	250	9	0	35	13	31	0	13	6	17	726	3,002
Count Total	3	319	3,746	437	4	305	3,667	241	0	306	116	309	0	192	67	193	9,905	0
Peak Hour	2	115	1,376	140	3	92	1,429	84	0	94	47	97	0	60	20	66	3,625	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	5	4	0	1	10	0	0	0	0	0	2	2	0	1	5			
4:15 PM	1	8	0	0	9	0	0	0	0	0	0	1	3	0	4			
4:30 PM	3	4	1	0	8	0	0	0	0	0	1	0	3	0	4			
4:45 PM	4	8	0	0	12	0	1	0	0	1	4	1	3	5	13			
5:00 PM	5	5	0	0	10	0	0	0	0	0	1	0	2	2	5			
5:15 PM	1	2	0	0	3	0	0	0	0	0	2	0	0	2	4			
5:30 PM	1	4	0	0	5	0	0	0	0	0	2	0	1	0	3			
5:45 PM	3	3	0	0	6	0	0	0	0	0	2	0	0	1	3			
6:00 PM	1	6	0	0	7	0	0	0	0	0	2	0	1	0	3			
6:15 PM	3	7	0	0	10	1	0	0	0	1	0	0	0	1	1			
6:30 PM	6	7	0	0	13	0	0	0	0	0	0	2	1	1	4			
6:45 PM	4	4	0	0	8	0	0	0	0	0	0	0	0	0	0			
Count Total	37	62	1	1	101	1	1	0	0	2	16	6	14	13	49			
Peak Hour	13	19	1	0	33	0	1	0	0	1	8	1	8	9	26			

S CRYSTAL ST PARKING LOT ROAD



Date: Wed, Aug 28, 2019
Count Period: 6:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	0.0%	0.67
WB	0.0%	0.82
NB	-	-
SB	0.8%	0.81
TOTAL	0.4%	0.89

Three-Hour Count Summaries

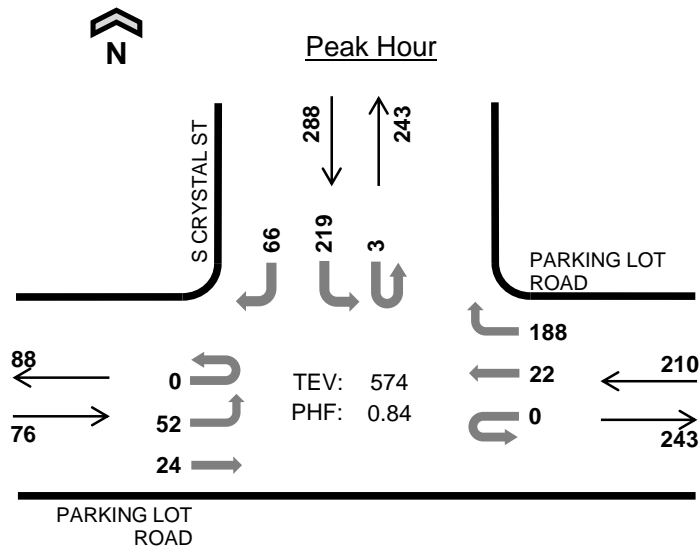
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				0				S CRYSTAL ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
8:00 AM	0	2	1	0	0	0	2	27	0	0	0	0	0	24	0	2	58	0
8:15 AM	0	1	0	0	0	0	2	16	0	0	0	0	0	25	0	2	46	0
8:30 AM	0	2	1	0	0	0	3	21	0	0	0	0	1	34	0	4	66	0
8:45 AM	0	0	1	0	0	0	1	23	0	0	0	0	0	37	0	4	66	236
Peak Hour	0	5	3	0	0	0	8	87	0	0	0	0	1	120	0	12	236	0

Note: For all three-hour count summary, see next page.

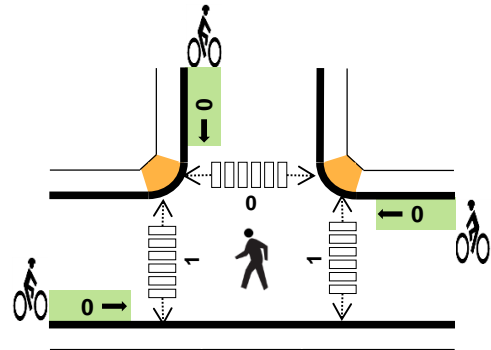
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0

Three-Hour Count Summaries																		
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				0				S CRYSTAL ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:00 AM	0	2	0	0	0	0	0	4	0	0	0	0	1	9	0	2	18	0
6:15 AM	0	0	1	0	0	0	0	9	0	0	0	0	0	10	0	0	20	0
6:30 AM	0	0	0	0	0	0	0	17	0	0	0	0	0	18	0	0	35	0
6:45 AM	0	0	0	0	0	0	0	15	0	0	0	0	1	19	0	2	37	110
7:00 AM	0	0	1	0	0	0	0	15	0	0	0	0	0	14	0	3	33	125
7:15 AM	0	0	1	0	0	0	2	16	0	0	0	0	0	30	0	2	51	156
7:30 AM	0	0	0	0	0	0	0	18	0	0	0	0	0	20	0	0	38	159
7:45 AM	0	2	0	0	0	0	3	19	0	0	0	0	0	20	0	2	46	168
8:00 AM	0	2	1	0	0	0	2	27	0	0	0	0	0	24	0	2	58	193
8:15 AM	0	1	0	0	0	0	2	16	0	0	0	0	0	25	0	2	46	188
8:30 AM	0	2	1	0	0	0	3	21	0	0	0	0	1	34	0	4	66	216
8:45 AM	0	0	1	0	0	0	1	23	0	0	0	0	0	37	0	4	66	236
Count Total	0	9	6	0	0	0	13	200	0	0	0	0	3	260	0	23	514	0
Peak Hour	0	5	3	0	0	0	8	87	0	0	0	0	1	120	0	12	236	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
6:00 AM	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	1	0	0	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hr	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

S CRYSTAL ST PARKING LOT ROAD



Date: Wed, Aug 28, 2019
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 6:00 PM to 7:00 PM



	HV %:	PHF
EB	0.0%	0.73
WB	0.0%	0.88
NB	-	-
SB	0.0%	0.86
TOTAL	0.0%	0.84

Three-Hour Count Summaries

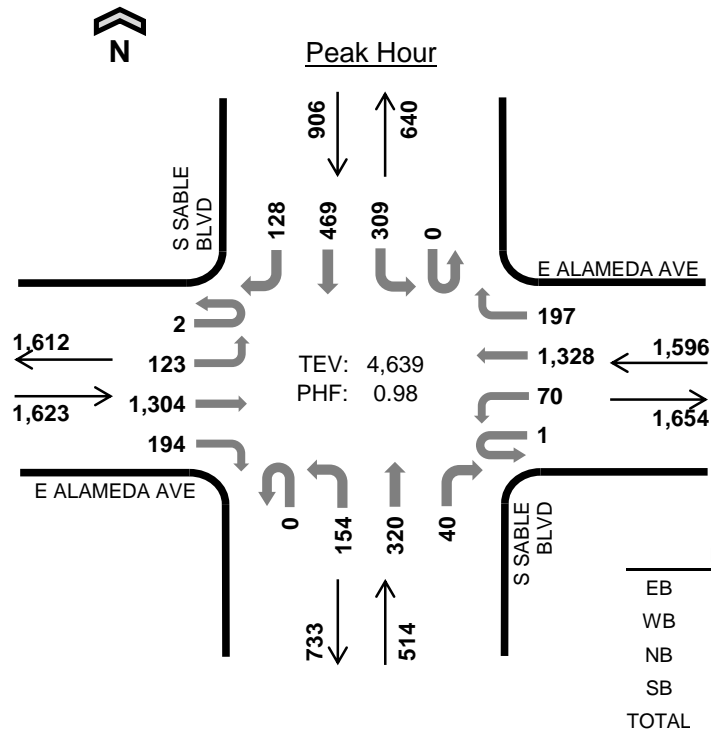
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				0				S CRYSTAL ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:00 PM	0	8	8	0	0	0	8	45	0	0	0	0	0	58	0	14	141	0
6:15 PM	0	8	7	0	0	0	5	40	0	0	0	0	1	50	0	18	129	0
6:30 PM	0	16	3	0	0	0	6	46	0	0	0	0	1	43	0	19	134	0
6:45 PM	0	20	6	0	0	0	3	57	0	0	0	0	1	68	0	15	170	574
Peak Hour	0	52	24	0	0	0	22	188	0	0	0	0	3	219	0	66	574	0

Note: For all three-hour count summary, see next page.

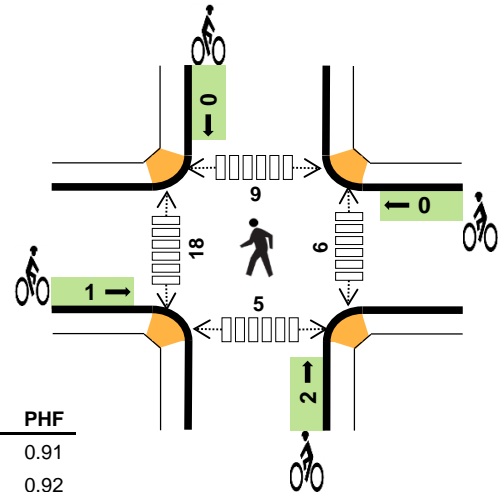
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Peak Hour	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2

Three-Hour Count Summaries																		
Interval Start	PARKING LOT ROAD				PARKING LOT ROAD				0				S CRYSTAL ST				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	9	12	0	0	0	9	57	0	0	0	0	0	56	0	21	164	0
4:15 PM	0	12	7	0	0	0	8	42	0	0	0	0	0	47	0	17	133	0
4:30 PM	0	11	6	0	0	0	9	51	0	0	0	0	0	36	0	14	127	0
4:45 PM	0	8	7	0	0	0	8	47	0	0	0	0	0	61	0	15	146	570
5:00 PM	0	19	9	0	0	0	3	43	0	0	0	0	1	46	0	19	140	546
5:15 PM	0	10	5	0	0	0	5	50	0	0	0	0	0	47	0	11	128	541
5:30 PM	0	20	8	0	1	0	5	38	0	0	0	0	0	53	0	17	142	556
5:45 PM	0	22	4	0	0	0	9	45	0	0	0	0	0	46	0	11	137	547
6:00 PM	0	8	8	0	0	0	8	45	0	0	0	0	0	58	0	14	141	548
6:15 PM	0	8	7	0	0	0	5	40	0	0	0	0	1	50	0	18	129	549
6:30 PM	0	16	3	0	0	0	6	46	0	0	0	0	1	43	0	19	134	541
6:45 PM	0	20	6	0	0	0	3	57	0	0	0	0	1	68	0	15	170	574
Count Total	0	163	82	0	1	0	78	561	0	0	0	0	4	611	0	191	1,691	0
Peak Hour	0	52	24	0	0	0	22	188	0	0	0	0	3	219	0	66	574	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2		
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	4		
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2		
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1		
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1		
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1		
Count Total	0	1	0	0	1	0	0	0	0	0	3	6	1	1	0	11		
Peak Hr	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2		

S SABLE BLVD E ALAMEDA AVE



Date: Thu, Jan 16, 2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:15 PM to 5:15 PM



Three-Hour Count Summaries

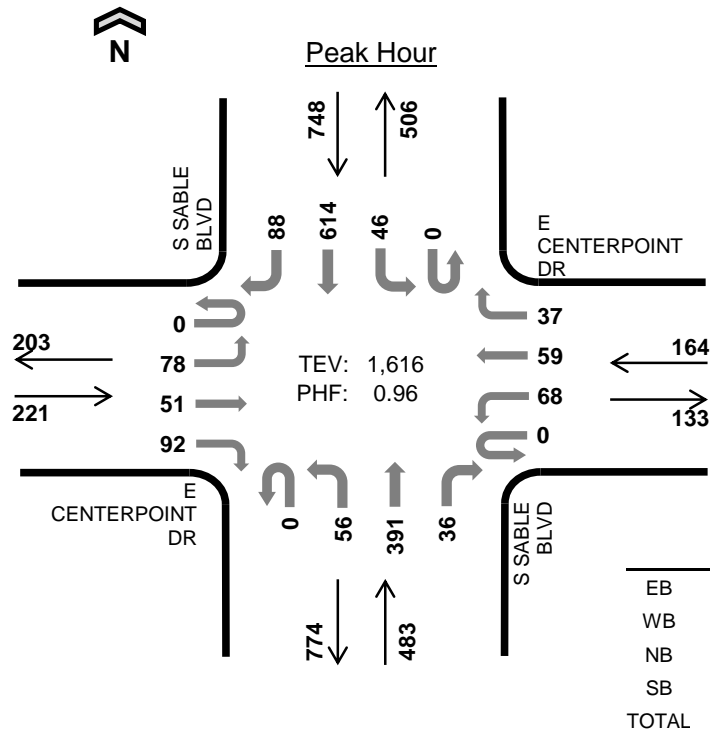
Interval Start	E ALAMEDA AVE				E ALAMEDA AVE				S SABLE BLVD				S SABLE BLVD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:15 PM	0	40	344	36	0	17	295	47	0	38	83	11	0	80	116	30	1,137	0
4:30 PM	0	26	290	57	1	18	355	47	0	39	74	8	0	82	126	34	1,157	0
4:45 PM	0	31	357	58	0	14	318	49	0	34	73	11	0	89	119	36	1,189	0
5:00 PM	2	26	313	43	0	21	360	54	0	43	90	10	0	58	108	28	1,156	4,639
Peak Hour	2	123	1,304	194	1	70	1,328	197	0	154	320	40	0	309	469	128	4,639	0

Note: For all three-hour count summary, see next page.

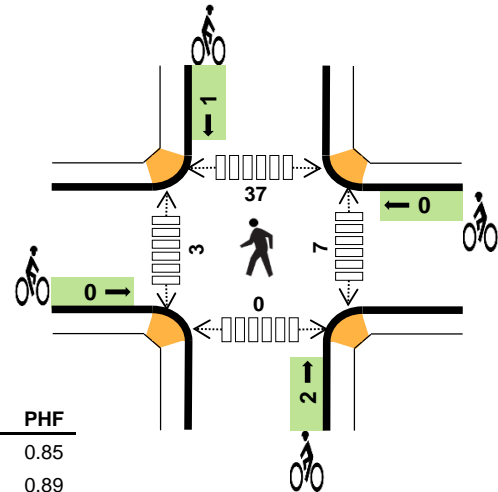
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:15 PM	3	4	6	6	19	0	0	0	0	0	2	5	4	0	11
4:30 PM	4	2	3	2	11	1	0	0	0	1	2	5	1	3	11
4:45 PM	2	2	1	1	6	0	0	1	0	1	2	4	1	1	8
5:00 PM	3	1	4	0	8	0	0	1	0	1	0	4	3	1	8
Peak Hour	12	9	14	9	44	1	0	2	0	3	6	18	9	5	38

Three-Hour Count Summaries																		
Interval Start	E ALAMEDA AVE				E ALAMEDA AVE				S SABLE BLVD				S SABLE BLVD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	46	286	43	0	21	333	47	0	39	88	5	0	67	130	27	1,132	0
4:15 PM	0	40	344	36	0	17	295	47	0	38	83	11	0	80	116	30	1,137	0
4:30 PM	0	26	290	57	1	18	355	47	0	39	74	8	0	82	126	34	1,157	0
4:45 PM	0	31	357	58	0	14	318	49	0	34	73	11	0	89	119	36	1,189	4,615
5:00 PM	2	26	313	43	0	21	360	54	0	43	90	10	0	58	108	28	1,156	4,639
5:15 PM	0	29	327	39	0	16	328	40	0	29	85	10	0	72	121	33	1,129	4,631
5:30 PM	0	32	327	51	0	15	276	32	0	39	80	11	0	70	123	26	1,082	4,556
5:45 PM	1	43	287	45	0	19	217	32	0	34	76	7	0	72	91	38	962	4,329
6:00 PM	1	32	295	48	0	26	257	37	0	28	73	15	0	56	100	25	993	4,166
6:15 PM	1	23	193	28	0	19	216	20	0	32	63	14	0	42	65	31	747	3,784
6:30 PM	3	23	193	36	0	17	198	37	0	30	55	9	0	39	82	24	746	3,448
6:45 PM	0	25	199	29	0	19	177	26	0	31	52	11	0	31	80	24	704	3,190
Count Total	8	376	3,411	513	1	222	3,330	468	0	416	892	122	0	758	1,261	356	12,134	0
Peak Hour	2	123	1,304	194	1	70	1,328	197	0	154	320	40	0	309	469	128	4,639	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	3	7	2	2	14	0	0	0	0	0	1	3	1	1	6			
4:15 PM	3	4	6	6	19	0	0	0	0	0	2	5	4	0	11			
4:30 PM	4	2	3	2	11	1	0	0	0	1	2	5	1	3	11			
4:45 PM	2	2	1	1	6	0	0	1	0	1	2	4	1	1	8			
5:00 PM	3	1	4	0	8	0	0	1	0	1	0	4	3	1	8			
5:15 PM	0	2	4	2	8	0	0	0	0	0	0	1	0	1	2			
5:30 PM	7	0	1	1	9	0	0	0	0	0	1	3	0	1	5			
5:45 PM	3	2	4	2	11	0	0	1	0	1	2	2	2	2	8			
6:00 PM	2	1	6	1	10	0	0	0	0	0	0	4	0	1	5			
6:15 PM	5	2	4	1	12	0	0	0	0	0	1	2	2	0	5			
6:30 PM	2	2	5	2	11	0	0	1	0	1	1	3	1	0	5			
6:45 PM	4	0	4	1	9	0	0	0	0	0	2	0	0	0	2			
Count Total	38	25	44	21	128	1	0	4	0	5	14	36	15	11	76			
Peak Hour	12	9	14	9	44	1	0	2	0	3	6	18	9	5	38			

S SABLE BLVD E CENTERPOINT DR



Date: Thu, Jan 16, 2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:30 PM to 5:30 PM



Three-Hour Count Summaries

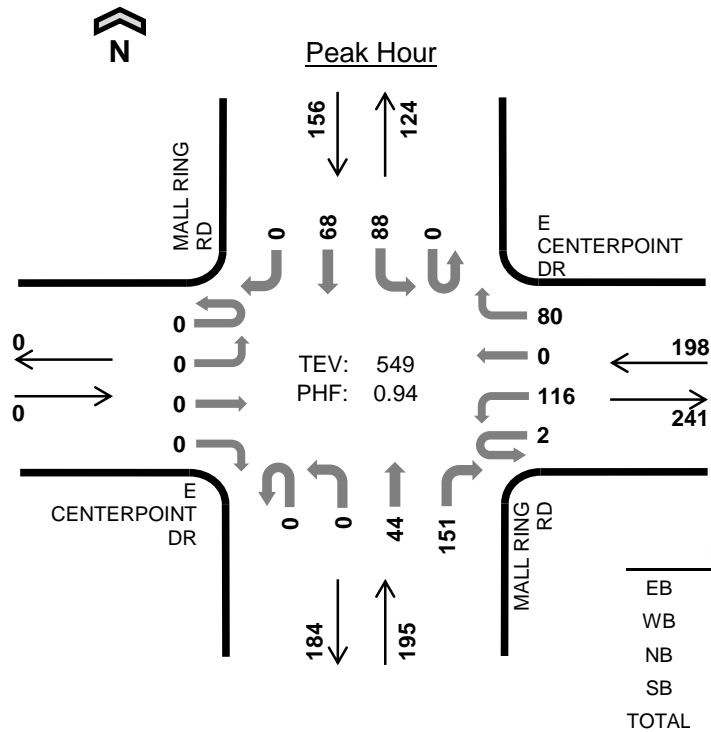
Interval Start	E CENTERPOINT DR				E CENTERPOINT DR				S SABLE BLVD				S SABLE BLVD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	16	13	18	0	15	12	7	0	14	90	10	0	12	164	15	386	0
4:45 PM	0	21	9	20	0	18	19	9	0	9	90	9	0	12	163	24	403	0
5:00 PM	0	25	10	24	0	20	14	12	0	16	115	5	0	13	140	29	423	0
5:15 PM	0	16	19	30	0	15	14	9	0	17	96	12	0	9	147	20	404	1,616
Peak Hour	0	78	51	92	0	68	59	37	0	56	391	36	0	46	614	88	1,616	0

Note: For all three-hour count summary, see next page.

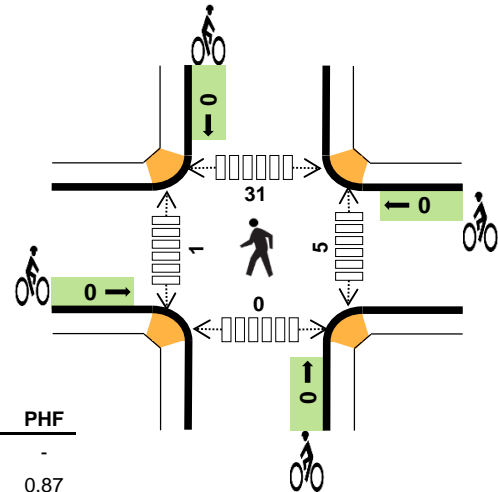
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	0	5	4	4	13	0	0	0	1	1	3	0	6	0	9
4:45 PM	0	4	4	2	10	0	0	1	0	1	3	1	11	0	15
5:00 PM	0	7	2	4	13	0	0	1	0	1	0	1	8	0	9
5:15 PM	0	4	4	1	9	0	0	0	0	0	1	1	12	0	14
Peak Hour	0	20	14	11	45	0	0	2	1	3	7	3	37	0	47

Three-Hour Count Summaries																		
Interval Start	E CENTERPOINT DR				E CENTERPOINT DR				S SABLE BLVD				S SABLE BLVD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	18	12	23	0	15	14	12	0	21	96	11	0	11	153	22	408	0
4:15 PM	0	21	20	17	0	12	15	9	0	11	107	5	0	6	138	20	381	0
4:30 PM	0	16	13	18	0	15	12	7	0	14	90	10	0	12	164	15	386	0
4:45 PM	0	21	9	20	0	18	19	9	0	9	90	9	0	12	163	24	403	1,578
5:00 PM	0	25	10	24	0	20	14	12	0	16	115	5	0	13	140	29	423	1,593
5:15 PM	0	16	19	30	0	15	14	9	0	17	96	12	0	9	147	20	404	1,616
5:30 PM	0	15	13	28	0	9	8	9	0	8	97	3	0	14	156	22	382	1,612
5:45 PM	0	21	11	25	0	7	15	11	0	12	95	12	0	13	99	24	345	1,554
6:00 PM	0	22	10	25	0	15	9	11	0	13	82	12	0	16	152	22	389	1,520
6:15 PM	0	19	7	22	0	7	10	7	0	19	81	4	0	6	82	25	289	1,405
6:30 PM	0	17	13	20	0	6	10	10	0	20	73	7	0	8	111	17	312	1,335
6:45 PM	0	18	4	17	0	5	9	4	0	12	65	4	0	8	94	28	268	1,258
Count Total	0	229	141	269	0	144	149	110	0	172	1,087	94	0	128	1,599	268	4,390	0
Peak Hour	0	78	51	92	0	68	59	37	0	56	391	36	0	46	614	88	1,616	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	1	5	2	2	10	0	0	0	0	0	3	1	19	0	23			
4:15 PM	0	7	3	6	16	0	0	0	0	0	4	1	20	2	27			
4:30 PM	0	5	4	4	13	0	0	0	1	1	3	0	6	0	9			
4:45 PM	0	4	4	2	10	0	0	1	0	1	3	1	11	0	15			
5:00 PM	0	7	2	4	13	0	0	1	0	1	0	1	8	0	9			
5:15 PM	0	4	4	1	9	0	0	0	0	0	1	1	12	0	14			
5:30 PM	0	3	1	5	9	0	0	0	0	0	9	1	11	3	24			
5:45 PM	0	7	6	2	15	0	0	1	0	1	2	0	14	1	17			
6:00 PM	1	8	2	3	14	0	0	0	0	0	3	1	7	1	12			
6:15 PM	0	5	3	3	11	0	0	0	0	0	5	2	9	0	16			
6:30 PM	0	7	3	4	14	0	0	1	0	1	1	3	9	0	13			
6:45 PM	0	4	2	4	10	0	0	0	0	0	4	0	7	0	11			
Count Total	2	66	36	40	144	0	0	4	1	5	38	12	133	7	190			
Peak Hour	0	20	14	11	45	0	0	2	1	3	7	3	37	0	47			

MALL RING RD E CENTERPOINT DR



Date: Thu, Jan 16, 2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM



Three-Hour Count Summaries

Interval Start	E CENTERPOINT DR				E CENTERPOINT DR				MALL RING RD				MALL RING RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM	0	0	0	0	2	27	0	28	0	0	9	38	0	24	18	0	146	0
5:15 PM	0	0	0	0	0	33	0	21	0	0	8	35	0	30	15	0	142	0
5:30 PM	0	0	0	0	0	22	0	15	0	0	16	40	0	16	14	0	123	0
5:45 PM	0	0	0	0	0	34	0	16	0	0	11	38	0	18	21	0	138	549
Peak Hour	0	0	0	0	2	116	0	80	0	0	44	151	0	88	68	0	549	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	2	0	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9
5:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	12	0	16
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8
Peak Hour	0	0	0	0	0	0	0	0	0	0	5	1	31	0	37

Three-Hour Count Summaries																		
Interval Start	E CENTERPOINT DR				E CENTERPOINT DR				MALL RING RD				MALL RING RD				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	34	0	22	0	0	12	38	0	14	15	0	135	0
4:15 PM	0	0	0	0	0	27	0	20	0	0	13	40	0	20	20	0	140	0
4:30 PM	0	0	0	0	1	26	0	13	0	0	12	24	0	19	14	0	109	0
4:45 PM	0	0	0	0	0	33	0	21	0	0	8	31	0	19	16	0	128	512
5:00 PM	0	0	0	0	2	27	0	28	0	0	9	38	0	24	18	0	146	523
5:15 PM	0	0	0	0	0	33	0	21	0	0	8	35	0	30	15	0	142	525
5:30 PM	0	0	0	0	0	22	0	15	0	0	16	40	0	16	14	0	123	539
5:45 PM	0	0	0	0	0	34	0	16	0	0	11	38	0	18	21	0	138	549
6:00 PM	0	0	0	0	0	29	0	18	0	0	10	40	0	20	13	0	130	533
6:15 PM	0	0	0	0	0	35	0	18	0	0	17	42	0	14	7	0	133	524
6:30 PM	0	0	0	0	0	29	0	17	0	0	10	29	0	11	13	0	109	510
6:45 PM	0	0	0	0	0	36	0	13	0	0	12	24	0	13	27	0	125	497
Count Total	0	0	0	0	3	365	0	222	0	0	138	419	0	218	193	0	1,558	0
Peak Hour	0	0	0	0	2	116	0	80	0	0	44	151	0	88	68	0	549	0
Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.																		
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)					Total		
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total			
4:00 PM	0	0	1	0	1	0	0	0	0	0	2	2	11	0	15			
4:15 PM	0	0	0	0	0	0	0	1	0	1	2	0	16	0	18			
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	7	0	8			
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11			
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	2	0	4			
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9			
5:30 PM	0	0	0	0	0	0	0	0	0	0	4	0	12	0	16			
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8			
6:00 PM	0	0	0	1	1	0	0	0	0	0	1	0	6	0	7			
6:15 PM	0	0	0	0	0	0	0	0	0	0	3	1	2	1	7			
6:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	6	0	7			
6:45 PM	0	0	0	0	0	0	0	0	0	0	5	0	2	0	7			
Count Total	0	0	1	1	2	0	0	1	0	1	20	4	92	1	117			
Peak Hour	0	0	0	0	0	0	0	0	0	0	5	1	31	0	37			

APPENDIX B

Aurora Fast Food Restaurant Study Documents

Aurora Drive-Thru Fast Food

Traffic Impact Study

Aurora, Colorado

September 20, 2019

Revised: November 7, 2019

Prepared by:

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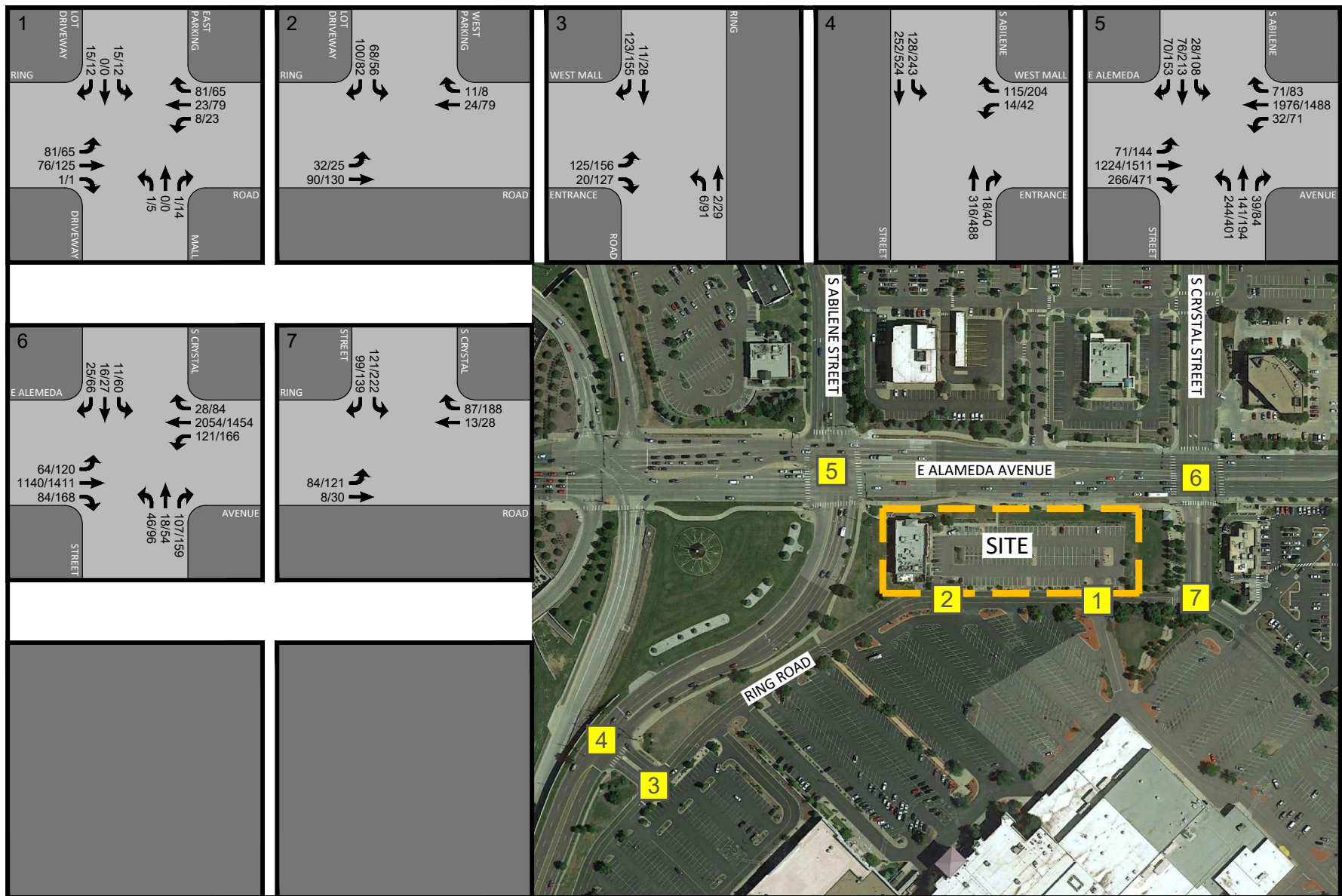


Figure 6-1
Total Future Traffic Volumes (2021)



Aurora Drive-Thru Fast Food
City of Aurora, Colorado



Figure 6-2
Total Future Traffic Volumes (2040)



NORTH

Aurora Drive-Thru Fast Food
City of Aurora, Colorado

APPENDIX C

Trip Generation Worksheets

Project Aurora Fieldhouse
 Subject Trip Generation - Recreational Community Center
 Designed by KLТ Date January 27, 2020 Job No. 96914002.00
 Checked by _____ Date _____ Sheet No. 1 of 1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Recreational Community Center (495)

Indepandant Variable - 1000 Square Feet Gross Leasable Area (X)

Gross Leasable Area = 91,160 Square Feet

X = 91.160

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (400 Series Page 309)

(T) = 2.31 (X)	Directional Distribution: 57% ent. 43% exit.
(T) = 2.31 * (91.2)	T = 211 Average Vehicle Trip Ends
	120 entering 91 exiting
	120 + 91 = 211

Weekday (Page 307 of 10th Edition)

Daily Weekday	Directional Distribution: 50% ent. 50% exit.
(T) = 28.82(X)	T = 2627 Average Vehicle Trip Ends
(T) = 28.82 * (91.2)	1314 entering 1314 exiting
	1314 + 1313 = 2627

APPENDIX D

Intersection Analysis Worksheets

Timings 2: Abilene Street & Alameda Avenue

2020 Existing PM.syn

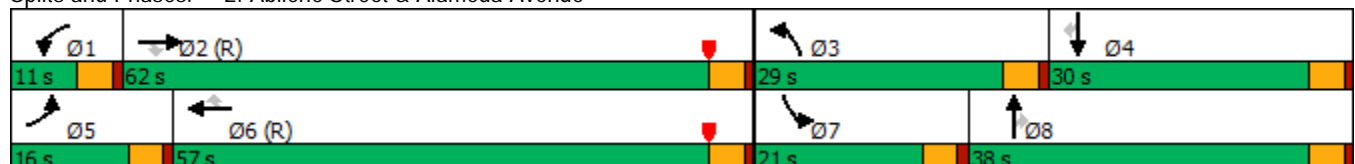
03/12/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	1521	407	63	1502	83	330	183	80	108	201	153
Future Volume (vph)	144	1521	407	63	1502	83	330	183	80	108	201	153
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	16.0	62.0	62.0	11.0	57.0	57.0	29.0	38.0	38.0	21.0	30.0	30.0
Total Split (%)	12.1%	47.0%	47.0%	8.3%	43.2%	43.2%	22.0%	28.8%	28.8%	15.9%	22.7%	22.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	10.4	59.7	59.7	6.4	53.6	53.6	19.0	36.3	36.3	13.7	31.0	31.0
Actuated g/C Ratio	0.08	0.45	0.45	0.05	0.41	0.41	0.14	0.28	0.28	0.10	0.23	0.23
v/c Ratio	0.56	0.70	0.46	0.41	0.78	0.12	0.73	0.39	0.17	0.67	0.28	0.36
Control Delay	66.7	31.4	5.2	84.1	20.6	0.6	62.6	42.4	2.8	74.7	43.3	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	31.4	5.2	84.1	20.6	0.6	62.6	42.4	2.8	74.7	43.3	10.5
LOS	E	C	A	F	C	A	E	D	A	E	D	B
Approach Delay		28.7			22.0			48.3			39.8	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 132
Actuated Cycle Length: 132
Offset: 52.5 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 30.0
Intersection Capacity Utilization 64.2%
Analysis Period (min) 15
Intersection LOS: C
ICU Level of Service C

Splits and Phases: 2: Abilene Street & Alameda Avenue



























HCM 6th Signalized Intersection Summary

2: Abilene Street & Alameda Avenue

2020 Existing PM.syn

03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	1521	407	63	1502	83	330	183	80	108	201	153
Future Volume (veh/h)	144	1521	407	63	1502	83	330	183	80	108	201	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	1601	217	68	1615	46	359	199	44	124	231	90
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	2509	779	120	2384	740	427	475	402	149	761	339
Arrive On Green	0.06	0.49	0.49	0.07	0.93	0.93	0.12	0.25	0.25	0.08	0.21	0.21
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	1870	1585	1781	3554	1585
Grp Volume(v), veh/h	152	1601	217	68	1615	46	359	199	44	124	231	90
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1870	1585	1781	1777	1585
Q Serve(g_s), s	5.7	30.7	10.7	2.5	7.5	0.3	13.4	11.7	2.8	9.0	7.2	6.2
Cycle Q Clear(g_c), s	5.7	30.7	10.7	2.5	7.5	0.3	13.4	11.7	2.8	9.0	7.2	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	205	2509	779	120	2384	740	427	475	402	149	761	339
V/C Ratio(X)	0.74	0.64	0.28	0.57	0.68	0.06	0.84	0.42	0.11	0.83	0.30	0.27
Avail Cap(c_a), veh/h	301	2509	779	170	2384	740	641	475	402	223	761	339
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	24.9	19.8	60.4	2.6	2.3	56.6	41.1	37.8	59.6	43.6	43.2
Incr Delay (d2), s/veh	5.4	1.3	0.9	3.4	1.3	0.1	6.1	2.6	0.5	15.1	1.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	17.9	7.5	2.0	2.5	0.2	10.2	9.7	2.1	8.3	6.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	26.1	20.7	63.8	3.9	2.5	62.7	43.7	38.3	74.7	44.6	45.1
LnGrp LOS	E	C	C	E	A	A	E	D	D	E	D	D
Approach Vol, veh/h	1970			1729			602			445		
Approach Delay, s/veh	28.6			6.2			54.7			53.1		
Approach LOS	C			A			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	69.4	20.8	32.8	12.3	66.1	15.6	38.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	57.5	24.5	25.5	11.5	52.5	16.5	33.5				
Max Q Clear Time (g_c+l1), s	4.5	32.7	15.4	9.2	7.7	9.5	11.0	13.7				
Green Ext Time (p_c), s	0.0	13.7	0.9	1.5	0.1	16.7	0.1	1.2				
Intersection Summary												
HCM 6th Ctrl Delay	26.1											
HCM 6th LOS	C											

Timings

2021 Background PM.syn

1: Abilene Street & West Mall Entrance

03/12/2020

	WBL	WBR	NBT	SBL	SBT
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↰	↰	↰↰	↰	↰↰
Traffic Volume (vph)	42	204	488	243	524
Future Volume (vph)	42	204	488	243	524
Turn Type	Prot	Perm	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	26.0	26.0	31.0	23.0	54.0
Total Split (%)	32.5%	32.5%	38.8%	28.8%	67.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effect Green (s)	8.3	8.3	49.6	62.7	62.7
Actuated g/C Ratio	0.10	0.10	0.62	0.78	0.78
v/c Ratio	0.27	0.63	0.29	0.39	0.19
Control Delay	35.5	12.8	8.1	4.4	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.5	12.8	8.1	4.4	2.6
LOS	D	B	A	A	A
Approach Delay	16.7		8.1		3.2
Approach LOS	B		A		A

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 7.2

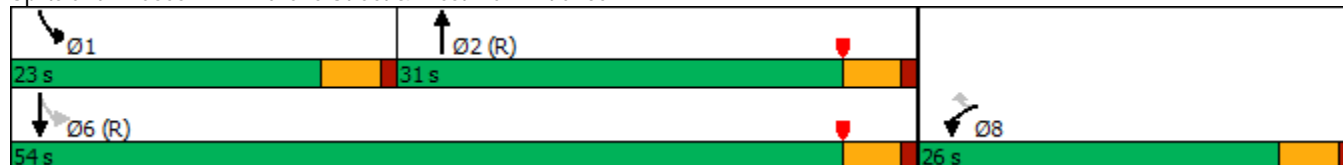
Intersection LOS: A

Intersection Capacity Utilization 43.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Abilene Street & West Mall Entrance









HCM 6th Signalized Intersection Summary

1: Abilene Street & West Mall Entrance

2021 Background PM.syn






03/12/2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	42	204	488	40	243	524
Future Volume (veh/h)	42	204	488	40	243	524
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	237	588	48	251	540
Peak Hour Factor	0.86	0.86	0.83	0.83	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	315	280	1897	155	619	2526
Arrive On Green	0.18	0.18	0.57	0.57	0.08	0.71
Sat Flow, veh/h	1781	1585	3421	271	1781	3647
Grp Volume(v), veh/h	49	237	314	322	251	540
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1822	1781	1777
Q Serve(g_s), s	1.9	11.6	7.4	7.4	4.2	4.1
Cycle Q Clear(g_c), s	1.9	11.6	7.4	7.4	4.2	4.1
Prop In Lane	1.00	1.00		0.15	1.00	
Lane Grp Cap(c), veh/h	315	280	1013	1039	619	2526
V/C Ratio(X)	0.16	0.85	0.31	0.31	0.41	0.21
Avail Cap(c_a), veh/h	479	426	1013	1039	880	2526
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.89	0.89
Uniform Delay (d), s/veh	27.9	31.9	9.0	9.0	5.6	3.9
Incr Delay (d2), s/veh	0.2	9.5	0.8	0.8	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	8.7	5.0	5.1	2.3	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.1	41.3	9.8	9.8	6.0	4.1
LnGrp LOS	C	D	A	A	A	A
Approach Vol, veh/h	286		636			791
Approach Delay, s/veh	39.1		9.8			4.7
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.3	50.1			61.4	18.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	18.5	26.5			49.5	21.5
Max Q Clear Time (g_c+I1), s	6.2	9.4			6.1	13.6
Green Ext Time (p_c), s	0.6	3.7			4.2	0.6
Intersection Summary						
HCM 6th Ctrl Delay			12.3			
HCM 6th LOS			B			

Timings

1: Abilene Street & West Mall Entrance

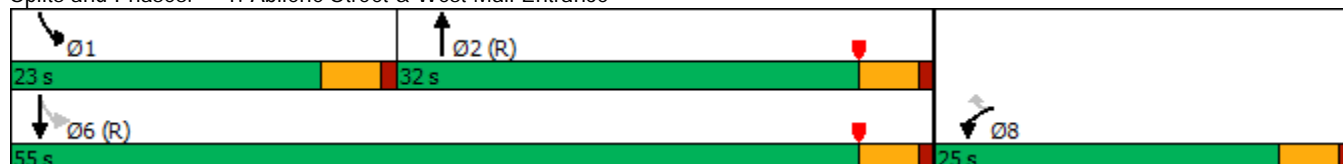
2021 Total PM.syn
03/12/2020

	WBL	WBR	NBT	SBL	SBT
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	47	222	488	267	524
Future Volume (vph)	47	222	488	267	524
Turn Type	Prot	Perm	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	25.0	25.0	32.0	23.0	55.0
Total Split (%)	31.3%	31.3%	40.0%	28.8%	68.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effect Green (s)	8.5	8.5	49.0	62.5	62.5
Actuated g/C Ratio	0.11	0.11	0.61	0.78	0.78
v/c Ratio	0.29	0.65	0.30	0.43	0.20
Control Delay	35.6	12.6	8.5	4.8	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	12.6	8.5	4.8	2.7
LOS	D	B	A	A	A
Approach Delay	16.7		8.5		3.4
Approach LOS	B		A		A

Intersection Summary

Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 7.6
Intersection Capacity Utilization 45.2%
Analysis Period (min) 15
Intersection LOS: A
ICU Level of Service A

Splits and Phases: 1: Abilene Street & West Mall Entrance














HCM 6th Signalized Intersection Summary

1: Abilene Street & West Mall Entrance

2021 Total PM.syn

03/12/2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	47	222	488	46	267	524
Future Volume (veh/h)	47	222	488	46	267	524
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	258	588	55	275	540
Peak Hour Factor	0.86	0.86	0.83	0.83	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	337	300	1802	168	610	2482
Arrive On Green	0.19	0.19	0.55	0.55	0.09	0.70
Sat Flow, veh/h	1781	1585	3379	307	1781	3647
Grp Volume(v), veh/h	55	258	318	325	275	540
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1815	1781	1777
Q Serve(g_s), s	2.1	12.6	7.9	7.9	4.9	4.3
Cycle Q Clear(g_c), s	2.1	12.6	7.9	7.9	4.9	4.3
Prop In Lane	1.00	1.00		0.17	1.00	
Lane Grp Cap(c), veh/h	337	300	975	996	610	2482
V/C Ratio(X)	0.16	0.86	0.33	0.33	0.45	0.22
Avail Cap(c_a), veh/h	456	406	975	996	856	2482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.87	0.87
Uniform Delay (d), s/veh	27.1	31.4	9.9	9.9	6.2	4.3
Incr Delay (d2), s/veh	0.2	13.1	0.9	0.9	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	9.7	5.4	5.5	2.8	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.4	44.5	10.8	10.8	6.6	4.5
LnGrp LOS	C	D	B	B	A	A
Approach Vol, veh/h	313		643			815
Approach Delay, s/veh	41.5		10.8			5.2
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.0	48.4			60.4	19.6
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	18.5	27.5			50.5	20.5
Max Q Clear Time (g_c+I1), s	6.9	9.9			6.3	14.6
Green Ext Time (p_c), s	0.6	3.8			4.2	0.5
Intersection Summary						
HCM 6th Ctrl Delay			13.7			
HCM 6th LOS			B			

Timings

1: Abilene Street & West Mall Entrance

2040 Background PM.syn

03/12/2020

	↖	↗	↑	↘	↓
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↖	↗	↑↑	↘	↓↓
Traffic Volume (vph)	42	204	711	243	764
Future Volume (vph)	42	204	711	243	764
Turn Type	Prot	Perm	NA	pm+pt	NA
Protected Phases	8		2	1	6
Permitted Phases		8		6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	24.0	24.0	34.0	22.0	56.0
Total Split (%)	30.0%	30.0%	42.5%	27.5%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effect Green (s)	8.1	8.1	49.5	62.9	62.9
Actuated g/C Ratio	0.10	0.10	0.62	0.79	0.79
v/c Ratio	0.26	0.62	0.38	0.46	0.28
Control Delay	35.4	12.9	8.9	5.2	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	12.9	8.9	5.2	2.9
LOS	D	B	A	A	A
Approach Delay	16.7		8.9		3.5
Approach LOS	B		A		A

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 7.2

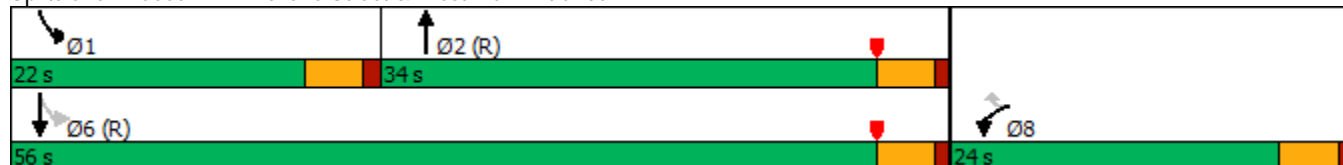
Intersection LOS: A

Intersection Capacity Utilization 49.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Abilene Street & West Mall Entrance














HCM 6th Signalized Intersection Summary

1: Abilene Street & West Mall Entrance

2040 Background PM.syn

























03/12/2020

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	42	204	711	40	243	764
Future Volume (veh/h)	42	204	711	40	243	764
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	222	773	43	251	788
Peak Hour Factor	0.92	0.92	0.92	0.92	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	296	264	1994	111	545	2563
Arrive On Green	0.17	0.17	0.58	0.58	0.08	0.72
Sat Flow, veh/h	1781	1585	3516	190	1781	3647
Grp Volume(v), veh/h	46	222	401	415	251	788
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1836	1781	1777
Q Serve(g_s), s	1.8	10.9	9.7	9.7	4.1	6.4
Cycle Q Clear(g_c), s	1.8	10.9	9.7	9.7	4.1	6.4
Prop In Lane	1.00	1.00		0.10	1.00	
Lane Grp Cap(c), veh/h	296	264	1035	1070	545	2563
V/C Ratio(X)	0.16	0.84	0.39	0.39	0.46	0.31
Avail Cap(c_a), veh/h	434	386	1035	1070	788	2563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.85	0.85
Uniform Delay (d), s/veh	28.5	32.3	9.0	9.0	5.9	4.0
Incr Delay (d2), s/veh	0.2	10.6	1.1	1.1	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	8.4	6.5	6.7	2.2	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.8	42.9	10.1	10.1	6.4	4.3
LnGrp LOS	C	D	B	B	A	A
Approach Vol, veh/h	268		816			1039
Approach Delay, s/veh	40.5		10.1			4.8
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.1	51.1			62.2	17.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	17.5	29.5			51.5	19.5
Max Q Clear Time (g_c+l1), s	6.1	11.7			8.4	12.9
Green Ext Time (p_c), s	0.6	5.0			6.6	0.5
Intersection Summary						
HCM 6th Ctrl Delay			11.3			
HCM 6th LOS			B			

Timings 2: Abilene Street & Alameda Avenue

2040 Total PM.syn

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	2244	489	71	2206	83	415	284	84	108	313	153
Future Volume (vph)	144	2244	489	71	2206	83	415	284	84	108	313	153
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	61.0	61.0	9.5	52.5	52.5	32.0	40.5	40.5	21.0	29.5	29.5
Total Split (%)	13.6%	46.2%	46.2%	7.2%	39.8%	39.8%	24.2%	30.7%	30.7%	15.9%	22.3%	22.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	11.0	58.4	58.4	5.0	50.5	50.5	22.4	39.1	39.1	13.4	30.1	30.1
Actuated g/C Ratio	0.08	0.44	0.44	0.04	0.38	0.38	0.17	0.30	0.30	0.10	0.23	0.23
v/c Ratio	0.53	1.05	0.59	0.58	1.22	0.13	0.77	0.56	0.16	0.65	0.42	0.34
Control Delay	64.6	69.9	13.5	84.5	128.5	1.3	61.6	44.7	3.1	73.4	46.4	9.3
Queue Delay	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	90.9	13.5	84.5	128.5	1.3	61.6	44.7	3.1	73.4	46.4	9.3
LOS	E	F	B	F	F	A	E	D	A	E	D	A
Approach Delay		76.4			122.7			49.2			41.6	
Approach LOS		E			F			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 53.2 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.22

Intersection Signal Delay: 86.7

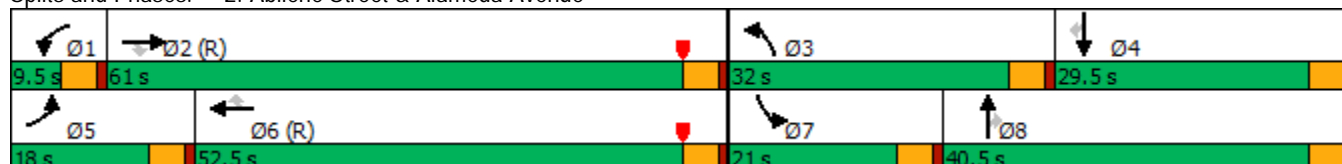
Intersection LOS: F

Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Abilene Street & Alameda Avenue




































HCM 6th Signalized Intersection Summary

2: Abilene Street & Alameda Avenue

























2040 Total PM.syn

03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 			 	 	
Traffic Volume (veh/h)	144	2244	489	71	2206	83	415	284	84	108	313	153
Future Volume (veh/h)	144	2244	489	71	2206	83	415	284	84	108	313	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	2362	304	76	2372	46	451	309	48	117	340	84
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	206	2429	754	123	2305	716	522	510	432	142	715	319
Arrive On Green	0.06	0.48	0.48	0.07	0.90	0.90	0.15	0.27	0.27	0.08	0.20	0.20
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	1870	1585	1781	3554	1585
Grp Volume(v), veh/h	152	2362	304	76	2372	46	451	309	48	117	340	84
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1870	1585	1781	1777	1585
Q Serve(g_s), s	5.7	59.6	16.4	2.8	59.6	0.4	16.8	19.0	3.0	8.5	11.2	5.9
Cycle Q Clear(g_c), s	5.7	59.6	16.4	2.8	59.6	0.4	16.8	19.0	3.0	8.5	11.2	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	206	2429	754	123	2305	716	522	510	432	142	715	319
V/C Ratio(X)	0.74	0.97	0.40	0.62	1.03	0.06	0.86	0.61	0.11	0.82	0.48	0.26
Avail Cap(c_a), veh/h	353	2429	754	131	2305	716	720	510	432	223	715	319
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.18	0.18	0.18	0.90	0.90	0.90	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.0	33.8	22.4	60.4	6.4	3.5	54.7	41.8	36.0	59.8	46.6	44.5
Incr Delay (d2), s/veh	5.1	12.8	1.6	1.5	16.8	0.0	7.3	4.8	0.5	13.1	2.3	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	34.6	10.6	2.0	8.0	0.3	12.2	14.3	2.2	7.8	8.9	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	46.6	24.1	61.9	23.2	3.6	61.9	46.6	36.5	72.9	48.8	46.5
LnGrp LOS	E	D	C	E	F	A	E	D	D	E	D	D
Approach Vol, veh/h		2818			2494			808			541	
Approach Delay, s/veh		45.2			24.1			54.6			53.7	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	67.3	24.5	31.1	12.4	64.1	15.0	40.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	56.5	27.5	25.0	13.5	48.0	16.5	36.0				
Max Q Clear Time (g_c+I1), s	4.8	61.6	18.8	13.2	7.7	61.6	10.5	21.0				
Green Ext Time (p_c), s	0.0	0.0	1.1	1.9	0.2	0.0	0.1	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			39.1									
HCM 6th LOS			D									

Timings 2: Abilene Street & Alameda Avenue

2020 Existing PM.syn
03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	1521	407	63	1502	83	330	183	80	108	201	153
Future Volume (vph)	144	1521	407	63	1502	83	330	183	80	108	201	153
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	16.0	62.0	62.0	11.0	57.0	57.0	29.0	37.0	37.0	22.0	30.0	30.0
Total Split (%)	12.1%	47.0%	47.0%	8.3%	43.2%	43.2%	22.0%	28.0%	28.0%	16.7%	22.7%	22.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	10.4	59.7	59.7	6.4	53.6	53.6	19.0	36.0	36.0	14.0	31.0	31.0
Actuated g/C Ratio	0.08	0.45	0.45	0.05	0.41	0.41	0.14	0.27	0.27	0.11	0.23	0.23
v/c Ratio	0.56	0.70	0.46	0.41	0.78	0.12	0.73	0.39	0.17	0.66	0.28	0.36
Control Delay	66.7	31.4	5.2	84.1	20.6	0.6	62.6	42.8	2.9	73.2	43.3	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	31.4	5.2	84.1	20.6	0.6	62.6	42.8	2.9	73.2	43.3	10.5
LOS	E	C	A	F	C	A	E	D	A	E	D	B
Approach Delay		28.7			22.0			48.5			39.4	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 52.5 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 30.0

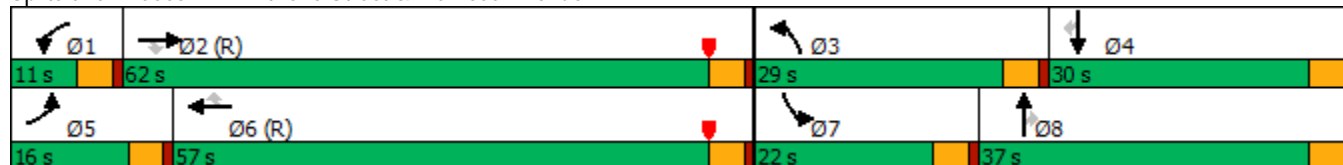
Intersection LOS: C

Intersection Capacity Utilization 64.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Abilene Street & Alameda Avenue


























HCM 6th Signalized Intersection Summary

2: Abilene Street & Alameda Avenue

2020 Existing PM.syn

























03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	1521	407	63	1502	83	330	183	80	108	201	153
Future Volume (veh/h)	144	1521	407	63	1502	83	330	183	80	108	201	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	1601	217	68	1615	46	359	199	44	124	231	90
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	2547	791	120	2422	752	427	461	390	149	734	328
Arrive On Green	0.06	0.50	0.50	0.07	0.95	0.95	0.12	0.25	0.25	0.08	0.21	0.21
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	1870	1585	1781	3554	1585
Grp Volume(v), veh/h	152	1601	217	68	1615	46	359	199	44	124	231	90
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1870	1585	1781	1777	1585
Q Serve(g_s), s	5.7	30.2	10.5	2.5	5.9	0.2	13.4	11.8	2.8	9.0	7.3	6.3
Cycle Q Clear(g_c), s	5.7	30.2	10.5	2.5	5.9	0.2	13.4	11.8	2.8	9.0	7.3	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	205	2547	791	120	2422	752	427	461	390	149	734	328
V/C Ratio(X)	0.74	0.63	0.27	0.57	0.67	0.06	0.84	0.43	0.11	0.83	0.31	0.27
Avail Cap(c_a), veh/h	301	2547	791	170	2422	752	641	461	390	236	734	328
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	24.2	19.2	60.4	1.9	1.8	56.6	42.0	38.6	59.5	44.4	44.0
Incr Delay (d2), s/veh	5.4	1.2	0.9	3.4	1.2	0.1	6.2	2.9	0.6	12.8	1.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	17.6	7.3	2.0	2.0	0.2	10.3	9.8	2.1	8.2	6.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	25.3	20.1	63.8	3.1	1.9	62.8	44.8	39.1	72.4	45.6	46.1
LnGrp LOS	E	C	C	E	A	A	E	D	D	E	D	D
Approach Vol, veh/h	1970			1729			602			445		
Approach Delay, s/veh	27.9			5.5			55.1			53.1		
Approach LOS	C			A			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	70.3	20.8	31.8	12.3	67.1	15.6	37.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	57.5	24.5	25.5	11.5	52.5	17.5	32.5				
Max Q Clear Time (g_c+I1), s	4.5	32.2	15.4	9.3	7.7	7.9	11.0	13.8				
Green Ext Time (p_c), s	0.0	13.9	0.9	1.5	0.1	17.0	0.1	1.1				
Intersection Summary												
HCM 6th Ctrl Delay	25.6											
HCM 6th LOS	C											

Timings 2: Abilene Street & Alameda Avenue

2021 Background PM.syn

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	1511	471	71	1488	83	401	194	84	108	213	153
Future Volume (vph)	144	1511	471	71	1488	83	401	194	84	108	213	153
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	16.0	57.0	57.0	12.0	53.0	53.0	40.0	39.0	39.0	24.0	23.0	23.0
Total Split (%)	12.1%	43.2%	43.2%	9.1%	40.2%	40.2%	30.3%	29.5%	29.5%	18.2%	17.4%	17.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	10.4	54.9	54.9	7.2	49.6	49.6	22.1	39.6	39.6	14.4	31.9	31.9
Actuated g/C Ratio	0.08	0.42	0.42	0.05	0.38	0.38	0.17	0.30	0.30	0.11	0.24	0.24
v/c Ratio	0.56	0.75	0.55	0.41	0.84	0.13	0.76	0.38	0.17	0.64	0.29	0.36
Control Delay	66.7	36.1	7.3	85.4	26.1	2.1	61.2	40.0	7.9	70.9	42.9	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	36.1	7.3	85.4	26.1	2.1	61.2	40.0	7.9	70.9	42.9	13.4
LOS	E	D	A	F	C	A	E	D	A	E	D	B
Approach Delay		31.8			27.5			48.6			39.8	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 48.5 (37%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 33.5

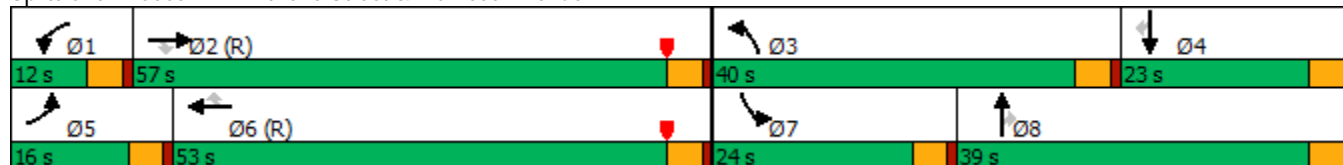
Intersection LOS: C

Intersection Capacity Utilization 65.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Abilene Street & Alameda Avenue


























HCM 6th Signalized Intersection Summary

2: Abilene Street & Alameda Avenue

























2021 Background PM.syn

03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	1511	471	71	1488	83	401	194	84	108	213	153
Future Volume (veh/h)	144	1511	471	71	1488	83	401	194	84	108	213	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	1591	285	76	1600	46	436	211	48	124	245	90
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	2464	765	123	2343	727	515	489	414	150	698	311
Arrive On Green	0.06	0.48	0.48	0.07	0.92	0.92	0.15	0.26	0.26	0.08	0.20	0.20
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	1870	1585	1781	3554	1585
Grp Volume(v), veh/h	152	1591	285	76	1600	46	436	211	48	124	245	90
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1870	1585	1781	1777	1585
Q Serve(g_s), s	5.7	30.9	15.0	2.8	9.1	0.3	16.2	12.4	3.0	9.0	7.9	6.4
Cycle Q Clear(g_c), s	5.7	30.9	15.0	2.8	9.1	0.3	16.2	12.4	3.0	9.0	7.9	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	205	2464	765	123	2343	727	515	489	414	150	698	311
V/C Ratio(X)	0.74	0.65	0.37	0.62	0.68	0.06	0.85	0.43	0.12	0.83	0.35	0.29
Avail Cap(c_a), veh/h	301	2464	765	196	2343	727	929	489	414	263	698	311
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.81	0.81	0.81	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	25.7	21.5	60.4	3.3	3.0	54.7	40.6	37.1	59.5	45.8	45.2
Incr Delay (d2), s/veh	5.4	1.3	1.4	4.1	1.3	0.1	3.7	2.6	0.5	10.9	1.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	18.1	9.9	2.3	3.0	0.3	11.7	10.1	2.3	8.0	6.5	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	27.0	22.9	64.5	4.6	3.1	58.4	43.2	37.7	70.4	47.2	47.5
LnGrp LOS	E	C	C	E	A	A	E	D	D	E	D	D
Approach Vol, veh/h	2028		1722				695		459			
Approach Delay, s/veh	29.4		7.2				52.4		53.5			
Approach LOS	C		A				D		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	68.2	24.2	30.4	12.3	65.1	15.6	39.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	52.5	35.5	18.5	11.5	48.5	19.5	34.5				
Max Q Clear Time (g_c+l1), s	4.8	32.9	18.2	9.9	7.7	11.1	11.0	14.4				
Green Ext Time (p_c), s	0.0	12.0	1.5	1.2	0.1	15.7	0.2	1.3				
Intersection Summary												
HCM 6th Ctrl Delay	27.1											
HCM 6th LOS	C											

Timings 2: Abilene Street & Alameda Avenue

2021 Total PM.syn
03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	1535	489	71	1506	83	415	199	84	108	219	153
Future Volume (vph)	144	1535	489	71	1506	83	415	199	84	108	219	153
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	16.0	54.0	54.0	12.0	50.0	50.0	43.0	39.0	39.0	27.0	23.0	23.0
Total Split (%)	12.1%	40.9%	40.9%	9.1%	37.9%	37.9%	32.6%	29.5%	29.5%	20.5%	17.4%	17.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	10.4	51.9	51.9	7.2	46.6	46.6	22.8	42.5	42.5	14.5	34.2	34.2
Actuated g/C Ratio	0.08	0.39	0.39	0.05	0.35	0.35	0.17	0.32	0.32	0.11	0.26	0.26
v/c Ratio	0.56	0.81	0.59	0.41	0.90	0.14	0.76	0.36	0.16	0.64	0.27	0.34
Control Delay	66.7	40.2	9.3	81.9	30.7	3.0	60.6	37.6	7.5	70.4	40.9	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	40.2	9.3	81.9	30.7	3.0	60.6	37.6	7.5	70.4	40.9	11.4
LOS	E	D	A	F	C	A	E	D	A	E	D	B
Approach Delay		35.0			31.5			47.7			38.1	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 45.5 (34%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 35.9

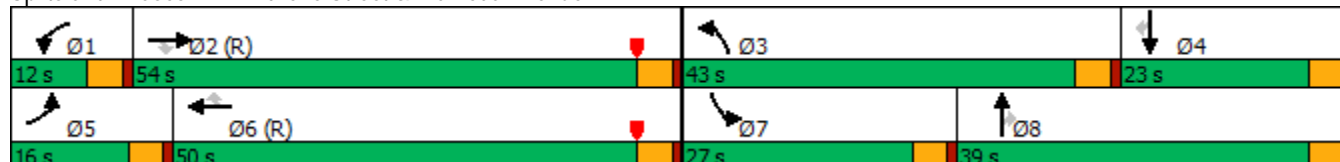
Intersection LOS: D

Intersection Capacity Utilization 66.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Abilene Street & Alameda Avenue



























HCM 6th Signalized Intersection Summary

2: Abilene Street & Alameda Avenue

2021 Total PM.syn

03/12/2020

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	1535	489	71	1506	83	415	199	84	108	219	153
Future Volume (veh/h)	144	1535	489	71	1506	83	415	199	84	108	219	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	1616	304	76	1619	46	451	216	48	124	252	90
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	2463	765	123	2342	727	532	489	414	150	681	304
Arrive On Green	0.06	0.48	0.48	0.07	0.92	0.92	0.15	0.26	0.26	0.08	0.19	0.19
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	1870	1585	1781	3554	1585
Grp Volume(v), veh/h	152	1616	304	76	1619	46	451	216	48	124	252	90
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1870	1585	1781	1777	1585
Q Serve(g_s), s	5.7	31.6	16.2	2.8	9.5	0.3	16.8	12.7	3.0	9.0	8.1	6.4
Cycle Q Clear(g_c), s	5.7	31.6	16.2	2.8	9.5	0.3	16.8	12.7	3.0	9.0	8.1	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	205	2463	765	123	2342	727	532	489	414	150	681	304
V/C Ratio(X)	0.74	0.66	0.40	0.62	0.69	0.06	0.85	0.44	0.12	0.82	0.37	0.30
Avail Cap(c_a), veh/h	301	2463	765	196	2342	727	1008	489	414	304	681	304
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.67	0.67	0.67	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	25.9	21.9	60.4	3.4	3.0	54.3	40.7	37.1	59.5	46.4	45.7
Incr Delay (d2), s/veh	5.4	1.4	1.5	3.4	1.1	0.1	3.6	2.7	0.5	10.7	1.5	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.7	18.5	10.5	2.3	3.0	0.3	11.9	10.3	2.3	8.0	6.8	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	27.3	23.4	63.8	4.5	3.1	57.9	43.4	37.7	70.2	48.0	48.2
LnGrp LOS	E	C	C	E	A	A	E	D	D	E	D	D
Approach Vol, veh/h	2072				1741				715		466	
Approach Delay, s/veh	29.6				7.0				52.2		53.9	
Approach LOS	C				A				D		D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	68.2	24.8	29.8	12.3	65.0	15.6	39.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	49.5	38.5	18.5	11.5	45.5	22.5	34.5				
Max Q Clear Time (g_c+I1), s	4.8	33.6	18.8	10.1	7.7	11.5	11.0	14.7				
Green Ext Time (p_c), s	0.0	10.6	1.6	1.2	0.1	15.4	0.2	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			27.2									
HCM 6th LOS			C									

Timings

2: Abilene Street & Alameda Avenue

2040 Background PM.syn

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	2220	471	71	2188	83	401	279	84	108	307	153
Future Volume (vph)	144	2220	471	71	2188	83	401	279	84	108	307	153
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	12.8	61.0	61.0	9.5	57.7	57.7	34.0	38.5	38.5	23.0	27.5	27.5
Total Split (%)	9.7%	46.2%	46.2%	7.2%	43.7%	43.7%	25.8%	29.2%	29.2%	17.4%	20.8%	20.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	8.3	58.4	58.4	5.0	53.2	53.2	22.0	38.7	38.7	13.8	30.5	30.5
Actuated g/C Ratio	0.06	0.44	0.44	0.04	0.40	0.40	0.17	0.29	0.29	0.10	0.23	0.23
v/c Ratio	0.71	1.04	0.57	0.58	1.15	0.12	0.76	0.56	0.17	0.63	0.41	0.36
Control Delay	78.8	66.4	13.0	87.6	100.4	3.0	61.5	45.0	8.1	71.2	45.7	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.8	66.4	13.0	87.6	100.4	3.0	61.5	45.0	8.1	71.2	45.7	15.8
LOS	E	E	B	F	F	A	E	D	A	E	D	B
Approach Delay		58.1			96.6			49.6			42.5	
Approach LOS		E			F			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 53.2 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 69.7

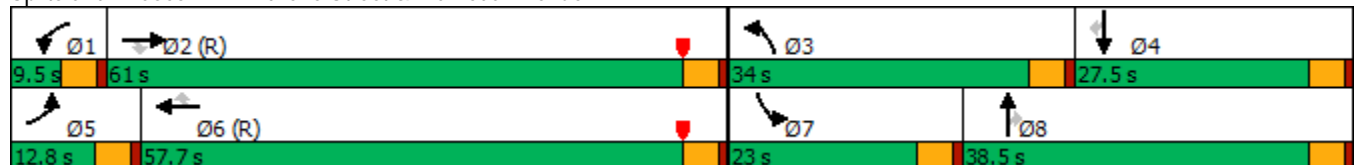
Intersection LOS: E

Intersection Capacity Utilization 82.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Abilene Street & Alameda Avenue


























HCM 6th Signalized Intersection Summary

2: Abilene Street & Alameda Avenue

2040 Background PM.syn

03/12/2020

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	2220	471	71	2188	83	401	279	84	108	307	153
Future Volume (veh/h)	144	2220	471	71	2188	83	401	279	84	108	307	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	2337	285	76	2353	46	436	303	48	117	334	84
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	2505	778	123	2388	741	510	482	408	142	675	301
Arrive On Green	0.06	0.49	0.49	0.07	0.94	0.94	0.15	0.26	0.26	0.08	0.19	0.19
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	1870	1585	1781	3554	1585
Grp Volume(v), veh/h	152	2337	285	76	2353	46	436	303	48	117	334	84
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1870	1585	1781	1777	1585
Q Serve(g_s), s	5.7	56.7	14.7	2.8	50.1	0.3	16.2	18.9	3.1	8.5	11.1	6.0
Cycle Q Clear(g_c), s	5.7	56.7	14.7	2.8	50.1	0.3	16.2	18.9	3.1	8.5	11.1	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	2505	778	123	2388	741	510	482	408	142	675	301
V/C Ratio(X)	0.75	0.93	0.37	0.62	0.99	0.06	0.85	0.63	0.12	0.82	0.50	0.28
Avail Cap(c_a), veh/h	217	2505	778	131	2388	741	772	482	408	250	675	301
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.50	0.50	0.50	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	31.6	20.9	60.4	3.9	2.3	54.9	43.4	37.5	59.8	47.8	45.7
Incr Delay (d2), s/veh	12.9	7.9	1.3	4.0	10.0	0.1	5.7	5.8	0.6	11.1	2.6	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	31.9	9.7	2.3	6.1	0.2	11.8	14.5	2.3	7.7	8.9	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.1	39.5	22.2	64.4	13.9	2.4	60.6	49.2	38.1	70.9	50.4	48.0
LnGrp LOS	E	D	C	E	B	A	E	D	D	E	D	D
Approach Vol, veh/h	2774			2475			787			535		
Approach Delay, s/veh	39.6			15.2			54.8			54.5		
Approach LOS	D			B			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	69.3	24.0	29.6	12.2	66.2	15.0	38.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	56.5	29.5	23.0	8.3	53.2	18.5	34.0				
Max Q Clear Time (g_c+I1), s	4.8	58.7	18.2	13.1	7.7	52.1	10.5	20.9				
Green Ext Time (p_c), s	0.0	0.0	1.2	1.7	0.0	1.0	0.2	1.6				
Intersection Summary												
HCM 6th Ctrl Delay	33.5											
HCM 6th LOS	C											

Timings

2: Abilene Street & Alameda Avenue

2040 Total PM.syn

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	2244	489	71	2206	83	415	284	84	108	313	153
Future Volume (vph)	144	2244	489	71	2206	83	415	284	84	108	313	153
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	12.8	61.0	61.0	9.5	57.7	57.7	32.0	39.5	39.5	22.0	29.5	29.5
Total Split (%)	9.7%	46.2%	46.2%	7.2%	43.7%	43.7%	24.2%	29.9%	29.9%	16.7%	22.3%	22.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	8.3	58.4	58.4	5.0	53.2	53.2	22.4	38.9	38.9	13.6	30.1	30.1
Actuated g/C Ratio	0.06	0.44	0.44	0.04	0.40	0.40	0.17	0.29	0.29	0.10	0.23	0.23
v/c Ratio	0.71	1.05	0.59	0.58	1.16	0.12	0.77	0.56	0.17	0.64	0.42	0.36
Control Delay	78.8	69.9	13.5	84.5	100.2	2.6	61.6	45.0	8.0	72.3	46.4	16.0
Queue Delay	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.8	90.9	13.5	84.5	100.2	2.6	61.6	45.0	8.0	72.3	46.4	16.0
LOS	E	F	B	F	F	A	E	D	A	E	D	B
Approach Delay		77.2			96.3			49.8			43.1	
Approach LOS		E			F			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 53.2 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 77.7

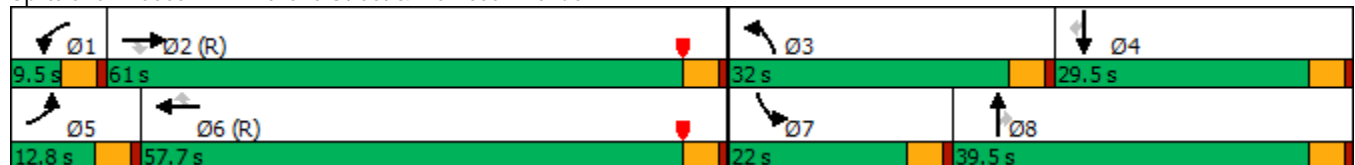
Intersection LOS: E

Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Abilene Street & Alameda Avenue



























HCM 6th Signalized Intersection Summary

2: Abilene Street & Alameda Avenue

























2040 Total PM.syn

03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	2244	489	71	2206	83	415	284	84	108	313	153
Future Volume (veh/h)	144	2244	489	71	2206	83	415	284	84	108	313	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	2362	304	76	2372	46	451	309	48	117	340	84
Peak Hour Factor	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	2467	766	123	2350	730	522	496	420	142	689	307
Arrive On Green	0.06	0.48	0.48	0.07	0.92	0.92	0.15	0.27	0.27	0.08	0.19	0.19
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	1870	1585	1781	3554	1585
Grp Volume(v), veh/h	152	2362	304	76	2372	46	451	309	48	117	340	84
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1870	1585	1781	1777	1585
Q Serve(g_s), s	5.7	58.7	16.2	2.8	60.8	0.3	16.8	19.2	3.0	8.5	11.3	6.0
Cycle Q Clear(g_c), s	5.7	58.7	16.2	2.8	60.8	0.3	16.8	19.2	3.0	8.5	11.3	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	2467	766	123	2350	730	522	496	420	142	689	307
V/C Ratio(X)	0.75	0.96	0.40	0.62	1.01	0.06	0.86	0.62	0.11	0.82	0.49	0.27
Avail Cap(c_a), veh/h	217	2467	766	131	2350	730	720	496	420	236	689	307
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.18	0.18	0.18	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	32.8	21.8	60.4	5.2	2.8	54.7	42.7	36.8	59.8	47.4	45.3
Incr Delay (d2), s/veh	12.9	10.6	1.5	1.5	10.3	0.0	7.5	5.4	0.5	11.2	2.5	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	33.5	10.5	2.0	5.8	0.2	12.3	14.6	2.3	7.7	9.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.1	43.4	23.4	61.9	15.5	2.9	62.2	48.1	37.3	71.0	50.0	47.5
LnGrp LOS	E	D	C	E	F	A	E	D	D	E	D	D
Approach Vol, veh/h	2818			2494			808			541		
Approach Delay, s/veh	42.9			16.7			55.3			54.1		
Approach LOS	D			B			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	68.3	24.5	30.1	12.2	65.3	15.0	39.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	56.5	27.5	25.0	8.3	53.2	17.5	35.0				
Max Q Clear Time (g_c+I1), s	4.8	60.7	18.8	13.3	7.7	62.8	10.5	21.2				
Green Ext Time (p_c), s	0.0	0.0	1.1	1.9	0.0	0.0	0.1	1.6				
Intersection Summary												
HCM 6th Ctrl Delay	35.5											
HCM 6th LOS	D											

Timings 3: Crystal Street & Alameda Avenue

2020 Existing PM.syn
03/12/2020

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	 	  			  			 	
Traffic Volume (vph)	120	1420	167	114	1458	100	51	60	24
Future Volume (vph)	120	1420	167	114	1458	100	51	60	24
Turn Type	D.P+P	NA	Perm	D.P+P	NA	D.P+P	NA	D.P+P	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases	6		2	2		4		8	
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	11.2	69.0	69.0	22.0	79.8	16.0	31.0	10.0	25.0
Total Split (%)	8.5%	52.3%	52.3%	16.7%	60.5%	12.1%	23.5%	7.6%	18.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	None	Max
Act Effect Green (s)	82.0	72.6	72.6	82.0	75.4	32.0	28.5	32.9	21.5
Actuated g/C Ratio	0.62	0.55	0.55	0.62	0.57	0.24	0.22	0.25	0.16
v/c Ratio	0.35	0.55	0.19	0.51	0.57	0.35	0.42	0.15	0.34
Control Delay	11.5	5.1	0.3	31.8	7.5	40.4	30.7	36.2	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	5.1	0.3	31.8	7.5	40.4	30.7	36.2	19.2
LOS	B	A	A	C	A	D	C	D	B
Approach Delay		5.1			9.2		34.5		26.0
Approach LOS		A			A		C		C

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 64.5 (49%), Referenced to phase 2:EBWB and 6:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 9.9



Intersection LOS: A

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Crystal Street & Alameda Avenue






























			
Ø1	Ø2 (R)	Ø3	Ø4
22 s	69 s	16 s	25 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11.2 s	79.8 s	10 s	31 s

HCM 6th Signalized Intersection Summary

3: Crystal Street & Alameda Avenue

2020 Existing PM.syn

























03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			   					 		
Traffic Volume (veh/h)	120	1420	167	114	1458	84	100	51	103	60	24	66
Future Volume (veh/h)	120	1420	167	114	1458	84	100	51	103	60	24	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	1527	180	121	1551	89	112	57	116	76	30	84
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	589	2978	924	300	2914	167	311	110	225	487	74	208
Arrive On Green	0.08	1.00	1.00	0.09	1.00	1.00	0.07	0.20	0.20	0.04	0.17	0.17
Sat Flow, veh/h	3456	5106	1585	1781	4940	283	1781	550	1119	3456	435	1217
Grp Volume(v), veh/h	129	1527	180	121	1069	571	112	0	173	76	0	114
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1819	1781	0	1669	1728	0	1651
Q Serve(g_s), s	1.9	0.0	0.0	3.7	0.0	0.0	6.8	0.0	12.2	2.3	0.0	8.1
Cycle Q Clear(g_c), s	1.9	0.0	0.0	3.7	0.0	0.0	6.8	0.0	12.2	2.3	0.0	8.1
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.67	1.00		0.74
Lane Grp Cap(c), veh/h	589	2978	924	300	2008	1073	311	0	335	487	0	282
V/C Ratio(X)	0.22	0.51	0.19	0.40	0.53	0.53	0.36	0.00	0.52	0.16	0.00	0.40
Avail Cap(c_a), veh/h	634	2978	924	458	2008	1073	349	0	335	508	0	282
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	0.0	0.0	9.4	0.0	0.0	41.3	0.0	47.0	39.9	0.0	48.8
Incr Delay (d2), s/veh	0.1	0.4	0.3	0.7	0.8	1.6	0.7	0.0	5.6	0.1	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	0.2	0.2	2.4	0.4	0.8	5.6	0.0	9.6	1.8	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	0.4	0.3	10.1	0.8	1.6	42.1	0.0	52.6	40.1	0.0	53.1
LnGrp LOS	A	A	A	B	A	A	D	A	D	D	A	D
Approach Vol, veh/h	1836		1761				285		190			
Approach Delay, s/veh	1.0		1.7				48.5		47.9			
Approach LOS	A		A				D		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	81.5	13.2	27.0	9.5	82.4	9.2	31.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	17.5	64.5	11.5	20.5	6.7	75.3	5.5	26.5				
Max Q Clear Time (g_c+l1), s	5.7	2.0	8.8	10.1	3.9	2.0	4.3	14.2				
Green Ext Time (p_c), s	0.2	17.9	0.1	0.4	0.1	17.5	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay	6.8											
HCM 6th LOS	A											

Timings 3: Crystal Street & Alameda Avenue

2021 Background PM.syn

03/12/2020

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	 	  			  			 	
Traffic Volume (vph)	120	1411	168	166	1454	96	54	60	27
Future Volume (vph)	120	1411	168	166	1454	96	54	60	27
Turn Type	D.P+P	NA	Perm	D.P+P	NA	D.P+P	NA	D.P+P	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases	6		2	2		4		8	
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	11.2	65.0	65.0	25.0	78.8	14.2	32.0	10.0	27.8
Total Split (%)	8.5%	49.2%	49.2%	18.9%	59.7%	10.8%	24.2%	7.6%	21.1%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	None	Max
Act Effect Green (s)	81.0	67.8	67.8	81.0	74.4	33.0	29.5	33.9	23.7
Actuated g/C Ratio	0.61	0.51	0.51	0.61	0.56	0.25	0.22	0.26	0.18
v/c Ratio	0.36	0.58	0.20	0.65	0.57	0.33	0.54	0.17	0.32
Control Delay	13.4	5.9	0.4	49.3	8.8	39.4	31.4	35.8	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	5.9	0.4	49.3	8.8	39.4	31.4	35.8	19.7
LOS	B	A	A	D	A	D	C	D	B
Approach Delay		5.8			12.8		33.9		26.0
Approach LOS		A			B		C		C

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 60.5 (46%), Referenced to phase 2:EBWB and 6:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 12.1







Intersection LOS: B

Intersection Capacity Utilization 68.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Crystal Street & Alameda Avenue

























			
Ø1	Ø2 (R)	Ø3	Ø4
25 s	65 s	14.2 s	27.8 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11.2 s	78.8 s	10 s	32 s

HCM 6th Signalized Intersection Summary

3: Crystal Street & Alameda Avenue

























2021 Background PM.syn

03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1411	168	166	1454	84	96	54	159	60	27	66
Future Volume (veh/h)	120	1411	168	166	1454	84	96	54	159	60	27	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	1517	181	177	1547	89	108	61	179	76	34	84
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	585	2849	884	326	2876	165	317	87	256	394	86	214
Arrive On Green	0.08	1.00	1.00	0.12	1.00	1.00	0.06	0.21	0.21	0.04	0.18	0.18
Sat Flow, veh/h	3456	5106	1585	1781	4939	284	1781	419	1230	3456	478	1180
Grp Volume(v), veh/h	129	1517	181	177	1066	570	108	0	240	76	0	118
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1819	1781	0	1649	1728	0	1658
Q Serve(g_s), s	1.9	0.0	0.0	5.8	0.0	0.0	6.4	0.0	17.8	2.2	0.0	8.3
Cycle Q Clear(g_c), s	1.9	0.0	0.0	5.8	0.0	0.0	6.4	0.0	17.8	2.2	0.0	8.3
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.75	1.00		0.71
Lane Grp Cap(c), veh/h	585	2849	884	326	1982	1059	317	0	344	394	0	300
V/C Ratio(X)	0.22	0.53	0.20	0.54	0.54	0.54	0.34	0.00	0.70	0.19	0.00	0.39
Avail Cap(c_a), veh/h	631	2849	884	492	1982	1059	336	0	344	416	0	300
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.81	0.81	0.81	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	9.9	0.0	0.0	40.5	0.0	48.4	39.8	0.0	47.7
Incr Delay (d2), s/veh	0.1	0.5	0.3	1.1	0.9	1.6	0.6	0.0	11.2	0.2	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	0.2	0.1	3.7	0.4	0.8	5.3	0.0	13.2	1.8	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.6	0.5	0.3	11.1	0.9	1.6	41.1	0.0	59.6	40.1	0.0	51.5
LnGrp LOS	A	A	A	B	A	A	D	A	E	D	A	D
Approach Vol, veh/h	1827		1813				348		194			
Approach Delay, s/veh	1.1		2.1				53.9		47.0			
Approach LOS	A		A				D		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.7	78.2	12.8	28.4	9.5	81.4	9.2	32.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.5	60.5	9.7	23.3	6.7	74.3	5.5	27.5				
Max Q Clear Time (g_c+l1), s	7.8	2.0	8.4	10.3	3.9	2.0	4.2	19.8				
Green Ext Time (p_c), s	0.4	17.5	0.0	0.5	0.1	17.4	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	8.0											
HCM 6th LOS	A											

Timings 3: Crystal Street & Alameda Avenue

2021 Total PM.syn
03/12/2020

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	 	  			  			 	
Traffic Volume (vph)	120	1411	192	190	1454	114	59	60	33
Future Volume (vph)	120	1411	192	190	1454	114	59	60	33
Turn Type	D.P+P	NA	Perm	D.P+P	NA	D.P+P	NA	D.P+P	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases	6		2	2		4		8	
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	11.0	55.0	55.0	20.0	64.0	34.0	47.0	10.0	23.0
Total Split (%)	8.3%	41.7%	41.7%	15.2%	48.5%	25.8%	35.6%	7.6%	17.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	None	Max
Act Effect Green (s)	66.0	51.9	51.9	66.0	59.5	48.0	44.5	48.9	36.3
Actuated g/C Ratio	0.50	0.39	0.39	0.50	0.45	0.36	0.34	0.37	0.28
v/c Ratio	0.46	0.76	0.28	0.82	0.72	0.27	0.42	0.11	0.25
Control Delay	31.9	10.1	0.7	83.4	14.2	27.6	20.6	25.0	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	31.9	10.1	0.7	83.4	14.3	27.6	20.6	25.0	21.2
LOS	C	B	A	F	B	C	C	C	C
Approach Delay		10.6			21.9		22.9		22.7
Approach LOS		B			C		C		C

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 58.5 (44%), Referenced to phase 2:EBWB and 6:EBWB, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 17.1

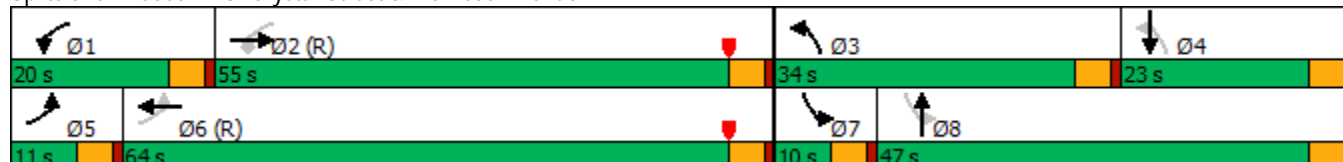
Intersection LOS: B

Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Crystal Street & Alameda Avenue



























HCM 6th Signalized Intersection Summary

3: Crystal Street & Alameda Avenue

2021 Total PM.syn

03/12/2020



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1411	192	190	1454	84	114	59	177	60	33	66
Future Volume (veh/h)	120	1411	192	190	1454	84	114	59	177	60	33	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	1517	206	202	1547	89	128	66	199	76	42	84
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.89	0.89	0.89	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	486	2162	671	290	2314	133	468	132	398	647	162	324
Arrive On Green	0.08	0.85	0.85	0.17	0.94	0.94	0.07	0.32	0.32	0.04	0.29	0.29
Sat Flow, veh/h	3456	5106	1585	1781	4939	284	1781	410	1237	3456	557	1113
Grp Volume(v), veh/h	129	1517	206	202	1066	570	128	0	265	76	0	126
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1819	1781	0	1648	1728	0	1670
Q Serve(g_s), s	2.5	14.8	3.6	8.7	7.0	7.0	6.6	0.0	17.2	1.9	0.0	7.6
Cycle Q Clear(g_c), s	2.5	14.8	3.6	8.7	7.0	7.0	6.6	0.0	17.2	1.9	0.0	7.6
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.75	1.00		0.67
Lane Grp Cap(c), veh/h	486	2162	671	290	1595	852	468	0	530	647	0	486
V/C Ratio(X)	0.27	0.70	0.31	0.70	0.67	0.67	0.27	0.00	0.50	0.12	0.00	0.26
Avail Cap(c_a), veh/h	527	2162	671	352	1595	852	747	0	530	668	0	486
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.56	0.56	0.56	0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	7.0	6.1	18.8	2.4	2.4	29.6	0.0	36.2	29.0	0.0	35.9
Incr Delay (d2), s/veh	0.2	1.1	0.7	3.7	1.8	3.3	0.3	0.0	3.3	0.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	4.9	2.1	6.0	2.6	3.4	5.3	0.0	12.0	1.5	0.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	8.0	6.8	22.4	4.2	5.7	29.9	0.0	39.5	29.1	0.0	37.2
LnGrp LOS	B	A	A	C	A	A	C	A	D	C	A	D
Approach Vol, veh/h	1852			1838			393			202		
Approach Delay, s/veh	8.5			6.7			36.4			34.1		
Approach LOS	A			A			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.4	60.4	13.3	42.9	9.5	66.4	9.2	47.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	50.5	29.5	18.5	6.5	59.5	5.5	42.5				
Max Q Clear Time (g_c+l1), s	10.7	16.8	8.6	9.6	4.5	9.0	3.9	19.2				
Green Ext Time (p_c), s	0.2	14.9	0.3	0.4	0.1	16.4	0.0	1.8				
Intersection Summary												
HCM 6th Ctrl Delay	11.5											
HCM 6th LOS	B											

Timings

3: Crystal Street & Alameda Avenue

2040 Background PM.syn

03/12/2020

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	120	2073	168	166	2133	96	54	60	27
Future Volume (vph)	120	2073	168	166	2133	96	54	60	27
Turn Type	D.P+P	NA	Perm	D.P+P	NA	D.P+P	NA	D.P+P	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases	6		2	2		4		8	
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	11.7	70.7	70.7	20.0	79.0	17.7	31.3	10.0	23.6
Total Split (%)	8.9%	53.6%	53.6%	15.2%	59.8%	13.4%	23.7%	7.6%	17.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	None	Max
Act Effect Green (s)	81.7	68.8	68.8	81.7	74.8	32.3	28.8	33.2	21.3
Actuated g/C Ratio	0.62	0.52	0.52	0.62	0.57	0.24	0.22	0.25	0.16
v/c Ratio	0.44	0.84	0.20	0.77	0.82	0.31	0.53	0.15	0.31
Control Delay	28.9	5.8	0.1	61.3	10.6	39.4	31.1	36.0	20.6
Queue Delay	0.0	0.3	0.0	0.0	6.4	0.0	0.0	0.0	0.0
Total Delay	28.9	6.1	0.1	61.3	17.0	39.4	31.1	36.0	20.7
LOS	C	A	A	E	B	D	C	D	C
Approach Delay		6.8			20.1		33.7		26.7
Approach LOS		A			C		C		C

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 66.2 (50%), Referenced to phase 2:EBWB and 6:EBWB, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 15.1







Intersection LOS: B

Intersection Capacity Utilization 81.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Crystal Street & Alameda Avenue

























			
Ø1	Ø2 (R)	Ø3	Ø4
20 s	70.7 s	17.7 s	23.6 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11.7 s	79 s	10 s	31.3 s

HCM 6th Signalized Intersection Summary

3: Crystal Street & Alameda Avenue

2040 Background PM.syn

























03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	2073	168	166	2133	84	96	54	159	60	27	66
Future Volume (veh/h)	120	2073	168	166	2133	84	96	54	159	60	27	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	2229	181	177	2269	89	104	59	173	65	29	72
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	412	2889	897	243	2968	116	323	85	250	390	84	208
Arrive On Green	0.08	1.00	1.00	0.12	1.00	1.00	0.06	0.20	0.20	0.03	0.18	0.18
Sat Flow, veh/h	3456	5106	1585	1781	5042	197	1781	419	1230	3456	476	1182
Grp Volume(v), veh/h	129	2229	181	177	1528	830	104	0	232	65	0	101
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1835	1781	0	1649	1728	0	1658
Q Serve(g_s), s	1.9	0.0	0.0	5.7	0.0	0.0	6.2	0.0	17.2	1.9	0.0	7.1
Cycle Q Clear(g_c), s	1.9	0.0	0.0	5.7	0.0	0.0	6.2	0.0	17.2	1.9	0.0	7.1
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.75	1.00		0.71
Lane Grp Cap(c), veh/h	412	2889	897	243	2004	1080	323	0	335	390	0	291
V/C Ratio(X)	0.31	0.77	0.20	0.73	0.76	0.77	0.32	0.00	0.69	0.17	0.00	0.35
Avail Cap(c_a), veh/h	470	2889	897	345	2004	1080	391	0	335	415	0	291
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.12	0.12	0.12	0.43	0.43	0.43	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.2	0.0	0.0	12.3	0.0	0.0	41.0	0.0	48.8	40.3	0.0	47.8
Incr Delay (d2), s/veh	0.1	0.3	0.1	2.0	1.2	2.3	0.6	0.0	11.2	0.2	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	0.1	0.0	3.6	0.6	1.3	5.1	0.0	12.9	1.5	0.0	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.3	0.3	0.1	14.2	1.2	2.3	41.5	0.0	60.0	40.5	0.0	51.0
LnGrp LOS	A	A	A	B	A	A	D	A	E	D	A	D
Approach Vol, veh/h	2539		2535			336			166			
Approach Delay, s/veh	0.7		2.5			54.3			46.9			
Approach LOS	A		A			D			D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.5	79.2	12.6	27.7	9.5	82.2	9.0	31.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	66.2	13.2	19.1	7.2	74.5	5.5	26.8				
Max Q Clear Time (g_c+l1), s	7.7	2.0	8.2	9.1	3.9	2.0	3.9	19.2				
Green Ext Time (p_c), s	0.3	35.5	0.1	0.3	0.1	36.7	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay	6.1											
HCM 6th LOS	A											

Timings 3: Crystal Street & Alameda Avenue

2040 Total PM.syn

03/12/2020

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	 	  			  			 	
Traffic Volume (vph)	120	2073	192	190	2133	114	59	60	33
Future Volume (vph)	120	2073	192	190	2133	114	59	60	33
Turn Type	D.P+P	NA	Perm	D.P+P	NA	D.P+P	NA	D.P+P	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases	6		2	2		4		8	
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	11.0	57.0	57.0	20.0	66.0	32.0	45.0	10.0	23.0
Total Split (%)	8.3%	43.2%	43.2%	15.2%	50.0%	24.2%	34.1%	7.6%	17.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	None	Max
Act Effect Green (s)	68.0	54.0	54.0	68.0	61.5	46.0	42.5	46.9	34.3
Actuated g/C Ratio	0.52	0.41	0.41	0.52	0.47	0.35	0.32	0.36	0.26
v/c Ratio	0.46	1.07	0.28	0.82	1.00	0.26	0.42	0.10	0.22
Control Delay	27.7	52.5	1.2	68.1	32.2	28.9	21.3	26.2	19.6
Queue Delay	0.0	0.0	0.0	0.0	37.9	0.0	0.0	0.0	0.0
Total Delay	27.7	52.5	1.2	68.1	70.1	28.9	21.3	26.2	19.6
LOS	C	D	A	E	E	C	C	C	B
Approach Delay		47.2			69.9		23.8		22.1
Approach LOS		D			E		C		C

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 59.5 (45%), Referenced to phase 2:EBWB and 6:EBWB, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 55.1

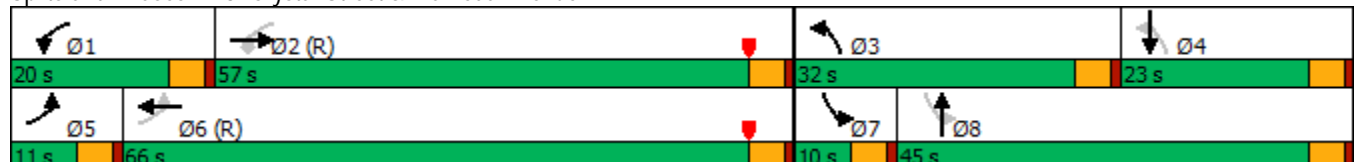
Intersection LOS: E

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Crystal Street & Alameda Avenue



























HCM 6th Signalized Intersection Summary

3: Crystal Street & Alameda Avenue

2040 Total PM.syn


































03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	2073	192	190	2133	84	114	59	177	60	33	66
Future Volume (veh/h)	120	2073	192	190	2133	84	114	59	177	60	33	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	2229	206	202	2269	89	124	64	192	65	36	72
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	339	2181	677	224	2445	95	461	126	379	619	153	306
Arrive On Green	0.08	0.85	0.85	0.19	0.97	0.97	0.07	0.31	0.31	0.03	0.28	0.28
Sat Flow, veh/h	3456	5106	1585	1781	5042	197	1781	412	1236	3456	557	1113
Grp Volume(v), veh/h	129	2229	206	202	1528	830	124	0	256	65	0	108
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1835	1781	0	1648	1728	0	1670
Q Serve(g_s), s	2.4	56.4	3.4	10.4	17.5	18.9	6.5	0.0	16.8	1.7	0.0	6.6
Cycle Q Clear(g_c), s	2.4	56.4	3.4	10.4	17.5	18.9	6.5	0.0	16.8	1.7	0.0	6.6
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.75	1.00		0.67
Lane Grp Cap(c), veh/h	339	2181	677	224	1651	890	461	0	506	619	0	460
V/C Ratio(X)	0.38	1.02	0.30	0.90	0.93	0.93	0.27	0.00	0.51	0.11	0.00	0.23
Avail Cap(c_a), veh/h	380	2181	677	264	1651	890	715	0	506	644	0	460
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.41	0.41	0.41	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	9.6	5.8	34.1	1.3	1.3	31.0	0.0	37.5	30.3	0.0	37.1
Incr Delay (d2), s/veh	0.1	12.7	0.1	14.3	4.9	8.9	0.3	0.0	3.6	0.1	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	7.6	1.5	9.4	3.3	4.8	5.2	0.0	11.9	1.3	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	22.3	5.9	48.4	6.2	10.2	31.3	0.0	41.1	30.4	0.0	38.3
LnGrp LOS	B	F	A	D	A	B	C	A	D	C	A	D
Approach Vol, veh/h	2564		2560			380			173			
Approach Delay, s/veh	20.7		10.8			37.9			35.3			
Approach LOS	C		B			D			D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.1	60.9	13.2	40.8	9.5	68.5	9.0	45.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	52.5	27.5	18.5	6.5	61.5	5.5	40.5				
Max Q Clear Time (g_c+l1), s	12.4	58.4	8.5	8.6	4.4	20.9	3.7	18.8				
Green Ext Time (p_c), s	0.2	0.0	0.3	0.3	0.1	26.6	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			17.8									
HCM 6th LOS			B									

Timings

4: Sable Boulevard & Alameda Avenue

2020 Existing PM.syn
03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	125	1304	194	71	1328	197	154	320	40	309	469	128
Future Volume (vph)	125	1304	194	71	1328	197	154	320	40	309	469	128
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Prot	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8	8	5	2		1	6	
Permitted Phases	8		4	4			6		2	2		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	21.0	73.0	73.0	10.0	62.0	62.0	13.0	30.0	30.0	19.0	36.0	36.0
Total Split (%)	15.9%	55.3%	55.3%	7.6%	47.0%	47.0%	9.8%	22.7%	22.7%	14.4%	27.3%	27.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	74.0	70.5	70.5	74.9	63.3	63.3	40.0	26.4	26.4	40.0	31.7	31.7
Actuated g/C Ratio	0.56	0.53	0.53	0.57	0.48	0.48	0.30	0.20	0.20	0.30	0.24	0.24
v/c Ratio	0.57	0.53	0.23	0.21	0.59	0.25	0.37	0.50	0.10	0.53	0.59	0.29
Control Delay	38.5	11.2	1.3	12.5	26.6	6.8	33.1	50.1	0.5	35.6	47.9	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	11.2	1.3	12.5	26.6	6.8	33.1	50.1	0.5	35.6	47.9	9.2
LOS	D	B	A	B	C	A	C	D	A	D	D	A
Approach Delay		12.1			23.6			41.2			38.2	
Approach LOS		B			C			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 57.5 (44%), Referenced to phase 4:EBWB and 8:EBWB, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 24.3

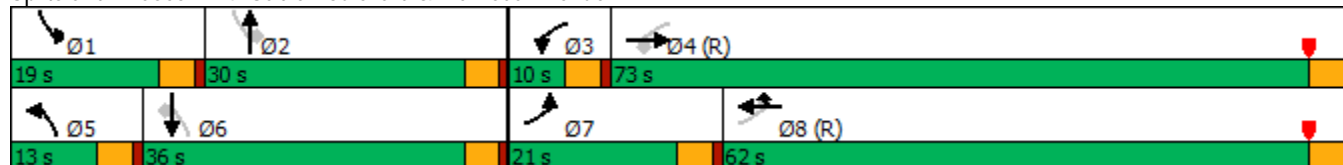
Intersection LOS: C

Intersection Capacity Utilization 65.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Sable Boulevard & Alameda Avenue




































HCM 6th Signalized Intersection Summary

2020 Existing PM.syn

4: Sable Boulevard & Alameda Avenue

03/12/2020

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (veh/h)	125	1304	194	71	1328	197	154	320	40	309	469	128
Future Volume (veh/h)	125	1304	194	71	1328	197	154	320	40	309	469	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	1433	125	77	1443	214	171	356	22	332	504	73
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.90	0.90	0.90	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	2741	851	577	2652	823	474	705	314	643	848	378
Arrive On Green	0.11	1.00	1.00	0.04	0.52	0.52	0.05	0.20	0.20	0.09	0.24	0.24
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	137	1433	125	77	1443	214	171	356	22	332	504	73
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	4.8	0.0	0.0	1.3	25.0	9.9	4.9	11.8	1.5	9.9	16.6	4.9
Cycle Q Clear(g_c), s	4.8	0.0	0.0	1.3	25.0	9.9	4.9	11.8	1.5	9.9	16.6	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	2741	851	577	2652	823	474	705	314	643	848	378
V/C Ratio(X)	0.55	0.52	0.15	0.13	0.54	0.26	0.36	0.51	0.07	0.52	0.59	0.19
Avail Cap(c_a), veh/h	376	2741	851	598	2652	823	515	705	314	701	848	378
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	0.0	12.3	21.3	17.6	36.1	47.1	43.0	37.3	44.6	40.1
Incr Delay (d2), s/veh	1.6	0.6	0.3	0.1	0.8	0.8	0.5	2.5	0.4	0.6	3.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.3	0.3	0.1	0.9	14.9	6.7	3.8	9.2	1.1	7.6	12.2	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.9	0.6	0.3	12.4	22.1	18.4	36.5	49.7	43.4	38.0	47.6	41.2
LnGrp LOS	B	A	A	B	C	B	D	D	D	D	D	D
Approach Vol, veh/h		1695			1734			549			909	
Approach Delay, s/veh		2.0			21.2			45.3			43.6	
Approach LOS		A			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.8	30.7	9.2	75.4	11.4	36.0	11.5	73.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.5	25.5	5.5	68.5	8.5	31.5	16.5	57.5				
Max Q Clear Time (g_c+l1), s	11.9	13.8	3.3	2.0	6.9	18.6	6.8	27.0				
Green Ext Time (p_c), s	0.3	1.7	0.0	15.7	0.1	2.8	0.2	13.5				
Intersection Summary												
HCM 6th Ctrl Delay			21.4									
HCM 6th LOS			C									

Timings

4: Sable Boulevard & Alameda Avenue

2021 Background PM.syn

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1330	198	72	1355	201	157	326	41	315	478	131
Future Volume (vph)	128	1330	198	72	1355	201	157	326	41	315	478	131
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Prot	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8	8	5	2		1	6	
Permitted Phases	8		4	4			6		2	2		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	21.0	73.0	73.0	10.0	62.0	62.0	13.0	31.0	31.0	18.0	36.0	36.0
Total Split (%)	15.9%	55.3%	55.3%	7.6%	47.0%	47.0%	9.8%	23.5%	23.5%	13.6%	27.3%	27.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	74.0	70.5	70.5	74.9	62.8	62.8	40.0	26.9	26.9	40.0	31.7	31.7
Actuated g/C Ratio	0.56	0.53	0.53	0.57	0.48	0.48	0.30	0.20	0.20	0.30	0.24	0.24
v/c Ratio	0.59	0.54	0.23	0.21	0.61	0.26	0.39	0.50	0.10	0.55	0.61	0.29
Control Delay	41.6	11.4	1.8	12.6	27.3	7.2	33.3	49.5	0.5	36.0	48.2	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	11.4	1.8	12.6	27.3	7.2	33.3	49.5	0.5	36.0	48.2	9.8
LOS	D	B	A	B	C	A	C	D	A	D	D	A
Approach Delay		12.6			24.2			40.8			38.6	
Approach LOS		B			C			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 57.5 (44%), Referenced to phase 4:EBWB and 8:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 24.7









Intersection LOS: C

Intersection Capacity Utilization 66.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Sable Boulevard & Alameda Avenue

























			
Ø1	Ø2	Ø3	Ø4 (R)
18 s	31 s	10 s	73 s
			
Ø5	Ø6	Ø7	Ø8 (R)
13 s	36 s	21 s	62 s

HCM 6th Signalized Intersection Summary

4: Sable Boulevard & Alameda Avenue

2021 Background PM.syn

03/12/2020

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	1330	198	72	1355	201	157	326	41	315	478	131
Future Volume (veh/h)	128	1330	198	72	1355	201	157	326	41	315	478	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	1462	130	78	1473	218	174	362	24	339	514	76
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.90	0.90	0.90	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	244	2726	846	564	2629	816	473	713	318	645	856	382
Arrive On Green	0.11	1.00	1.00	0.04	0.51	0.51	0.05	0.20	0.20	0.09	0.24	0.24
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	141	1462	130	78	1473	218	174	362	24	339	514	76
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	5.0	0.0	0.0	1.3	26.0	10.2	4.9	12.0	1.6	10.1	16.9	5.0
Cycle Q Clear(g_c), s	5.0	0.0	0.0	1.3	26.0	10.2	4.9	12.0	1.6	10.1	16.9	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	244	2726	846	564	2629	816	473	713	318	645	856	382
V/C Ratio(X)	0.58	0.54	0.15	0.14	0.56	0.27	0.37	0.51	0.08	0.53	0.60	0.20
Avail Cap(c_a), veh/h	370	2726	846	585	2629	816	512	713	318	676	856	382
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	0.0	12.5	21.8	18.0	35.9	46.9	42.8	37.1	44.5	39.9
Incr Delay (d2), s/veh	1.7	0.6	0.3	0.1	0.9	0.8	0.5	2.5	0.5	0.7	3.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	0.3	0.1	0.9	15.4	6.9	3.8	9.3	1.2	7.8	12.4	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	0.6	0.3	12.6	22.7	18.8	36.3	49.5	43.3	37.8	47.6	41.1
LnGrp LOS	B	A	A	B	C	B	D	D	D	D	D	D
Approach Vol, veh/h		1733			1769			560			929	
Approach Delay, s/veh		2.1			21.8			45.1			43.5	
Approach LOS		A			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.8	31.0	9.2	75.0	11.5	36.3	11.7	72.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.5	26.5	5.5	68.5	8.5	31.5	16.5	57.5				
Max Q Clear Time (g_c+l1), s	12.1	14.0	3.3	2.0	6.9	18.9	7.0	28.0				
Green Ext Time (p_c), s	0.2	1.8	0.0	16.3	0.1	2.9	0.2	13.6				
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									

Timings

4: Sable Boulevard & Alameda Avenue

2021 Total PM.syn

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	1339	198	84	1367	201	157	326	50	315	478	143
Future Volume (vph)	137	1339	198	84	1367	201	157	326	50	315	478	143
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Prot	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8	8	5	2		1	6	
Permitted Phases	8		4	4			6		2	2		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	73.0	73.0	10.0	61.0	61.0	13.0	31.0	31.0	18.0	36.0	36.0
Total Split (%)	16.7%	55.3%	55.3%	7.6%	46.2%	46.2%	9.8%	23.5%	23.5%	13.6%	27.3%	27.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	74.0	68.5	68.5	74.0	62.0	62.0	40.0	26.9	26.9	40.0	31.7	31.7
Actuated g/C Ratio	0.56	0.52	0.52	0.56	0.47	0.47	0.30	0.20	0.20	0.30	0.24	0.24
v/c Ratio	0.62	0.56	0.24	0.26	0.62	0.26	0.39	0.50	0.12	0.55	0.61	0.32
Control Delay	48.4	12.3	2.4	13.1	28.2	7.4	33.3	49.5	0.6	36.0	48.2	9.7
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	12.3	2.4	13.1	28.2	7.4	33.3	49.5	0.6	36.0	48.2	9.7
LOS	D	B	A	B	C	A	C	D	A	D	D	A
Approach Delay		14.1			24.9			40.1			38.2	
Approach LOS		B			C			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 56.5 (43%), Referenced to phase 4:EBWB and 8:EBWB, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 25.4

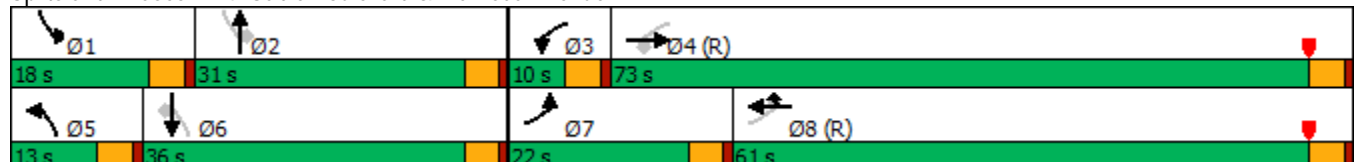
Intersection LOS: C

Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 4: Sable Boulevard & Alameda Avenue




































HCM 6th Signalized Intersection Summary

2021 Total PM.syn

03/12/2020

4: Sable Boulevard & Alameda Avenue

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (veh/h)	137	1339	198	84	1367	201	157	326	50	315	478	143
Future Volume (veh/h)	137	1339	198	84	1367	201	157	326	50	315	478	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	1471	130	91	1486	218	174	362	34	339	514	89
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.90	0.90	0.90	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	247	2722	845	564	2612	811	471	713	318	643	856	382
Arrive On Green	0.12	1.00	1.00	0.04	0.51	0.51	0.05	0.20	0.20	0.09	0.24	0.24
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	151	1471	130	91	1486	218	174	362	34	339	514	89
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	5.4	0.0	0.0	1.5	26.5	10.3	4.9	12.0	2.3	10.1	16.9	6.0
Cycle Q Clear(g_c), s	5.4	0.0	0.0	1.5	26.5	10.3	4.9	12.0	2.3	10.1	16.9	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	247	2722	845	564	2612	811	471	713	318	643	856	382
V/C Ratio(X)	0.61	0.54	0.15	0.16	0.57	0.27	0.37	0.51	0.11	0.53	0.60	0.23
Avail Cap(c_a), veh/h	380	2722	845	581	2612	811	510	713	318	674	856	382
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.61	1.00	1.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.5	0.0	0.0	12.6	22.2	18.3	35.9	46.9	43.1	37.1	44.5	40.3
Incr Delay (d2), s/veh	1.5	0.5	0.2	0.1	0.9	0.8	0.5	2.5	0.7	0.7	3.1	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.2	0.1	1.1	15.7	7.0	3.8	9.3	1.7	7.8	12.4	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.0	0.5	0.2	12.7	23.1	19.1	36.3	49.4	43.7	37.8	47.6	41.7
LnGrp LOS	B	A	A	B	C	B	D	D	D	D	D	D
Approach Vol, veh/h		1752			1795			570			942	
Approach Delay, s/veh		2.1			22.1			45.1			43.5	
Approach LOS		A			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.8	31.0	9.3	74.9	11.5	36.3	12.2	72.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.5	26.5	5.5	68.5	8.5	31.5	17.5	56.5				
Max Q Clear Time (g_c+l1), s	12.1	14.0	3.5	2.0	6.9	18.9	7.4	28.5				
Green Ext Time (p_c), s	0.2	1.9	0.0	16.5	0.1	2.9	0.3	13.4				
Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

Timings

4: Sable Boulevard & Alameda Avenue

2040 Background PM.syn

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	1938	288	106	1973	293	229	476	59	459	697	190
Future Volume (vph)	186	1938	288	106	1973	293	229	476	59	459	697	190
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Prot	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8	8	5	2		1	6	
Permitted Phases	8		4	4			6		2	2		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	18.0	74.6	74.6	10.4	67.0	67.0	12.0	26.0	26.0	21.0	35.0	35.0
Total Split (%)	13.6%	56.5%	56.5%	7.9%	50.8%	50.8%	9.1%	19.7%	19.7%	15.9%	26.5%	26.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	76.0	70.1	70.1	76.0	63.1	63.1	38.0	21.5	21.5	38.0	30.5	30.5
Actuated g/C Ratio	0.58	0.53	0.53	0.58	0.48	0.48	0.29	0.16	0.16	0.29	0.23	0.23
v/c Ratio	0.88	0.78	0.34	0.44	0.88	0.38	0.82	0.90	0.16	0.92	0.92	0.44
Control Delay	75.1	16.5	5.7	16.1	36.7	11.8	56.1	73.6	0.9	59.9	66.4	19.8
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.1	16.8	5.7	16.1	36.7	11.8	56.1	73.6	0.9	59.9	66.4	19.8
LOS	E	B	A	B	D	B	E	E	A	E	E	B
Approach Delay		20.0			32.7			62.7			57.6	
Approach LOS		B			C			E			E	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 62.5 (47%), Referenced to phase 4:EBWB and 8:EBWB, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 36.4

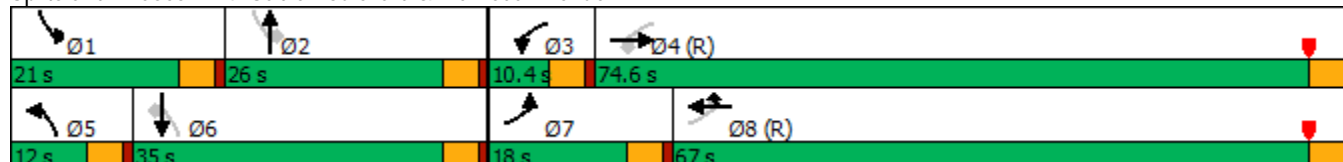
Intersection LOS: D

Intersection Capacity Utilization 89.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Sable Boulevard & Alameda Avenue



























HCM 6th Signalized Intersection Summary

4: Sable Boulevard & Alameda Avenue

2040 Background PM.syn

03/12/2020


































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	1938	288	106	1973	293	229	476	59	459	697	190
Future Volume (veh/h)	186	1938	288	106	1973	293	229	476	59	459	697	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	202	2107	226	115	2145	318	249	517	42	494	749	139
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	2749	853	400	2501	776	337	579	258	575	821	366
Arrive On Green	0.17	1.00	1.00	0.04	0.49	0.49	0.06	0.16	0.16	0.13	0.23	0.23
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	202	2107	226	115	2145	318	249	517	42	494	749	139
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	9.2	0.0	0.0	1.9	48.8	16.9	7.3	18.8	3.0	15.7	27.1	9.8
Cycle Q Clear(g_c), s	9.2	0.0	0.0	1.9	48.8	16.9	7.3	18.8	3.0	15.7	27.1	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	224	2749	853	400	2501	776	337	579	258	575	821	366
V/C Ratio(X)	0.90	0.77	0.26	0.29	0.86	0.41	0.74	0.89	0.16	0.86	0.91	0.38
Avail Cap(c_a), veh/h	253	2749	853	425	2501	776	337	579	258	575	821	366
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.46	0.46	0.46	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	0.0	12.3	29.6	21.5	39.4	54.1	47.5	40.7	49.4	42.8
Incr Delay (d2), s/veh	16.8	1.0	0.3	0.4	4.1	1.6	8.0	18.0	1.3	12.5	16.2	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.8	0.4	0.1	1.3	27.2	10.6	6.2	14.8	2.3	12.1	19.8	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	1.0	0.3	12.7	33.7	23.1	47.4	72.1	48.8	53.2	65.6	45.7
LnGrp LOS	D	A	A	B	C	C	D	E	D	D	E	D
Approach Vol, veh/h		2535			2578			808			1382	
Approach Delay, s/veh		4.7			31.5			63.3			59.2	
Approach LOS		A			C			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	26.0	9.4	75.6	12.0	35.0	15.8	69.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	16.5	21.5	5.9	70.1	7.5	30.5	13.5	62.5				
Max Q Clear Time (g_c+l1), s	17.7	20.8	3.9	2.0	9.3	29.1	11.2	50.8				
Green Ext Time (p_c), s	0.0	0.3	0.1	33.6	0.0	0.8	0.1	10.0				
Intersection Summary												
HCM 6th Ctrl Delay			30.9									
HCM 6th LOS			C									

Timings

4: Sable Boulevard & Alameda Avenue

2040 Total PM.syn

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	195	1947	288	118	1985	293	229	476	68	459	697	202
Future Volume (vph)	195	1947	288	118	1985	293	229	476	68	459	697	202
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Prot	D.P+P	NA	Perm	D.P+P	NA	Perm
Protected Phases	7	4		3	8	8	5	2		1	6	
Permitted Phases	8		4	4			6		2	2		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	19.0	75.0	75.0	11.0	67.0	67.0	12.0	26.0	26.0	20.0	34.0	34.0
Total Split (%)	14.4%	56.8%	56.8%	8.3%	50.8%	50.8%	9.1%	19.7%	19.7%	15.2%	25.8%	25.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Act Effect Green (s)	77.0	70.6	70.6	77.0	63.2	63.2	37.0	21.5	21.5	37.0	29.5	29.5
Actuated g/C Ratio	0.58	0.53	0.53	0.58	0.48	0.48	0.28	0.16	0.16	0.28	0.22	0.22
v/c Ratio	0.88	0.78	0.34	0.46	0.89	0.38	0.82	0.90	0.19	0.96	0.95	0.47
Control Delay	69.2	12.9	3.0	16.9	36.9	11.8	56.8	73.6	1.1	70.0	72.1	20.7
Queue Delay	0.0	0.3	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	13.1	3.0	16.9	39.0	11.8	56.8	73.6	1.1	70.0	72.1	20.8
LOS	E	B	A	B	D	B	E	E	A	E	E	C
Approach Delay		16.4			34.6			62.2			63.8	
Approach LOS		B			C			E			E	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 62.5 (47%), Referenced to phase 4:EBWB and 8:EBWB, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 37.0

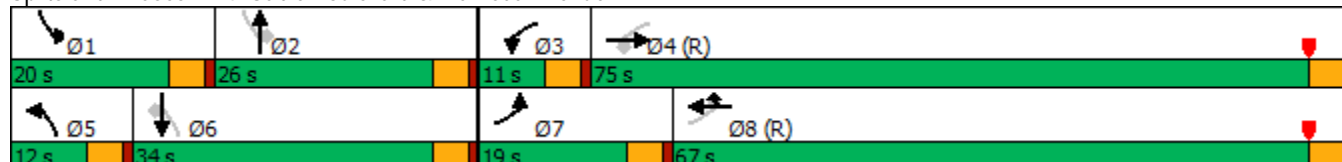
Intersection LOS: D

Intersection Capacity Utilization 90.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Sable Boulevard & Alameda Avenue




































HCM 6th Signalized Intersection Summary

2040 Total PM.syn

4: Sable Boulevard & Alameda Avenue



















03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (veh/h)	195	1947	288	118	1985	293	229	476	68	459	697	202
Future Volume (veh/h)	195	1947	288	118	1985	293	229	476	68	459	697	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	2116	226	128	2158	318	249	517	52	494	749	152
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	2787	865	401	2510	779	325	579	258	548	794	354
Arrive On Green	0.18	1.00	1.00	0.04	0.49	0.49	0.06	0.16	0.16	0.12	0.22	0.22
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	212	2116	226	128	2158	318	249	517	52	494	749	152
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	10.0	0.0	0.0	2.1	49.1	16.8	7.4	18.8	3.7	15.5	27.4	10.9
Cycle Q Clear(g_c), s	10.0	0.0	0.0	2.1	49.1	16.8	7.4	18.8	3.7	15.5	27.4	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	234	2787	865	401	2510	779	325	579	258	548	794	354
V/C Ratio(X)	0.91	0.76	0.26	0.32	0.86	0.41	0.77	0.89	0.20	0.90	0.94	0.43
Avail Cap(c_a), veh/h	266	2787	865	442	2510	779	325	579	258	548	794	354
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	0.0	11.9	29.5	21.3	40.1	54.1	47.8	41.9	50.4	44.0
Incr Delay (d2), s/veh	4.1	0.2	0.1	0.5	4.1	1.6	10.0	18.0	1.7	18.0	20.7	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.6	0.1	0.0	1.5	27.4	10.6	6.4	14.8	2.9	12.7	20.5	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	0.2	0.1	12.4	33.7	22.9	50.1	72.1	49.5	59.9	71.2	47.8
LnGrp LOS	D	A	A	B	C	C	D	E	D	E	E	D
Approach Vol, veh/h		2554			2604			818			1395	
Approach Delay, s/veh		3.2			31.3			64.0			64.6	
Approach LOS		A			C			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.0	26.0	9.5	76.5	12.0	34.0	16.6	69.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	15.5	21.5	6.5	70.5	7.5	29.5	14.5	62.5				
Max Q Clear Time (g_c+l1), s	17.5	20.8	4.1	2.0	9.4	29.4	12.0	51.1				
Green Ext Time (p_c), s	0.0	0.3	0.1	33.9	0.0	0.1	0.1	9.8				
Intersection Summary												
HCM 6th Ctrl Delay			31.5									
HCM 6th LOS			C									

Timings 5: Sable Boulevard & Centrepont Drive

2020 Existing PM.syn

03/12/2020

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	78	51	68	59	56	391	36	46	614
Future Volume (vph)	78	51	68	59	56	391	36	46	614
Turn Type	Prot	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases			8		2		2	6	
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	16.0	28.0	11.0	23.0	12.0	41.0	41.0	10.0	39.0
Total Split (%)	17.8%	31.1%	12.2%	25.6%	13.3%	45.6%	45.6%	11.1%	43.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effect Green (s)	9.5	10.5	12.7	7.5	55.7	55.7	55.7	52.1	52.1
Actuated g/C Ratio	0.11	0.12	0.14	0.08	0.62	0.62	0.62	0.58	0.58
v/c Ratio	0.49	0.60	0.37	0.34	0.15	0.20	0.04	0.08	0.37
Control Delay	46.6	25.4	31.8	27.4	11.1	9.9	0.1	12.9	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	25.4	31.8	27.4	11.1	9.9	0.1	12.9	12.8
LOS	D	C	C	C	B	A	A	B	B
Approach Delay		32.9		29.2		9.3			12.8
Approach LOS		C		C		A			B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 24.5 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 16.3

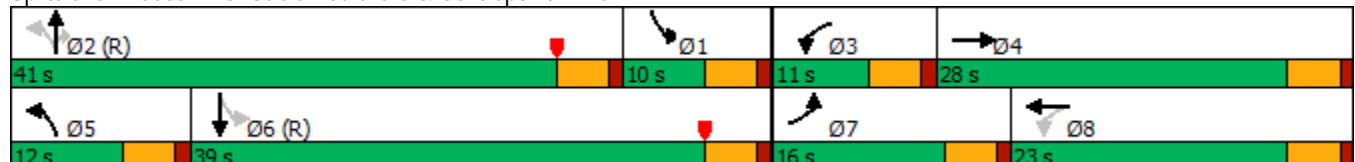
Intersection LOS: B

Intersection Capacity Utilization 51.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepont Drive
























HCM 6th Signalized Intersection Summary

5: Sable Boulevard & Centrepont Drive

2020 Existing PM.syn



















03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	51	92	68	59	37	56	391	36	46	614	88
Future Volume (veh/h)	78	51	92	68	59	37	56	391	36	46	614	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	60	102	76	66	42	63	439	23	49	653	94
Peak Hour Factor	0.85	0.85	0.85	0.89	0.89	0.89	0.89	0.89	0.89	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	77	130	207	232	136	302	1441	643	741	1814	261
Arrive On Green	0.07	0.12	0.12	0.05	0.11	0.11	0.04	0.41	0.41	0.22	0.58	0.58
Sat Flow, veh/h	1781	622	1058	1781	2156	1264	1781	3554	1585	1781	3118	448
Grp Volume(v), veh/h	92	0	162	76	53	55	63	439	23	49	372	375
Grp Sat Flow(s),veh/h/ln	1781	0	1680	1781	1777	1643	1781	1777	1585	1781	1777	1790
Q Serve(g_s), s	4.6	0.0	8.4	3.4	2.5	2.8	2.1	7.5	0.6	0.0	10.0	10.0
Cycle Q Clear(g_c), s	4.6	0.0	8.4	3.4	2.5	2.8	2.1	7.5	0.6	0.0	10.0	10.0
Prop In Lane	1.00		0.63	1.00		0.77	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	118	0	207	207	192	177	302	1441	643	741	1034	1041
V/C Ratio(X)	0.78	0.00	0.78	0.37	0.28	0.31	0.21	0.30	0.04	0.07	0.36	0.36
Avail Cap(c_a), veh/h	228	0	439	245	365	338	372	1441	643	741	1034	1041
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89
Uniform Delay (d), s/veh	41.4	0.0	38.3	33.6	36.9	37.1	18.9	18.1	9.0	11.4	10.0	10.0
Incr Delay (d2), s/veh	10.4	0.0	6.3	1.1	0.8	1.0	0.3	0.5	0.1	0.0	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	0.0	6.8	2.7	2.0	2.1	1.5	5.6	0.5	0.9	6.8	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	0.0	44.6	34.6	37.7	38.0	19.3	18.7	9.1	11.5	10.8	10.8
LnGrp LOS	D	A	D	C	D	D	B	B	A	B	B	B
Approach Vol, veh/h	254					184		525		796		
Approach Delay, s/veh	47.2					36.5		18.3		10.9		
Approach LOS	D					D		B		B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.3	41.0	9.1	15.6	8.5	56.9	10.5	14.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	36.5	6.5	23.5	7.5	34.5	11.5	18.5				
Max Q Clear Time (g_c+I1), s	2.0	9.5	5.4	10.4	4.1	12.0	6.6	4.8				
Green Ext Time (p_c), s	0.0	3.1	0.0	0.7	0.0	4.9	0.1	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	21.0											
HCM 6th LOS	C											
Notes												

Timings 5: Sable Boulevard & Centrepont Drive

2021 Background PM.syn

03/12/2020

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	78	51	69	59	56	399	37	47	626
Future Volume (vph)	78	51	69	59	56	399	37	47	626
Turn Type	Prot	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases			8		2		2	6	
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	16.0	28.0	11.0	23.0	12.0	41.0	41.0	10.0	39.0
Total Split (%)	17.8%	31.1%	12.2%	25.6%	13.3%	45.6%	45.6%	11.1%	43.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effect Green (s)	9.5	10.5	12.7	7.5	55.7	55.7	55.7	52.1	52.1
Actuated g/C Ratio	0.11	0.12	0.14	0.08	0.62	0.62	0.62	0.58	0.58
v/c Ratio	0.49	0.60	0.38	0.35	0.15	0.20	0.04	0.09	0.38
Control Delay	46.6	25.4	32.0	27.3	11.2	9.9	0.1	12.9	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	25.4	32.0	27.3	11.2	9.9	0.1	12.9	12.8
LOS	D	C	C	C	B	A	A	B	B
Approach Delay		32.9		29.3		9.3			12.8
Approach LOS		C		C		A			B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 24.5 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 16.3

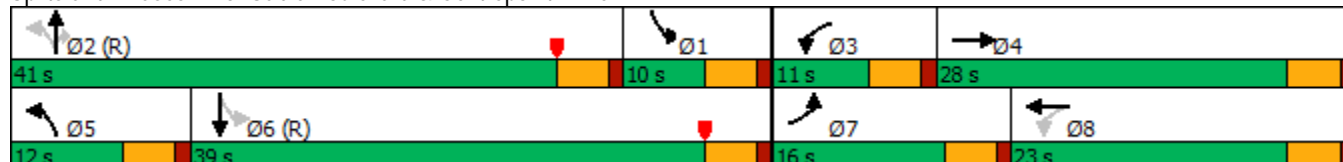
Intersection LOS: B

Intersection Capacity Utilization 51.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepont Drive

























HCM 6th Signalized Intersection Summary

5: Sable Boulevard & Centrepont Drive



















2021 Background PM.syn

03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	51	92	69	59	38	56	399	37	47	626	88
Future Volume (veh/h)	78	51	92	69	59	38	56	399	37	47	626	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	60	102	78	66	43	63	448	25	50	666	94
Peak Hour Factor	0.85	0.85	0.85	0.89	0.89	0.89	0.89	0.89	0.89	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	77	130	209	233	140	298	1441	643	736	1815	256
Arrive On Green	0.07	0.12	0.12	0.05	0.11	0.11	0.04	0.41	0.41	0.22	0.58	0.58
Sat Flow, veh/h	1781	622	1058	1781	2137	1280	1781	3554	1585	1781	3127	441
Grp Volume(v), veh/h	92	0	162	78	54	55	63	448	25	50	378	382
Grp Sat Flow(s),veh/h/ln	1781	0	1680	1781	1777	1640	1781	1777	1585	1781	1777	1791
Q Serve(g_s), s	4.6	0.0	8.4	3.5	2.5	2.8	2.1	7.7	0.6	0.0	10.2	10.2
Cycle Q Clear(g_c), s	4.6	0.0	8.4	3.5	2.5	2.8	2.1	7.7	0.6	0.0	10.2	10.2
Prop In Lane	1.00		0.63	1.00		0.78	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	118	0	207	209	194	179	298	1441	643	736	1031	1040
V/C Ratio(X)	0.78	0.00	0.78	0.37	0.28	0.31	0.21	0.31	0.04	0.07	0.37	0.37
Avail Cap(c_a), veh/h	228	0	439	245	365	337	368	1441	643	736	1031	1040
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	41.4	0.0	38.3	33.4	36.8	37.0	19.0	18.2	8.9	11.5	10.1	10.1
Incr Delay (d2), s/veh	10.4	0.0	6.3	1.1	0.8	1.0	0.3	0.6	0.1	0.0	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	0.0	6.8	2.8	2.0	2.1	1.5	5.7	0.6	0.9	7.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	0.0	44.6	34.5	37.6	37.9	19.3	18.8	9.1	11.5	10.9	10.9
LnGrp LOS	D	A	D	C	D	D	B	B	A	B	B	B
Approach Vol, veh/h	254					187		536		810		
Approach Delay, s/veh	47.2					36.4		18.4		11.0		
Approach LOS	D					D		B		B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.2	41.0	9.2	15.6	8.5	56.7	10.5	14.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	36.5	6.5	23.5	7.5	34.5	11.5	18.5				
Max Q Clear Time (g_c+I1), s	2.0	9.7	5.5	10.4	4.1	12.2	6.6	4.8				
Green Ext Time (p_c), s	0.0	3.2	0.0	0.7	0.0	5.0	0.1	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	21.0											
HCM 6th LOS	C											
Notes												

Timings 5: Sable Boulevard & Centrepont Drive

2021 Total PM.syn
03/12/2020

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	87	56	69	65	74	399	37	47	626
Future Volume (vph)	87	56	69	65	74	399	37	47	626
Turn Type	Prot	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases			8		2		2	6	
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	17.0	29.0	11.0	23.0	12.0	40.0	40.0	10.0	38.0
Total Split (%)	18.9%	32.2%	12.2%	25.6%	13.3%	44.4%	44.4%	11.1%	42.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effect Green (s)	10.1	11.2	12.9	7.6	55.0	55.0	55.0	50.9	50.9
Actuated g/C Ratio	0.11	0.12	0.14	0.08	0.61	0.61	0.61	0.57	0.57
v/c Ratio	0.52	0.64	0.40	0.36	0.20	0.21	0.04	0.09	0.39
Control Delay	46.6	26.9	31.9	27.8	11.9	10.4	0.1	14.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	26.9	31.9	27.8	11.9	10.4	0.1	14.0	13.8
LOS	D	C	C	C	B	B	A	B	B
Approach Delay		33.7		29.5		9.8			13.8
Approach LOS		C		C		A			B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 23.5 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 17.3

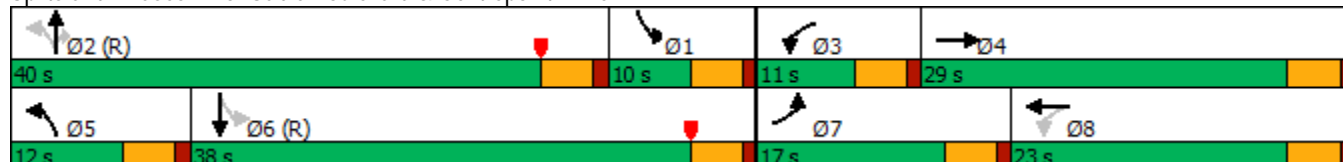
Intersection LOS: B

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepont Drive

























HCM 6th Signalized Intersection Summary

5: Sable Boulevard & Centrepont Drive

2021 Total PM.syn

03/12/2020



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	56	106	69	65	38	74	399	37	47	626	100
Future Volume (veh/h)	87	56	106	69	65	38	74	399	37	47	626	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	102	66	119	78	73	43	83	448	25	50	666	106
Peak Hour Factor	0.85	0.85	0.85	0.89	0.89	0.89	0.89	0.89	0.89	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	83	149	210	259	141	288	1402	625	716	1724	274
Arrive On Green	0.07	0.14	0.14	0.05	0.12	0.12	0.05	0.39	0.39	0.22	0.56	0.56
Sat Flow, veh/h	1781	598	1078	1781	2218	1212	1781	3554	1585	1781	3071	488
Grp Volume(v), veh/h	102	0	185	78	57	59	83	448	25	50	385	387
Grp Sat Flow(s),veh/h/ln	1781	0	1676	1781	1777	1652	1781	1777	1585	1781	1777	1782
Q Serve(g_s), s	5.1	0.0	9.6	3.4	2.7	2.9	2.8	7.9	0.7	0.0	10.9	10.9
Cycle Q Clear(g_c), s	5.1	0.0	9.6	3.4	2.7	2.9	2.8	7.9	0.7	0.0	10.9	10.9
Prop In Lane	1.00		0.64	1.00		0.73	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	131	0	232	210	207	193	288	1402	625	716	998	1001
V/C Ratio(X)	0.78	0.00	0.80	0.37	0.28	0.30	0.29	0.32	0.04	0.07	0.39	0.39
Avail Cap(c_a), veh/h	247	0	456	246	365	340	350	1402	625	716	998	1001
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	41.0	0.0	37.6	32.9	36.3	36.4	20.0	18.9	9.4	12.4	11.0	11.1
Incr Delay (d2), s/veh	9.7	0.0	6.3	1.1	0.7	0.9	0.5	0.6	0.1	0.0	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.6	0.0	7.7	2.7	2.1	2.2	2.1	5.9	0.6	1.0	7.4	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	0.0	43.8	34.0	37.0	37.3	20.5	19.5	9.5	12.4	12.0	12.0
LnGrp LOS	D	A	D	C	D	D	C	B	A	B	B	B
Approach Vol, veh/h		287			194			556			822	
Approach Delay, s/veh		46.3			35.9			19.2			12.1	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.9	40.0	9.2	16.9	8.9	55.0	11.1	15.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	35.5	6.5	24.5	7.5	33.5	12.5	18.5				
Max Q Clear Time (g_c+l1), s	2.0	9.9	5.4	11.6	4.8	12.9	7.1	4.9				
Green Ext Time (p_c), s	0.0	3.2	0.0	0.8	0.0	5.0	0.1	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

Timings

5: Sable Boulevard & Centrepont Drive

2040 Background PM.syn

03/12/2020

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	78	51	101	59	56	581	53	68	912
Future Volume (vph)	78	51	101	59	56	581	53	68	912
Turn Type	Prot	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases			8		2		2	6	
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	15.0	23.0	15.0	23.0	10.0	42.0	42.0	10.0	42.0
Total Split (%)	16.7%	25.6%	16.7%	25.6%	11.1%	46.7%	46.7%	11.1%	46.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effect Green (s)	8.9	9.4	17.7	9.5	52.1	52.1	52.1	50.5	50.5
Actuated g/C Ratio	0.10	0.10	0.20	0.11	0.58	0.58	0.58	0.56	0.56
v/c Ratio	0.49	0.60	0.43	0.31	0.21	0.31	0.06	0.15	0.54
Control Delay	47.5	26.7	30.8	21.5	13.8	12.4	0.1	15.4	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	26.7	30.8	21.5	13.8	12.4	0.1	15.4	16.5
LOS	D	C	C	C	B	B	A	B	B
Approach Delay		34.0		25.9		11.6			16.4
Approach LOS		C		C		B			B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 27.5 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 17.6

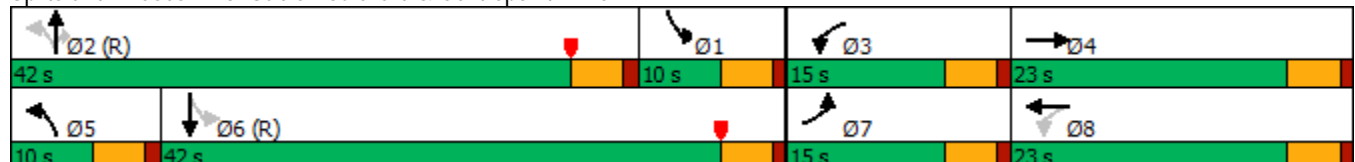
Intersection LOS: B

Intersection Capacity Utilization 61.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepont Drive

























HCM 6th Signalized Intersection Summary

5: Sable Boulevard & Centrepont Drive

2040 Background PM.syn



















03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	51	92	101	59	55	56	581	53	68	912	88
Future Volume (veh/h)	78	51	92	101	59	55	56	581	53	68	912	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	55	95	110	64	60	61	632	42	72	970	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	70	122	242	229	191	233	1481	660	636	1867	181
Arrive On Green	0.06	0.11	0.11	0.07	0.12	0.12	0.04	0.42	0.42	0.20	0.57	0.57
Sat Flow, veh/h	1781	616	1063	1781	1837	1534	1781	3554	1585	1781	3273	317
Grp Volume(v), veh/h	85	0	150	110	62	62	61	632	42	72	527	537
Grp Sat Flow(s),veh/h/ln	1781	0	1679	1781	1777	1594	1781	1777	1585	1781	1777	1813
Q Serve(g_s), s	4.2	0.0	7.8	4.8	2.8	3.2	2.0	11.4	1.0	0.0	16.3	16.3
Cycle Q Clear(g_c), s	4.2	0.0	7.8	4.8	2.8	3.2	2.0	11.4	1.0	0.0	16.3	16.3
Prop In Lane	1.00		0.63	1.00		0.96	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	110	0	192	242	221	198	233	1481	660	636	1014	1034
V/C Ratio(X)	0.78	0.00	0.78	0.46	0.28	0.31	0.26	0.43	0.06	0.11	0.52	0.52
Avail Cap(c_a), veh/h	208	0	345	322	365	328	264	1481	660	636	1014	1034
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63
Uniform Delay (d), s/veh	41.6	0.0	38.8	32.1	35.7	35.9	19.5	18.6	7.8	14.2	11.8	11.8
Incr Delay (d2), s/veh	11.0	0.0	6.8	1.3	0.7	0.9	0.6	0.9	0.2	0.0	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.9	0.0	6.4	3.8	2.3	2.3	1.5	8.2	1.0	1.5	9.5	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	0.0	45.5	33.5	36.4	36.8	20.1	19.5	8.0	14.2	13.0	13.0
LnGrp LOS	D	A	D	C	D	D	C	B	A	B	B	B
Approach Vol, veh/h	235		234			735			1136			
Approach Delay, s/veh	48.1		35.1			18.9			13.1			
Approach LOS	D		D			B			B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.3	42.0	11.0	14.8	8.4	55.8	10.0	15.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	37.5	10.5	18.5	5.5	37.5	10.5	18.5				
Max Q Clear Time (g_c+I1), s	2.0	13.4	6.8	9.8	4.0	18.3	6.2	5.2				
Green Ext Time (p_c), s	0.0	4.7	0.1	0.5	0.0	7.1	0.1	0.5				
Intersection Summary												
HCM 6th Ctrl Delay	20.6											
HCM 6th LOS	C											
Notes												

Timings 5: Sable Boulevard & Centrepont Drive

2040 Total PM.syn

03/12/2020

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	87	56	101	65	74	581	53	68	912
Future Volume (vph)	87	56	101	65	74	581	53	68	912
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases	4		8		2		2	6	
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	9.5	22.5	9.5	22.5	22.5	9.5	22.5
Total Split (s)	12.0	23.0	12.0	23.0	10.0	41.0	41.0	14.0	45.0
Total Split (%)	13.3%	25.6%	13.3%	25.6%	11.1%	45.6%	45.6%	15.6%	50.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effect Green (s)	16.4	10.2	16.5	10.2	50.0	50.0	50.0	51.4	51.4
Actuated g/C Ratio	0.18	0.11	0.18	0.11	0.56	0.56	0.56	0.57	0.57
v/c Ratio	0.35	0.64	0.50	0.31	0.29	0.32	0.06	0.13	0.54
Control Delay	29.9	28.6	34.9	21.5	16.0	13.9	0.1	14.3	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	28.6	34.9	21.5	16.0	13.9	0.1	14.3	15.7
LOS	C	C	C	C	B	B	A	B	B
Approach Delay		29.0		27.6		13.1			15.6
Approach LOS		C		C		B			B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 29.8 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 17.5

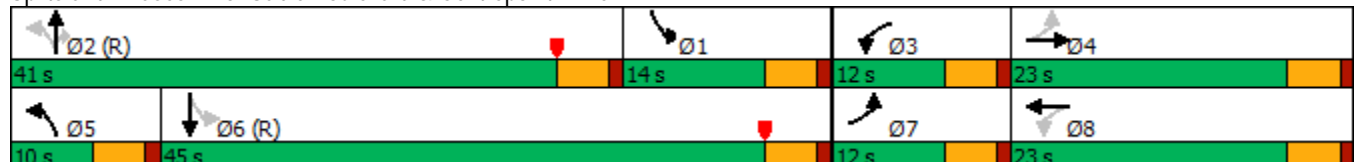
Intersection LOS: B

Intersection Capacity Utilization 62.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepont Drive

























HCM 6th Signalized Intersection Summary

5: Sable Boulevard & Centrepoint Drive

2040 Total PM.syn












03/12/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	56	106	101	65	55	74	581	53	68	912	100
Future Volume (veh/h)	87	56	106	101	65	55	74	581	53	68	912	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	61	115	110	71	60	80	632	42	72	970	106
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	318	76	142	239	266	203	226	1441	643	620	1782	195
Arrive On Green	0.06	0.13	0.13	0.07	0.14	0.14	0.05	0.41	0.41	0.19	0.55	0.55
Sat Flow, veh/h	1781	580	1093	1781	1920	1464	1781	3554	1585	1781	3231	353
Grp Volume(v), veh/h	95	0	176	110	65	66	80	632	42	72	533	543
Grp Sat Flow(s),veh/h/ln	1781	0	1674	1781	1777	1607	1781	1777	1585	1781	1777	1807
Q Serve(g_s), s	4.1	0.0	9.2	4.7	2.9	3.3	2.6	11.6	1.0	0.0	17.3	17.3
Cycle Q Clear(g_c), s	4.1	0.0	9.2	4.7	2.9	3.3	2.6	11.6	1.0	0.0	17.3	17.3
Prop In Lane	1.00		0.65	1.00		0.91	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	318	0	218	239	246	223	226	1441	643	620	980	997
V/C Ratio(X)	0.30	0.00	0.81	0.46	0.26	0.30	0.35	0.44	0.07	0.12	0.54	0.54
Avail Cap(c_a), veh/h	357	0	344	262	365	330	249	1441	643	620	980	997
HCM 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
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.62	0.62
Uniform Delay (d), s/veh	31.1	0.0	38.0	31.2	34.7	34.8	20.7	19.3	8.3	15.1	12.9	12.9
Incr Delay (d2), s/veh	0.5	0.0	7.5	1.4	0.6	0.7	0.9	1.0	0.2	0.1	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.2	0.0	7.5	3.8	2.3	2.4	2.0	8.4	1.0	1.6	10.1	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.6	0.0	45.5	32.6	35.2	35.5	21.6	20.3	8.5	15.1	14.3	14.3
LnGrp LOS	C	A	D	C	D	D	C	C	A	B	B	B
Approach Vol, veh/h		271			241			754			1148	
Approach Delay, s/veh		40.7			34.1			19.8			14.3	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	41.0	10.8	16.2	8.8	54.1	10.1	17.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	9.5	36.5	7.5	18.5	5.5	40.5	7.5	18.5				
Max Q Clear Time (g_c+I1), s	2.0	13.6	6.7	11.2	4.6	19.3	6.1	5.3				
Green Ext Time (p_c), s	0.1	4.6	0.0	0.5	0.0	7.5	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

HCM Unsignalized Intersection Capacity Analysis

6: West Mall Entrance & Mall Ring Road

2020 Existing PM
01/28/2020












						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	127	91	30	30	64
Future Volume (Veh/h)	69	127	91	30	30	64
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.89	0.89	0.87	0.87
Hourly flow rate (vph)	80	148	102	34	34	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)	132					
pX, platoon unblocked						
vC, conflicting volume	0		251	160	308	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		251	160	308	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	95		83	95	94	93
cM capacity (veh/h)	1623		602	696	576	1085
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	80	148	102	34	108	
Volume Left	80	0	102	0	0	
Volume Right	0	148	0	0	74	
cSH	1623	1700	602	696	849	
Volume to Capacity	0.05	0.09	0.17	0.05	0.13	
Queue Length 95th (ft)	4	0	15	4	11	
Control Delay (s)	7.3	0.0	12.2	10.4	9.9	
Lane LOS	A		B	B	A	
Approach Delay (s)	2.6		11.8		9.9	
Approach LOS			B		A	
Intersection Summary						
Average Delay			6.9			
Intersection Capacity Utilization			22.2%		ICU Level of Service	
Analysis Period (min)			15			
			A			

HCM Unsignalized Intersection Capacity Analysis

6: West Mall Entrance & Mall Ring Road

2021 Background PM













01/28/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	156	127	91	29	28	155
Future Volume (Veh/h)	156	127	91	29	28	155
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	170	138	99	32	30	168
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	132					
pX, platoon unblocked						
vC, conflicting volume	0		523	340	478	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		523	340	478	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	90		71	94	93	85
cM capacity (veh/h)	1623		342	521	435	1085
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	170	138	99	32	198	
Volume Left	170	0	99	0	0	
Volume Right	0	138	0	0	168	
cSH	1623	1700	342	521	885	
Volume to Capacity	0.10	0.08	0.29	0.06	0.22	
Queue Length 95th (ft)	9	0	29	5	21	
Control Delay (s)	7.5	0.0	19.7	12.4	10.2	
Lane LOS	A		C	B	B	
Approach Delay (s)	4.1		17.9		10.2	
Approach LOS			C		B	
Intersection Summary						
Average Delay			8.9			
Intersection Capacity Utilization			34.7%		ICU Level of Service	
					A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

6: West Mall Entrance & Mall Ring Road

2021 Total PM
01/28/2020












						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	186	127	91	29	28	178
Future Volume (Veh/h)	186	127	91	29	28	178
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	202	138	99	32	30	193
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	132					
pX, platoon unblocked						
vC, conflicting volume	0		612	404	542	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		612	404	542	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	88		65	93	92	82
cM capacity (veh/h)	1623		284	469	392	1085
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	202	138	99	32	223	
Volume Left	202	0	99	0	0	
Volume Right	0	138	0	0	193	
cSH	1623	1700	284	469	876	
Volume to Capacity	0.12	0.08	0.35	0.07	0.25	
Queue Length 95th (ft)	11	0	38	5	25	
Control Delay (s)	7.5	0.0	24.3	13.2	10.5	
Lane LOS	A		C	B	B	
Approach Delay (s)	4.5		21.6		10.5	
Approach LOS			C		B	
Intersection Summary						
Average Delay			9.6			
Intersection Capacity Utilization			37.8%		ICU Level of Service	
Analysis Period (min)			15			
			A			

HCM Unsignalized Intersection Capacity Analysis

6: West Mall Entrance & Mall Ring Road

2040 Background PM













01/28/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	156	127	91	29	28	155
Future Volume (Veh/h)	156	127	91	29	28	155
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	170	138	99	32	30	168
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	132					
pX, platoon unblocked						
vC, conflicting volume	0		523	340	478	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		523	340	478	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	90		71	94	93	85
cM capacity (veh/h)	1623		342	521	435	1085
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	170	138	99	32	198	
Volume Left	170	0	99	0	0	
Volume Right	0	138	0	0	168	
cSH	1623	1700	342	521	885	
Volume to Capacity	0.10	0.08	0.29	0.06	0.22	
Queue Length 95th (ft)	9	0	29	5	21	
Control Delay (s)	7.5	0.0	19.7	12.4	10.2	
Lane LOS	A		C	B	B	
Approach Delay (s)	4.1		17.9		10.2	
Approach LOS			C		B	
Intersection Summary						
Average Delay			8.9			
Intersection Capacity Utilization			34.7%		ICU Level of Service	
Analysis Period (min)			15			
			A			

HCM Unsignalized Intersection Capacity Analysis

6: West Mall Entrance & Mall Ring Road

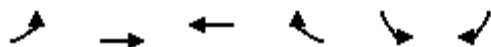
2040 Total PM
01/29/2020






						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	186	127	91	29	28	178
Future Volume (Veh/h)	186	127	91	29	28	178
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	202	138	99	32	30	193
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	132					
pX, platoon unblocked						
vC, conflicting volume	0		612	404	542	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		612	404	542	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	88		65	93	92	82
cM capacity (veh/h)	1623		284	469	392	1085
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	202	138	99	32	223	
Volume Left	202	0	99	0	0	
Volume Right	0	138	0	0	193	
cSH	1623	1700	284	469	876	
Volume to Capacity	0.12	0.08	0.35	0.07	0.25	
Queue Length 95th (ft)	11	0	38	5	25	
Control Delay (s)	7.5	0.0	24.3	13.2	10.5	
Lane LOS	A		C	B	B	
Approach Delay (s)	4.5		21.6		10.5	
Approach LOS			C		B	
Intersection Summary						
Average Delay			9.6			
Intersection Capacity Utilization			37.8%		ICU Level of Service	
Analysis Period (min)			15			
			A			

HCM Unsignalized Intersection Capacity Analysis

7: Mall Ring Road & Crystal Street

2020 Existing PM
01/28/2020



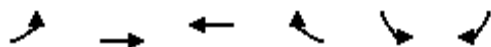
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	30	28	188	222	83
Future Volume (Veh/h)	66	30	28	188	222	83
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.73	0.73	0.88	0.88	0.86	0.86
Hourly flow rate (vph)	90	41	32	214	258	97
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)					252	
pX, platoon unblocked						
vC, conflicting volume	746	516	613	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	746	516	613	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	58	89	91	80	84	
cM capacity (veh/h)	216	389	343	1085	1623	
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	90	41	246	258	97	
Volume Left	90	0	0	258	0	
Volume Right	0	0	214	0	97	
cSH	216	389	847	1623	1700	
Volume to Capacity	0.42	0.11	0.29	0.16	0.06	
Queue Length 95th (ft)	48	9	30	14	0	
Control Delay (s)	33.0	15.3	11.0	7.6	0.0	
Lane LOS	D	C	B	A		
Approach Delay (s)	27.5		11.0	5.6		
Approach LOS	D		B			
Intersection Summary						
Average Delay			11.3			
Intersection Capacity Utilization			39.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: Mall Ring Road & Crystal Street

2021 Background PM

01/28/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	121	30	28	188	222	139
Future Volume (Veh/h)	121	30	28	188	222	139
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	132	33	30	204	241	151
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)					252	
pX, platoon unblocked						
vC, conflicting volume	701	482	633	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	701	482	633	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	44	92	91	81	85	
cM capacity (veh/h)	237	412	338	1085	1623	
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	132	33	234	241	151	
Volume Left	132	0	0	241	0	
Volume Right	0	0	204	0	151	
cSH	237	412	846	1623	1700	
Volume to Capacity	0.56	0.08	0.28	0.15	0.09	
Queue Length 95th (ft)	76	6	28	13	0	
Control Delay (s)	37.6	14.5	10.9	7.6	0.0	
Lane LOS	E	B	B	A		
Approach Delay (s)	33.0		10.9	4.7		
Approach LOS	D		B			
Intersection Summary						
Average Delay			12.4			
Intersection Capacity Utilization			42.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis






7: Mall Ring Road & Crystal Street

2021 Total PM
01/28/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	144	30	28	206	246	169
Future Volume (Veh/h)	144	30	28	206	246	169
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	157	33	30	224	267	184
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)					252	
pX, platoon unblocked						
vC, conflicting volume	773	534	718	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	773	534	718	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	23	91	90	79	84	
cM capacity (veh/h)	203	378	296	1085	1623	
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	157	33	254	267	184	
Volume Left	157	0	0	267	0	
Volume Right	0	0	224	0	184	
cSH	203	378	826	1623	1700	
Volume to Capacity	0.77	0.09	0.31	0.16	0.11	
Queue Length 95th (ft)	133	7	33	15	0	
Control Delay (s)	65.7	15.4	11.3	7.7	0.0	
Lane LOS	F	C	B	A		
Approach Delay (s)	57.0		11.3	4.5		
Approach LOS	F		B			
Intersection Summary						
Average Delay			17.6			
Intersection Capacity Utilization			45.8%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	144	30	28	206	246	169
Future Vol, veh/h	144	30	28	206	246	169
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	33	30	224	267	184
Number of Lanes	1	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	11.6	11.5	12.5
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	12%	0%	0%
Vol Right, %	0%	0%	88%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	144	30	234	246	169
LT Vol	144	0	0	246	0
Through Vol	0	30	28	0	0
RT Vol	0	0	206	0	169
Lane Flow Rate	157	33	254	267	184
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.289	0.056	0.376	0.469	0.26
Departure Headway (Hd)	6.643	6.135	5.328	6.309	5.098
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	542	584	677	572	705
Service Time	4.374	3.867	3.357	4.034	2.823
HCM Lane V/C Ratio	0.29	0.057	0.375	0.467	0.261
HCM Control Delay	12.1	9.2	11.5	14.5	9.6
HCM Lane LOS	B	A	B	B	A
HCM 95th-tile Q	1.2	0.2	1.7	2.5	1

HCM 6th Roundabout
7: Mall Ring Road & Crystal Street

2021 Total PM_7 RAB.syn

03/12/2020

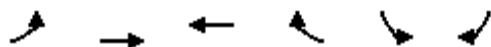
Intersection				
Intersection Delay, s/veh	4.6			
Intersection LOS	A			
Approach	EB	WB	SB	
Entry Lanes	1	1	2	
Conflicting Circle Lanes	1	1	1	
Adj Approach Flow, veh/h	190	254	451	
Demand Flow Rate, veh/h	194	259	460	
Vehicles Circulating, veh/h	272	160	31	
Vehicles Exiting, veh/h	219	306	388	
Ped Vol Crossing Leg, #/h	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	
Approach Delay, s/veh	5.2	5.1	4.1	
Approach LOS	A	A	A	
Lane	Left	Left	Left	Right
Designated Moves	LT	TR	L	TR
Assumed Moves	LT	TR	L	TR
RT Channelized				
Lane Util	1.000	1.000	0.591	0.409
Follow-Up Headway, s	2.609	2.609	2.535	2.535
Critical Headway, s	4.976	4.976	4.544	4.544
Entry Flow, veh/h	194	259	272	188
Cap Entry Lane, veh/h	1046	1172	1381	1381
Entry HV Adj Factor	0.981	0.982	0.982	0.979
Flow Entry, veh/h	190	254	267	184
Cap Entry, veh/h	1026	1151	1355	1351
V/C Ratio	0.186	0.221	0.197	0.136
Control Delay, s/veh	5.2	5.1	4.3	3.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	0

HCM Unsignalized Intersection Capacity Analysis

7: Mall Ring Road & Crystal Street

2040 Background PM

01/28/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	121	30	28	188	222	139
Future Volume (Veh/h)	121	30	28	188	222	139
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	132	33	30	204	241	151
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)					252	
pX, platoon unblocked						
vC, conflicting volume	701	482	633	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	701	482	633	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	44	92	91	81	85	
cM capacity (veh/h)	237	412	338	1085	1623	
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	132	33	234	241	151	
Volume Left	132	0	0	241	0	
Volume Right	0	0	204	0	151	
cSH	237	412	846	1623	1700	
Volume to Capacity	0.56	0.08	0.28	0.15	0.09	
Queue Length 95th (ft)	76	6	28	13	0	
Control Delay (s)	37.6	14.5	10.9	7.6	0.0	
Lane LOS	E	B	B	A		
Approach Delay (s)	33.0		10.9	4.7		
Approach LOS	D		B			
Intersection Summary						
Average Delay			12.4			
Intersection Capacity Utilization			42.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

7: Mall Ring Road & Crystal Street






2040 Total PM.syn

03/12/2020



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	144	30	28	206	246	169
Future Volume (Veh/h)	144	30	28	206	246	169
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	157	33	30	224	267	184
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)					252	
pX, platoon unblocked						
vC, conflicting volume	773	534	718	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	773	534	718	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	23	91	90	79	84	
cM capacity (veh/h)	203	378	296	1085	1623	
Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2	
Volume Total	157	33	254	267	184	
Volume Left	157	0	0	267	0	
Volume Right	0	0	224	0	184	
cSH	203	378	826	1623	1700	
Volume to Capacity	0.77	0.09	0.31	0.16	0.11	
Queue Length 95th (ft)	133	7	33	15	0	
Control Delay (s)	65.7	15.4	11.3	7.7	0.0	
Lane LOS	F	C	B	A		
Approach Delay (s)	57.0		11.3	4.5		
Approach LOS	F		B			
Intersection Summary						
Average Delay			17.6			
Intersection Capacity Utilization			45.8%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	144	30	28	206	246	169
Future Vol, veh/h	144	30	28	206	246	169
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	33	30	224	267	184
Number of Lanes	1	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	11.6	11.5	12.5
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	12%	0%	0%
Vol Right, %	0%	0%	88%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	144	30	234	246	169
LT Vol	144	0	0	246	0
Through Vol	0	30	28	0	0
RT Vol	0	0	206	0	169
Lane Flow Rate	157	33	254	267	184
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.289	0.056	0.376	0.469	0.26
Departure Headway (Hd)	6.643	6.135	5.328	6.309	5.098
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	542	584	677	572	705
Service Time	4.374	3.867	3.357	4.034	2.823
HCM Lane V/C Ratio	0.29	0.057	0.375	0.467	0.261
HCM Control Delay	12.1	9.2	11.5	14.5	9.6
HCM Lane LOS	B	A	B	B	A
HCM 95th-tile Q	1.2	0.2	1.7	2.5	1

HCM 6th Roundabout
7: Mall Ring Road & Crystal Street






2040 Total PM_7 RAB.syn

03/12/2020

Intersection				
Intersection Delay, s/veh	4.6			
Intersection LOS	A			
Approach	EB	WB	SB	
Entry Lanes	1	1	2	
Conflicting Circle Lanes	1	1	1	
Adj Approach Flow, veh/h	190	254	451	
Demand Flow Rate, veh/h	194	259	460	
Vehicles Circulating, veh/h	272	160	31	
Vehicles Exiting, veh/h	219	306	388	
Ped Vol Crossing Leg, #/h	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	
Approach Delay, s/veh	5.2	5.1	4.1	
Approach LOS	A	A	A	
Lane	Left	Left	Left	Right
Designated Moves	LT	TR	L	TR
Assumed Moves	LT	TR	L	TR
RT Channelized				
Lane Util	1.000	1.000	0.591	0.409
Follow-Up Headway, s	2.609	2.609	2.535	2.535
Critical Headway, s	4.976	4.976	4.544	4.544
Entry Flow, veh/h	194	259	272	188
Cap Entry Lane, veh/h	1046	1172	1381	1381
Entry HV Adj Factor	0.981	0.982	0.982	0.979
Flow Entry, veh/h	190	254	267	184
Cap Entry, veh/h	1026	1151	1355	1351
V/C Ratio	0.186	0.221	0.197	0.136
Control Delay, s/veh	5.2	5.1	4.3	3.8
LOS	A	A	A	A
95th %tile Queue, veh	1	1	1	0

Intersection






Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	118	80	44	151	88	68
Future Vol, veh/h	118	80	44	151	88	68
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	92	51	174	101	78
Number of Lanes	1	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	9.6	9.7	9.4
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	23%	0%	0%	0%	100%
Vol Right, %	77%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	118	80	88	68
LT Vol	0	118	0	88	0
Through Vol	44	0	0	0	68
RT Vol	151	0	80	0	0
Lane Flow Rate	224	136	92	101	78
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.293	0.227	0.123	0.165	0.116
Departure Headway (Hd)	4.707	6.015	4.807	5.861	5.357
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	760	594	741	610	667
Service Time	2.754	3.775	2.566	3.615	3.111
HCM Lane V/C Ratio	0.295	0.229	0.124	0.166	0.117
HCM Control Delay	9.7	10.5	8.2	9.8	8.8
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	1.2	0.9	0.4	0.6	0.4

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A






Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	118	80	44	151	88	68
Future Vol, veh/h	118	80	44	151	88	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	128	87	48	164	96	74
Number of Lanes	1	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	9.4	9.5	9.2
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	23%	0%	0%	0%	100%
Vol Right, %	77%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	118	80	88	68
LT Vol	0	118	0	88	0
Through Vol	44	0	0	0	68
RT Vol	151	0	80	0	0
Lane Flow Rate	212	128	87	96	74
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.274	0.212	0.115	0.154	0.109
Departure Headway (Hd)	4.658	5.96	4.753	5.81	5.306
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	769	600	750	616	674
Service Time	2.699	3.712	2.504	3.556	3.052
HCM Lane V/C Ratio	0.276	0.213	0.116	0.156	0.11
HCM Control Delay	9.5	10.3	8.1	9.6	8.7
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	1.1	0.8	0.4	0.5	0.4

Intersection






Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	118	116	44	151	115	68
Future Vol, veh/h	118	116	44	151	115	68
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	133	51	174	132	78
Number of Lanes	1	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	9.8	10	9.9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	23%	0%	0%	0%	100%
Vol Right, %	77%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	118	116	115	68
LT Vol	0	118	0	115	0
Through Vol	44	0	0	0	68
RT Vol	151	0	116	0	0
Lane Flow Rate	224	136	133	132	78
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.301	0.23	0.182	0.219	0.119
Departure Headway (Hd)	4.842	6.111	4.902	5.967	5.463
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	737	585	727	599	652
Service Time	2.904	3.881	2.672	3.735	3.23
HCM Lane V/C Ratio	0.304	0.232	0.183	0.22	0.12
HCM Control Delay	10	10.7	8.8	10.4	9
HCM Lane LOS	A	B	A	B	A
HCM 95th-tile Q	1.3	0.9	0.7	0.8	0.4






Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	118	80	44	151	88	68
Future Vol, veh/h	118	80	44	151	88	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	128	87	48	164	96	74
Number of Lanes	1	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	9.4	9.5	9.2
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	23%	0%	0%	0%	100%
Vol Right, %	77%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	118	80	88	68
LT Vol	0	118	0	88	0
Through Vol	44	0	0	0	68
RT Vol	151	0	80	0	0
Lane Flow Rate	212	128	87	96	74
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.274	0.212	0.115	0.154	0.109
Departure Headway (Hd)	4.658	5.96	4.753	5.81	5.306
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	769	600	750	616	674
Service Time	2.699	3.712	2.504	3.556	3.052
HCM Lane V/C Ratio	0.276	0.213	0.116	0.156	0.11
HCM Control Delay	9.5	10.3	8.1	9.6	8.7
HCM Lane LOS	A	B	A	A	A
HCM 95th-tile Q	1.1	0.8	0.4	0.5	0.4

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	118	116	44	151	115	68
Future Vol, veh/h	118	116	44	151	115	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	128	126	48	164	125	74
Number of Lanes	1	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	9.6	9.7	9.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	100%	0%	100%	0%
Vol Thru, %	23%	0%	0%	0%	100%
Vol Right, %	77%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	118	116	115	68
LT Vol	0	118	0	115	0
Through Vol	44	0	0	0	68
RT Vol	151	0	116	0	0
Lane Flow Rate	212	128	126	125	74
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.282	0.216	0.17	0.205	0.111
Departure Headway (Hd)	4.787	6.051	4.842	5.91	5.406
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	746	591	736	605	659
Service Time	2.842	3.813	2.604	3.671	3.167
HCM Lane V/C Ratio	0.284	0.217	0.171	0.207	0.112
HCM Control Delay	9.7	10.5	8.6	10.2	8.8
HCM Lane LOS	A	B	A	B	A
HCM 95th-tile Q	1.2	0.8	0.6	0.8	0.4

APPENDIX E

Queuing Analysis Worksheets

Queues

2021 Total PM.syn

1: Abilene Street & West Mall Entrance

03/12/2020



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	55	258	643	275	540
v/c Ratio	0.29	0.65	0.30	0.43	0.20
Control Delay	35.6	12.6	8.5	4.8	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	12.6	8.5	4.8	2.7
Queue Length 50th (ft)	26	0	67	25	25
Queue Length 95th (ft)	53	52	117	62	54
Internal Link Dist (ft)	52		498		672
Turn Bay Length (ft)				125	
Base Capacity (vph)	453	597	2144	771	2763
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.43	0.30	0.36	0.20
Intersection Summary					

Queues

2040 Total PM.syn

03/12/2020

1: Abilene Street & West Mall Entrance















Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	51	241	823	275	788
v/c Ratio	0.28	0.63	0.39	0.50	0.28
Control Delay	35.6	12.7	9.7	5.8	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	12.7	9.7	5.8	3.0
Queue Length 50th (ft)	24	0	92	24	39
Queue Length 95th (ft)	53	60	188	61	81
Internal Link Dist (ft)	52		498		672
Turn Bay Length (ft)				125	
Base Capacity (vph)	409	551	2132	694	2770
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.44	0.39	0.40	0.28
Intersection Summary					

Queues

2021 Total PM.syn

2: Abilene Street & Alameda Avenue

03/12/2020













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	1616	515	76	1619	89	451	216	91	124	252	176
v/c Ratio	0.52	0.81	0.59	0.41	0.92	0.14	0.76	0.36	0.15	0.64	0.27	0.33
Control Delay	64.0	40.2	9.3	81.9	32.6	1.7	60.6	37.6	2.9	70.4	40.9	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	40.2	9.3	81.9	32.6	1.7	60.6	37.6	2.9	70.4	40.9	7.5
Queue Length 50th (ft)	65	461	55	35	160	1	191	142	0	103	91	0
Queue Length 95th (ft)	99	526	168	m51	#598	m9	239	228	20	158	132	54
Internal Link Dist (ft)		425			641			672			415	
Turn Bay Length (ft)	100			275		150	350		325	150		175
Base Capacity (vph)	403	1999	875	195	1765	654	1001	599	593	301	917	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.81	0.59	0.39	0.92	0.14	0.45	0.36	0.15	0.41	0.27	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	2362	515	76	2372	89	451	309	91	117	340	166
v/c Ratio	0.53	1.05	0.59	0.58	1.22	0.13	0.77	0.56	0.16	0.64	0.42	0.34
Control Delay	64.6	69.9	13.5	84.5	128.5	1.3	61.6	45.0	3.1	72.3	46.4	9.3
Queue Delay	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	90.9	13.5	84.5	128.5	1.3	61.6	45.0	3.1	72.3	46.4	9.3
Queue Length 50th (ft)	65	-829	126	35	-896	1	192	225	0	97	132	3
Queue Length 95th (ft)	100	#920	243	m38	m#935	m2	241	337	21	159	189	65
Internal Link Dist (ft)		425			641			672			415	
Turn Bay Length (ft)	100			275		150	350		325	150		175
Base Capacity (vph)	351	2249	874	130	1945	704	715	548	553	234	806	484
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	269	0	0	0	0	0	0	5	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	1.19	0.59	0.58	1.22	0.13	0.63	0.56	0.17	0.50	0.42	0.34

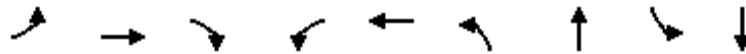
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
3: Crystal Street & Alameda Avenue

2040 Total PM.syn

03/12/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	129	2229	206	202	2358	124	256	65	108
v/c Ratio	0.46	1.07	0.28	0.82	1.00	0.26	0.42	0.10	0.22
Control Delay	27.7	52.5	1.2	68.1	32.2	28.9	21.3	26.2	19.6
Queue Delay	0.0	0.0	0.0	0.0	37.9	0.0	0.0	0.0	0.0
Total Delay	27.7	52.5	1.2	68.1	70.1	28.9	21.3	26.2	19.6
Queue Length 50th (ft)	17	~769	0	137	~210	70	91	18	29
Queue Length 95th (ft)	m17	m#714	m0	m166	#841	117	172	34	82
Internal Link Dist (ft)		641			556		172		354
Turn Bay Length (ft)	150			150				100	
Base Capacity (vph)	280	2078	742	264	2359	581	611	658	482
Starvation Cap Reductn	0	0	0	0	43	0	0	0	0
Spillback Cap Reductn	0	0	0	0	442	0	0	0	5
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	1.07	0.28	0.77	1.23	0.21	0.42	0.10	0.23

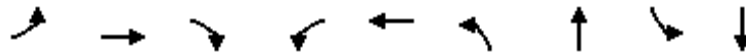
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
3: Crystal Street & Alameda Avenue

2040 Total PM.syn

03/12/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	129	2229	206	202	2358	124	256	65	108
v/c Ratio	0.46	1.07	0.28	0.82	1.00	0.26	0.42	0.10	0.22
Control Delay	27.7	52.5	1.2	68.1	32.2	28.9	21.3	26.2	19.6
Queue Delay	0.0	0.0	0.0	0.0	37.9	0.0	0.0	0.0	0.0
Total Delay	27.7	52.5	1.2	68.1	70.1	28.9	21.3	26.2	19.6
Queue Length 50th (ft)	17	~769	0	137	~210	70	91	18	29
Queue Length 95th (ft)	m17	m#714	m0	m166	#841	117	172	34	82
Internal Link Dist (ft)		641			556		172		354
Turn Bay Length (ft)	150			150				100	
Base Capacity (vph)	280	2078	742	264	2359	581	611	658	482
Starvation Cap Reductn	0	0	0	0	43	0	0	0	0
Spillback Cap Reductn	0	0	0	0	442	0	0	0	5
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	1.07	0.28	0.77	1.23	0.21	0.42	0.10	0.23

Intersection Summary













- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

2021 Total PM.syn

4: Sable Boulevard & Alameda Avenue

03/12/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	151	1471	218	91	1486	218	174	362	56	339	514	154
v/c Ratio	0.62	0.56	0.24	0.26	0.62	0.26	0.39	0.50	0.12	0.55	0.61	0.32
Control Delay	48.4	12.3	2.4	13.1	28.2	7.4	33.3	49.5	0.6	36.0	48.2	9.7
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	12.3	2.4	13.1	28.2	7.4	33.3	49.5	0.6	36.0	48.2	9.7
Queue Length 50th (ft)	87	107	2	15	339	26	53	146	0	109	207	8
Queue Length 95th (ft)	m136	173	m24	27	426	82	81	198	0	150	268	65
Internal Link Dist (ft)		556			548			1128			399	
Turn Bay Length (ft)	175		175	175		100	275		265	150		150
Base Capacity (vph)	315	2638	909	353	2388	829	454	722	451	630	848	487
Starvation Cap Reductn	0	151	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.59	0.24	0.26	0.62	0.26	0.38	0.50	0.12	0.54	0.61	0.32

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

2040 Total PM.syn

4: Sable Boulevard & Alameda Avenue

03/12/2020



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	212	2116	313	128	2158	318	249	517	74	494	749	217
v/c Ratio	0.91	0.78	0.33	0.52	0.89	0.38	0.82	0.87	0.18	0.96	0.92	0.47
Control Delay	72.7	12.8	3.0	19.4	37.5	11.8	56.1	69.1	1.0	67.1	66.4	21.4
Queue Delay	0.0	0.3	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.7	13.1	3.0	19.4	39.9	11.8	56.1	69.1	1.0	67.1	66.4	21.5
Queue Length 50th (ft)	152	168	9	21	605	78	80	229	0	172	331	63
Queue Length 95th (ft)	m155	m164	m9	37	679	149	#127	#320	0	#276	#446	144
Internal Link Dist (ft)		556			548			1128			399	
Turn Bay Length (ft)	175		175	175		100	275		265	150		150
Base Capacity (vph)	237	2723	936	248	2419	837	304	597	401	517	817	464
Starvation Cap Reductn	0	148	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	159	0	0	0	0	0	0	3
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.82	0.33	0.52	0.95	0.38	0.82	0.87	0.18	0.96	0.92	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Sable Boulevard & Centrepoint Drive

2021 Total PM.syn
03/12/2020



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	102	191	78	116	83	448	42	50	772
v/c Ratio	0.52	0.64	0.40	0.36	0.20	0.21	0.04	0.09	0.39
Control Delay	46.6	26.9	31.9	27.8	11.9	10.4	0.1	14.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	26.9	31.9	27.8	11.9	10.4	0.1	14.0	13.8
Queue Length 50th (ft)	55	46	35	21	21	66	0	13	131
Queue Length 95th (ft)	97	97	65	45	49	106	0	37	211
Internal Link Dist (ft)		248		590		458			1128
Turn Bay Length (ft)			100		125		125	175	
Base Capacity (vph)	245	533	199	720	418	2161	1037	571	1971
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.36	0.39	0.16	0.20	0.21	0.04	0.09	0.39
Intersection Summary									

Queues

2040 Total PM.syn

5: Sable Boulevard & Centrepoint Drive

03/12/2020

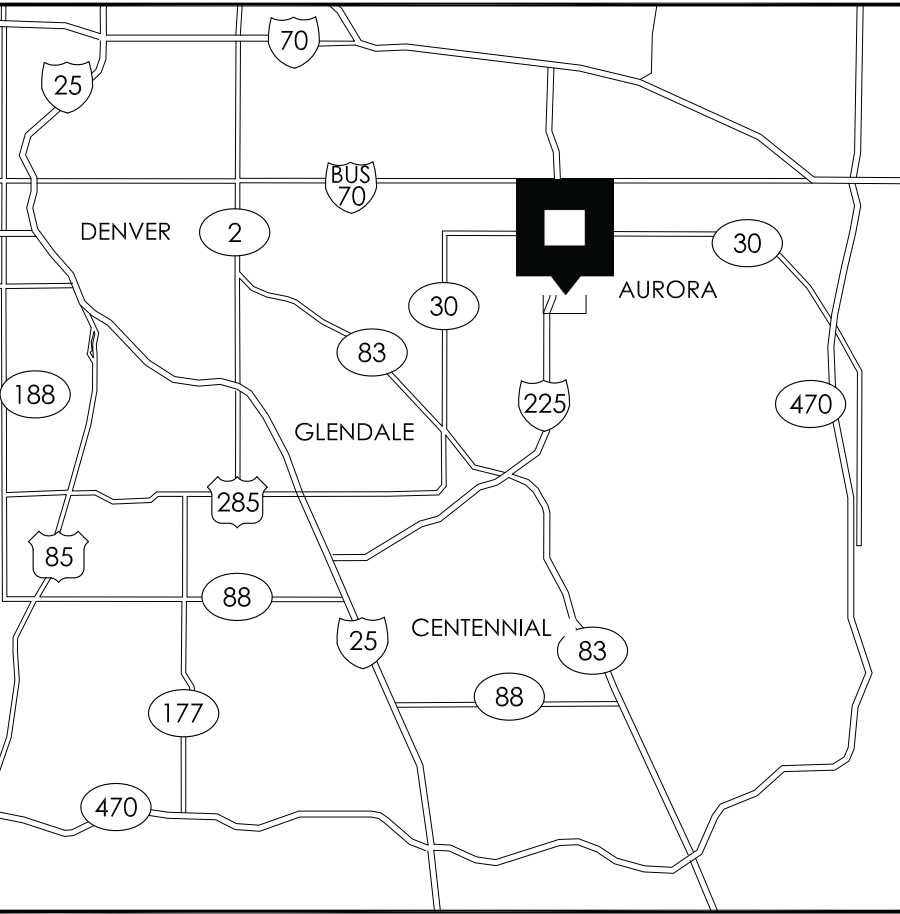


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	176	110	131	80	632	58	72	1076
v/c Ratio	0.35	0.64	0.50	0.31	0.29	0.32	0.06	0.13	0.54
Control Delay	29.9	28.6	34.9	21.5	16.0	13.9	0.1	14.3	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	28.6	34.9	21.5	16.0	13.9	0.1	14.3	15.7
Queue Length 50th (ft)	43	44	51	19	23	109	0	19	206
Queue Length 95th (ft)	76	102	86	43	53	171	0	47	314
Internal Link Dist (ft)		248		590		458			1128
Turn Bay Length (ft)			100		125		125	175	
Base Capacity (vph)	274	420	221	724	274	1964	935	543	1996
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.42	0.50	0.18	0.29	0.32	0.06	0.13	0.54
Intersection Summary									

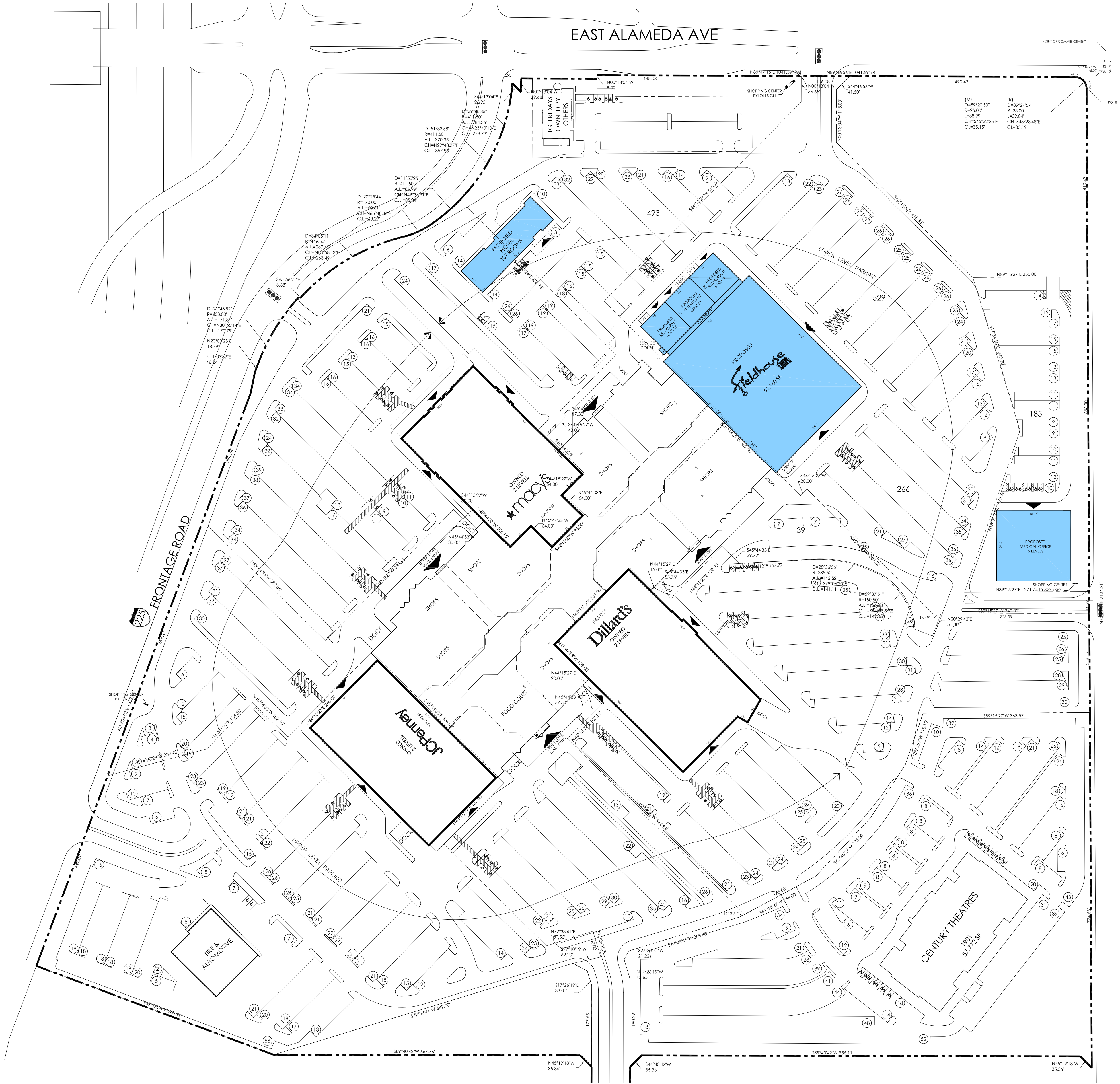
APPENDIX F

Site Plan

TOWN CENTER
AT AURORA™

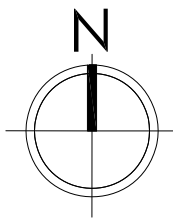


VICINITY MAP



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DEVELOPMENT PLAN DP18



TOWN CENTER AT AURORA
14200 E ALAMEDA AVE
AURORA, CO 80012
CORP# 004820

**WASHINGTON
PRIME GROUP**

MODIFIED: December 10, 2019