

QUIKTRIP - AURORA

DRAFT TRAFFIC STUDY

E. ALAMEDA AVENUE AND CRYSTAL STREET

Project No. 0222026.01-119

Date: APRIL 27, 2023

DRAFT TRAFFIC STUDY

QUIKTRIP - AURORA

E. ALAMEDA AVENUE AND CRYSTAL STREET

AURORA, COLORADO

APRIL 2023

Prepared for:

**QUIKTRIP
&
CITY OF AURORA**

Prepared by:

Matthew L. Kruse, P.E., PTOE
PE-41484

**Lamp Ryneerson
4715 Innovation Dr
Fort Collins, CO**

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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 is a current 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.

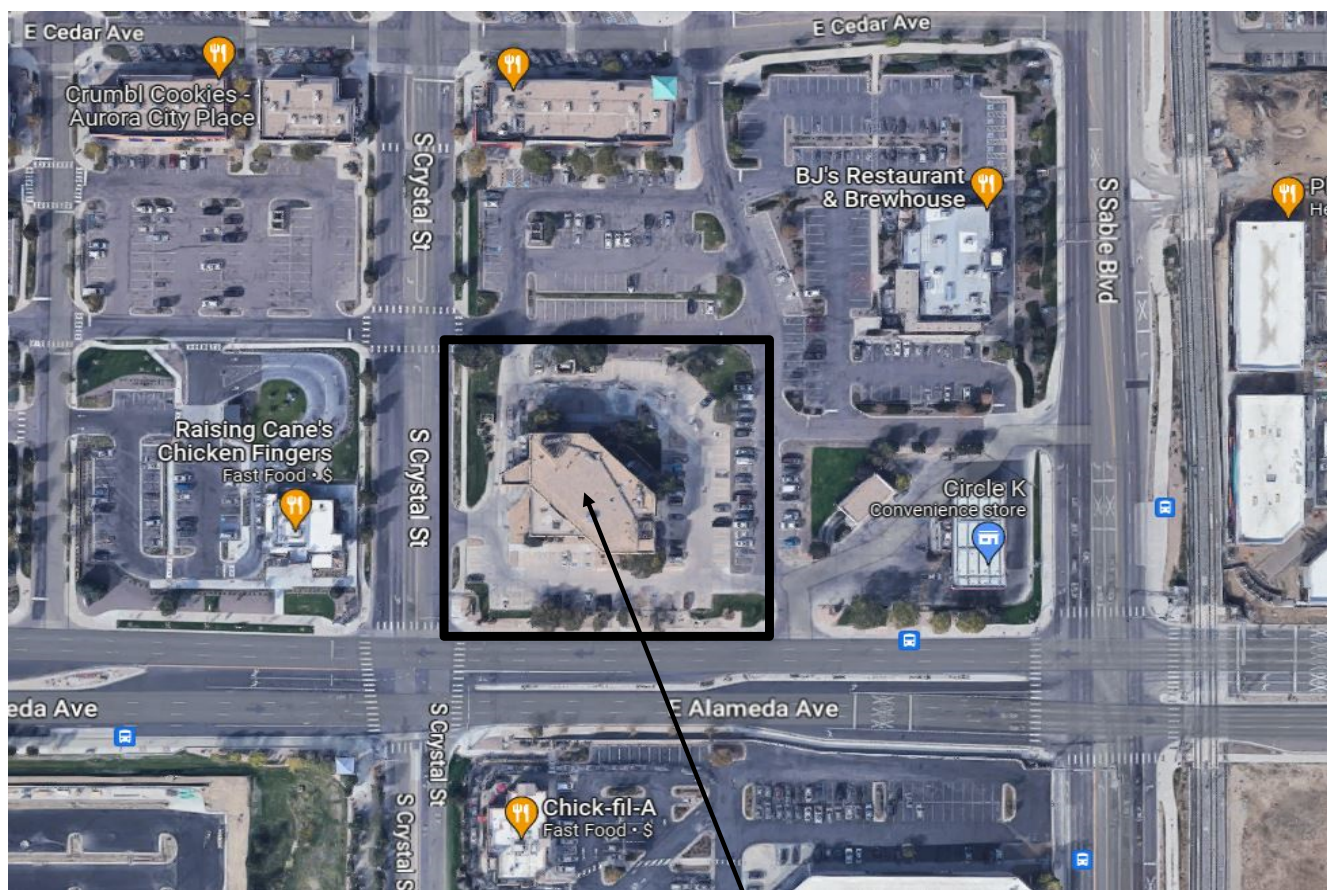
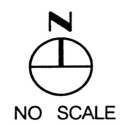
The proposed layout of the overall site is shown in Figure 2. The site will consist of a 16-pump gas station and convenience store. The land uses and resulting trip generation is shown in Table 1.

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 Site Access 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

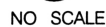


FIGURE 2

SITE PLAN

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 Site Access 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. This site is a current office building bounded by existing commercial properties to the north and east, Crystal Street 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 Site Access 2
- E. Alameda Avenue and Crystal Street
- Crystal Street and Site Access 1
- S. Sable Boulevard and Site Access 3

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 an internal north/south roadway that is accessible from Site Access 2 and Site Access 3. The third access point is along the Site Access 1 (east/west) internal road and the access will be just east of the intersection of Crystal Street and 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 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 has two through lanes in each direction, dual southbound and northbound left turn lanes 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. The existing geometry is shown in Figure 3.



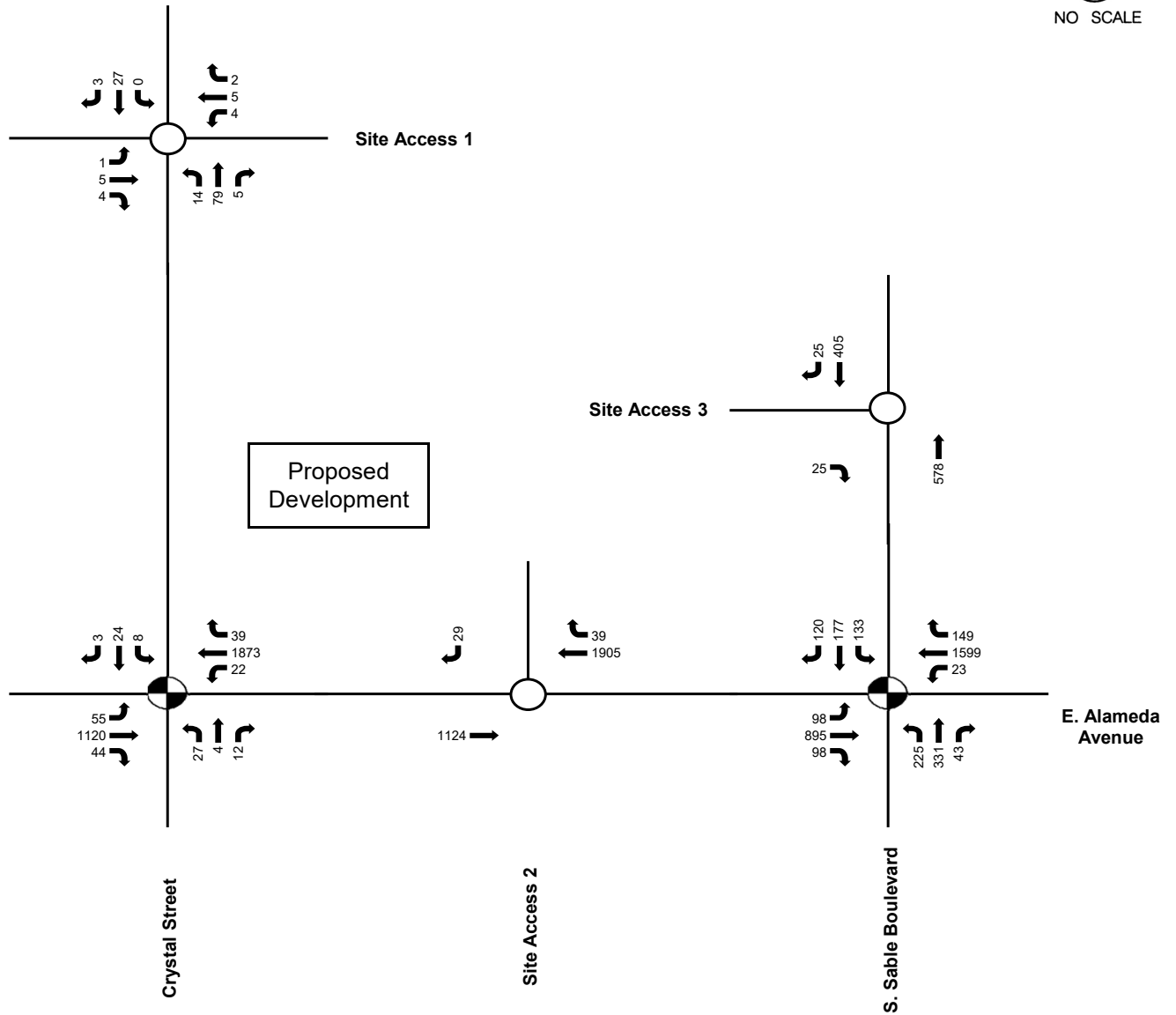
4/28/23 10:54 AM

CHAPTER 3: EXISTING (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 Site Access 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 | 155 Traffic Volume |
| | Signalized Intersection | Through Traffic Lane |
| | Future Intersection Leg | Turning Traffic Lane (Right or Left Lane) |

FIGURE 4
2023 AM PEAK HOUR
BACKGROUND VOLUMES

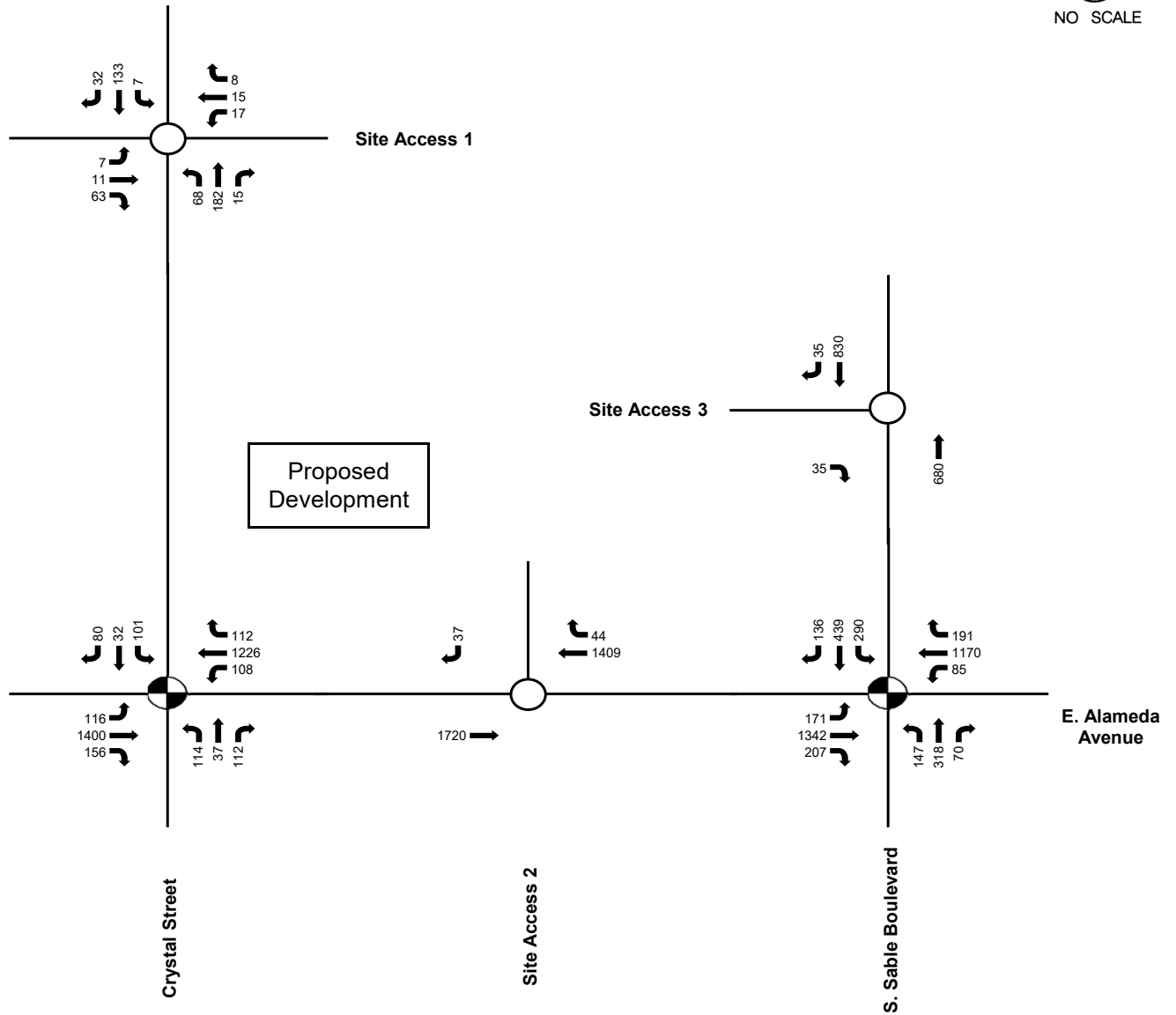
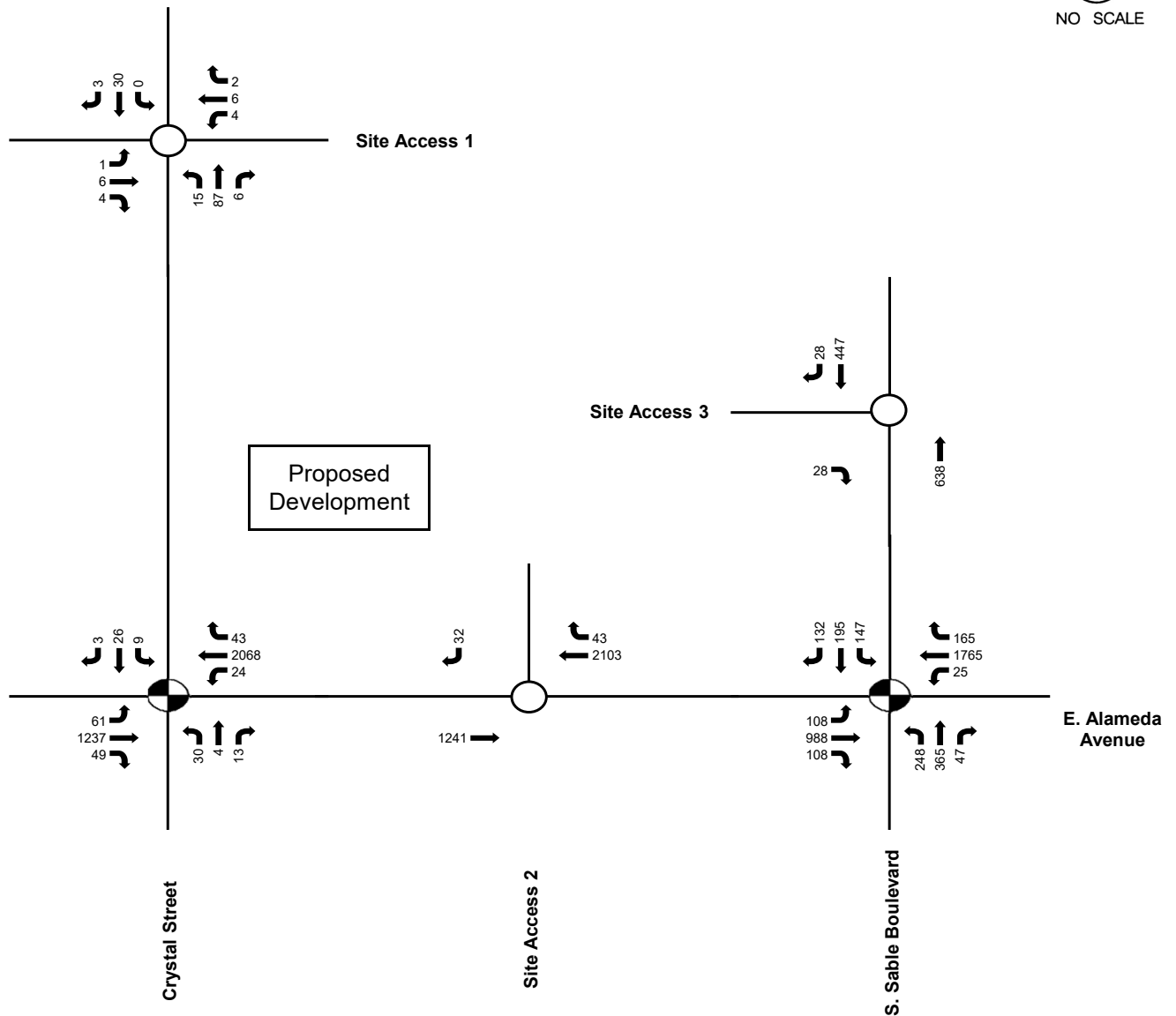
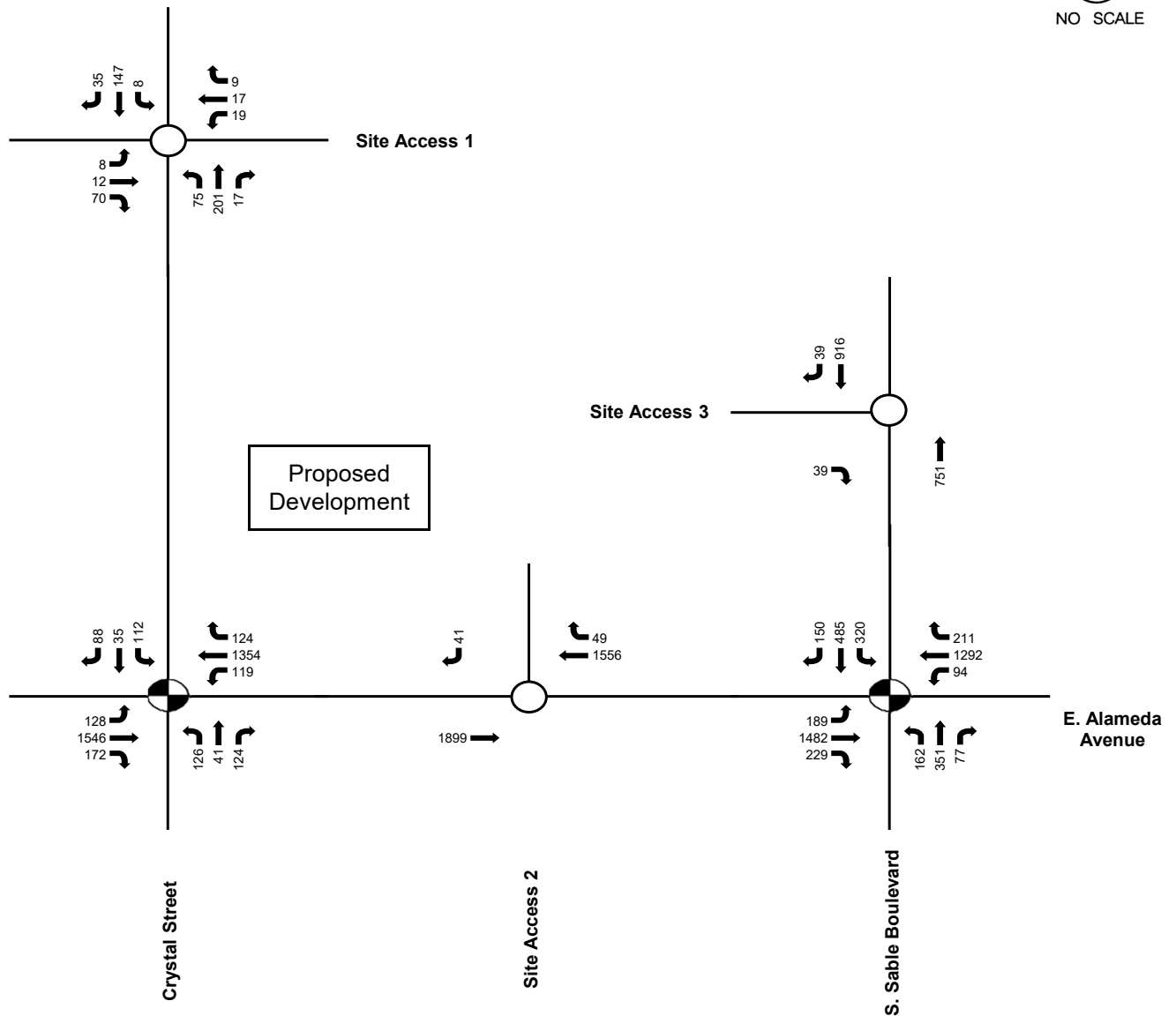


FIGURE 5
2023 PM PEAK HOUR
BACKGROUND VOLUMES



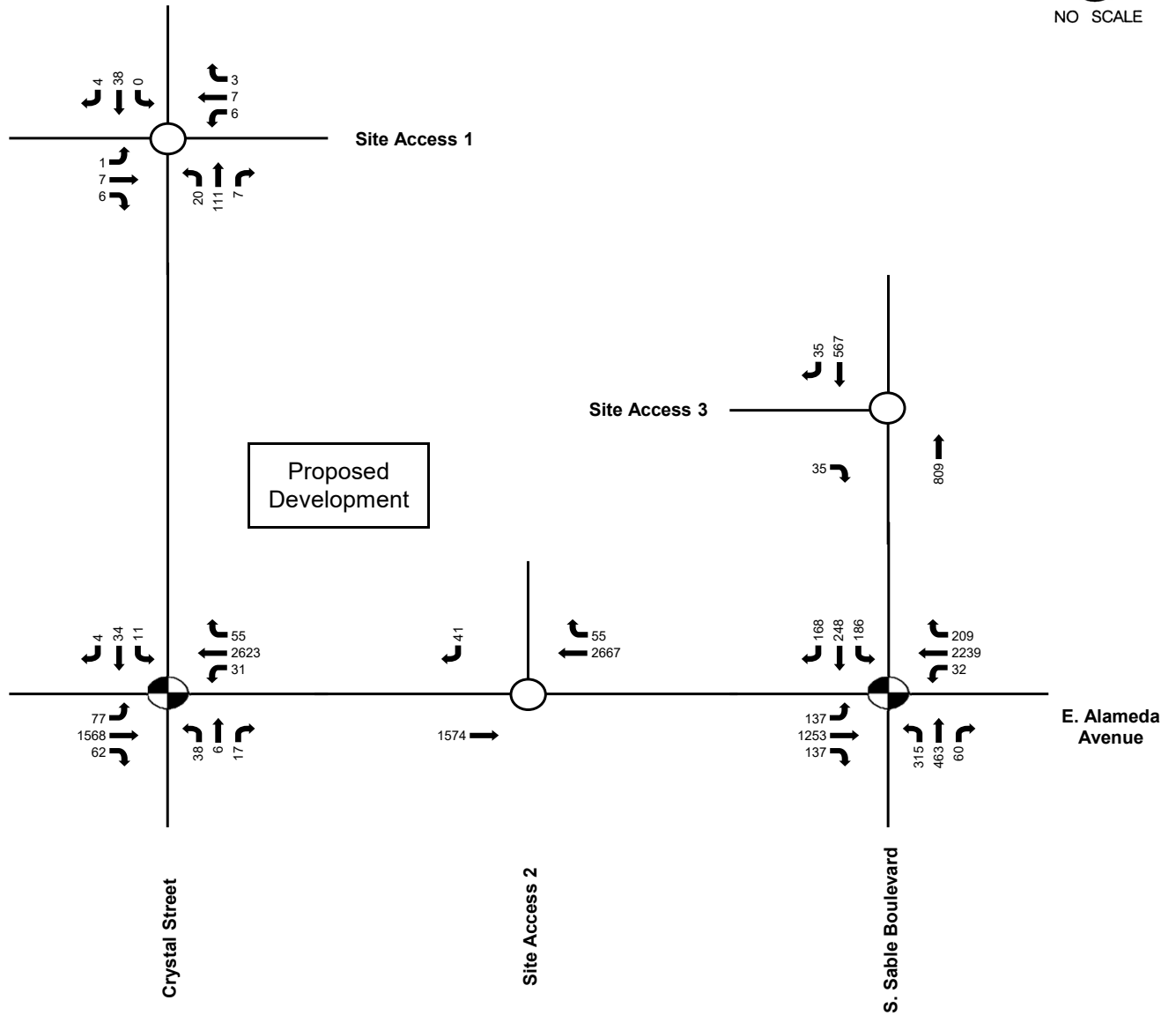
| LEGEND | | |
|--------|---------------------------|---|
| | Unsignalized Intersection | 155 |
| | Signalized Intersection | Through Traffic Lane |
| | Future Intersection Leg | Turning Traffic Lane (Right or Left Lane) |

FIGURE 6
2028 AM PEAK HOUR
BACKGROUND VOLUMES



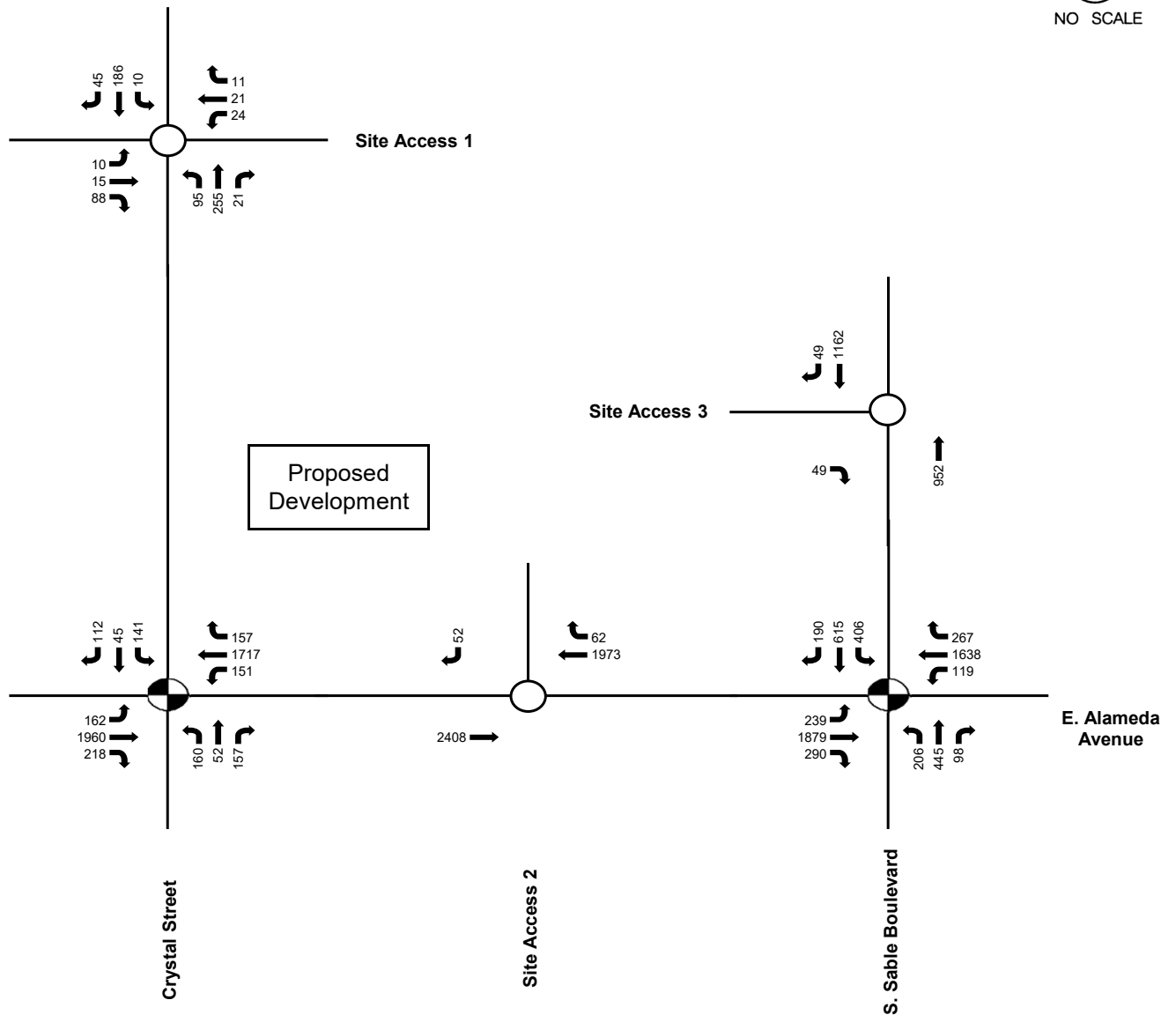
| LEGEND | | |
|--------|---------------------------|---|
| | Unsignalized Intersection | 155 Traffic Volume |
| | Signalized Intersection | Through Traffic Lane |
| | Future Intersection Leg | Turning Traffic Lane (Right or Left Lane) |

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



LEGEND

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

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 Site Access 3 or from the intersection of E. Alameda Avenue and Site Access 2. The third access is located just east of the intersection of Crystal Street and Site Access 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

| Lot No. | Land Use | Intensity | Unit | Daily Trip Rate | ADT | Pass-by Reduced Trips | | | | | | | | | | | | | | | | |
|---------------|--|-----------|------|--------------------|------|-----------------------|--------------------|-----|-------|------|--------------------|-----|-------|------|--------------------|-----|-------|------|--------------------|-----|-------|----|
| | | | | | | Rate | AM Peak Hour In | Out | Total | Rate | PM Peak Hour In | Out | Total | Rate | AM Peak Hour In | Out | Total | Rate | PM Peak Hour In | Out | Total | |
| | 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 | PM Peak Hour |
| | 50% 50% | 50% 50% |



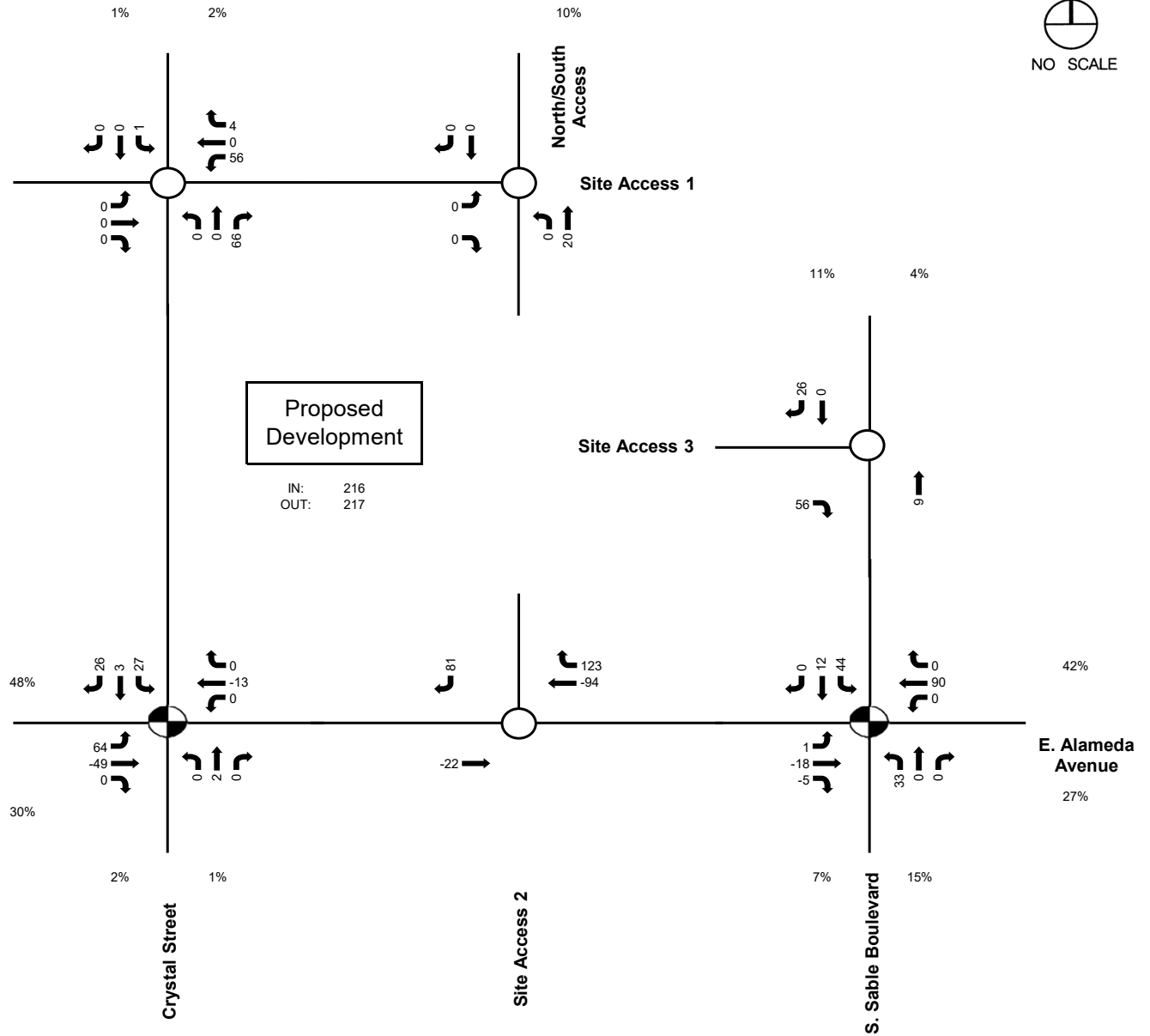
TABLE 1
Trip Generation

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.

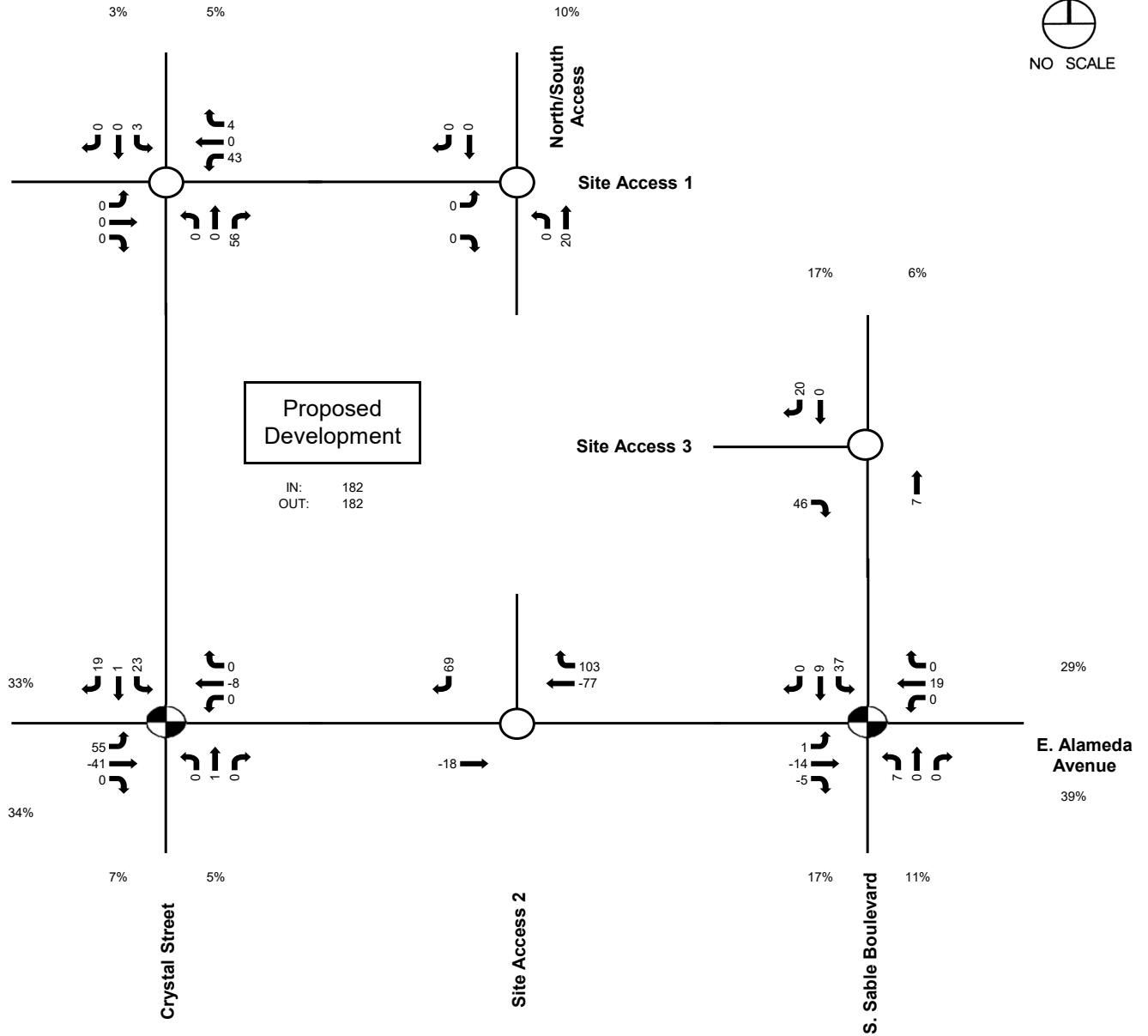
The orientation of site-generated traffic is a function of trip purposes, surrounding land uses, and the configuration and accessibility of the street network. The vehicle trips estimated by the trip generation process are directionally distributed onto the roadway network using directional percentages 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 Site Access 2. 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 distribution is shown in Figure 10 with the PM shown in Figure 11.

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 12 and for the PM peak hour in Figure 13. Figure 14 shows the 2028 AM build-out volumes with Figure 15 showing the 2028 PM build-out volumes. The volumes for the future build-out year of 2040 are shown in Figure 16 for the AM peak hour and Figure 17 for the PM peak hour.



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

FIGURE 10
AM PEAK HOUR
TRIP DISTRIBUTION VOLUMES



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

FIGURE 11
PM PEAK HOUR
TRIP DISTRIBUTION VOLUMES

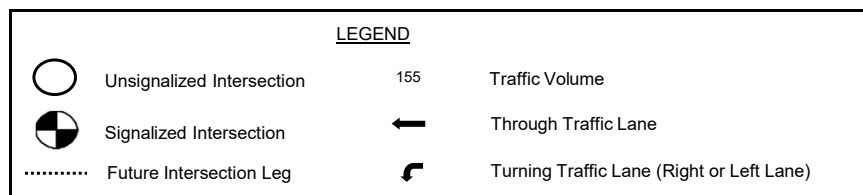
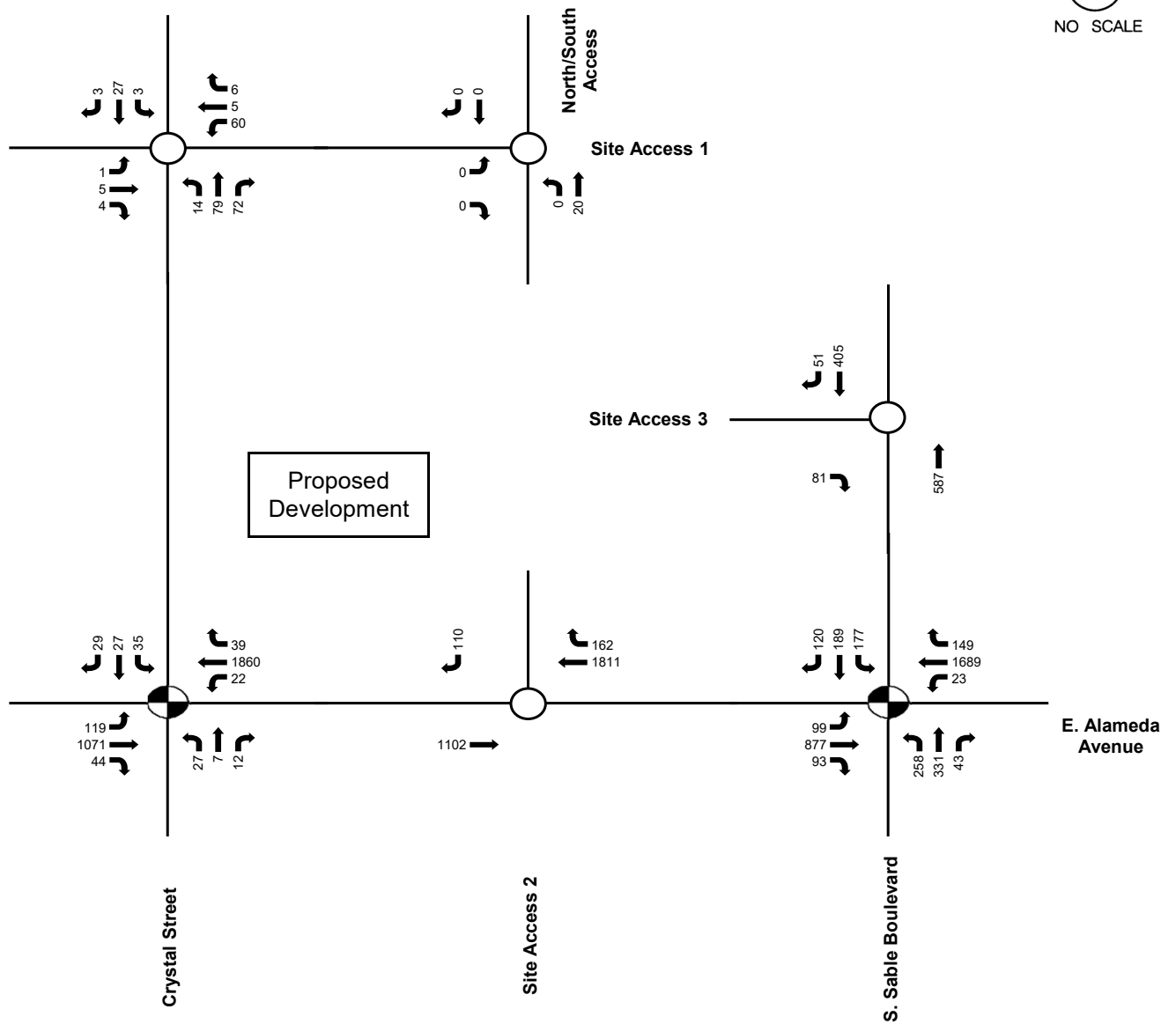


FIGURE 12
2023 AM PEAK HOUR
BUILD-OUT VOLUMES

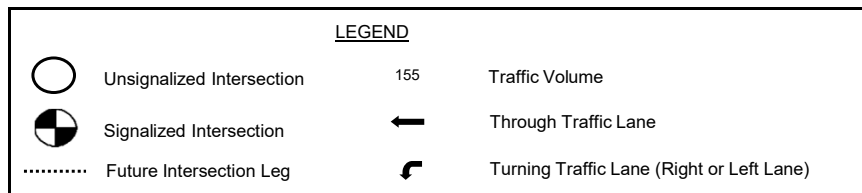
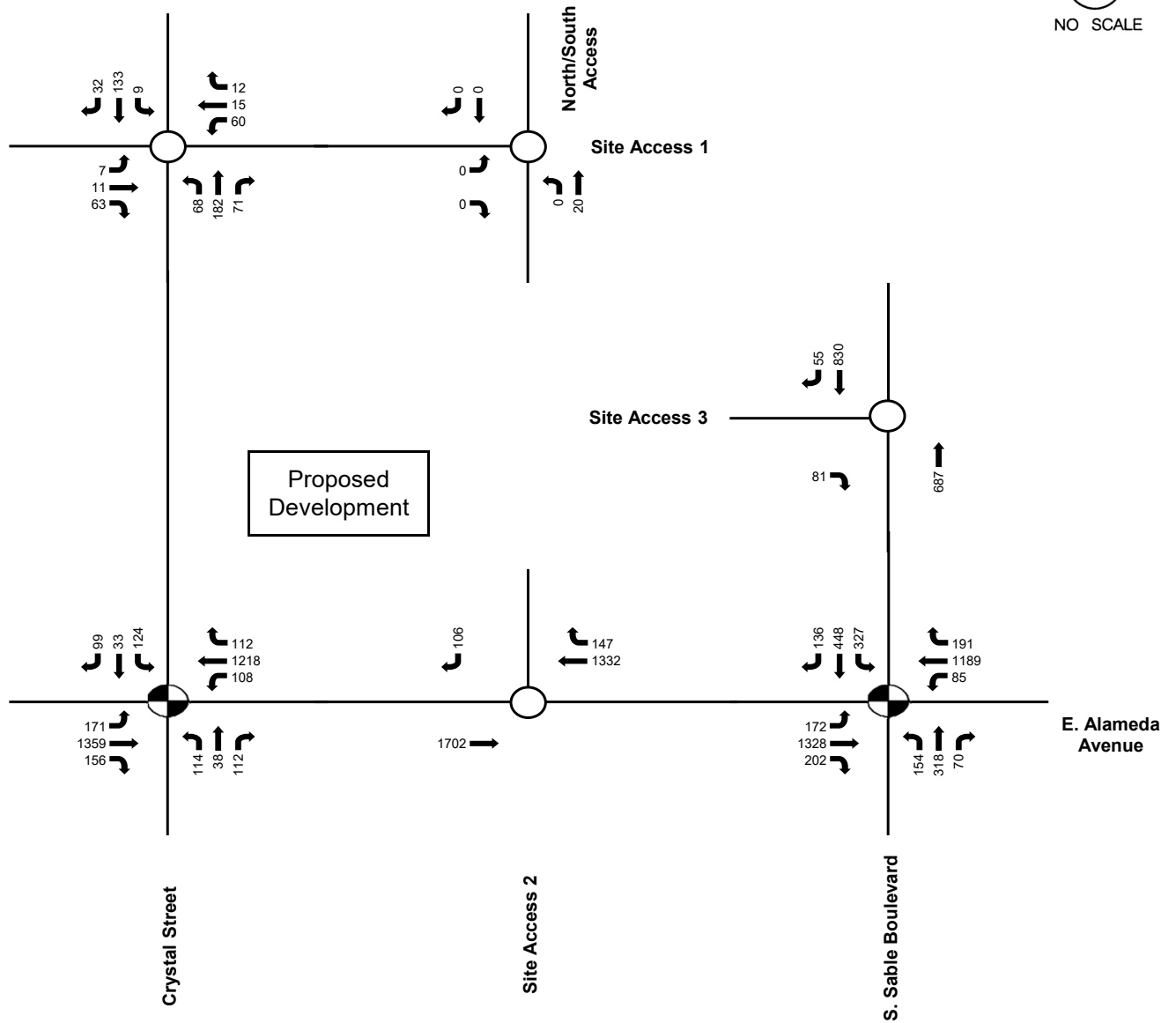
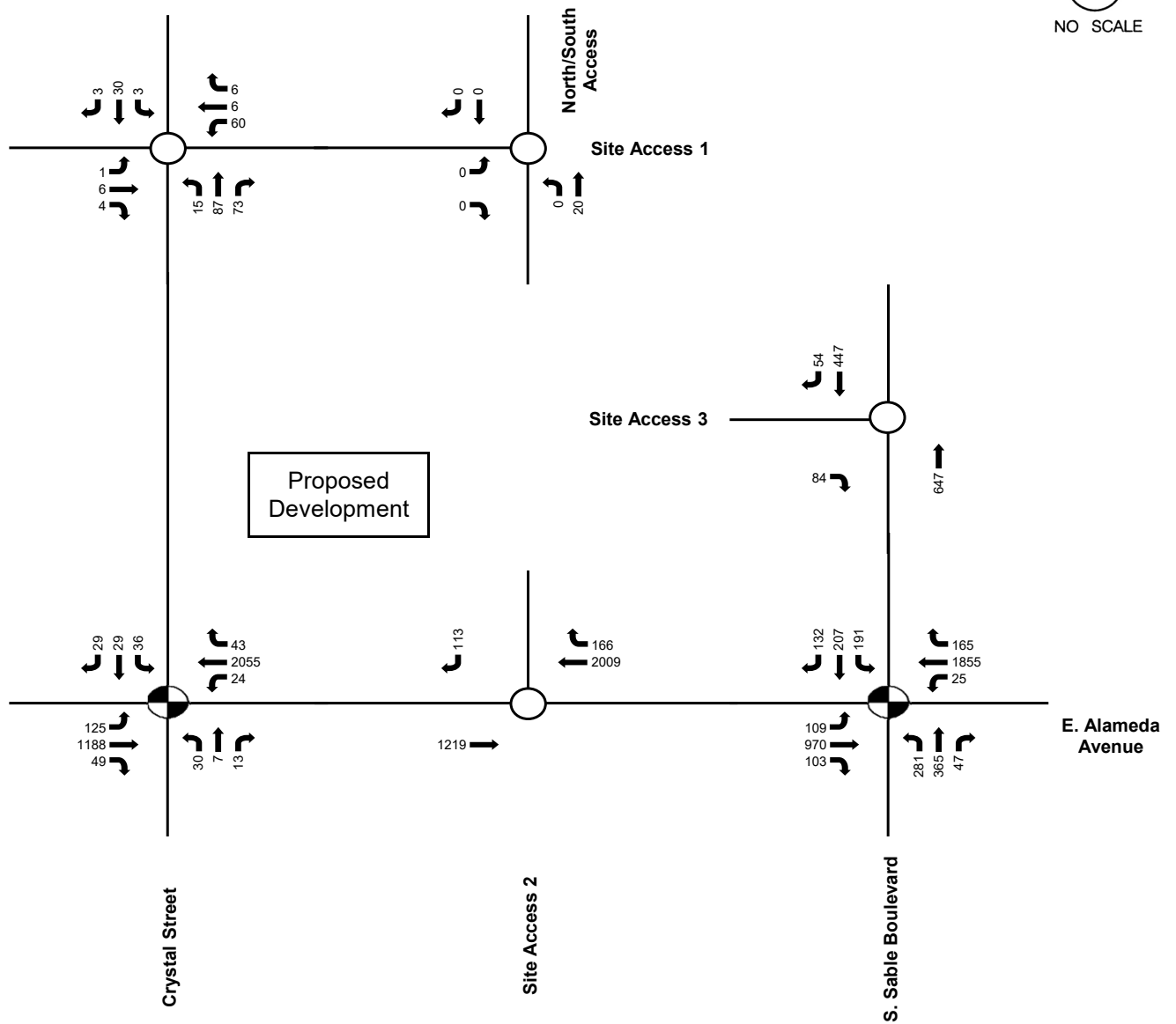


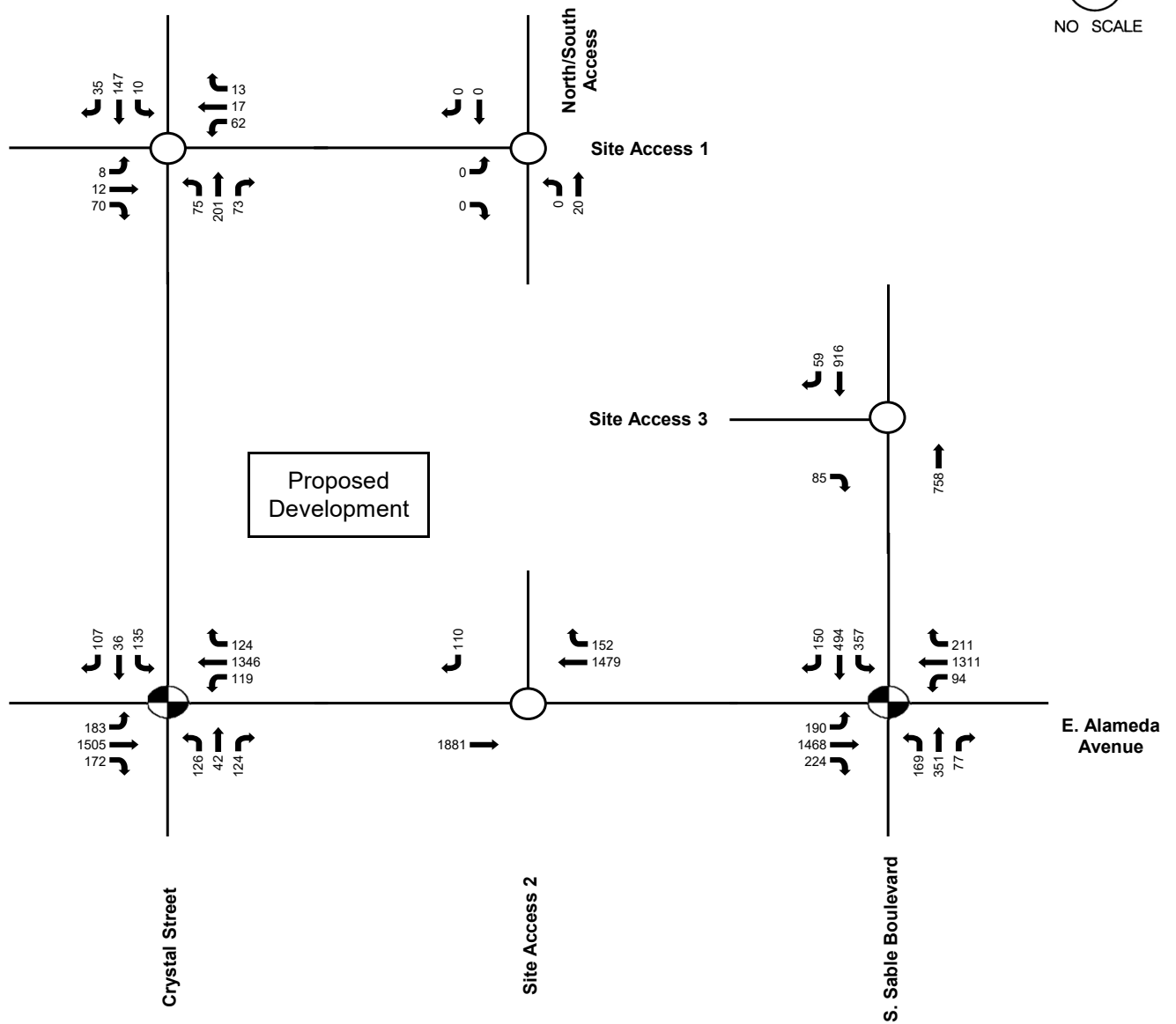
FIGURE 13
2023 PM PEAK HOUR
BUILD-OUT VOLUMES



LEGEND

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

FIGURE 14
2028 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 15
2028 PM PEAK HOUR
BUILD-OUT VOLUMES

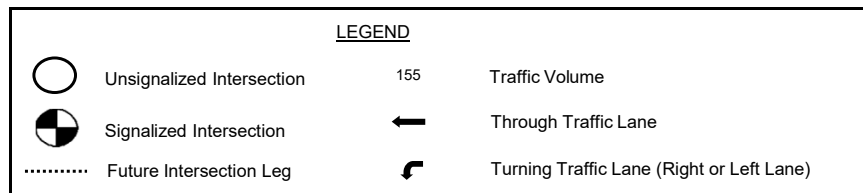
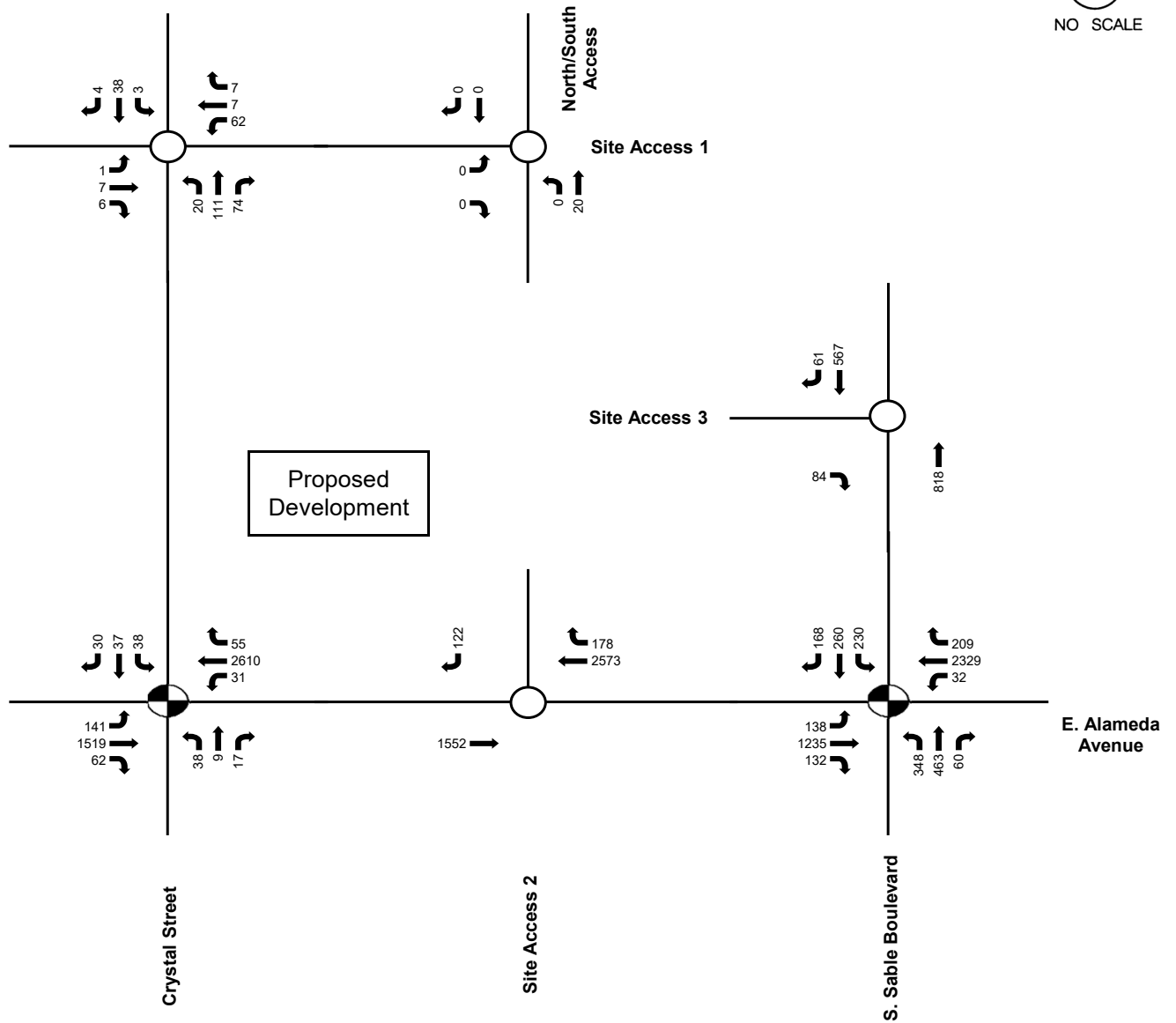
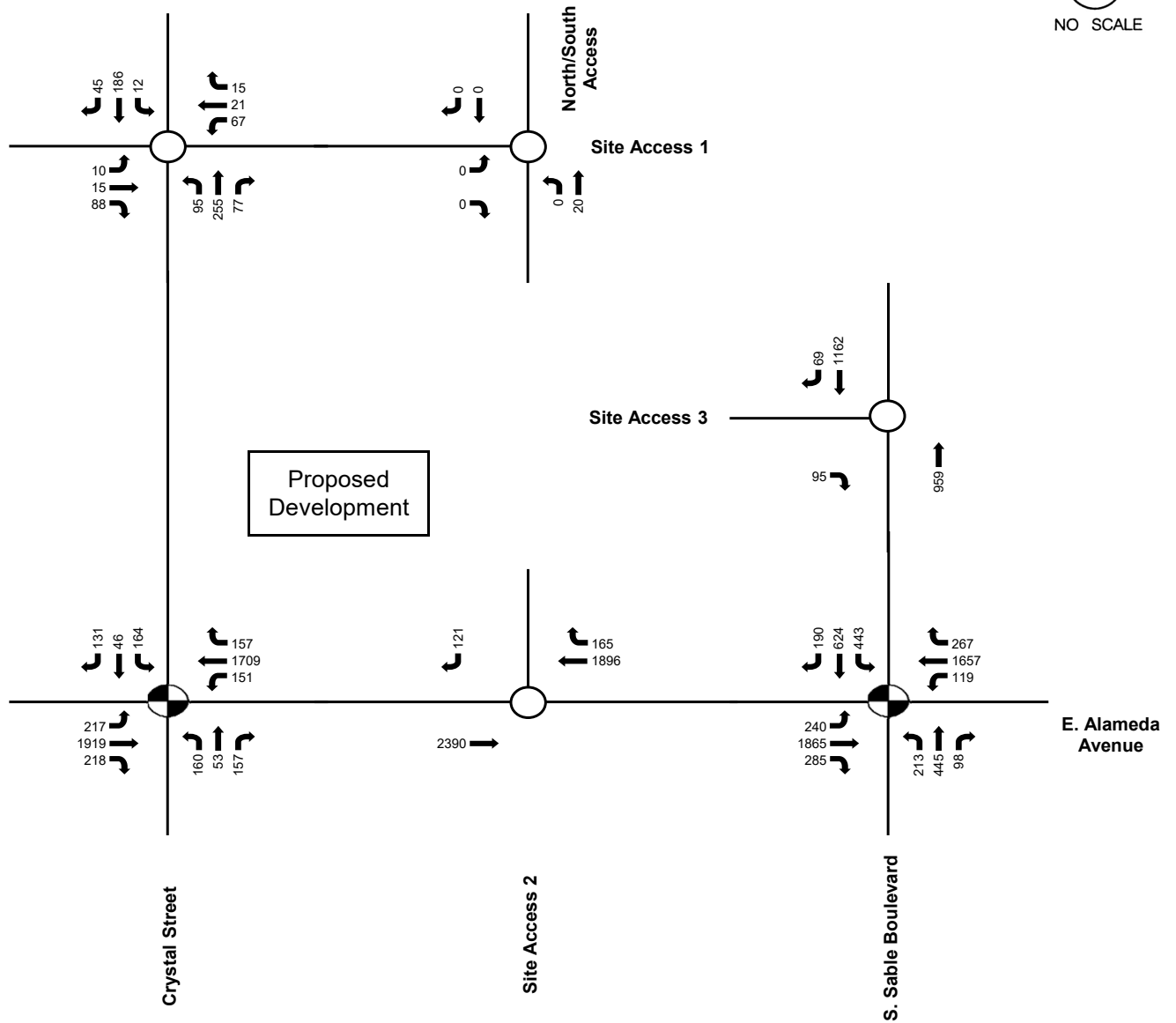


FIGURE 16
2040 AM PEAK HOUR
BUILD-OUT VOLUMES



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

FIGURE 17
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.

This intersection is anticipated to be above the threshold of westbound right turn lane in this scenario. This is solely based on the NCHRP 279 report and not based on performance as this movement is anticipated to operate at a LOS of B in both peak hours in this scenario.

- Crystal Street and Site Access 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. According the NCHRP 279 report, the intersection of E. Alameda Avenue and Site Access 2 is anticipated to be above the threshold for a westbound right turn lane in this scenario. This is based only on the warrant graph and not based on performance as this movement is a “free” movement and is therefore anticipated to operate at a LOS of A in both peak hours.

The 2023 Background LOS and the corresponding delays are included in Figure 18.

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 Site Access 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.

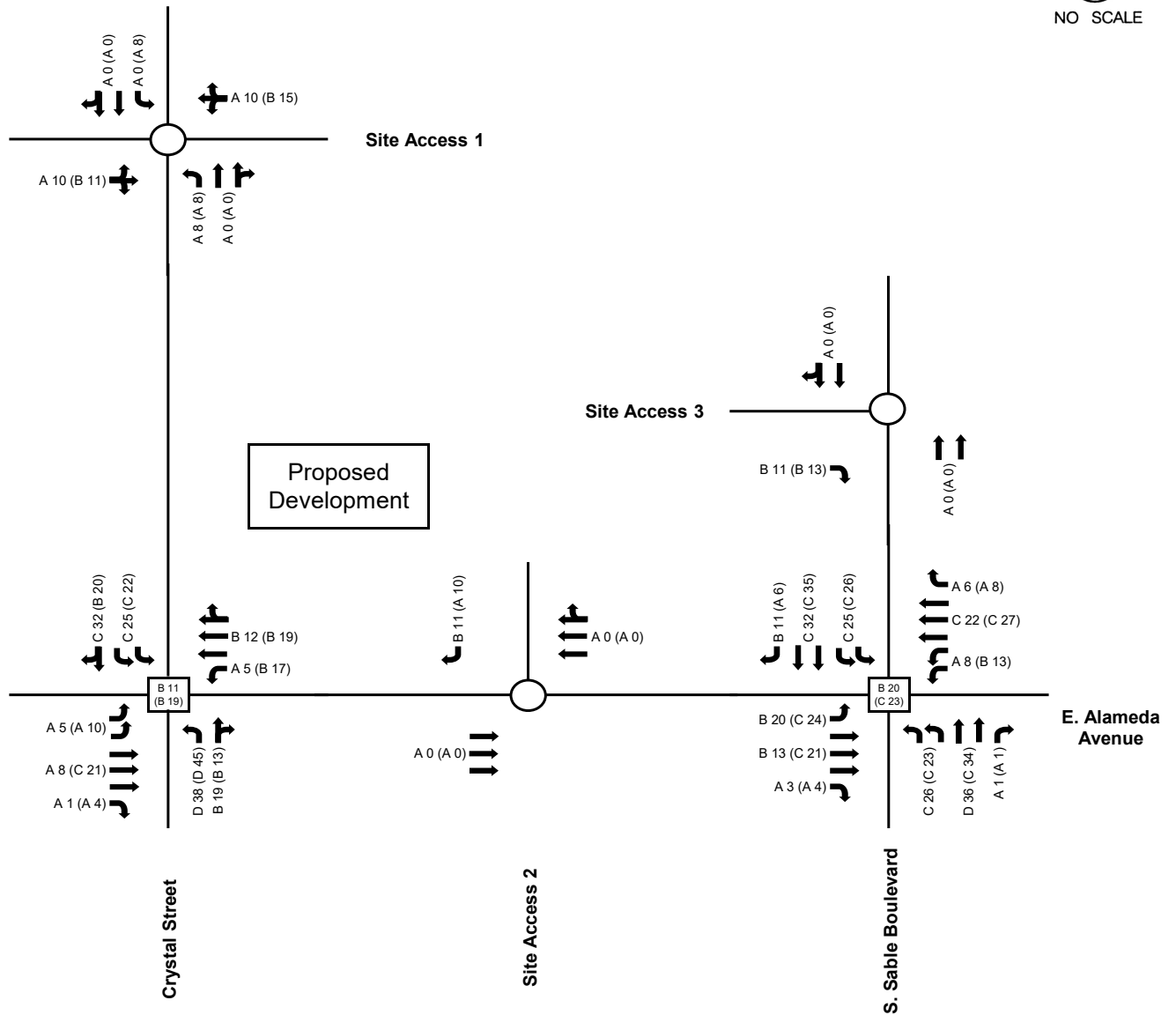
- Remaining Intersections: The remaining individual movements are anticipated to operate at a LOS of B or better in both peak hours, which is similar to the previous scenario.

The 2028 Background LOS and the corresponding delays are included in Figure 19.

Background Year 2040 Analysis

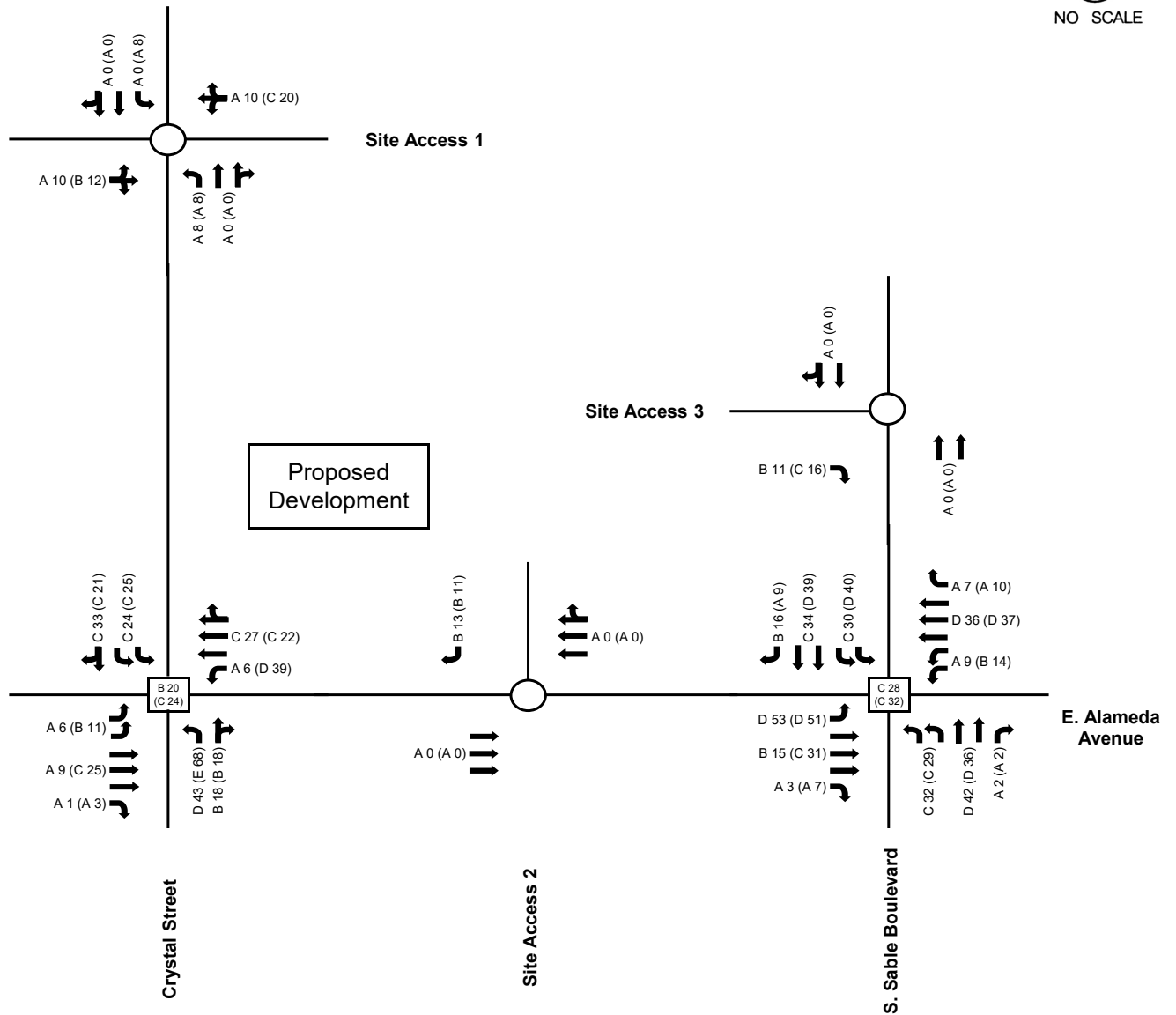
- E. Alameda Avenue and S. Sable Boulevard: This signalized intersection is anticipated to operate at an overall LOS of C in both peak hours. All of the individual movements are anticipated to operate at a LOS of D or better in both peak hours.
- E. Alameda Avenue and Crystal Street: The overall LOS 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 Site Access 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 previous 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 20.



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

FIGURE 19
2028 BACKGROUND PEAK HOUR
LEVEL OF SERVICE



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

FIGURE 20
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 Site Access 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 21.

Build-out Year 2028 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 slight decrease in performance in the AM peak hour from the 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 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 Site Access 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 22 shows the 2028 Build-out LOS and the corresponding delays.

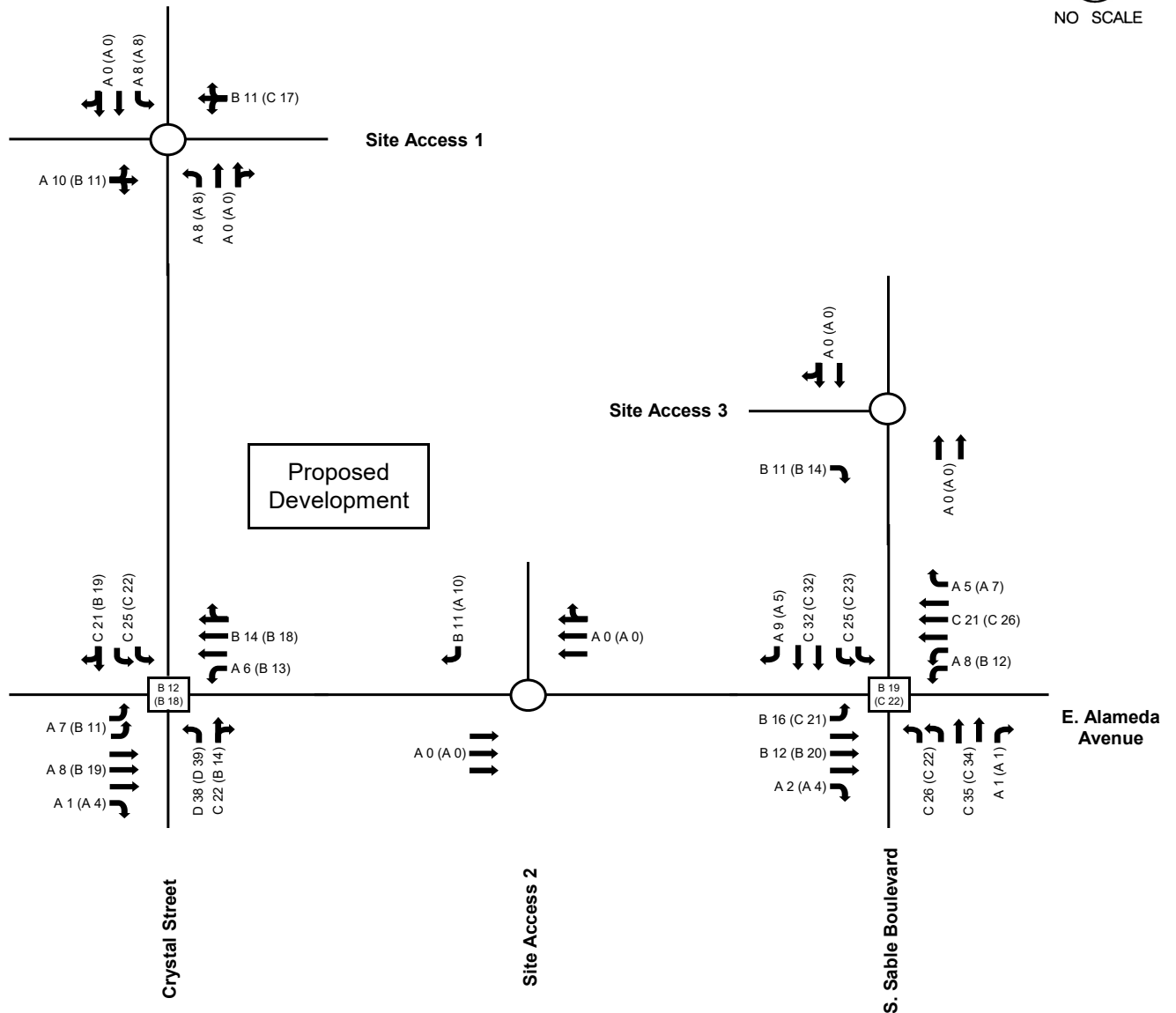
Build-out Year 2040 Analysis

- 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 except for one are anticipated to operate at a LOS of D or better in both peak hours. The eastbound left turning movement is anticipated to

operate at a LOS of E in the AM peak hour. This is a slight decrease in performance from the 2040 background scenario.

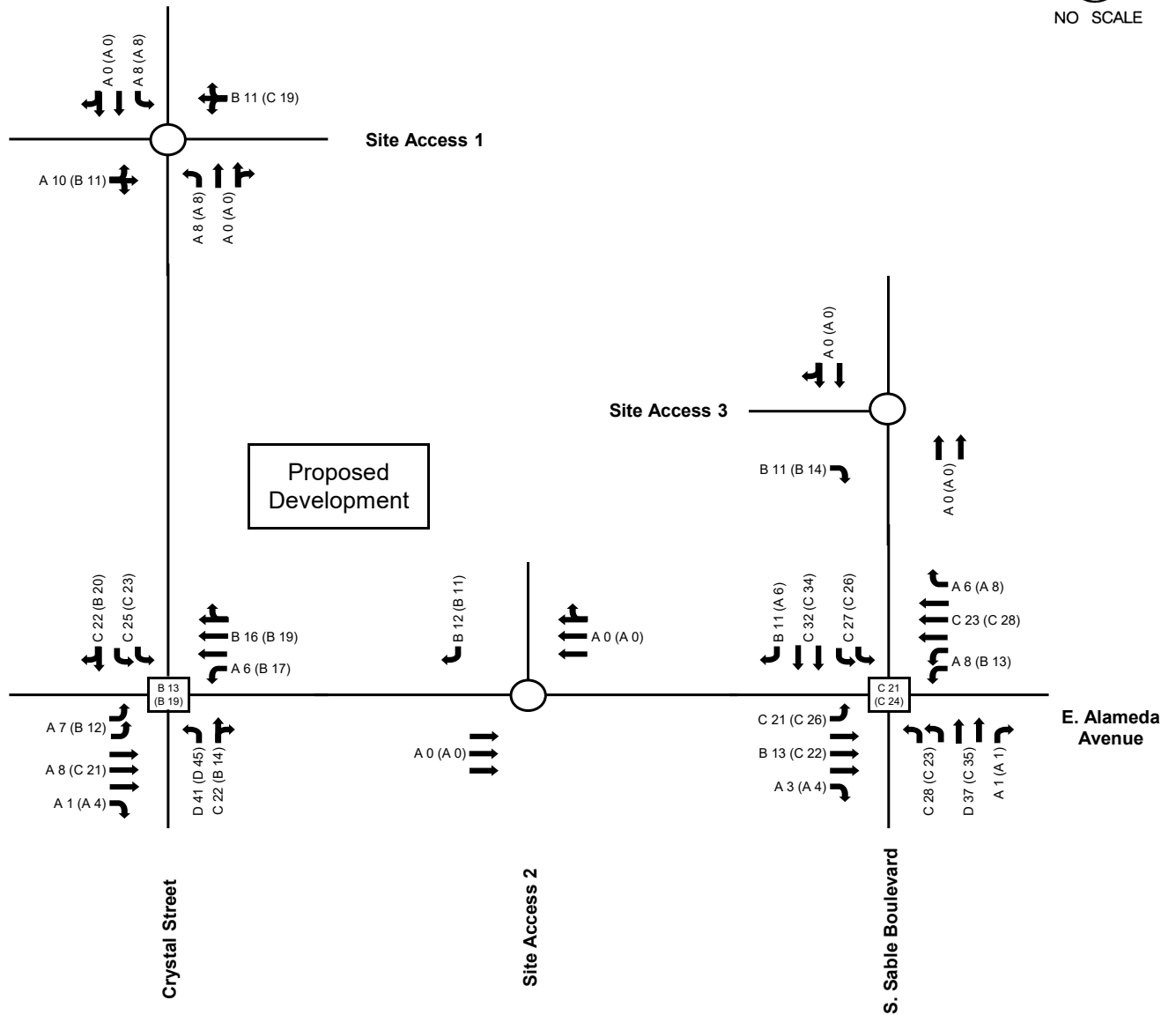
- E. Alameda Avenue and Crystal Street: The overall LOS for this intersection is anticipated to be a C in both the AM and PM peak hour, which is a slight decrease in performance in the AM peak hour from the 2040 background scenario. All of the individual movements except for one are anticipated to operate 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 Site Access 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 23 shows the 2040 Build-out LOS and the corresponding delays.



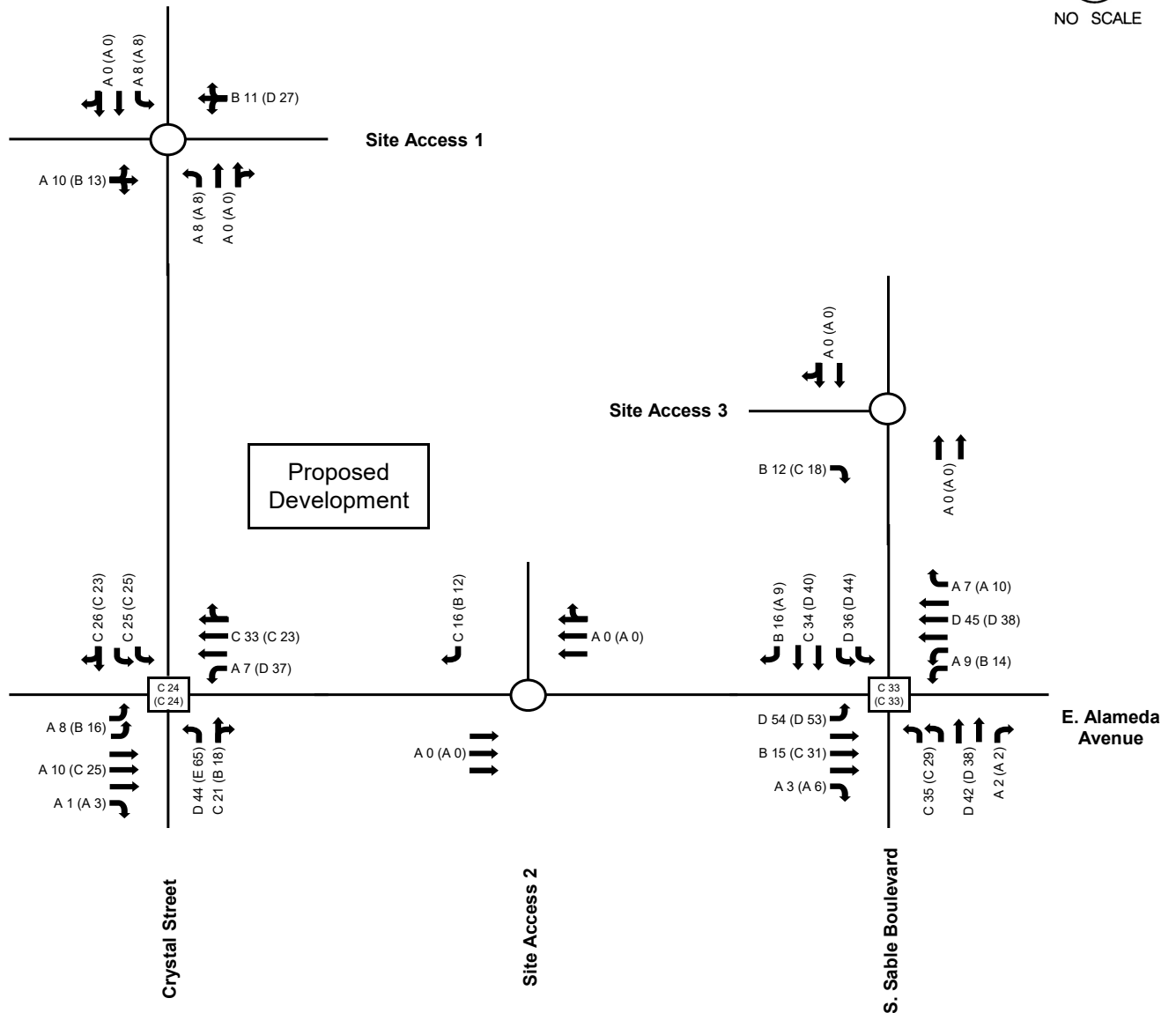
| LEGEND | | | |
|--------|---------------------------|-------------|---|
| | Unsignalized Intersection | B 12 (C 21) | Level of Service AM(PM), seconds |
| | Signalized Intersection | | Through Traffic Lane |
| | Future Intersection Leg | | Turning Traffic Lane (Right or Left Lane) |

FIGURE 21
2023 BUILD-OUT PEAK HOUR
LEVEL OF SERVICE



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

FIGURE 22
2028 BUILD-OUT PEAK HOUR
LEVEL OF SERVICE



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

FIGURE 23
2040 BUILD-OUT PEAK HOUR
LEVEL OF SERVICE

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 Site Access 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 24 through Figure 29.

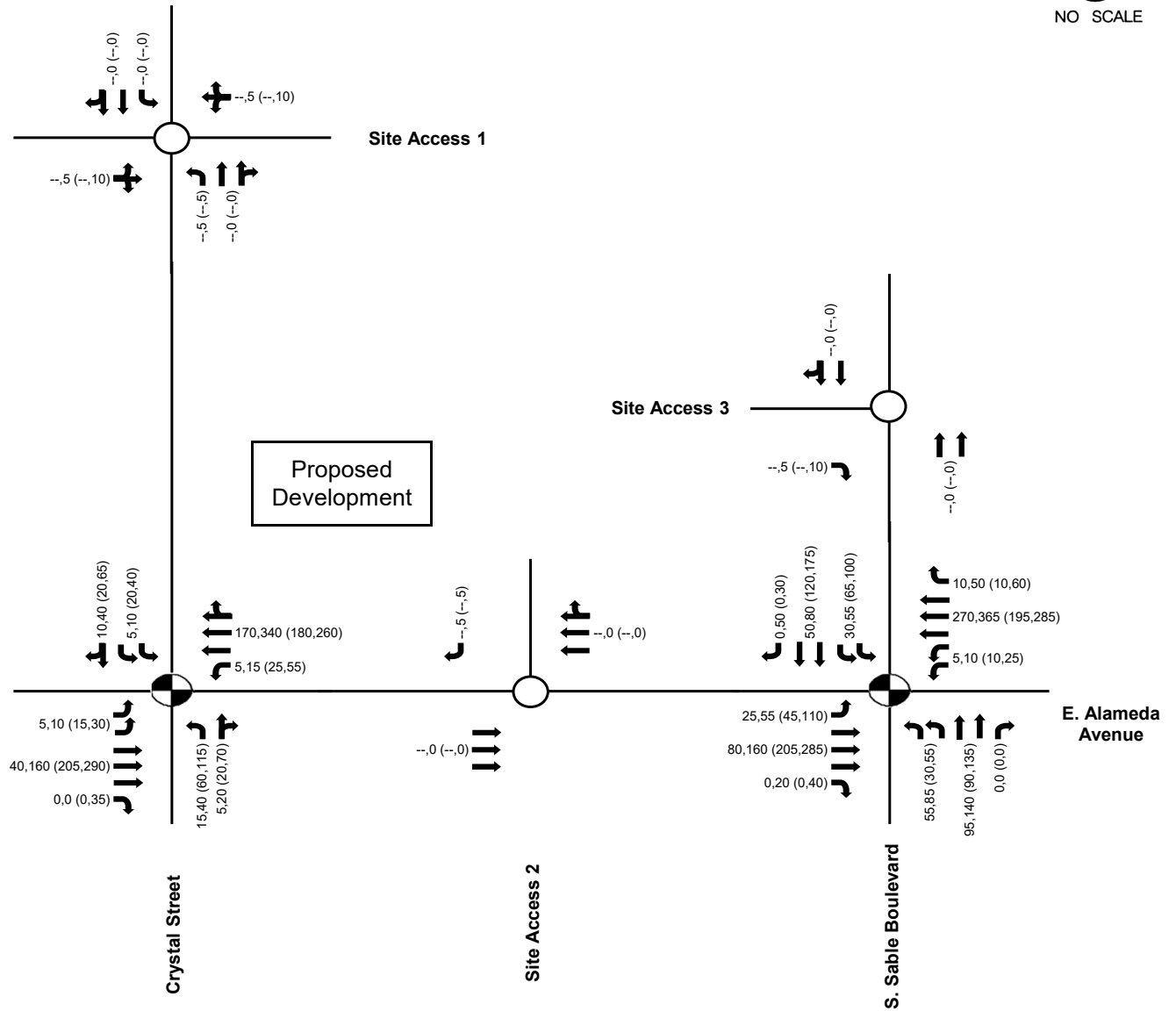
5.4 Turn Lane Warrants

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 NCHRP 279 report. This turn lane is not 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 Site Access 3 and Site Access 2. Based off of the NCHRP 279 report, both of these intersections are anticipated to be above the threshold for a right turn lane. The intersection of Site Access 2 is anticipated to be above the threshold for a westbound right turn lane in the 2023 background scenario. The intersection of Site Access 3 is anticipated to be above the threshold for a southbound right turn lane in the 2040 background scenario. As these movements are both free movements, both intersections do not warrant 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 Site Access 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

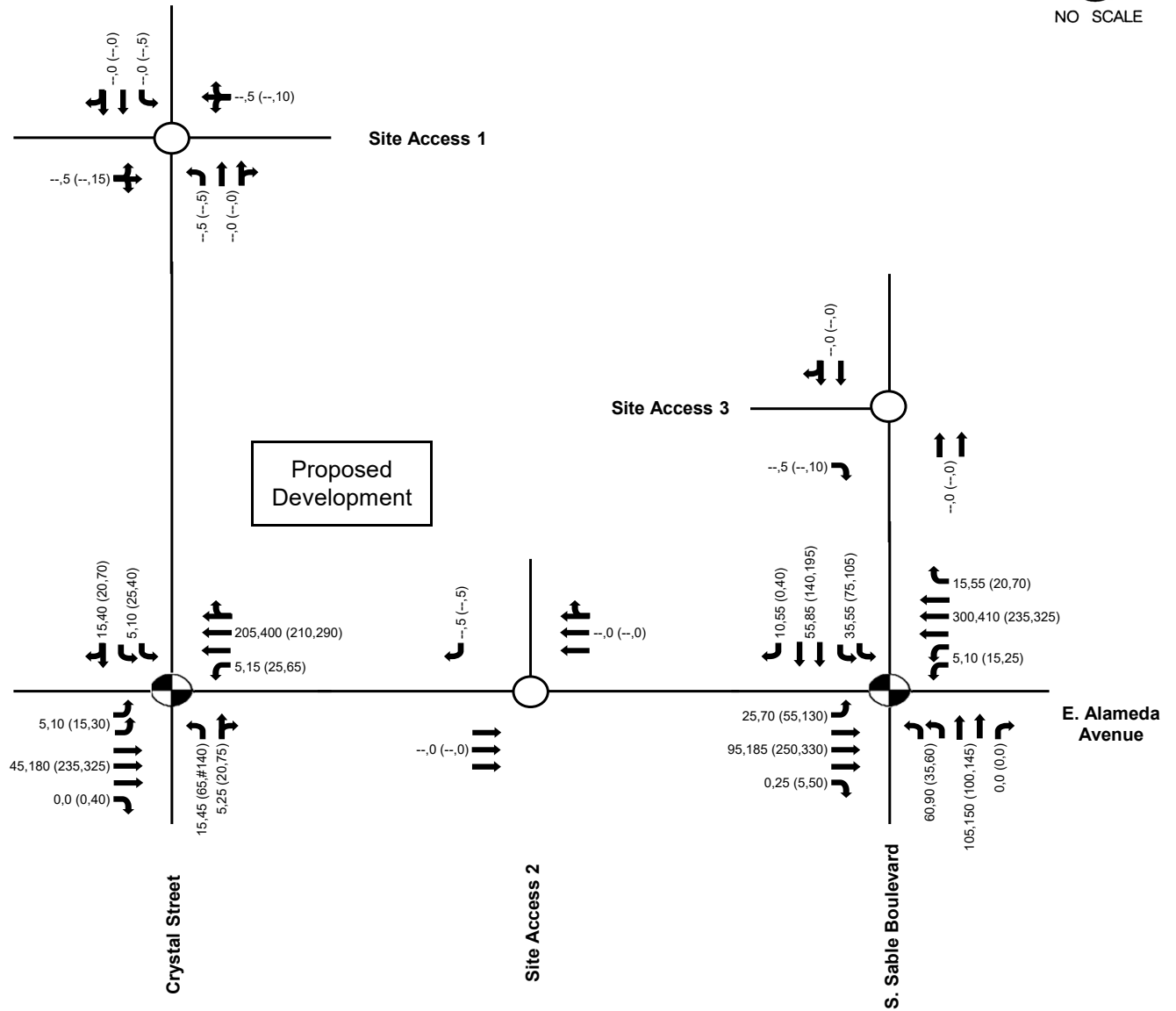
intersection. Both of the major intersections along E. Alameda Avenue, Crystal Street and S. Sable Boulevard, have crosswalks on all four intersection legs. The nearest light rail stop is located along S. Sable Boulevard, south of E. Alameda Avenue on the east side of the road. Access to this station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



LEGEND

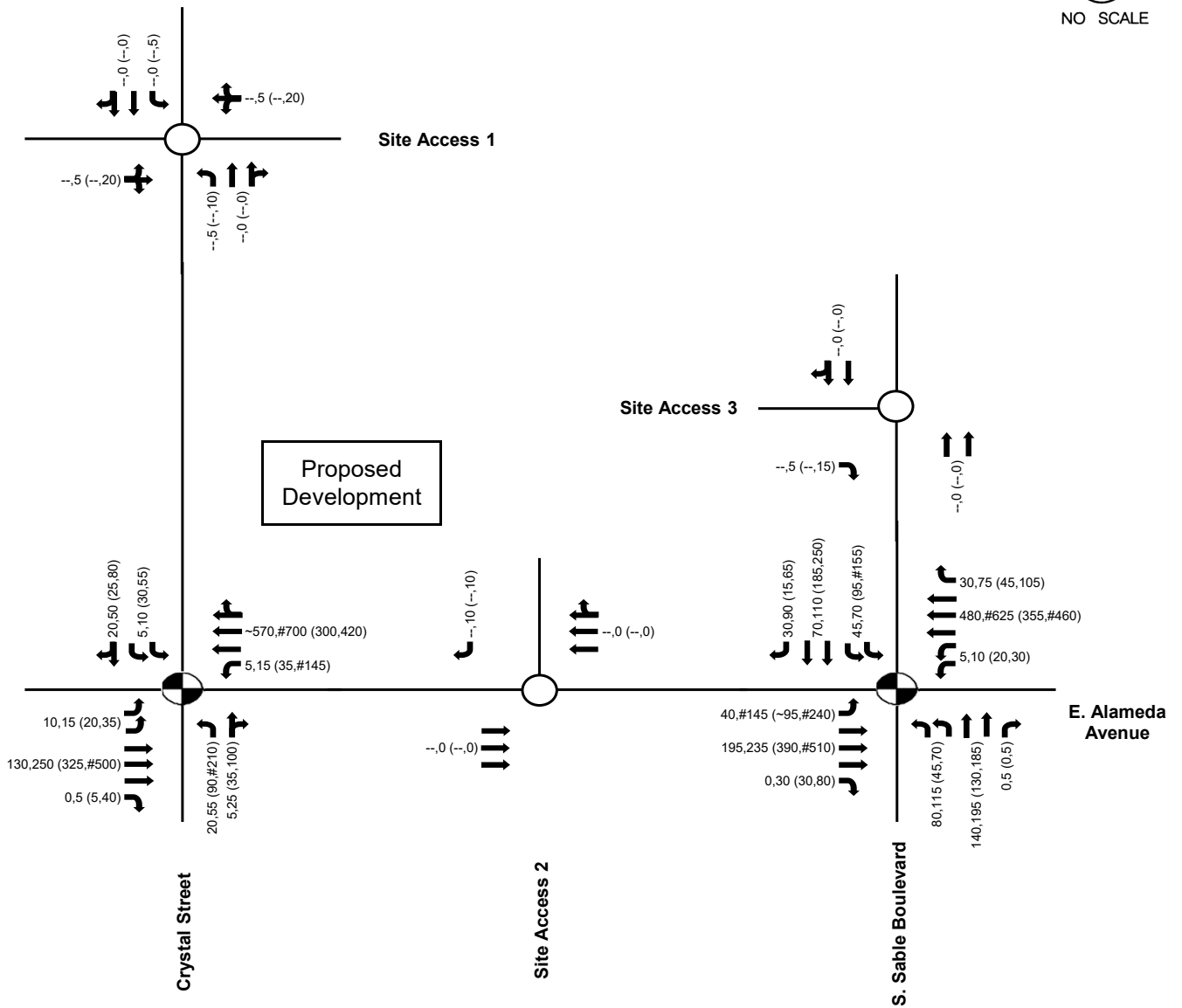
| | | | |
|--|---------------------------|--------------|---|
| | Unsignalized Intersection | 5,15 (25,55) | Queue Length AM 50th,95th (PM 50th,95th) |
| | Signalized Intersection | | Through Traffic Lane |
| | Future Intersection Leg | | Turning Traffic Lane (Right or Left Lane) |

FIGURE 24
2023 BACKGROUND PEAK HOUR
QUEUE LENGTHS



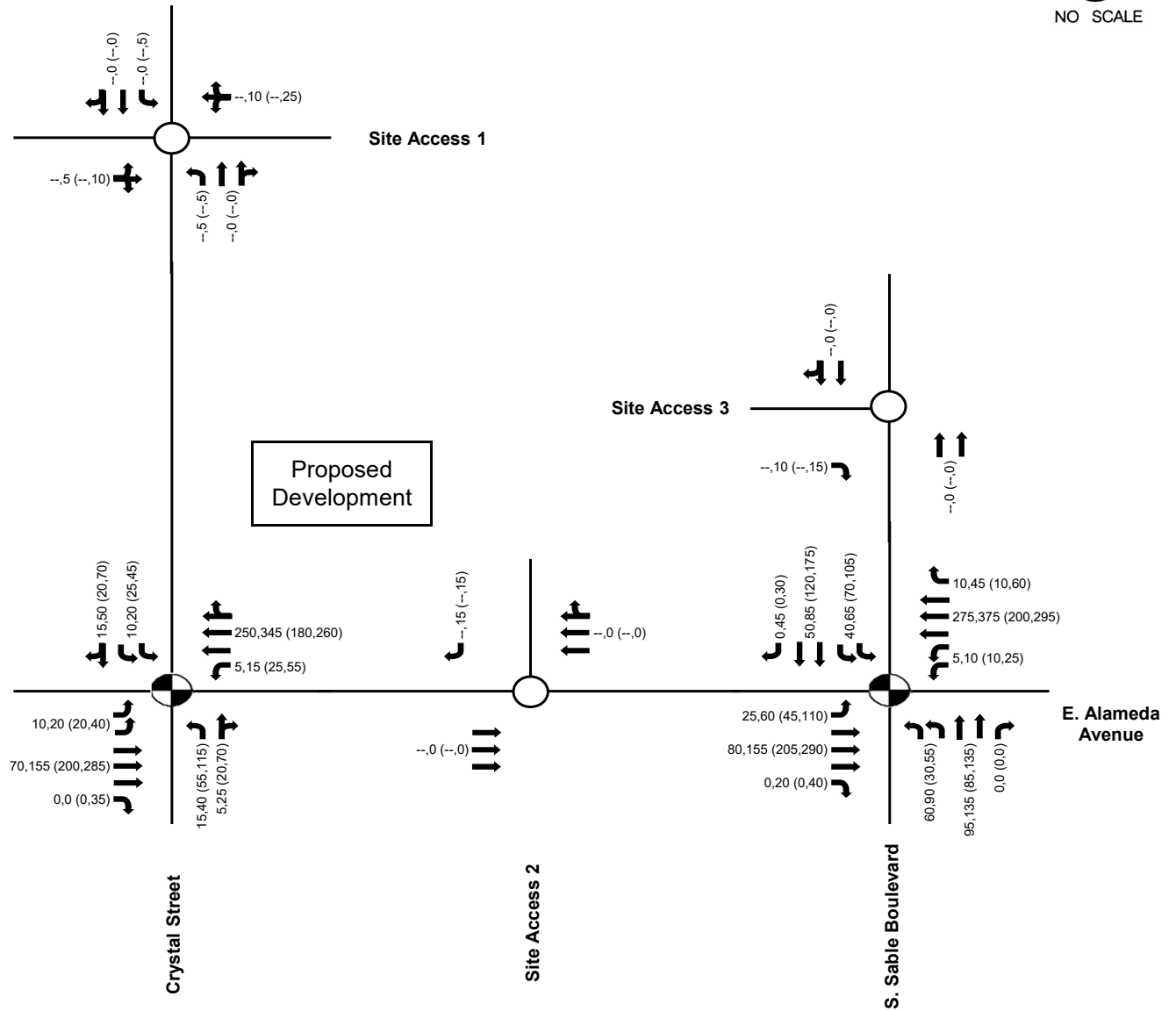
| LEGEND | | |
|--------|---------------------------|---|
| | Unsignalized Intersection | 5,15 (25,55) Queue Length AM 50th,95th (PM 50th,95th) |
| | Signalized Intersection | ↑ Through Traffic Lane |
| | Future Intersection Leg | ↪ Turning Traffic Lane (Right or Left Lane) |

FIGURE 25
2028 BACKGROUND PEAK HOUR
QUEUE LENGTHS



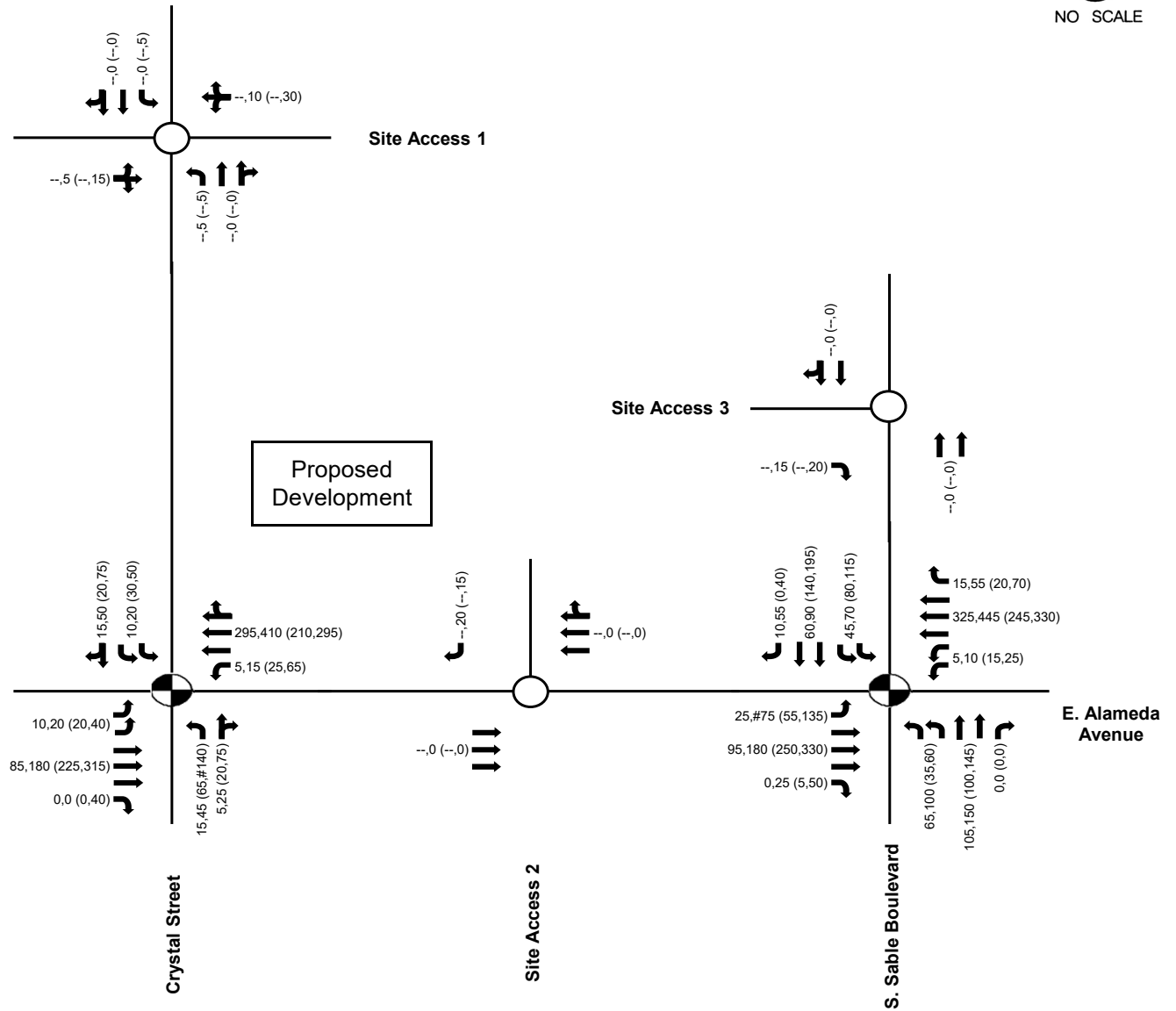
| LEGEND | | |
|--------|---------------------------|---|
| | Unsignalized Intersection | 5,15 (25,55) Queue Length AM 50th,95th (PM 50th,95th) |
| | Signalized Intersection | ↑ Through Traffic Lane |
| | Future Intersection Leg | ↪ Turning Traffic Lane (Right or Left Lane) |

FIGURE 26
2040 BACKGROUND PEAK HOUR
QUEUE LENGTHS



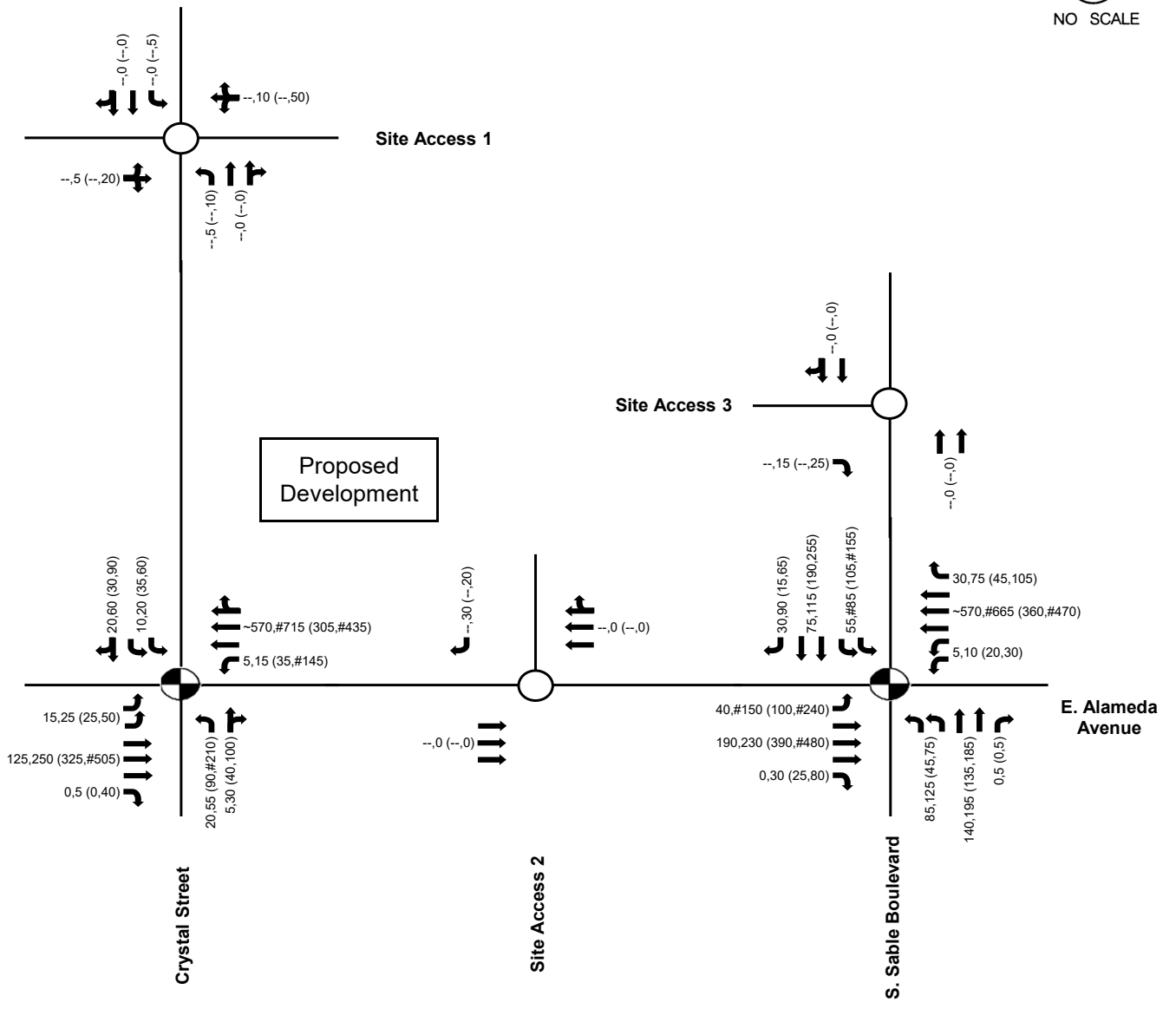
| LEGEND | | |
|--------|---------------------------|---|
| | Unsignalized Intersection | 5,15 (25,55) Queue Length AM 50th,95th (PM 50th,95th) |
| | Signalized Intersection | Through Traffic Lane |
| | Future Intersection Leg | Turning Traffic Lane (Right or Left Lane) |

FIGURE 27
2023 BUILD-OUT PEAK HOUR
QUEUE LENGTHS



| LEGEND | | |
|--------|---------------------------|---|
| | Unsignalized Intersection | 5,15 (25,55) Queue Length AM 50th,95th (PM 50th,95th) |
| | Signalized Intersection | ↑ Through Traffic Lane |
| | Future Intersection Leg | ↩ Turning Traffic Lane (Right or Left Lane) |

FIGURE 28
2028 BUILD-OUT PEAK HOUR
QUEUE LENGTHS



| LEGEND | | |
|--------|---------------------------|---|
| | Unsignalized Intersection | 5,15 (25,55) Queue Length AM 50th,95th (PM 50th,95th) |
| | Signalized Intersection | ↑ Through Traffic Lane |
| | Future Intersection Leg | ↪ Turning Traffic Lane (Right or Left Lane) |

FIGURE 29
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 NCHRP 279 report, 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 Site Access 2 is also anticipated to be above the threshold for a westbound right turn lane. In the 2040 background scenario, the intersection of S. Sable Boulevard and Site Access 3 is anticipated to be above the threshold for a southbound right turn lane. However, none of these movements are anticipated to warrant 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.

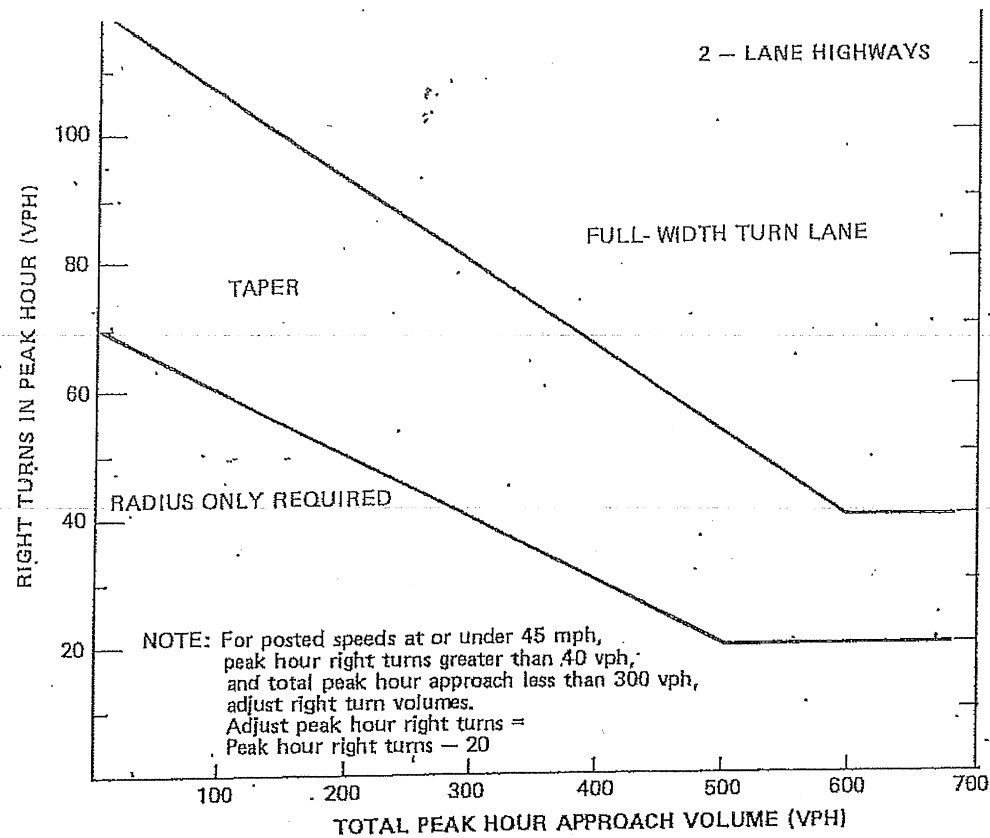
Level of Service C - Average delays to vehicles. Waiting time becomes noticeable. Freedom to enter major street traffic is slightly restricted.

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.

RIGHT TURN LANE WARRANT GRAPH



2023 PM Background
E. Alameda Ave & Crystal St WBR

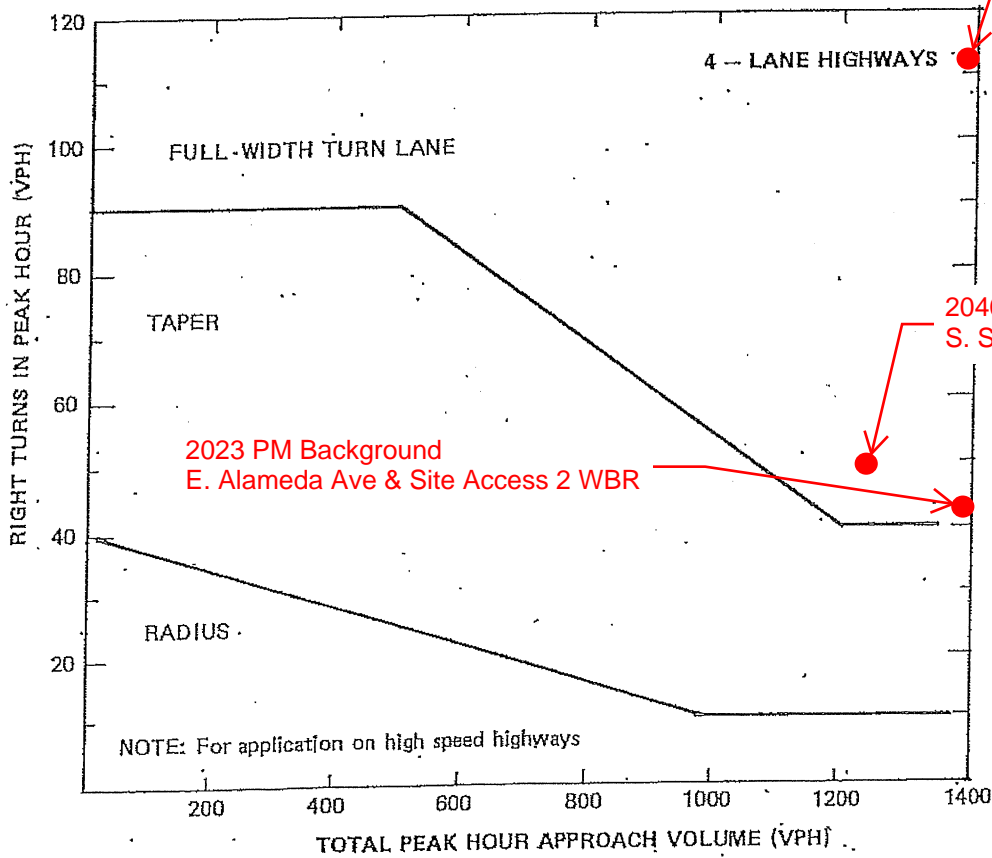


Figure 4-23. Traffic volume guidelines for design of right-turn lanes. (Source: Ref. 4-11)


































SYNCHRO

2023 AM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 | | 10.0 | 23.8 | | 9.6 | 23.4 | |
| Total Split (%) | 10.7% | 52.2% | 52.2% | 10.7% | 52.2% | | 11.1% | 26.4% | | 10.7% | 26.0% | |
| Maximum Green (s) | 5.1 | 42.5 | 42.5 | 5.1 | 42.5 | | 5.5 | 19.3 | | 5.1 | 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 | |
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | 43.0 | 41.3 | 41.3 | 42.1 | 39.5 | | 5.9 | 8.5 | | 8.5 | 6.8 | |
| Actuated g/C Ratio | 0.67 | 0.64 | 0.64 | 0.66 | 0.62 | | 0.09 | 0.13 | | 0.13 | 0.11 | |
| v/c Ratio | 0.12 | 0.37 | 0.05 | 0.07 | 0.67 | | 0.18 | 0.07 | | 0.02 | 0.15 | |
| Control Delay | 4.5 | 7.3 | 0.1 | 4.7 | 11.1 | | 36.2 | 18.8 | | 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 | 4.7 | 11.1 | | 36.2 | 18.8 | | 24.6 | 31.0 | |
| LOS | A | A | A | A | B | | D | B | | C | C | |
| Approach Delay | | 6.9 | | | 11.1 | | | 29.8 | | | 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 | 338 | | 40 | 20 | | 7 | 36 | |
| Internal Link Dist (ft) | | 170 | | | 260 | | | 170 | | | 260 | |
| Turn Bay Length (ft) | 150 | | | 150 | | | | | | 150 | | |
| Base Capacity (vph) | 496 | 3697 | 1185 | 358 | 3543 | | 162 | 537 | | 420 | 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 | 0.12 | 0.33 | 0.04 | 0.07 | 0.59 | | 0.18 | 0.03 | | 0.02 | 0.05 | |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 64.1

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

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 |
| 10 s | 23.4 s | 9.6 s | 47 s |

HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Site Access 3

03/07/2023



| 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 | | | | | | |
| 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 & Site Access 2

03/07/2023





















| 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

10: S. Crystal Street & Site Access 1

03/07/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | | | | | | | | | |

2023 PM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 & Site Access 3

03/07/2023



| 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 | | | | | | |
| 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 & Site Access 2

03/07/2023





















| 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

10: S. Crystal Street & Site Access 1

03/07/2023

























| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | | | | | | | | |

2028 AM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 & Site Access 3

03/07/2023

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| 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 & Site Access 2

03/07/2023





















| 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

10: S. Crystal Street & Site Access 1

03/07/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | | | |
| 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) | 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 | | | | | | | | | | | |

2028 PM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.113 | | | 0.129 | | | 0.315 | | | 0.342 | | |
| Satd. Flow (perm) | 210 | 5085 | 1583 | 466 | 5085 | 1583 | 1138 | 3539 | 1583 | 1236 | 3539 | 1583 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 238 | | | 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) | 18.0 | 43.5 | 43.5 | 9.5 | 35.0 | 35.0 | 9.6 | 25.0 | 25.0 | 12.0 | 27.4 | 27.4 |
| Total Split (%) | 20.0% | 48.3% | 48.3% | 10.6% | 38.9% | 38.9% | 10.7% | 27.8% | 27.8% | 13.3% | 30.4% | 30.4% |
| Maximum Green (s) | 13.5 | 39.0 | 39.0 | 5.0 | 30.5 | 30.5 | 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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) | 45.1 | 38.0 | 38.0 | 35.0 | 29.9 | 29.9 | 21.1 | 15.9 | 15.9 | 25.9 | 18.3 | 18.3 |
| Actuated g/C Ratio | 0.55 | 0.46 | 0.46 | 0.42 | 0.36 | 0.36 | 0.26 | 0.19 | 0.19 | 0.31 | 0.22 | 0.22 |
| v/c Ratio | 0.64 | 0.69 | 0.29 | 0.27 | 0.76 | 0.33 | 0.41 | 0.56 | 0.19 | 0.59 | 0.67 | 0.33 |
| Control Delay | 24.0 | 20.5 | 3.6 | 12.2 | 27.0 | 7.2 | 22.7 | 33.8 | 0.9 | 25.1 | 34.2 | 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 | 24.0 | 20.5 | 3.6 | 12.2 | 27.0 | 7.2 | 22.7 | 33.8 | 0.9 | 25.1 | 34.2 | 5.4 |
| LOS | C | C | A | B | C | A | C | C | A | C | C | A |
| Approach Delay | | 18.8 | | | 23.5 | | | 26.5 | | | 26.6 | |
| Approach LOS | | B | | | C | | | C | | | C | |
| Queue Length 50th (ft) | 52 | 250 | 3 | 12 | 232 | 16 | 34 | 99 | 0 | 71 | 138 | 0 |
| Queue Length 95th (ft) | 128 | 326 | 46 | 25 | 322 | 69 | 56 | 143 | 0 | 105 | 191 | 38 |
| Internal Link Dist (ft) | | 200 | | | 170 | | | 170 | | | 170 | |
| Turn Bay Length (ft) | 160 | | 175 | 175 | | 100 | 275 | | 275 | 150 | | 150 |
| Base Capacity (vph) | 374 | 2438 | 882 | 380 | 1960 | 722 | 434 | 891 | 535 | 591 | 996 | 576 |
| 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 | 0.55 | 0.66 | 0.28 | 0.27 | 0.72 | 0.32 | 0.41 | 0.43 | 0.16 | 0.59 | 0.53 | 0.28 |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.4

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 s | 25 s | 9.5 s | 43.5 s |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 9.6 s | 27.4 s | 18 s | 35 s |

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













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 & Site Access 3

03/07/2023

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| 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 | 0.91 | | | | | |
| vC, conflicting volume | 1425 | 519 | 1038 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1261 | 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 & Site Access 2

03/07/2023





















| 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 | 873 | | | | 79 | 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 | | | | 769 | 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

10: S. Crystal Street & Site Access 1

03/07/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | | | | | | | | | |

2040 AM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 & Site Access 3

03/07/2023



| 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 & Site Access 2

03/07/2023





















| 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

10: S. Crystal Street & Site Access 1

03/07/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | | | | | | | | | | | |

2040 PM PEAK HOUR BACKGROUND

Lanes, Volumes, Timings

1: S. Sable Boulevard & E. Alameda Ave













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

| | | | |
|---|---|---|---|
|  |  |  |  |
| Ø1 | Ø2 | Ø3 | Ø4 |
| 12 s | 25 s | 9.5 s | 43.5 s |
|  |  |  |  |
| Ø5 | Ø6 | Ø7 | Ø8 |
| 9.6 s | 27.4 s | 15 s | 38 s |

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













03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

03/07/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 & Site Access 3

03/07/2023



| 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 | C | | | | | |
| Approach Delay (s) | 15.2 | 0.0 | | 0.0 | | |
| Approach LOS | C | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 43.7% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Site Access 2

03/07/2023





















| 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

10: S. Crystal Street & Site Access 1

03/07/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | | | | | | | | | | | |

2023 AM PEAK HOUR BUILD-OUT

Lanes, Volumes, Timings













1: S. Sable Boulevard & E. Alameda Ave

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (vph) | 99 | 877 | 93 | 23 | 1689 | 149 | 258 | 331 | 43 | 177 | 189 | 120 |
| Future Volume (vph) | 99 | 877 | 93 | 23 | 1689 | 149 | 258 | 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 | 0.095 | | | 0.275 | | | 0.623 | | | 0.403 | | |
| Satd. Flow (perm) | 177 | 5085 | 1583 | 994 | 5085 | 1583 | 2251 | 3539 | 1583 | 1456 | 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 | 1836 | 162 | 280 | 360 | 47 | 192 | 205 | 130 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 108 | 953 | 101 | 25 | 1836 | 162 | 280 | 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) | 11.0 | 45.5 | 45.5 | 9.5 | 44.0 | 44.0 | 9.6 | 25.4 | 25.4 | 9.6 | 25.4 | 25.4 |
| Total Split (%) | 12.2% | 50.6% | 50.6% | 10.6% | 48.9% | 48.9% | 10.7% | 28.2% | 28.2% | 10.7% | 28.2% | 28.2% |
| Maximum Green (s) | 6.5 | 41.0 | 41.0 | 5.0 | 39.5 | 39.5 | 5.1 | 20.9 | 20.9 | 5.1 | 20.9 | 20.9 |
| 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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) | 44.3 | 41.9 | 41.9 | 40.9 | 37.2 | 37.2 | 18.8 | 13.6 | 13.6 | 18.8 | 13.6 | 13.6 |
| Actuated g/C Ratio | 0.57 | 0.54 | 0.54 | 0.52 | 0.48 | 0.48 | 0.24 | 0.17 | 0.17 | 0.24 | 0.17 | 0.17 |
| v/c Ratio | 0.46 | 0.35 | 0.11 | 0.04 | 0.76 | 0.20 | 0.45 | 0.59 | 0.12 | 0.40 | 0.33 | 0.34 |
| Control Delay | 16.0 | 11.6 | 1.9 | 7.6 | 20.1 | 4.9 | 25.6 | 35.0 | 0.7 | 24.7 | 31.2 | 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 | 16.0 | 11.6 | 1.9 | 7.6 | 20.1 | 4.9 | 25.6 | 35.0 | 0.7 | 24.7 | 31.2 | 8.6 |
| LOS | B | B | A | A | C | A | C | C | A | C | C | A |
| Approach Delay | | 11.2 | | | 18.8 | | | 28.8 | | | 23.3 | |
| Approach LOS | | B | | | B | | | C | | | C | |
| Queue Length 50th (ft) | 21 | 78 | 0 | 2 | 272 | 9 | 58 | 92 | 0 | 39 | 50 | 0 |
| Queue Length 95th (ft) | 59 | 154 | 17 | 8 | 371 | 45 | 89 | 135 | 0 | 63 | 81 | 44 |
| Internal Link Dist (ft) | | 200 | | | 170 | | | 170 | | | 170 | |
| Turn Bay Length (ft) | 160 | | 175 | 175 | | 100 | 275 | | 275 | 150 | | 150 |
| Base Capacity (vph) | 236 | 2984 | 981 | 681 | 2647 | 885 | 621 | 975 | 527 | 483 | 975 | 530 |
| 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 | 0.46 | 0.32 | 0.10 | 0.04 | 0.69 | 0.18 | 0.45 | 0.37 | 0.09 | 0.40 | 0.21 | 0.25 |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 78.1

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 18.9









Intersection LOS: B

Intersection Capacity Utilization 67.3%

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 | 25.4 s | 9.5 s | 45.5 s |
|  |  |  |  |
| Ø5 | Ø6 | Ø7 | Ø8 |
| 9.6 s | 25.4 s | 11 s | 44 s |

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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 7 | 12 | 35 | 27 | 29 |
| Future Volume (vph) | 119 | 1071 | 44 | 22 | 1860 | 39 | 27 | 7 | 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 | | | 0.907 | | | 0.921 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3433 | 5085 | 1583 | 1770 | 5070 | 0 | 1770 | 1690 | 0 | 3433 | 1716 | 0 |
| Flt Permitted | 0.092 | | | 0.215 | | | 0.950 | | | 0.667 | | |
| Satd. Flow (perm) | 332 | 5085 | 1583 | 400 | 5070 | 0 | 1770 | 1690 | 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 | 8 | 13 | 38 | 29 | 32 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 129 | 1164 | 48 | 24 | 2064 | 0 | 29 | 21 | 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 | 21.9 | | 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 | 21.9 | | 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 | 4 | | 7 | 11 | |
| Queue Length 95th (ft) | 19 | 155 | 0 | 11 | 344 | | 40 | 24 | | 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 | 533 | | 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

04/28/2023

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | |  | |  |  | |
| Traffic Volume (veh/h) | 0 | 81 | 0 | 587 | 405 | 51 |
| Future Volume (Veh/h) | 0 | 81 | 0 | 587 | 405 | 51 |
| 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 | 638 | 440 | 55 |
| 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 | 786 | 248 | 495 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 567 | 248 | 495 | | | |
| 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) | 413 | 753 | 1065 | | | |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 88 | 319 | 319 | 293 | 202 | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | |
| Volume Right | 88 | 0 | 0 | 0 | 55 | |
| cSH | 753 | 1700 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.12 | 0.19 | 0.19 | 0.17 | 0.12 | |
| Queue Length 95th (ft) | 10 | 0 | 0 | 0 | 0 | |
| Control Delay (s) | 10.4 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 10.4 | 0.0 | | 0.0 | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.8 | | | |
| Intersection Capacity Utilization | | | 24.5% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Site Access 2

04/28/2023





















| 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 | | | | 0.74 | 0.69 | |
| vC, conflicting volume | 2144 | | | | 2455 | 744 | |
| vC1, stage 1 conf vol | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | 1064 | | | | 692 | 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) | 446 | | | | 281 | 744 | |
| 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 | 744 |
| 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 | 10.8 |
| Lane LOS | | | | | | | B |
| Approach Delay (s) | 0.0 | | | 0.0 | | | 10.8 |
| 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

10: S. Crystal Street & Site Access 1

04/28/2023

























| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 72 | 3 | 27 | 3 |
| Future Volume (Veh/h) | 1 | 5 | 4 | 60 | 5 | 6 | 14 | 79 | 72 | 3 | 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 | 78 | 3 | 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 | 119 | 230 | 16 | 182 | 193 | 82 | 32 | 164 | | | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 119 | 230 | 16 | 182 | 193 | 82 | 32 | 164 | | | | |
| 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) | 826 | 660 | 1059 | 749 | 693 | 961 | 1579 | 1412 | | | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | | | | |
| Volume Total | 10 | 77 | 15 | 57 | 107 | 3 | 19 | 13 | | | | |
| Volume Left | 1 | 65 | 15 | 0 | 0 | 3 | 0 | 0 | | | | |
| Volume Right | 4 | 7 | 0 | 0 | 78 | 0 | 0 | 3 | | | | |
| cSH | 796 | 760 | 1579 | 1700 | 1700 | 1412 | 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 | 10.3 | 7.3 | 0.0 | 0.0 | 7.6 | 0.0 | 0.0 | | | | |
| Lane LOS | A | B | A | A | | | | | | | | |
| Approach Delay (s) | 9.6 | 10.3 | 0.6 | 0.6 | | | | | | | | |
| Approach LOS | A | B | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | 3.4 | | | | | | | | | | | |
| Intersection Capacity Utilization | 24.7% | | | 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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 & Site Access 3

04/28/2023



| 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 & Site Access 2

04/28/2023





















| 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

10: S. Crystal Street & Site Access 1

04/28/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 9 | 133 | 32 |
| Future Volume (Veh/h) | 7 | 11 | 63 | 60 | 15 | 12 | 68 | 182 | 71 | 9 | 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 | 10 | 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 | 450 | 606 | 90 | 551 | 584 | 138 | 180 | | | 275 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 450 | 606 | 90 | 551 | 584 | 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) | 448 | 385 | 950 | 361 | 396 | 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 | 10 | 97 | 83 | | | | |
| Volume Left | 8 | 65 | 74 | 0 | 0 | 10 | 0 | 0 | | | | |
| Volume Right | 68 | 13 | 0 | 0 | 77 | 0 | 0 | 35 | | | | |
| cSH | 730 | 400 | 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 | | | 0.4 | | | | | | |
| Approach LOS | B | C | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 4.4 | | | | | | | | | |
| Intersection Capacity Utilization | | | 32.1% | | | 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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|--|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (vph) | 109 | 970 | 103 | 25 | 1855 | 165 | 281 | 365 | 47 | 191 | 207 | 132 |
| Future Volume (vph) | 109 | 970 | 103 | 25 | 1855 | 165 | 281 | 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 | 0.088 | | | 0.239 | | | 0.593 | | | 0.353 | | |
| Satd. Flow (perm) | 164 | 5085 | 1583 | 864 | 5085 | 1583 | 2143 | 3539 | 1583 | 1276 | 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 | 2016 | 179 | 305 | 397 | 51 | 208 | 225 | 143 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 118 | 1054 | 112 | 27 | 2016 | 179 | 305 | 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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) | 47.7 | 45.3 | 45.3 | 44.3 | 40.4 | 40.4 | 20.1 | 14.9 | 14.9 | 20.1 | 14.9 | 14.9 |
| Actuated g/C Ratio | 0.58 | 0.55 | 0.55 | 0.54 | 0.49 | 0.49 | 0.24 | 0.18 | 0.18 | 0.24 | 0.18 | 0.18 |
| v/c Ratio | 0.53 | 0.38 | 0.12 | 0.04 | 0.81 | 0.21 | 0.51 | 0.62 | 0.13 | 0.47 | 0.35 | 0.37 |
| Control Delay | 20.5 | 12.2 | 2.5 | 8.0 | 22.4 | 5.6 | 27.1 | 36.2 | 0.7 | 26.3 | 31.7 | 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 | 20.5 | 12.2 | 2.5 | 8.0 | 22.4 | 5.6 | 27.1 | 36.2 | 0.7 | 26.3 | 31.7 | 10.4 |
| LOS | C | B | A | A | C | A | C | D | A | C | C | B |
| Approach Delay | | 12.1 | | | 20.9 | | | 30.1 | | | 24.4 | |
| Approach LOS | | B | | | C | | | C | | | C | |
| Queue Length 50th (ft) | 24 | 91 | 0 | 2 | 324 | 14 | 65 | 104 | 0 | 43 | 56 | 7 |
| Queue Length 95th (ft) | #75 | 177 | 22 | 8 | 442 | 53 | 97 | 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) | 222 | 2844 | 941 | 620 | 2520 | 848 | 602 | 861 | 481 | 445 | 861 | 481 |
| 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 | 0.80 | 0.21 | 0.51 | 0.46 | 0.11 | 0.47 | 0.26 | 0.30 |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.6

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 20.4

Intersection LOS: C

Intersection Capacity Utilization 72.4%









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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 7 | 13 | 36 | 29 | 29 |
| Future Volume (vph) | 125 | 1188 | 49 | 24 | 2055 | 43 | 30 | 7 | 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 | | | 0.905 | | | 0.925 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3433 | 5085 | 1583 | 1770 | 5070 | 0 | 1770 | 1686 | 0 | 3433 | 1723 | 0 |
| Flt Permitted | 0.082 | | | 0.188 | | | 0.950 | | | 0.659 | | |
| Satd. Flow (perm) | 296 | 5085 | 1583 | 350 | 5070 | 0 | 1770 | 1686 | 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 | 8 | 14 | 39 | 32 | 32 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 136 | 1291 | 53 | 26 | 2281 | 0 | 33 | 22 | 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 | 0.13 | | 0.09 | 0.27 | |
| Control Delay | 6.6 | 7.9 | 0.1 | 5.3 | 15.4 | | 40.7 | 22.0 | | 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 | 22.0 | | 24.9 | 21.9 | |
| LOS | A | A | A | A | B | | D | C | | C | C | |
| Approach Delay | | 7.5 | | | 15.3 | | | 33.2 | | | 23.1 | |
| Approach LOS | | A | | | B | | | C | | | C | |
| Queue Length 50th (ft) | 9 | 81 | 0 | 3 | 295 | | 15 | 4 | | 7 | 13 | |
| Queue Length 95th (ft) | 20 | 176 | 0 | 12 | 410 | | 44 | 25 | | 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 | 457 | | 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 & Site Access 3

04/28/2023

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | |  | |  |  | |
| Traffic Volume (veh/h) | 0 | 84 | 0 | 647 | 447 | 54 |
| Future Volume (Veh/h) | 0 | 84 | 0 | 647 | 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 | 703 | 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 | 867 | 272 | 545 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 628 | 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 & Site Access 2

04/28/2023





















| 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 | 0.63 | | | | 0.70 | 0.63 | |
| vC, conflicting volume | 2364 | | | | 2716 | 818 | |
| vC1, stage 1 conf vol | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | 1124 | | | | 699 | 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 | 82 | |
| cM capacity (veh/h) | 390 | | | | 261 | 686 | |
| 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 | 686 |
| Volume to Capacity | 0.26 | 0.26 | 0.26 | 0.51 | 0.51 | 0.36 | 0.18 |
| 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 | 11.4 |
| Lane LOS | | | | | | | B |
| Approach Delay (s) | 0.0 | | | 0.0 | | | 11.4 |
| 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

10: S. Crystal Street & Site Access 1

04/28/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 73 | 3 | 30 | 3 |
| Future Volume (Veh/h) | 1 | 6 | 4 | 60 | 6 | 6 | 15 | 87 | 73 | 3 | 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 | 79 | 3 | 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 | 130 | 246 | 18 | 196 | 208 | 87 | 36 | | | 174 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 130 | 246 | 18 | 196 | 208 | 87 | 36 | | | 174 | | |
| 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) | 809 | 647 | 1056 | 729 | 679 | 954 | 1573 | | | 1400 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | | | | |
| Volume Total | 12 | 79 | 16 | 63 | 111 | 3 | 22 | 14 | | | | |
| Volume Left | 1 | 65 | 16 | 0 | 0 | 3 | 0 | 0 | | | | |
| Volume Right | 4 | 7 | 0 | 0 | 79 | 0 | 0 | 3 | | | | |
| cSH | 757 | 740 | 1573 | 1700 | 1700 | 1400 | 1700 | 1700 | | | | |
| Volume to Capacity | 0.02 | 0.11 | 0.01 | 0.04 | 0.07 | 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 | | | 0.6 | | | | | | |
| Approach LOS | A | B | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 3.4 | | | | | | | | | |
| Intersection Capacity Utilization | | | 24.8% | | | 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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

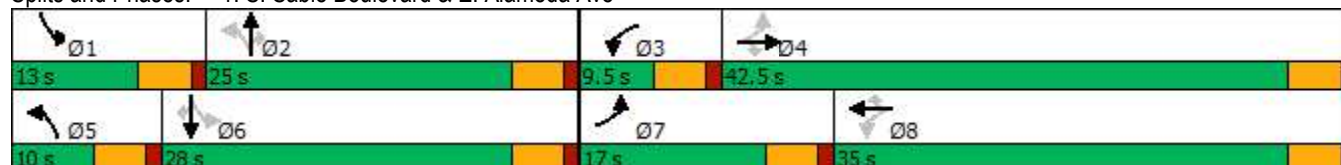
Intersection LOS: C

Intersection Capacity Utilization 70.7%

ICU Level of Service C























Analysis Period (min) 15

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



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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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%

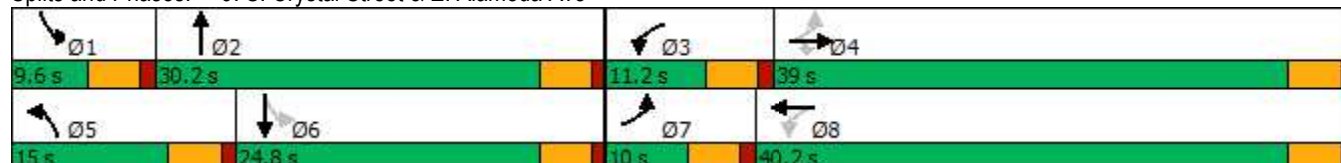
ICU Level of Service C

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



HCM Unsignalized Intersection Capacity Analysis

2: S. Sable Boulevard & Site Access 3

04/28/2023

| |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| 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 & Site Access 2

04/28/2023





















| 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

10: S. Crystal Street & Site Access 1

04/28/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 10 | 147 | 35 |
| Future Volume (Veh/h) | 8 | 12 | 70 | 62 | 17 | 13 | 75 | 201 | 73 | 10 | 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 | 11 | 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 | 497 | 662 | 99 | 606 | 642 | 148 | 198 | | | 297 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 497 | 662 | 99 | 606 | 642 | 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) | 409 | 355 | 937 | 323 | 364 | 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 | 11 | 107 | 91 | | | | |
| Volume Left | 9 | 67 | 82 | 0 | 0 | 11 | 0 | 0 | | | | |
| Volume Right | 76 | 14 | 0 | 0 | 79 | 0 | 0 | 38 | | | | |
| cSH | 702 | 363 | 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 | 18.6 | 7.8 | 0.0 | 0.0 | 7.9 | 0.0 | 0.0 | | | | |
| Lane LOS | B | C | A | | | A | | | | | | |
| Approach Delay (s) | 11.0 | 18.6 | 1.7 | | | 0.4 | | | | | | |
| Approach LOS | B | C | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 4.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 33.0% | | | 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |    |  |   |    |  |   |   |  |   |   |  |
| Traffic Volume (vph) | 138 | 1235 | 132 | 32 | 2329 | 209 | 348 | 463 | 60 | 230 | 260 | 168 |
| Future Volume (vph) | 138 | 1235 | 132 | 32 | 2329 | 209 | 348 | 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 | 0.084 | | | 0.152 | | | 0.505 | | | 0.240 | | |
| Satd. Flow (perm) | 156 | 5085 | 1583 | 549 | 5085 | 1583 | 1825 | 3539 | 1583 | 867 | 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 | 2532 | 227 | 378 | 503 | 65 | 250 | 283 | 183 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 150 | 1342 | 143 | 35 | 2532 | 227 | 378 | 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 | 48.0 | 48.0 | 9.5 | 48.0 | 48.0 | 9.6 | 22.9 | 22.9 | 9.6 | 22.9 | 22.9 |
| Total Split (%) | 10.6% | 53.3% | 53.3% | 10.6% | 53.3% | 53.3% | 10.7% | 25.4% | 25.4% | 10.7% | 25.4% | 25.4% |
| Maximum Green (s) | 5.0 | 43.5 | 43.5 | 5.0 | 43.5 | 43.5 | 5.1 | 18.4 | 18.4 | 5.1 | 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 | 21.8 | 16.7 | 16.7 | 21.8 | 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 | 0.49 | 0.16 | 0.08 | 1.01 | 0.27 | 0.70 | 0.75 | 0.16 | 0.69 | 0.42 | 0.46 |
| Control Delay | 53.1 | 14.7 | 2.8 | 8.1 | 44.4 | 7.0 | 34.1 | 41.7 | 1.1 | 35.4 | 33.6 | 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 | 53.1 | 14.7 | 2.8 | 8.1 | 44.4 | 7.0 | 34.1 | 41.7 | 1.1 | 35.4 | 33.6 | 15.1 |
| LOS | D | B | A | A | D | A | C | D | A | D | C | B |
| Approach Delay | | 17.2 | | | 40.9 | | | 35.9 | | | 29.5 | |
| Approach LOS | | B | | | D | | | D | | | C | |
| Queue Length 50th (ft) | 38 | 187 | 0 | 4 | ~570 | 30 | 85 | 140 | 0 | 54 | 73 | 26 |
| Queue Length 95th (ft) | #149 | 230 | 29 | 9 | #665 | 72 | 123 | 195 | 3 | #84 | 111 | 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 | 2730 | 916 | 465 | 2505 | 844 | 543 | 737 | 430 | 361 | 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 | 0.49 | 0.16 | 0.08 | 1.01 | 0.27 | 0.70 | 0.68 | 0.15 | 0.69 | 0.38 | 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: 1.01

Intersection Signal Delay: 32.4

Intersection LOS: C

Intersection Capacity Utilization 87.0%

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 | 22.9 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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 | 9 | 17 | 38 | 37 | 30 |
| Future Volume (vph) | 141 | 1519 | 62 | 31 | 2610 | 55 | 38 | 9 | 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 | | | 0.904 | | | 0.932 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 3433 | 5085 | 1583 | 1770 | 5070 | 0 | 1770 | 1684 | 0 | 3433 | 1736 | 0 |
| Flt Permitted | 0.082 | | | 0.115 | | | 0.950 | | | 0.739 | | |
| Satd. Flow (perm) | 296 | 5085 | 1583 | 214 | 5070 | 0 | 1770 | 1684 | 0 | 2671 | 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 | 10 | 18 | 41 | 40 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 153 | 1651 | 67 | 34 | 2897 | 0 | 41 | 28 | 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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 | 21.0 | | 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 | 21.0 | | 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 | 5 | | 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 | 459 | | 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 & Site Access 3

04/28/2023



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|------|---|------|---|---|------|
| Lane Configurations | |  | |  |  | |
| Traffic Volume (veh/h) | 0 | 84 | 0 | 818 | 567 | 61 |
| Future Volume (Veh/h) | 0 | 84 | 0 | 818 | 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 | 91 | 0 | 889 | 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 | 802 | 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 | 86 | 100 | | | |
| cM capacity (veh/h) | 279 | 655 | 907 | | | |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 91 | 444 | 444 | 411 | 271 | |
| Volume Left | 0 | 0 | 0 | 0 | 0 | |
| Volume Right | 91 | 0 | 0 | 0 | 66 | |
| cSH | 655 | 1700 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.14 | 0.26 | 0.26 | 0.24 | 0.16 | |
| Queue Length 95th (ft) | 12 | 0 | 0 | 0 | 0 | |
| Control Delay (s) | 11.4 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | B | | | | | |
| Approach Delay (s) | 11.4 | 0.0 | | 0.0 | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | 0.6 | | | | |
| Intersection Capacity Utilization | | 29.5% | | ICU Level of Service | | A |
| Analysis Period (min) | | 15 | | | | |

HCM Unsignalized Intersection Capacity Analysis

5: E. Alameda Ave & Site Access 2

04/28/2023





















| 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 | 0.45 | | | | 0.54 | 0.45 | |
| vC, conflicting volume | 2990 | | | | 3456 | 1029 | |
| vC1, stage 1 conf vol | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | 1153 | | | | 298 | 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 | 73 | |
| cM capacity (veh/h) | 271 | | | | 363 | 489 | |
| 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 | 489 |
| Volume to Capacity | 0.33 | 0.33 | 0.33 | 0.66 | 0.66 | 0.44 | 0.27 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 |
| Lane LOS | | | | | | | C |
| Approach Delay (s) | 0.0 | | | 0.0 | | | 15.1 |
| Approach LOS | | | | | | | C |
| 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

10: S. Crystal Street & Site Access 1

04/28/2023


































| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 74 | 3 | 38 | 4 |
| Future Volume (Veh/h) | 1 | 7 | 6 | 62 | 7 | 7 | 20 | 111 | 74 | 3 | 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 | 80 | 3 | 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 | 166 | 294 | 22 | 242 | 256 | 100 | 45 | | | | 201 | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 166 | 294 | 22 | 242 | 256 | 100 | 45 | | | | 201 | |
| 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) | 760 | 606 | 1049 | 671 | 636 | 935 | 1561 | | | | 1368 | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | NB 3 | SB 1 | SB 2 | SB 3 | | | | |
| Volume Total | 16 | 83 | 22 | 81 | 120 | 3 | 27 | 18 | | | | |
| Volume Left | 1 | 67 | 22 | 0 | 0 | 3 | 0 | 0 | | | | |
| Volume Right | 7 | 8 | 0 | 0 | 80 | 0 | 0 | 4 | | | | |
| cSH | 755 | 686 | 1561 | 1700 | 1700 | 1368 | 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 | 11.0 | 7.3 | 0.0 | 0.0 | 7.6 | 0.0 | 0.0 | | | | |
| Lane LOS | A | B | A | | | | A | | | | | |
| Approach Delay (s) | 9.9 | 11.0 | 0.7 | | | | 0.5 | | | | | |
| Approach LOS | A | B | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | | 3.4 | | | | | | | | |
| Intersection Capacity Utilization | | | | 25.3% | 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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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%

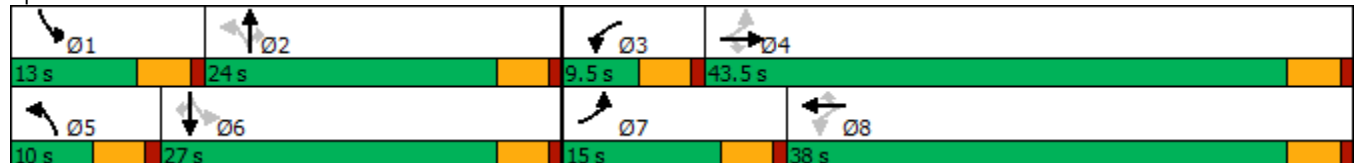
ICU Level of Service E

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



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













04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

04/28/2023

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| 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

04/28/2023



| 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

04/28/2023





















| 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

10: S. Crystal Street & Site Access 1

04/28/2023

| | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | 12 | 186 | 45 |
| Future Volume (Veh/h) | 10 | 15 | 88 | 67 | 21 | 15 | 95 | 255 | 77 | 12 | 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 | 13 | 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 | 624 | 820 | 126 | 756 | 802 | 180 | 251 | | | 361 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 624 | 820 | 126 | 756 | 802 | 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) | 317 | 281 | 902 | 237 | 288 | 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 | 13 | 135 | 116 | | | | |
| Volume Left | 11 | 73 | 103 | 0 | 0 | 13 | 0 | 0 | | | | |
| Volume Right | 96 | 16 | 0 | 0 | 84 | 0 | 0 | 49 | | | | |
| cSH | 621 | 275 | 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 | 26.8 | 8.0 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 | | | | |
| Lane LOS | B | D | A | | | A | | | | | | |
| Approach Delay (s) | 12.2 | 26.8 | 1.8 | | | 0.4 | | | | | | |
| Approach LOS | B | D | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 5.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 35.2% | | | ICU Level of Service | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |