

# **Aurora Metro Center Master Plan Amendment**

## **Traffic Impact Study**

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## Executive Summary

Metro Center is a proposed mixed-use, transit-oriented development in Aurora, Colorado, south of Alameda Avenue/Parkway between Sable Boulevard and Chambers Road. Several evaluations of traffic conditions have been completed to assess the anticipated transportation impacts of the proposed site.

The Metro Center Master Plan Amendment would alter the proposed development by removing a segment of Dawson Street between Alameda Avenue and Centrepont Drive and replacing the alignment with a bicycle and pedestrian promenade. This traffic impact study (TIS) has been prepared to evaluate anticipated transportation impacts of this amendment and to consider several other changes that have occurred to the Metro Center site since the previous study was approved for the original Master Plan in 2020.

Land uses proposed within Metro Center under the Master Plan Amendment would include:

- ▶ 2,130 multifamily dwelling units
- ▶ 49,880 square feet of commercial/mixed-use
- ▶ 3,500 square feet of office space

These land uses are expected to generate up to 14,060 daily trips, including about 1,040 in the morning peak hour and about 1,315 in the evening peak hour. However, with considerations of internal trip-making, pass-by trips, and mode share reductions, the site would generate about 9,485 net external daily vehicle trips, nearly 850 in the morning peak hour and 870 in the evening peak hour. The development would also generate about 860 internal daily vehicle trips, 20 in the morning peak hour and 64 in the evening peak hour.

The addition of these trips to the surrounding roadway network, as well as the anticipated regional growth of traffic (background traffic), would result in impacts to traffic operations that would fail to meet criteria established by Aurora's TIS guidelines. To mitigate these conditions, the following improvements should be considered:

- ▶ **To address existing traffic operations, safety, and regional background traffic growth, the following improvements should be made regardless of development activity:**
  - Consider restricting left-turns at several signalized intersections to protected-only phasing during more times of day to address Approach Turn crashes.
  - Consider improving sight distance and signal visibility at several signalized intersections; also consider reviewing progression and clearance times at these intersections to address Broadside crash frequency.
  - Consider implementing Leading Pedestrian Intervals (LPIs) at Alameda Avenue & Sable Boulevard to address the frequency of pedestrian-involved crashes.
  - Consider restricting southbound access at Alameda Avenue & Municipal Center Access to prohibit left-turns, with exceptions for emergency vehicles, to address Broadside crash frequency. This mitigation will require additional evaluation by City of Aurora to understand operations and circulation impacts for the Municipal Center property.
  - Adjust signal cycle lengths at Alameda Avenue/Parkway & Alameda Drive to match adjacent intersections.
  - Construct new northbound and westbound right-turn lanes and introduce overlap phases for both movements at Alameda Parkway & Chambers Road; also increase left-turn storage lengths for all four approaches.
  - Implement protected/permitted phasing for westbound left-turns at Exposition Avenue & Sable Boulevard (recently completed); also increase left-turn storage for the southbound approach.



- Consider mitigations to improve sight distance for the westbound approach of Center Avenue & Chambers Road. Also consider signalization based on the Crash Experience warrant.
  - Install signing requiring northbound “U-TURN YIELD TO RIGHT TURN” at Exposition Avenue & Chambers Road; construct new eastbound and westbound left-turn lanes with protected/permitted phasing; construct a new southbound right-turn lane; and increase storage length for several turn lanes.
  - Periodically review and adjust all traffic signal timings to accommodate changing traffic patterns, including at intersections with light rail crossings.
- **To address new traffic generated by the proposed Metro Center development:**
- Implement protected/permitted phasing for westbound left-turns at Alameda Avenue/Parkway & Alameda Drive; increase storage for northbound left-turns at this intersection.
  - Restripe the westbound approach at Centrepont Drive & Sable Boulevard to provide dedicated left-turn, through, and right-turn lanes; increase storage for westbound left-turns. Overlap phases are not needed to satisfy Level of Service criteria.
  - Construct a new traffic signal at Center Avenue & Chambers Road; provide protected/permitted phasing for northbound and southbound left-turns. Appropriate contributions from proposed development should meet the fees and permitting schedules established by City of Aurora. This improvement should be completed approximately between 2026-2028 to mitigate anticipated Level of Service problems.
  - Construct a new westbound left-turn lane at Alameda Parkway & Fraser Court.

The improvements shown above may require further analysis to determine consistency with city policies on traffic control (i.e. changing left-turn phasing), identify operational constraints with respect to vehicular traffic, and determining implementation timelines. If needed, these additional analyses would be conducted on a case-by-case basis at the time of site plan applications that follow this Master Plan Amendment.

# I. Introduction

Metro Center is a proposed mixed-use development in Aurora, Colorado, on more than 60 acres, south of Alameda Parkway between Sable Boulevard and Chambers Road as shown on **Figure 1**. Currently, the Regional Transportation District (RTD) Aurora Metro Center Station occupies portions of the site near the intersection of Sable Boulevard & Centrepont Drive and the Arapahoe County Centrepont Plaza near the Alameda Parkway & Alameda Drive.

The *Aurora Metro Center Traffic Impact Study*<sup>1</sup> in 2020 (Metro Center Master TIS) previously addressed traffic impacts associated with the proposed Metro Center development. Staff at the City of Aurora approved this study to accompany the Master Plan application for Metro Center. Additional traffic analyses have been conducted to address changes to the Metro Center Master Plan related to land use types/sizes and site access.<sup>2,3</sup>

A new amendment to the Metro Center Master Plan that would alter the proposed roadway network and site access on the western half of the site is being submitted. This traffic impact study (TIS) has been prepared to reevaluate traffic impacts related to the proposed development considering the changes proposed in the Master Plan Amendment, as well as encompassing all other changes that have already been addressed. As such, the analyses, impacts, and recommendations documented in this TIS are intended to supersede all previous traffic analyses conducted for the proposed development. This TIS evaluates traffic impacts and potential mitigations in existing (Year 2024) conditions and a long-term (Year 2040) scenario representing a future planning horizon.

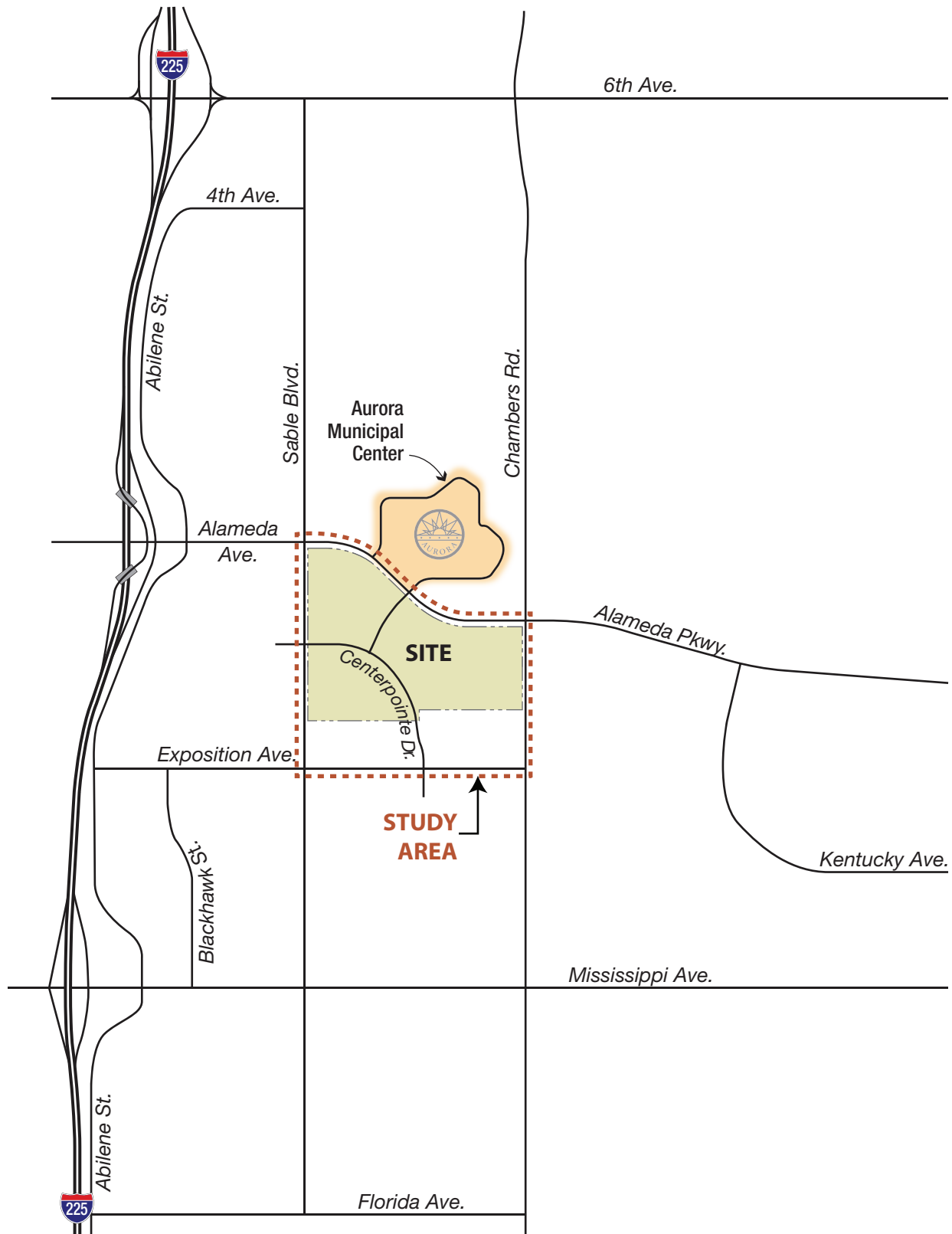
The current version of the proposed Metro Center development evaluated for this TIS envisions approximately 53 thousand square feet (KSF) of office and commercial uses (e.g., retail, dining, grocery) and 2,130 multifamily dwelling units (DUs). **Figure 2** displays a site plan for Metro Center under the Master Plan Amendment.

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<sup>1</sup> *Aurora Metro Center Traffic Impact Study*. Felsburg Holt & Ullevig, Greenwood Village, Colorado. November 2020. FHU Reference No. 119405-02.

<sup>2</sup> *Aurora Metro Center PA-B Infrastructure Site Plan Traffic Impact Study*. Felsburg Holt & Ullevig, Greenwood Village, Colorado. September 2022. FHU Reference No. 119405-03.

<sup>3</sup> *Metro Center PA-B2 Sprouts Traffic Impact Study Conformance Letter*. Felsburg Holt & Ullevig, Greenwood Village, Colorado. April 2023. FHU Reference No. 123636-01.







## I.A Master Plan Amendment Changes

Compared to the *Metro Center Master TIS*, this study addresses the following major changes to the proposed roadway network within Metro Center as part of the Master Plan Amendment:

- ▶ **Dawson Street**, previously identified as a proposed north-south two-lane roadway, would connect from Fraser Court to Alameda Avenue adjacent to the RTD Aurora Metro Center Station and aligned with the unsignalized Municipal Center Access.
  - Under the Master Plan Amendment, the segment of Dawson Street from Centrepont Drive to Alameda Avenue would no longer be constructed with vehicular access.
  - Instead, the Dawson Street alignment would serve as a bicycle and pedestrian promenade with allowances for emergency vehicle access.
- ▶ **Dakota Avenue**, previously identified as a proposed east-west two-lane roadway, would connect Dawson Street to Chambers Road, passing through the Arapahoe County property.
  - Under the Master Plan Amendment, the segment of Dakota Avenue from Dawson Street to Alameda Drive would not be constructed and the segment from Alameda Drive to Fraser Court would not provide vehicular access for through traffic.
- ▶ **Parcel A1** was previously identified to have access via a right-in/right-out (RIRO) only vehicular access to Alameda Avenue and a full-movement access at the Dakota Avenue & Dawson Street intersection.
  - Under the Master Plan Amendment, access via the Dawson Street alignment would be restricted to emergency vehicles only, and the RIRO access to Alameda Avenue would be the only public vehicular access point.
- ▶ **Parcels A2 and A3** were previously identified to be located between Dawson Street and Alameda Drive and bifurcated by Dakota Avenue.
  - Under the Master Plan Amendment, these parcels would be combined into a single parcel, Parcel A2. Access to this parcel would come from Alameda Drive.

## II. Existing Conditions

### II.A Land Use

The area surrounding the Metro Center site primarily consists of retail and office space to the west, north, and east and residential land uses to the south and southeast. Major developments in the vicinity include the Aurora Municipal Center (municipal building, library, and police department) on the north side of Alameda Parkway, Aurora Mall on the west side of Sable Boulevard, City Center Marketplace shopping center on the east side of Chambers Road, and a medical office building south of the site in the northeast corner of the Sable Boulevard & Exposition Avenue intersection. Multifamily residential developments exist south of the site east of Centrepont Drive and east of Chambers Road. Other residential developments are located south of Exposition Avenue and east of Chambers Road.

The proposed development would surround the Arapahoe County Centrepont Plaza facility, south of Alameda Parkway between Alameda Drive and Fraser Court. The RTD Aurora Metro Center Station is on the east side of Sable Boulevard north of Centrepont Drive. The station includes bus and light rail service.

### II.B Roadway Network and Study Intersections

#### Roadway Network

The existing roadway network within the study area consists of the following facilities:

##### Alameda Avenue/Alameda Parkway

Alameda Avenue/Parkway is a six-lane east-west arterial roadway. To the west, Alameda Avenue provides access to major commercial centers, including Aurora Mall and Aurora City Place, and to Interstate 225 (I-225). To the east, Alameda Parkway provides access to commercial and residential developments before turning south, becoming Tower Road at Mississippi Avenue. Railroad tracks for the RTD R Line cross Alameda Avenue at-grade on the east side of Sable Boulevard within the intersection area. The posted speed limit along Alameda Avenue/Parkway is 40 miles per hour (MPH).

##### Sable Boulevard

Sable Boulevard is a four-lane north-south roadway that parallels I-225 between 6th Avenue to the north and Iliff Avenue to the south. The RTD R Line crosses Sable Boulevard at-grade within the Exposition Avenue intersection and continues to parallel Sable Boulevard on its east side until it crosses Ellsworth Avenue north of the site. The posted speed limit on Sable Boulevard is 35 MPH.

##### Chambers Road

Chambers Road, a six-lane north-south arterial roadway, provides regional connectivity through the city of Aurora from 56th Avenue to the north to State Highway 83/Parker Road to the south. The posted speed limit on Chambers Road is 40 MPH.

##### Exposition Avenue

Exposition Avenue is a three-lane east-west collector roadway with median turn-lanes. West of the site, the RTD R Line is located in the median of Exposition Avenue before crossing at-grade at Sable Boulevard. Bicycle lanes are provided in both directions of Exposition Avenue from east of Sable Boulevard to Chambers Road. The posted speed limit on Exposition Avenue is 30 MPH.

### Alameda Drive

Alameda Drive is a two-lane local road that connects Centrepont Drive to Alameda Avenue/Parkway. North of Alameda Avenue/Parkway, Alameda Drive provides access to the Aurora Municipal Center. The posted speed limit on Alameda Drive is 30 MPH.

### Centrepont Drive

Centrepont Drive is a three- to four-lane local road that connects Sable Boulevard to Exposition Avenue. Between Sable Boulevard and Alameda Drive, two travel lanes are provided in each direction. Between Alameda Drive and Exposition Avenue, one northbound lane, two southbound lanes, and a continuous two-way left-turn (TWLT) lane are provided. The posted speed limit on Centrepont Drive is 30 MPH.

### Center Avenue

Center Avenue, a two-lane east-west local road, connects Centrepont Drive to Chambers Road. It also provides access to a multifamily residential development. No speed limit is posted on Center Avenue, but the roadway was analyzed with a speed limit of 30 MPH.

## Study Intersections

In the original *Metro Center Master TIS*, 12 study intersections were identified for analysis in consultation with City of Aurora staff. The same 12 intersections were evaluated for this TIS:

1. Alameda Ave & Sable Blvd – **Signalized**
2. Alameda Ave & Municipal Center Access
3. Alameda Ave/Pkwy & Alameda Drive – **Signalized**
4. Alameda Pkwy & Chambers Rd – **Signalized**
5. Centrepont Dr & Sable Blvd – **Signalized**
6. Exposition Ave & Sable Blvd – **Signalized**
7. Exposition Ave & Centrepont Dr/Evanston St
8. Exposition Ave & Chambers Rd – **Signalized**
9. Center Ave & Chambers Rd
10. Walsh Dr & Centrepont Dr
11. Center Ave & Centrepont Dr
12. Centrepont Dr & Alameda Dr

In addition to providing traffic signalization for vehicular movements, intersections 1, 5, and 6 also incorporate phases for light rail movements on the RTD R Line.

## II.C Site Access

Some access locations to the proposed development already exist. Centrepont Drive, Alameda Drive, and Center Avenue are all constructed. A curb cut that would be used for RIRO access to Parcel A1 has already been constructed along Alameda Parkway east of Sable Boulevard. Finally, existing RIRO access for the Arapahoe County Centrepont Plaza building (Fraser Court) would also serve the proposed development.

## II.D Traffic Volumes

For the original *Metro Center Master TIS*, traffic counts were conducted in September 2019 to understand daily and peak hour traffic conditions during typical weekdays. For this study, city staff requested that select intersections be recounted to provide an update on travel conditions post-pandemic. Detailed traffic count data is provided in **Appendix A**. New morning and evening peak hour traffic counts were conducted in April 2024 at the following intersections:

1. Alameda Ave & Sable Blvd
3. Alameda Ave/Pkwy & Alameda Dr
4. Alameda Pkwy & Chambers Rd
5. Centrepont Dr & Sable Blvd
9. Center Ave & Chambers Rd

Compared to data collected in 2019, new 2024 counts demonstrated similar traffic patterns but slight shifts in time of day:

- ▶ Morning Peak Hour
  - **2019:** 7:15 a.m. to 8:15 a.m.
  - **2024:** 7:15 a.m. to 8:15 a.m.
- ▶ Evening Peak Hour
  - **2019:** 4:30 p.m. to 5:30 p.m.
  - **2024:** 4:45 p.m. to 5:45 p.m.

## Historic Traffic Count Comparison

Peak hours from 2024 were chosen for evaluation to represent the most recently available typical conditions. **Table I** displays comparisons of peak hour traffic volumes, measured in vehicles per hour (VPH), between 2019 and 2024 by approach volume on each street at intersections with new counts.

**Table I. Intersection Approach Volume Comparison**

#	Intersection	Peak Hour	North-South Volume (VPH)			East-West Volume (VPH)		
			2019	2024	Delta	2019	2024	Delta
1	Alameda Ave & Sable Blvd	AM	892	854	- 4%	3,035	2,915	- 4%
		PM	1,456	1,380	- 5%	3,011	3,138	+ 4%
3	Alameda Ave/Pkwy & Alameda Dr	AM	75	77	+ 3%	3,009	2,996	- 0%
		PM	297	228	- 23%	3,035	3,138	+ 3%
4	Alameda Pkwy & Chambers Rd	AM	2,890	2,609	- 10%	2,667	2,973	+ 11%
		PM	3,347	3,446	+ 3%	2,764	3,093	+ 12%
5	Centrepont Dr & Sable Blvd	AM	723	775	+ 7%	151	128	- 15%
		PM	1,162	1,103	- 5%	388	386	- 1%
9	Center Ave & Chambers Rd	AM	2,927	2,570	- 12%	148	91	- 39%
		PM	3,162	3,182	+ 1%	144	107	- 26%

As shown in **Table I**, changes in traffic peak hour traffic volumes vary by location and time of day. East-west volumes along Alameda Parkway in 2024 exhibited marginal decreases during the morning peak hour compared to those of 2019, but slight increases during the evening peak hour. An exception to this is at the Alameda Parkway & Chambers Road (#4) intersection, where east-west volumes in 2024 increased by



11–12 percent during peak hours compared to those of 2019. This could be attributed to changes in signal timing that increase capacity for east-west traffic.

North-south traffic volumes along Sable Boulevard in 2024 exhibited marginal decreases during morning and evening peak hours compared to those of 2019, except at the Centrepont Drive & Sable Boulevard (#5) intersection, where 2024 volumes increased by 7 percent during the AM peak hour. North-south traffic volumes along Chambers Road in 2024 exhibited notable decreases during the morning peak hour compared to those of 2019 (10–12 percent), and slight increases during the evening peak hour (1–3 percent).

Traffic volumes on minor streets near the Metro Center site (Alameda Drive, Centrepont Drive, Center Avenue) exhibited the most change between 2019 and 2024 count periods:

- ▶ North-south traffic on Alameda Drive decreased by 23 percent during the evening peak hour compared to 2019 volumes.
  - This is likely attributed to less office activity at Aurora Municipal and Arapahoe County facilities.
- ▶ East-west traffic on Centrepont Drive decreased by 15 percent during the morning peak hour compared to 2019 volumes.
  - This could also be attributed to less activity at Aurora Mall, the RTD Aurora Metro Center Station, or the Arapahoe County facility.
- ▶ East-west volumes on Center Avenue decreased by 26–39 percent during morning and evening peak hours compared to 2019 volumes.
  - Center Avenue was closed to through traffic between Centrepont Drive and Chambers Road during data collection in 2024, which accounts for much of the decrease in volume.
  - Decreased activity on the east side of Chambers Road could also contribute to lower east-west traffic volumes.

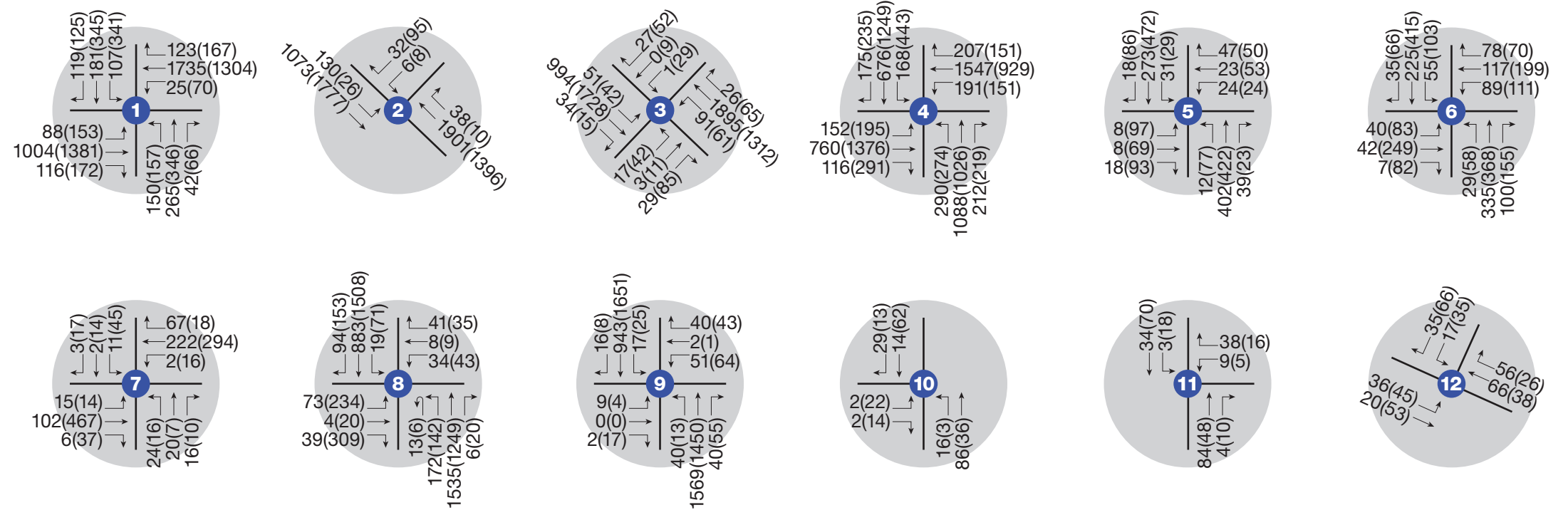
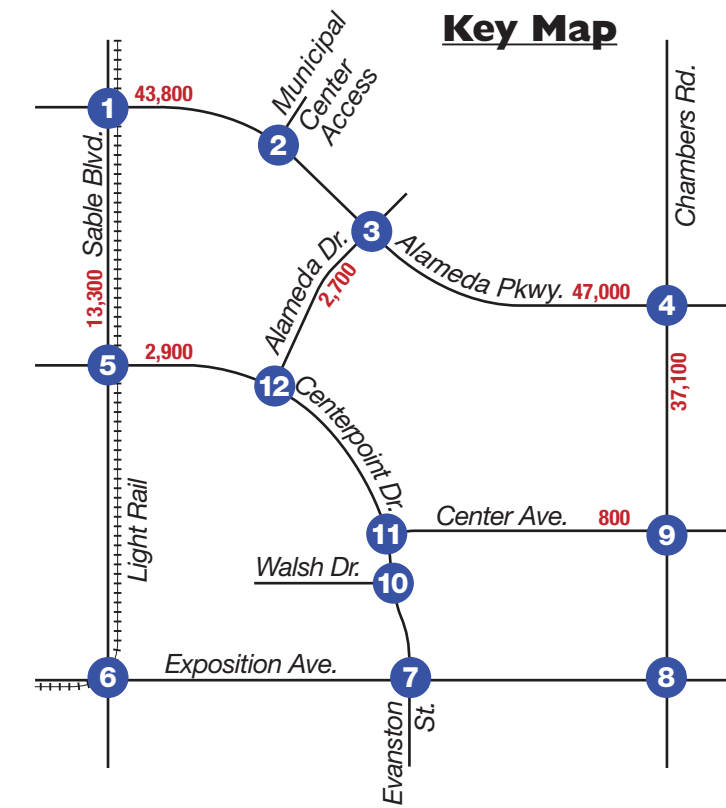
## 2024 Existing Traffic Volumes

Traffic counts from 2019 at other intersections within the study area were adjusted using similar factors to the comparisons shown in **Table 1** to develop a full set of traffic volumes representing 2024 conditions. Because of the closure of Center Avenue from Centrepont Drive to Chambers Road, 2019 counts were used to estimate peak hour volumes for the eastbound approach of the Center Avenue & Chambers Road (#9) intersection. **Figure 3** displays estimates of existing (2024) daily and peak hour traffic volumes within the Metro Center study area based on new 2024 counts and other traffic data from 2019.

Daily traffic counts from the *Metro Center Master TIS* and the Traffic Count Database System (TCDS) – made available by Colorado Department of Transportation (CDOT), were used to estimate daily traffic volumes on arterials surrounding the site. As shown on **Figure 3**, Alameda Avenue/Parkway currently serves between 43,800 and 47,000 vehicles per day (VPD) along the frontage of the proposed development, including an average of 3,050 VPH during the morning peak hour and 3,275 VPH during the evening peak hour.

South of Alameda Avenue, Sable Boulevard serves 13,300 VPD, including approximately 800 VPH during the morning peak hour and 1,150 VPH during the evening peak hour. Alameda Drive serves 2,700 VPD, including approximately 175 VPH during the morning peak hour and 225 VPH during the evening peak hour. Chambers Road serves 37,100 VPD, including approximately 2,575 VPH during the morning peak hour and 3,200 VPH during the evening peak hour.

East of Sable Boulevard, Centrepont Drive serves 2,900 VPD, including approximately 175 VPH during the morning peak hour and 250 VPH during the evening peak hour. West of Chambers Road, Center Avenue serves 800 VPD, including approximately 75 VPH during the morning peak hour and 50 VPH during the evening peak hour.



#### LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

xxxx = Daily Traffic Volumes

NOTE: Drawing Not to Scale



FIGURE 3

Existing  
Traffic Volumes

Metro Center Amendment TIS - JUL 124-134-01 07/18/24

## II.E Traffic Operations

### Methodology

Traffic operations within the study area were evaluated according to techniques documented in the *Highway Capacity Manual, 7th Edition* (HCM) using Trafficware's Synchro software (version 11). Existing traffic volumes and intersection geometry were used to evaluate operations. Traffic signal timing data from the previous *Metro Center Master TIS* were also used in this study to evaluate traffic operations.

Peak hour factors (PHFs), which are used to account for the variation of traffic arrivals within a peak hour, were calculated for each approach of all study intersections. Like the previous *Metro Center Master TIS*, PHFs for all future year scenarios were adjusted to the average of the existing factor and 0.92, recognized by HCM as a default value. Unsignalized intersections within the study area considered the impacts of upstream traffic signals, which meter traffic flow and provide additional gaps for movements from the minor street approaches.

Level of Service (LOS) is a qualitative measure of traffic operational conditions based on roadway capacity and vehicle delay. LOS is described by a letter designation ranging from A to F, with LOS A representing almost free-flow travel, while LOS F represents congested conditions. LOS is reported as an average for the entire intersection at signalized locations, and by movement for stop sign-controlled intersections (for movements that yield right-of-way).

TIS guidelines established by the City of Aurora indicate that for signalized intersections, peak hour traffic operations should be at LOS D or better, though individual movements at signalized intersections may be allowed to operate at LOS E. Individual unsignalized movements can operate at LOS E or LOS F if there is low traffic demand or viable alternate routes.

### Light Rail At-Grade Crossing Intersections

In the *Metro Center Master TIS*, exceptions to the HCM methodology were used to evaluate the Alameda Avenue & Sable Boulevard (#1), Centrepont Drive & Sable Boulevard (#5), and Exposition Avenue & Sable Boulevard (#6) intersections due to impacts of RTD light rail activity. This study also considered the use of hold phases to stop all traffic for a light rail crossing and Synchro LOS to evaluate these intersections.

The 2019 R Line schedule was examined to determine how many light rail calls take place during peak hours (considering more frequent pre-COVID service). A field visit was also conducted to determine the average length of the call phase at each intersection, shown in **Table 2**.

**Table 2. Peak Hour Light Rail Call Phases**

#	Intersection	Peak Hr LRT Calls	Avg. Call Length (s)
1	Alameda Avenue & Sable Boulevard	8	33
5	Centrepont Drive & Sable Boulevard *	4	30
6	Exposition Avenue & Sable Boulevard	8	41

**Notes:** \* LRT calls serve both directions of trains at the same time (northbound and southbound)

As noted in the *Metro Center Master TIS*, this methodology results in conservative estimates of traffic operations since the actual signal controller can incrementally adjust green time for all phases to accommodate a light rail call, but Synchro can only take green time away from the coordinated major street phases. In reality, intersections along Sable Boulevard may operate at a better LOS than what is presented in this study.

Long-term traffic signal timing improvements to Sable Boulevard intersections in the study area have been evaluated in this TIS but may require coordination with the Colorado Public Utilities Commission (PUC) for approval. Physical improvements, such as construction of new turn lanes, would also require coordination with the PUC to begin a formal application process.

## Existing Level of Service

**Table 3** summarizes existing LOS at all study area intersections based on 2024 traffic volumes, and **Figure 4** shows existing LOS and lane configurations. As indicated, all signalized intersections currently operate at LOS D or better during peak hours. Most unsignalized movements operate at LOS D or better.

Although all signalized intersections currently operate at LOS D or better, some movements operate at LOS F during one or more peak hour, which does not meet Aurora's criteria for signalized traffic operations:

- ▶ **Alameda Parkway & Chambers Road (#4):** Westbound through and right-turn movements during the morning peak hour.
- ▶ **Exposition Avenue & Sable Boulevard (#6):** Westbound left-turn movements during the evening peak hour.
- ▶ **Exposition Avenue & Chambers Road (#8):** Eastbound left-turn and through movements, westbound left- and right-turn movements during the evening peak hour.

Unsignalized southbound left-turn movements at the Alameda Avenue & Municipal Center Access (#2) intersection operate at LOS F during both peak hours.

## Recommended Mitigations

To mitigate substandard LOS experienced during existing conditions, the City of Aurora should consider implementing the following roadway and traffic signal improvements, sorted by intersection reference number.

### 2. Alameda Avenue & Municipal Center Access

Although southbound left-turns at the Alameda Avenue & Municipal Center Access (#2) intersection operate at LOS F during peak hours, no mitigation is recommended. This movement serves light traffic demand (less than 10 VPH during peak hours) and alternate routes are available via Alameda Drive.

### 3. Alameda Avenue/Parkway & Alameda Drive

Based on available traffic signal timing data, the Alameda Avenue/Parkway & Alameda Drive (#3) intersection uses a 90-second cycle length during the evening peak hour, which does not match the 135-second cycle used at the Alameda Parkway & Chambers Road (#4) intersection, a quarter mile to the east. An increased cycle length of 135 seconds should be considered, which would improve progression along Alameda Avenue/Parkway but would not significantly hinder intersection operations. The Alameda Avenue/Parkway & Alameda Drive (#3) intersection would continue to operate at LOS A during both peak hours.

### 4. Alameda Parkway & Chambers Road

Existing counts indicate that during the morning peak hour, approximately 1,750 westbound motorists make through or right-turn movements at the Alameda Parkway & Chambers Road (#4) intersection, resulting in oversaturated traffic flow and LOS F conditions. Construction of a dedicated westbound turn lane to serve the high volume right-turn movement and providing an overlap phase concurrent with southbound left-turns should be considered. Right-of-way constraints may limit the feasibility of this improvement. With a new westbound right-turn lane and overlap phase, the intersection would operate at LOS D during peak hours, but no movements would fall below LOS E conditions.

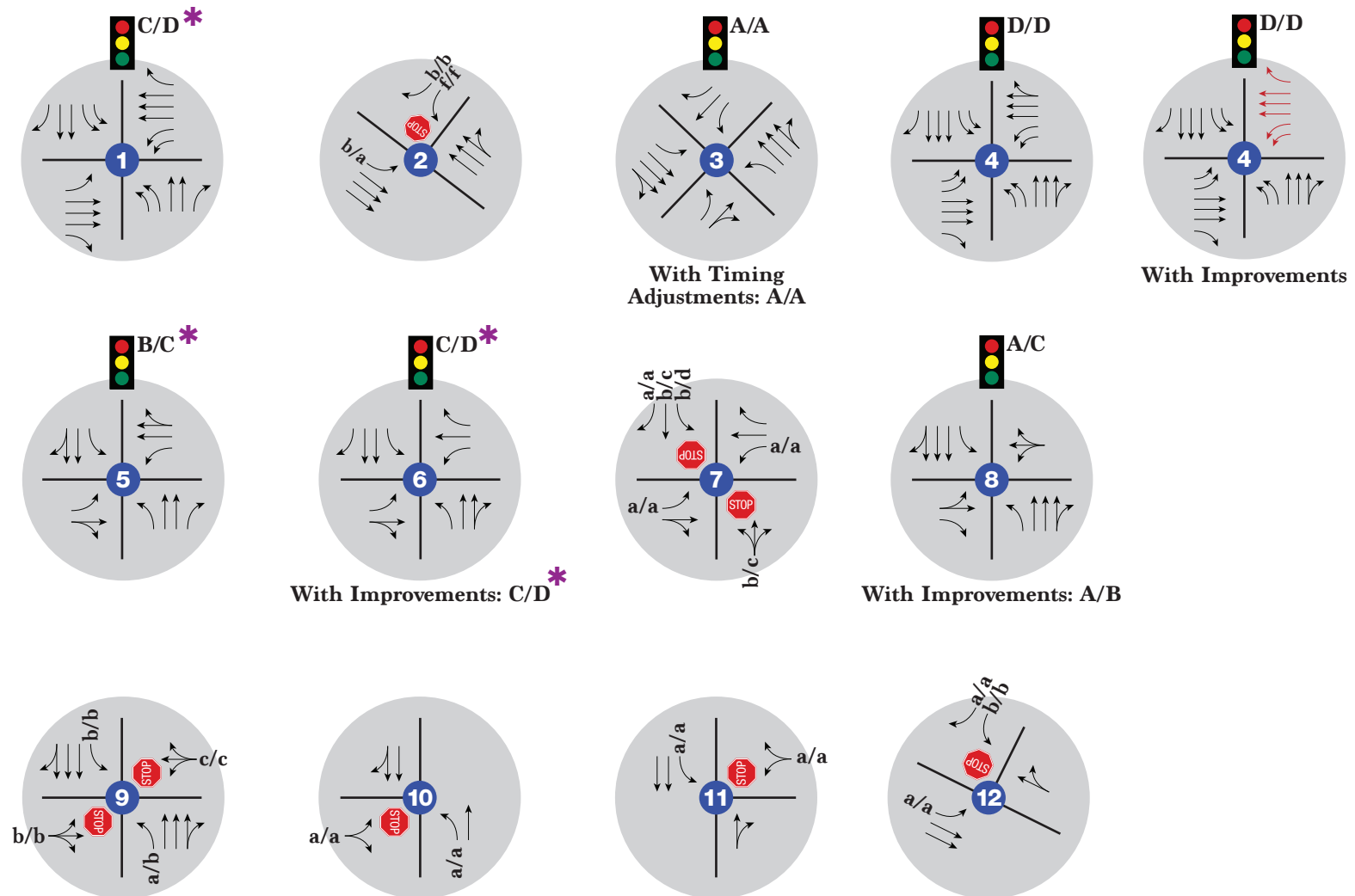
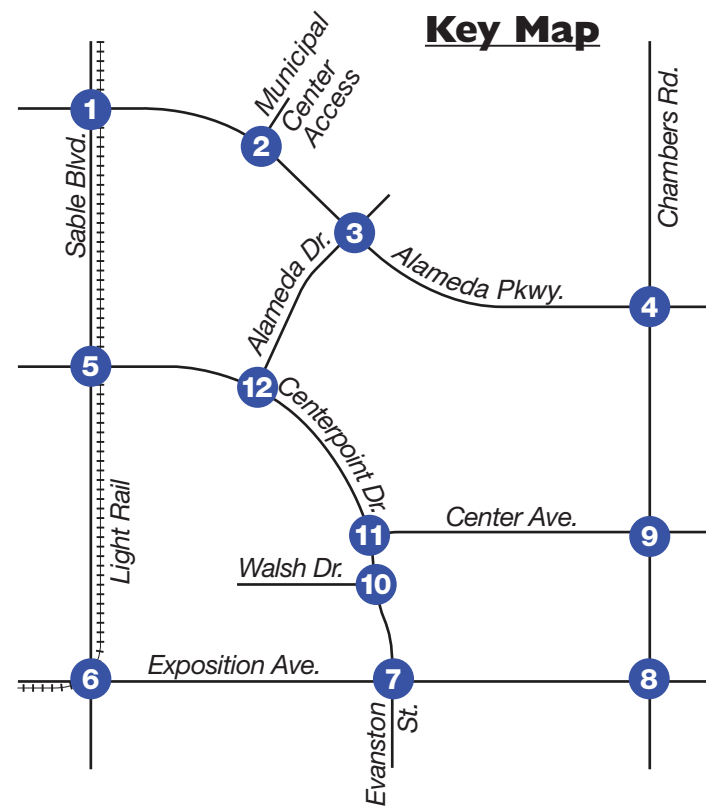
Table 3. Existing Intersection Level of Service

#	Intersection	Movement	LOS (Delay)	
			AM	PM
1	Alameda Ave & Sable Blvd * (Signalized)	Intersection	C (31)	D (38)
		EBL	C (34)	D (36)
		EBT	C (26)	C (35)
		EBR	A (2)	A (6)
		WBL	C (26)	C (34)
		WBT	C (29)	D (36)
		WBR	A (2)	A (6)
		NBL	D (46)	E (55)
		NBT	D (54)	E (63)
		NBR	A (6)	B (12)
		SBL	E (59)	E (62)
		SBT	E (62)	D (55)
		SBR	B (13)	A (9)
		2	Alameda Ave & Municipal Center Access	EBL
SBL	F (203)			F (72)
SBR	b (13)			b (14)
3	Alameda Ave/Pkwy & Alameda Dr (Signalized)	Intersection	A (3)	A (8)
		EBL	A (1)	A (4)
		EBT	A (1)	A (4)
		EBR	A (2)	A (5)
		WBL	A (1)	B (10)
		WBT	A (1)	A (6)
		WBR	A (1)	A (7)
		NBL	E (66)	D (37)
		NBT	A (0)	A (0)
		NBR	E (67)	D (40)
		SBL	E (67)	D (42)
		SBT	A (0)	D (35)
		SBR	E (69)	D (37)
		4	Alameda Pkwy & Chambers Rd (Signalized)	Intersection
EBL	E (73)			E (68)
EBT	D (42)			E (63)
EBR	B (19)			B (16)
WBL	D (45)			E (73)
WBT	F (70)			D (50)
WBR	F (82)			D (54)

#	Intersection	Movement	LOS (Delay)			
			AM	PM		
4	Alameda Pkwy & Chambers Rd (Signalized)	NBL	C (34)	E (70)		
		NBT	D (37)	E (60)		
		NBR	D (46)	E (68)		
		SBL	E (64)	E (64)		
		SBT	E (58)	D (38)		
		SBR	D (48)	C (26)		
5	Centrepont Dr & Sable Blvd * (Signalized)	Intersection	B (18)	C (24)		
		EBL	E (64)	E (77)		
		EBT/R	D (36)	D (54)		
		WBL	D (53)	D (41)		
		WBT/R	C (21)	C (22)		
		NBL	B (12)	C (21)		
		NBT	B (11)	B (19)		
		NBR	A (0)	A (0)		
		SBL	C (26)	B (14)		
		SBT/R	C (23)	B (11)		
6	Exposition Ave & Sable Blvd * (Signalized)	Intersection	C (27)	D (38)		
		EBL	D (37)	D (36)		
		EBT	C (24)	D (47)		
		WBL	E (65)	F (129)		
		WBT	E (59)	E (65)		
		WBR	A (5)	A (1)		
		NBL	C (23)	C (26)		
		NBT	B (20)	C (24)		
		SBL	C (23)	C (27)		
		SBT	B (19)	C (24)		
		SBR	A (0)	A (2)		
		7	Exposition Ave & Centrepont Dr/Evanston St	EBL	a (8)	a (8)
				WBL	a (7)	a (9)
NBL/T/R	b (13)			c (20)		
SBL	b (13)			d (26)		
SBT	b (12)			c (21)		
SBR	a (9)			a (9)		
8	Exposition Ave & Chambers Rd (Signalized)	Intersection	A (8)	C (25)		
		EBL	E (57)	F (82)		
		EBT	A (0)	F (0)		
		EBR	D (52)	E (58)		

#	Intersection	Movement	LOS (Delay)	
			AM	PM
8	Exposition Ave & Chambers Rd (Signalized)	WBL	E (64)	F (336)
		WBT	A (0)	A (0)
		WBR	A (0)	F (0)
		NBL	A (6)	B (12)
		NBT	A (7)	B (13)
		NBR	A (7)	B (13)
		SBL	A (1)	A (3)
		SBT	A (0)	A (1)
		SBR	A (1)	A (3)
9	Center Ave & Chambers Rd	EBL/T/R	b (14)	b (14)
		WBL/T/R	c (18)	c (21)
		NBL	a (9)	b (10)
		SBL	b (11)	b (10)
10	Walsh Dr & Centrepont Dr	EBL/R	a (10)	a (9)
		NBL	a (7)	a (7)
11	Center Ave & Centrepont Dr	WBL/R	a (9)	a (9)
		SBL	a (8)	a (7)
12	Centrepont Dr & Alameda Dr	EBL	a (8)	a (8)
		SBL	b (10)	b (10)
		SBR	a (10)	a (9)

**Notes:** An asterisk (\*) indicates that Synchro-based LOS is reported for the intersection  
A **yellow highlight** indicates the LOS does not meet Aurora standards  
Capital letter (A/B/C/D/E/F) represents signalized LOS, lowercase letter (a/b/c/d/e/f) represents unsignalized LOS  
  
Movements are first identified by direction then by movement (i.e., EBL = Eastbound Left-Turn)  
**EB:** Eastbound, **WB:** Westbound, **NB:** Northbound, **SB:** Southbound  
**L:** Left-turn, **T:** Through, **R:** Right-turn



# LEGEND

- X/X = AM/PM Peak Hour Signalized Intersection Level of Service
- x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service
- STOP = Stop Sign
- Traffic Signal = Traffic Signal

\* HCM LOS results not available.  
Synchro LOS reported

NOTE: Drawing Not to Scale



### 6. Exposition Avenue & Sable Boulevard

Based on signal timing data used in the *Metro Center Master TIS*, the westbound left-turn movement operates with permitted-only phasing (green ball). As a result, this movement operates at LOS F during the evening peak hour. A dedicated left-turn phase should be added for westbound Exposition Avenue, and westbound left-turns should operate with protected/permitted phasing. With this improvement, the intersection would continue to operate at LOS C/D during morning/evening peak hours, respectively.

Field review of the intersection indicates that this improvement has already been made since signal timing was last provided for the *Metro Center Master TIS*.

### 8. Exposition Avenue & Chambers Road

Northbound U-turn movements limit capacity of eastbound right-turns at the Exposition Avenue & Chambers Road (#8) intersection based on evaluation techniques from the HCM, resulting in excessive queues for the eastbound approach. Implementation of “U-TURN YIELD TO RIGHT TURNS” signs (MUTCD R10-16) should be considered, allowing the eastbound right-turn overlap phase to operate more efficiently. With this improvement, the intersection could operate at LOS A/B during morning/evening peak hours, respectively.

Although westbound movements operate at LOS F during the evening peak hour, several alternate routes to Chambers Road are available approximately 300 feet south of Exposition Avenue and at Ohio Avenue/Ada Place. Therefore, no additional mitigations are recommended for existing conditions.

## **II.F Safety Conditions**

At the request of City of Aurora staff, the team conducted a brief safety analysis to evaluate existing conditions for the study area intersections along arterial roadways, including:

1. Alameda Ave & Sable Blvd
2. Alameda Ave & Municipal Center Access
3. Alameda Ave/Pkwy & Alameda Dr
4. Alameda Pkwy & Chambers Rd
5. Centrepont Dr & Sable Blvd
6. Exposition Ave & Sable Blvd
8. Exposition Ave & Chambers Rd
9. Center Ave & Chambers Rd

## **Methodology**

The goal of this safety analysis is to determine the magnitude of and nature of existing safety problems using data-driven techniques. Safety Performance Functions (SPFs) were used to evaluate the magnitude of safety problems, while Direct Diagnostic techniques were used to assess the nature of safety problems.

### Data Collection

The team used DiExSys' *Vision Zero Suite* (VZS) to collect historical crash data for the study intersections identified previously. VZS aggregates all crash data collected by CDOT and provides safety analyses using methods from the Highway Safety Manual (HSM). VZS crash data was collected for the period from 2018–2022, which represents the most recently available five-year period.

Average annual daily traffic (AADT) volume data was collected along arterial roads using CDOT sources for use in evaluating safety performance with respect to traffic volume. Because the AADTs shown in this section are based on an average of conditions recorded during the 2018–2022 crash data, they do not necessarily match the daily traffic volumes shown in **Section II.D**.

### Safety Performance Functions

SPFs were used to assess the magnitude of existing intersection safety problems. The SPF reflects the relationship between traffic exposure, measured in AADT, and crash frequency, measured in crashes per year. The SPF models provide an estimate of the expected crash frequency and severity for a range of AADT among similar intersection types. Two kinds of SPFs were used: the first addresses the total crash frequency, while the second considers the frequency of crashes involving an injury or a fatality (severe crashes).

Note that AADT values presented in this section may differ from those shown on **Figure 4** for multiple reasons. First, they correspond to an average of traffic volume present during the crash history period (2018-2022). Second, they may consider traffic volume on an intersection approach outside the study area (e.g. Alameda Avenue west of Sable Boulevard).

### Level of Service of Safety

Development of SPFs leads to the conceptual formulation of the Level of Service of Safety (LOSS). The concept of level of service uses qualitative measures that characterize safety of a roadway segment in reference to its expected performance. The expected crash frequency predicted by the SPF represents an expected level of safety, and specified percentiles of the SPF can be stratified to represent levels of safety with respect to the expected crash frequency. LOSS boundaries are calibrated by computing the 20th and the 80th percentiles using the Gamma Distribution Probability Density Function, resulting in the following LOSS descriptions:

- ▶ **LOSS I:** Below 20th Percentile
  - Indicates low potential for crash reduction.
- ▶ **LOSS II:** 20th Percentile to Mean
  - Indicates low-to-moderate potential for crash reduction.
- ▶ **LOSS III:** Mean to 80th Percentile
  - Indicates moderate-to-high potential for crash reduction.
- ▶ **LOSS IV:** Above 80th Percentile
  - Indicates high potential for crash reduction.

LOSS reflects an intersection's performance with respect to expected crash frequency and severity at a specific level of AADT. It does not provide any information related to the nature of the safety problem itself. If the safety problem is present, LOSS describes only its magnitude from the frequency and severity standpoint.

### Correcting for Regression to the Mean Bias

The average of several years of crash history of an intersection provides an estimate of what is likely to be observed in the future. The precision of this estimate, however, can be improved by correcting for the Regression to the Mean (RTM) bias. RTM reflects the tendency for random event occurrences, such as crashes, to move toward the average during an experiment or over time. For instance, if an intersection exhibits unusually high or unusually low crash frequency in a particular year, RTM bias recognizes that over the long run the true average is closer to the mean representing safety performance of similar intersections.

RTM bias is addressed using the Empirical Bayes (EB) method. The EB method combines the known crash history with information regarding the safety of similar intersection types using the expected crash frequency and over-dispersion parameter associated with the SPF. EB-corrected values of frequency and severity of crashes are used in the SPF analysis to assess the magnitude of the existing safety problems.

### Direct Diagnostics

While SPFs and LOSS describe the magnitude of safety problems, Direct Diagnostics were used to understand the nature of existing safety problems related to crash types, environmental conditions, and driver conditions. Direct Diagnostics compare the distribution of crashes observed at an intersection to distribution of data used



in the formation of SPFs for similar intersection types. Using the binomial distribution, the team evaluated each crash type and contributing factor to determine if the frequency of occurrence at a study intersection was significantly greater than the frequency observed at similar intersections. Crash types and contributing factors with at least five occurrences and exceeding the 95 percent confidence level of the binomial distribution are considered a diagnostic pattern.

## Safety Analysis Results

**Table 4** summarizes the crash history for the selected study intersections. As shown, the Alameda Avenue & Sable Boulevard (#1) intersection experienced the most crashes over the five-year period (126), over 45 percent of which resulted in injury. This intersection experienced crash frequency consistent with LOSS IV conditions, indicating high potential for crash reduction. The Alameda Parkway & Chambers Road (#4) intersection had the second most crashes over the study period (70); however, this intersection experienced LOSS II (Total) and LOSS III (Severe) conditions.

Other intersections experienced LOSS IV conditions, indicating moderate-to-high potential for crash reduction. The Centrepont Drive & Sable Boulevard (#5) intersection experienced severe crash frequency consistent with LOSS IV conditions, while the Center Avenue & Chambers Road (#9) intersection experienced total crash frequency consistent with LOSS IV conditions. One fatal crash was recorded at the study intersections, occurring at the Centrepont Drive & Sable Boulevard (#5) intersection. However, this crash involved a fixed object and was not related to the function and operation of the intersection.

**Table 4. Select Intersection Crash History (2018–2022)**

#	Intersection	Crash Severity				LOSS		Notable Patterns
		PDO	INJ	FAT	Total	Total	Severe	
1	Alameda Ave & Sable Blvd	69	57	0	126	IV	IV	Pedestrian Approach Turn Dark-Lighted
2	Alameda Ave & Municipal Center Access	9	1	0	10	II	II	Broadside
3	Alameda Ave/Pkwy & Alameda Dr	9	10	0	19	I	II	Broadside
4	Alameda Pkwy & Chambers Rd	46	24	0	70	II	III	Broadside
5	Centrepont Dr & Sable Blvd	12	8	1	21	III	IV	Broadside
6	Exposition Ave & Sable Blvd	8	11	0	19	II	III	Approach Turn
8	Exposition Ave & Chambers Rd	13	13	0	26	II	II	Approach Turn
9	Center Ave & Chambers Rd	21	5	0	26	IV	III	Broadside

**Notes:** **PDO:** Property Damage Only, **INJ:** Injury, **FAT:** Fatal, **LOSS:** Level of Service of Safety

The following subsections describe in further detail the existing safety conditions for each select study intersection. **Appendix E** includes additional crash history data and safety analyses.

Preliminary recommendations have been developed to identify proven mitigation techniques that could be considered to address crash frequency. These recommendations were not carried forward into the Evaluation section of this report in order to demonstrate traffic operation with existing roadway configurations.

### I. Alameda Avenue & Sable Boulevard

**Major Street:** Alameda Avenue

**AADT:** 35,400 VPD

**Minor Street:** Sable Boulevard

**AADT:** 14,600 VPD

**Classification:** Urban Six-Lane Divided Signalized Four-Leg Intersection

**Crash History:** 126 Total (57 Injury)

**LOSS:** IV (Total), IV (Severe)

**Diagnostic Patterns:** Pedestrian, Approach Turn, Dark-Lighted

Pedestrian crashes represented about 4 percent of the crash history (5 of 126); two times higher than the typical rate for similar intersections. Over half of crashes (3 of 5) occurred during Dark-Lighted conditions. All five crashes recorded the driver as “at-fault”, resulted in injury to the pedestrian(s), and involved motorists making turning movements:

- ▶ Eastbound Alameda Avenue – Right-turn
- ▶ Southbound Sable Boulevard – Right-turn
- ▶ Southbound Sable Boulevard – Left-turn (twice)
- ▶ Northbound Sable Boulevard – Left-turn

Approach Turn crashes (left-turn versus opposing through movement) represented about 53 percent of the crash history (66 of 126); three times higher than the typical rate for similar intersections. Over half of the Approach Turn crashes (36 of 66) resulted in injury. Approach Turn crashes most commonly involved southbound (23 of 66), eastbound (19 of 66), and northbound (16 of 66) left-turning motorists. Less than half of Approach Turn crashes occurred during dawn, dusk, or dark conditions (25 of 66). Twenty-three of 66 Approach Turn crashes occurred during morning and evening peak periods (7–9 a.m. and 4–6 p.m.)

Dark-Lighted crashes represented about 31 percent of the crash history (39 of 126); about one-third higher than the typical rate for similar intersections. Dark-Lighted crash types primarily included Approach Turns (20 of 39). Rear End, Broadside, Fixed Object, Pedestrian, Sideswipe, and Overtaking Turn crashes were also recorded.

### **Preliminary Recommendations:**

- ▶ Consider implementing Leading Pedestrian Intervals (LPIs) to address the frequency of Pedestrian crashes.
  - Note that LPIs may have an adverse impact on vehicular traffic operations during peak travel periods. Further analysis of this improvement may be needed on a case-by-case basis at the time of site plan applications.
- ▶ Review left-turn operations for all directions, especially for southbound, eastbound, and northbound approaches.
- ▶ Consider using flashing yellow arrow (FYA) operations to restrict left-turn phases to protected-only during more times of day, especially morning and evening peak periods.
- ▶ Review lighting conditions at the intersection, on all approaches, and at the pedestrian level.
- ▶ Consider providing signs indicating that turning motorists must yield to pedestrians in the crosswalk.

## 2. Alameda Avenue & Municipal Center Access

**Major Street:** Alameda Avenue

**AADT:** 35,400 VPD

**Minor Street:** Municipal Center Access

**AADT:** 3,500 VPD (10% of Major Street)

**Classification:** Urban Six-Lane Divided Unsignalized Three-Leg Intersection

**Crash History:** 10 Total (1 Injury)

**LOSS:** II (Total), II (Severe)

**Diagnostic Patterns:** Broadside

Crash history is consistent with LOSS II conditions, indicating a low-to-moderate potential for crash reduction. Broadside crashes represented 80 percent of the crash history (8 of 10); nearly four times higher than the typical rate for similar intersections. One crash resulted in injury. All eight Broadside crashes involved a southbound left-turning motorist colliding with a westbound motorist. Most of the Broadside crashes (6 of 8) occurred between 2 p.m. and 7 p.m. Driver Inexperience or Preoccupied Driving (distracted) was cited in half of the crashes (4 of 8).

### **Preliminary Recommendations:**

- ▶ Consider restricting access to prohibit southbound left-turns from the Municipal Center Access.
  - City of Aurora should investigate this mitigation further to understand implications to traffic flow, circulation, and traffic operations on city property.
  - This may not be feasible due to the proximity to the Aurora Police Department, but the intersection could be designed to permit southbound left-turns for emergency vehicles only.

## 3. Alameda Avenue/Parkway & Alameda Drive

**Major Street:** Alameda Avenue/Parkway

**AADT:** 35,400 VPD

**Minor Street:** Alameda Drive

**AADT:** 3,500 VPD (10% of Major Street)

**Classification:** Urban Six-Lane Divided Signalized Four-Leg Intersection

**Crash History:** 19 Total (10 Injury)

**LOSS:** I (Total), II (Severe)

**Diagnostic Patterns:** Broadside

Broadside crashes represented about 37 percent of crashes (7 of 19); about three times higher than the typical rate for similar intersections. Most Broadside crashes resulted in injuries (5 of 7) and involved westbound motorists on Alameda Parkway. Over half of the crashes occurred between 1 p.m. and 6 p.m.

### **Preliminary Recommendations:**

- ▶ Consider periodic review of signal timing, including clearance times and progression, to address Rear End crash frequency and red-light running.
- ▶ Consider mitigations that improve signal visibility, which could include:
  - Removing sight distance obstructions (like landscaping)
  - Maintaining signal lenses and visors to reduce sun glare
  - Adding reflective backplate tape on signal heads
  - Placing signal heads on the mast arms above each lane
  - Installing near-side signal heads on curved intersection approaches
  - Installing advance intersection warning signs and beacons

#### 4. Alameda Parkway & Chambers Road

**Major Street:** Alameda Parkway

**AADT:** 31,500 VPD

**Minor Street:** Chambers Road

**AADT:** 28,300 VPD

**Classification:** Urban Six-Lane Divided Signalized Four-Leg Intersection

**Crash History:** 70 Total (24 Injury)

**LOSS:** II (Total), III (Severe)

**Diagnostic Patterns:** Broadside

Broadside crashes represented about 20 percent of crashes (14 of 70); about two times higher than the typical rate for similar intersections. Half of the Broadside crashes resulted in injuries (7 of 14) and nearly half occurred during Dark-Lighted conditions. Most Broadside crashes involved northbound and southbound at-fault drivers, and northbound motorists were the most involved overall. All Broadside crashes occurred between 11 a.m. and midnight or between midnight and 5 a.m.

**Preliminary Recommendations:**

- ▶ Consider periodic review of signal timing, including clearance times and progression, to address Rear End crash frequency and red-light running.
- ▶ Consider mitigations that improve signal visibility, which could include:
  - Maintaining signal lenses and visors to reduce sun glare
  - Adding reflective backplate tape on signal heads
  - Placing signal heads on the mast arms above each lane
  - Installing advance intersection warning signs and beacons

#### 5. Centrepont Drive & Sable Boulevard

**Major Street:** Sable Boulevard

**AADT:** 14,600 VPD

**Minor Street:** Centrepont Drive

**AADT:** 2,900 VPD (20% of Major Street)

**Classification:** Urban Four-Lane Divided Signalized Four-Leg Intersection

**Crash History:** 21 Total (8 Injury, 1 Fatal)

**LOSS:** III (Total), IV (Severe)

**Diagnostic Patterns:** Broadside, Snow/Sleet/Hail

Broadside crashes represented about 52 percent of crashes (11 of 21); nearly four times higher than the typical rate for similar intersections. Nearly half of the Broadside crashes resulted in injuries (5 of 11) and most involved northbound and southbound at-fault drivers. All crashes with southbound motorists occurred between approximately 6 a.m. and 2 p.m.; all crashes with northbound motorists occurred between approximately 2 p.m. and 7 p.m.

**Preliminary Recommendations:**

- ▶ Consider periodic review of signal timing, including clearance times and progression, to address Rear End crash frequency and red-light running.
- ▶ Consider mitigations that improve signal visibility, which could include:
  - Maintaining signal lenses and visors to reduce sun glare
  - Adding reflective backplate tape on signal heads

### 6. Exposition Avenue & Sable Boulevard

**Major Street:** Sable Boulevard

**AADT:** 14,600 VPD

**Minor Street:** Exposition Avenue

**AADT:** 6,300 VPD

**Classification:** Urban Four-Lane Divided Signalized Four-Leg Intersection

**Crash History:** 19 Total (11 Injury)

**LOSS:** II (Total), III (Severe)

**Diagnostic Patterns:** Approach Turn

Approach Turn crashes represented about 37 percent of the crash history (7 of 19); over two times higher than the typical rate for similar intersections. Over half of the Approach Turn crashes (4 of 7) resulted in injury. Approach Turn crashes most commonly involved westbound (4 of 7) and northbound (2 of 7) left-turning motorists, with most (5 of 7) occurring between 1 p.m. and 7 p.m.

#### **Preliminary Recommendations**

- ▶ Review left-turn operations for all directions, especially for westbound and northbound approaches.
  - Westbound left-turns now provide a protected phase with a flashing yellow arrow (FYA).
- ▶ Consider using FYA operations to restrict left-turn phases to protected-only during more times of the day, especially during afternoons and evenings.

### 8. Exposition Avenue & Chambers Road

**Major Street:** Chambers Road

**AADT:** 28,300 VPD

**Minor Street:** Exposition Avenue

**AADT:** 6,300 VPD

**Classification:** Urban Six-Lane Divided Signalized Four-Leg Intersection

**Crash History:** 26 Total (13 Injury)

**LOSS:** II (Total), II (Severe)

**Diagnostic Patterns:** Approach Turn

Approach Turn crashes represented about 31 percent of the crash history (8 of 26); nearly two times higher than the typical rate for similar intersections. Less than half of Approach Turn crashes (3 of 8) resulted in injury and most commonly involved northbound (4 of 8) and southbound (3 of 8) left-turning/U-turning motorists. Most crashes (6 of 8) occurred between 11 a.m. and 7 p.m.

#### **Preliminary Recommendations:**

- ▶ Review left-turn operations for all directions, especially for northbound and southbound approaches.
- ▶ Consider installing “U-TURN YIELD TO RIGHT” signs for the northbound Chambers Road approach (MUTCD R10-16).
- ▶ Consider replacing “doghouse” style left-turn signals with FYA signals and restricting left-turn phases to protected-only during specific times of day, especially during afternoons and evenings.

### 9. Center Avenue & Chambers Road

**Major Street:** Chambers Road

**AADT:** 28,300 VPD

**Minor Street:** Center Avenue

**AADT:** 2,800 VPD (10% of Major Street)

**Classification:** Urban Six-Lane Divided Unsignalized Four-Leg Intersection

**Crash History:** 26 Total (5 Injury)

**LOSS:** IV (Total), III (Severe)

**Diagnostic Patterns:** Broadside

Broadside crashes represented about 77 percent of crashes (20 of 26); over two times higher than the typical rate for similar intersections. Only 5 of the 20 Broadside crashes resulted in injuries. Most Broadside crashes occurred between westbound and northbound motorists (11 of 20) or between westbound and southbound motorists (6 of 20). Nearly all Broadside crashes occurred between 7 a.m. and 9 p.m.

Of the 20 Broadside crashes, 8 occurred in a one-year period between March 2019 to February 2020, meeting the requirement of the Crash Experience warrant for traffic signalization in the Manual on Uniform Traffic Control Devices (MUTCD). Similarly, 17 Broadside crashes occurred in a three-year period from July 2018 to June 2021, which also meets the MUTCD criteria.

**Preliminary Recommendations:**

- ▶ Consider mitigations that improve sight distance from westbound Center Avenue, such as removing or trimming landscaping.
- ▶ Consider traffic signalization based on MUTCD Warrant 7 – Crash Experience.
  - Existing traffic volumes at this intersection satisfy the criteria for Condition A and B of the eight-hour warrant.
  - **Appendix F** presents additional details on the warrant analysis conducted for this intersection based on traffic volumes.

### Summary of Preliminary Recommendations

In general, the following improvements should be considered to address **existing safety problems** for all signalized arterial intersections:

- ▶ Review left-turn operations at signalized intersection with permitted left-turn phases. Consider protected phases when Approach Turn crash frequency is high.
  - Consider using flashing yellow arrow (FYA) operations to restrict left-turn phases to protected-only during specific times of day, especially morning and evening peak periods.
- ▶ Consider periodic review of signal timing, including clearance times and progression, to address Rear End crash frequency and red-light running.
  - Calculated values of yellow and all red clearance times using the Institute of Transportation Engineers (ITE) formula are shown in **Appendix G** for each intersection.
- ▶ Consider mitigations that improve signal visibility.
  - Removing sight distance obstructions (like landscaping)
  - Maintaining signal lenses and visors to reduce sun glare
  - Adding reflective backplate tape on signal heads
  - Placing signal heads on the mast arms above each lane
  - Installing near-side signal heads on curved intersection approaches
  - Installing advance intersection warning signs and beacons

Additionally, the city should consider the following improvements to address **existing safety problems** at specific locations within the Metro Center study area to address existing safety problems.

- ▶ At Alameda Avenue & Sable Boulevard, consider improving lighting levels for both vehicles and pedestrians to reduce nighttime crash frequency. Provide signs to improve the conspicuity of pedestrians in crosswalks.
- ▶ At Alameda Avenue & Sable Boulevard, consider implementing Leading Pedestrian Intervals (LPIs) to address Pedestrian crash frequency pending review of city policies and consideration of vehicular traffic operations.
- ▶ At Alameda Avenue & Municipal Center Access, consider prohibiting southbound left-turns after thorough analysis by the City of Aurora to consider traffic operations and circulation impacts within the Municipal Center property.
- ▶ At Exposition Avenue & Chambers Road, consider installing “U-TURN YIELD TO RIGHT” signs for the northbound Chambers Road approach.
- ▶ At Center Avenue & Chambers Road, consider signalization when warranted to address Broadside crash frequency. **Appendix F** demonstrates that the intersection is warranted based on volumed-based Warrants 1, 2, and 3.

Preliminary recommendations were not carried into the Level of Service evaluations of this report in order to demonstrate traffic operation with existing roadway configurations but are summarized separately in **Section V.D**, along with recommendations for safety improvements associated with the proposed Metro Center development.

## III. Proposed Conditions

### III.A Project Description

As evaluated in the *Metro Center Master TIS*, the proposed Metro Center development evaluated for the Master Plan Amendment would occupy the site bounded by Sable Boulevard to the west, Alameda Parkway to the north, Chambers Road to the east, and Center Avenue to the south. This TIS assumes that Metro Center would include the following land uses across the entire site:

- ▶ 2,130 multifamily DUs
- ▶ 49.88 KSF commercial/mixed-use
- ▶ 3.5 KSF office space

The RTD Aurora Metro Center Station and the Arapahoe County Centrepont Plaza would remain.

### III.B Proposed Roadway Network and Study Intersections

#### Roadway Network

Modifications and additions to the proposed roadway network within the study area and project site would consist of the following facilities.

##### Dakota Avenue

Dakota Avenue would be constructed as a two-lane east-west local street that connects Fraser Court to Chambers Road south of Alameda Parkway. At Fraser Court, Dakota Avenue would be aligned with access to the Arapahoe County property. The intersection of Chambers Road & Dakota Avenue would be restricted to RIRO movements only.

##### Virginia Avenue

Virginia Avenue would be constructed as a two-lane east-west local street that connects Fraser Court to Chambers Road north of Center Avenue. At Chambers Road, Virginia Avenue would be aligned with access to the City Center Marketplace shopping center. The intersection of Chambers Road & Virginia Avenue would be restricted to RIRO movements only. The existing southbound left-turn lane would remain.

##### Center Avenue

Center Avenue would remain as a two-lane local roadway.

##### Dawson Street

Dawson Street would be constructed as a two-lane north-south local street between Fraser Court and Centrepont Drive. North of Centrepont Drive, the Dawson Street alignment would serve as a bicycle and pedestrian promenade with allowances for emergency vehicle access.

##### Alameda Drive

Alameda Drive would remain as a two-lane local roadway adjacent to the Arapahoe County property. Dedicated turn lanes at the Centrepont Drive & Alameda Drive (#12) intersection would be removed.



### Fraser Court

Fraser Court would be a two-lane primarily north-south local street east of the Arapahoe County Centrepont Plaza property. It would connect Alameda Parkway to Dawson Street and have intersections with Dakota Avenue, Virginia Avenue, and Centrepont Drive. The intersection of Alameda Parkway & Fraser Court would be a three-quarter movement access, allowing left-turns and right-turns in from Alameda Parkway but only right-turns out from Fraser Court.

### Granby Street

Granby Street would be a two-lane north-south local street connecting Alameda Parkway to Center Avenue. The intersection of Alameda Parkway & Granby Street would be restricted to RIRO movements only.

### Centrepont Drive

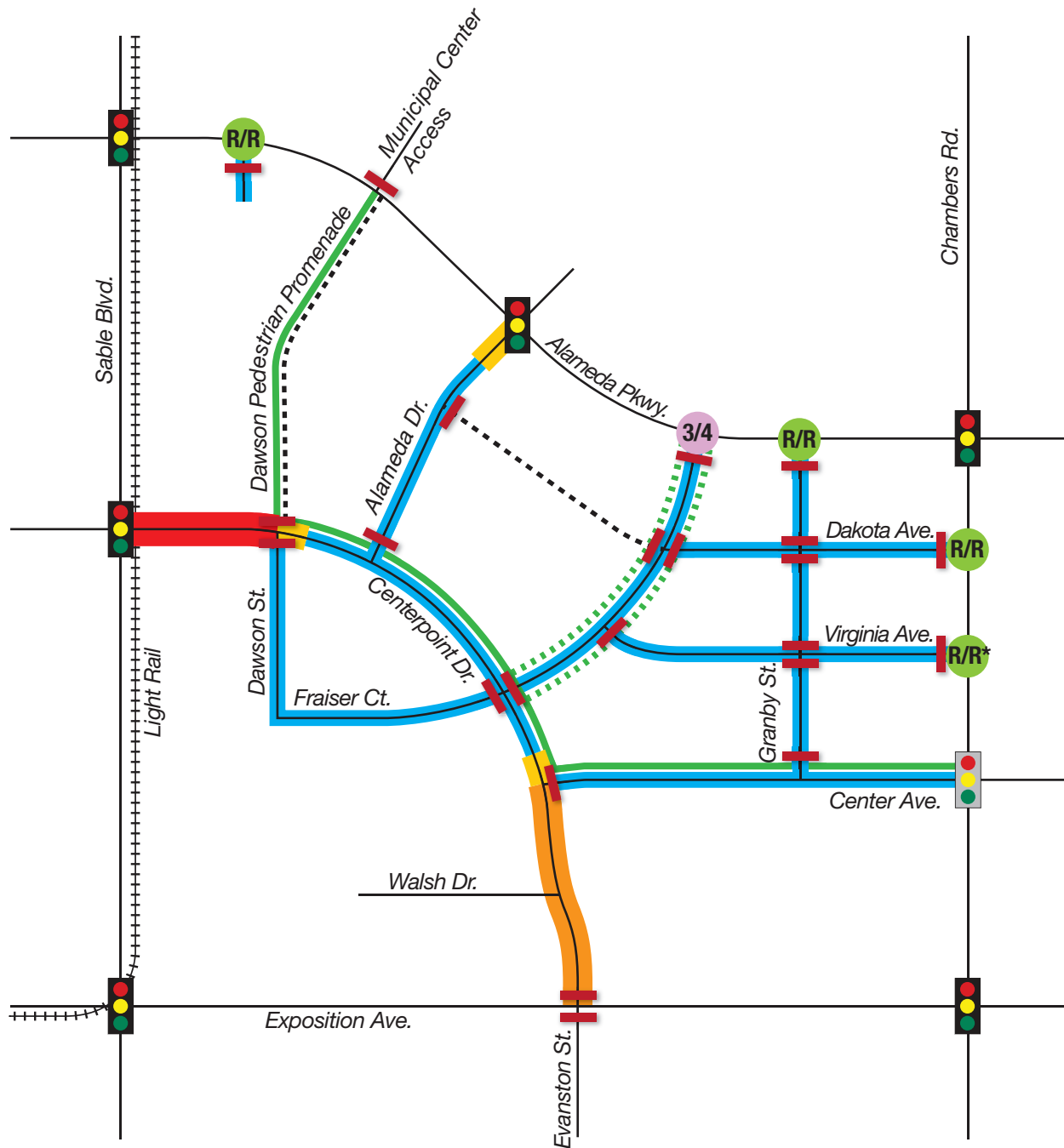
Centrepont Drive would remain between Sable Boulevard and Exposition Avenue. However, the cross-section of Centrepont Drive would be reduced from a three-lane collector roadway with a two-way left-turn lane to a two-lane local roadway between Dawson Street and Center Avenue.

## Study Intersections

Several new public street intersections would be created as a part of the Metro Center development. The following new intersections were evaluated in this TIS:

13. Alameda Ave & Parcel A1
14. Alameda Pkwy & Fraser Ct
15. Alameda Pkwy & Granby St
17. Parcel A2/Arapahoe County & Alameda Dr
18. Dakota Ave/Arapahoe County & Fraser Ct
19. Dakota Ave & Granby St
20. Dakota Ave & Chambers Rd
21. Centrepont Dr & Dawson St
22. Fraser Ct & Centrepont Dr
23. Virginia Ave & Fraser Ct
24. Virginia Ave & Granby St
25. Virginia Ave & Chambers Rd
26. Center Ave & Granby St

**Figure 5** displays proposed roadway and intersection characteristics for the proposed Metro Center development area. **Table 5** displays the characteristics of intersections added to the study area because of the proposed changes to the roadway network. Several two-way stop-control intersections in the table currently exist but would be modified as part of the development to change intersection geometry or provide additional site access.



### LEGEND

#### Laneage

- 5 Lanes
- 4 Lanes
- 3 Lanes
- 2 Lane
- Two-Way Bike Lane
- One-Way Bike Lane
- Fire Access Easement/  
Private Road

#### Traffic Control

- Traffic Signal
- Proposed Traffic Signal
- R/R Right-in/Right-Out
- 3/4 3/4 Movement
- Stop Bar
- ★ Existing SB Left to Remain

**Table 5. Proposed Intersection Characteristics**

#	Intersection	Access Type	Stop-Control
11	Centrepont Dr & Center Ave	Full-Movement	Center Ave
12	Centrepont Dr & Alameda Dr	Full-Movement	Alameda Dr
13	Alameda Ave & Parcel A1	Right-In/Right-Out	Parcel A1
14	Alameda Pkwy & Fraser Ct	Three-Quarter	Fraser Ct
15	Alameda Pkwy & Granby St	Right-In/Right-Out	Granby St
17	Parcel A2/Arapahoe Co & Alameda Dr	Full-Movement	Parcel A2/Arapahoe Co
18	Dakota Ave/Arapahoe Co & Fraser Ct	Full-Movement	Dakota Ave/Arapahoe Co
19	Dakota Ave & Granby St	Full-Movement	Granby St
20	Dakota Ave & Chambers Rd	Right-In/Right-Out	Dakota Ave
21	Centrepont Dr & Dawson St	Full-Movement	Dawson St
22	Centrepont Dr & Fraser Ct	Full-Movement	Fraser Ct
23	Virginia Ave & Fraser Ct	Full-Movement	Virginia Ave
24	Virginia Ave & Granby St	Full-Movement	Granby St
25	Virginia Ave & Chambers Rd	Right-In/Right-Out & Southbound Left	Virginia Ave
26	Center Ave & Granby St	Full-Movement	Granby St

### III.C Proposed Bicycle and Pedestrian Infrastructure

In addition to improved roadway infrastructure, Metro Center would also provide a robust network for non-motorized transportation modes. The curvilinear grid network proposed on the site would provide viable options for users on all parts of the site to make trips via walking or bicycle. Metro Center would provide enhanced facilities for bicyclists and pedestrians at the following locations:

- ▶ Sidewalks on both sides of all internal streets
  - Connectivity provided to external sidewalks and multiuse paths
- ▶ Two-way, separated bicycle lanes along multiple internal streets
  - North/east side of Centrepont Drive between Dawson Street and Center Avenue
  - North side of Center Avenue between Centrepont Drive and Chambers Road
- ▶ One-way striped bicycle lanes on both sides of Fraser Court between Alameda Parkway and Centrepont Drive
- ▶ Dedicated bicycle and pedestrian promenade along the Dawson Street alignment between Alameda Avenue and Centrepont Drive
  - Allowances for emergency vehicle access

### III.D Changes from the Metro Center Master TIS

Since the *Metro Center Master TIS* was prepared, several changes to land use and site access are proposed in the Master Plan Amendment development plan that would change the traffic impacts of the site.

#### Land Use

Proposed land use changes have been identified throughout Metro Center which alter the estimated traffic volumes generated by the development compared to evaluations in the *Metro Center Master TIS*. **Table 6** summarizes these changes. As shown, the proposed hotel/commercial uses in Parcel A1 are replaced with affordable housing units. Parcel A2 and A3 are combined into Parcel A2, with higher multifamily residential density and less commercial/mixed-use space. The proposed supermarket moves from Parcel A2 to Parcel B2.

**Table 6. Proposed Land Use Updates**

Parcel	Metro Center Master TIS (2020)		Master Plan Amendment	
	Land Use	Size	Land Use	Size
A1	Hotel	100 Rm	Affordable Housing	150 DU
	Commercial/Mixed-Use	5.5 KSF		
A2	Supermarket	24 KSF	Multifamily Residential (Mid-Rise) *	600 DU
	Commercial/Mixed-Use	22.5 KSF		
A3	Multifamily Residential (Mid-Rise)	300 DU	Commercial *	15 KSF
	Commercial/Mixed-Use	15 KSF		
B1	Office	40 KSF	Bank	6.5 KSF
			Medical-Dental Office	3.5 KSF
			High-Turnover Sit-Down Restaurant	5.5 KSF
B2	Office	60 KSF	Supermarket	22.88 KSF
B3	Multifamily Residential (Low Rise)	72 DU	Multifamily Residential (Mid-Rise)	99 DU
B4	Multifamily Residential (Low Rise)	63 DU	Multifamily Residential (Mid-Rise)	111 DU
B5	Multifamily Residential (Low Rise)	200 DU	Senior Adult Housing – Multifamily	220 DU
B6	Multifamily Residential (Low Rise)	100 DU	Multifamily Residential (Mid-Rise)	150 DU
C1	Multifamily Residential (Mid-Rise)	350 DU	Multifamily Residential (Mid-Rise)	385 DU
C2	Multifamily Residential (Mid-Rise)	225 DU	Multifamily Residential (Mid-Rise)	215 DU
C3	Multifamily Residential (Mid-Rise)	225 DU	Multifamily Residential (Mid-Rise)	200 DU

**Notes:** An asterisk (\*) indicates that Parcel A2 and A3 are combined in the Master Plan Amendment as Parcel A2.

DU = dwelling units

KSF = thousand square feet

Rm = rooms

Within Parcel B, office uses would be reduced in size or replaced with commercial/mixed-use space.

Multifamily residential density increases were compared to those in the *Metro Center Master TIS*. Senior adult housing replaces market-rate residential units in Parcel B5. Within Parcel C, the distribution of multifamily residential units changes, but overall density within the parcel remains the same.

## Site Access

Modifications to proposed development access since the *Metro Center Master TIS* include:

- ▶ **Virginia Avenue & Chambers Rd (#25)** was previously identified to provide three-quarter movement access, permitting northbound and southbound left- and right-turns but prohibiting eastbound and westbound left-turns.
  - Under the *Aurora Metro Center PA-B Infrastructure Site Plan Traffic Impact Study*<sup>4</sup> (Parcel B TIS), access was modified to prohibit northbound left-turns.
- ▶ **Dawson Street** was previously identified to connect from Fraser Court to Alameda Avenue adjacent to the RTD Aurora Metro Center Station and aligned with the Municipal Center Access.
  - Under the Master Plan Amendment, the segment of Dawson Street from Centrepont Drive to Alameda Avenue would no longer be constructed with vehicular access.
  - Instead, the Dawson Street alignment would serve as a bicycle and pedestrian promenade with allowances for emergency vehicle access.
- ▶ **Dakota Avenue** was previously identified to connect Dawson Street to Chambers Road and pass through the Arapahoe County property.

<sup>4</sup> *Aurora Metro Center PA-B Infrastructure Site Plan Traffic Impact Study*. Felsburg Holt & Ullevig, Greenwood Village, Colorado. September 2022. FHU Reference No. I 19405-03.

- Under the Master Plan Amendment, the segment of Dakota Avenue from Dawson Street to Alameda Drive would not be constructed, and the segment from Alameda Drive to Fraser Court would not provide vehicular access for through traffic.
- ▶ **Parcel A1** was previously identified to have access via a RIRO vehicular access to Alameda Avenue and a full-movement access at the Dakota Avenue & Dawson Street intersection.
  - Under the Master Plan Amendment, access via the Dawson Street alignment would be restricted to emergency vehicles only, and the RIRO access to Alameda Parkway would be the only public vehicular access point.
- ▶ **Parcels A2 and A3** were previously identified to be located between Dawson Street and Alameda Drive and bifurcated by Dakota Avenue.
  - Under the Master Plan Amendment, these parcels would be combined into Parcel A2, and access would come from Alameda Drive.

### III.E Site-Generated Trips

Similar to the *Metro Center Master TIS*, the trip generation potential of the Metro Center development proposed under the Master Plan Amendment was evaluated based on land use type and size. Data from *Trip Generation, 11th Edition* (Institute of Transportation Engineers, 2021) was referenced to determine vehicle-trips generated by the proposed development on typical weekdays and during morning and evening peak hours.

**Table 7** presents the trip generation information for a typical weekday. As shown, Metro Center could be expected to generate nearly 14,100 total daily trips, including about 1,050 in the morning peak hour and about 1,300 in the evening peak hour.

The mix of land uses in the proposed development would lend itself to internal trip-making. Internal trips were calculated using information contained in *Trip Generation Handbook, 3rd Edition* (Institute of Transportation Engineers, 2017) and the NCHRP 684 Internal Trip Capture Estimation tool. Approximately 2,860 daily trips (20 percent of total) would be made internally, including 64 during the morning peak hour (6 percent) and 216 during the evening peak hour (16 percent). Like the *Metro Center Master TIS*, 30 percent of internal trips were assumed to be made with vehicles, while 70 percent would be made with non-motorized modes. Worksheets for internal capture calculations are also shown in **Appendix B**.

Although “Close to Rail Transit” subcategories are available for many land uses proposed in the Metro Center development, these subcategories estimate about 25 percent trip reduction compared to “Not Close to Rail Transit” land uses, which is too aggressive considering the qualitative service provided by the RTD at the Aurora Metro Center Station (including the R Line and 3, 3L, 6, 11, 15L, 21, 130, 133, and 153 bus routes). Instead, mode share rates from the *Metro Center Master TIS* were used to maintain similar methodology to previous studies. The following transit mode share percentages were reused from the *Metro Center Master TIS*:

- ▶ Residential: 15 percent
- ▶ Commercial: 5 percent (excludes supermarket trips)
- ▶ Office: 5 percent

These assumptions for transit mode share result in a reduction of 12 percent of daily **external** trips, 13 percent of morning peak hour **external** trips, and 12 percent of evening peak hour **external** trips.

Pass-by trip reductions were also considered using assumptions from the *Metro Center Master TIS* using methods from the *Trip Generation Handbook*, including 20 percent for general commercial trips and 40 percent for supermarket trips during the evening peak hour. Morning peak hour pass-by trip reductions were not applied, and daily pass-by reductions were estimated as one-half of the evening peak hour rates. Overall, this results in a reduction of 3 percent of daily **external** trips and 9 percent of evening peak hour **external** trips.

**Table 7. Trip Generation Summary**

Parcel	Land Use	ITE Code	Size	Daily		AM Peak				PM Peak			
				Equation / Rate <sup>1</sup>	Trips	Equation / Rate <sup>1</sup>	In	Out	Total	Equation / Rate <sup>1</sup>	In	Out	Total
A1	Affordable Housing	223	150 DU	Rate	721	Rate	22	53	75	Rate	41	28	69
A2	Commercial	822	15 KSF	Rate	817	Rate	21	14	35	Rate	49	50	99
	Multifamily Residential (Mid-Rise)	221	600 DU	Rate	2,724	Equation	58	194	252	Equation	143	91	234
B1	Drive-In Bank	912	6.5 KSF	Rate	652	Rate	38	27	65	Rate	68	69	137
	Medical/Dental Office Building	720	3.5 KSF	Rate	126	Equation	9	3	12	Equation	3	8	11
	High-Turnover Sit-Down Restaurant	932	5.5 KSF	Rate	590	Rate	29	24	53	Rate	30	20	50
B2	Supermarket	850	22.88 KSF	Equation	2,447	Rate	39	26	65	Rate	102	103	205
B3	Multifamily Residential (Mid-Rise)	221	99 DU	Rate	449	Equation	7	25	32	Equation	24	15	39
B4	Multifamily Residential (Mid-Rise)	221	111 DU	Rate	504	Equation	9	28	37	Equation	27	17	44
B5	Senior Housing – Multifamily	252	220 DU	Rate	713	Rate	15	29	44	Rate	31	24	55
B6	Multifamily Residential (Mid-Rise)	221	150 DU	Rate	681	Equation	13	41	54	Equation	36	23	59
C1	Multifamily Residential (Mid-Rise)	221	385 DU	Rate	1,748	Equation	36	122	158	Equation	92	58	150
C2	Multifamily Residential (Mid-Rise)	221	215 DU	Rate	976	Equation	19	64	83	Equation	51	33	84
C3	Multifamily Residential (Mid-Rise)	221	200 DU	Rate	908	Equation	17	59	76	Equation	48	30	78
<b>Total Trip Generation</b>					<b>14,056</b>		<b>332</b>	<b>709</b>	<b>1,041</b>		<b>745</b>	<b>569</b>	<b>1,314</b>
Internal Trip Capture <sup>2</sup>					2,860		32	32	64		108	108	216
Vehicular Internal Trips (30%)					858		10	10	20		32	32	64
Non-Motorized Internal Trips (70%)					2,002		22	22	44		76	76	152
<b>Total External Trips</b>					<b>11,196</b>		<b>300</b>	<b>677</b>	<b>977</b>		<b>637</b>	<b>461</b>	<b>1,098</b>
Transit Mode Share Adjustments					1,381		36	95	131		78	54	132
Pass-By Adjustments					330		0	0	0		48	48	96
<b>Net External Vehicle Trip Generation</b>					<b>9,485</b>		<b>264</b>	<b>582</b>	<b>846</b>		<b>511</b>	<b>359</b>	<b>870</b>
<b>Net Internal Vehicle Trip Generation</b>					<b>858</b>		<b>10</b>	<b>10</b>	<b>20</b>		<b>32</b>	<b>32</b>	<b>48</b>

**Notes:** <sup>1</sup> Fitted Curve Equation provided by ITE when at least 20 study sites are available and the R<sup>2</sup> value for the equation is greater or equal to 0.75. Otherwise, the average rate is used. (Criteria based on the ITE Trip Generation Handbook, 3rd Edition).

<sup>2</sup> NCHRP 684 worksheets for internal capture calculations are shown in **Appendix B**

DU = dwelling units      KSF = thousand square feet      Rm = rooms

Including all reductions, the proposed Metro Center development as defined in the Master Plan Amendment is expected to generate about 9,485 net **external** daily vehicle-trips, including nearly 850 in the morning peak hour and 870 in the evening peak hour. Additionally, the development would generate about 860 **internal** daily vehicle-trips, about 20 in the morning peak hour and 65 in the evening peak hour.

Compared to **daily** trip generation estimates from the *Metro Center Master TIS*, the current iteration of the proposed development would result in a decrease of 23 percent of **total** trips (all modes), including a decrease of 14 percent of **external** vehicle-trips and 49 percent of **internal** vehicle-trips.

### III.F Trip Distribution and Traffic Assignment

The distribution of net external vehicle trips traveling to/from the proposed development assumed similar characteristics to what was used in the *Metro Center Master TIS*:

- ▶ Alameda Parkway west: 20%
- ▶ Sable Boulevard north: 15%
- ▶ Chambers Road north: 15%
- ▶ Alameda Parkway east: 20%
- ▶ Chambers Road south: 15%
- ▶ Sable Boulevard south: 10%
- ▶ Exposition Avenue west: 5%

This distribution is also depicted on **Figure 6**. Morning and evening peak hour vehicle-trips, including all internal and pass-by trips, were assigned to the proposed network using these distribution assumptions with some judgment to determine the shortest path. **Figure 6** also depicts peak hour site-generated traffic volumes for study area intersections. Of note, application of pass-by trips to the traffic assignment would result in a reduction of traffic volumes for the westbound through movement at the Alameda Avenue/Parkway & Alameda Drive intersection during the evening peak hour.

### III.G Existing Plus Site Traffic Volumes

Site-generated traffic volumes shown on **Figure 6** were combined with existing traffic volumes shown on **Figure 3** to create an “Existing Plus Site” scenario. This scenario represents a near-term condition in which Metro Center is built out, but long-term regional background traffic growth has not yet occurred.

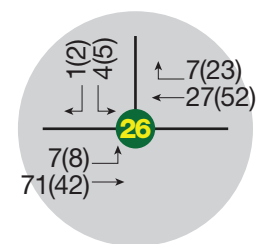
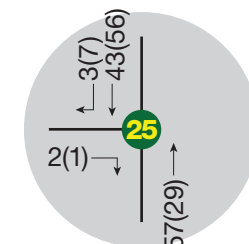
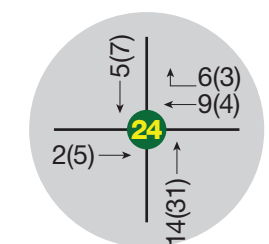
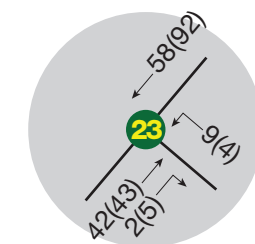
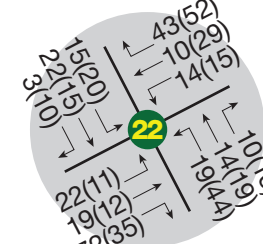
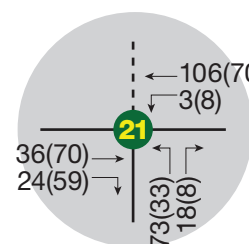
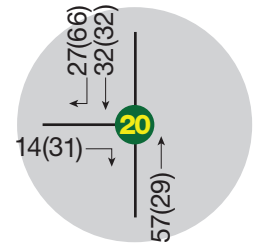
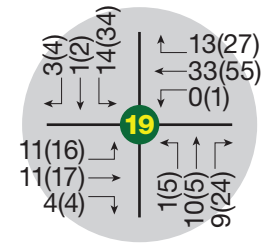
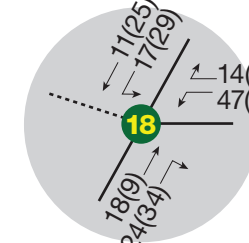
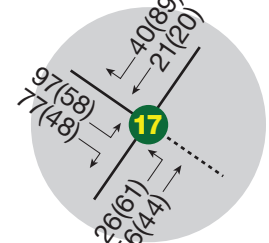
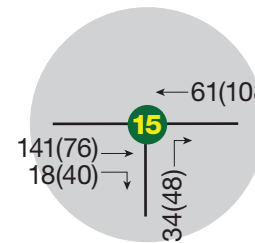
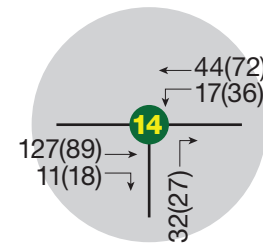
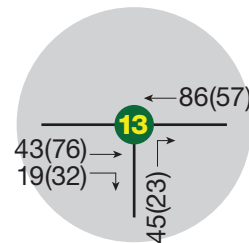
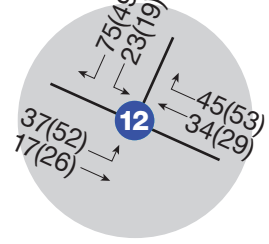
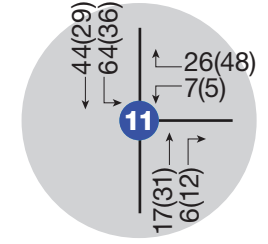
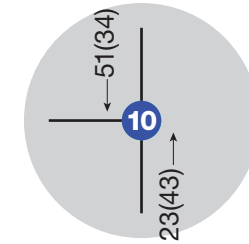
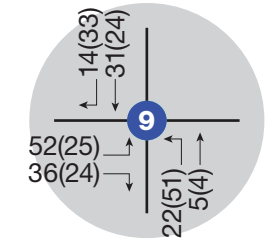
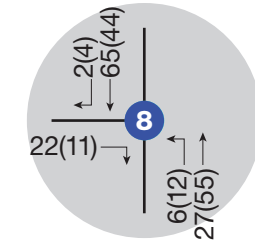
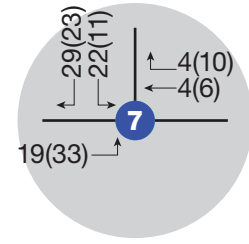
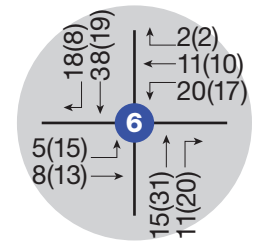
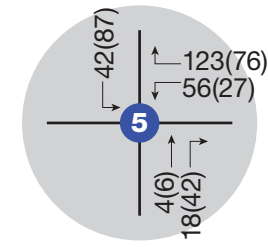
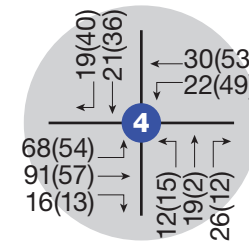
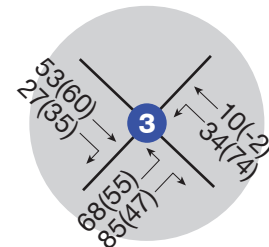
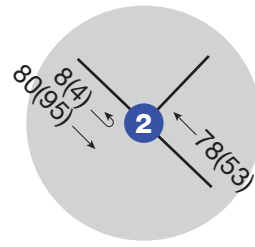
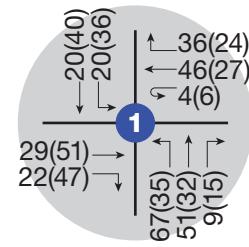
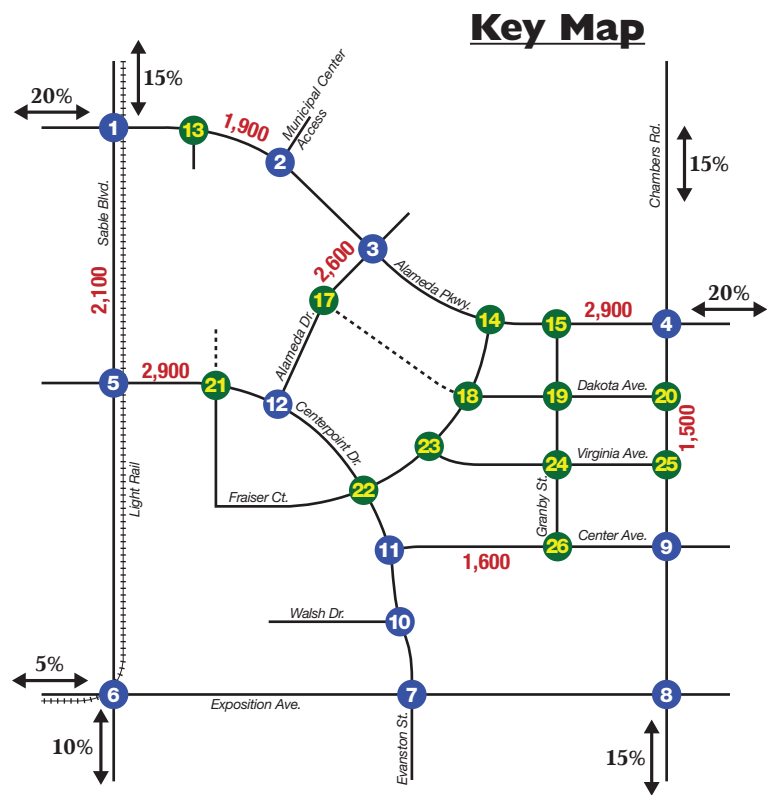
**Figure 7** displays estimates of daily and peak hour traffic volumes within the study area for the Existing Plus Site scenario. As shown, Alameda Avenue/Parkway would serve between 45,700 and 49,900 VPD including the proposed development, with an average of 3,200 VPH during the morning peak hour and 3,475 VPH during the evening peak hour.

South of Alameda Avenue, Sable Boulevard would serve 15,400 VPD, including 950 VPH during the morning peak hour and 1,350 VPH during the evening peak hour. Alameda Drive would serve 5,300 VPD; 400 VPH during the morning peak hour and 450 VPH during the evening peak hour. Chambers Road would serve 38,600 VPD; 2,700 VPH during the morning peak hour and 3,350 VPH during the evening peak hour.

East of Sable Boulevard, Centrepont Drive would serve 5,800 VPD, including 425 VPH during the morning peak hour and 500 VPH during the evening peak hour. West of Chambers Road, Center Avenue would serve 2,400 VPD, including 200 VPH during the morning peak hour and 200 VPH during the evening peak hour.

**Section V** presents results of the operational evaluation of this scenario.





#### LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

xx% = Site Trip Distribution

X = Proposed Intersection

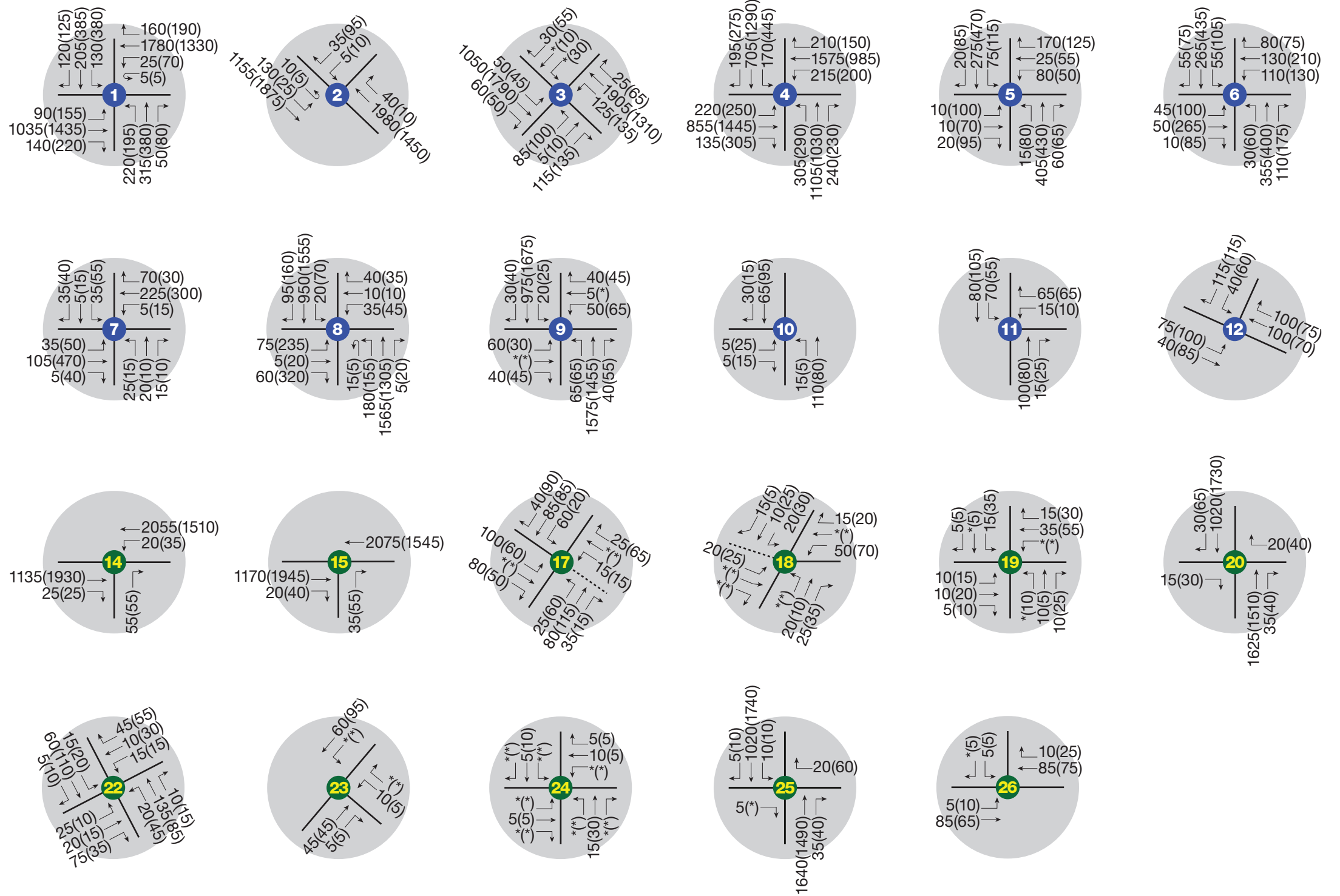
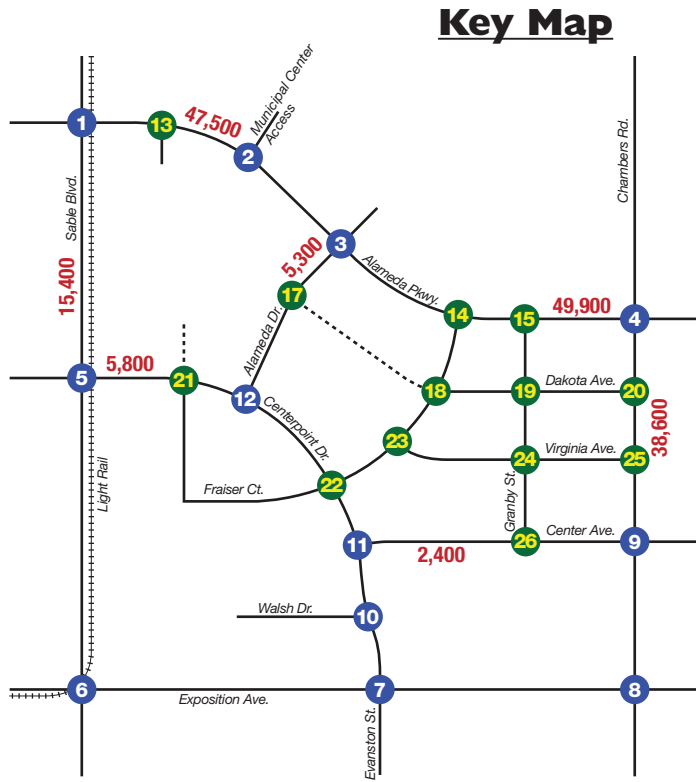
xxxx = Daily Traffic Volumes

NOTE: Drawing Not to Scale



**FIGURE 6**  
**Site-Generated**  
**Traffic Volumes**





NOTE: Drawing Not to Scale



#### LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

**X** = Proposed Intersection

**xxxx** = Daily Traffic Volumes

**\*** = Less Than 5 Vehicles per Hour (vph)



#### FIGURE 7

#### Existing Plus Site Traffic Volumes

## IV. Future Conditions

This section evaluates anticipated traffic volume growth expected over a long-term planning horizon of 20 years (Year 2040). The 2040 planning horizon was selected for consistency with the *Metro Center Master TIS*.

### IV.A Future (2040) Background Traffic Volumes

Background traffic represents the component of traffic growth independent of the proposed site that is expected to use the surrounding roadway network. Estimates of background traffic growth for roadways within the study area were calculated using assumptions from the *Metro Center Master TIS* of a uniform rate of 1.5 percent per year based on review of the Denver Regional Council of Governments (DRCOG) “Focus” and Northeast Aurora Transportation Study (NEATS) travel demand models.

**Figure 8** displays estimates of daily and peak hour traffic volumes within the study area for the Future (2040) Background Traffic scenario. As shown on **Figure 8**, Alameda Avenue/Parkway would serve between 55,700 and 55,500 VPD along the frontage of the proposed development, with an average of 3,850 VPH during the morning peak hour and 4,175 VPH during the evening peak hour by Year 2040.

South of Alameda Avenue, Sable Boulevard would serve 17,000 VPD, including 1,000 VPH during the morning peak hour and 1,475 VPH during the evening peak hour. Alameda Drive would serve 3,600 VPD, including 225 VPH during the morning peak hour and 300 VPH during the evening peak hour. Chambers Road would serve 50,700 VPD, including 3,275 VPH during the morning peak hour and 4,100 VPH during the evening peak hour.

East of Sable Boulevard, Centrepont Drive would serve 3,800 VPD, including 225 VPH during the morning peak hour and 325 VPH during the evening peak hour. West of Chambers Road, Center Avenue would serve 1,200 VPD, including 100 VPH during the morning peak hour and 75 VPH during the evening peak hour.

**Section V** presents results of the operational evaluation of this scenario.

### IV.B Future (2040) Total Traffic Volumes

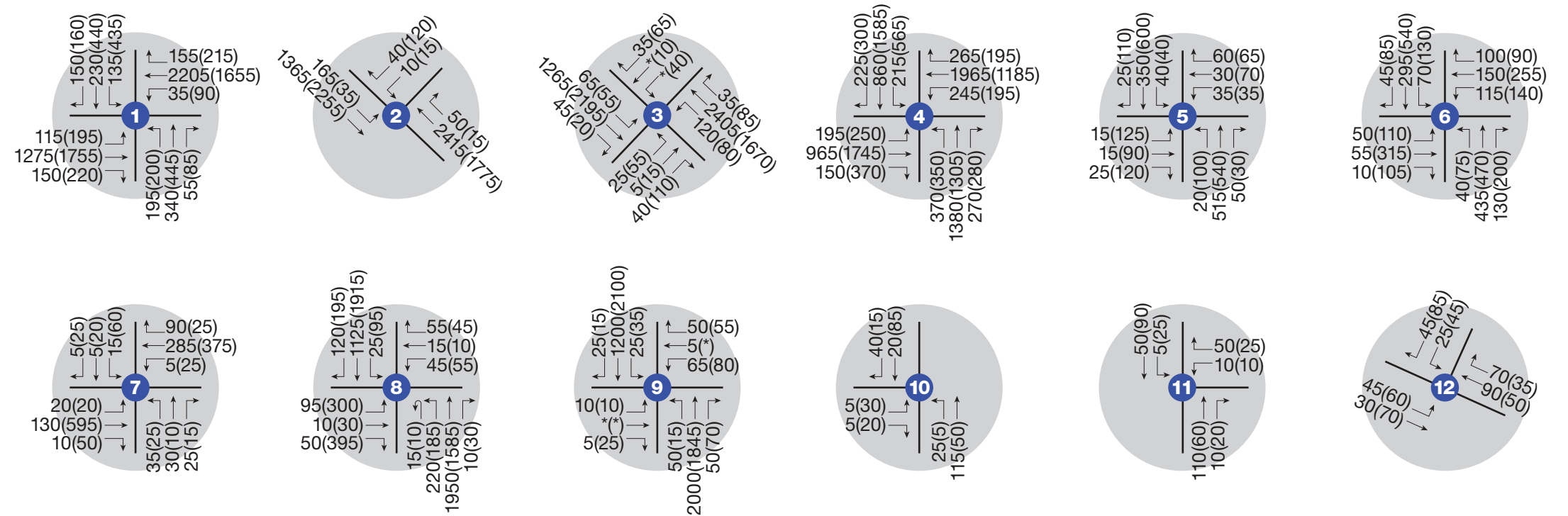
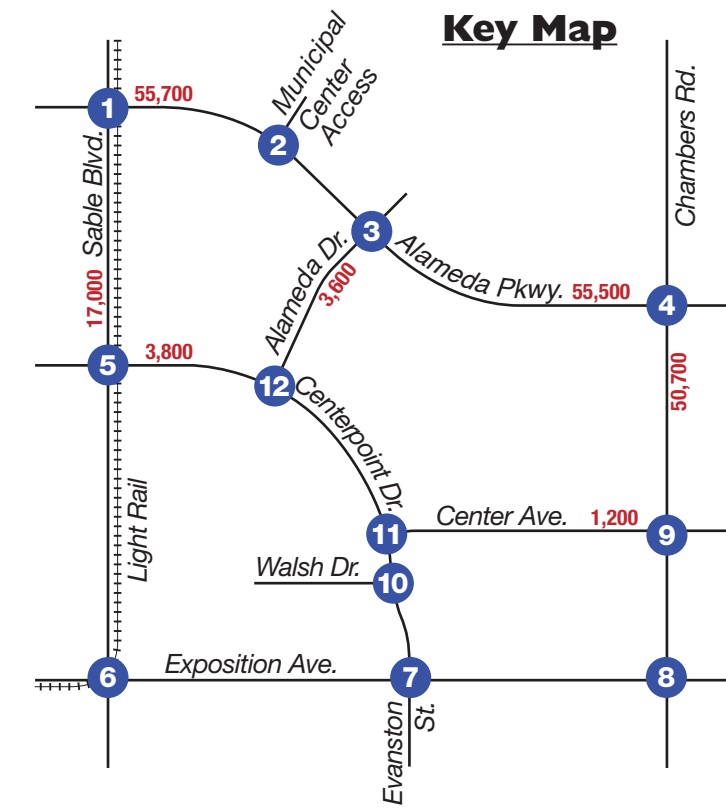
Total traffic represents the future scenario in which vehicle-trips generated by the proposed Metro Center development (shown on **Figure 6**) are added to the Future (2040) Background Traffic volumes (shown on **Figure 8**). Total traffic volumes also account for all internal and pass-by trip-making. **Figure 9** displays estimates of daily and peak hour traffic volumes within the study area for the Future (2040) Total Traffic scenario.

As shown on **Figure 9**, Alameda Avenue/Parkway would serve between 57,600 and 58,400 VPD, including the proposed development, with an average of 4,050 VPH during the morning peak hour and 4,350 VPH during the evening peak hour by Year 2040.

South of Alameda Avenue, Sable Boulevard would serve 19,100 VPD, including 1,175 VPH during the morning peak hour and 1,650 VPH during the evening peak hour. Alameda Drive would serve 6,200 VPD, including 450 VPH during the morning peak hour and 525 VPH during the evening peak hour. Chambers Road would serve 52,200 VPD, including 3,400 VPH during the morning peak hour and 4,225 VPH during the evening peak hour.

East of Sable Boulevard, Centrepont Drive would serve 6,700 VPD, including 475 VPH during the morning peak hour and 575 VPH during the evening peak hour. West of Chambers Road, Center Avenue would serve 2,800 VPD, including 250 VPH during the morning peak hour and 200 VPH during the evening peak hour.

**Section V** presents results of the operation evaluation of this scenario.



#### LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

NOTE: Drawing Not to Scale

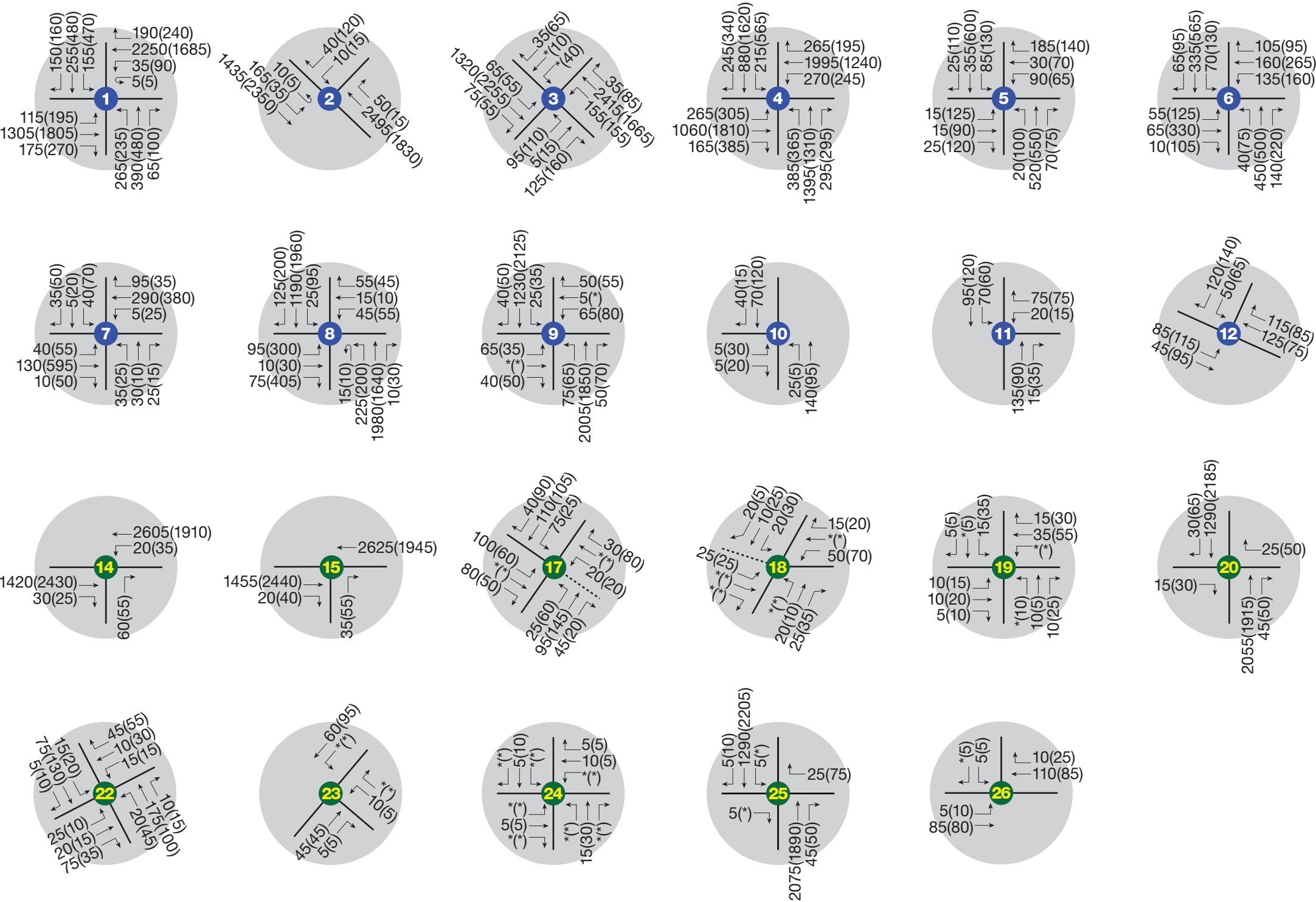
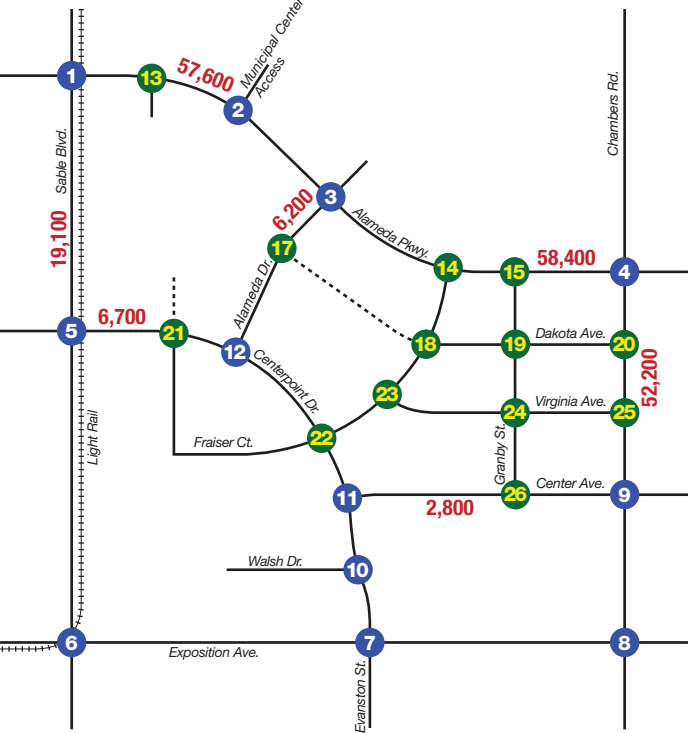


## FIGURE 8

### Future (2040) Background Traffic Volumes

Metro Center Amendment TIS - JUL 124-134-01 07/22/24

Key Map



**LEGEND**

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

X = Proposed Intersection

xxxx = Daily Traffic Volumes

NOTE: Drawing Not to Scale



## V. Evaluation and Mitigations

Due to site-generated traffic from the proposed Metro Center development, daily traffic volumes on the surrounding arterial network (Alameda Avenue/Parkway, Sable Boulevard, Chambers Road, and Exposition Avenue) would increase by 5-8 percent. The increases in traffic volumes resulting from background traffic growth and site-generated trips would impact traffic conditions on roadway segments and at intersections within the study area. This section evaluates impacts to LOS, vehicle queueing, and safety and provides recommendations for mitigations to meet the TIS guidelines provided by Aurora.

### V.A Level of Service

Changes in traffic volumes at intersections also change LOS due to increased delays. Aurora's Traffic Impact Study Guidelines stipulate that peak hour intersection operations should be at LOS D or better. Mitigation measures should be considered for intersections that would not meet these standards, with some exceptions.

#### Methodology Changes

Similar to the *Metro Center Master TIS*, modifications to PHFs were assumed for LOS analyses in Existing Plus Site and all Future (2040) scenarios. The worst expected PHF 0.75 was averaged with the HCM default of 0.92 to achieve a PHF of 0.84 for all new intersection approaches.

When evaluating LOS for the Future (2040) scenarios, traffic signal timings for non-light rail intersections were assumed to be modified to better serve forecasted traffic volumes, including increased cycle lengths, adjusted phase splits, and modifying sequencing.

#### Summary of Level of Service Evaluation

LOS was calculated for each signalized intersection and unsignalized intersection movement in the study area for all scenarios. **Table 8** summarizes LOS at all intersections.

**Table 8. Intersection Level of Service Summary**

#	Intersection	Movement	LOS (Delay)							
			Existing (2024)		Existing Plus Site		Future (2040) Background		Future (2040) Total	
			AM	PM	AM	PM	AM	PM	AM	PM
I	Alameda Ave & Sable Blvd * (Signalized)	Intersection	C (31)	D (38)	C (34)	D (40)	D (40)	E (74)	D (53)	F (96)
		EBL	C (34)	D (36)	D (36)	D (38)	D (37)	D (42)	D (39)	D (44)
		EBT	C (26)	C (35)	C (28)	D (37)	C (31)	F (85)	C (34)	F (129)
		EBR	A (2)	A (6)	A (5)	B (11)	A (5)	B (12)	A (8)	B (18)
		WBL	C (26)	C (34)	C (28)	D (36)	C (29)	D (39)	C (32)	D (41)
		WBT	C (29)	D (36)	C (33)	D (39)	D (48)	F (110)	E (78)	F (149)
		WBR	A (2)	A (6)	A (5)	A (9)	A (5)	B (13)	A (8)	B (16)
		NBL	D (46)	E (55)	D (48)	D (54)	D (45)	E (56)	D (46)	D (54)
		NBT	D (54)	E (63)	D (53)	E (60)	D (52)	E (63)	D (50)	E (59)
		NBR	A (6)	B (12)	A (5)	B (13)	A (6)	B (15)	A (4)	B (14)
		SBL	E (59)	E (62)	E (59)	E (61)	E (59)	E (60)	E (58)	E (60)
		SBT	E (62)	D (55)	E (61)	D (53)	E (62)	D (50)	E (60)	D (49)
		SBR	B (13)	A (9)	B (12)	A (8)	B (12)	A (8)	B (11)	A (7)



**Table 8. Intersection Level of Service Summary**

#	Intersection	Movement	LOS (Delay)							
			Existing (2024)		Existing Plus Site		Future (2040) Background		Future (2040) Total	
			AM	PM	AM	PM	AM	PM	AM	PM
2	Alameda Ave & Municipal Center Access	EBL	b (13)	a (10)	b (13)	a (10)	c (19)	b (11)	c (21)	b (11)
		SBL	<b>f (203)</b>	<b>f (72)</b>	<b>f (266)</b>	<b>f (92)</b>	<b>f (1363)</b>	<b>f (282)</b>	<b>f (1637)</b>	<b>f (355)</b>
		SBR	b (13)	b (14)	b (14)	b (14)	c (17)	c (16)	c (18)	c (16)
3	Alameda Ave/Pkwy & Alameda Dr (Signalized)	Intersection	<b>A (3)</b>	<b>A (8)</b>	<b>A (7)</b>	<b>B (11)</b>	<b>A (3)</b>	<b>A (9)</b>	<b>A (7)</b>	<b>B (19)</b>
		EBL	A (1)	A (4)	A (3)	A (4)	A (2)	A (5)	A (4)	A (6)
		EBT	A (1)	A (4)	A (3)	A (5)	A (2)	A (8)	A (5)	A (10)
		EBR	A (2)	A (5)	A (3)	A (5)	A (2)	A (9)	A (5)	B (11)
		WBL	A (1)	B (10)	A (2)	C (31)	A (3)	C (31)	A (8)	<b>F (252)</b>
		WBT	A (1)	A (6)	A (1)	A (7)	A (1)	A (1)	A (1)	A (1)
		WBR	A (1)	A (7)	A (1)	A (7)	A (2)	A (1)	A (3)	A (1)
		NBL	E (66)	D (37)	E (70)	D (39)	E (69)	E (55)	E (65)	D (55)
		NBT	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)
		NBR	E (67)	D (40)	E (78)	E (59)	E (70)	E (57)	E (62)	E (59)
		SBL	E (67)	D (42)	A (0)	D (45)	A (0)	E (65)	A (0)	E (67)
		SBT	A (0)	D (35)	A (0)	C (35)	A (0)	D (52)	A (0)	D (49)
		SBR	E (69)	D (37)	E (58)	D (36)	E (70)	D (55)	E (58)	D (51)
4	Alameda Pkwy & Chambers Rd (Signalized)	Intersection	<b>D (54)</b>	<b>D (54)</b>	<b>E (56)</b>	<b>E (58)</b>	<b>F (89)</b>	<b>E (69)</b>	<b>F (99)</b>	<b>F (81)</b>
		EBL	E (73)	E (68)	<b>F (100)</b>	E (73)	<b>F (174)</b>	<b>F (82)</b>	<b>F (336)</b>	<b>F (131)</b>
		EBT	D (42)	E (63)	D (39)	<b>F (76)</b>	B (15)	<b>F (95)</b>	<b>F (17)</b>	<b>F (113)</b>
		EBR	B (19)	B (16)	B (18)	B (15)	A (3)	B (12)	A (3)	C (24)
		WBL	D (45)	E (73)	D (46)	<b>F (85)</b>	E (78)	<b>F (164)</b>	<b>F (80)</b>	<b>F (272)</b>
		WBT	<b>F (70)</b>	D (50)	<b>F (75)</b>	D (54)	<b>F (122)</b>	E (78)	<b>F (128)</b>	<b>F (89)</b>
		WBR	<b>F (82)</b>	D (54)	<b>F (86)</b>	E (60)	<b>F (140)</b>	<b>F (90)</b>	<b>F (147)</b>	<b>F (100)</b>
		NBL	C (34)	E (70)	D (37)	E (69)	E (56)	D (46)	E (58)	<b>F (101)</b>
		NBT	D (37)	E (60)	D (38)	D (55)	<b>F (91)</b>	C (25)	<b>F (101)</b>	<b>F (98)</b>
		NBR	D (46)	E (68)	D (48)	E (60)	<b>F (104)</b>	C (33)	<b>F (115)</b>	<b>F (109)</b>
		SBL	E (64)	E (64)	E (77)	E (72)	<b>F (182)</b>	<b>F (144)</b>	<b>F (182)</b>	C (29)
		SBT	E (58)	D (38)	E (58)	D (41)	E (64)	E (56)	E (64)	B (15)
		SBR	D (48)	C (26)	D (47)	C (27)	C (27)	B (17)	C (28)	A (8)
5	Centrepont Dr & Sable Blvd * (Signalized)	Intersection	<b>B (18)</b>	<b>C (24)</b>	<b>C (21)</b>	<b>C (24)</b>	<b>C (21)</b>	<b>C (27)</b>	<b>C (23)</b>	<b>C (27)</b>
		EBL	E (64)	E (77)	E (67)	E (79)	E (67)	<b>F (82)</b>	E (70)	<b>F (90)</b>
		EBT/R	D (36)	D (54)	D (36)	D (52)	D (38)	E (61)	D (37)	E (58)
		WBL	D (53)	D (41)	E (59)	D (45)	D (53)	D (42)	E (56)	D (49)
		WBT/R	C (21)	C (22)	B (11)	B (14)	C (20)	C (20)	B (11)	B (14)
		NBL	B (12)	C (21)	B (15)	C (22)	B (13)	C (23)	B (15)	C (24)
		NBT	B (11)	B (19)	B (14)	C (21)	B (12)	C (23)	B (15)	C (23)
		NBR	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)
		SBL	C (26)	B (14)	C (34)	B (16)	C (31)	B (12)	D (39)	B (19)
6	Exposition Ave & Sable Blvd * (Signalized)	Intersection	<b>C (27)</b>	<b>D (38)</b>	<b>C (27)</b>	<b>D (36)</b>	<b>C (28)</b>	<b>D (52)</b>	<b>C (29)</b>	<b>E (67)</b>
		EBL	D (37)	D (36)	D (35)	C (34)	D (36)	D (39)	C (35)	D (43)
		EBT	C (24)	D (47)	C (29)	D (42)	C (30)	D (51)	C (30)	D (54)



**Table 8. Intersection Level of Service Summary**

#	Intersection	Movement	LOS (Delay)							
			Existing (2024)		Existing Plus Site		Future (2040) Background		Future (2040) Total	
			AM	PM	AM	PM	AM	PM	AM	PM
6	Exposition Ave & Sable Blvd * (Signalized)	WBL	E (65)	F (129)	E (65)	F (105)	E (63)	F (332)	E (64)	F (547)
		WBT	E (59)	E (65)	D (55)	E (56)	E (57)	E (69)	D (53)	E (76)
		WBR	A (5)	A (1)	A (5)	A (1)	A (8)	A (1)	A (8)	A (1)
		NBL	C (23)	C (26)	C (25)	C (28)	C (25)	C (29)	C (26)	C (29)
		NBT/R	B (20)	C (24)	C (21)	C (27)	C (22)	C (29)	C (24)	C (29)
		SBL	C (23)	C (27)	C (25)	C (29)	C (26)	C (31)	C (28)	C (32)
		SBT	B (19)	C (24)	C (21)	C (26)	C (22)	C (27)	C (24)	C (27)
		SBR	A (0)	A (2)	A (2)	A (3)	A (0)	A (4)	A (3)	A (6)
7	Exposition Ave & Centrepont Dr / Evanston St	EBL	a (8)	a (8)	a (14)	a (9)	a (8)	a (8)	a (8)	a (8)
		WBL	a (7)	a (9)	a (8)	a (9)	a (7)	a (10)	a (7)	a (10)
		NBL/T/R	b (13)	c (20)	b (7)	c (25)	b (15)	d (35)	c (16)	e (46)
		SBL	b (13)	d (26)	b (15)	e (35)	c (16)	f (54)	c (18)	f (85)
		SBT	b (12)	c (21)	b (13)	c (24)	b (13)	d (30)	b (14)	d (35)
		SBR	a (9)	a (9)	a (9)	a (10)	a (9)	a (10)	a (10)	b (10)
8	Exposition Ave & Chambers Rd (Signalized)	Intersection	A (8)	C (25)	A (9)	C (26)	B (12)	D (48)	B (12)	D (39)
		EBL	E (57)	F (82)	E (56)	F (81)	E (57)	F (126)	E (57)	F (126)
		EBT	A (0)	F (0)	A (0)	F (0)	A (0)	F (0)	A (0)	F (0)
		EBR	D (52)	E (58)	D (52)	E (62)	D (49)	E (77)	D (50)	F (83)
		WBL	E (64)	F (336)	E (64)	F (358)	E (73)	F (550)	E (73)	F (550)
		WBT	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)	A (0)
		WBR	A (0)	F (0)	A (0)	F (0)	A (0)	F (0)	A (0)	F (0)
		NBL	A (6)	B (12)	A (6)	B (12)	A (9)	E (63)	A (10)	C (33)
		NBT	A (7)	B (13)	A (7)	B (13)	B (11)	B (17)	B (12)	B (17)
		NBR	A (7)	B (13)	A (7)	B (14)	B (12)	B (18)	B (12)	B (18)
		SBL	A (1)	A (3)	A (2)	A (4)	A (5)	D (40)	A (6)	C (24)
		SBT	A (0)	A (1)	A (0)	A (2)	A (1)	C (23)	A (1)	A (5)
		SBR	A (1)	A (3)	A (1)	A (3)	A (1)	C (28)	A (1)	A (9)
9	Center Ave & Chambers Ave	EBL/T/R	b (14)	b (14)	c (19)	c (25)	c (25)	d (34)	f (724)	f (280)
		WBL/T/R	c (18)	c (21)	d (30)	d (26)	f (108)	f (132)	f (319)	f (389)
		NBL	a (9)	b (10)	a (10)	b (10)	a (10)	b (12)	b (10)	b (13)
		SBL	b (11)	b (10)	b (11)	b (11)	b (12)	b (11)	b (12)	b (11)
10	Walsh Dr & Centrepont Dr	EBL/R	a (10)	a (9)	b (11)	a (10)	b (10)	a (9)	b (11)	a (10)
		NBL	a (7)	a (7)	a (7)	a (7)	a (7)	a (7)	a (7)	a (7)
11	Center Ave & Centrepont Dr	WBL/R	a (9)	a (9)	a (10)	a (10)	a (9)	a (9)	b (10)	a (10)
		SBL	a (8)	a (7)	a (8)	a (8)	a (8)	a (7)	a (8)	a (8)
12	Centrepont Dr & Alameda Dr	EBL	a (8)	a (8)	a (8)	a (8)	a (8)	a (8)	a (8)	a (8)
		SBL	b (10)	b (10)	b (12)	b (12)	b (11)	b (11)	b (13)	b (13)
		SBR	a (10)	a (9)			a (10)	a (9)		
13	Alameda Ave & Parcel A1	EBR			b (11)	b (13)			b (12)	c (16)
14	Alameda Pkwy & Fraser Ct	WBL			a (9)	b (11)			b (10)	b (14)
		NBR			b (11)	b (14)			b (12)	c (17)

**Table 8. Intersection Level of Service Summary**

#	Intersection	Movement	LOS (Delay)							
			Existing (2024)		Existing Plus Site		Future (2040) Background		Future (2040) Total	
			AM	PM	AM	PM	AM	PM	AM	PM
15	Alameda Pkwy & Grandby St	NBR			b (11)	b (14)			b (12)	c (18)
17	Parcel 2 / Arapahoe Co & Alameda Dr	EBL/T/R			b (14)	b (14)			c (16)	c (16)
		WBL/T/R			b (11)	b (11)			b (12)	b (12)
		NBL/T/R			a (8)	a (8)			a (8)	a (8)
		SBL/T/R			a (8)	a (8)			a (8)	a (8)
18	Arapahoe Co / Dakota Ave & Fraser Ct	EBL/T/R			a (9)	a (10)			a (10)	a (10)
		WBL/T/R			a (9)	a (10)			a (9)	a (10)
		NBL/T/R			a (0)	a (0)			a (0)	a (0)
		SBL/T/R			a (7)	a (7)			a (7)	a (7)
19	Dakota Ave & Granby St	EBL/T/R			a (7)	a (7)			a (7)	a (7)
		WBL/T/R			a (0)	a (0)			a (0)	a (0)
		NBL/T/R			a (9)	a (9)			a (9)	a (9)
		SBL/T/R			a (9)	b (10)			a (9)	b (10)
20	Dakota Ave & Chambers Rd	EBR			b (10)	b (12)			b (11)	b (15)
		WBR			b (12)	b (12)			b (14)	b (14)
21	Centrepont Dr & Dawson St	WBL			a (7)	a (8)			a (8)	a (8)
		NBT/R			b (11)	b (11)			b (12)	b (12)
22	Fraser Ct & Centrepont Dr	EBL/T/R			b (11)	b (11)			b (11)	b (12)
		WBL/T/R			b (11)	b (12)			b (11)	b (12)
		NBL/T/R			a (7)	a (8)			a (7)	a (8)
		SBL/T/R			a (8)	a (7)			a (8)	a (8)
23	Virginia Ave & Fraser Ct	WBL/R			a (9)	a (9)			a (9)	a (9)
		SBL/T			a (0)	a (0)			a (0)	a (0)
24	Virginia Ave & Granby St	EBL/T/R			a (0)	a (0)			a (0)	a (0)
		WBL/T/R			a (0)	a (0)			a (0)	a (0)
		NBL/T/R			a (9)	a (9)			a (9)	a (9)
		SBL/T/R			a (9)	a (9)			a (9)	a (9)
25	Virginia Ave & Chambers Rd	EBR			b (10)	a (0)			b (11)	a (0)
		WBR			b (12)	b (12)			b (14)	b (14)
		SBL			b (12)	a (10)			b (12)	b (11)
26	Center Ave & Granby St	EBL/T			a (7)	a (7)			a (8)	a (7)
		SBL/R			a (10)	a (9)			a (10)	a (9)

**Notes:** An asterisk (\*) indicates that HCM LOS results are not available and Synchro LOS is reported instead.

A **yellow highlight** indicates the LOS does not meet Aurora standards.

Movements are first identified by direction then by movement (i.e., EBL = Eastbound Left-Turn)

**EB:** Eastbound, **WB:** Westbound, **NB:** Northbound, **SB:** Southbound

**L:** Left-turn, **T:** Through, **R:** Right-turn

**Section II.E** presents additional details on LOS for Existing Conditions. The following sections discuss LOS and potential mitigations for each scenario. Mitigations were not carried over between scenarios. Instead, existing roadway configurations are evaluated for each scenario then mitigations from previous scenarios are

applied as the first step of a resolution, followed by additional mitigations. **Appendix C** includes worksheets for LOS evaluations.

## Existing Plus Site

**Figure 10** displays LOS and lane configurations for intersections included in the Existing Plus Site evaluation. As shown in **Table 8** and on **Figure 10**, signalized intersection LOS would not meet Aurora standards at Alameda Parkway & Chambers Road (#4), Exposition Avenue & Sable Boulevard (#6), and Exposition Avenue & Chambers Road (#8). Additionally, southbound left-turns at Alameda Avenue & Municipal Center Access (#2) would operate at LOS F during both peak hours while southbound left-turns at Exposition Avenue & Centrepoint Drive (#7) would operate at LOS E during the evening peak hour.

Mitigations recommended to address operations for Existing Conditions shown in **Section II.E** would generally be suitable to address the Existing Plus Site scenario.

### 2. Alameda Avenue & Municipal Center Access

No improvements are recommended for the southbound left-turn movement at Alameda Avenue & Municipal Center Access (#2). This movement serves light traffic demand (less than 10 VPH during peak hours) and alternate routes are available via Alameda Drive. Safety conditions reviewed in **Section II.F** indicated that prohibition of southbound left-turns could help address Broadside crash frequency, but this mitigation needs a more thorough analysis from the City of Aurora to consider traffic operations and circulation impacts within the Municipal Center property.

### 3. Alameda Avenue/Parkway & Alameda Drive

Like the Existing Conditions scenario, traffic signal cycle lengths for the Alameda Avenue/Parkway & Alameda Drive (#3) intersection should be increased during the evening peak hour to match the 135-second cycle used at the Alameda Parkway & Chambers Road (#4) intersection. Additionally, westbound left-turn operations should be modified to provide protected/permitted phasing to serve additional traffic volume generated by Metro Center. The Alameda Avenue/Parkway & Alameda Drive (#3) intersection would continue to operate at LOS A/B during morning/evening peak hours, respectively.

### 4. Alameda Parkway & Chambers Road

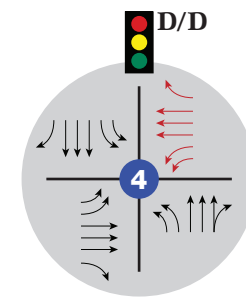
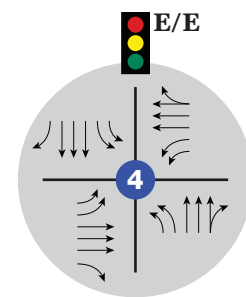
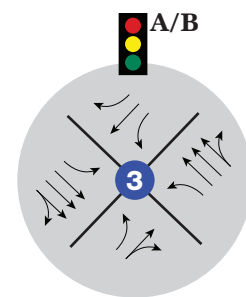
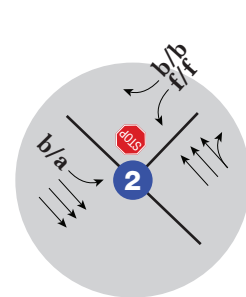
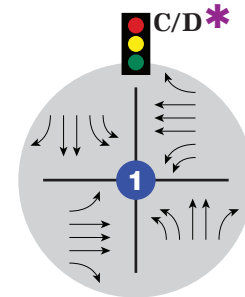
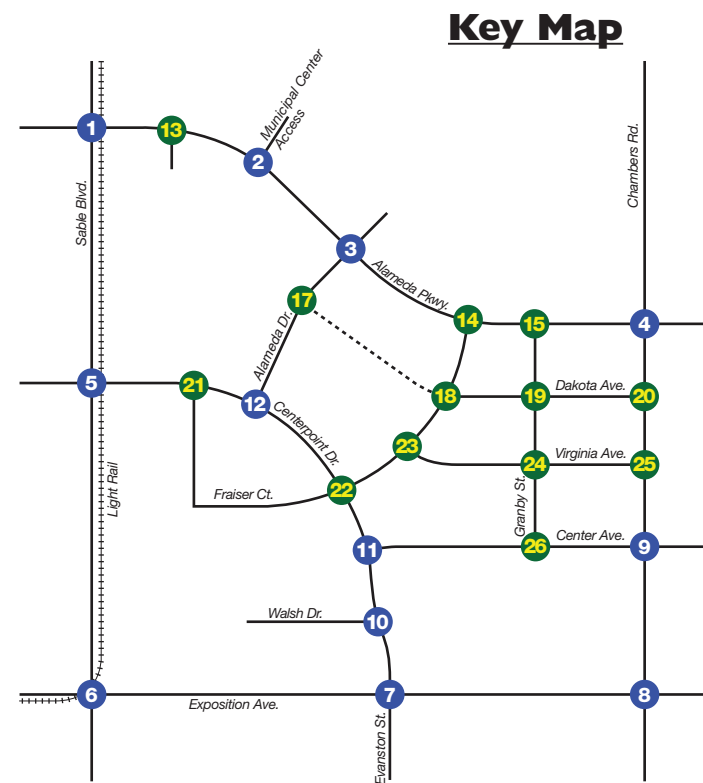
Like in the Existing Conditions scenario, a dedicated westbound right-turn lane should be constructed to serve the high-volume right-turn movement and to provide an overlap phase concurrent with southbound left-turns. Right-of-way constraints may limit the feasibility of this improvement. With a new westbound right-turn lane and overlap phase, the intersection would operate at LOS D during peak hours, but no movements would fall below LOS E.

### 6. Exposition Avenue & Sable Boulevard

A dedicated left-turn phase should be added for westbound Exposition Avenue, and westbound left-turns should operate with protected/permitted phasing. With this improvement, the intersection would continue to operate at LOS C/D during morning/evening peak hours, respectively. Aurora has already implemented this improvement, but timing plans were not available for this study.

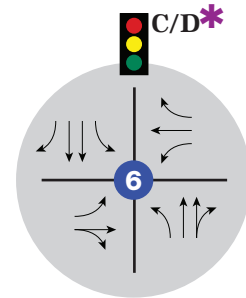
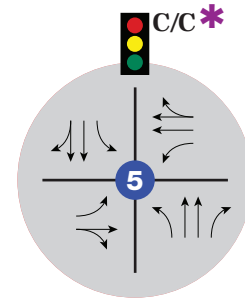
### 7. Exposition Avenue & Centrepoint Drive/Evanston Street

Although southbound left-turns at the Exposition Avenue & Centrepoint Drive/Evanston Street (#7) intersection operate at LOS E during the evening peak hour, no mitigation is recommended. This movement serves light traffic demand (less than 60 VPH during peak hours) and does not impede other traffic on Centrepoint Drive as there is a dedicated lane. Alternate routes available via Center Avenue.

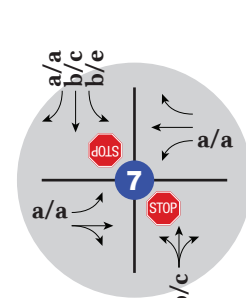


With Timing Adjustments: A/B

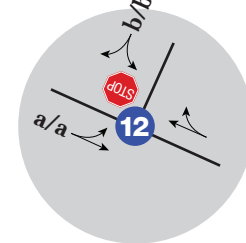
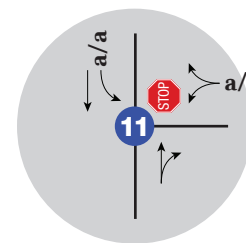
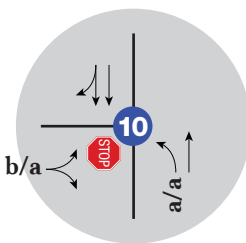
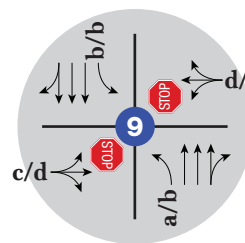
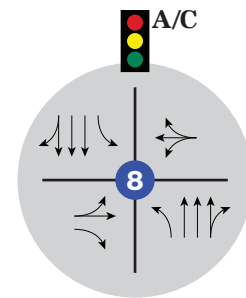
With Improvements



With Improvements: C/D \*



With Improvements: A/B



#### LEGEND

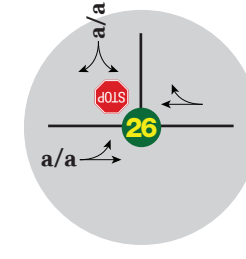
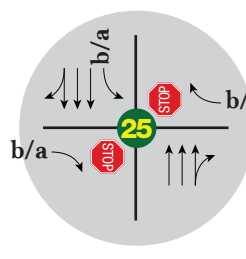
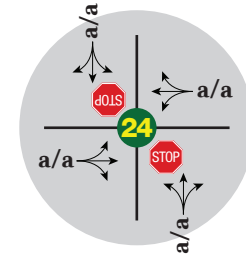
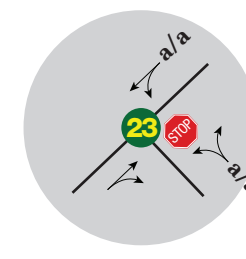
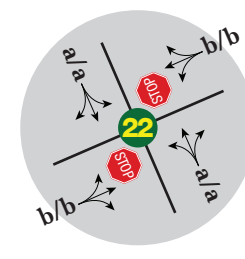
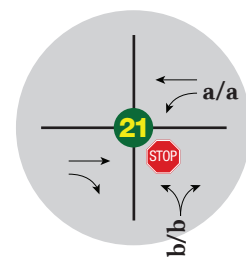
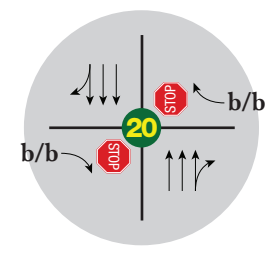
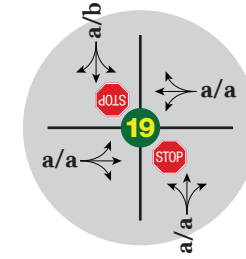
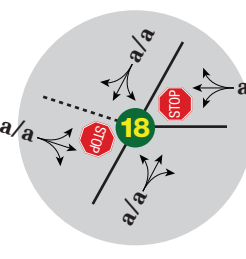
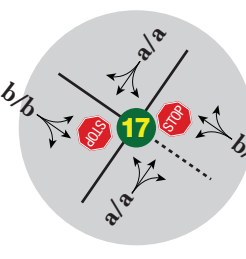
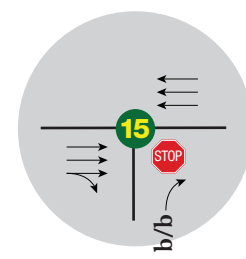
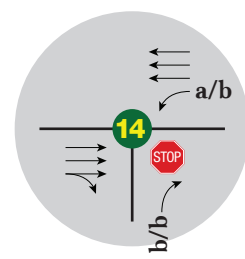
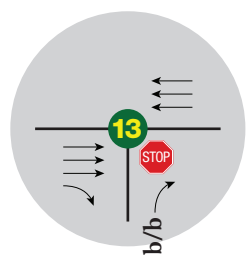
X/X = AM/PM Peak Hour Signalized Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

STOP = Stop Sign

Traffic Signal

\* HCM LOS results not available.  
Synchro LOS reported



### 8. Exposition Avenue & Chambers Road

Aurora should consider implementing “U-TURN YIELD TO RIGHT TURNS” signs (MUTCD R10-16), allowing the eastbound right-turn overlap phase to operate more efficiently. With this improvement, the intersection could operate at LOS A/B during morning/evening peak hours, respectively. Westbound LOS would not improve, but viable access alternatives are available approximately 300 feet south of Exposition Avenue and at Ohio Avenue/Ada Place.

### 9. Center Avenue & Chambers Road

Operations analyses suggest that side street traffic on Center Avenue would operate at LOS D conditions or better in the Existing Plus Site scenario. However, signal warrant analyses were conducted to evaluate existing and forecasted traffic volumes with respect to criteria from the MUTCD. A traffic signal is warranted based on 2024 traffic counts of the intersection and would continue to meet volume warrants in the Existing Plus Site scenario. This traffic signal was previously identified as an improvement in the *Metro Center TIS*. **Appendix F** presents additional details on the warrant analysis.

Since the LOS criteria are met for the Existing Plus Site scenario, signalization is not recommended immediately, but should be considered in the near future when operations fall below LOS D. More on this recommendation is discussed in **Section V.E**.

## **Future (2040) Background Traffic**

**Figure 11** displays LOS and lane configurations for intersections included in the Future (2040) Background Traffic evaluation. As shown in **Table 8** and on **Figure 11**, signalized intersection LOS would not meet Aurora standards at several locations:

- ▶ Alameda Avenue & Sable Boulevard (#1)
- ▶ Alameda Parkway & Chambers Road (#4)
- ▶ Centrepont Drive & Sable Boulevard (#5)
- ▶ Exposition Avenue & Sable Boulevard (#6)
- ▶ Exposition Avenue & Chambers Road (#8)

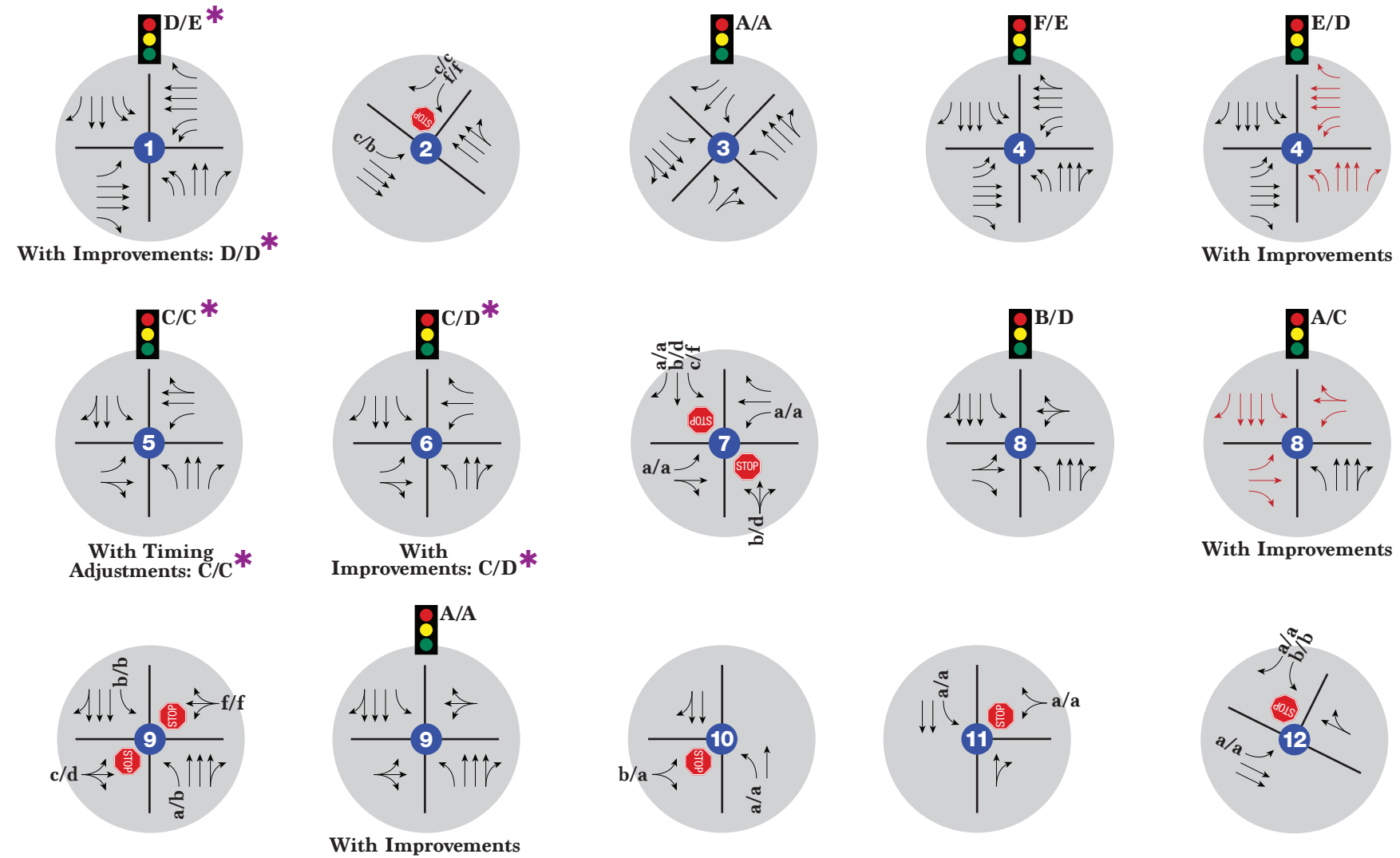
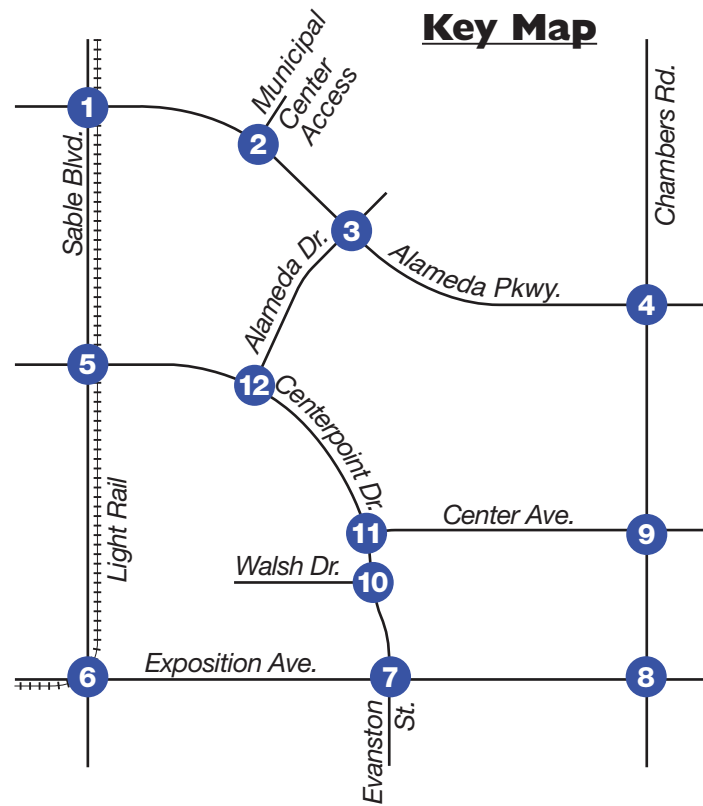
Additionally, several unsignalized movements would operate below LOS D during one or more peak hours:

- ▶ Alameda Avenue & Municipal Center Access (#2) – southbound left-turns
- ▶ Exposition Avenue & Centrepont Drive (#7) – southbound left-turns
- ▶ Center Avenue & Chambers Road (#9) – all westbound movements

While some improvements proposed to mitigate traffic operations in the Existing and Existing Plus Site scenarios would also be suitable to address substandard LOS for the Future (2040) Background Traffic scenario, additional improvements should also be considered.

### 1. Alameda Avenue & Sable Boulevard

Eastbound and westbound through movements on Alameda Avenue should be given additional green time to serve forecasted volume growth in the Future (2040) Background Traffic scenario. With periodic signal timing improvements, the intersection could operate at LOS D during both peak hours with no movements falling below LOS E. Signal timing adjustments may require coordination and approval with the Colorado PUC.



#### LEGEND

- X/X = AM/PM Peak Hour Signalized Intersection Level of Service
- x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service
- STOP = Stop Sign
- Traffic Signal Icon = Traffic Signal

\* HCM LOS results not available.  
Synchro LOS reported

NOTE: Drawing Not to Scale

## 2. Alameda Avenue & Municipal Center Access

No improvements are recommended for the southbound left-turn movement at Alameda Avenue & Municipal Center Access (#2). This movement serves light traffic demand (less than 10 VPH during peak hours) and alternate routes are available via Alameda Drive. Safety conditions reviewed in **Section II.F** indicated that prohibition of southbound left-turns could help address Broadside crash frequency, but this mitigation would require a more thorough analysis from the City of Aurora to understand traffic operations and circulation impacts within the Municipal Center property.

## 4. Alameda Parkway & Chambers Road

In addition to the westbound right-turn lane and overlap phase proposed to address Existing and Existing Plus Site conditions, a northbound right-turn lane should be constructed and provided with an overlap phase. Right-of-way constraints may limit the feasibility of this improvement. With new right-turn lanes and overlap phases, the intersection would improve to LOS E/D operations during morning/evening peak hours, respectively. Further investigation may be required by the City of Aurora on a case-by-case basis to investigate the feasibility of these improvements to address background traffic operations problems.

The *Metro Center Master TIS* also identified operational issues with the Alameda Parkway & Chambers Road (#4) intersection in the Future (2040) scenarios. As this intersection is a junction of two arterials, conflicting movements often compete for green time within the traffic signal cycle, making it difficult to improve operations without increasing capacity through capital projects, such as widening to eight through-lanes or constructing new turn-lanes. Innovative intersection alternatives could also be considered, such as displaced left-turns (continuous flow intersection), median U-turns, or a quadrant intersection. However, these alternatives often require extensive right-of-way that is not available at this location.

## 5. Centrepont Drive & Sable Boulevard

Eastbound and westbound movements on Centrepont Drive should be given additional green time to serve forecasted volume growth in the Future (2040) Background Traffic scenario. With periodic signal timing improvements, the intersection could continue to operate at LOS C during both peak hours, but no movements would fall below LOS E. Signal timing adjustments may require coordination and approval with the Colorado PUC.

## 6. Exposition Avenue & Sable Boulevard

Like the Existing Plus Site scenario, a dedicated left-turn phase should be added for westbound Exposition Avenue, and westbound left-turns should operate with protected/permitted phasing. With this improvement, the intersection would continue to operate at LOS C/D during morning/evening peak hours, respectively. Aurora has already implemented this improvement, but timing plans were not available for this study.

## 7. Exposition Avenue & Centrepont Drive/Evanston Street

Although southbound left-turns at the Exposition Avenue & Centrepont Drive/Evanston Street (#7) intersection operate at LOS F during the evening peak hour, no mitigation is recommended. This movement serves light traffic demand (less than 60 VPH during peak hours) and does not impede other traffic on Centrepont Drive as there is a dedicated lane. Alternate routes available via Center Avenue.

## 8. Exposition Avenue & Chambers Road

Like the Existing Plus Site scenario, Aurora should consider implementing “U-TURN YIELD TO RIGHT TURNS” signs (MUTCD R10-16), allowing the eastbound right-turn overlap phase to operate more efficiently. Additionally, dedicated eastbound and westbound left-turn lanes should be constructed to provide additional capacity for those movements. These left-turn movements should operate with protected/permitted phasing.



Finally, a dedicated southbound right-turn lane should be constructed to service the high-volume movement. With these improvements, the intersection could operate at LOS A/C during morning/evening peak hours, respectively, and no movements would fall below LOS E conditions.

## 9. Center Avenue & Chambers Road

Due to substandard LOS conditions for westbound Center Avenue, a traffic signal should be constructed for the Center Avenue & Chambers Road (#9) intersection with protected/permitted phasing for northbound and southbound left-turns. With this improvement, the intersection would operate at LOS A during both peak hours. Existing traffic volumes meet MUTCD signal warrants for this intersection, and forecasted volumes would continue to meet warrants in the Future (2040) Background Traffic scenario. **Appendix F** presents additional details on the warrant analysis.

## **Future (2040) Total Traffic**

**Figure 12** displays LOS and lane configurations for intersections included in the Future (2040) Total Traffic evaluation. As shown in **Table 8** and on **Figure 12**, signalized intersection LOS would not meet Aurora standards at several locations:

- ▶ Alameda Avenue & Sable Boulevard (#1)
- ▶ Alameda Avenue/Parkway & Alameda Drive (#3)
- ▶ Alameda Parkway & Chambers Road (#4)
- ▶ Centrepont Drive & Sable Boulevard (#5)
- ▶ Exposition Avenue & Sable Boulevard (#6)
- ▶ Exposition Avenue & Chambers Road (#8)

Additionally, several unsignalized movements would operate below LOS D during one or more peak hours:

- ▶ Alameda Avenue & Municipal Center Access (#2) – southbound left-turns
- ▶ Exposition Avenue & Centrepont Drive (#7) – all northbound movements, southbound left-turns
- ▶ Center Avenue & Chambers Road (#9) – all eastbound and westbound movements

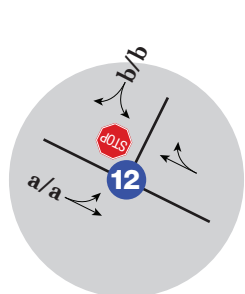
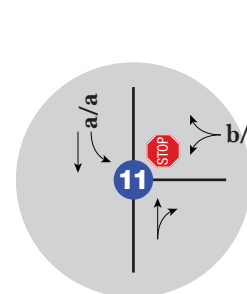
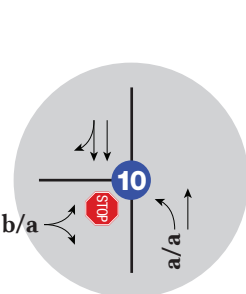
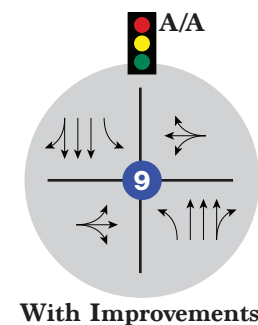
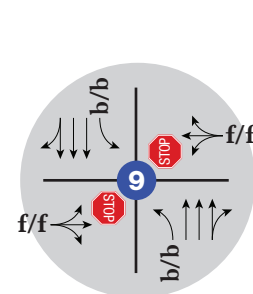
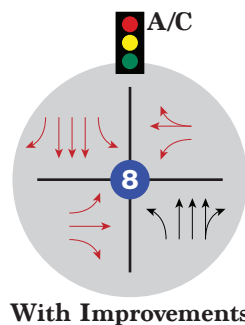
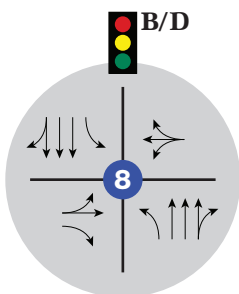
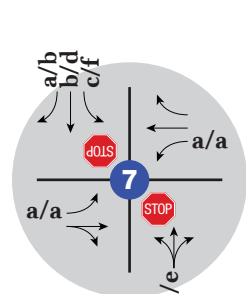
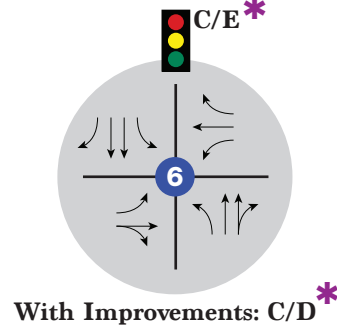
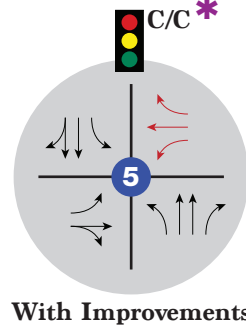
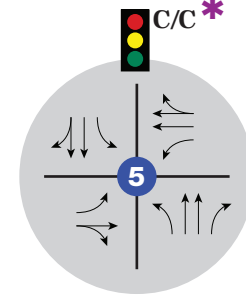
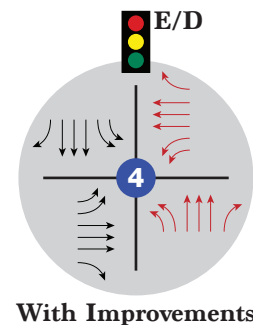
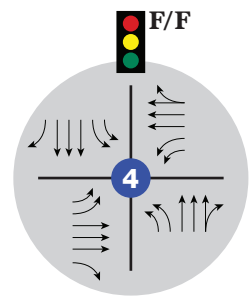
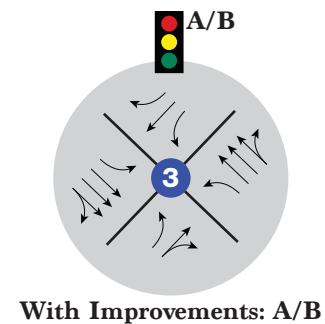
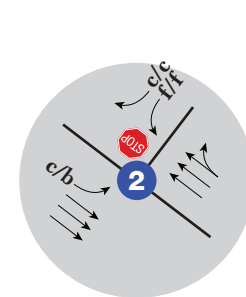
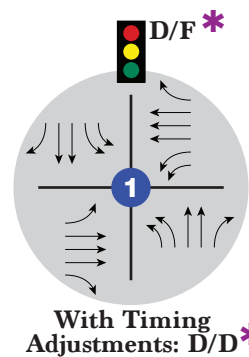
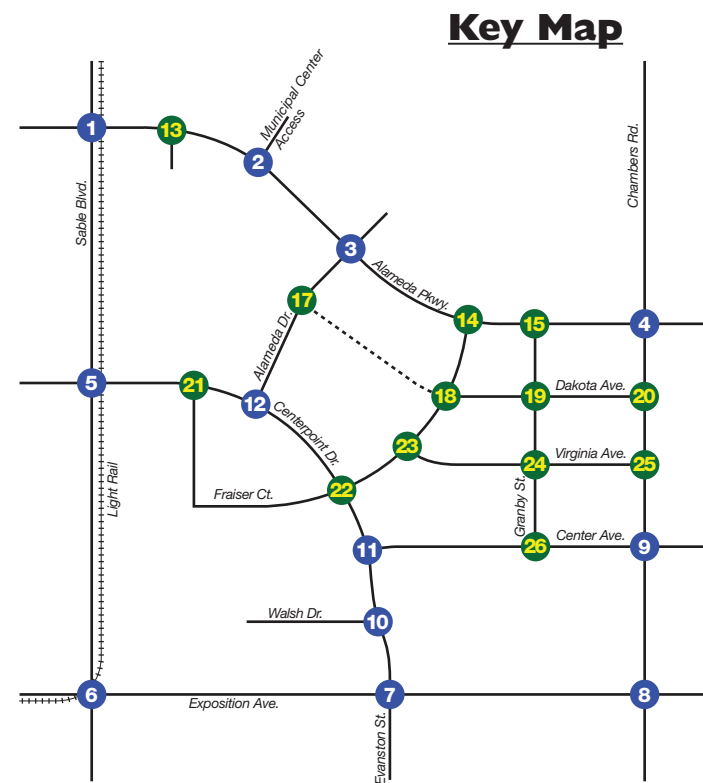
While some improvements proposed to mitigate traffic operations in the Exiting Plus Site and Future (2040) Background Traffic scenarios would also be suitable to address substandard LOS for the Future (2040) Total Traffic scenario, additional improvements should also be considered.

## 1. Alameda Avenue & Sable Boulevard

Eastbound and westbound through movements on Alameda Avenue should be given additional green time to serve forecasted volume growth in the Future (2040) Total Traffic scenario. With periodic signal timing improvements, the intersection could operate at LOS D during both peak hours with no movements falling below LOS E. These are the same signal timing adjustments that are recommended for Future (2040) Background traffic. Signal timing adjustments may require coordination and approval with the Colorado PUC.

## 2. Alameda Avenue & Municipal Center Access

No improvements are recommended for the southbound left-turn movement at Alameda Avenue & Municipal Center Access (#2). This movement serves light traffic demand (less than 10 VPH during peak hours) and alternate routes are available via Alameda Drive. Safety conditions reviewed in **Section II.F** indicated that prohibition of southbound left-turns could help address Broadside crash frequency, but this mitigation would require a more thorough analysis from the City of Aurora to understand traffic operations and circulation impacts within the Municipal Center property.



### LEGEND

- XXXX** = Daily Traffic Volumes
- X/X** = AM/PM Peak Hour Signalized Intersection Level of Service
- x/x** = AM/PM Peak Hour Unsignalized Intersection Level of Service
- = Stop Sign
- = Traffic Signal

\* HCM LOS results not available.  
Synchro LOS reported

NOTE: Drawing Not to Scale



**FIGURE 12**  
**Future (2040) Total Traffic Conditions**

### 3. Alameda Avenue/Parkway & Alameda Drive

Like the Existing Plus Site scenario, westbound left-turn operations should be modified to provide protected/permitted phasing to serve additional traffic volume generated by Metro Center. The Alameda Avenue/Parkway & Alameda Drive (#3) intersection would continue to operate at LOS A/B during morning and evening peak hours.

### 4. Alameda Parkway & Chambers Road

Like the Future (2040) Background Traffic scenario, northbound and westbound right-turn lanes and overlap phases should be added to the intersection to separate through and right-turning traffic. Right-of-way constraints may limit the feasibility of this improvement. With new right-turn lanes and overlap phases, the intersection would improve to LOS E/D operations during morning/evening peak hours, respectively. Metro Center is not expected to contribute significant right-turn volume to either of these movements. Further investigation may be required by the City of Aurora on a case-by-case basis to investigate the feasibility of these improvements to address background traffic operations problems.

The *Metro Center Master TIS* also identified operational issues with the Alameda Parkway & Chambers Road (#4) intersection in the Future (2040) scenarios. As this intersection is a junction of two arterials, conflicting movements often compete for green time within the traffic signal cycle, making it difficult to improve operations without increasing capacity through capital projects, such as widening to eight through-lanes or constructing new turn-lanes. Innovative intersection alternatives could also be considered, such as displaced left-turns (continuous flow intersection), median U-turns, or a quadrant intersection. However, these alternatives often require extensive right-of-way that is not available at this location.

### 5. Centrepont Drive & Sable Boulevard

Like the Future (2040) Background Traffic scenario, Eastbound and westbound movements on Centrepont Drive should be given additional green time to serve forecasted volume growth in the Future (2040) Background Traffic scenario. Additionally, on westbound Centrepont Drive, the shared through/right-turn lane should be restriped as a dedicated westbound right-turn lane to separate through traffic from right-turning traffic. With this improvement, the Centrepont Drive & Sable Boulevard (#5) intersection would continue to operate at LOS C during peak hours, but no movements would fall below LOS E. These improvements may require coordination and approval with the Colorado PUC.

### 6. Exposition Avenue & Sable Boulevard

Like the Existing Plus Site and Future (2040) Background Traffic scenarios, a dedicated left-turn phase should be added for westbound Exposition Avenue, and westbound left-turns should operate with protected/permitted phasing. With this improvement, the intersection would continue to operate at LOS C/D during morning/evening peak hours, respectively. Aurora has already implemented this improvement, but timing plans were not available for this study.

### 7. Exposition Avenue & Centrepont Drive/Evanston Street

No improvements are recommended for the southbound left-turn movement at Exposition Avenue & Centrepont Drive/Evanston Street (#7). This movement serves light traffic demand (less than 70 VPH during peak hours) and does not impede other traffic on Centrepont Drive as there is a dedicated lane. Alternate routes available via Center Avenue.

Improvements are also not recommended for northbound Evanston Street, despite operating at LOS E during the evening peak hour. This approach serves a low volume of residential traffic (less than 50 VPH), and

alternate routes are available from Walsh Drive (to Exposition Avenue) and from Ohio Avenue and Fraser Way (to Chambers Road). However, potential mitigations could include:

- ▶ Stripe a southbound receiving lane, shared left-turn/through lane, and dedicated right-turn lane.
  - This mitigation would require prohibition of on-street parking along Evanston Street and potentially block residential driveways.
  - Although it would help right-turning motorists, northbound left-turn delay would not decrease because of this improvement.
- ▶ Restrict northbound access to right-turns only.
  - This option would require significant coordination with the neighborhood to understand access management implications
  - Physical interventions like channelizing islands and medians would be needed to reinforce the access restriction and would also impact access for southbound Centrepont Drive.
- ▶ Introduce all-way stop-control.
  - This alternative was considered in the *Metro Center Master TIS*, but side street volumes do not meet warrant criteria provided by MUTCD for all-way stop-control.
  - The *Metro Center Master TIS* also noted that all-way stop-control would result in LOS F conditions along Exposition Avenue.
- ▶ Construct a roundabout.
  - This alternative was considered in the *Metro Center Master TIS* and provided good LOS.
  - Three corners of the intersection are already built out, meaning that accommodating the roundabout footprint would be difficult with right-of-way constraints.
  - If pursued, further evaluation should be conducted by the City of Aurora to determine roundabout feasibility with respect to geometry, right-of-way, sight distance, bicycle accommodations, etc.

## 8. Exposition Avenue & Chambers Road

Like the Existing Plus Site and Future (2040) Background Traffic scenario, Aurora should implement “U-TURN YIELD TO RIGHT TURNS” signs (MUTCD R10-16), allowing the eastbound right-turn overlap phase to operate more efficiently. Additionally, dedicated eastbound and westbound left-turn lanes should be constructed to provide additional capacity for those movements. These left-turn movements should operate with protected/permitted phasing. Finally, a dedicated southbound right-turn lane should be constructed to service the high-volume movement. With these improvements, the intersection would operate at LOS A/C during morning/evening peak hours, respectively, and no movements would fall below LOS E conditions.

## 9. Center Avenue & Chambers Road

Like the Future (2040) Background Traffic scenarios, a traffic signal should be constructed for the Center Avenue & Chambers Road (#9) intersection with protected/permitted phasing for northbound and southbound left-turns. With this improvement, the intersection would operate at LOS A during both peak hours. Forecasted volumes would continue to meet MUTCD signal warrants in the Future (2040) Total Traffic scenario. **Appendix F** presents additional details on the warrant analysis.

## V.B Roundabout Analysis

No new roundabout analysis has been conducted for this study. The original *Metro Center Master TIS* evaluated a single-lane roundabout alternative for the Exposition Avenue & Centrepont Drive/Evanston Street (#7) intersection since LOS criteria were not met and traffic volumes did not meet signal warrants. In that study, a roundabout was found to provide reasonable peak hour traffic operations but was not identified as a recommended mitigation. Aurora may consider further evaluation of a roundabout at the Exposition Avenue & Centrepont Drive/Evanston Street (#7) intersection on a case-by-case basis to determine feasibility with respect to geometry, right-of-way, sight distance, bicycle accommodations, etc.

## V.C Queueing

Like the *Metro Center Master TIS*, a queueing analysis was conducted at all study area intersections to determine desirable storage lengths for turn lanes and feasibility of proposed intersection spacing. The 95th percentile queue length from traffic movements in the Future (2040) Total Traffic scenario (with recommended mitigations included) was used to provide recommendations of turn lane lengths. The following improvements were included in the analysis:

- ▶ Revised signal timing at Alameda Avenue & Sable Boulevard (#1)
- ▶ Implementation of protected/permitted left-turn phasing for the westbound approach of Alameda Avenue/Parkway & Alameda Drive (#3)
- ▶ Construction of northbound and westbound right-turn lanes at the Alameda Parkway & Chambers Road (#4) intersection
  - Overlap phasing for right-turns on all four approaches
- ▶ Revised signal timing and restriped westbound approach at Centrepont Drive & Sable Boulevard (#5) to provide a dedicated right-turn lane
- ▶ Implementation of protected/permitted left-turn phasing for the westbound approach of Exposition Avenue & Sable Boulevard (#6)
- ▶ Construction of eastbound and westbound left-turn lanes and a southbound right-turn lane at Chambers Road & Exposition Avenue (#8)
  - Protected/permitted phasing for eastbound and westbound left-turns
- ▶ Construction of a traffic signal at Chambers Road & Center Avenue (#9) with protected/permitted phasing for northbound and southbound left-turns
- ▶ Construction of a new westbound left-turn lane along Alameda Parkway at Fraser Court (#14)

**Table 9** displays 95th percentile queue lengths for morning and evening peak hours. Queues are reported in feet per lane. The table also displays storage length criteria as defined by the Colorado State Highway Access Code (SHAC) and storage length recommendations. SHAC criteria shown in the tables assumed the following facility classifications for study area roadways:

- ▶ **NR-A:** Alameda Avenue/Parkway, Chambers Road (comparable to major/principal arterial classification)
- ▶ **NR-B:** Sable Boulevard (comparable to minor arterial classification)
- ▶ **NR-C:** Municipal Center Access, Alameda Drive, Exposition Avenue, Centrepont Drive, Center Avenue (comparable to collector classification)
- ▶ **Not Applicable:** All other roadways (mostly local roadway classifications)

**Table 9. 95th Percentile Queues and Recommended Storage**

#	Intersection	Movement	95th Pct-ile Queue (ft)		SHAC Storage Length (ft)	Recommended Storage Length (ft)
			AM	PM		
1	Alameda Ave & Sable Blvd	EBL	161	#300	421 A-L	250 E
		EBT	#751	#897	Continuous	Continuous
		EBR	70	159	226 A-R	180 E
		WBL *	33	61	271 A-L	L: 180 / R: 180 E
		WBT	#1389	#909	Continuous	Continuous
		WBR	91	141	226 A-R	100 E
		NBL *	156	164	253 B-L	L: 300 / R: 350 E
		NBT	232	310	Continuous	Continuous
		NBR	29	70	220 B-R	375 E
		SBL *	97	#351	358 B-L	L: 145 / R: 270 E
		SBT	157	285	Continuous	Continuous
		SBR	55	55	275 B-R	145 E
2	Alameda Ave & Municipal Center Access	EBL	63	5	271 A-L	175 E
		EBT/R	—	—	Continuous	Continuous
		WBT/R	—	—	Continuous	Continuous
		SBL	65	65	121 C-L	75 E
		SBR	13	38	Continuous (115)	Continuous (115)
3	Alameda Ave/Pkwy & Alameda Dr	EBL	73	23	286 A-L	285 E
		EBT/R	286	620	Continuous	Continuous
		WBL	m32	m138	386 A-L	210 E
		WBT/R	m178	m68	Continuous	Continuous
		NBL	158	176	211 C-L	200
		NBT/R	66	177	Continuous	Continuous
		SBL	0	#89	141 C-L	100 E
		SBT	0	27	Continuous	Continuous
		SBR	0	39	156 C-R	100 E
4	Alameda Pkwy & Chambers Rd	EBL *	#278	#240	379 A-L	L: 300 / R: 300
		EBT	267	#846	Continuous	Continuous
		EBR	57	212	226 A-R	Continuous (445)
		WBL *	191	#244	359 A-L	L: 175 / R: 325
		WBT	#953	513	Continuous	Continuous
		WBR	133	84	226 A-R	150
		NBL *	#318	#384	419 A-L	L: 225 / R: 400
		NBT	538	#596	Continuous	Continuous
		NBR	39	106	226 A-R	125
		SBL *	#221	#463	509 A-L	L: 425 / R: 500
		SBT	370	640	Continuous	Continuous
		SBR	119	188	226 A-R	335
5	Centrepont Dr & Sable Blvd	EBL	36	178	Continuous (270)	Continuous (270)
		EBT/R	46	240	Continuous	Continuous
		WBL	125	88	186 C-L	125
		WBT	51	92	Continuous	Continuous
		WBR	53	53	Continuous (290)	Continuous (290)

**Table 9. 95th Percentile Queues and Recommended Storage**

#	Intersection	Movement	95th Pct-ile Queue (ft)		SHAC Storage Length (ft)	Recommended Storage Length (ft)
			AM	PM		
5	Centrepont Dr & Sable Blvd	NBL	29	120	220 <sup>B-L</sup>	215 <sup>E</sup>
		NBT	238	295	Continuous	Continuous
		NBR	0	0	190 <sup>B-R</sup>	145 <sup>E</sup>
		SBL	132	72	255 <sup>B-L</sup>	250 <sup>E</sup>
		SBT/R	239	311	Continuous	Continuous
6	Exposition Ave & Sable Blvd	EBL	86	118	221 <sup>C-L</sup>	315 <sup>E</sup>
		EBT/R	106	#569	Continuous	Continuous
		WBL	168	#210	261 <sup>C-L</sup>	270 <sup>E</sup>
		WBT	198	282	Continuous	Continuous
		WBR	43	0	201 <sup>C-R</sup>	355 <sup>E</sup>
		NBL	63	#118	185 <sup>B-L</sup>	280 <sup>E</sup>
		NBT/R	#404	#622	Continuous	Continuous
		SBL	98	#256	225 <sup>B-L</sup>	275
		SBT	197	#482	Continuous	Continuous
		SBR	0	41	215 <sup>B-R</sup>	325 <sup>E</sup>
7	Exposition Ave & Centrepont Dr/Evanston St	EBL	3	5	146 <sup>C-L</sup>	260 <sup>E</sup>
		EBT/R	—	—	Continuous	Continuous
		WBL	0	3	121 <sup>C-L</sup>	305 <sup>E</sup>
		WBT	—	—	Continuous	Continuous
		WBR	—	—	191 <sup>C-R</sup>	165
		NBL/T/R	25	43	Continuous	Continuous
		SBL	13	90	156 <sup>C-L</sup>	185
		SBT	0	13	Continuous	Continuous
		SBR	5	5	Continuous (245)	Continuous (245)
8	Exposition Ave & Chambers Rd	EBL	146	#416	396 <sup>C-L</sup>	375
		EBT	31	59	Continuous	Continuous
		EBR	41	381	496 <sup>C-R</sup>	425
		WBL	81	81	146 <sup>C-L</sup>	100
		WBT/R	83	58	Continuous	Continuous
		NBL	153	244	451 <sup>A-L</sup>	250 <sup>E</sup>
		NBT/R	332	372	Continuous	Continuous
		SBL	17	m#214	316 <sup>A-L</sup>	225
		SBT	173	504	Continuous	Continuous
		SBR	1	4	226 <sup>A-R</sup>	230
9	Center Ave & Chambers Rd	EBL/T/R	111	81	Continuous	Continuous
		WBL/T/R	173	152	Continuous	Continuous
		NBL	18	m52	301 <sup>A-L</sup>	300 <sup>E</sup>
		NBT/R	523	508	Continuous	Continuous
		SBL	m9	m5	271 <sup>A-L</sup>	100 <sup>E</sup>
		SBT/R	130	m155	Continuous	Continuous
10	Walsh Dr & Centrepont Dr	EBL/R	3	5	Continuous	Continuous
		NBL	3	0	136 <sup>C-L</sup>	100 <sup>E</sup>
		NBT	—	—	Continuous	Continuous
		SBT/R	—	—	Continuous	Continuous



**Table 9. 95th Percentile Queues and Recommended Storage**

#	Intersection	Movement	95th Pct-ile Queue (ft)		SHAC Storage Length (ft)	Recommended Storage Length (ft)
			AM	PM		
11	Center Ave & Centrepont Dr	WBL/R	13	13	Continuous	Continuous
		NBT/R	—	—	Continuous	Continuous
		SBL	5	5	161 <sup>C-L</sup>	100 <sup>E</sup>
		SBT	—	—	Continuous	Continuous
12	Centrepont Dr & Alameda Dr	EBL/T	8	8	Continuous	Continuous
		WBT/R	—	—	Continuous	Continuous
		SBL/R	30	38	Continuous	Continuous
13	Alameda Ave & Parcel A1	EBT	—	—	Continuous	Continuous
		EBR	—	—	226 <sup>A-R</sup>	210 <sup>E</sup>
		WBT	—	—	Continuous	Continuous
		NBR	8	8	Continuous	Continuous
14	Alameda Pkwy & Fraser Ct	EBT/R	—	—	Continuous	Continuous
		WBL	3	8	271 <sup>A-L</sup>	275
		WBT	—	—	Continuous	Continuous
		NBR	10	18	Continuous	Continuous
15	Alameda Pkwy & Granby St	EBT/R	—	—	Continuous	Continuous
		WBT	—	—	Continuous	Continuous
		NBR	5	18	Continuous	Continuous
17	Parcel A2/Arapahoe Co & Alameda Dr	EBL/T/R	50	28	Continuous	Continuous
		WBL/T/R	10	20	Continuous	Continuous
		NBL/T/R	3	5	Continuous	Continuous
		SBL/T/R	5	3	Continuous	Continuous
18	Dakota Ave/Arapahoe Co & Fraser Ct	EBL/T/R	3	3	Continuous	Continuous
		WBL/T/R	8	10	Continuous	Continuous
		NBL/T/R	0	0	Continuous	Continuous
		SBL/T/R	0	3	Continuous	Continuous
19	Dakota Ave & Granby St	EBL/T/R	0	0	Continuous	Continuous
		WBL/T/R	0	0	Continuous	Continuous
		NBL/T/R	3	5	Continuous	Continuous
		SBL/T/R	3	5	Continuous	Continuous
20	Dakota Ave & Chambers Rd	EBR	3	8	Continuous	Continuous
		WBR	5	10	Continuous	Continuous
		NBT/R	—	—	Continuous	Continuous
		SBT/R	—	—	Continuous	Continuous
21	Centrepont Dr & Dawson St	EBT	—	—	Continuous	Continuous
		EBR	—	—	Continuous	Continuous
		WBL	0	0	161 <sup>C-L</sup>	100 <sup>E</sup>
		WBT	—	—	Continuous	Continuous
		NBL/R	15	8	Continuous	Continuous
22	Fraser Ct & Centrepont Dr	EBL/T/R	18	10	Continuous	Continuous
		WBL/T/R	10	18	Continuous	Continuous
		NBL/T/R	0	3	Continuous	Continuous
		SBL/T/R	0	3	Continuous	Continuous

**Table 9. 95th Percentile Queues and Recommended Storage**

#	Intersection	Movement	95th Pct-ile Queue (ft)		SHAC Storage Length (ft)	Recommended Storage Length (ft)
			AM	PM		
23	Virginia Ave & Fraser Ct	WBL/R	0	0	Continuous	Continuous
		NBT/R	—	—	Continuous	Continuous
		SBL/T	0	0	Continuous	Continuous
24	Virginia Ave & Granby St	EBL/T/R	0	0	Continuous	Continuous
		WBL/T/R	0	0	Continuous	Continuous
		NBL/T/R	3	3	Continuous	Continuous
		SBL/T/R	0	0	Continuous	Continuous
25	Virginia Ave & Chambers Rd	EBR	0	0	Continuous	Continuous
		WVBR	5	18	Continuous	Continuous
		NBT/R	—	—	Continuous	Continuous
		SBL	0	0	251 <sup>A-L</sup>	100 <sup>E</sup>
		SBT/R	—	—	Continuous	Continuous
26	Center Ave & Granby St	EBL/T	0	0	Continuous	Continuous
		WBT/R	—	—	Continuous	Continuous
		SBL/R	0	0	Continuous	Continuous

**Notes:** Movements are first identified by direction then by movement (i.e., EBL = Eastbound Left-Turn)

**EB:** Eastbound, **WB:** Westbound, **NB:** Northbound, **SB:** Southbound

**L:** Left-turn, **T:** Through, **R:** Right-turn

An asterisk (\*) indicates that the left-turn movement has dual lanes.

Queues are reported in feet per lane

**m:** The reported 95th percentile queue length is metered by an upstream signalized intersection

**#:** The reported 95th percentile volume exceeds the movement capacity

**A-L:** SHAC Storage Length based on NR-A criteria for a left-turn lane

= (deceleration – taper) + storage

**A-R:** SHAC Storage Length based on NR-A criteria for a right-turn lane

= (deceleration – taper)

**B-L:** SHAC Storage Length based on NR-B criteria for a left-turn lane

= taper + storage

**B-R:** SHAC Storage Length based on NR-B criteria for a right-turn lane

= taper + storage

**C-L:** SHAC Storage Length based on NR-C criteria for a left-turn lane

= taper + storage

**C-R:** SHAC Storage Length based on NR-C criteria for a right-turn lane

= taper + storage

**Continuous:** The lane is continuous to the next upstream intersection/driveway (approximate length provided in parentheses for continuous turn lanes at full-movement intersections)

**E:** Storage length matches existing conditions

**Blue Highlight:** Recommended storage length is longer than existing conditions

As shown in **Table 9**, several locations have existing turn lanes that do not meet the current SHAC storage criteria established by Aurora but would adequately contain anticipated vehicle queues forecasted in the Future (2040) Total Traffic scenario. These turn lanes should not be modified since Aurora is considering revising storage criteria to rely more on 95th percentile vehicle queues.

However, some recommended storage lengths shown in the tables are longer than existing conditions and would require improvements. These locations are discussed further in the following sections.

### 3. Alameda Avenue/Parkway & Alameda Drive

The northbound left-turn lane should be extended to provide 200 feet of storage. This improvement should be completed in conjunction with other improvements for the Metro Center development.

#### 4. Alameda Parkway & Chambers Road

Several turn lane modifications should be considered to address forecasted queues beginning in the Future (2040) Background Traffic scenario. The eastbound left-turn lanes should be modified to provide 300 feet of storage in each lane. The westbound left-turn lanes should be modified to increase storage to 175 feet in the left lane. Northbound left-turn lanes should be modified to provide 400 feet of storage in each lane, but this may not be feasible due to the proximity to Dakota Avenue. Southbound left-turn lanes should be modified to provide 425 feet of storage in the left lane and 500 feet of storage in the right lane, but this may not be feasible due to the proximity to adjacent driveways. Significant modifications to the median would be required. Finally, new northbound and westbound right-turn lanes should be constructed with 125-150 feet of storage length, subject to availability of right-of-way and other design constraints.

These improvements should be completed to address traffic volume growth in the Future (2040) Background Traffic scenario. Even with these modifications, forecasted queues might still spill out of the available storage length during peak hours.

#### 5. Centrepont Drive & Sable Boulevard

The westbound left-turn lane should be restriped to provide 125 feet of storage. No median reconstruction would be required. This improvement should be completed to address Metro Center site-generated traffic introduced in the Existing Plus Site scenario.

#### 6. Exposition Avenue & Sable Boulevard

The southbound left-turn lane should be restriped to provide 275 feet of storage. No median reconstruction would be required. This improvement should be completed to address traffic volume growth in the Future (2040) Background Traffic scenario.

#### 8. Exposition Avenue & Chambers Road

Several turn lane modifications should be considered to address forecasted queues beginning in the Future (2040) Background Traffic scenario. The new eastbound left-turn lane should be constructed with 375 feet of storage. The eastbound right-turn lane should be restriped to provide 425 feet of storage.

The southbound left-turn lane should be extended to provide 225 feet of storage. The proposed southbound right-turn lane should be constructed with 230 feet of storage length. Modifications to curb lines in the northwest corner may be required to implement these turn lane improvements.

Finally, the proposed westbound left-turn lane should be constructed with 100 feet of storage length, however, there is only space on the access approach for about 25 feet of storage. This left-turn lane should still be striped as a background traffic improvement to allow for protected-permissive left-turn operations in the long-term future.

These improvements should be completed to address traffic volume growth in the Future (2040) Background Traffic scenario. Even with these modifications, forecasted queues might still spill out of the available storage length during peak hours.

#### 14. Alameda Parkway & Fraser Court

The proposed westbound left-turn lane should be constructed with 275 feet of storage. This distance would also accommodate storage and taper lengths for the eastbound left-turn lanes at the Alameda Parkway & Chambers Road (#4) intersection. Significant modifications to the median would be required to construct this left-turn lane.

## V.D Safety

### Recommendations for Existing Conditions

Based on the evaluations shown in **Section II.F**, the following improvements should be considered to mitigate existing safety conditions independent of the Metro Center development. The City will work with development applicants to review and implement these mitigations on a case-by-case basis at the time of site plan applications.

- ▶ Adjust left-turn phasing to use protected-only phasing during more times of the day for all signalized arterial intersections.
- ▶ Review interval clearances and progression to reduce Rear End crash frequency and red-light running and improve signal visibility for all signalized arterial intersections.
- ▶ Consider mitigations that improve signal visibility for all signalized arterial intersections, such as:
  - Removing sight distance obstructions (like landscaping)
  - Maintaining signal lenses and visors to reduce sun glare
  - Adding reflective backplate tape on signal heads
  - Placing signal heads on the mast arms above each lane
  - Installing near-side signal heads on curved intersection approaches
  - Installing advance intersection warning signs and beacons
- ▶ Improve lighting levels for both vehicles and pedestrians at Alameda Avenue & Sable Boulevard (#1) to reduce nighttime crash frequency. Provide signs to improve the conspicuity of pedestrians in crosswalks. Also consider implementing Leading Pedestrian Intervals (LPI).
- ▶ Consider restricting access at Alameda Avenue & Municipal Center Access (#2) to prohibit southbound left-turns except for emergency vehicle access.
  - This mitigation should only be considered after thorough analysis by the City of Aurora to consider traffic operations and circulation impacts within the Municipal Center property.
- ▶ Install “U-TURN YIELD TO RIGHT” signs at Exposition Avenue & Chambers Road (#8) for the northbound Chambers Road approach.
- ▶ Consider signalization of the Center Avenue & Chambers Road intersection (#9) based on crash experience warrants from MUTCD. This intersection also meets volume-based signal warrants that will be addressed in **Section V.E**.

### Recommendations for Proposed Development

The *Metro Center Master TIS* identified several recommendations for site design focused on safety for all road users which still apply to the Master Plan Amendment:

- ▶ As proposed in the Metro Center Master Plan, construct proposed intersections within the site at or close to right angles.
- ▶ As proposed in the Metro Center Master Plan, provide adequate nighttime lighting (roadway and pedestrian) along the frontage of the proposed development as required by City of Aurora construction criteria.
- ▶ As proposed in the Metro Center Master Plan, provide adequate sight distance at approaches to new and existing arterial intersections as required by City of Aurora construction criteria.
- ▶ Based on City of Aurora’s fees and permitting schedule, contribute to traffic signal escrow for proposed signalization of the Center Avenue & Chambers Road intersection (#9).

- ▶ As proposed in the Metro Center Master Plan, visibly mark crosswalks and install warning signs to alert drivers to the presence of pedestrian activity around the heavily trafficked pedestrian plazas.
- ▶ As proposed in the Metro Center Master Plan, design bicycle facilities using guidance from the NACTO Urban Bikeway Design Guide and consider design features aimed at enhancing safety.

In general, the roadway network within the site should be designed to encourage slower speeds through traffic calming techniques. Such techniques may include narrow travel lanes, curb extensions, high visibility crosswalks and/or raised crossings and intersections, among others. All these techniques should focus on enhancing bicycle/pedestrian visibility and safety throughout the site, ensuring that the development can effectively support multimodal travel.

## Safety Improvement Responsibilities

Aurora's TIS Guidelines dictate that possible mitigation measures be identified for traffic safety hazards that are adversely affected by or created by the layout or traffic volumes of the proposed development. Since no definitive thresholds have been identified for adverse impacts, responsibilities for safety improvements identified in the previous sections have been divided using reasonable judgement. **Table 10** summarizes safety improvement responsibilities.

**Table 10. Safety Improvement Responsibilities**

Safety Improvement	Location	Development Responsibilities	City Responsibilities
Adjust left-turn phasing to use protected-only phasing during more times of day.	Alameda Ave & Sable Blvd	At site-plan submittals, provide recommendations for left-turn phasing based site traffic added to the intersection.	Evaluate left-turn phasing based on city criteria. Implement new phasing to address approach turn crash frequency.
Review interval clearances and progression, improve signal visibility.	Signalized Intersections	At site-plan submittals, confirm progression and clearance interval estimates used for this TIS are still appropriate.	Periodically (at least every five years) review and adjust to accommodate changing travel patterns.
Consider mitigations to improve signal visibility	Signalized Intersections	Site-level design plans should provide appropriate sight distance, especially considering intersection sight triangles and landscaping.	Maintain all existing signal equipment and landscaping as needed. Further evaluate need/feasibility of enhancements such as near-side signals or warning signs/beacons.
Improve nighttime lighting levels	Alameda Ave & Sable Blvd	Site-level design plans should identify adequate lighting conditions based on City of Aurora construction criteria.	Evaluate lighting at all intersections, increase illuminance as needed.
Restrict access to three-quarter movement	Alameda Ave & Municipal Ctr Access	None.	Conduct further study for traffic operations and circulation, then implement if feasible
Install "U-TURN YIELD TO RIGHT TURN" signs for northbound traffic	Exposition Ave & Chambers Rd	Proposed site does not contribute to U-Turn movements at this intersection.	Install signs at this intersection.
Signalize intersection when warranted	Center Ave & Chambers Rd	At site-plan submittals, contribute based on fee/permit schedule or design/construct signal with reimbursement.	At site-plan submittal, initiate prioritization process to design/construct traffic signal.

Note that the responsibilities identified in this table are preliminary and may be subject to change. Safety improvements will be reviewed by the City of Aurora on a case-by-case basis at the time of site plan development applications within Metro Center.

## V.E Traffic Control Devices

Recommended improvements shown in **Section V.A** include several modifications to traffic control devices to improve traffic operations and safety. **Table II** summarizes proposed traffic control modifications at intersections but does not include the new intersections proposed as part of the Metro Center development.

**Table II. Traffic Control Recommendations**

#	Intersection	Existing Traffic Control	Recommended Changes	Required Timeline	MUTCD Signal Warrants Met?
3	Alameda Ave/Pkwy & Alameda Dr	Signal	Add Prot/Perm for WBL	Existing Plus Site	N/A
4	Alameda Pkwy & Chambers Rd	Signal	Add Overlap for WBR	Existing	N/A
			Add Overlap for NBR	Future (2040) Background	
6	Exposition Ave & Sable Blvd	Signal	Add Prot/Perm for WBL	Existing (Completed)	N/A
7	Exposition Ave & Centrepont Dr/ Evanston St	Stop-Control (Centrepont Dr/ Evanston St)	To Be Determined <sup>1</sup>	Future (2040) Background	Does Not Meet <sup>1</sup>
8	Exposition Ave & Chambers Rd	Signal	NBU Yield to EBR	Existing	N/A
			Add Prot/Perm for EBL	Future (2040) Background	
			Add Prot/Perm for WBL	Future (2040) Background	
9	Center Ave & Chambers Rd	Stop-Control (Center Ave)	Signalize	Future (2040) Background	8-Hr: Existing 4-Hr: Existing Pk Hr: Existing
			Add Prot/Perm for NBL	Future (2040) Background	
			Add Prot/Perm for SBL	Future (2040) Background	

**Notes:** **Prot/Perm:** Protected/Permitted left-turn phasing

Movements are first identified by direction then by movement (i.e., EBL = Eastbound Left-Turn)

**EB:** Eastbound, **WB:** Westbound, **NB:** Northbound, **SB:** Southbound

**U:** U-turn, **L:** Left-turn, **T:** Through, **R:** Right-turn

<sup>1</sup> The *Metro Center TIS* evaluated signal warrants and all-way stop-control warrants for Exposition Ave & Centrepont Dr/ Evanston St and found that neither option would meet warrants and provide suitable LOS. A roundabout could be considered as a long-term alternative but requires feasibility analysis that should be conducted by City of Aurora.

### 7. Exposition Avenue & Centrepont Drive/Evanston Street

**Table II** does not display any proposed traffic control changes at the Exposition Avenue & Centrepont Drive (#7) intersection, despite the previous consideration of a roundabout in the *Metro Center Master TIS*. This intersection should be evaluated further before committing to traffic control changes. Specifically, Aurora may consider analyses with future applications of the adjacent site to determine feasibility with respect to geometry, right-of-way, sight distance, bicycle accommodations, etc.

### 9. Center Avenue & Chambers Road

As shown in **Table II**, a proposed traffic signal for the Center Avenue & Chambers Road (#9) intersection meets volume-based signal warrants based on existing traffic volumes, specifically considering westbound Center Avenue. Detailed traffic signal warrant analyses are included in **Appendix F**.

However, signalization is not recommended in the existing conditions scenario since all stop-controlled movements operate at LOS D or better which satisfies Aurora's operations criteria. In the Future (2040) Background Traffic scenario, westbound stop-controlled movements would degrade to LOS F conditions, indicating that the signal should be installed by 2040.

A sensitivity test was conducted to understand the timeline between Existing Plus Site (2024) and Future (2040) Total Traffic conditions when stop-controlled traffic operations would degrade below LOS D, necessitating the installation of a traffic analysis. The sensitivity test found that a 3 percent increase in morning peak hour through traffic on Chambers Road or 5 percent increase evening peak hour through traffic on Chambers Road compared to the Existing Plus Site (2024) conditions would result in LOS E conditions on westbound Center Avenue. Based on the assumed annual growth rate of 1.5 percent per year, this indicates that **a traffic signal would be needed by Year 2026 – Year 2028**, which approximately aligns with the anticipated buildout of the proposed Metro Center development. LOS worksheets associated with this sensitivity test are found in **Appendix C**.



## VI. Conclusions

Compared to the previous *Metro Center Master TIS*, the proposed development plan associated with the Master Plan Amendment is expected to have similar traffic impacts and proposed mitigations as documented in this TIS. The proposed development would occupy approximately 60 acres south of Alameda Avenue/Parkway between Sable Boulevard and Chambers Road and would include:

- ▶ 2,130 multifamily DUs
- ▶ 49.88 KSF commercial/mixed-use
- ▶ 3.5 KSF office space

These land uses are expected to generate up to 14,060 daily trips, including about 1,040 in the morning peak hour and about 1,315 in the evening peak hour. However, with considerations of internal trip-making, pass-by trips, and mode share reductions, the site would generate about 9,485 net external daily vehicle trips, nearly 850 in the morning peak hour and 870 in the evening peak hour. Additionally, the development would generate about 860 internal daily vehicle trips, 20 in the morning peak hour and 64 in the evening peak hour.

Compared to the *Metro Center Master TIS*, land uses proposed under the Master Plan Amendment would generate fewer daily and evening peak hour vehicle trips, but slightly more morning peak hour vehicle trips. Internal daily and evening peak hour vehicle trips under the Master Plan Amendment would also decrease, while morning peak hour internal trips would increase slightly. This is attributed to the increase in proposed residential density under the Master Plan Amendment, which generates more activity in the morning than commercial/mixed-uses.

Improvements to the external and proposed internal roadway network are required to mitigate anticipated background traffic growth and the proposed development. **Table 12** summarizes these improvements. While many improvements are consistent with recommendations from the *Metro Center Master TIS*, additional improvements have been identified to address both background traffic growth and site-generated traffic.

In total, the changes to the site plan proposed under the Master Plan Amendment would result in additional traffic volume using the Alameda Avenue/Parkway & Alameda Drive (#3) and Centrepont Drive & Sable Boulevard (#5) intersections. Additionally, consolidation of access to Parcel A1 via Alameda Avenue may result in additional U-turn movements at Alameda Avenue & Sable Boulevard (#1) and Alameda Avenue & Municipal Center Access (#2). However, the recommended improvements shown in **Table 12** would address the traffic operations and safety concerns introduced by these changes.

**Table 12. Summary of Recommended Improvements**

#	Intersection	Improvement Description	Improvement Goal	Timeline
1	Alameda Ave & Sable Blvd	Consider restricting all left-turns to protected-only phasing during more times of day to address Approach Turn crashes.	Safety	Existing
		Adjust signal timing to provide more green time for eastbound and westbound Alameda Ave through movements.	Level of Service	Future (2040) Background
2	Alameda Ave & Municipal Center Access	The city should consider restricting southbound access to prohibit left-turns with exceptions for emergency vehicles to address Broadside crash frequency. Further analysis needed to evaluate access and circulation impacts to Municipal Center property.	Safety	Existing

**Table 12. Summary of Recommended Improvements**

#	Intersection	Improvement Description	Improvement Goal	Timeline
3	Alameda Ave/Pkwy & Alameda Dr	Adjust cycle length during evening peak hour to match 135-second cycle at Alameda Pkwy & Chambers Rd (#4).	Level of Service Safety	Existing
		Consider improving sight distance, signal visibility, and review signal timing parameters to address Broadside crash frequency.	Safety	Existing
		As part of the development, implement protected/permitted phasing for westbound left-turns.	Level of Service	Existing Plus Site
		Increase storage length for northbound left-turns.	Queues	Existing Plus Site
4	Alameda Pkwy & Chambers Rd	Consider constructing a westbound right-turn lane and implement an overlap phase.	Level of Service	Existing
		Consider improving sight distance, signal visibility, and review signal timing parameters to address Broadside crash frequency.	Safety	Existing
		Consider constructing a northbound right-turn lane and implement an overlap phase.	Level of Service	Future (2040) Background
		Increase storage length for all left turn lanes.	Queues	Future (2040) Background
5	Centrepont Dr & Sable Blvd	Consider improving sight distance, signal visibility, and review signal timing parameters to address Broadside crash frequency.	Safety	Existing
		As part of the development, restripe westbound Centrepont Dr to provide dedicated left-turn, through, and right-turn lanes.	Level of Service	Existing Plus Site
		As part of the development, increase storage length for westbound left-turns.	Queues	Existing Plus Site
6	Exposition Ave & Sable Blvd	Implement protected/permitted phasing for westbound left-turns (already completed), consider restricting all left-turns to protected-only during more times of day.	Level of Service Safety	Existing
		Consider increasing storage length for southbound left-turns.	Queues	Future (2040) Background
7	Exposition Ave & Centrepont Dr/ Evanston Dr	Conduct further investigation into feasibility of constructing a compact, single-lane roundabout. Considerations include geometry requirements, right-of-way constraints, sight distance, bicycle accommodations, etc.	Level of Service	Future (2040) Background
8	Exposition Ave & Chambers Rd	Install "U-TURN YIELD TO RIGHT TURN" signs for northbound Chambers Road, allowing the eastbound right-turn overlap phase to operate more effectively.	Level of Service	Existing
		Consider installing FYA signals and restrict left-turns to protected-only phasing during more times of day to address Approach Turn crashes.	Safety	Existing
		Construct dedicated eastbound and westbound left-turn lanes, and implement protected/permitted phasing for both.	Level of Service Queues	Future (2040) Background

**Table 12. Summary of Recommended Improvements**

#	Intersection	Improvement Description	Improvement Goal	Timeline
8	Exposition Ave & Chambers Rd	Construct a dedicated southbound right-turn lane to serve forecasted traffic volumes.	Level of Service	Future (2040) Background
		Increase storage length for eastbound right-turns, construct new turn lanes with adequate storage length.	Queues	Future (2040) Background
9	Center Ave & Chambers Rd	Improve sight distance, especially for westbound Center Avenue, and consider signalization based on Crash Experience.	Safety	Existing
		Construct a new traffic signal with protected/permitted phases for northbound and southbound left-turns, with appropriate contributions from the development.	Level of Service Safety	Existing Plus Site (2026-2028)
14	Alameda Pkwy & Fraser Ct	As part of the development, construct a new westbound left-turn lane with 275 feet of storage.	Access Queues	Existing Plus Site

## **Appendix A. Traffic Counts**



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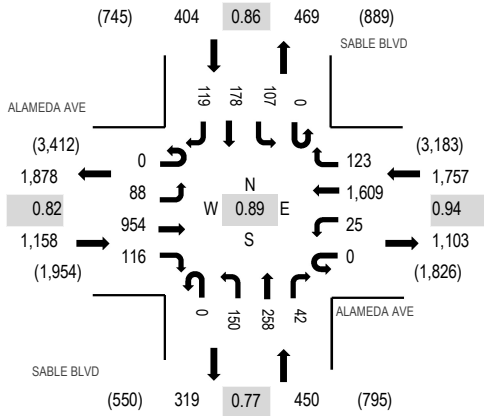
Location: 1 SABLE BLVD & ALAMEDA AVE AM

Date: Thursday, April 11, 2024

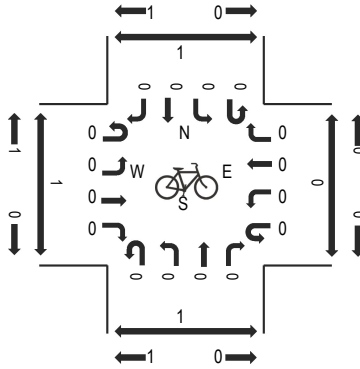
Peak Hour: 07:15 AM - 08:15 AM

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

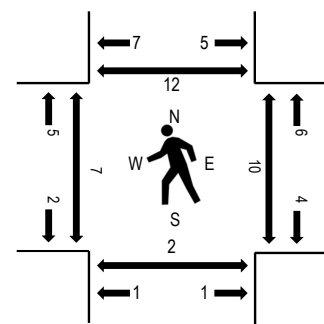
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	24	180	13	0	1	313	17	0	25	47	8	0	19	15	34	696	3,555	2	6	2	5
7:15 AM	0	21	208	15	0	6	406	26	0	35	48	12	0	17	31	29	854	3,769	1	3	0	0
7:30 AM	0	20	220	37	0	7	426	32	0	45	58	9	0	27	37	33	951	3,734	4	2	1	0
7:45 AM	0	26	287	39	0	5	408	37	0	36	98	12	0	28	55	23	1,054	3,499	1	4	1	7
8:00 AM	0	21	239	25	0	7	369	28	0	34	54	9	0	35	55	34	910	3,122	1	1	0	5
8:15 AM	0	26	137	21	0	9	389	40	0	40	52	3	0	21	49	32	819		0	2	0	4
8:30 AM	0	23	156	20	0	8	309	33	0	29	45	5	0	24	30	34	716		1	3	0	2
8:45 AM	0	34	141	21	0	6	275	26	0	31	53	7	0	22	38	23	677		0	2	1	0
Count Total	0	195	1,568	191	0	49	2,895	239	0	275	455	65	0	193	310	242	6,677		10	23	5	23
Peak Hour	0	88	954	116	0	25	1,609	123	0	150	258	42	0	107	178	119	3,769		7	10	2	12



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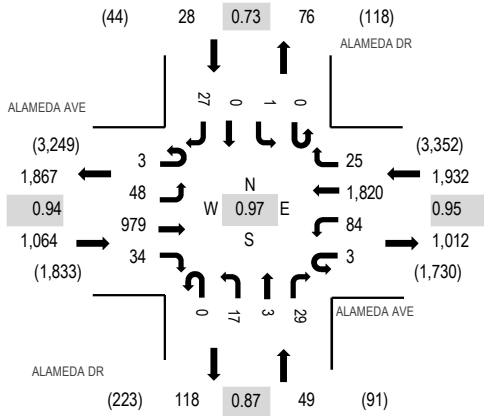
Location: 2 ALAMEDA DR & ALAMEDA AVE AM

Date: Thursday, April 11, 2024

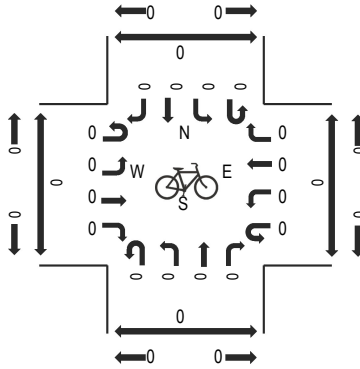
Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

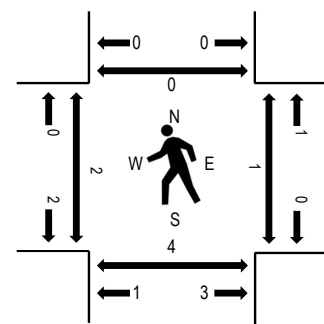
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				ALAMEDA DR Northbound				ALAMEDA DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	9	190	8	0	6	318	1	0	1	0	4	0	0	0	0	537	2,839	4	0	5	0
7:15 AM	0	4	229	10	0	9	456	7	0	2	1	9	0	0	0	4	731	3,073	0	0	3	0
7:30 AM	0	12	241	7	1	15	488	4	0	6	0	7	0	0	0	7	788	2,975	0	1	0	0
7:45 AM	3	18	248	9	2	30	443	9	0	5	1	5	0	0	0	10	783	2,780	2	0	1	0
8:00 AM	0	14	261	8	0	30	433	5	0	4	1	8	0	1	0	6	771	2,481	0	0	0	0
8:15 AM	0	4	172	12	0	15	406	4	0	4	0	11	0	0	0	5	633		3	1	3	1
8:30 AM	0	9	182	18	1	16	348	2	0	4	0	8	0	0	0	5	593		0	0	0	2
8:45 AM	0	10	146	9	0	20	280	3	0	6	0	4	0	0	1	5	484		1	1	0	1
Count Total	3	80	1,669	81	4	141	3,172	35	0	32	3	56	0	1	1	42	5,320		10	3	12	4
Peak Hour	3	48	979	34	3	84	1,820	25	0	17	3	29	0	1	0	27	3,073		2	1	4	0





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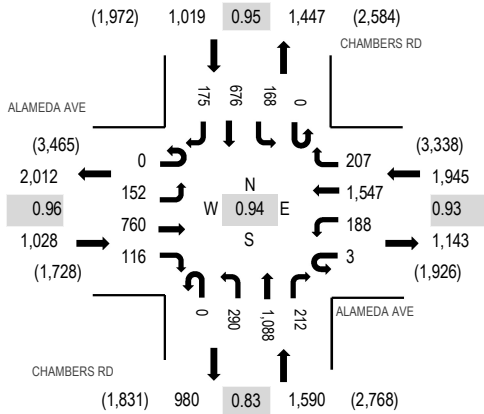
Location: 3 CHAMBERS RD & ALAMEDA AVE AM

Date: Thursday, April 11, 2024

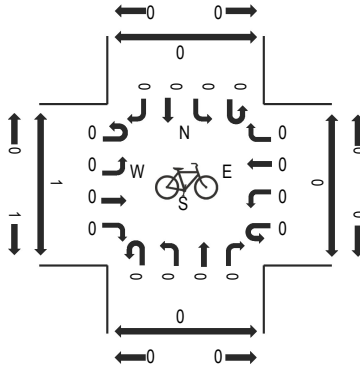
Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:30 AM - 07:45 AM

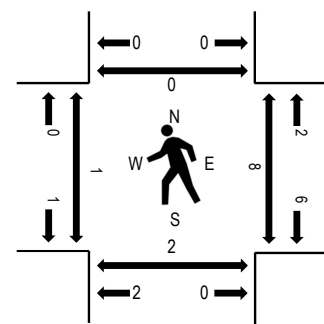
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	28	126	18	0	15	262	42	0	51	252	32	1	36	118	21	1,002	5,250	1	2	0	0
7:15 AM	0	32	209	20	2	31	390	49	0	88	233	56	0	44	133	41	1,328	5,582	0	3	1	0
7:30 AM	0	36	177	18	0	48	401	36	0	59	337	83	0	46	198	38	1,477	5,418	1	2	0	0
7:45 AM	0	48	180	40	0	62	398	61	0	83	280	40	0	46	153	52	1,443	4,998	0	1	0	0
8:00 AM	0	36	194	38	1	47	358	61	0	60	238	33	0	32	192	44	1,334	4,556	0	2	1	0
8:15 AM	0	34	115	27	0	38	323	53	2	70	202	32	0	46	183	39	1,164		1	1	0	0
8:30 AM	0	38	127	24	1	27	311	51	0	45	165	26	0	43	173	26	1,057		0	0	1	0
8:45 AM	0	25	112	26	0	24	215	31	0	53	215	33	0	54	176	37	1,001		3	2	3	0
Count Total	0	277	1,240	211	4	292	2,658	384	2	509	1,922	335	1	347	1,326	298	9,806		6	13	6	0
Peak Hour	0	152	760	116	3	188	1,547	207	0	290	1,088	212	0	168	676	175	5,582		1	8	2	0



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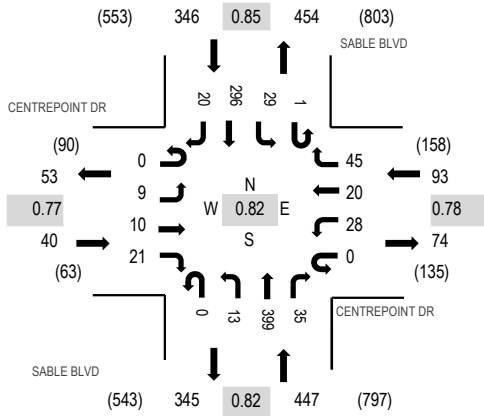
Location: 4 SABLE BLVD & CENTREPOINT DR AM

Date: Thursday, April 11, 2024

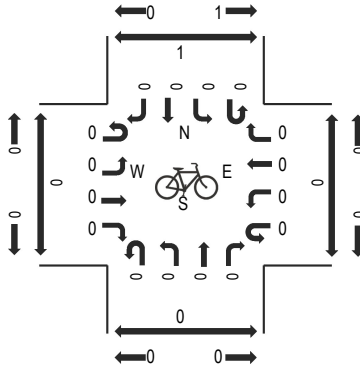
Peak Hour: 07:30 AM - 08:30 AM

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

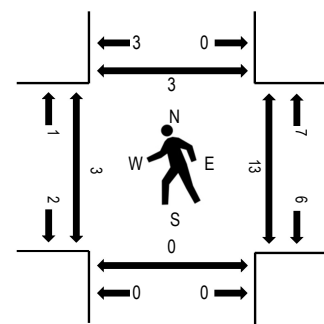
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	CENTREPOINT DR Eastbound				CENTREPOINT DR Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	1	1	2	0	3	0	15	0	3	67	6	0	8	20	0	126	805	1	4	0	1
7:15 AM	0	1	0	1	0	2	3	10	0	2	85	12	0	4	49	1	170	903	2	3	0	5
7:30 AM	0	1	2	5	0	5	4	11	0	2	110	9	0	10	60	7	226	926	1	1	0	0
7:45 AM	0	3	3	7	0	9	7	14	0	5	123	10	0	10	86	6	283	857	2	2	0	2
8:00 AM	0	3	3	5	0	8	9	12	0	3	84	8	0	7	78	4	224	766	0	8	0	1
8:15 AM	0	2	2	4	0	6	0	8	0	3	82	8	1	2	72	3	193		0	2	0	0
8:30 AM	0	3	1	1	0	4	3	10	0	7	67	4	0	10	46	1	157		1	1	1	2
8:45 AM	0	0	3	9	0	5	6	4	0	7	85	5	1	7	56	4	192		1	0	0	6
Count Total	0	14	15	34	0	42	32	84	0	32	703	62	2	58	467	26	1,571		8	21	1	17
Peak Hour	0	9	10	21	0	28	20	45	0	13	399	35	1	29	296	20	926		3	13	0	3



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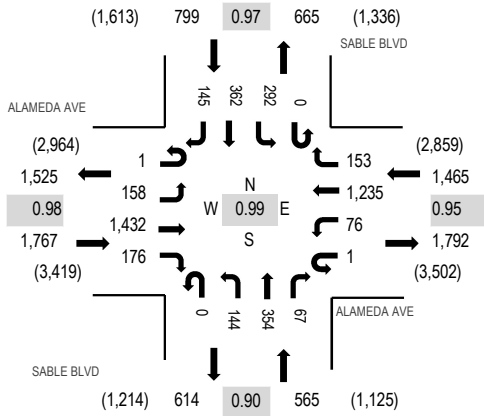
Location: 1 SABLE BLVD & ALAMEDA AVE PM

Date: Thursday, April 11, 2024

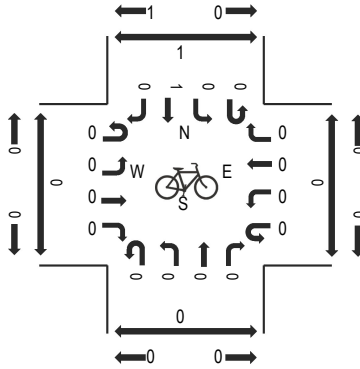
Peak Hour: 04:15 PM - 05:15 PM

Peak 15-Minutes: 04:15 PM - 04:30 PM

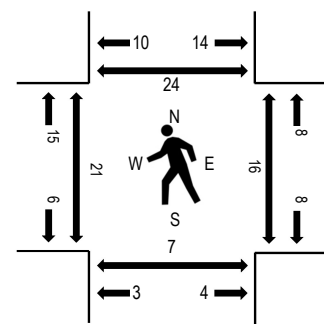
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	31	306	42	0	17	298	37	0	35	93	14	0	69	108	25	1,075	4,517	2	9	2	2
4:15 PM	0	41	367	43	0	19	291	40	0	43	95	14	0	68	90	54	1,165	4,596	11	3	2	10
4:30 PM	1	37	362	48	0	17	300	37	0	37	76	19	0	62	91	25	1,112	4,543	2	7	5	7
4:45 PM	0	49	349	46	0	16	326	42	0	29	78	20	0	88	91	31	1,165	4,518	3	3	0	4
5:00 PM	0	31	354	39	1	24	318	34	0	35	105	14	0	74	90	35	1,154	4,499	5	3	0	3
5:15 PM	0	37	325	42	2	16	293	40	0	46	91	22	1	81	81	35	1,112		7	5	5	3
5:30 PM	0	36	335	45	0	11	276	51	0	47	72	10	0	97	83	24	1,087		4	4	2	2
5:45 PM	0	49	367	37	0	17	283	53	0	38	80	12	0	70	101	39	1,146		5	5	0	3
Count Total	1	311	2,765	342	3	137	2,385	334	0	310	690	125	1	609	735	268	9,016		39	39	16	34
Peak Hour	1	158	1,432	176	1	76	1,235	153	0	144	354	67	0	292	362	145	4,596		21	16	7	24



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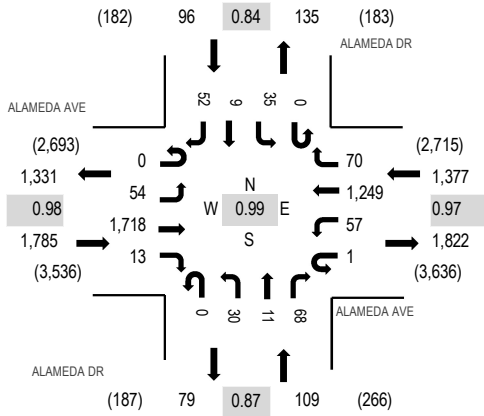
Location: 2 ALAMEDA DR & ALAMEDA AVE PM

Date: Thursday, April 11, 2024

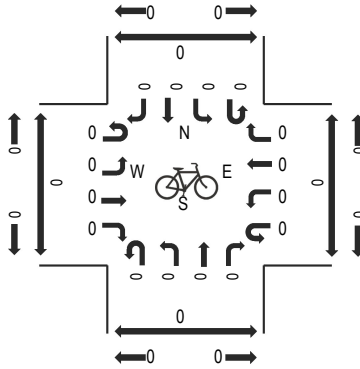
Peak Hour: 05:00 PM - 06:00 PM

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

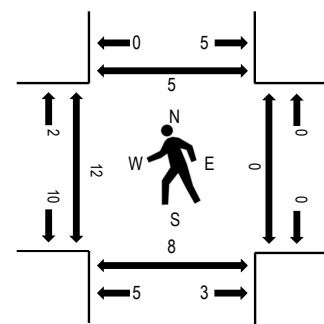
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				ALAMEDA DR Northbound				ALAMEDA DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	13	381	12	2	24	327	3	0	13	2	16	0	6	4	17	820	3,332	2	0	2	1
4:15 PM	3	2	452	9	0	15	296	1	0	10	0	30	0	6	1	13	838	3,344	2	1	0	2
4:30 PM	0	8	420	9	0	14	305	6	0	14	3	29	0	8	3	16	835	3,357	0	1	0	3
4:45 PM	0	3	433	6	1	11	327	6	0	14	1	25	0	5	0	7	839	3,366	2	1	0	1
5:00 PM	0	12	416	0	0	15	312	14	0	5	3	26	0	6	1	22	832	3,367	2	0	1	4
5:15 PM	0	14	426	4	1	13	315	20	0	11	1	17	0	12	4	13	851		1	0	3	0
5:30 PM	0	13	439	5	0	17	293	22	0	12	6	17	0	6	4	10	844		4	0	3	0
5:45 PM	0	15	437	4	0	12	329	14	0	2	1	8	0	11	0	7	840		5	0	1	1
Count Total	3	80	3,404	49	4	121	2,504	86	0	81	17	168	0	60	17	105	6,699		18	3	10	12
Peak Hour	0	54	1,718	13	1	57	1,249	70	0	30	11	68	0	35	9	52	3,367		12	0	8	5



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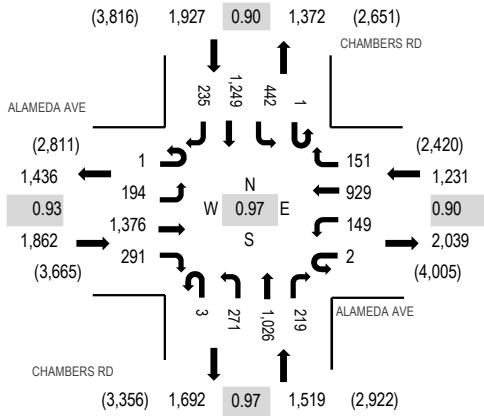
Location: 3 CHAMBERS RD & ALAMEDA AVE PM

Date: Thursday, April 11, 2024

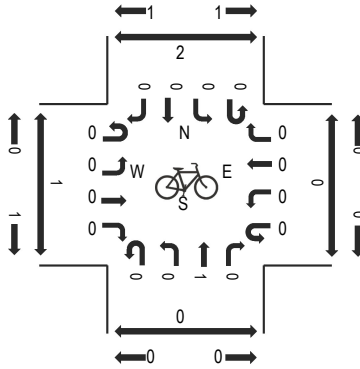
Peak Hour: 04:45 PM - 05:45 PM

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

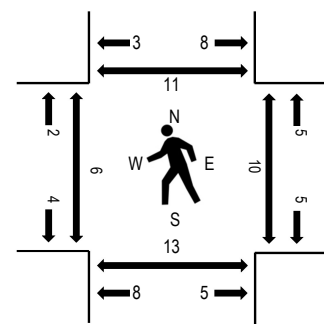
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	41	319	65	0	38	231	42	0	81	256	45	0	97	324	68	1,607	6,415	0	1	4	2
4:15 PM	1	52	361	91	0	48	210	58	1	50	217	56	0	104	299	57	1,605	6,395	1	4	3	5
4:30 PM	0	42	311	60	2	30	183	38	0	74	244	59	0	106	315	62	1,526	6,426	0	7	0	2
4:45 PM	0	41	363	81	0	31	260	50	1	66	274	47	0	92	322	49	1,677	6,539	0	4	2	4
5:00 PM	0	51	340	57	0	43	235	40	0	60	242	51	1	122	274	71	1,587	6,408	1	4	2	0
5:15 PM	1	57	290	80	0	43	205	31	1	67	265	55	0	123	352	66	1,636		1	2	4	4
5:30 PM	0	45	383	73	2	32	229	30	1	78	245	66	0	105	301	49	1,639		4	0	5	3
5:45 PM	0	40	348	72	0	39	231	39	1	61	210	48	0	110	281	66	1,546		1	2	4	4
Count Total	2	369	2,715	579	4	304	1,784	328	5	537	1,953	427	1	859	2,468	488	12,823		8	24	24	24
Peak Hour	1	194	1,376	291	2	149	929	151	3	271	1,026	219	1	442	1,249	235	6,539		6	10	13	11



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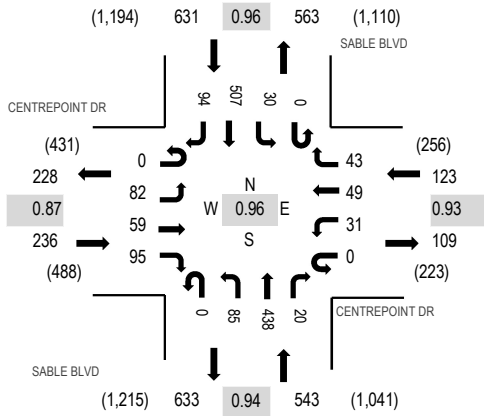
Location: 4 SABLE BLVD & CENTREPOINT DR PM

Date: Thursday, April 11, 2024

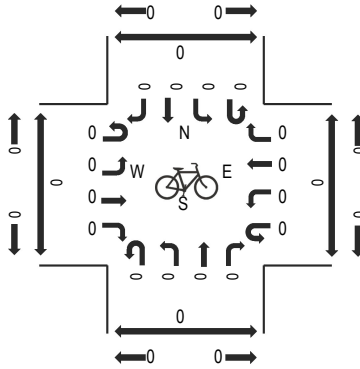
Peak Hour: 04:15 PM - 05:15 PM

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

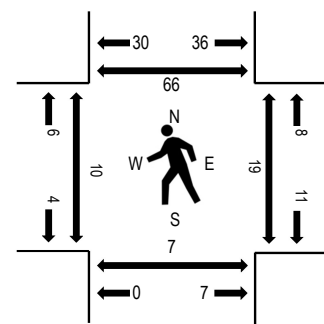
### Peak Hour - Motorized Vehicles



### Peak Hour - Bicycles



### Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

### Traffic Counts - Motorized Vehicles

Interval Start Time	CENTREPOINT DR Eastbound				CENTREPOINT DR Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	14	17	28	0	7	16	15	0	16	107	5	1	6	114	25	371	1,503	2	8	4	15
4:15 PM	0	23	11	22	0	9	14	10	0	15	116	9	0	7	136	22	394	1,533	2	2	1	19
4:30 PM	0	18	9	29	0	5	11	9	0	23	101	1	0	7	131	22	366	1,515	4	7	1	13
4:45 PM	0	23	13	21	0	11	10	9	0	22	105	6	0	8	125	19	372	1,489	1	5	2	22
5:00 PM	0	18	26	23	0	6	14	15	0	25	116	4	0	8	115	31	401	1,476	3	5	3	12
5:15 PM	0	31	17	27	0	4	16	7	0	15	113	3	0	5	122	16	376		4	8	3	10
5:30 PM	0	25	13	22	0	3	13	19	0	15	87	10	0	8	105	20	340		4	3	0	16
5:45 PM	0	20	11	27	0	9	12	12	1	21	96	9	0	10	113	18	359		2	6	3	16
Count Total	0	172	117	199	0	54	106	96	1	152	841	47	1	59	961	173	2,979		22	44	17	123
Peak Hour	0	82	59	95	0	31	49	43	0	85	438	20	0	30	507	94	1,533		10	19	7	66



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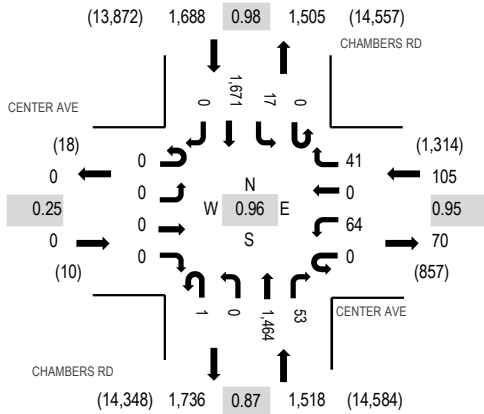
Location: 5 CHAMBERS RD &amp; CENTER AVE AM

Date: Thursday, April 11, 2024

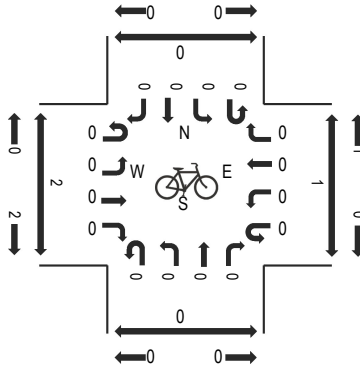
Peak Hour: 04:30 PM - 05:30 PM

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

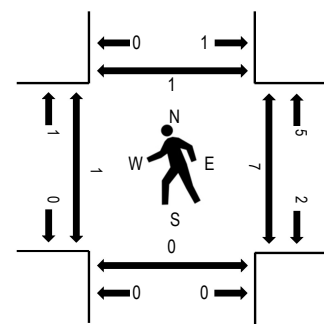
## Peak Hour - Motorized Vehicles



## Peak Hour - Bicycles



## Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

## Traffic Counts - Motorized Vehicles

Interval Start Time	CENTER AVE Eastbound				CENTER AVE Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
6:00 AM	0	0	0	0	0	9	0	10	0	0	138	2	0	1	68	0	228	1,380	0	0	0	0
6:15 AM	0	0	0	0	0	8	0	8	0	0	206	2	0	2	80	0	306	1,628	0	1	0	0
6:30 AM	0	0	0	0	0	6	0	14	0	0	248	1	0	1	106	0	376	1,917	0	0	0	0
6:45 AM	0	0	0	0	0	10	0	9	0	0	312	4	0	3	131	1	470	2,290	1	0	0	0
7:00 AM	0	0	0	0	0	9	0	12	0	1	297	10	1	6	140	0	476	2,507	1	0	0	0
7:15 AM	0	0	0	0	0	13	0	10	0	0	391	4	0	2	175	0	595	2,661	2	3	0	0
7:30 AM	0	0	0	0	0	13	0	14	0	0	449	14	0	3	256	0	749	2,637	0	1	0	0
7:45 AM	0	0	0	0	0	11	0	12	1	0	387	12	0	6	258	0	687	2,403	0	0	0	0
8:00 AM	0	0	0	0	0	14	0	4	0	0	342	10	1	5	254	0	630	2,272	0	0	0	0
8:15 AM	0	0	0	0	0	17	0	10	0	0	268	10	0	5	261	0	571	2,113	1	2	1	0
8:30 AM	0	0	0	0	0	15	0	9	0	0	254	13	0	7	217	0	515	1,982	2	3	0	1
8:45 AM	0	0	0	0	0	13	0	11	1	0	288	6	0	5	232	0	556	1,901	1	2	0	0
9:00 AM	0	0	0	0	0	14	0	9	0	0	232	12	0	3	201	0	471	1,760	2	5	3	1
9:15 AM	0	0	0	0	0	14	0	7	1	0	207	14	0	6	190	1	440	1,705	0	0	0	0
9:30 AM	2	0	0	0	0	22	0	8	0	0	197	14	0	4	187	0	434	1,695	3	4	0	0
9:45 AM	0	0	0	0	0	15	0	5	0	0	185	14	0	7	188	1	415	1,655	0	1	0	0
10:00 AM	0	0	0	0	0	22	0	12	0	0	194	8	0	6	174	0	416	1,664	1	1	0	0
10:15 AM	0	0	0	0	0	18	0	8	0	0	202	11	0	7	183	1	430	1,661	0	1	1	0
10:30 AM	0	0	0	0	0	10	0	8	0	0	192	7	0	3	174	0	394	1,651	1	1	1	0
10:45 AM	0	0	0	0	0	17	0	9	0	0	192	10	0	5	191	0	424	1,686	0	1	1	0
11:00 AM	0	0	0	0	0	16	0	11	0	0	196	7	0	7	174	2	413	1,694	0	2	0	0
11:15 AM	0	0	0	0	0	18	0	8	0	0	180	14	0	4	196	0	420	1,821	0	2	0	0
11:30 AM	0	0	0	0	0	18	0	7	0	0	212	7	0	2	183	0	429	1,882	0	3	0	0
11:45 AM	0	0	0	0	0	22	0	9	0	0	177	12	0	7	205	0	432	1,925	0	3	1	0
12:00 PM	0	0	0	0	0	17	0	5	0	0	223	12	0	6	276	1	540	1,962	1	2	0	0
12:15 PM	0	0	0	1	0	13	0	8	0	0	229	5	0	5	220	0	481	1,883	0	2	0	0
12:30 PM	0	0	0	0	0	19	0	9	0	0	226	10	0	8	200	0	472	1,891	1	0	0	0
12:45 PM	1	0	0	0	0	22	0	16	0	0	201	10	0	3	215	1	469	1,915	0	1	0	0
1:00 PM	0	0	0	0	0	9	0	3	0	0	207	12	0	3	227	0	461	1,962	0	1	0	0
1:15 PM	0	0	0	0	0	20	0	8	0	0	226	10	1	6	216	2	489	2,034	1	2	0	0
1:30 PM	0	0	0	1	0	16	0	11	0	0	217	12	0	7	231	1	496	2,057	0	0	0	0
1:45 PM	0	0	0	1	0	12	0	12	0	0	254	5	1	11	220	0	516	2,198	2	1	0	0
2:00 PM	0	0	0	0	0	17	0	8	0	0	236	16	0	8	248	0	533	2,320	1	1	0	0
2:15 PM	0	0	0	0	0	12	0	12	0	0	233	11	1	11	232	0	512	2,476	2	4	0	0



2:30 PM	0	0	0	0	0	19	0	11	0	0	295	12	0	5	295	0	637	2,707	0	4	0	0
2:45 PM	0	0	0	0	0	12	0	9	0	1	286	14	1	10	305	0	638	2,880	1	1	0	0
3:00 PM	0	1	0	0	0	16	0	9	0	0	264	11	0	11	377	0	689	3,099	0	0	0	0
3:15 PM	0	0	0	1	0	18	0	14	0	0	299	11	0	2	398	0	743	3,213	1	0	0	0
3:30 PM	0	0	0	0	0	14	0	11	0	0	337	17	0	11	419	1	810	3,289	0	0	0	0
3:45 PM	0	0	0	0	0	18	0	14	0	0	370	17	0	3	435	0	857	3,294	1	2	0	0
4:00 PM	0	0	0	0	0	22	0	10	0	0	344	16	0	10	401	0	803	3,248	0	0	0	0
4:15 PM	0	0	0	0	0	17	0	10	0	0	341	10	0	10	431	0	819	3,271	0	1	0	0
4:30 PM	0	0	0	0	0	17	0	11	0	0	374	4	0	2	407	0	815	3,311	0	0	0	0
4:45 PM	0	0	0	0	0	16	0	6	0	0	357	15	0	5	412	0	811	3,289	0	0	0	0
5:00 PM	0	0	0	0	0	19	0	19	0	0	360	16	0	6	406	0	826	3,267	1	2	0	1
5:15 PM	0	0	0	0	0	12	0	5	1	0	373	18	0	4	446	0	859	3,203	0	5	0	0
5:30 PM	0	0	0	0	0	17	0	13	0	0	360	6	0	10	387	0	793	3,011	0	3	0	0
5:45 PM	1	0	0	0	0	17	0	11	0	0	338	9	0	10	403	0	789	2,860	2	3	4	0
6:00 PM	0	1	0	0	0	16	0	9	0	0	318	11	0	6	401	0	762	2,645	0	3	1	0
6:15 PM	0	0	0	0	0	14	0	10	0	0	296	10	0	13	324	0	667		0	3	0	0
6:30 PM	0	0	0	0	0	22	0	15	0	0	271	16	0	13	305	0	642		0	3	0	0
6:45 PM	0	0	0	0	0	13	0	11	0	0	254	9	0	8	279	0	574		0	2	0	0
Count Total	4	2	0	4	0	800	0	514	4	2	14,035	543	6	314	13,540	12	29,780		29	82	13	3
Peak Hour	0	0	0	0	0	64	0	41	1	0	1,464	53	0	17	1,671	0	3,311		1	7	0	1



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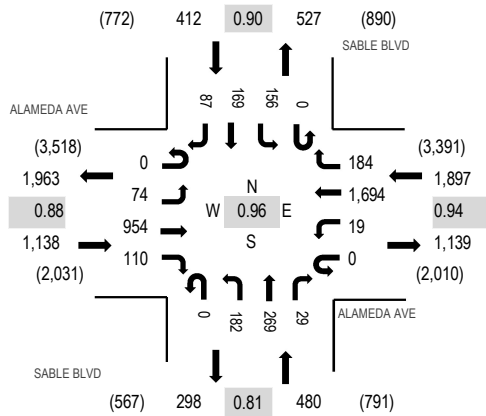
Location: 1 SABLE BLVD & ALAMEDA AVE AM

Date: Tuesday, September 10, 2019

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

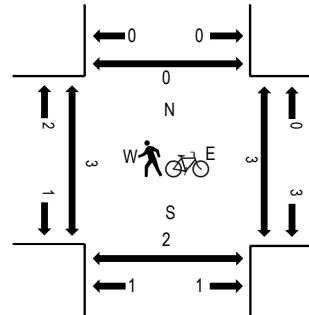
Peak 15-Minutes: 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	17	168	16	0	3	371	22	0	35	46	8	0	21	23	38	768	3,745	1	2	1	0
7:15 AM	0	11	235	21	0	1	480	24	0	44	60	5	0	36	28	23	968	3,927	0	1	0	0
7:30 AM	0	17	226	21	0	4	416	51	0	58	82	9	0	36	41	22	983	3,763	1	0	1	0
7:45 AM	0	26	264	35	0	4	400	51	0	51	74	11	0	44	44	22	1,026	3,558	1	2	1	0
8:00 AM	0	20	229	33	0	10	398	58	0	29	53	4	0	40	56	20	950	3,240	1	0	0	0
8:15 AM	0	22	211	20	0	10	336	33	0	26	48	5	0	32	45	16	804		2	3	0	5
8:30 AM	1	13	179	20	0	13	372	30	0	24	38	3	0	16	44	25	778		1	2	0	2
8:45 AM	0	17	192	17	0	5	271	28	0	19	49	10	0	26	53	21	708		2	0	0	4
Count Total	1	143	1,704	183	0	50	3,044	297	0	286	450	55	0	251	334	187	6,985		9	10	3	11
Peak Hour	0	74	954	110	0	19	1,694	184	0	182	269	29	0	156	169	87	3,927		3	3	2	0



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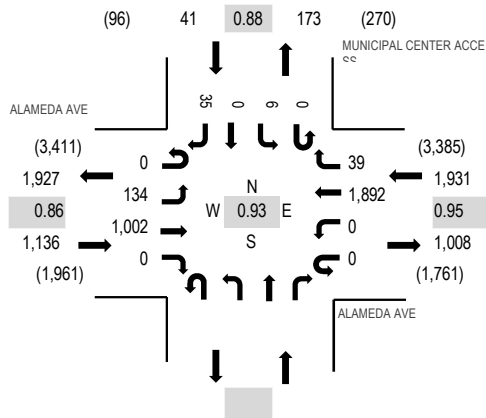
**Location:** 2 MUNICIPAL CENTER ACCESS & ALAMEDA AVE AM

**Date:** Tuesday, September 10, 2019

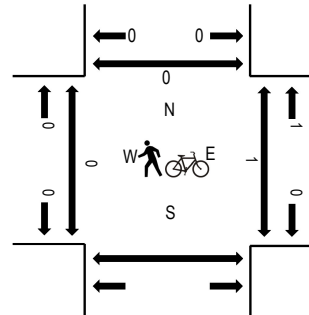
**Peak Hour:** 07:15 AM - 08:15 AM

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

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				MUNICIPAL CENTER Access				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	26	160	0	0	0	0	402	3	0	0	0	5	596	2,980	0	1	1
7:15 AM	0	30	234	0	0	0	0	495	4	0	1	0	2	766	3,108	0	0	0
7:30 AM	0	26	238	0	0	0	0	499	7	0	0	0	10	780	2,987	0	0	0
7:45 AM	0	43	289	0	0	0	0	476	15	0	4	0	11	838	2,785	0	1	0
8:00 AM	0	35	241	0	0	0	0	422	13	0	1	0	12	724	2,462	0	0	0
8:15 AM	0	22	223	0	0	0	0	381	5	0	2	0	12	645		1	0	1
8:30 AM	1	11	160	0	0	0	0	384	4	0	4	0	14	578		0	0	0
8:45 AM	0	20	202	0	0	0	0	269	6	0	2	0	16	515		0	1	0
Count Total	1	213	1,747	0	0	0	0	3,328	57	0	14	0	82	5,442		1	3	2
Peak Hour	0	134	1,002	0	0	0	0	1,892	39	0	6	0	35	3,108		0	1	0



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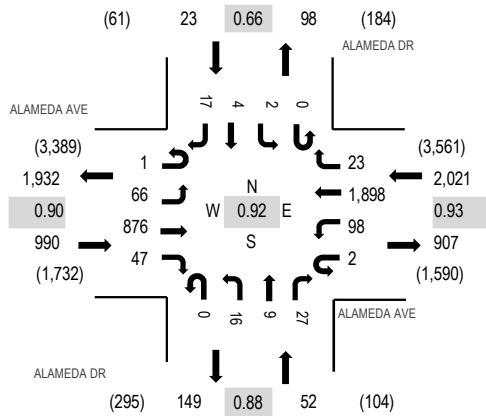
Location: 3 ALAMEDA DR & ALAMEDA AVE AM

Date: Tuesday, September 10, 2019

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

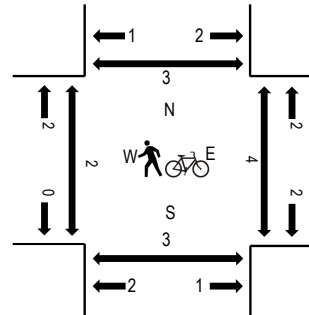
Peak 15-Minutes: 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				ALAMEDA DR Northbound				ALAMEDA DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	8	139	4	5	16	415	3	0	1	2	4	0	0	0	1	598	2,969	0	0	0	0
7:15 AM	0	15	221	4	1	18	490	3	0	4	1	6	0	0	0	4	767	3,086	0	0	2	0
7:30 AM	0	14	212	12	0	18	486	3	0	4	3	7	0	1	1	4	765	2,962	2	1	1	0
7:45 AM	0	20	239	17	1	38	496	8	0	2	4	6	0	0	2	6	839	2,799	0	1	0	2
8:00 AM	1	17	204	14	0	24	426	9	0	6	1	8	0	1	1	3	715	2,489	0	1	0	1
8:15 AM	0	15	186	17	1	24	363	6	0	6	1	10	0	2	2	10	643		4	0	2	0
8:30 AM	0	17	136	18	0	26	380	6	0	5	0	7	0	5	0	2	602		2	1	2	1
8:45 AM	0	13	169	20	2	15	266	12	0	4	3	9	0	8	4	4	529		1	2	1	2
Count Total	1	119	1,506	106	10	179	3,322	50	0	32	15	57	0	17	10	34	5,458		9	6	8	6
Peak Hour	1	66	876	47	2	98	1,898	23	0	16	9	27	0	2	4	17	3,086		2	3	3	3



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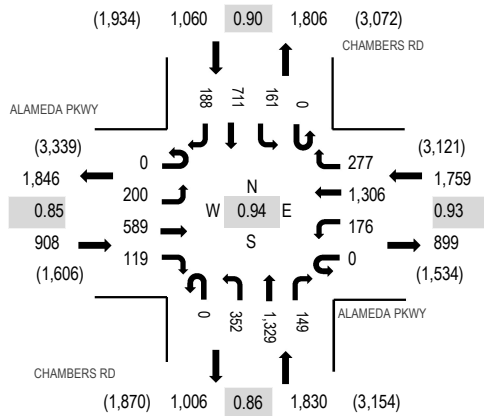
Location: 4 CHAMBERS RD & ALAMEDA PKWY AM

Date: Tuesday, September 10, 2019

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

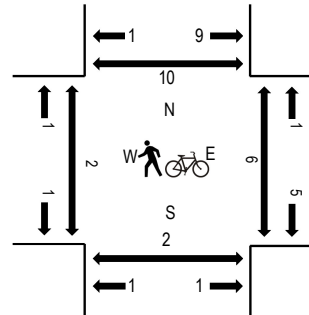
Peak 15-Minutes: 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	ALAMEDA PKWY Eastbound				ALAMEDA PKWY Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	37	99	25	0	21	311	61	0	73	298	30	0	43	136	17	1,151	5,388	0	2	0	2
7:15 AM	0	44	163	19	0	41	335	75	0	81	300	45	0	38	145	36	1,322	5,557	1	2	1	3
7:30 AM	0	39	135	34	0	40	314	56	0	107	376	49	0	52	189	44	1,435	5,367	0	1	1	2
7:45 AM	0	59	178	31	0	48	352	71	0	97	357	26	0	40	166	55	1,480	4,983	0	2	0	3
8:00 AM	0	58	113	35	0	47	305	75	0	67	296	29	0	31	211	53	1,320	4,427	0	1	0	2
8:15 AM	0	43	129	37	1	39	298	37	0	69	240	23	0	24	154	38	1,132		0	1	1	0
8:30 AM	0	48	89	25	0	37	256	35	0	73	209	29	0	28	168	54	1,051		0	0	0	1
8:45 AM	0	35	94	37	0	31	212	23	0	61	200	19	0	27	154	31	924		0	1	2	0
Count Total	0	363	1,000	243	1	304	2,383	433	0	628	2,276	250	0	283	1,323	328	9,815		1	10	5	13
Peak Hour	0	200	589	119	0	176	1,306	277	0	352	1,329	149	0	161	711	188	5,557		1	6	2	10



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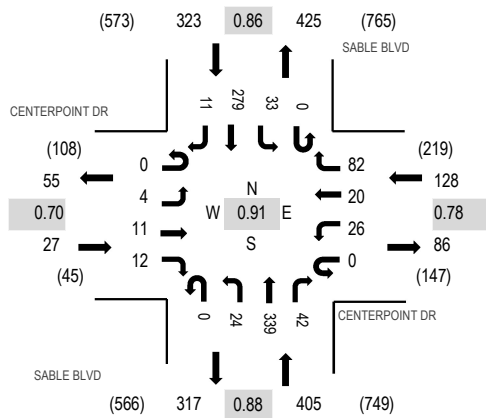
Location: 5 SABLE BLVD & CENTERPOINT DR AM

Date: Tuesday, September 10, 2019

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

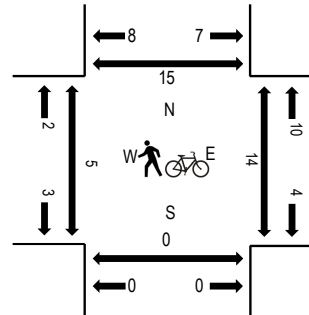
Peak 15-Minutes: 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	CENTERPOINT DR Eastbound				CENTERPOINT DR Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	1	1	0	5	3	15	0	4	75	10	0	5	43	1	163	820	0	1	0	2
7:15 AM	0	0	0	4	0	3	1	18	0	4	89	10	0	5	43	2	179	874	0	2	0	1
7:30 AM	0	2	1	1	0	8	3	30	0	4	113	7	0	7	59	1	236	883	0	1	0	2
7:45 AM	0	0	3	1	0	7	6	23	0	11	96	13	0	7	74	1	242	834	1	4	0	7
8:00 AM	0	1	4	6	0	6	9	14	0	4	65	12	0	12	81	3	217	766	1	0	0	2
8:15 AM	0	1	3	4	0	5	2	15	0	5	65	10	0	7	65	6	188		2	8	0	2
8:30 AM	0	0	1	3	0	10	8	12	0	6	63	8	0	5	64	7	187		0	1	0	8
8:45 AM	0	1	3	4	0	6	3	7	0	7	60	8	0	5	63	7	174		1	2	0	6
Count Total	0	5	16	24	0	50	35	134	0	45	626	78	0	53	492	28	1,586		5	19	0	30
Peak Hour	0	4	11	12	0	26	20	82	0	24	339	42	0	33	279	11	883		4	13	0	13



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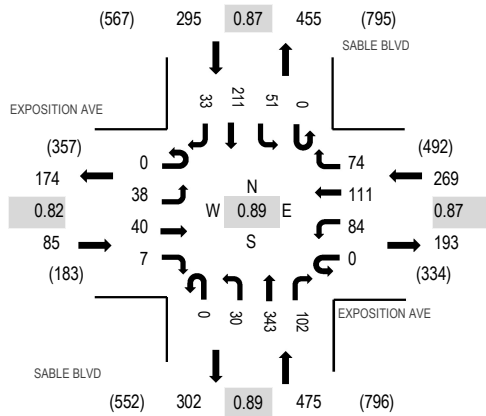
Location: 6 SABLE BLVD & EXPOSITION AVE AM

Date: Tuesday, September 10, 2019

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

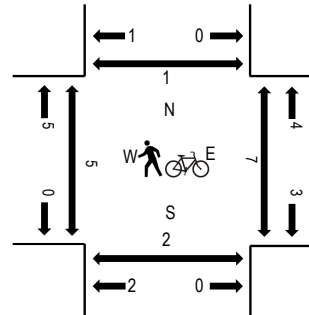
Peak 15-Minutes: 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	EXPOSITION AVE Eastbound				EXPOSITION AVE Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	3	8	0	0	11	16	10	0	2	87	11	0	3	36	10	197	1,046	0	3	1	0
7:15 AM	0	9	11	1	0	21	14	18	0	1	84	28	0	9	39	3	238	1,124	0	1	1	0
7:30 AM	0	8	10	2	0	27	27	20	0	4	109	21	0	11	54	2	295	1,109	0	2	0	0
7:45 AM	0	11	9	3	0	26	31	22	0	7	96	28	0	17	49	17	316	1,065	2	3	1	0
8:00 AM	0	10	10	1	0	10	39	14	0	18	54	25	0	14	69	11	275	992	1	0	0	1
8:15 AM	0	11	14	3	0	16	26	17	0	3	50	16	0	9	48	10	223		0	8	1	0
8:30 AM	0	11	13	2	0	15	31	9	0	9	63	14	0	16	49	19	251		3	2	2	1
8:45 AM	0	14	15	4	0	21	34	17	0	5	48	13	0	9	45	18	243		0	0	0	0
Count Total	0	77	90	16	0	147	218	127	0	49	591	156	0	88	389	90	2,038		6	19	6	2
Peak Hour	0	38	40	7	0	84	111	74	0	30	343	102	0	51	211	33	1,124		3	6	2	1





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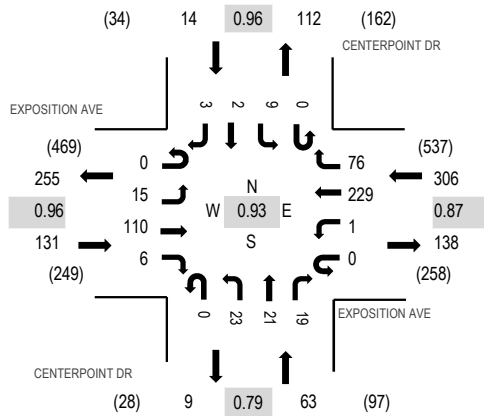
Location: 7 CENTERPOINT DR & EXPOSITION AVE AM

Date: Tuesday, September 10, 2019

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

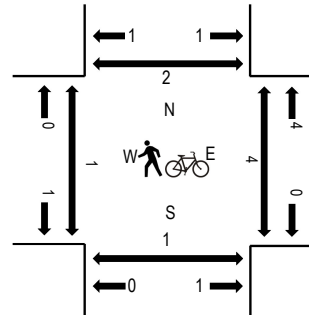
Peak 15-Minutes: 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	EXPOSITION AVE Eastbound				EXPOSITION AVE Westbound				CENTERPOINT DR Northbound				CENTERPOINT DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	16	2	0	0	26	8	0	6	8	3	0	1	0	1	71	447	0	0	0	0
7:15 AM	0	2	29	2	0	0	41	14	0	9	6	6	0	2	0	1	112	514	0	1	0	1
7:30 AM	0	5	25	1	0	0	52	24	0	7	5	6	0	1	1	0	127	508	0	1	0	0
7:45 AM	0	3	29	1	0	0	76	14	0	2	3	5	0	2	1	1	137	491	0	1	0	0
8:00 AM	0	5	27	2	0	1	60	24	0	5	7	2	0	4	0	1	138	470	1	1	1	1
8:15 AM	0	2	29	2	0	3	47	11	0	2	3	1	0	5	0	1	106		0	0	0	0
8:30 AM	0	4	29	2	0	1	58	5	0	2	3	0	0	2	1	3	110		1	0	1	0
8:45 AM	0	1	29	2	0	4	65	3	0	3	2	1	0	4	2	0	116		0	0	0	0
Count Total	0	22	213	14	0	9	425	103	0	36	37	24	0	21	5	8	917		2	4	2	2
Peak Hour	0	15	110	6	0	1	229	76	0	23	21	19	0	9	2	3	514		1	4	1	2



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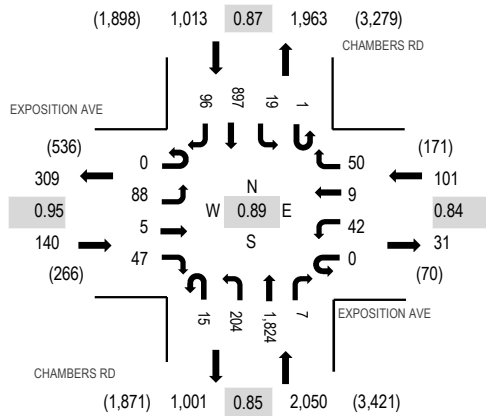
Location: 8 CHAMBERS RD & EXPOSITION AVE AM

Date: Tuesday, September 10, 2019

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

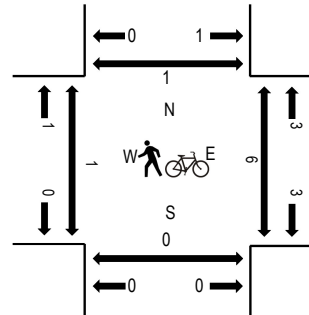
Peak 15-Minutes: 07:30 AM - 07:45 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	EXPOSITION AVE Eastbound				EXPOSITION AVE Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	16	4	2	0	19	2	6	4	23	349	2	0	8	185	7	627	3,182	0	3	1	0
7:15 AM	0	25	0	10	0	13	3	14	5	34	440	2	0	2	187	19	754	3,304	0	2	0	1
7:30 AM	0	23	3	10	0	11	4	19	2	55	544	1	0	5	229	18	924	3,213	0	3	0	0
7:45 AM	0	21	1	11	0	10	1	12	5	61	499	2	0	9	216	29	877	2,892	1	0	0	0
8:00 AM	0	19	1	16	0	8	1	5	3	54	341	2	1	3	265	30	749	2,574	0	1	0	0
8:15 AM	0	16	1	17	0	9	1	7	4	37	333	1	1	7	205	24	663		0	1	0	0
8:30 AM	0	6	2	25	0	9	1	3	1	32	310	3	0	5	175	31	603		0	2	1	0
8:45 AM	0	26	0	11	0	8	1	4	1	32	238	1	1	5	195	36	559		0	2	0	0
Count Total	0	152	12	102	0	87	14	70	25	328	3,054	14	3	44	1,657	194	5,756		1	14	2	1
Peak Hour	0	88	5	47	0	42	9	50	15	204	1,824	7	1	19	897	96	3,304		1	6	0	1



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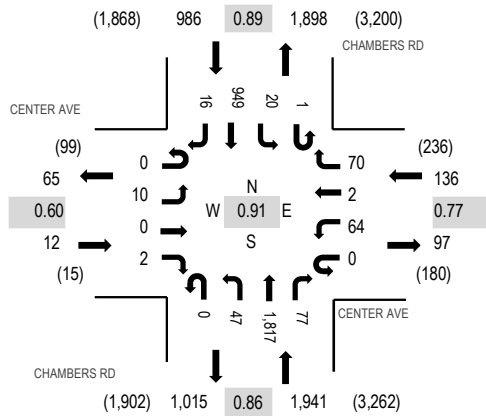
Location: 9 CHAMBERS RD & CENTER AVE AM

Date: Tuesday, September 10, 2019

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

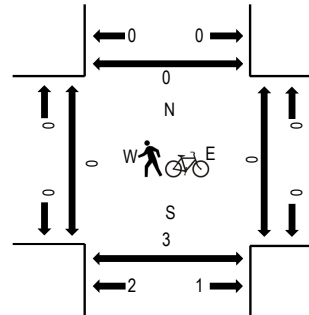
Peak 15-Minutes: 07:30 AM - 07:45 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	CENTER AVE Eastbound				CENTER AVE Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	1	0	0	0	10	1	12	0	3	359	15	0	6	190	4	601	2,972	0	0	0	0
7:15 AM	0	4	0	1	0	14	1	17	0	5	446	15	0	9	195	2	709	3,075	0	0	0	0
7:30 AM	0	1	0	0	0	9	0	16	0	15	533	19	0	6	242	6	847	2,978	0	0	1	0
7:45 AM	0	5	0	0	0	19	0	25	0	17	477	32	0	2	235	3	815	2,687	0	0	0	0
8:00 AM	0	0	0	1	0	22	1	12	0	10	361	11	1	3	277	5	704	2,409	0	0	2	0
8:15 AM	0	0	0	0	0	11	1	15	0	10	328	13	0	6	224	4	612		1	0	1	0
8:30 AM	0	0	0	1	0	10	0	10	0	4	303	17	0	5	202	4	556		0	2	1	0
8:45 AM	0	0	0	1	0	17	0	13	0	1	260	8	1	13	221	2	537		0	0	0	0
Count Total	0	11	0	4	0	112	4	120	0	65	3,067	130	2	50	1,786	30	5,381		1	2	5	0
Peak Hour	0	10	0	2	0	64	2	70	0	47	1,817	77	1	20	949	16	3,075		0	0	3	0



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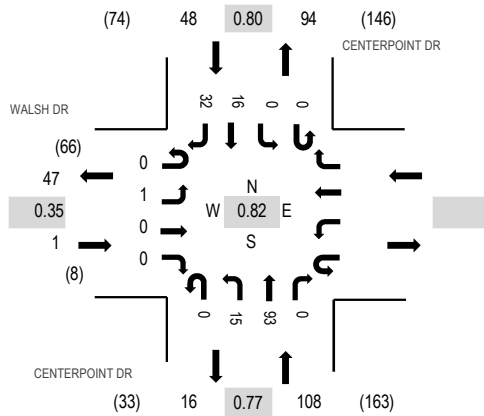
Location: 10 CENTERPOINT DR & WALSH DR AM

Date: Tuesday, September 10, 2019

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

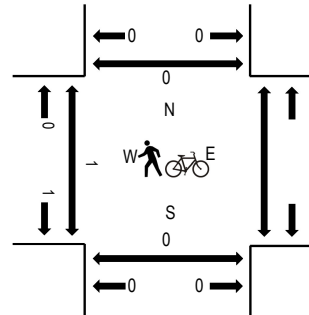
Peak 15-Minutes: 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	WALSH DR								CENTERPOINT DR				CENTERPOINT DR				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
7:00 AM	0	0	0	0					0	2	15	0	0	0	2	0	19	126	0	0	0	
7:15 AM	0	1	0	0					0	4	18	0	0	0	3	7	33	155	0	0	0	
7:30 AM	0	0	0	0					0	6	30	0	0	0	2	9	47	157	0	0	0	
7:45 AM	0	0	0	0					0	3	17	0	0	0	4	3	27	128	0	0	0	
8:00 AM	0	0	0	0					0	5	28	0	0	0	5	10	48	119	0	0	0	
8:15 AM	0	1	0	0					0	1	18	0	0	0	5	10	35		0	0	0	
8:30 AM	0	1	0	0					0	2	8	0	0	0	5	2	18		0	0	0	
8:45 AM	0	4	0	1					0	1	5	0	0	0	6	1	18		0	0	0	
Count Total	0	7	0	1					0	24	139	0	0	0	32	42	245		0	0	0	
Peak Hour	0	1	0	0					0	15	93	0	0	0	16	32	157		0	0	0	



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**Location:** 11 CENTERPOINT DR & CENTER AVE AM

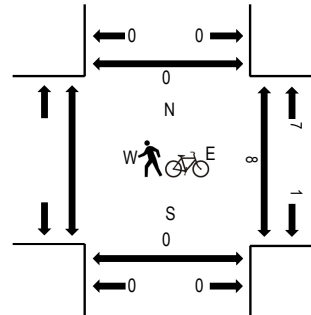
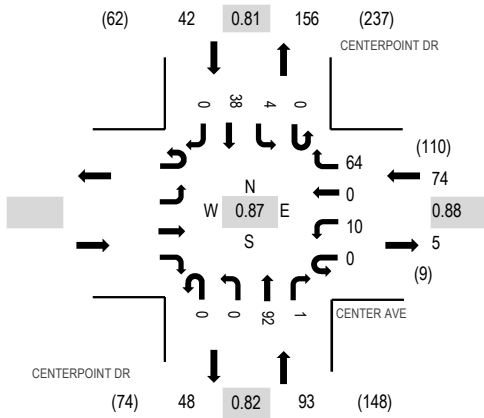
**Date:** Tuesday, September 10, 2019

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

**Peak 15-Minutes:** 07:30 AM - 07:45 AM

### Peak Hour - All Vehicles

### Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

Interval Start Time	Eastbound				CENTER AVE Westbound				CENTERPOINT DR Northbound				CENTERPOINT DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM					0	1	0	8	0	0	16	0	0	0	0	1	0	26	172	3	0	0
7:15 AM					0	2	0	10	0	0	17	3	0	0	8	0	40	203	3	0	0	
7:30 AM					0	2	0	19	0	0	28	1	0	1	9	0	60	209	2	0	0	
7:45 AM					0	0	0	21	0	0	17	0	0	1	7	0	46	174	1	0	0	
8:00 AM					0	5	0	12	0	0	29	0	0	1	10	0	57	148	3	0	0	
8:15 AM					0	3	0	12	0	0	18	0	0	1	12	0	46		2	0	0	
8:30 AM					0	1	0	10	0	0	8	0	0	0	6	0	25		2	0	0	
8:45 AM					0	2	0	2	0	0	10	1	0	0	5	0	20		0	0	0	
Count Total					0	16	0	94	0	0	143	5	0	4	58	0	320		16	0	0	
Peak Hour					0	10	0	64	0	0	92	1	0	4	38	0	209		8	0	0	



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Location: 12 CENTERPOINT DR & ALAMEDA DR AM

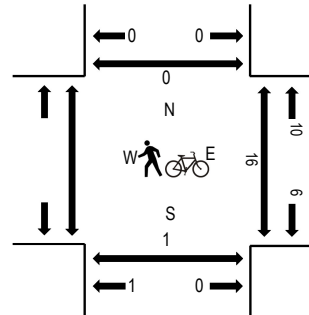
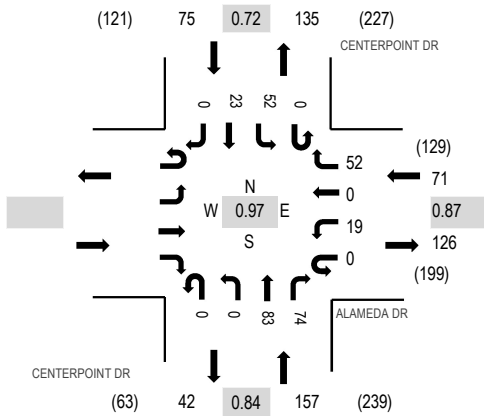
Date: Tuesday, September 10, 2019

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

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

### Peak Hour - All Vehicles

### Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

Interval Start Time	Eastbound				ALAMEDA DR Westbound				CENTERPOINT DR Northbound				CENTERPOINT DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM					0	0	0	11	0	0	17	9	0	8	2	0	47	252		3	0	0
7:15 AM					0	4	0	11	0	0	16	10	0	8	4	0	53	283		1	0	0
7:30 AM					0	8	0	10	0	0	31	16	0	8	2	0	75	303		4	0	0
7:45 AM					0	2	0	15	0	0	26	13	0	15	6	0	77	277		3	0	0
8:00 AM					0	3	0	12	0	0	17	20	0	18	8	0	78	237		6	0	0
8:15 AM					0	6	0	15	0	0	9	25	0	11	7	0	73			3	0	0
8:30 AM					0	5	0	15	0	0	8	11	0	9	1	0	49			6	0	0
8:45 AM					0	3	0	9	0	0	5	6	0	12	2	0	37			3	0	0
Count Total					0	31	0	98	0	0	129	110	0	89	32	0	489			29	0	0
Peak Hour					0	19	0	52	0	0	83	74	0	52	23	0	303			16	0	0



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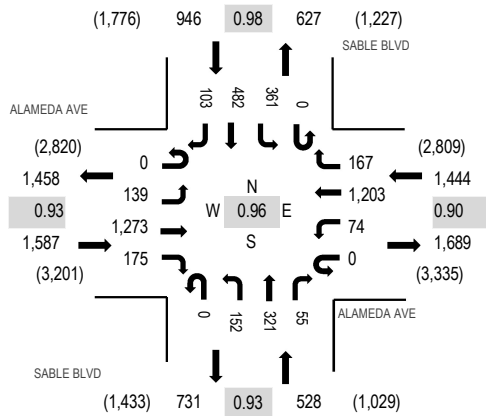
Location: 1 SABLE BLVD & ALAMEDA AVE PM

Date: Tuesday, September 10, 2019

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

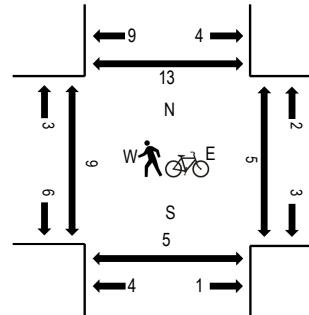
Peak 15-Minutes: 04:30 PM - 04:45 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	26	303	54	0	25	294	44	0	28	80	14	0	79	100	29	1,076	4,436	7	0	3	3
4:15 PM	0	38	326	39	0	29	305	48	0	35	64	20	0	53	102	27	1,086	4,471	2	3	2	2
4:30 PM	0	38	302	47	0	25	346	48	0	36	80	13	0	100	112	25	1,172	4,505	2	2	0	2
4:45 PM	0	31	330	40	0	19	290	36	0	35	73	14	0	96	118	20	1,102	4,467	2	0	0	3
5:00 PM	0	35	316	39	0	14	284	50	0	41	73	17	0	79	136	27	1,111	4,379	4	1	1	2
5:15 PM	0	35	325	49	0	16	283	33	0	40	95	11	0	86	116	31	1,120		1	2	3	6
5:30 PM	1	31	363	43	0	22	287	39	0	41	88	13	0	69	112	25	1,134		6	1	1	3
5:45 PM	0	42	309	39	0	17	225	30	0	35	70	13	0	84	120	30	1,014		0	2	0	2
Count Total	1	276	2,574	350	0	167	2,314	328	0	291	623	115	0	646	916	214	8,815		24	11	10	23
Peak Hour	0	139	1,273	175	0	74	1,203	167	0	152	321	55	0	361	482	103	4,505		9	5	4	13





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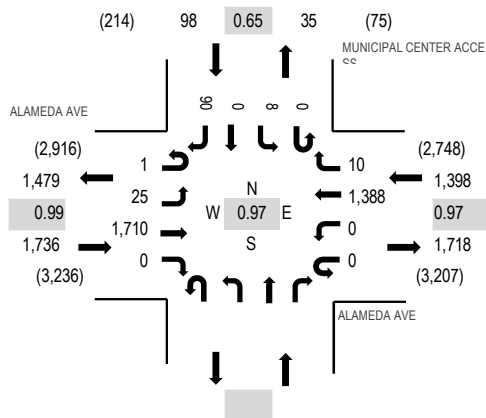
**Location:** 2 MUNICIPAL CENTER ACCESS & ALAMEDA AVE PM

**Date:** Tuesday, September 10, 2019

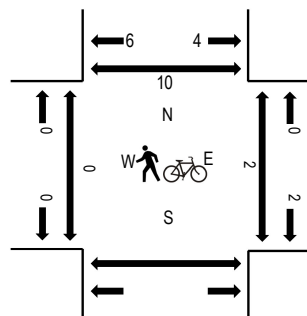
**Peak Hour:** 04:45 PM - 05:45 PM

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

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				MUNICIPAL CENTER Access				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	7	386	0	0	0	0	372	3	0	8	0	24	801	3,130	0	1	2
4:15 PM	0	7	361	0	0	0	0	351	3	0	8	0	18	748	3,158	0	0	0
4:30 PM	1	8	362	0	2	0	0	363	3	0	1	0	41	781	3,209	1	0	1
4:45 PM	0	7	419	0	0	0	0	358	2	0	3	0	11	800	3,232	0	0	1
5:00 PM	0	3	429	0	0	0	0	345	1	0	3	0	48	829	3,068	0	1	3
5:15 PM	0	6	433	0	0	0	0	334	4	0	1	0	21	799		0	1	1
5:30 PM	1	9	429	0	0	0	0	351	3	0	1	0	10	804		0	0	1
5:45 PM	0	8	359	0	0	0	0	252	1	0	2	0	14	636		1	1	2
Count Total	3	55	3,178	0	2	0	0	2,726	20	0	27	0	187	6,198		2	4	11
Peak Hour	1	25	1,710	0	0	0	0	1,388	10	0	8	0	90	3,232		0	2	6



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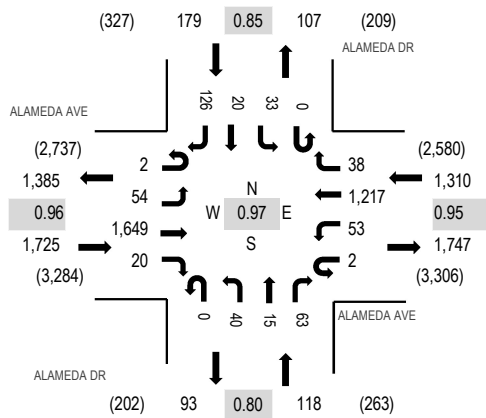
Location: 3 ALAMEDA DR & ALAMEDA AVE PM

Date: Tuesday, September 10, 2019

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

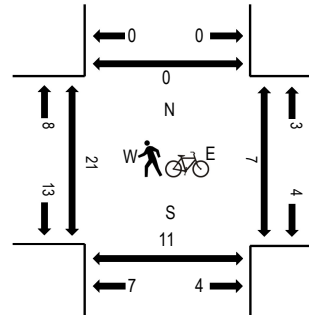
Peak 15-Minutes: 05:30 PM - 05:45 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	ALAMEDA AVE Eastbound				ALAMEDA AVE Westbound				ALAMEDA DR Northbound				ALAMEDA DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	13	393	9	1	15	332	7	0	11	5	15	0	8	8	28	846	3,285	8	1	2	0
4:15 PM	0	14	358	7	0	18	323	6	0	21	3	21	0	11	5	18	805	3,254	5	0	2	0
4:30 PM	0	19	361	6	0	16	309	8	0	31	3	14	0	6	9	28	810	3,287	6	3	3	2
4:45 PM	0	15	405	5	0	12	300	6	0	13	2	13	0	8	6	39	824	3,332	7	0	6	0
5:00 PM	1	10	400	5	1	13	299	5	0	7	6	19	0	10	5	34	815	3,169	7	3	2	0
5:15 PM	1	15	409	8	0	14	309	16	0	6	6	18	0	10	5	21	838		4	1	1	0
5:30 PM	0	14	435	2	1	14	309	11	0	14	1	13	0	5	4	32	855		3	1	2	0
5:45 PM	0	17	356	5	0	7	223	5	0	7	2	12	0	3	4	20	661		3	0	2	0
Count Total	3	117	3,117	47	3	109	2,404	64	0	110	28	125	0	61	46	220	6,454		43	9	20	2
Peak Hour	2	54	1,649	20	2	53	1,217	38	0	40	15	63	0	33	20	126	3,332		21	5	11	0



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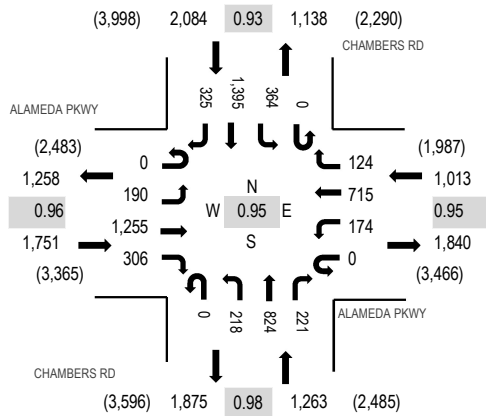
Location: 4 CHAMBERS RD & ALAMEDA PKWY PM

Date: Tuesday, September 10, 2019

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

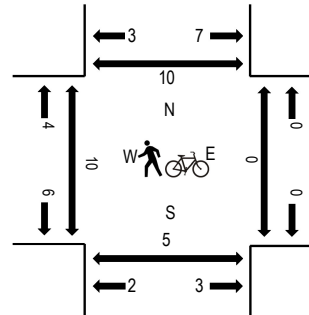
Peak 15-Minutes: 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	ALAMEDA PKWY Eastbound				ALAMEDA PKWY Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	33	275	80	0	41	183	39	0	61	216	47	0	78	311	109	1,473	5,955	2	0	4	5
4:15 PM	0	54	309	75	0	48	192	31	0	63	197	41	0	96	305	90	1,501	5,988	2	5	3	6
4:30 PM	0	50	282	87	0	39	173	26	0	46	210	43	0	110	364	81	1,511	6,087	1	0	3	2
4:45 PM	0	46	298	72	0	47	182	27	0	64	189	47	0	86	324	88	1,470	6,111	1	0	1	1
5:00 PM	0	55	322	69	0	53	162	27	0	62	207	51	0	98	314	86	1,506	5,880	4	0	2	3
5:15 PM	0	50	332	75	0	35	177	37	0	49	215	59	0	98	401	72	1,600		1	0	1	3
5:30 PM	0	39	303	90	0	39	194	33	0	43	213	64	0	82	356	79	1,535		2	0	0	2
5:45 PM	0	61	240	68	0	43	131	28	0	44	207	47	0	58	260	52	1,239		0	2	1	2
Count Total	0	388	2,361	616	0	345	1,394	248	0	432	1,654	399	0	706	2,635	657	11,835		13	7	15	24
Peak Hour	0	190	1,255	306	0	174	715	124	0	218	824	221	0	364	1,395	325	6,111		8	0	4	9



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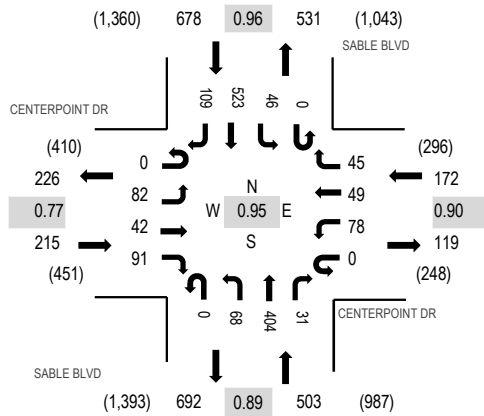
Location: 5 SABLE BLVD & CENTERPOINT DR PM

Date: Tuesday, September 10, 2019

Peak Hour: 04:15 PM - 05:15 PM

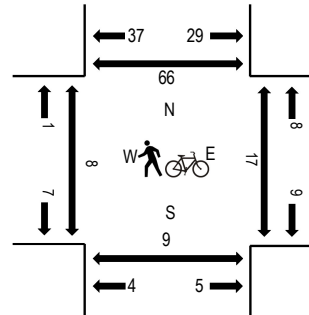
Peak 15-Minutes: 05:00 PM - 05:15 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	CENTERPOINT DR Eastbound				CENTERPOINT DR Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	20	15	27	0	11	13	7	0	24	97	7	0	15	131	21	388	1,544	0	1	0	16
4:15 PM	0	19	12	21	0	18	17	12	0	21	95	9	0	14	128	23	389	1,568	2	8	4	17
4:30 PM	0	16	9	27	0	26	12	10	0	13	113	5	0	14	126	31	402	1,568	2	3	1	16
4:45 PM	0	27	6	20	0	17	11	12	0	19	75	11	0	7	137	23	365	1,550	0	4	2	14
5:00 PM	0	20	15	23	0	17	9	11	0	15	121	6	0	11	132	32	412	1,550	4	2	2	18
5:15 PM	0	25	18	35	0	11	7	17	0	16	86	9	0	11	141	13	389		1	2	0	24
5:30 PM	0	17	13	21	0	12	9	15	0	13	108	5	0	12	140	19	384		1	6	0	17
5:45 PM	0	16	8	21	0	3	9	10	0	16	94	9	0	7	148	24	365		1	3	0	12
Count Total	0	160	96	195	0	115	87	94	0	137	789	61	0	91	1,083	186	3,094		11	29	9	134
Peak Hour	0	82	42	91	0	78	49	45	0	68	404	31	0	46	523	109	1,568		8	17	9	65



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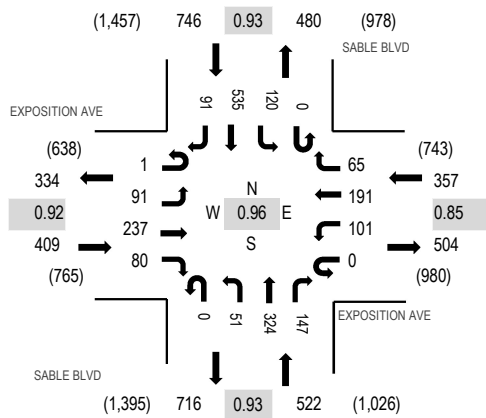
Location: 6 SABLE BLVD & EXPOSITION AVE PM

Date: Tuesday, September 10, 2019

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

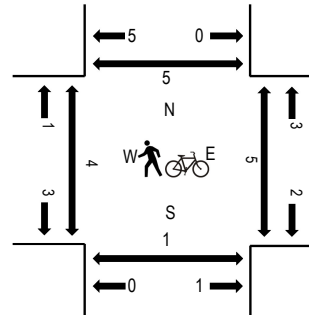
Peak 15-Minutes: 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	EXPOSITION AVE Eastbound				EXPOSITION AVE Westbound				SABLE BLVD Northbound				SABLE BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	20	56	13	0	29	43	28	0	6	90	28	0	33	109	28	484	1,987	3	5	2	1
4:15 PM	0	23	62	15	0	41	49	24	0	8	73	29	0	34	131	27	516	2,020	2	1	1	2
4:30 PM	1	33	55	17	0	25	51	15	0	10	71	39	0	24	129	27	497	2,034	3	0	0	0
4:45 PM	0	16	51	14	0	30	41	13	0	11	82	36	0	32	140	24	490	2,034	0	0	1	1
5:00 PM	0	28	55	28	0	23	54	19	0	19	87	34	0	27	125	18	517	2,004	1	1	0	1
5:15 PM	0	14	76	21	0	23	45	18	0	11	84	38	0	37	141	22	530		0	3	0	2
5:30 PM	0	19	49	13	0	27	45	15	0	14	95	39	0	28	137	16	497		0	1	1	0
5:45 PM	0	15	51	19	1	31	38	15	0	8	81	33	0	33	114	21	460		0	0	1	0
Count Total	2	168	455	140	1	229	366	147	0	87	663	276	0	248	1,026	183	3,991		9	11	6	7
Peak Hour	1	91	237	80	0	101	191	65	0	51	324	147	0	120	535	91	2,034		4	4	1	4



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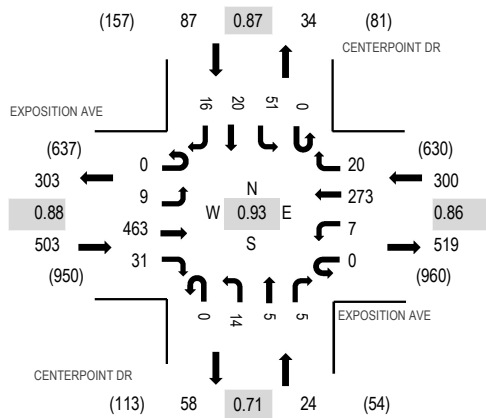
Location: 7 CENTERPOINT DR & EXPOSITION AVE PM

Date: Tuesday, September 10, 2019

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

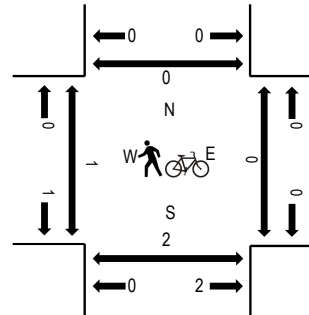
Peak 15-Minutes: 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	EXPOSITION AVE Eastbound				EXPOSITION AVE Westbound				CENTERPOINT DR Northbound				CENTERPOINT DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	6	96	10	0	3	77	8	0	1	0	1	0	11	3	4	220	908	0	1	0	0
4:15 PM	0	5	96	7	0	2	91	6	0	4	1	2	0	11	3	8	236	905	0	0	0	0
4:30 PM	0	0	120	7	0	3	68	4	0	1	0	1	0	11	7	3	225	914	1	0	0	0
4:45 PM	0	4	103	10	0	1	71	7	0	5	1	0	0	15	4	6	227	906	0	0	1	0
5:00 PM	0	3	108	5	0	1	69	4	0	3	3	3	0	12	3	3	217	883	0	0	1	0
5:15 PM	0	2	132	9	0	2	65	5	0	5	1	1	0	13	6	4	245		0	0	0	0
5:30 PM	0	5	92	13	0	1	76	2	0	2	1	5	0	15	2	3	217		0	0	1	0
5:45 PM	0	5	106	6	0	1	59	4	0	6	4	3	0	3	4	3	204		0	2	0	0
Count Total	0	30	853	67	0	14	576	40	0	27	11	16	0	91	32	34	1,791		1	3	3	0
Peak Hour	0	9	463	31	0	7	273	20	0	14	5	5	0	51	20	16	914		1	0	2	0



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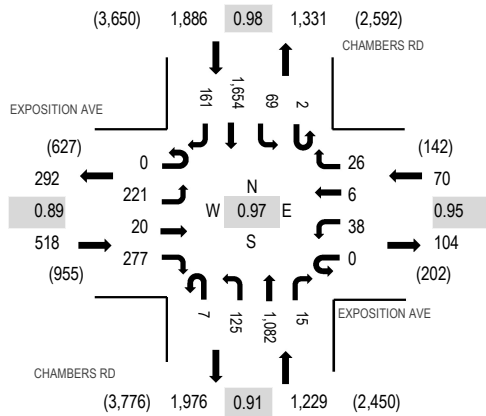
Location: 8 CHAMBERS RD & EXPOSITION AVE PM

Date: Tuesday, September 10, 2019

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

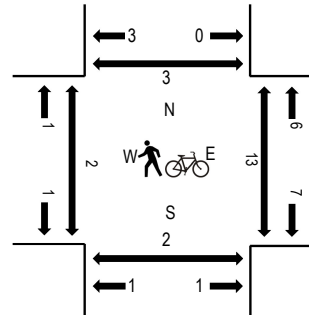
Peak 15-Minutes: 05:00 PM - 05:15 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	EXPOSITION AVE Eastbound				EXPOSITION AVE Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	40	3	59	0	3	2	8	4	44	266	4	2	16	388	44	883	3,578	3	3	0	0
4:15 PM	0	52	3	57	0	12	1	5	4	39	258	1	1	11	385	57	886	3,648	1	4	1	0
4:30 PM	0	61	6	63	0	9	1	4	4	35	256	3	0	11	429	37	919	3,703	2	2	0	0
4:45 PM	0	43	4	66	0	7	2	4	0	34	251	4	0	22	409	44	890	3,694	0	7	2	0
5:00 PM	0	52	5	73	0	10	1	11	1	25	312	4	1	14	400	44	953	3,619	0	2	0	3
5:15 PM	0	65	5	75	0	12	2	7	2	31	263	4	1	22	416	36	941		0	2	0	0
5:30 PM	0	46	4	58	0	9	3	9	2	33	259	5	1	20	417	44	910		3	2	0	2
5:45 PM	0	44	6	65	0	11	1	8	1	35	260	6	2	19	325	32	815		0	5	1	0
Count Total	0	403	36	516	0	73	13	56	18	276	2,125	31	8	135	3,169	338	7,197		9	27	4	5
Peak Hour	0	221	20	277	0	38	6	26	7	125	1,082	15	2	69	1,654	161	3,703		2	13	2	3





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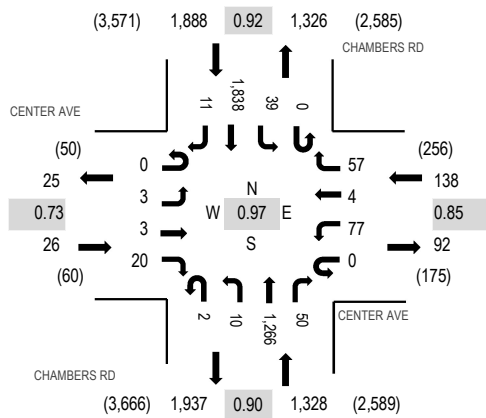
Location: 9 CHAMBERS RD & CENTER AVE PM

Date: Tuesday, September 10, 2019

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

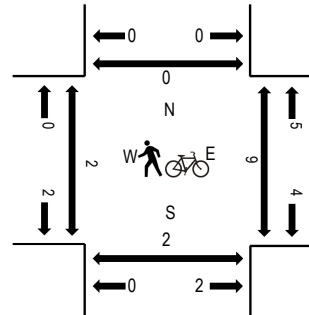
Peak 15-Minutes: 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	CENTER AVE Eastbound				CENTER AVE Westbound				CHAMBERS RD Northbound				CHAMBERS RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	0	11	0	20	0	14	0	1	295	18	0	9	396	2	766	3,210	0	4	0	0
4:15 PM	0	2	0	5	0	16	3	20	0	3	294	11	1	10	431	4	800	3,306	1	2	0	0
4:30 PM	0	0	0	6	0	18	3	13	0	1	300	14	0	13	484	6	858	3,380	1	1	1	0
4:45 PM	0	2	2	4	0	24	1	21	1	6	287	12	0	9	415	2	786	3,306	0	3	0	0
5:00 PM	0	1	1	4	0	22	0	16	0	2	360	10	0	9	435	2	862	3,266	0	4	0	0
5:15 PM	0	0	0	6	0	13	0	7	1	1	319	14	0	8	504	1	874		0	1	1	0
5:30 PM	0	0	0	4	0	10	0	6	0	2	307	5	0	8	438	4	784		0	3	0	0
5:45 PM	0	3	1	8	0	23	2	4	0	2	313	10	0	11	367	2	746		1	6	2	0
Count Total	0	8	4	48	0	146	9	101	2	18	2,475	94	1	77	3,470	23	6,476		3	24	4	0
Peak Hour	0	3	3	20	0	77	4	57	2	10	1,266	50	0	39	1,838	11	3,380		1	9	2	0



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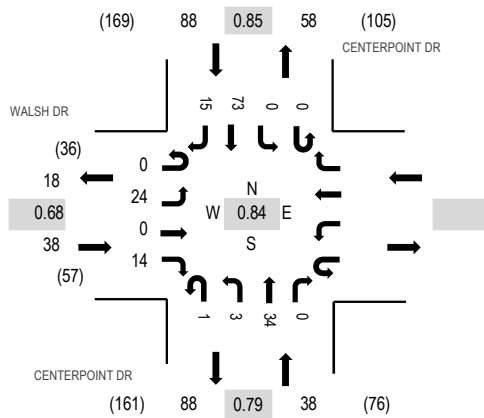
Location: 10 CENTERPOINT DR & WALSH DR PM

Date: Tuesday, September 10, 2019

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

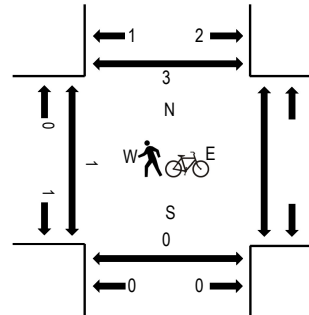
Peak 15-Minutes: 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	WALSH DR Eastbound				Westbound				CENTERPOINT DR Northbound				CENTERPOINT DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	3	0	2					0	2	9	0	0	0	14	3	33	154	0	0	0	0
4:15 PM	0	5	0	3					0	1	11	0	0	0	19	3	42	155	0	0	0	0
4:30 PM	0	2	0	1					0	0	3	0	0	0	22	6	34	162	0	0	0	0
4:45 PM	0	4	0	6					0	2	10	0	0	0	21	2	45	164	0	0	0	3
5:00 PM	0	4	0	4					0	0	9	0	0	0	12	5	34	148	0	0	0	0
5:15 PM	0	11	0	3					0	1	7	0	0	0	21	6	49		0	0	0	0
5:30 PM	0	5	0	1					1	0	8	0	0	0	19	2	36		0	0	0	0
5:45 PM	0	2	0	1					0	0	12	0	0	0	11	3	29		0	0	0	0
Count Total	0	36	0	21					1	6	69	0	0	0	139	30	302		0	0	0	3
Peak Hour	0	24	0	14					1	3	34	0	0	0	73	15	164		0	0	0	3



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**Location:** 11 CENTERPOINT DR & CENTER AVE PM

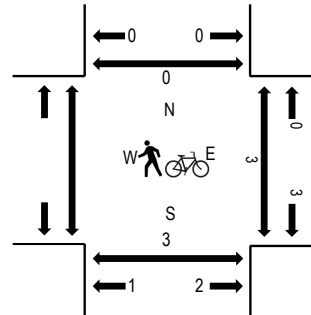
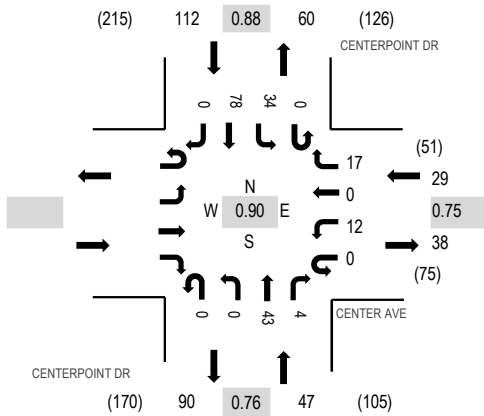
**Date:** Tuesday, September 10, 2019

**Peak Hour:** 04:00 PM - 05:00 PM

**Peak 15-Minutes:** 04:15 PM - 04:30 PM

### Peak Hour - All Vehicles

### Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

Interval Start Time	Eastbound				CENTER AVE Westbound				CENTERPOINT DR Northbound				CENTERPOINT DR Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM					0	2	0	3	0	0	11	0	0	13	15	0	44	188	1	0	0	0
4:15 PM					0	3	0	5	0	0	16	1	0	8	19	0	52	183	2	0	0	0
4:30 PM					0	4	0	2	0	0	5	0	0	8	24	0	43	184	0	0	0	0
4:45 PM					0	3	0	7	0	0	11	3	0	5	20	0	49	186	0	3	0	0
5:00 PM					0	2	0	4	1	0	11	1	0	6	14	0	39	183	3	0	0	0
5:15 PM					0	1	0	1	0	0	16	3	0	6	26	0	53		0	0	0	0
5:30 PM					0	0	0	7	0	0	9	3	0	5	21	0	45		2	0	0	0
5:45 PM					0	1	0	6	0	0	11	3	1	10	14	0	46		2	0	0	0
Count Total					0	16	0	35	1	0	90	14	1	61	153	0	371		10	3	0	0
Peak Hour					0	12	0	17	0	0	43	4	0	34	78	0	188		3	3	0	0



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**Location:** 12 CENTERPOINT DR & ALAMEDA DR PM

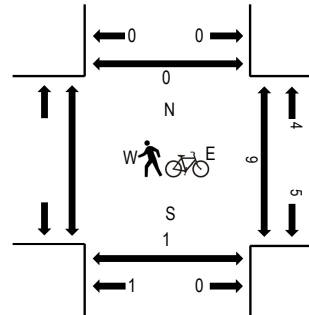
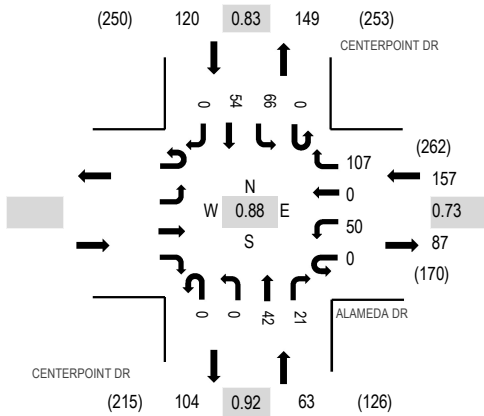
**Date:** Tuesday, September 10, 2019

**Peak Hour:** 04:15 PM - 05:15 PM

**Peak 15-Minutes:** 04:15 PM - 04:30 PM

### Peak Hour - All Vehicles

### Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

Interval Start Time					ALAMEDA DR				CENTERPOINT DR				CENTERPOINT DR				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
4:00 PM					0	8	0	23	0	0	6	7	0	14	20	0	78	337	3	0	0	
4:15 PM					0	12	0	28	0	0	14	9	0	19	15	0	97	340	4	1	0	
4:30 PM					0	17	0	37	0	0	4	3	0	11	16	0	88	326	0	0	0	
4:45 PM					0	10	0	19	0	0	13	5	0	13	14	0	74	313	3	0	0	
5:00 PM					0	11	0	23	0	0	11	4	0	23	9	0	81	301	1	0	0	
5:15 PM					0	13	0	15	0	0	10	6	0	20	19	0	83		5	0	0	
5:30 PM					0	7	0	20	0	0	10	7	0	12	19	0	75		1	0	0	
5:45 PM					0	12	0	7	0	0	13	4	0	13	13	0	62		3	0	0	
Count Total					0	90	0	172	0	0	81	45	0	125	125	0	638		20	1	0	
Peak Hour					0	50	0	107	0	0	42	21	0	66	54	0	340		8	1	0	

Road	Location	TCDS Count Volumes				April 2024 Counts		Daily Volume Estimate
		Avg Daily	Avg 7-9 AM	Avg 4-6 PM	Avg 4-Hr Pk%	Tot 7-9 AM	Tot 4-6 PM	
Alameda Pkwy	west of Chambers Rd	32,502	3,477	4,589	25%	5,193	6,476	47,000
Chambers Rd	south of Alameda Pkwy	36,733	4,278	6,560	30%	4,599	6,348	37,100
Road	Location	Daily Volume Estimate	AM Peak Volume	PM Peak Volume	AM+PM Pk % of Daily			
Alameda Pkwy	west of Chambers Rd	47,000	3,040	3,300	13%			
Chambers Rd	south of Alameda Pkwy	37,100	2,573	3,210	16%			
Average					15%			
Alameda Ave	east of Sable Blvd	43,800	3,036	3,329				
Sabe Blvd	south of Alameda Ave	13,300	779	1,156				
Alameda Dr	south of Alameda Ave	2,700	174	223				
Centerpoint Dr	east of Sable Blvd	2,900	172	248				
Center Ave	west of Chambers	800	69	43				

# Colorado DOT

## 900051 Weekly Volume Report - Mon 09/26/2022 - Sun 10/02/2022

<b>Location ID:</b>	900051	<b>Type:</b>	LINK
<b>Located On:</b>	ON ALAMEDA AVE W/O CHAMBERS RD, AURORA		
<b>From Road:</b>	SABLE BD	<b>To Road:</b>	CHAMBERS RD
<b>Direction:</b>	2-WAY		
<b>Community:</b>	Aurora	<b>Period:</b>	Mon 09/26/2022 - Sun 10/02/2022
<b>AADT:</b>	29125		

Start Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Avg
12:00 AM			106	122				114
1:00 AM			116	87				102
2:00 AM			174	147				161
3:00 AM			329	306				318
4:00 AM			849	720				785
5:00 AM			1679	1426				1553
6:00 AM			2538	2392				2465
7:00 AM			2121	1910				2016
8:00 AM			1454	1468				1461
9:00 AM			1545	1513				1529
10:00 AM			1660	1803				1732
11:00 AM			1833	2018				1926
12:00 PM			1826	1978				1902
1:00 PM			2048	2215				2132
2:00 PM			2420	2570				2495
3:00 PM			2435	2539				2487
4:00 PM			2408	2445				2427
5:00 PM			2096	2228				2162
6:00 PM			1668	1540				1604
7:00 PM			1157	1040				1099
8:00 PM			836	791				814
9:00 PM			602	553				578
10:00 PM			463	353				408
11:00 PM			263	213				238
<b>Total</b>	<b>0</b>	<b>0</b>	<b>32626</b>	<b>32377</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>24HrTotal</b>			32626	32377				32502
<b>AM Pk Hr</b>			6:00	6:00				
<b>AM Peak</b>			2538	2392				2465
<b>PM Pk Hr</b>			3:00	2:00				
<b>PM Peak</b>			2435	2570				2503
<b>% Peak Hr</b>			7.78%	7.94%				8.00%
<b>% Peak Hr</b>			7.78%	7.94%				7.86%

# Colorado DOT

## 107600 Weekly Volume Report - Mon 07/31/2023 - Sun 08/06/2023

<b>Location ID:</b>	107600
<b>Located On:</b>	ON CHAMBERS RD S/O ALAMEDA PKWY, AURORA
<b>From Road:</b>	MISSISSIPPI AV
<b>Direction:</b>	2-WAY
<b>Community:</b>	Aurora
<b>AADT:</b>	32460

<b>Type:</b>	LINK
<b>To Road:</b>	ALAMEDA PY
<b>Period:</b>	Mon 07/31/2023 - Sun 08/06/2023

Start Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Avg
12:00 AM		252	248					250
1:00 AM		148	133					141
2:00 AM		118	109					114
3:00 AM		147	152					150
4:00 AM		261	260					261
5:00 AM		667	657					662
6:00 AM		1490	1412					1451
7:00 AM		2127	2469					2298
8:00 AM		1683	2277					1980
9:00 AM		1493	1650					1572
10:00 AM		1615	1775					1695
11:00 AM		1809	1883					1846
12:00 PM		1971	1983					1977
1:00 PM		1934	1950					1942
2:00 PM		2194	2234					2214
3:00 PM		2842	2670					2756
4:00 PM		3418	3166					3292
5:00 PM		3239	3296					3268
6:00 PM		2697	2850					2774
7:00 PM		1939	2238					2089
8:00 PM		1577	1726					1652
9:00 PM		986	1302					1144
10:00 PM		582	909					746
11:00 PM		376	551					464
<b>Total</b>	<b>0</b>	<b>35565</b>	<b>37900</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>24HrTotal</b>		35565	37900					36733
<b>AM Pk Hr</b>		7:00	7:00					
<b>AM Peak</b>		2127	2469					2298
<b>PM Pk Hr</b>		4:00	5:00					
<b>PM Peak</b>		3418	3296					3357
<b>% Peak Hr</b>		9.61%	8.70%					9.50%
<b>% Peak Hr</b>		9.61%	8.70%					9.15%



## **Appendix B. Internal Capture Worksheets**

Based on info from NCHRP 684

Land Use	Entering Trips	Exiting Trips	Daily Total
Office	64	64	126
Retail	1,958	1,958	3,916
Restaurant	296	296	590
Entertainment	0	0	0
Residential	4,712	4,712	9,424
Hotel	0	0	0
		Total	14,056

#### Origins

From	To	Daily %	Daily Trips
Office	Office	2%	1
	Retail	22%	14
	Residential	2%	1
Retail	Office	3%	59
	Retail	30%	587
	Residential	11%	215
Residential	Office		0
	Retail	38%	1,791
	Residential		0

#### Destinations

From	To	Daily %	Daily Trips
Office	Office	2%	1
	Retail	15%	294
	Residential		0
Retail	Office	4%	3
	Retail	28%	548
	Residential	9%	424
Residential	Office	3%	2
	Retail	33%	646
	Residential		0

#### Internal Trips

From	To		Daily Trips
Office	Office		1
	Retail		14
	Residential		1
Retail	Office		3
	Retail		548
	Residential		215
Residential	Office		2
	Retail		646
	Residential		0
		Internal Total	1,430
		Internal Percent	10%

	Office	Retail	Residential
Office	1	14	1
Retail	3	548	215
Residential	2	646	0

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	Aurora Metro Center - Amendment			Organization:	Felsburg Holt & Ullevig
Project Location:	Aurora, CO			Performed By:	RKS
Scenario Description:	Trip Generation (Updated 4/9/2024)			Date:	7/18/2024
Analysis Year:				Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips <sup>3</sup>		
	ITE LUCs <sup>1</sup>	Quantity	Units	Total	Entering	Exiting
Office				12	9	3
Retail				165	98	67
Restaurant				53	29	24
Cinema/Entertainment				0	0	0
Residential				811	196	615
Hotel				0	0	0
All Other Land Uses <sup>2</sup>				0		
				1,041	332	709

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. <sup>4</sup>	% Transit	% Non-Motorized	Veh. Occ. <sup>4</sup>	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses <sup>2</sup>	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	1	0	0	0
Retail	0		9	0	4	0
Restaurant	1	3		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	6	6	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,041	332	709
Internal Capture Percentage	6%	10%	5%
External Vehicle-Trips <sup>5</sup>	977	300	677
External Transit-Trips <sup>6</sup>	0	0	0
External Non-Motorized Trips <sup>6</sup>	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	11%	67%
Retail	10%	19%
Restaurant	55%	21%
Cinema/Entertainment	N/A	N/A
Residential	3%	2%
Hotel	N/A	N/A

<sup>1</sup>Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

<sup>2</sup>Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

<sup>3</sup>Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

<sup>4</sup>Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

<sup>5</sup>Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

<sup>6</sup>Person-Trips

\*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool					
<b>Project Name:</b>	Aurora Metro Center - Amendment	<b>Organization:</b>	Felsburg Holt & Ullevig		
<b>Project Location:</b>	Aurora, CO	<b>Performed By:</b>	RKS		
<b>Scenario Description:</b>	Trip Generation (Updated 4/9/2024)	<b>Date:</b>	7/18/2024		
<b>Analysis Year:</b>		<b>Checked By:</b>			
<b>Analysis Period:</b>	PM Street Peak Hour	<b>Date:</b>			

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data <i>(For Information Only)</i>			Estimated Vehicle-Trips <sup>3</sup>		
	ITE LUCs <sup>1</sup>	Quantity	Units	Total	Entering	Exiting
Office				11	3	8
Retail				441	219	222
Restaurant				50	30	20
Cinema/Entertainment				0	0	0
Residential				812	493	319
Hotel				0	0	0
All Other Land Uses <sup>2</sup>				0		
				1,314	745	569

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. <sup>4</sup>	% Transit	% Non-Motorized	Veh. Occ. <sup>4</sup>	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses <sup>2</sup>	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0		0	
Retail					0	
Restaurant					0	
Cinema/Entertainment					0	
Residential		0	0			
Hotel					0	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	1		9	0	58	0
Restaurant	0	8		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	22	4	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,314	745	569
Internal Capture Percentage	17%	15%	19%
External Vehicle-Trips <sup>5</sup>	1,096	636	460
External Transit-Trips <sup>6</sup>	0	0	0
External Non-Motorized Trips <sup>6</sup>	0	0	0

























Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	67%	25%
Retail	15%	31%
Restaurant	43%	60%
Cinema/Entertainment	N/A	N/A
Residential	13%	8%
Hotel	N/A	N/A

<sup>1</sup> Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
<sup>2</sup> Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
<sup>3</sup> Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i> ).
<sup>4</sup> Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be
<sup>5</sup> Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.
<sup>6</sup> Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

## **Appendix C. Level of Service Worksheets**

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Existing (2024) AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	1004	116	25	1734	123	150	265	42	107	181	119
Future Volume (vph)	88	1004	116	25	1734	123	150	265	42	107	181	119
Satd. Flow (prot)	1787	5085	1524	3502	5085	1583	3400	3539	1615	3400	3471	1599
Flt Permitted	0.074			0.213			0.541			0.545		
Satd. Flow (perm)	139	5085	1499	784	5085	1535	1924	3539	1578	1937	3471	1565
Satd. Flow (RTOR)			190			182			140			147
Lane Group Flow (vph)	107	1224	141	27	1845	131	195	344	55	132	223	147
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0	40.0
Total Split (s)	14.0	16.0	16.0	24.0	26.0	26.0	14.0	49.0	49.0	10.0	45.0	45.0
Total Split (%)	10.6%	12.1%	12.1%	18.2%	19.7%	19.7%	10.6%	37.1%	37.1%	7.6%	34.1%	34.1%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	69.6	68.6	68.6	68.5	67.5	67.5	19.5	18.5	18.5	15.3	14.3	14.3
Actuated g/C Ratio	0.53	0.52	0.52	0.52	0.51	0.51	0.15	0.14	0.14	0.12	0.11	0.11
v/c Ratio	0.52	0.46	0.16	0.04	0.71	0.15	0.48	0.70	0.16	0.44	0.59	0.49
Control Delay	34.3	25.7	2.2	25.6	28.6	1.9	46.4	54.0	6.3	59.3	62.3	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	25.7	2.2	25.6	28.6	1.9	46.4	54.0	6.3	59.3	62.3	13.5
LOS	C	C	A	C	C	A	D	D	A	E	E	B
Approach Delay		24.1			26.8			47.1			47.2	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 104 (79%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 30.8

Intersection LOS: C

Intersection Capacity Utilization 74.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	33.0
Total Split (s)	33.0
Total Split (%)	25%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Existing (2024) AM



























Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑↑↑	↑↑↑↱		↰	↱
Traffic Vol, veh/h	130	1073	1901	38	6	32
Future Vol, veh/h	130	1073	1901	38	6	32
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	95	95	68	68
Heavy Vehicles, %	1	2	1	0	0	6
Mvmt Flow	151	1248	2001	40	9	47
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	2041	0	-	0	2823	1021
Stage 1	-	-	-	-	2021	-
Stage 2	-	-	-	-	802	-
Critical Hdwy	5.32	-	-	-	5.7	7.22
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	3.11	-	-	-	3.8	3.96
Pot Cap-1 Maneuver	*614	-	-	-	*34	*483
Stage 1	-	-	-	-	*503	-
Stage 2	-	-	-	-	*699	-
Platoon blocked, %	1	-	-	-		1
Mov Cap-1 Maneuver	*614	-	-	-	*26	*483
Mov Cap-2 Maneuver	-	-	-	-	*26	-
Stage 1	-	-	-	-	*379	-
Stage 2	-	-	-	-	*699	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.4	0		43.2		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 614	-	-	-	26	483
HCM Lane V/C Ratio	0.246	-	-	-	0.339	0.097
HCM Control Delay (s)	12.8	-	-	-	202.8	13.3
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	1	-	-	-	1	0.3
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon



Level of Service  
3: Alameda Drive & Alameda Parkway

Metro Center - Amendment

Existing (2024) AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	51	994	34	91	1895	26	17	3	29	1	0	27
Future Volume (veh/h)	51	994	34	91	1895	26	17	3	29	1	0	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1544	1826	1885	1900	1203	1900	1544	1900	1900	1841
Adj Flow Rate, veh/h	54	1057	36	96	1995	27	18	3	31	1	0	39
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.94	0.94	0.94	0.70	0.70	0.70
Percent Heavy Veh, %	0	1	24	5	1	0	47	0	24	0	0	4
Cap, veh/h	264	4506	153	472	4366	59	89	6	63	83	82	66
Arrive On Green	0.02	0.88	0.88	1.00	1.00	1.00	0.04	0.04	0.04	0.04	0.00	0.04
Sat Flow, veh/h	1810	5111	174	503	5233	71	869	142	1469	1382	1900	1538
Grp Volume(v), veh/h	54	709	384	96	1308	714	18	0	34	1	0	39
Grp Sat Flow(s),veh/h/ln	1810	1716	1853	503	1716	1872	869	0	1611	1382	1900	1538
Q Serve(g_s), s	0.6	4.3	4.3	0.0	0.0	0.0	2.8	0.0	2.9	0.1	0.0	3.5
Cycle Q Clear(g_c), s	0.6	4.3	4.3	0.0	0.0	0.0	2.8	0.0	2.9	3.0	0.0	3.5
Prop In Lane	1.00		0.09	1.00		0.04	1.00		0.91	1.00		1.00
Lane Grp Cap(c), veh/h	264	3025	1634	472	2863	1562	89	0	70	83	82	66
V/C Ratio(X)	0.20	0.23	0.23	0.20	0.46	0.46	0.20	0.00	0.49	0.01	0.00	0.59
Avail Cap(c_a), veh/h	385	3025	1634	472	2863	1562	141	0	167	166	197	159
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.3	1.2	1.2	0.0	0.0	0.0	65.4	0.0	65.5	66.9	0.0	65.7
Incr Delay (d2), s/veh	0.1	0.2	0.3	1.0	0.5	1.0	0.4	0.0	2.0	0.0	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.6	0.8	0.1	0.2	0.4	0.6	0.0	1.2	0.0	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.4	1.4	1.6	1.0	0.5	1.0	65.8	0.0	67.4	66.9	0.0	68.8
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	E
Approach Vol, veh/h		1147			2118			52			40	
Approach Delay, s/veh		1.5			0.7			66.9			68.7	
Approach LOS		A			A			E			E	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		128.5		11.5	6.6	121.8		11.5				
Change Period (Y+Rc), s		5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s		115.0		14.5	12.0	99.0		14.5				
Max Q Clear Time (g_c+I1), s		6.3		4.9	2.6	2.0		5.5				
Green Ext Time (p_c), s		8.7		0.1	0.0	32.8		0.0				

Intersection Summary

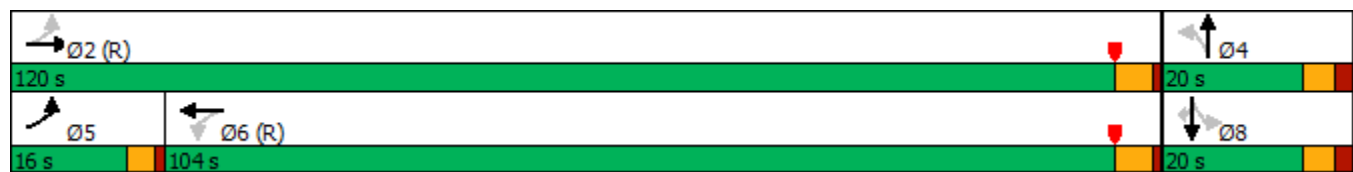
HCM 6th Ctrl Delay 2.8

HCM 6th LOS A

Notes























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



# Level of Service 3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Existing (2024) AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	51	994	34	91	1895	26	17	3	29	1	0	27
Future Volume (veh/h)	51	994	34	91	1895	26	17	3	29	1	0	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1885	1544	1826	1885	1900	1203	1900	1544	1900	1900	1841
Adj Flow Rate, veh/h	54	1057	36	96	1995	27	18	3	31	1	0	39
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.94	0.94	0.94	0.70	0.70	0.70
Percent Heavy Veh, %	0	1	24	5	1	0	47	0	24	0	0	4
Cap, veh/h	262	4464	152	467	4322	58	96	7	76	95	98	79
Arrive On Green	0.02	0.87	0.87	1.00	1.00	1.00	0.05	0.05	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1810	5110	174	503	5232	71	871	142	1472	1384	1900	1542
Grp Volume(v), veh/h	54	709	384	96	1308	714	18	0	34	1	0	39
Grp Sat Flow(s),veh/h/ln	1810	1716	1853	503	1716	1872	871	0	1615	1384	1900	1542
Q Serve(g_s), s	0.6	4.6	4.6	0.0	0.0	0.0	2.8	0.0	2.9	0.1	0.0	3.4
Cycle Q Clear(g_c), s	0.6	4.6	4.6	0.0	0.0	0.0	2.8	0.0	2.9	3.0	0.0	3.4
Prop In Lane	1.00		0.09	1.00		0.04	1.00		0.91	1.00		1.00
Lane Grp Cap(c), veh/h	262	2997	1619	467	2834	1547	96	0	83	95	98	79
V/C Ratio(X)	0.21	0.24	0.24	0.21	0.46	0.46	0.19	0.00	0.41	0.01	0.00	0.49
Avail Cap(c_a), veh/h	332	2997	1619	467	2834	1547	241	0	352	325	414	336
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.5	1.4	1.4	0.0	0.0	0.0	64.3	0.0	64.3	65.8	0.0	64.6
Incr Delay (d2), s/veh	0.1	0.2	0.3	1.0	0.5	1.0	0.3	0.0	1.2	0.0	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.9	0.1	0.2	0.4	0.6	0.0	1.2	0.0	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.6	1.6	1.8	1.0	0.5	1.0	64.6	0.0	65.5	65.8	0.0	66.3
LnGrp LOS	A	A	A	A	A	A	E	A	E	E	A	E
Approach Vol, veh/h	1147			2118				52			40	
Approach Delay, s/veh	1.7			0.7				65.2			66.3	
Approach LOS	A			A				E			E	
Timer - Assigned Phs	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	127.3			12.7		6.6	120.7	12.7				
Change Period (Y+Rc), s	5.0			5.5		4.0	5.0	5.5				
Max Green Setting (Gmax), s	99.0			30.5		8.0	87.0	30.5				
Max Q Clear Time (g_c+I1), s	6.6			4.9		2.6	2.0	5.4				
Green Ext Time (p_c), s	8.7			0.1		0.0	31.8	0.0				

## Intersection Summary

HCM 6th Ctrl Delay 2.8  
HCM 6th LOS A

## Notes

























User approved pedestrian interval to be less than phase max green.  
Splits and Phases: 3: Alameda Drive & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

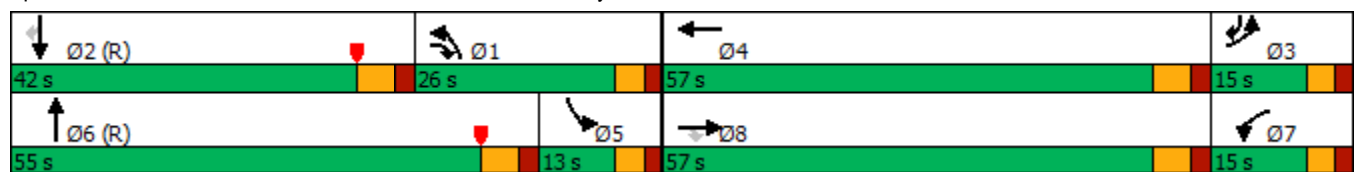
Metro Center - Amendment

Existing (2024) AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	760	116	191	1547	207	290	1088	212	168	676	175
Future Volume (veh/h)	152	760	116	191	1547	207	290	1088	212	168	676	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1885	1870	1870	1885	1885	1885	1900	1841	1856	1856
Adj Flow Rate, veh/h	158	792	121	205	1663	223	349	1311	255	187	751	194
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	1	2	2	1	1	1	0	4	3	3
Cap, veh/h	204	1001	664	787	1659	222	766	1413	275	312	1009	403
Arrive On Green	0.12	0.39	0.39	0.23	0.36	0.36	0.44	0.65	0.65	0.09	0.20	0.20
Sat Flow, veh/h	3428	5106	1593	3456	4555	609	3483	4318	840	3401	5066	1554
Grp Volume(v), veh/h	158	792	121	205	1241	645	349	1042	524	187	751	194
Grp Sat Flow(s),veh/h/ln	1714	1702	1593	1728	1702	1760	1742	1716	1727	1700	1689	1554
Q Serve(g_s), s	6.3	19.1	0.0	6.8	51.0	51.0	9.8	37.4	37.4	7.4	19.5	6.4
Cycle Q Clear(g_c), s	6.3	19.1	0.0	6.8	51.0	51.0	9.8	37.4	37.4	7.4	19.5	6.4
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	204	1001	664	787	1240	641	766	1123	565	312	1009	403
V/C Ratio(X)	0.78	0.79	0.18	0.26	1.00	1.01	0.46	0.93	0.93	0.60	0.74	0.48
Avail Cap(c_a), veh/h	245	1860	932	787	1240	641	766	1201	604	312	1303	493
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.8	40.0	19.1	44.4	44.5	44.5	33.3	22.7	22.7	61.1	52.7	43.9
Incr Delay (d2), s/veh	12.1	1.4	0.1	0.2	25.8	37.0	0.4	14.3	23.7	3.1	5.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	6.6	1.9	2.9	25.3	28.1	3.7	11.2	12.7	3.3	8.6	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.9	41.5	19.3	44.6	70.3	81.5	33.7	37.0	46.4	64.2	57.7	48.0
LnGrp LOS	E	D	B	D	F	F	C	D	D	E	E	D
Approach Vol, veh/h		1071			2091			1915			1132	
Approach Delay, s/veh		43.6			71.2			39.0			57.1	
Approach LOS		D			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.8	33.9	13.3	57.0	17.9	51.8	36.9	33.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	21.0	36.0	10.0	51.0	8.0	49.0	10.0	51.0				
Max Q Clear Time (g_c+I1), s	11.8	21.5	8.3	53.0	9.4	39.4	8.8	21.1				
Green Ext Time (p_c), s	0.8	4.8	0.1	0.0	0.0	6.4	0.1	6.2				




































Intersection Summary

HCM 6th Ctrl Delay 53.9  
 HCM 6th LOS D  
 Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Existing (2024) AM - with Improvements

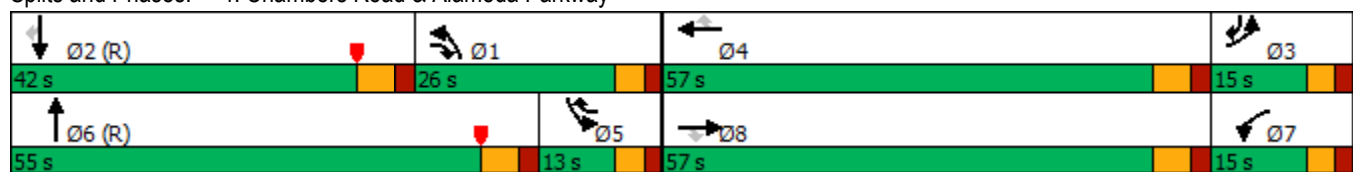
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		 	  	
Traffic Volume (veh/h)	152	760	116	191	1547	207	290	1088	212	168	676	175
Future Volume (veh/h)	152	760	116	191	1547	207	290	1088	212	168	676	175
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1885	1870	1870	1885	1885	1885	1900	1841	1856	1856
Adj Flow Rate, veh/h	158	792	121	205	1663	223	349	1311	255	187	751	194
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	1	2	2	1	1	1	0	4	3	3
Cap, veh/h	204	1001	679	754	1813	728	799	1413	275	344	1009	403
Arrive On Green	0.12	0.39	0.39	0.22	0.35	0.35	0.46	0.65	0.65	0.10	0.20	0.20
Sat Flow, veh/h	3428	5106	1593	3456	5106	1595	3483	4318	840	3401	5066	1554
Grp Volume(v), veh/h	158	792	121	205	1663	223	349	1042	524	187	751	194
Grp Sat Flow(s),veh/h/ln	1714	1702	1593	1728	1702	1595	1742	1716	1727	1700	1689	1554
Q Serve(g_s), s	6.3	19.1	0.0	6.9	43.6	0.0	9.5	37.4	37.4	7.3	19.5	6.4
Cycle Q Clear(g_c), s	6.3	19.1	0.0	6.9	43.6	0.0	9.5	37.4	37.4	7.3	19.5	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	204	1001	679	754	1813	728	799	1123	565	344	1009	403
V/C Ratio(X)	0.78	0.79	0.18	0.27	0.92	0.31	0.44	0.93	0.93	0.54	0.74	0.48
Avail Cap(c_a), veh/h	245	1860	947	754	1860	743	799	1201	604	344	1303	493
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.8	40.0	18.5	45.5	43.2	24.1	31.8	22.7	22.7	59.8	52.7	43.9
Incr Delay (d2), s/veh	12.1	1.4	0.1	0.2	7.6	0.2	0.4	14.3	23.7	1.8	5.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	6.6	1.9	3.0	19.2	4.7	3.5	11.2	12.7	3.2	8.6	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.9	41.5	18.7	45.7	50.8	24.3	32.2	37.0	46.4	61.6	57.7	48.0
LnGrp LOS	E	D	B	D	D	C	C	D	D	E	E	D
Approach Vol, veh/h		1071			2091			1915			1132	
Approach Delay, s/veh		43.5			47.5			38.7			56.7	
Approach LOS		D			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.1	33.9	13.3	55.7	19.2	51.8	35.6	33.5				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	21.0	36.0	10.0	51.0	8.0	49.0	10.0	51.0				
Max Q Clear Time (g_c+I1), s	11.5	21.5	8.3	45.6	9.3	39.4	8.9	21.1				
Green Ext Time (p_c), s	0.8	4.8	0.1	4.1	0.0	6.4	0.1	6.2				

Intersection Summary

HCM 6th Ctrl Delay 45.8























HCM 6th LOS D

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Existing (2024) AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	8	18	24	23	47	12	402	39	31	273	18
Future Volume (vph)	8	8	18	24	23	47	12	402	39	31	273	18
Satd. Flow (prot)	1805	1632	0	1492	2827	0	1805	3610	1429	1367	3508	0
Flt Permitted	0.696			0.731			0.506			0.473		
Satd. Flow (perm)	1306	1632	0	1148	2827	0	958	3610	1375	672	3508	0
Satd. Flow (RTOR)		28			60				149		5	
Lane Group Flow (vph)	12	40	0	31	89	0	15	490	48	39	369	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	29.0	29.0		15.0	44.0		14.0	42.0	42.0	16.0	44.0	
Total Split (%)	22.0%	22.0%		11.4%	33.3%		10.6%	31.8%	31.8%	12.1%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	7.1	7.1		15.1	14.0		93.0	91.0	91.0	97.8	95.8	
Actuated g/C Ratio	0.05	0.05		0.11	0.11		0.70	0.69	0.69	0.74	0.73	
v/c Ratio	0.17	0.35		0.21	0.25		0.02	0.20	0.05	0.07	0.14	
Control Delay	64.2	36.1		53.2	21.3		12.3	10.7	0.1	26.2	23.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	64.2	36.1		53.2	21.3		12.3	10.7	0.1	26.2	23.1	
LOS	E	D		D	C		B	B	A	C	C	
Approach Delay		42.6			29.6			9.8			23.4	
Approach LOS		D			C			A			C	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 54 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 18.3

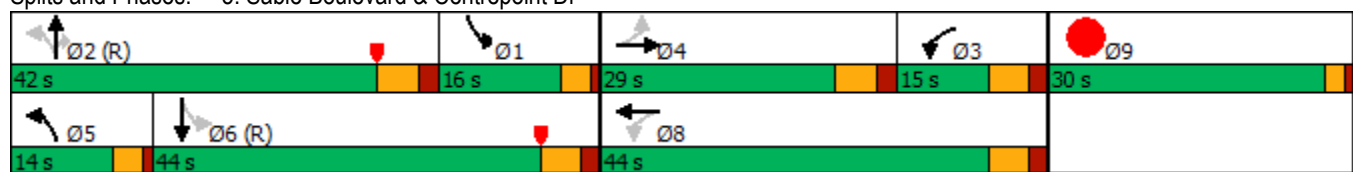
Intersection LOS: B

Intersection Capacity Utilization 47.1%

ICU Level of Service A

Analysis Period (min) 15
























Splits and Phases: 5: Sable Boulevard & Centrepoint Dr



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing (2024) AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	42	7	89	117	78	29	335	100	55	225	35
Future Volume (vph)	40	42	7	89	117	78	29	335	100	55	225	35
Satd. Flow (prot)	1556	1854	0	1805	1900	1599	1752	3386	0	1805	3471	1404
Flt Permitted	0.395			0.722			0.535			0.474		
Satd. Flow (perm)	646	1854	0	1368	1900	1577	983	3386	0	895	3471	1367
Satd. Flow (RTOR)		8				127		26				118
Lane Group Flow (vph)	43	54	0	105	138	92	33	488	0	71	288	45
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	12.0	50.0		38.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Split (%)	10.0%	41.7%		31.7%	31.7%	31.7%	10.0%	14.2%		10.0%	14.2%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	25.3	24.3		14.9	14.9	14.9	69.1	67.1		71.5	69.5	69.5
Actuated g/C Ratio	0.21	0.20		0.12	0.12	0.12	0.58	0.56		0.60	0.58	0.58
v/c Ratio	0.23	0.14		0.62	0.59	0.30	0.05	0.26		0.12	0.14	0.05
Control Delay	37.3	31.5		64.9	59.0	5.4	22.8	19.6		22.9	19.3	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	37.3	31.5		64.9	59.0	5.4	22.8	19.6		22.9	19.3	0.1
LOS	D	C		E	E	A	C	B		C	B	A
Approach Delay		34.1			46.1			19.8			17.8	
Approach LOS		C			D			B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 26.7

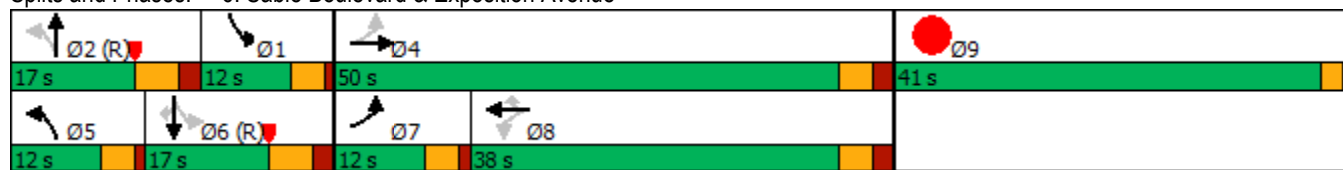
Intersection LOS: C

Intersection Capacity Utilization 51.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue


























Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	



Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing (2024) AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	42	7	89	117	78	29	335	100	55	225	35
Future Volume (vph)	40	42	7	89	117	78	29	335	100	55	225	35
Satd. Flow (prot)	1556	1854	0	1805	1900	1599	1752	3386	0	1805	3471	1404
Flt Permitted	0.521			0.681			0.536			0.474		
Satd. Flow (perm)	852	1854	0	1290	1900	1577	985	3386	0	895	3471	1367
Satd. Flow (RTOR)		7				127		26				118
Lane Group Flow (vph)	43	54	0	105	138	92	33	488	0	71	288	45
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		9.5	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	12.0	40.0		10.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Split (%)	10.0%	33.3%		8.3%	31.7%	31.7%	10.0%	14.2%		10.0%	14.2%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	21.6	14.6		20.1	14.1	14.1	69.9	67.9		72.4	70.4	70.4
Actuated g/C Ratio	0.18	0.12		0.17	0.12	0.12	0.58	0.57		0.60	0.59	0.59
v/c Ratio	0.22	0.23		0.43	0.62	0.31	0.05	0.25		0.12	0.14	0.05
Control Delay	38.2	42.2		44.7	62.1	5.7	21.7	18.8		21.8	18.4	0.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	38.2	42.2		44.7	62.1	5.7	21.7	18.8		21.8	18.4	0.1
LOS	D	D		D	E	A	C	B		C	B	A
Approach Delay		40.4			41.1			19.0			17.0	
Approach LOS		D			D			B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 25.4

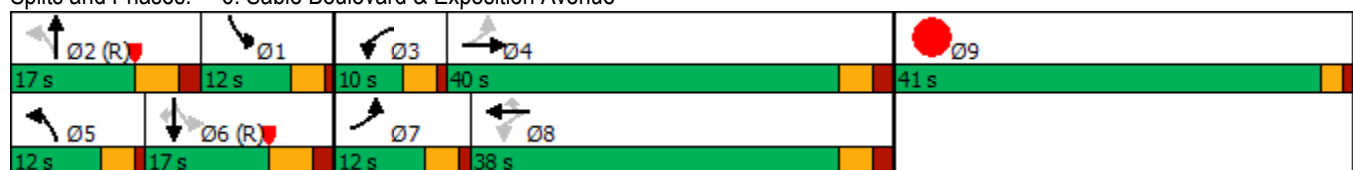
Intersection LOS: C

Intersection Capacity Utilization 51.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing (2024) AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
7: Centrepont Dr & Exposition Avenue

Metro Center - Amendment  
Existing (2024) AM

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	102	6	2	222	67	24	20	16	11	2	3
Future Vol, veh/h	15	102	6	2	222	67	24	20	16	11	2	3
Conflicting Peds, #/hr	2	0	1	1	0	2	1	0	4	4	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	85	85	85	75	75	75	70	70	70
Heavy Vehicles, %	0	2	0	0	1	3	4	5	5	22	0	0
Mvmt Flow	16	106	6	2	261	79	32	27	21	16	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	342	0	0	113	0	0	451	488	114	436	412	264
Stage 1	-	-	-	-	-	-	142	142	-	267	267	-
Stage 2	-	-	-	-	-	-	309	346	-	169	145	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.55	6.25	7.32	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4.045	3.345	3.698	4	3.3
Pot Cap-1 Maneuver	1244	-	-	1505	-	-	515	476	975	498	533	894
Stage 1	-	-	-	-	-	-	891	791	-	794	737	-
Stage 2	-	-	-	-	-	-	781	663	-	821	798	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	1242	-	-	1504	-	-	504	468	971	458	524	891
Mov Cap-2 Maneuver	-	-	-	-	-	-	504	468	-	458	524	-
Stage 1	-	-	-	-	-	-	879	780	-	782	735	-
Stage 2	-	-	-	-	-	-	772	661	-	763	786	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			12.5			12.2		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	562	1242	-	-	1504	-	-	458	524	891
HCM Lane V/C Ratio	0.142	0.013	-	-	0.002	-	-	0.034	0.005	0.005
HCM Control Delay (s)	12.5	7.9	-	-	7.4	-	-	13.1	11.9	9.1
HCM Lane LOS	B	A	-	-	A	-	-	B	B	A
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.1	0	0

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment

Existing (2024) AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↰	↱		↰↱			↰	↰↱↱		↰	↰↱↱
Traffic Volume (veh/h)	73	4	39	34	8	41	13	172	1535	6	19	883
Future Volume (veh/h)	73	4	39	34	8	41	13	172	1535	6	19	883
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1870	1900	1841	1752	1900	1870		1885	1885	1693	1826	1870
Adj Flow Rate, veh/h	75	4	40	46	11	55		202	1806	7	22	1039
Peak Hour Factor	0.97	0.97	0.97	0.74	0.74	0.74		0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	0	4	10	0	2		1	1	14	5	2
Cap, veh/h	182	8	236	78	28	68		476	4035	16	213	3208
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15		0.05	0.76	0.76	1.00	1.00
Sat Flow, veh/h	870	56	1557	276	185	446		1795	5292	21	252	4682
Grp Volume(v), veh/h	79	0	40	112	0	0		202	1171	642	22	755
Grp Sat Flow(s),veh/h/ln	926	0	1557	908	0	0		1795	1716	1881	252	1702
Q Serve(g_s), s	0.0	0.0	3.1	6.8	0.0	0.0		4.5	17.2	17.2	0.9	0.0
Cycle Q Clear(g_c), s	11.9	0.0	3.1	18.7	0.0	0.0		4.5	17.2	17.2	7.3	0.0
Prop In Lane	0.95		1.00	0.41		0.49		1.00		0.01	1.00	
Lane Grp Cap(c), veh/h	191	0	236	174	0	0		476	2616	1434	213	2332
V/C Ratio(X)	0.41	0.00	0.17	0.64	0.00	0.00		0.42	0.45	0.45	0.10	0.32
Avail Cap(c_a), veh/h	257	0	311	248	0	0		594	2616	1434	213	2332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	0.0	51.7	59.7	0.0	0.0		5.0	6.0	6.0	0.2	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.3	3.9	0.0	0.0		0.6	0.6	1.0	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	1.3	4.1	0.0	0.0		1.5	5.4	6.2	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	0.0	52.0	63.6	0.0	0.0		5.6	6.6	7.0	1.2	0.4
LnGrp LOS	E	A	D	E	A	A		A	A	A	A	A
Approach Vol, veh/h		119			112				2015			1172
Approach Delay, s/veh		55.2			63.6				6.6			0.5
Approach LOS		E			E				A			A
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		112.7		27.3	10.8	101.9		27.3				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		100.0		28.0	16.0	80.0		28.0				
Max Q Clear Time (g_c+I1), s		19.2		13.9	6.5	9.3		20.7				
Green Ext Time (p_c), s		21.5		0.4	0.4	10.7		0.3				

Intersection Summary

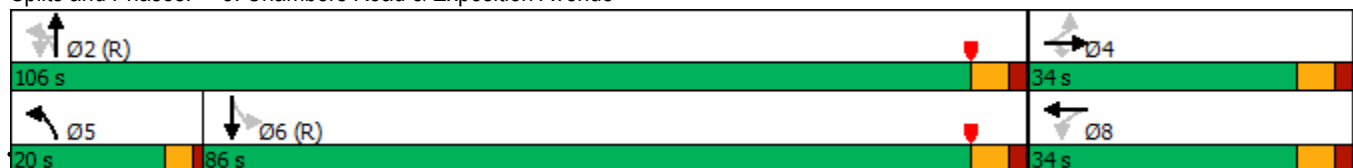
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

Splits and Phases: 8: Chambers Road & Exposition Avenue


























Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing (2024) AM

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	94
Future Volume (veh/h)	94
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1885
Adj Flow Rate, veh/h	111
Peak Hour Factor	0.85
Percent Heavy Veh, %	1
Cap, veh/h	342
Arrive On Green	1.00
Sat Flow, veh/h	499
Grp Volume(v), veh/h	395
Grp Sat Flow(s),veh/h/ln	1778
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.28
Lane Grp Cap(c), veh/h	1218
V/C Ratio(X)	0.32
Avail Cap(c_a), veh/h	1218
HCM Platoon Ratio	2.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.7
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.2
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	0.7
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing (2024) AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	73	4	39	34	8	41	185	1535	6	19	883	94
Future Volume (veh/h)	73	4	39	34	8	41	185	1535	6	19	883	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1841	1752	1900	1870	1885	1885	1693	1826	1870	1885
Adj Flow Rate, veh/h	75	4	40	46	11	55	218	1806	7	22	1039	111
Peak Hour Factor	0.97	0.97	0.97	0.74	0.74	0.74	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	0	4	10	0	2	1	1	14	5	2	1
Cap, veh/h	185	9	323	80	29	70	481	4023	16	212	3176	339
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.05	0.76	0.76	1.00	1.00	1.00
Sat Flow, veh/h	878	56	1557	283	185	452	1795	5292	21	252	4682	499
Grp Volume(v), veh/h	79	0	40	112	0	0	218	1171	642	22	755	395
Grp Sat Flow(s),veh/h/ln	934	0	1557	920	0	0	1795	1716	1881	252	1702	1778
Q Serve(g_s), s	0.0	0.0	2.9	6.8	0.0	0.0	4.9	17.4	17.4	0.9	0.0	0.0
Cycle Q Clear(g_c), s	11.9	0.0	2.9	18.6	0.0	0.0	4.9	17.4	17.4	6.8	0.0	0.0
Prop In Lane	0.95		1.00	0.41		0.49	1.00		0.01	1.00		0.28
Lane Grp Cap(c), veh/h	194	0	323	178	0	0	481	2608	1430	212	2309	1206
V/C Ratio(X)	0.41	0.00	0.12	0.63	0.00	0.00	0.45	0.45	0.45	0.10	0.33	0.33
Avail Cap(c_a), veh/h	355	0	506	357	0	0	744	2608	1430	212	2309	1206
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	0.0	45.1	59.4	0.0	0.0	5.2	6.1	6.1	0.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.2	3.6	0.0	0.0	0.7	0.6	1.0	1.0	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	1.2	4.1	0.0	0.0	1.7	5.5	6.2	0.1	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.4	0.0	45.3	63.0	0.0	0.0	5.8	6.7	7.1	1.2	0.4	0.7
LnGrp LOS	E	A	D	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		119			112			2031			1172	
Approach Delay, s/veh		52.7			63.0			6.7			0.5	
Approach LOS		D			E			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		112.4		27.6	11.5	100.9		27.6				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		90.0		38.0	28.0	58.0		38.0				
Max Q Clear Time (g_c+I1), s		19.4		13.9	6.9	8.8		20.6				
Green Ext Time (p_c), s		21.0		0.5	0.6	10.4		0.5				

Intersection Summary

HCM 6th Ctrl Delay	8.0
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

Splits and Phases: 8: Chambers Road & Exposition Avenue



Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Existing (2024) AM






Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵ ↵ ↵ ↵			↵ ↵ ↵ ↵		
Traffic Vol, veh/h	9	0	2	51	2	40	40	1569	40	17	943	16
Future Vol, veh/h	9	0	2	51	2	40	40	1569	40	17	943	16
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	84	84	84	87	87	87	91	91	91
Heavy Vehicles, %	0	0	0	2	0	0	0	1	3	0	2	0
Mvmt Flow	15	0	3	61	2	48	46	1803	46	19	1036	18
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1897	3024	530	2373	3010	925	1054	0	0	1849	0	0
Stage 1	1083	1083	-	1918	1918	-	-	-	-	-	-	-
Stage 2	814	1941	-	455	1092	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.44	6.5	7.1	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.34	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.74	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.82	4	3.9	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*457	64	*713	*404	67	*564	857	-	-	596	-	-
Stage 1	*647	642	-	*376	417	-	-	-	-	-	-	-
Stage 2	*579	402	-	*728	635	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*380	59	*711	*375	61	*564	857	-	-	596	-	-
Mov Cap-2 Maneuver	*380	59	-	*375	61	-	-	-	-	-	-	-
Stage 1	*612	622	-	*356	394	-	-	-	-	-	-	-
Stage 2	*499	380	-	*699	615	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	14.1		17.9			0.2			0.2			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	857	-	-	415	388	596	-	-				
HCM Lane V/C Ratio	0.054	-	-	0.044	0.285	0.031	-	-				
HCM Control Delay (s)	9.4	-	-	14.1	17.9	11.2	-	-				
HCM Lane LOS	A	-	-	B	C	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.1	1.2	0.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon				

Level of Service  
10: Centrepont Dr & Walsh Drive

Metro Center - Amendment  
Existing (2024) AM

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	16	86	14	29
Future Vol, veh/h	2	2	16	86	14	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	25	77	77	72	72
Heavy Vehicles, %	100	0	0	3	14	0
Mvmt Flow	8	8	21	112	19	40

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	193	30	59
Stage 1	39	-	-
Stage 2	154	-	-
Critical Hdwy	8.1	6.9	4.1
Critical Hdwy Stg 1	7.3	-	-
Critical Hdwy Stg 2	6.9	-	-
Follow-up Hdwy	4.45	3.3	2.2
Pot Cap-1 Maneuver	589	1044	1558
Stage 1	766	-	-
Stage 2	661	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	581	1044	1558
Mov Cap-2 Maneuver	580	-	-
Stage 1	756	-	-
Stage 2	661	-	-





Approach	EB	NB	SB
HCM Control Delay, s	9.9	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1558	-	746	-	-
HCM Lane V/C Ratio	0.013	-	0.021	-	-
HCM Control Delay (s)	7.3	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Level of Service  
11: Centrepoint Dr & Center Avenue

Metro Center - Amendment  
Existing (2024) AM






Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	38	84	4	3	34
Future Vol, veh/h	9	38	84	4	3	34
Conflicting Peds, #/hr	0	0	0	9	9	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	82	82	84	84
Heavy Vehicles, %	0	0	4	0	0	6
Mvmt Flow	11	45	102	5	4	40
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	142	114	0	0	116	0
Stage 1	114	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.6	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	865	944	-	-	1485	-
Stage 1	916	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	854	936	-	-	1472	-
Mov Cap-2 Maneuver	816	-	-	-	-	-
Stage 1	908	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		0.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 910		1472	-	
HCM Lane V/C Ratio	-	- 0.061		0.002	-	
HCM Control Delay (s)	-	- 9.2		7.5	-	
HCM Lane LOS	-	- A		A	-	
HCM 95th %tile Q(veh)	-	- 0.2		0	-	

Level of Service  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Existing (2024) AM

Intersection

Int Delay, s/veh 3.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	20	66	56	17	35
Future Vol, veh/h	36	20	66	56	17	35
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	66	66	79	79	90	90
Heavy Vehicles, %	20	10	3	2	0	25
Mvmt Flow	55	30	84	71	19	39


































Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	169	0	0 259 134
Stage 1	-	-	- - 134 -
Stage 2	-	-	- - 125 -
Critical Hdwy	4.4	-	- - 6.6 6.575
Critical Hdwy Stg 1	-	-	- - 5.4 -
Critical Hdwy Stg 2	-	-	- - 5.8 -
Follow-up Hdwy	2.39	-	- - 3.5 3.5375
Pot Cap-1 Maneuver	1295	-	- - 724 850
Stage 1	-	-	- - 897 -
Stage 2	-	-	- - 893 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1278	-	- - 675 839
Mov Cap-2 Maneuver	-	-	- - 702 -
Stage 1	-	-	- - 848 -
Stage 2	-	-	- - 881 -

Approach	EB	WB	SB
HCM Control Delay, s	5.1	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1278	-	-	-	702	839
HCM Lane V/C Ratio	0.043	-	-	-	0.027	0.046
HCM Control Delay (s)	7.9	-	-	-	10.3	9.5
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.1

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Existing (2024) PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	153	1381	172	70	1304	167	157	346	66	341	345	125
Future Volume (vph)	153	1381	172	70	1304	167	157	346	66	341	345	125
Satd. Flow (prot)	1787	5187	1568	3502	5136	1599	3303	3574	1615	3467	3539	1583
Flt Permitted	0.116			0.151			0.444			0.529		
Satd. Flow (perm)	218	5187	1534	555	5136	1550	1526	3574	1569	1911	3539	1528
Satd. Flow (RTOR)			190			190			149			140
Lane Group Flow (vph)	161	1454	181	74	1373	176	171	376	72	363	367	133
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0	40.0
Total Split (s)	19.0	14.0	14.0	24.0	19.0	19.0	14.0	45.0	45.0	16.0	47.0	47.0
Total Split (%)	14.4%	10.6%	10.6%	18.2%	14.4%	14.4%	10.6%	34.1%	34.1%	12.1%	35.6%	35.6%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	57.9	56.2	56.2	53.9	52.2	52.2	20.5	19.5	19.5	23.5	22.5	22.5
Actuated g/C Ratio	0.44	0.43	0.43	0.41	0.40	0.40	0.16	0.15	0.15	0.18	0.17	0.17
v/c Ratio	0.52	0.66	0.24	0.12	0.68	0.24	0.45	0.71	0.20	0.73	0.61	0.35
Control Delay	36.4	34.5	6.1	33.7	35.9	6.1	55.3	62.6	11.7	61.6	54.5	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	36.4	34.5	6.1	33.7	35.9	6.1	55.3	62.6	11.7	61.6	54.5	8.6
LOS	D	C	A	C	D	A	E	E	B	E	D	A
Approach Delay		31.8			32.6			54.7			50.4	
Approach LOS		C			C			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 38.2

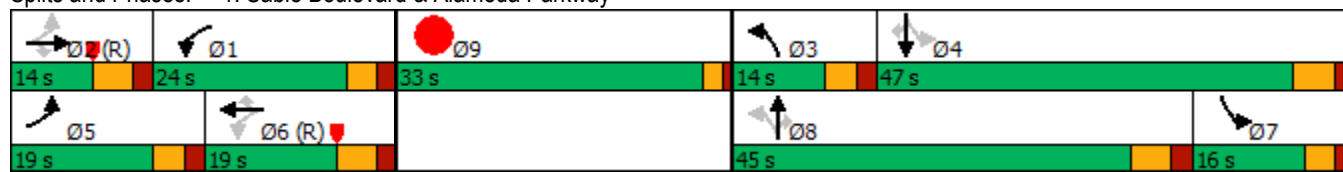
Intersection LOS: D

Intersection Capacity Utilization 79.0%

ICU Level of Service D

Analysis Period (min) 15










Splits and Phases: 1: Sable Boulevard & Alameda Parkway



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	33.0
Total Split (s)	33.0
Total Split (%)	25%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Existing (2024) PM

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Vol, veh/h	26	1777	1396	10	8	95
Future Vol, veh/h	26	1777	1396	10	8	95
Conflicting Peds, #/hr	6	0	0	6	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	99	99	97	97	48	48
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	26	1795	1439	10	17	198
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1455	0	-	0	2222	731
Stage 1	-	-	-	-	1450	-
Stage 2	-	-	-	-	772	-
Critical Hdwy	5.3	-	-	-	5.7	7.1
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	3.1	-	-	-	3.8	3.9
Pot Cap-1 Maneuver	*751	-	-	-	*73	*597
Stage 1	-	-	-	-	*613	-
Stage 2	-	-	-	-	*516	-
Platoon blocked, %	1	-	-	-		1
Mov Cap-1 Maneuver	*747	-	-	-	*70	*594
Mov Cap-2 Maneuver	-	-	-	-	*70	-
Stage 1	-	-	-	-	*588	-
Stage 2	-	-	-	-	*513	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		18.6		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 747	-	-	-	70	594
HCM Lane V/C Ratio	0.035	-	-	-	0.238	0.333
HCM Control Delay (s)	10	-	-	-	71.8	14.1
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8	1.5
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Existing (2024) PM

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations												
Traffic Volume (veh/h)	42	1728	15	61	1312	65	42	11	85	29	9	52
Future Volume (veh/h)	42	1728	15	61	1312	65	42	11	85	29	9	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1885	1900	1767	1885	1900	1870	1900	1767	1900	1900	1900
Adj Flow Rate, veh/h	43	1781	15	64	1367	68	48	13	98	38	12	68
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.87	0.87	0.87	0.76	0.76	0.76
Percent Heavy Veh, %	0	1	0	9	1	0	2	0	9	0	0	0
Cap, veh/h	341	4024	34	240	3504	174	226	22	169	149	226	187
Arrive On Green	0.02	0.76	0.76	0.70	0.70	0.70	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1810	5264	44	248	5020	250	1292	188	1418	1284	1900	1574
Grp Volume(v), veh/h	43	1161	635	64	934	501	48	0	111	38	12	68
Grp Sat Flow(s),veh/h/ln	1810	1716	1877	248	1716	1839	1292	0	1606	1284	1900	1574
Q Serve(g_s), s	0.6	10.8	10.8	11.1	10.2	10.2	3.1	0.0	5.9	2.6	0.5	3.6
Cycle Q Clear(g_c), s	0.6	10.8	10.8	16.0	10.2	10.2	3.6	0.0	5.9	8.5	0.5	3.6
Prop In Lane	1.00		0.02	1.00		0.14	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	341	2623	1435	240	2395	1284	226	0	191	149	226	187
V/C Ratio(X)	0.13	0.44	0.44	0.27	0.39	0.39	0.21	0.00	0.58	0.26	0.05	0.36
Avail Cap(c_a), veh/h	462	2623	1435	240	2395	1284	238	0	205	160	243	201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.0	3.8	3.8	7.7	5.6	5.6	36.7	0.0	37.5	41.5	35.2	36.5
Incr Delay (d2), s/veh	0.1	0.5	1.0	2.7	0.5	0.9	0.2	0.0	2.0	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.4	2.8	0.7	2.9	3.2	1.0	0.0	2.4	0.8	0.2	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.1	4.3	4.8	10.4	6.1	6.5	36.9	0.0	39.5	41.9	35.2	37.0
LnGrp LOS	A	A	A	B	A	A	D	A	D	D	D	D
Approach Vol, veh/h	1839			1499			159			118		
Approach Delay, s/veh	4.5			6.4			38.8			38.4		
Approach LOS	A			A			D			D		
Timer - Assigned Phs	2			4	5	6	8					
Phs Duration (G+Y+Rc), s	73.8			16.2	6.0	67.8	16.2					
Change Period (Y+Rc), s	5.0			5.5	4.0	5.0	5.5					
Max Green Setting (Gmax), s	68.0			11.5	8.0	56.0	11.5					
Max Q Clear Time (g_c+I1), s	12.8			7.9	2.6	18.0	10.5					
Green Ext Time (p_c), s	19.5			0.1	0.0	15.3	0.0					

Intersection Summary

HCM 6th Ctrl Delay 7.9  
HCM 6th LOS A

Notes

























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



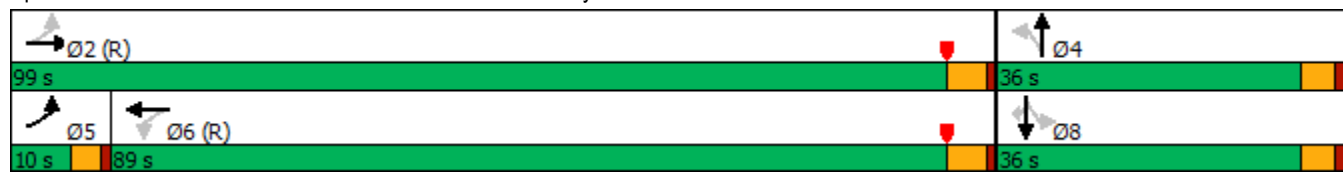
# Level of Service 3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Existing (2024) PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1728	15	61	1312	65	42	11	85	29	9	52
Future Volume (veh/h)	42	1728	15	61	1312	65	42	11	85	29	9	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1767	1885	1900	1870	1900	1767	1900	1900	1900
Adj Flow Rate, veh/h	43	1781	15	64	1367	68	48	13	98	38	12	68
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.87	0.87	0.87	0.76	0.76	0.76
Percent Heavy Veh, %	0	1	0	9	1	0	2	0	9	0	0	0
Cap, veh/h	363	4112	35	219	3684	183	229	27	201	153	268	223
Arrive On Green	0.02	0.78	0.78	1.00	1.00	1.00	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1810	5264	44	248	5020	250	1296	189	1422	1286	1900	1579
Grp Volume(v), veh/h	43	1161	635	64	934	501	48	0	111	38	12	68
Grp Sat Flow(s),veh/h/ln	1810	1716	1877	248	1716	1839	1296	0	1611	1286	1900	1579
Q Serve(g_s), s	0.8	15.1	15.1	4.7	0.0	0.0	4.5	0.0	8.6	3.8	0.7	5.2
Cycle Q Clear(g_c), s	0.8	15.1	15.1	13.4	0.0	0.0	5.2	0.0	8.6	12.4	0.7	5.2
Prop In Lane	1.00		0.02	1.00		0.14	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	363	2680	1466	219	2518	1349	229	0	227	153	268	223
V/C Ratio(X)	0.12	0.43	0.43	0.29	0.37	0.37	0.21	0.00	0.49	0.25	0.04	0.31
Avail Cap(c_a), veh/h	411	2680	1466	219	2518	1349	339	0	364	262	429	357
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.8	4.9	4.9	0.6	0.0	0.0	52.4	0.0	53.5	59.2	50.1	52.0
Incr Delay (d2), s/veh	0.1	0.5	0.9	3.3	0.4	0.8	0.2	0.0	0.6	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.5	5.1	0.2	0.1	0.3	1.5	0.0	3.5	1.3	0.4	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.8	5.4	5.8	3.9	0.4	0.8	52.5	0.0	54.1	59.5	50.1	52.3
LnGrp LOS	A	A	A	A	A	A	D	A	D	E	D	D
Approach Vol, veh/h		1839			1499			159			118	
Approach Delay, s/veh		5.5			0.7			53.6			54.4	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		110.5		24.5	6.4	104.1		24.5				
Change Period (Y+Rc), s		5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s		94.0		30.5	6.0	84.0		30.5				
Max Q Clear Time (g_c+I1), s		17.1		10.6	2.8	15.4		14.4				
Green Ext Time (p_c), s		20.9		0.5	0.0	17.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				7.2								
HCM 6th LOS				A								
Notes												

User approved pedestrian interval to be less than phase max green.
































Splits and Phases: 3: Alameda Drive & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment

Existing (2024) PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		 		
Traffic Volume (veh/h)	195	1376	291	151	929	151	274	1026	219	443	1249	235
Future Volume (veh/h)	195	1376	291	151	929	151	274	1026	219	443	1249	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1870	1856	1885	1885	1900	1885	1900	1870
Adj Flow Rate, veh/h	210	1480	313	168	1032	168	295	1103	235	457	1288	242
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90	0.93	0.93	0.93	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	1	0	2	3	1	1	0	1	0	2
Cap, veh/h	265	1525	630	219	1278	208	356	1283	273	560	1913	701
Arrive On Green	0.08	0.30	0.30	0.06	0.29	0.29	0.07	0.20	0.20	0.16	0.37	0.37
Sat Flow, veh/h	3456	5147	1577	3510	4416	718	3483	4240	903	3483	5187	1572
Grp Volume(v), veh/h	210	1480	313	168	795	405	295	892	446	457	1288	242
Grp Sat Flow(s),veh/h/ln	1728	1716	1577	1755	1702	1730	1742	1716	1712	1742	1729	1572
Q Serve(g_s), s	8.1	38.3	13.8	6.4	29.2	29.3	11.3	33.9	33.9	17.1	28.1	13.6
Cycle Q Clear(g_c), s	8.1	38.3	13.8	6.4	29.2	29.3	11.3	33.9	33.9	17.1	28.1	13.6
Prop In Lane	1.00		1.00	1.00		0.41	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	265	1525	630	219	985	501	356	1039	518	560	1913	701
V/C Ratio(X)	0.79	0.97	0.50	0.77	0.81	0.81	0.83	0.86	0.86	0.82	0.67	0.35
Avail Cap(c_a), veh/h	384	1525	630	260	985	501	490	1118	558	560	1913	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	46.9	15.3	62.3	44.5	44.5	61.7	51.0	51.0	54.7	35.8	24.5
Incr Delay (d2), s/veh	7.0	16.5	0.6	10.9	5.0	9.6	8.3	9.2	16.8	9.1	1.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	18.3	4.9	3.1	12.8	13.7	5.5	16.3	17.4	8.1	12.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.3	63.4	15.9	73.2	49.5	54.1	70.1	60.3	67.9	63.8	37.7	25.9
LnGrp LOS	E	E	B	E	D	D	E	E	E	E	D	C
Approach Vol, veh/h	2003			1368			1633			1987		
Approach Delay, s/veh	56.5			53.8			64.1			42.3		
Approach LOS	E			D			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.8	55.8	15.3	45.1	27.7	46.9	14.4	46.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	6.0	* 6				
Max Green Setting (Gmax), s	19.0	44.0	15.0	35.0	19.0	* 44	10.0	* 40				
Max Q Clear Time (g_c+l1), s	13.3	30.1	10.1	31.3	19.1	35.9	8.4	40.3				
Green Ext Time (p_c), s	0.5	7.8	0.3	2.4	0.0	4.9	0.1	0.0				

Intersection Summary

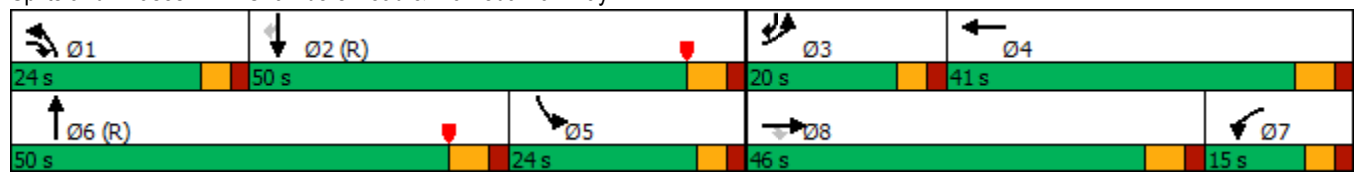
HCM 6th Ctrl Delay 53.7

HCM 6th LOS D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.




































Splits and Phases: 4: Chambers Road & Alameda Parkway





Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Existing (2024) PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		 	  	
Traffic Volume (veh/h)	195	1376	291	151	929	151	274	1026	219	443	1249	235
Future Volume (veh/h)	195	1376	291	151	929	151	274	1026	219	443	1249	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1870	1856	1885	1885	1900	1885	1900	1870
Adj Flow Rate, veh/h	210	1480	313	168	1032	168	295	1103	235	457	1288	242
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90	0.93	0.93	0.93	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	1	0	2	3	1	1	0	1	0	2
Cap, veh/h	265	1525	630	219	1478	702	356	1283	273	560	1913	701
Arrive On Green	0.08	0.30	0.30	0.06	0.29	0.29	0.07	0.20	0.20	0.16	0.37	0.37
Sat Flow, veh/h	3456	5147	1577	3510	5106	1551	3483	4240	903	3483	5187	1572
Grp Volume(v), veh/h	210	1480	313	168	1032	168	295	892	446	457	1288	242
Grp Sat Flow(s),veh/h/ln	1728	1716	1577	1755	1702	1551	1742	1716	1712	1742	1729	1572
Q Serve(g_s), s	8.1	38.3	13.8	6.4	24.3	1.9	11.3	33.9	33.9	17.1	28.1	13.6
Cycle Q Clear(g_c), s	8.1	38.3	13.8	6.4	24.3	1.9	11.3	33.9	33.9	17.1	28.1	13.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	265	1525	630	219	1478	702	356	1039	518	560	1913	701
V/C Ratio(X)	0.79	0.97	0.50	0.77	0.70	0.24	0.83	0.86	0.86	0.82	0.67	0.35
Avail Cap(c_a), veh/h	384	1525	630	260	1478	702	490	1118	558	560	1913	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.3	46.9	15.3	62.3	42.7	10.1	61.7	51.0	51.0	54.7	35.8	24.5
Incr Delay (d2), s/veh	7.0	16.5	0.6	10.9	1.5	0.2	8.3	9.2	16.8	9.1	1.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	18.3	4.9	3.1	10.3	1.9	5.5	16.3	17.4	8.1	12.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.3	63.4	15.9	73.2	44.2	10.3	70.1	60.3	67.9	63.8	37.7	25.9
LnGrp LOS	E	E	B	E	D	B	E	E	E	E	D	C
Approach Vol, veh/h		2003			1368			1633			1987	
Approach Delay, s/veh		56.5			43.6			64.1			42.3	
Approach LOS		E			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.8	55.8	15.3	45.1	27.7	46.9	14.4	46.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	6.0	* 6				
Max Green Setting (Gmax), s	19.0	44.0	15.0	35.0	19.0	* 44	10.0	* 40				
Max Q Clear Time (g_c+I1), s	13.3	30.1	10.1	26.3	19.1	35.9	8.4	40.3				
Green Ext Time (p_c), s	0.5	7.8	0.3	4.0	0.0	4.9	0.1	0.0				

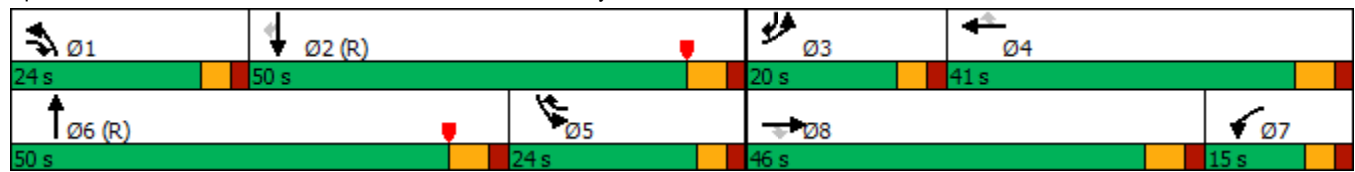
Intersection Summary

HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

Notes























\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Existing (2024) PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	69	93	24	53	50	77	422	23	29	472	86
Future Volume (vph)	97	69	93	24	53	50	77	422	23	29	472	86
Satd. Flow (prot)	1805	1712	0	1543	2843	0	1805	3574	1324	1347	3506	0
Flt Permitted	0.678			0.443			0.363			0.492		
Satd. Flow (perm)	1184	1712	0	713	2843	0	686	3574	1257	683	3506	0
Satd. Flow (RTOR)		46			57				149		16	
Lane Group Flow (vph)	113	188	0	27	117	0	82	449	24	30	582	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	32.0	32.0		13.0	45.0		13.0	44.0	44.0	13.0	44.0	
Total Split (%)	24.2%	24.2%		9.8%	34.1%		9.8%	33.3%	33.3%	9.8%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	17.8	17.8		26.9	24.7		81.1	79.1	79.1	78.7	76.7	
Actuated g/C Ratio	0.13	0.13		0.20	0.19		0.61	0.60	0.60	0.60	0.58	
v/c Ratio	0.71	0.69		0.15	0.20		0.17	0.21	0.03	0.07	0.29	
Control Delay	76.8	53.6		41.2	21.7		20.5	19.0	0.1	14.1	10.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	76.8	53.6		41.2	21.7		20.5	19.0	0.1	14.1	10.5	
LOS	E	D		D	C		C	B	A	B	B	
Approach Delay		62.3			25.4			18.4			10.7	
Approach LOS		E			C			B			B	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 113 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 24.3

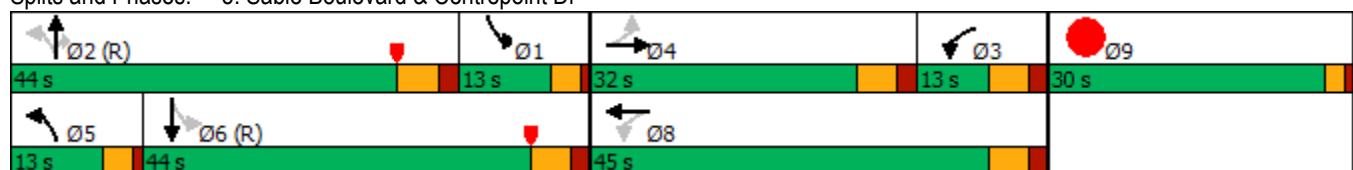
Intersection LOS: C

Intersection Capacity Utilization 62.5%

ICU Level of Service B

Analysis Period (min) 15
























Splits and Phases: 5: Sable Boulevard & Centrepoint Dr



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing (2024) PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	249	82	111	199	70	58	368	155	103	415	66
Future Volume (vph)	83	249	82	111	199	70	58	368	155	103	415	66
Satd. Flow (prot)	1656	1823	0	1805	1900	1568	1770	3307	0	1805	3574	1482
Flt Permitted	0.264			0.425			0.413			0.441		
Satd. Flow (perm)	459	1823	0	806	1900	1540	769	3307	0	834	3574	1449
Satd. Flow (RTOR)		14				182		45				118
Lane Group Flow (vph)	97	385	0	121	216	76	62	563	0	111	446	71
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	18.0	42.0		24.0	24.0	24.0	12.0	23.0		14.0	25.0	25.0
Total Split (%)	15.0%	35.0%		20.0%	20.0%	20.0%	10.0%	19.2%		11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	34.2	33.2		18.3	18.3	18.3	58.5	56.5		60.3	58.3	58.3
Actuated g/C Ratio	0.28	0.28		0.15	0.15	0.15	0.49	0.47		0.50	0.49	0.49
v/c Ratio	0.41	0.75		0.98	0.74	0.20	0.14	0.36		0.23	0.26	0.09
Control Delay	36.3	47.3		128.6	64.5	1.1	26.3	24.0		27.4	24.4	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	36.3	47.3		128.6	64.5	1.1	26.3	24.0		27.4	24.4	1.7
LOS	D	D		F	E	A	C	C		C	C	A
Approach Delay		45.1			71.6			24.2			22.3	
Approach LOS		D			E			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 37.5

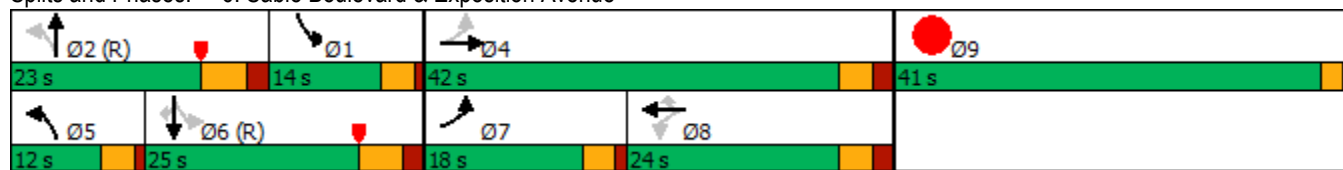
Intersection LOS: D

Intersection Capacity Utilization 70.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing (2024) PM - with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	249	82	111	199	70	58	368	155	103	415	66
Future Volume (vph)	83	249	82	111	199	70	58	368	155	103	415	66
Satd. Flow (prot)	1656	1823	0	1805	1900	1568	1770	3307	0	1805	3574	1482
Flt Permitted	0.386			0.164			0.391			0.441		
Satd. Flow (perm)	671	1823	0	311	1900	1540	728	3307	0	834	3574	1449
Satd. Flow (RTOR)		13				218		45				155
Lane Group Flow (vph)	97	385	0	121	216	76	62	563	0	111	446	71
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		9.5	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	18.0	32.0		10.0	24.0	24.0	12.0	23.0		14.0	25.0	25.0
Total Split (%)	15.0%	26.7%		8.3%	20.0%	20.0%	10.0%	19.2%		11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	36.9	26.3		33.8	24.4	24.4	52.9	50.9		54.7	52.7	52.7
Actuated g/C Ratio	0.31	0.22		0.28	0.20	0.20	0.44	0.42		0.46	0.44	0.44
v/c Ratio	0.33	0.94		0.63	0.56	0.16	0.16	0.39		0.25	0.28	0.10
Control Delay	32.1	76.4		47.4	50.3	0.7	27.7	26.4		29.3	26.7	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	32.1	76.4		47.4	50.3	0.7	27.7	26.4		29.3	26.7	0.3
LOS	C	E		D	D	A	C	C		C	C	A
Approach Delay		67.5			40.3			26.5			24.2	
Approach LOS		E			D			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 37.7

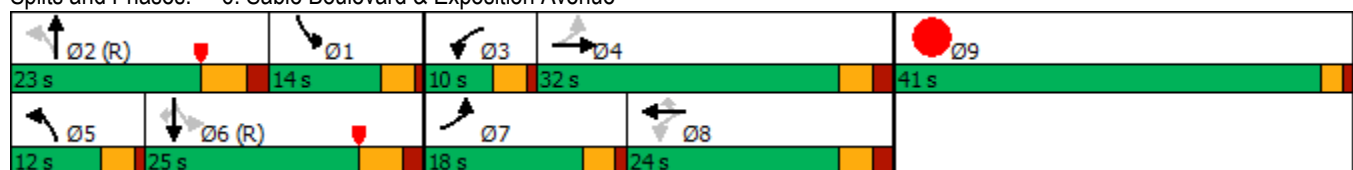
Intersection LOS: D

Intersection Capacity Utilization 69.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing (2024) PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
7: Centrepont Dr & Exposition Avenue
























Metro Center - Amendment  
Existing (2024) PM

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	467	37	16	294	18	16	7	10	45	14	17
Future Vol, veh/h	14	467	37	16	294	18	16	7	10	45	14	17
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	96	96	96	83	83	83	86	86	86
Heavy Vehicles, %	0	0	0	0	0	17	0	0	0	4	0	6
Mvmt Flow	16	549	44	17	306	19	19	8	12	52	16	20
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	325	0	0	596	0	0	974	965	574	953	968	306
Stage 1	-	-	-	-	-	-	606	606	-	340	340	-
Stage 2	-	-	-	-	-	-	368	359	-	613	628	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.354
Pot Cap-1 Maneuver	*1275	-	-	976	-	-	233	257	659	237	256	*836
Stage 1	-	-	-	-	-	-	586	523	-	782	693	-
Stage 2	-	-	-	-	-	-	757	677	-	572	506	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	*1275	-	-	973	-	-	211	249	658	222	248	*836
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	249	-	222	248	-
Stage 1	-	-	-	-	-	-	577	515	-	771	682	-
Stage 2	-	-	-	-	-	-	708	666	-	546	498	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.4			20.2			21.3		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3		
Capacity (veh/h)	277	* 1275	-	-	973	-	-	222	248	836		
HCM Lane V/C Ratio	0.144	0.013	-	-	0.017	-	-	0.236	0.066	0.024		
HCM Control Delay (s)	20.2	7.9	-	-	8.8	-	-	26.1	20.5	9.4		
HCM Lane LOS	C	A	-	-	A	-	-	D	C	A		
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.9	0.2	0.1		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		



Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing (2024) PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									  			  
Traffic Volume (veh/h)	234	20	309	43	9	35	6	142	1249	20	71	1508
Future Volume (veh/h)	234	20	309	43	9	35	6	142	1249	20	71	1508
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99		1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1900		1870	1885	1900	1900	1885
Adj Flow Rate, veh/h	272	23	359	49	10	40		158	1388	22	72	1539
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88		0.90	0.90	0.90	0.98	0.98
Percent Heavy Veh, %	0	0	1	0	0	0		2	1	0	0	1
Cap, veh/h	299	21	435	40	16	11		309	3324	53	249	2627
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27		0.05	0.64	0.64	1.00	1.00
Sat Flow, veh/h	903	76	1589	0	58	39		1781	5218	83	387	4743
Grp Volume(v), veh/h	295	0	359	99	0	0		158	913	497	72	1113
Grp Sat Flow(s),veh/h/ln	980	0	1589	97	0	0		1781	1716	1869	387	1716
Q Serve(g_s), s	0.0	0.0	28.6	0.0	0.0	0.0		5.0	17.8	17.8	3.3	0.0
Cycle Q Clear(g_c), s	37.0	0.0	28.6	37.0	0.0	0.0		5.0	17.8	17.8	9.8	0.0
Prop In Lane	0.92		1.00	0.49		0.40		1.00		0.04	1.00	
Lane Grp Cap(c), veh/h	320	0	435	67	0	0		309	2186	1191	249	1900
V/C Ratio(X)	0.92	0.00	0.82	1.49	0.00	0.00		0.51	0.42	0.42	0.29	0.59
Avail Cap(c_a), veh/h	320	0	435	67	0	0		451	2186	1191	249	1900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	0.0	46.0	53.1	0.0	0.0		10.6	12.1	12.1	0.4	0.0
Incr Delay (d2), s/veh	31.1	0.0	12.2	283.1	0.0	0.0		1.3	0.6	1.1	2.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	0.0	12.9	7.6	0.0	0.0		2.0	6.6	7.3	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.8	0.0	58.1	336.1	0.0	0.0		11.9	12.7	13.2	3.3	1.3
LnGrp LOS	F	A	E	F	A	A		B	B	B	A	A
Approach Vol, veh/h		654			99				1568			1767
Approach Delay, s/veh		68.8			336.1				12.8			1.8
Approach LOS		E			F				B			A
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		92.0		43.0	11.2	80.8		43.0				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		86.0		37.0	18.0	64.0		37.0				
Max Q Clear Time (g_c+I1), s		19.8		39.0	7.0	11.8		39.0				
Green Ext Time (p_c), s		13.0		0.0	0.3	20.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay 24.8

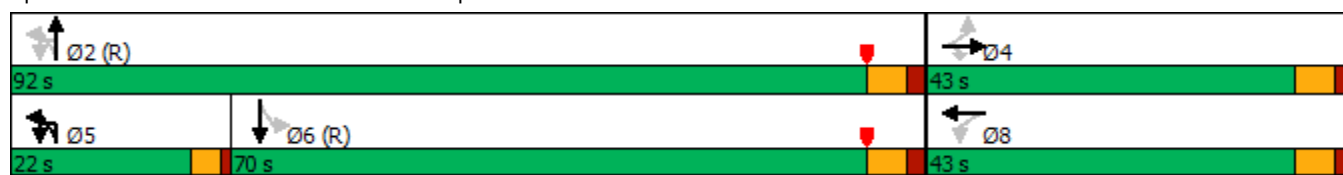
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

Splits and Phases: 8: Chambers Road & Exposition Avenue


























Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing (2024) PM

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	153
Future Volume (veh/h)	153
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	156
Peak Hour Factor	0.98
Percent Heavy Veh, %	0
Cap, veh/h	266
Arrive On Green	1.00
Sat Flow, veh/h	480
Grp Volume(v), veh/h	582
Grp Sat Flow(s),veh/h/ln	1792
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.27
Lane Grp Cap(c), veh/h	993
V/C Ratio(X)	0.59
Avail Cap(c_a), veh/h	993
HCM Platoon Ratio	2.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	2.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.7
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	2.5
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Level of Service  
8: Chambers Road & Exposition Avenue

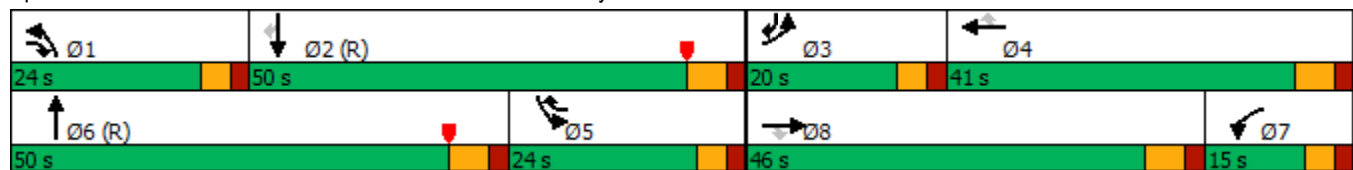
Metro Center - Amendment  
Existing (2024) PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	234	20	309	43	9	35	148	1249	20	71	1508	153
Future Volume (veh/h)	234	20	309	43	9	35	148	1249	20	71	1508	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1900	1870	1885	1900	1900	1885	1900
Adj Flow Rate, veh/h	272	23	359	49	10	40	164	1388	22	72	1539	156
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.90	0.90	0.90	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	1	0	0	0	2	1	0	0	1	0
Cap, veh/h	339	24	601	55	19	23	305	3092	49	226	2388	242
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.06	0.59	0.59	1.00	1.00	1.00
Sat Flow, veh/h	903	76	1590	48	60	73	1781	5218	83	387	4742	480
Grp Volume(v), veh/h	295	0	359	99	0	0	164	913	497	72	1113	582
Grp Sat Flow(s),veh/h/ln	979	0	1590	182	0	0	1781	1716	1869	387	1716	1791
Q Serve(g_s), s	0.0	0.0	24.5	3.3	0.0	0.0	5.8	19.9	19.9	4.6	0.0	0.0
Cycle Q Clear(g_c), s	39.7	0.0	24.5	43.0	0.0	0.0	5.8	19.9	19.9	12.5	0.0	0.0
Prop In Lane	0.92		1.00	0.49		0.40	1.00		0.04	1.00		0.27
Lane Grp Cap(c), veh/h	363	0	601	98	0	0	305	2033	1108	226	1728	902
V/C Ratio(X)	0.81	0.00	0.60	1.01	0.00	0.00	0.54	0.45	0.45	0.32	0.64	0.65
Avail Cap(c_a), veh/h	363	0	601	98	0	0	423	2033	1108	226	1728	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	0.0	33.7	55.5	0.0	0.0	13.3	15.3	15.3	0.7	0.0	0.0
Incr Delay (d2), s/veh	13.1	0.0	1.6	94.5	0.0	0.0	1.5	0.7	1.3	3.7	1.9	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	0.0	9.8	6.0	0.0	0.0	2.4	7.6	8.5	0.2	0.4	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	0.0	35.3	150.0	0.0	0.0	14.8	16.0	16.6	4.4	1.9	3.5
LnGrp LOS	E	A	D	F	A	A	B	B	B	A	A	A
Approach Vol, veh/h	654				99		1574				1767	
Approach Delay, s/veh	45.6				150.0		16.0				2.5	
Approach LOS	D				F		B				A	
Timer - Assigned Phs	2		4		5		6		8			
Phs Duration (G+Y+Rc), s	86.0		49.0		12.0		74.0		49.0			
Change Period (Y+Rc), s	6.0		6.0		4.0		6.0		6.0			
Max Green Setting (Gmax), s	80.0		43.0		17.0		59.0		43.0			
Max Q Clear Time (g_c+I1), s	21.9		41.7		7.8		14.5		45.0			
Green Ext Time (p_c), s	12.9		0.5		0.3		19.3		0.0			
Intersection Summary												
HCM 6th Ctrl Delay	18.2											
HCM 6th LOS	B											
Notes												

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Existing (2024) PM






Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙ ↑↑↑			↙ ↑↑↑		
Traffic Vol, veh/h	4	0	17	64	1	43	13	1450	55	25	1651	8
Future Vol, veh/h	4	0	17	64	1	43	13	1450	55	25	1651	8
Conflicting Peds, #/hr	1	0	0	0	0	1	3	0	11	11	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	76	76	76	98	98	98	95	95	95
Heavy Vehicles, %	0	0	0	0	0	2	0	1	0	0	0	0
Mvmt Flow	5	0	23	84	1	57	13	1480	56	26	1738	8
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2417	3370	876	2292	3346	780	1749	0	0	1547	0	0
Stage 1	1797	1797	-	1545	1545	-	-	-	-	-	-	-
Stage 2	620	1573	-	747	1801	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.14	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.92	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*296	*21	*551	*405	*22	*587	*693	-	-	*742	-	-
Stage 1	*565	*537	-	*605	*575	-	-	-	-	-	-	-
Stage 2	*605	*575	-	*565	*537	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*243	*19	*550	*369	*21	*580	*691	-	-	*734	-	-
Mov Cap-2 Maneuver	*243	*19	-	*369	*21	-	-	-	-	-	-	-
Stage 1	*553	*517	-	*588	*558	-	-	-	-	-	-	-
Stage 2	*534	*558	-	*523	*517	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.7		20.9		0.1		0.1					
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	* 691	-	-	443	366	* 734	-	-				
HCM Lane V/C Ratio	0.019	-	-	0.063	0.388	0.036	-	-				
HCM Control Delay (s)	10.3	-	-	13.7	20.9	10.1	-	-				
HCM Lane LOS	B	-	-	B	C	B	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.2	1.8	0.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Level of Service  
10: Centrepont Dr & Walsh Drive

Metro Center - Amendment  
Existing (2024) PM

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	14	3	36	62	13
Future Vol, veh/h	22	14	3	36	62	13
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	79	79	81	81
Heavy Vehicles, %	0	14	0	9	3	0
Mvmt Flow	32	21	4	46	77	16

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	142	47	93
Stage 1	85	-	-
Stage 2	57	-	-
Critical Hdwy	6.6	7.11	4.1
Critical Hdwy Stg 1	5.8	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.433	2.2
Pot Cap-1 Maneuver	865	999	1528
Stage 1	948	-	-
Stage 2	971	-	-
Platoon blocked, %	1	1	1
Mov Cap-1 Maneuver	862	999	1528
Mov Cap-2 Maneuver	830	-	-
Stage 1	945	-	-
Stage 2	971	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0.6	0
HCM LOS	A		





Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1528	-	888	-	-
HCM Lane V/C Ratio	0.002	-	0.06	-	-
HCM Control Delay (s)	7.4	-	9.3	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Level of Service  
11: Centrepont Dr & Center Avenue

Metro Center - Amendment  
Existing (2024) PM

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	16	48	10	18	70
Future Vol, veh/h	5	16	48	10	18	70
Conflicting Peds, #/hr	3	0	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	63	76	76	80	80
Heavy Vehicles, %	0	0	6	0	0	2
Mvmt Flow	8	25	63	13	23	88

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	168	75	0
Stage 1	75	-	-
Stage 2	93	-	-
Critical Hdwy	6.6	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.8	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	835	992	-
Stage 1	953	-	-
Stage 2	940	-	-
Platoon blocked, %	1	-	-
Mov Cap-1 Maneuver	815	987	-
Mov Cap-2 Maneuver	798	-	-
Stage 1	948	-	-
Stage 2	923	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	1.5
HCM LOS	A		






Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	934	1522
HCM Lane V/C Ratio	-	-	0.036	0.015
HCM Control Delay (s)	-	-	9	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Level of Service  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Existing (2024) PM

Intersection

Int Delay, s/veh 5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	53	38	26	35	66
Future Vol, veh/h	45	53	38	26	35	66
Conflicting Peds, #/hr	10	0	0	10	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	92	92	87	87
Heavy Vehicles, %	13	3	5	5	0	12
Mvmt Flow	54	64	41	28	40	76

































Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	79	0	-	0	205 65
Stage 1	-	-	-	-	65 -
Stage 2	-	-	-	-	140 -
Critical Hdwy	4.295	-	-	-	6.6 6.38
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.3235	-	-	-	3.5 3.414
Pot Cap-1 Maneuver	1446	-	-	-	793 969
Stage 1	-	-	-	-	963 -
Stage 2	-	-	-	-	890 -
Platoon blocked, %		-	-	-	1
Mov Cap-1 Maneuver	1432	-	-	-	748 960
Mov Cap-2 Maneuver	-	-	-	-	751 -
Stage 1	-	-	-	-	917 -
Stage 2	-	-	-	-	881 -

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1432	-	-	-	751	960
HCM Lane V/C Ratio	0.038	-	-	-	0.054	0.079
HCM Control Delay (s)	7.6	-	-	-	10.1	9.1
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0.3

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			 	  		 	 		 	 
Traffic Volume (vph)	90	1035	140	5	25	1780	160	220	315	50	130	205
Future Volume (vph)	90	1035	140	5	25	1780	160	220	315	50	130	205
Satd. Flow (prot)	1787	5085	1524	0	3502	5085	1583	3400	3539	1615	3400	3471
Flt Permitted	0.081				0.196			0.541			0.512	
Satd. Flow (perm)	152	5085	1499	0	722	5085	1535	1925	3539	1578	1821	3471
Satd. Flow (RTOR)			190				182			140		
Lane Group Flow (vph)	110	1262	171	0	32	1894	170	286	409	65	160	253
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2		2	6	6		6	8		8	4	
Detector Phase	5	2	2	1	1	6	6	3	8	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0
Total Split (s)	14.0	16.0	16.0	24.0	24.0	26.0	26.0	14.0	49.0	49.0	10.0	45.0
Total Split (%)	10.6%	12.1%	12.1%	18.2%	18.2%	19.7%	19.7%	10.6%	37.1%	37.1%	7.6%	34.1%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	6.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	65.7	64.7	64.7		64.1	63.1	63.1	22.1	21.1	21.1	16.7	15.7
Actuated g/C Ratio	0.50	0.49	0.49		0.49	0.48	0.48	0.17	0.16	0.16	0.13	0.12
v/c Ratio	0.52	0.51	0.21		0.05	0.78	0.21	0.60	0.72	0.18	0.49	0.61
Control Delay	35.9	28.3	4.6		28.4	32.5	4.9	48.2	53.2	4.8	59.3	61.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	28.3	4.6		28.4	32.5	4.9	48.2	53.2	4.8	59.3	61.3
LOS	D	C	A		C	C	A	D	D	A	E	E
Approach Delay		26.2				30.2			47.2			47.8
Approach LOS		C				C			D			D

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 104 (79%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 33.6

Intersection LOS: C

Intersection Capacity Utilization 76.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway











Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM

Lane Group	SBR	Ø9
Lane Configurations		
Traffic Volume (vph)	120	
Future Volume (vph)	120	
Satd. Flow (prot)	1599	
Flt Permitted		
Satd. Flow (perm)	1565	
Satd. Flow (RTOR)	148	
Lane Group Flow (vph)	148	
Turn Type	Perm	
Protected Phases		9
Permitted Phases	4	
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	40.0	33.0
Total Split (s)	45.0	33.0
Total Split (%)	34.1%	25%
Yellow Time (s)	4.0	2.0
All-Red Time (s)	2.0	1.0
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)	15.7	
Actuated g/C Ratio	0.12	
v/c Ratio	0.47	
Control Delay	12.4	
Queue Delay	0.0	
Total Delay	12.4	
LOS	B	
Approach Delay		
Approach LOS		
Intersection Summary		


























Level of Service  
2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Existing Plus Site AM

Intersection							
Int Delay, s/veh	1.3						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	130	1155	1980	40	5	35
Future Vol, veh/h	10	130	1155	1980	40	5	35
Conflicting Peds, #/hr	0	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	86	86	86	95	95	68	68
Heavy Vehicles, %	1	1	2	1	0	0	6
Mvmt Flow	12	151	1343	2084	42	7	51
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	1552	2126	0	-	0	2969	1063
Stage 1	-	-	-	-	-	2105	-
Stage 2	-	-	-	-	-	864	-
Critical Hdwy	5.62	5.32	-	-	-	5.7	7.22
Critical Hdwy Stg 1	-	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	-	6	-
Follow-up Hdwy	2.31	3.11	-	-	-	3.8	3.96
Pot Cap-1 Maneuver	*796	*591	-	-	-	*28	*464
Stage 1	-	-	-	-	-	*484	-
Stage 2	-	-	-	-	-	*678	-
Platoon blocked, %	1	1	-	-	-	-	1
Mov Cap-1 Maneuver	*599	*599	-	-	-	*20	*464
Mov Cap-2 Maneuver	-	-	-	-	-	*20	-
Stage 1	-	-	-	-	-	*352	-
Stage 2	-	-	-	-	-	*678	-
Approach	EB		WB		SB		
HCM Control Delay, s	1.4		0		45.3		
HCM LOS					E		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	*599	-	-	-	20	464	
HCM Lane V/C Ratio	0.272	-	-	-	0.368	0.111	
HCM Control Delay (s)	13.2	-	-	-	266.4	13.7	
HCM Lane LOS	B	-	-	-	F	B	
HCM 95th %tile Q(veh)	1.1	-	-	-	1	0.4	
Notes							
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon							

# Level of Service 3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	50	1050	60	125	1905	25	85	5	115	0	0	30
Future Volume (veh/h)	50	1050	60	125	1905	25	85	5	115	0	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1544	1826	1885	1900	1203	1900	1544	1900	1900	1841
Adj Flow Rate, veh/h	53	1117	64	132	2005	26	90	5	122	0	0	43
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.94	0.94	0.94	0.70	0.70	0.70
Percent Heavy Veh, %	0	1	24	5	1	0	47	0	24	0	0	4
Cap, veh/h	249	4090	234	408	4053	53	142	7	160	51	197	161
Arrive On Green	0.02	0.82	0.82	1.00	1.00	1.00	0.10	0.10	0.10	0.00	0.00	0.10
Sat Flow, veh/h	1810	4979	285	463	5236	68	873	63	1547	1284	1900	1551
Grp Volume(v), veh/h	53	769	412	132	1313	718	90	0	127	0	0	43
Grp Sat Flow(s),veh/h/ln	1810	1716	1833	463	1716	1873	873	0	1611	1284	1900	1551
Q Serve(g_s), s	0.8	7.2	7.2	0.4	0.0	0.0	14.4	0.0	10.7	0.0	0.0	3.6
Cycle Q Clear(g_c), s	0.8	7.2	7.2	1.0	0.0	0.0	14.4	0.0	10.7	0.0	0.0	3.6
Prop In Lane	1.00		0.16	1.00		0.04	1.00		0.96	1.00		1.00
Lane Grp Cap(c), veh/h	249	2818	1506	408	2656	1450	142	0	167	51	197	161
V/C Ratio(X)	0.21	0.27	0.27	0.32	0.49	0.49	0.63	0.00	0.76	0.00	0.00	0.27
Avail Cap(c_a), veh/h	371	2818	1506	408	2656	1450	142	0	167	51	197	161
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	2.7	2.9	2.9	0.0	0.0	0.0	62.7	0.0	61.1	0.0	0.0	57.9
Incr Delay (d2), s/veh	0.2	0.2	0.4	2.1	0.7	1.2	6.9	0.0	16.7	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.9	2.1	0.2	0.2	0.5	3.5	0.0	5.2	0.0	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.9	3.1	3.3	2.1	0.7	1.2	69.7	0.0	77.8	0.0	0.0	58.2
LnGrp LOS	A	A	A	A	A	A	E	A	E	A	A	E
Approach Vol, veh/h		1234			2163			217			43	
Approach Delay, s/veh		3.2			0.9			74.4			58.2	
Approach LOS		A			A			E			E	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		120.0		20.0	6.6	113.4		20.0				
Change Period (Y+Rc), s		5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s		115.0		14.5	12.0	99.0		14.5				
Max Q Clear Time (g_c+l1), s		9.2		16.4	2.8	3.0		5.6				
Green Ext Time (p_c), s		9.9		0.0	0.0	35.6		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			6.7									
HCM 6th LOS			A									
<b>Notes</b>												


























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



Level of Service  
3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	50	1050	60	125	1905	25	85	5	115	0	0	30
Future Volume (veh/h)	50	1050	60	125	1905	25	85	5	115	0	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1885	1544	1826	1885	1900	1203	1900	1544	1900	1900	1841
Adj Flow Rate, veh/h	53	1117	64	132	2005	26	90	5	122	0	0	43
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.94	0.94	0.94	0.70	0.70	0.70
Percent Heavy Veh, %	0	1	24	5	1	0	47	0	24	0	0	4
Cap, veh/h	242	3655	209	418	3929	51	162	8	197	51	241	197
Arrive On Green	0.02	0.73	0.73	0.07	1.00	1.00	0.13	0.13	0.13	0.00	0.00	0.13
Sat Flow, veh/h	1810	4979	285	1739	5236	68	873	63	1549	1284	1900	1553
Grp Volume(v), veh/h	53	769	412	132	1313	718	90	0	127	0	0	43
Grp Sat Flow(s),veh/h/ln	1810	1716	1833	1739	1716	1873	873	0	1612	1284	1900	1553
Q Serve(g_s), s	1.0	10.8	10.8	2.8	0.0	0.0	14.0	0.0	10.4	0.0	0.0	3.5
Cycle Q Clear(g_c), s	1.0	10.8	10.8	2.8	0.0	0.0	14.0	0.0	10.4	0.0	0.0	3.5
Prop In Lane	1.00		0.16	1.00		0.04	1.00		0.96	1.00		1.00
Lane Grp Cap(c), veh/h	242	2518	1345	418	2575	1405	162	0	205	51	241	197
V/C Ratio(X)	0.22	0.31	0.31	0.32	0.51	0.51	0.55	0.00	0.62	0.00	0.00	0.22
Avail Cap(c_a), veh/h	311	2518	1345	455	2575	1405	242	0	351	168	414	338
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	4.4	6.4	6.4	4.4	0.0	0.0	59.5	0.0	57.9	0.0	0.0	54.9
Incr Delay (d2), s/veh	0.2	0.3	0.6	0.4	0.7	1.3	1.1	0.0	1.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.6	3.9	0.8	0.3	0.5	3.2	0.0	4.3	0.0	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	6.7	7.0	4.8	0.7	1.3	60.6	0.0	59.1	0.0	0.0	55.1
LnGrp LOS	A	A	A	A	A	A	E	A	E	A	A	E
Approach Vol, veh/h	1234			2163			217			43		
Approach Delay, s/veh	6.7			1.2			59.7			55.1		
Approach LOS	A			A			E			E		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	107.8		23.3	6.7	110.1		23.3				
Change Period (Y+Rc), s	4.0	5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s	8.0	87.0		30.5	8.0	87.0		30.5				
Max Q Clear Time (g_c+l1), s	4.8	12.8		16.0	3.0	2.0		5.5				
Green Ext Time (p_c), s	0.1	9.9		0.7	0.0	27.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	7.1											
HCM 6th LOS	A											
Notes												

























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM

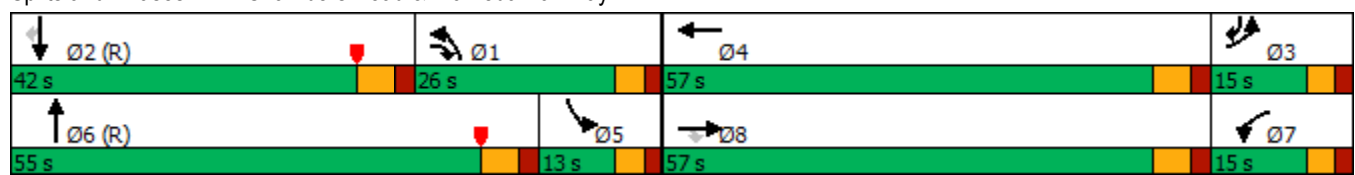
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	855	135	215	1575	210	305	1105	240	170	705	195
Future Volume (veh/h)	220	855	135	215	1575	210	305	1105	240	170	705	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1885	1870	1870	1885	1885	1885	1900	1841	1856	1856
Adj Flow Rate, veh/h	229	891	141	231	1694	226	367	1331	289	189	783	217
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	1	2	2	1	1	1	0	4	3	3
Cap, veh/h	245	1106	669	757	1661	221	707	1415	307	246	1034	430
Arrive On Green	0.14	0.43	0.43	0.22	0.36	0.36	0.41	0.67	0.67	0.07	0.20	0.20
Sat Flow, veh/h	3428	5106	1593	3456	4559	606	3483	4226	917	3401	5066	1554
Grp Volume(v), veh/h	229	891	141	231	1263	657	367	1080	540	189	783	217
Grp Sat Flow(s),veh/h/ln	1714	1702	1593	1728	1702	1760	1742	1716	1712	1700	1689	1554
Q Serve(g_s), s	9.3	21.3	0.0	7.8	51.0	51.0	11.1	39.3	39.4	7.6	20.4	6.3
Cycle Q Clear(g_c), s	9.3	21.3	0.0	7.8	51.0	51.0	11.1	39.3	39.4	7.6	20.4	6.3
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	245	1106	669	757	1240	641	707	1149	573	246	1034	430
V/C Ratio(X)	0.94	0.81	0.21	0.31	1.02	1.02	0.52	0.94	0.94	0.77	0.76	0.51
Avail Cap(c_a), veh/h	245	1860	905	757	1240	641	707	1201	599	246	1303	512
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.7	37.1	18.2	45.7	44.5	44.5	36.4	21.9	21.9	63.8	52.4	42.6
Incr Delay (d2), s/veh	40.1	1.4	0.2	0.2	30.3	41.9	0.7	15.6	25.6	13.7	5.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	7.2	2.1	3.4	26.1	29.0	4.2	11.5	13.1	3.7	9.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.8	38.6	18.4	46.0	74.8	86.4	37.1	37.5	47.5	77.4	57.6	46.8
LnGrp LOS	F	D	B	D	F	F	D	D	D	E	E	D
Approach Vol, veh/h		1261			2151			1987			1189	
Approach Delay, s/veh		47.4			75.3			40.1			58.8	
Approach LOS		D			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.4	34.6	15.0	57.0	15.1	52.9	35.7	36.3				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	21.0	36.0	10.0	51.0	8.0	49.0	10.0	51.0				
Max Q Clear Time (g_c+I1), s	13.1	22.4	11.3	53.0	9.6	41.4	9.8	23.3				
Green Ext Time (p_c), s	0.8	4.9	0.0	0.0	0.0	5.4	0.0	7.0				

Intersection Summary

HCM 6th Ctrl Delay 56.4

























HCM 6th LOS E

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM - with Improvements

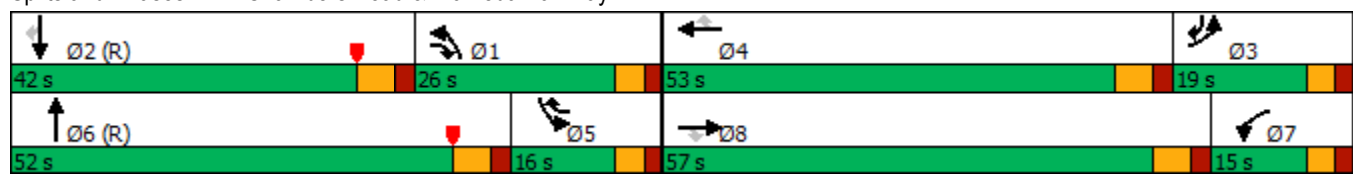
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	855	135	215	1575	210	305	1105	240	170	705	195
Future Volume (veh/h)	220	855	135	215	1575	210	305	1105	240	170	705	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1885	1870	1870	1885	1885	1885	1900	1841	1856	1856
Adj Flow Rate, veh/h	229	891	141	231	1694	226	367	1331	289	189	783	217
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	2	1	2	2	1	1	1	0	4	3	3
Cap, veh/h	281	1195	726	635	1714	695	769	1375	298	339	1034	446
Arrive On Green	0.03	0.08	0.08	0.18	0.34	0.34	0.44	0.65	0.65	0.10	0.20	0.20
Sat Flow, veh/h	3428	5106	1594	3456	5106	1595	3483	4226	917	3401	5066	1554
Grp Volume(v), veh/h	229	891	141	231	1694	226	367	1080	540	189	783	217
Grp Sat Flow(s),veh/h/ln	1714	1702	1594	1728	1702	1595	1742	1716	1712	1700	1689	1554
Q Serve(g_s), s	9.3	23.9	0.0	8.2	46.2	0.0	10.4	41.6	41.7	7.4	20.4	4.6
Cycle Q Clear(g_c), s	9.3	23.9	0.0	8.2	46.2	0.0	10.4	41.6	41.7	7.4	20.4	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	281	1195	726	635	1714	695	769	1117	557	339	1034	446
V/C Ratio(X)	0.81	0.75	0.19	0.36	0.99	0.33	0.48	0.97	0.97	0.56	0.76	0.49
Avail Cap(c_a), veh/h	343	1860	933	635	1714	695	769	1127	563	339	1303	529
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.0	60.5	28.0	50.0	46.2	26.0	33.4	23.7	23.8	60.1	52.4	41.4
Incr Delay (d2), s/veh	11.7	0.9	0.1	0.3	18.9	0.3	0.5	20.2	31.1	2.0	5.2	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	11.1	3.4	3.5	22.0	5.0	3.9	13.2	14.9	3.3	9.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.8	61.5	28.2	50.3	65.1	26.3	33.8	43.9	54.9	62.1	57.6	45.1
LnGrp LOS	E	E	C	D	E	C	C	D	D	E	E	D
Approach Vol, veh/h		1261			2151			1987			1189	
Approach Delay, s/veh		60.9			59.5			45.0			56.1	
Approach LOS		E			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.9	34.6	16.5	53.0	18.9	51.6	30.7	38.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	21.0	36.0	14.0	47.0	11.0	46.0	10.0	51.0				
Max Q Clear Time (g_c+l1), s	12.4	22.4	11.3	48.2	9.4	43.7	10.2	25.9				
Green Ext Time (p_c), s	0.8	4.9	0.2	0.0	0.1	1.9	0.0	6.9				

Intersection Summary

HCM 6th Ctrl Delay 54.8























HCM 6th LOS D

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Existing Plus Site AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	20	80	25	170	15	405	60	75	275	20
Future Volume (vph)	10	10	20	80	25	170	15	405	60	75	275	20
Satd. Flow (prot)	1805	1642	0	1492	2630	0	1805	3610	1429	1367	3504	0
Flt Permitted	0.615			0.727			0.501			0.471		
Satd. Flow (perm)	1157	1642	0	1142	2630	0	949	3610	1375	669	3504	0
Satd. Flow (RTOR)		31			218				149		6	
Lane Group Flow (vph)	15	46	0	103	250	0	18	494	73	95	373	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	29.0	29.0		15.0	44.0		14.0	42.0	42.0	16.0	44.0	
Total Split (%)	22.0%	22.0%		11.4%	33.3%		10.6%	31.8%	31.8%	12.1%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	7.6	7.6		20.5	20.5		84.4	82.4	82.4	91.2	89.2	
Actuated g/C Ratio	0.06	0.06		0.16	0.16		0.64	0.62	0.62	0.69	0.68	
v/c Ratio	0.23	0.37		0.51	0.42		0.03	0.22	0.08	0.19	0.16	
Control Delay	66.6	36.2		59.2	10.9		14.7	13.8	0.2	33.6	27.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	66.6	36.2		59.2	10.9		14.7	13.8	0.2	33.6	27.5	
LOS	E	D		E	B		B	B	A	C	C	
Approach Delay		43.7			25.0			12.1			28.8	
Approach LOS		D			C			B			C	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 54 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 21.8

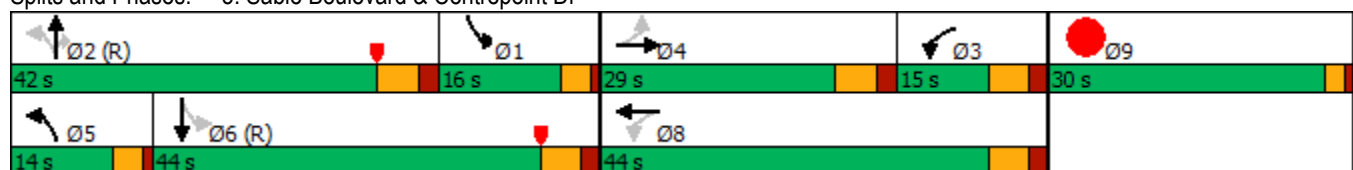
Intersection LOS: C

Intersection Capacity Utilization 55.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr


























Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	



Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	50	10	110	130	80	30	355	110	55	265	55
Future Volume (vph)	45	50	10	110	130	80	30	355	110	55	265	55
Satd. Flow (prot)	1556	1848	0	1805	1900	1599	1752	3378	0	1805	3471	1404
Flt Permitted	0.392			0.715			0.504			0.458		
Satd. Flow (perm)	641	1848	0	1355	1900	1577	926	3378	0	865	3471	1367
Satd. Flow (RTOR)		10				127		27				118
Lane Group Flow (vph)	49	65	0	129	153	94	34	523	0	71	340	71
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	12.0	50.0		38.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Split (%)	10.0%	41.7%		31.7%	31.7%	31.7%	10.0%	14.2%		10.0%	14.2%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	27.6	26.6		17.1	17.1	17.1	66.6	64.6		69.1	67.1	67.1
Actuated g/C Ratio	0.23	0.22		0.14	0.14	0.14	0.56	0.54		0.58	0.56	0.56
v/c Ratio	0.24	0.16		0.67	0.56	0.28	0.06	0.29		0.13	0.18	0.09
Control Delay	35.4	29.2		64.6	55.0	5.0	24.6	21.4		24.7	21.0	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	35.4	29.2		64.6	55.0	5.0	24.6	21.4		24.7	21.0	1.7
LOS	D	C		E	D	A	C	C		C	C	A
Approach Delay		31.8			45.8			21.6			18.7	
Approach LOS		C			D			C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 27.4

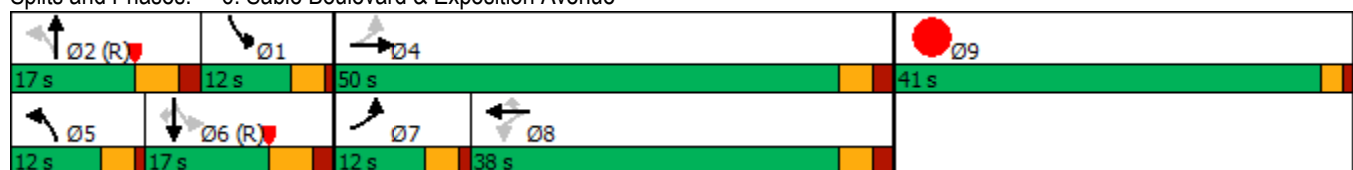
Intersection LOS: C

Intersection Capacity Utilization 55.5%

ICU Level of Service B

Analysis Period (min) 15
























Splits and Phases: 6: Sable Boulevard & Exposition Avenue



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	50	10	110	130	80	30	355	110	55	265	55
Future Volume (vph)	45	50	10	110	130	80	30	355	110	55	265	55
Satd. Flow (prot)	1556	1848	0	1805	1900	1599	1752	3378	0	1805	3471	1404
Flt Permitted	0.531			0.611			0.507			0.458		
Satd. Flow (perm)	869	1848	0	1158	1900	1577	932	3378	0	865	3471	1367
Satd. Flow (RTOR)		8				127		27				118
Lane Group Flow (vph)	49	65	0	129	153	94	34	523	0	71	340	71
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		9.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	12.0	38.0		12.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Split (%)	10.0%	31.7%		10.0%	31.7%	31.7%	10.0%	14.2%		10.0%	14.2%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	21.1	14.1		22.4	15.0	15.0	68.7	66.7		71.3	69.3	69.3
Actuated g/C Ratio	0.18	0.12		0.19	0.12	0.12	0.57	0.56		0.59	0.58	0.58
v/c Ratio	0.25	0.29		0.49	0.65	0.31	0.06	0.28		0.12	0.17	0.08
Control Delay	38.2	43.5		45.2	62.0	5.7	22.5	19.7		22.7	19.2	1.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	38.2	43.5		45.2	62.0	5.7	22.5	19.7		22.7	19.2	1.6
LOS	D	D		D	E	A	C	B		C	B	A
Approach Delay		41.2			42.2			19.9			17.1	
Approach LOS		D			D			B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 26.1

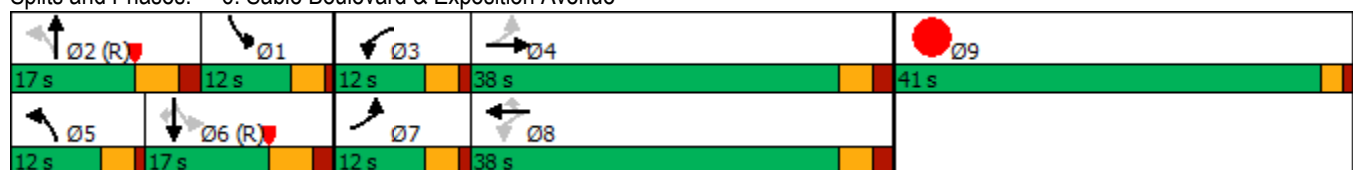
Intersection LOS: C

Intersection Capacity Utilization 54.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
7: Centrepont Dr & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site AM

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	105	5	5	225	70	25	20	15	35	5	35
Future Vol, veh/h	35	105	5	5	225	70	25	20	15	35	5	35
Conflicting Peds, #/hr	2	0	1	1	0	2	1	0	4	4	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	85	85	85	75	75	75	70	70	70
Heavy Vehicles, %	0	2	0	0	1	3	4	5	5	22	0	0
Mvmt Flow	36	109	5	6	265	82	33	27	20	50	7	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	349	0	0	115	0	0	533	546	117	490	466	268
Stage 1	-	-	-	-	-	-	185	185	-	279	279	-
Stage 2	-	-	-	-	-	-	348	361	-	211	187	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.55	6.25	7.32	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4.045	3.345	3.698	4	3.3
Pot Cap-1 Maneuver	1236	-	-	*1506	-	-	454	441	*990	457	497	889
Stage 1	-	-	-	-	-	-	859	763	-	780	726	-
Stage 2	-	-	-	-	-	-	738	652	-	791	771	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	1234	-	-	*1504	-	-	412	425	*985	413	479	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	412	425	-	413	479	-
Stage 1	-	-	-	-	-	-	833	741	-	756	722	-
Stage 2	-	-	-	-	-	-	686	648	-	723	748	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.9			0.1			13.8			12.1		
HCM LOS							B			B		
























Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	488	1234	-	-	* 1504	-	-	413	479	886
HCM Lane V/C Ratio	0.164	0.03	-	-	0.004	-	-	0.121	0.015	0.056
HCM Control Delay (s)	13.8	8	-	-	7.4	-	-	14.9	12.6	9.3
HCM Lane LOS	B	A	-	-	A	-	-	B	B	A
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.4	0	0.2

Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined							*: All major volume in platoon			

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									  			  
Traffic Volume (veh/h)	75	5	60	35	10	40	15	180	1565	5	20	950
Future Volume (veh/h)	75	5	60	35	10	40	15	180	1565	5	20	950
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1870	1900	1841	1752	1900	1870		1885	1885	1693	1826	1870
Adj Flow Rate, veh/h	77	5	62	47	14	54		212	1841	6	24	1118
Peak Hour Factor	0.97	0.97	0.97	0.74	0.74	0.74		0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	0	4	10	0	2		1	1	14	5	2
Cap, veh/h	184	10	244	79	32	66		453	4011	13	205	3195
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16		0.05	0.76	0.76	1.00	1.00
Sat Flow, veh/h	854	67	1557	271	203	420		1795	5296	17	244	4715
Grp Volume(v), veh/h	82	0	62	115	0	0		212	1193	654	24	807
Grp Sat Flow(s),veh/h/ln	921	0	1557	894	0	0		1795	1716	1882	244	1702
Q Serve(g_s), s	0.0	0.0	4.9	7.1	0.0	0.0		4.8	18.1	18.1	1.2	0.0
Cycle Q Clear(g_c), s	12.4	0.0	4.9	19.4	0.0	0.0		4.8	18.1	18.1	8.1	0.0
Prop In Lane	0.94		1.00	0.41		0.47		1.00		0.01	1.00	
Lane Grp Cap(c), veh/h	194	0	244	176	0	0		453	2599	1426	205	2306
V/C Ratio(X)	0.42	0.00	0.25	0.65	0.00	0.00		0.47	0.46	0.46	0.12	0.35
Avail Cap(c_a), veh/h	254	0	311	242	0	0		566	2599	1426	205	2306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	0.0	51.8	59.5	0.0	0.0		5.3	6.3	6.3	0.3	0.0
Incr Delay (d2), s/veh	1.5	0.0	0.5	4.0	0.0	0.0		0.8	0.6	1.1	1.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	2.0	4.3	0.0	0.0		1.7	5.8	6.5	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.4	0.0	52.4	63.5	0.0	0.0		6.0	6.9	7.4	1.5	0.4
LnGrp LOS	E	A	D	E	A	A		A	A	A	A	A
Approach Vol, veh/h		144			115				2059			1254
Approach Delay, s/veh		54.6			63.5				7.0			0.6
Approach LOS		D			E				A			A
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		112.0		28.0	11.2	100.9		28.0				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		100.0		28.0	16.0	80.0		28.0				
Max Q Clear Time (g_c+I1), s		20.1		14.4	6.8	10.1		21.4				
Green Ext Time (p_c), s		22.3		0.5	0.4	12.0		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			8.5									
HCM 6th LOS			A									
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved ignoring U-Turning movement.												
Splits and Phases: 8: Chambers Road & Exposition Avenue												


























Level of Service  
8: Chambers Road & Exposition Avenue

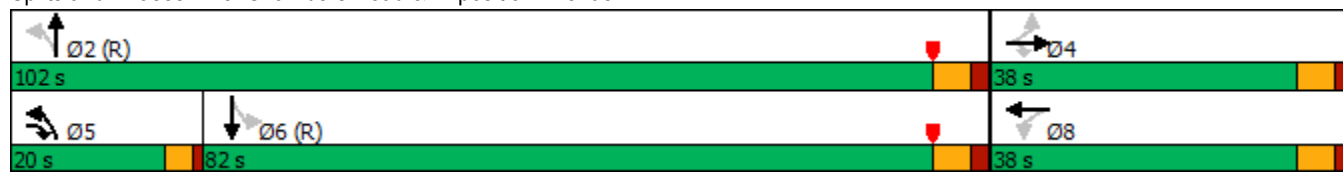
Metro Center - Amendment  
Existing Plus Site AM

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	95
Future Volume (veh/h)	95
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1885
Adj Flow Rate, veh/h	112
Peak Hour Factor	0.85
Percent Heavy Veh, %	1
Cap, veh/h	320
Arrive On Green	1.00
Sat Flow, veh/h	472
Grp Volume(v), veh/h	423
Grp Sat Flow(s),veh/h/ln	1783
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.26
Lane Grp Cap(c), veh/h	1208
V/C Ratio(X)	0.35
Avail Cap(c_a), veh/h	1208
HCM Platoon Ratio	2.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.8
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.3
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	0.8
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	75	5	60	35	10	40	195	1565	5	20	950	95
Future Volume (veh/h)	75	5	60	35	10	40	195	1565	5	20	950	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1841	1752	1900	1870	1885	1885	1693	1826	1870	1885
Adj Flow Rate, veh/h	77	5	62	47	14	54	229	1841	6	24	1118	112
Peak Hour Factor	0.97	0.97	0.97	0.74	0.74	0.74	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	0	4	10	0	2	1	1	14	5	2	1
Cap, veh/h	186	11	332	80	32	67	457	4003	13	204	3170	317
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.05	0.76	0.76	1.00	1.00	1.00
Sat Flow, veh/h	860	67	1557	276	203	424	1795	5296	17	244	4715	472
Grp Volume(v), veh/h	82	0	62	115	0	0	229	1193	654	24	807	423
Grp Sat Flow(s),veh/h/ln	927	0	1557	903	0	0	1795	1716	1882	244	1702	1783
Q Serve(g_s), s	0.0	0.0	4.6	7.1	0.0	0.0	5.3	18.2	18.2	1.1	0.0	0.0
Cycle Q Clear(g_c), s	12.3	0.0	4.6	19.4	0.0	0.0	5.3	18.2	18.2	7.6	0.0	0.0
Prop In Lane	0.94		1.00	0.41		0.47	1.00		0.01	1.00		0.26
Lane Grp Cap(c), veh/h	197	0	332	179	0	0	457	2593	1423	204	2289	1199
V/C Ratio(X)	0.42	0.00	0.19	0.64	0.00	0.00	0.50	0.46	0.46	0.12	0.35	0.35
Avail Cap(c_a), veh/h	293	0	442	286	0	0	563	2593	1423	204	2289	1199
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	0.0	45.1	59.3	0.0	0.0	5.4	6.4	6.4	0.3	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.3	3.8	0.0	0.0	0.9	0.6	1.1	1.2	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	1.8	4.2	0.0	0.0	1.9	5.8	6.6	0.1	0.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1	0.0	45.4	63.1	0.0	0.0	6.2	7.0	7.5	1.4	0.4	0.8
LnGrp LOS	E	A	D	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		144			115			2076			1254	
Approach Delay, s/veh		51.5			63.1			7.1			0.6	
Approach LOS		D			E			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		111.8		28.2	11.7	100.1		28.2				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		96.0		32.0	16.0	76.0		32.0				
Max Q Clear Time (g_c+I1), s		20.2		14.3	7.3	9.6		21.4				
Green Ext Time (p_c), s		22.1		0.5	0.4	11.9		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			8.4									
HCM 6th LOS			A									
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved ignoring U-Turning movement.												
Splits and Phases: 8: Chambers Road & Exposition Avenue												










Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Existing Plus Site AM

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵ ↵ ↵	↵ ↵ ↵		↵ ↵ ↵	↵ ↵ ↵	
Traffic Vol, veh/h	60	0	40	50	5	40	65	1575	40	20	975	30
Future Vol, veh/h	60	0	40	50	5	40	65	1575	40	20	975	30
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	84	84	84	87	87	87	91	91	91
Heavy Vehicles, %	0	0	0	2	0	0	0	1	3	0	2	0
Mvmt Flow	100	0	67	60	6	48	75	1810	46	22	1071	33
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2009	3138	555	2458	3131	928	1104	0	0	1856	0	0
Stage 1	1132	1132	-	1983	1983	-	-	-	-	-	-	-
Stage 2	877	2006	-	475	1148	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.44	6.5	7.1	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.34	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.74	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.82	4	3.9	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*455	47	*695	*327	48	*564	*874	-	-	588	-	-
Stage 1	*683	658	-	*319	375	-	-	-	-	-	-	-
Stage 2	*579	361	-	*709	646	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*338	41	*693	*268	42	*564	*874	-	-	588	-	-
Mov Cap-2 Maneuver	*338	41	-	*268	42	-	-	-	-	-	-	-
Stage 1	*624	634	-	*291	342	-	-	-	-	-	-	-
Stage 2	*476	330	-	*615	622	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	18.8		30.4		0.4		0.2					
HCM LOS	C		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	* 874	-	-	425	252	588	-	-				
HCM Lane V/C Ratio	0.085	-	-	0.392	0.449	0.037	-	-				
HCM Control Delay (s)	9.5	-	-	18.8	30.4	11.4	-	-				
HCM Lane LOS	A	-	-	C	D	B	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	1.8	2.2	0.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				





Level of Service  
10: Centrepont Dr & Walsh Drive

Metro Center - Amendment  
Existing Plus Site AM

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	15	110	65	30
Future Vol, veh/h	5	5	15	110	65	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	25	77	77	72	72
Heavy Vehicles, %	100	0	0	3	14	0
Mvmt Flow	20	20	19	143	90	42
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	292	66	132	0	-	0
Stage 1	111	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	8.1	6.9	4.1	-	-	-
Critical Hdwy Stg 1	7.3	-	-	-	-	-
Critical Hdwy Stg 2	6.9	-	-	-	-	-
Follow-up Hdwy	4.45	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	511	1012	1479	-	-	-
Stage 1	706	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	504	1012	1479	-	-	-
Mov Cap-2 Maneuver	532	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.5	0.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1479	-	697	-	-	
HCM Lane V/C Ratio	0.013	-	0.057	-	-	
HCM Control Delay (s)	7.5	-	10.5	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Level of Service  
11: Centrepont Dr & Center Avenue

Metro Center - Amendment  
Existing Plus Site AM

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	65	100	15	70	80
Future Vol, veh/h	15	65	100	15	70	80
Conflicting Peds, #/hr	0	0	0	9	9	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	82	82	84	84
Heavy Vehicles, %	0	0	4	0	0	6
Mvmt Flow	18	76	122	18	83	95
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	401	140	0	0	149	0
Stage 1	140	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	624	913	-	-	1445	-
Stage 1	892	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	583	905	-	-	1433	-
Mov Cap-2 Maneuver	631	-	-	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.8	0		3.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		837	1433	
HCM Lane V/C Ratio	-	-		0.112	0.058	
HCM Control Delay (s)	-	-		9.8	7.7	
HCM Lane LOS	-	-		A	A	
HCM 95th %tile Q(veh)	-	-		0.4	0.2	




Level of Service  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Existing Plus Site AM

Intersection

Int Delay, s/veh 5.1

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations						
Traffic Vol, veh/h	75	40	100	100	40	115
Future Vol, veh/h	75	40	100	100	40	115
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	66	66	79	79	90	90
Heavy Vehicles, %	20	10	3	2	0	25
Mvmt Flow	114	61	127	127	44	128

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	268	0	-	0	494	205
Stage 1	-	-	-	-	205	-
Stage 2	-	-	-	-	289	-
Critical Hdwy	4.3	-	-	-	6.4	6.45
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.38	-	-	-	3.5	3.525
Pot Cap-1 Maneuver	1198	-	-	-	540	781
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	766	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1182	-	-	-	473	771
Mov Cap-2 Maneuver	-	-	-	-	473	-
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	756	-

Approach EB WB SB

HCM Control Delay, s	5.5	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1182	-	-	-	663
HCM Lane V/C Ratio	0.096	-	-	-	0.26
HCM Control Delay (s)	8.4	0	-	-	12.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1

Level of Service  
13: A1 Access & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑	↗		↑↑↑↑		↗
Traffic Vol, veh/h	1200	20	0	2025	0	45
Future Vol, veh/h	1200	20	0	2025	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	94	94	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1429	24	0	2154	0	54
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	715
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*638
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*638
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		11.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	638	-	-	-		
HCM Lane V/C Ratio	0.084	-	-	-		
HCM Control Delay (s)	11.2	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.3	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
14: Fraser Ct & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑		↗
Traffic Vol, veh/h	1135	25	20	2055	0	55
Future Vol, veh/h	1135	25	20	2055	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	94	94	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1195	26	21	2186	0	65
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1221	0	-	611
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	*822	-	0	*654
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-	1	-	-	1
Mov Cap-1 Maneuver	-	-	*822	-	-	*654
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		11.1	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	654	-	-	* 822	-	
HCM Lane V/C Ratio	0.1	-	-	0.026	-	
HCM Control Delay (s)	11.1	-	-	9.5	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
15: Grandby St & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↗
Traffic Vol, veh/h	1170	20	0	2075	0	35
Future Vol, veh/h	1170	20	0	2075	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	94	94	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1232	21	0	2207	0	42
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	627
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*654
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*654
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		10.9		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	654	-	-	-		
HCM Lane V/C Ratio	0.064	-	-	-		
HCM Control Delay (s)	10.9	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon





Level of Service  
17: Alameda Drive & Dakota Ave

Metro Center - Amendment  
Existing Plus Site AM

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	100	0	80	15	0	25	25	80	35	60	85	40
Future Vol, veh/h	100	0	80	15	0	25	25	80	35	60	85	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	119	0	95	18	0	30	30	95	42	71	101	48
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	458	464	125	491	467	116	149	0	0	137	0	0
Stage 1	267	267	-	176	176	-	-	-	-	-	-	-
Stage 2	191	197	-	315	291	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	513	495	926	488	493	936	1432	-	-	1447	-	-
Stage 1	738	688	-	826	753	-	-	-	-	-	-	-
Stage 2	811	738	-	696	672	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	468	457	926	412	456	936	1432	-	-	1447	-	-
Mov Cap-2 Maneuver	468	457	-	412	456	-	-	-	-	-	-	-
Stage 1	721	651	-	807	736	-	-	-	-	-	-	-
Stage 2	767	721	-	591	636	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.3		11.1		1.4		2.5					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1432	-	-	600	634	1447	-	-				
HCM Lane V/C Ratio	0.021	-	-	0.357	0.075	0.049	-	-				
HCM Control Delay (s)	7.6	0	-	14.3	11.1	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	1.6	0.2	0.2	-	-				



Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	0	0	50	0	15	0	20	25	20	10	15
Future Vol, veh/h	20	0	0	50	0	15	0	20	25	20	10	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	0	60	0	18	0	24	30	24	12	18
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	117	123	21	108	117	39	30	0	0	54	0	0
Stage 1	69	69	-	39	39	-	-	-	-	-	-	-
Stage 2	48	54	-	69	78	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	859	767	1056	871	773	1033	1583	-	-	1551	-	-
Stage 1	941	837	-	976	862	-	-	-	-	-	-	-
Stage 2	965	850	-	941	830	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	834	755	1056	861	761	1033	1583	-	-	1551	-	-
Mov Cap-2 Maneuver	834	755	-	861	761	-	-	-	-	-	-	-
Stage 1	941	824	-	976	862	-	-	-	-	-	-	-
Stage 2	948	850	-	926	817	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9.4		9.4		0		3.3					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1583	-	-	834	895	1551	-	-				
HCM Lane V/C Ratio	-	-	-	0.029	0.086	0.015	-	-				
HCM Control Delay (s)	0	-	-	9.4	9.4	7.4	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-				

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	10	5	0	35	15	0	10	10	15	0	5
Future Vol, veh/h	10	10	5	0	35	15	0	10	10	15	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	12	6	0	42	18	0	12	12	18	0	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	60	0	0	18	0	0	93	99	15	102	93	51
Stage 1	-	-	-	-	-	-	39	39	-	51	51	-
Stage 2	-	-	-	-	-	-	54	60	-	51	42	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1544	-	-	1599	-	-	891	791	1065	879	797	1017
Stage 1	-	-	-	-	-	-	976	862	-	962	852	-
Stage 2	-	-	-	-	-	-	958	845	-	962	860	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1599	-	-	880	785	1065	854	791	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	880	785	-	854	791	-
Stage 1	-	-	-	-	-	-	968	855	-	954	852	-
Stage 2	-	-	-	-	-	-	952	845	-	930	853	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.9			0			9.1			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	904	1544	-	-	1599	-	-	890				
HCM Lane V/C Ratio	0.026	0.008	-	-	-	-	-	0.027				
HCM Control Delay (s)	9.1	7.3	0	-	0	-	-	9.2				
HCM Lane LOS	A	A	A	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

Level of Service  
20: Chambers Road & Dakota Ave

Metro Center - Amendment  
Existing Plus Site AM




Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↗↗↗			↗↗↗	
Traffic Vol, veh/h	0	0	15	0	0	20	0	1625	35	0	1020	30
Future Vol, veh/h	0	0	15	0	0	20	0	1625	35	0	1020	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	85	85	85	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	18	0	0	24	0	1912	41	0	1133	33
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	583	-	-	977	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*691	0	0	*543	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1			1		-	-		-	-
Mov Cap-1 Maneuver	-	-	*691	-	-	*543	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.3		11.9		0		0					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBT		NBR EBLn1WBLn1		SBT		SBR					
Capacity (veh/h)	-		691 543		-		-					
HCM Lane V/C Ratio	-		0.026 0.044		-		-					
HCM Control Delay (s)	-		10.3 11.9		-		-					
HCM Lane LOS	-		B B		-		-					
HCM 95th %tile Q(veh)	-		0.1 0.1		-		-					
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined			*: All major volume in platoon			





Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘↗	
Traffic Vol, veh/h	95	25	5	210	75	20
Future Vol, veh/h	95	25	5	210	75	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	113	30	6	250	89	24
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	143	0	375	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	262	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1459	-	652	1000
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	782	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1459	-	650	1000
Mov Cap-2 Maneuver	-	-	-	-	650	-
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	779	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		11.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	702	-	-	1459	-	
HCM Lane V/C Ratio	0.161	-	-	0.004	-	
HCM Control Delay (s)	11.1	-	-	7.5	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.6	-	-	0	-	

Level of Service  
22: Centrepoint Dr & Fraser Ct

Metro Center - Amendment  
Existing Plus Site AM

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	20	75	15	10	45	20	135	10	15	60	5
Future Vol, veh/h	25	20	75	15	10	45	20	135	10	15	60	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	24	89	18	12	54	24	161	12	18	71	6
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	358	331	74	382	328	167	77	0	0	173	0	0
Stage 1	110	110	-	215	215	-	-	-	-	-	-	-
Stage 2	248	221	-	167	113	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	597	588	988	576	591	877	1522	-	-	1404	-	-
Stage 1	895	804	-	787	725	-	-	-	-	-	-	-
Stage 2	756	720	-	835	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	539	570	988	496	573	877	1522	-	-	1404	-	-
Mov Cap-2 Maneuver	539	570	-	496	573	-	-	-	-	-	-	-
Stage 1	880	794	-	774	713	-	-	-	-	-	-	-
Stage 2	686	708	-	727	792	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.8		10.8		0.9		1.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1522	-	-	762	707	1404	-	-				
HCM Lane V/C Ratio	0.016	-	-	0.187	0.118	0.013	-	-				
HCM Control Delay (s)	7.4	0	-	10.8	10.8	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.7	0.4	0	-	-				

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	0	45	5	0	60
Future Vol, veh/h	10	0	45	5	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	0	54	6	0	71
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	128	57	0	0	60	0
Stage 1	57	-	-	-	-	-
Stage 2	71	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	866	1009	-	-	1544	-
Stage 1	966	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	866	1009	-	-	1544	-
Mov Cap-2 Maneuver	866	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	866	1544	-	
HCM Lane V/C Ratio	-	-	0.014	-	-	
HCM Control Delay (s)	-	-	9.2	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	5	0	0	10	5	0	15	0	0	5	0
Future Vol, veh/h	0	5	0	0	10	5	0	15	0	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	6	0	0	12	6	0	18	0	0	6	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	18	0	0	6	0	0	24	24	6	30	21	15
Stage 1	-	-	-	-	-	-	6	6	-	15	15	-
Stage 2	-	-	-	-	-	-	18	18	-	15	6	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1599	-	-	1615	-	-	987	869	1077	979	873	1065
Stage 1	-	-	-	-	-	-	1016	891	-	1005	883	-
Stage 2	-	-	-	-	-	-	1001	880	-	1005	891	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1599	-	-	1615	-	-	982	869	1077	963	873	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	982	869	-	963	873	-
Stage 1	-	-	-	-	-	-	1016	891	-	1005	883	-
Stage 2	-	-	-	-	-	-	994	880	-	985	891	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			9.2			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	869	1599	-	-	1615	-	-	873				
HCM Lane V/C Ratio	0.021	-	-	-	-	-	-	0.007				
HCM Control Delay (s)	9.2	0	-	-	0	-	-	9.2				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Level of Service  
25: Chambers Road & Virginia Ave




Metro Center - Amendment  
Existing Plus Site AM

Intersection												
Int Delay, s/veh		0.1										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↗↗↗		↘↘↘		
Traffic Vol, veh/h	0	0	5	0	0	20	0	1640	35	10	1020	5
Future Vol, veh/h	0	0	5	0	0	20	0	1640	35	10	1020	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	85	85	85	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	0	0	24	0	1929	41	11	1133	6
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	570	-	-	985	-	0	0	1970	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-	-	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-	-	3.12	-	-
Pot Cap-1 Maneuver	0	0	*691	0	0	*543	0	-	-	538	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %			1			1		-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*691	-	-	*543	-	-	-	538	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.3		11.9		0		0.1					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1		SBL	SBT	SBR			
Capacity (veh/h)	-		-		691		543	538	-		-	
HCM Lane V/C Ratio	-		-		0.009		0.044	0.021	-		-	
HCM Control Delay (s)	-		-		10.3		11.9	11.8	-		-	
HCM Lane LOS	-		-		B		B	B	-		-	
HCM 95th %tile Q(veh)	-		-		0		0.1	0.1	-		-	
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined			*: All major volume in platoon			



































Level of Service  
26: Center Avenue & Grandby St

Metro Center - Amendment  
Existing Plus Site AM

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	85	85	10	5	0
Future Vol, veh/h	5	85	85	10	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	101	101	12	6	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	113	0	-	0	220	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	113	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1476	-	-	-	768	947
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	912	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1476	-	-	-	765	947
Mov Cap-2 Maneuver	-	-	-	-	765	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	912	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		9.7		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1476	-	-	-	765	
HCM Lane V/C Ratio	0.004	-	-	-	0.008	
HCM Control Delay (s)	7.4	0	-	-	9.7	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site PM

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			 	  		 	 		 	 
Traffic Volume (vph)	155	1435	220	5	70	1330	190	195	380	80	380	385
Future Volume (vph)	155	1435	220	5	70	1330	190	195	380	80	380	385
Satd. Flow (prot)	1787	5187	1568	0	3502	5136	1599	3303	3574	1615	3467	3539
Flt Permitted	0.126				0.124			0.426			0.510	
Satd. Flow (perm)	236	5187	1534	0	456	5136	1550	1465	3574	1569	1843	3539
Satd. Flow (RTOR)			190				190			149		
Lane Group Flow (vph)	163	1511	232	0	79	1400	200	212	413	87	404	410
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2		2	6	6		6	8		8	4	
Detector Phase	5	2	2	1	1	6	6	3	8	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0
Total Split (s)	19.0	14.0	14.0	24.0	24.0	19.0	19.0	14.0	45.0	45.0	16.0	47.0
Total Split (%)	14.4%	10.6%	10.6%	18.2%	18.2%	14.4%	14.4%	10.6%	34.1%	34.1%	12.1%	35.6%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	6.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	55.2	53.2	53.2		51.3	49.3	49.3	22.0	21.0	21.0	25.4	24.4
Actuated g/C Ratio	0.42	0.40	0.40		0.39	0.37	0.37	0.17	0.16	0.16	0.19	0.18
v/c Ratio	0.53	0.72	0.32		0.14	0.73	0.29	0.52	0.73	0.23	0.75	0.63
Control Delay	38.3	37.4	11.1		36.0	38.8	8.7	53.9	60.3	12.8	61.1	53.4
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	37.4	11.1		36.0	38.8	8.7	53.9	60.3	12.8	61.1	53.4
LOS	D	D	B		D	D	A	D	E	B	E	D
Approach Delay		34.3				35.0			52.5			50.3
Approach LOS		C				D			D			D

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 39.9

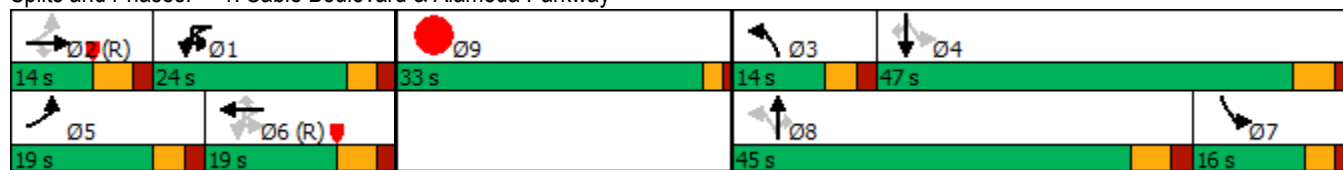
Intersection LOS: D

Intersection Capacity Utilization 81.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway



Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site PM

Lane Group	SBR	Ø9
Lane Configurations		
Traffic Volume (vph)	125	
Future Volume (vph)	125	
Satd. Flow (prot)	1583	
Flt Permitted		
Satd. Flow (perm)	1528	
Satd. Flow (RTOR)	140	
Lane Group Flow (vph)	133	
Turn Type	Perm	
Protected Phases		9
Permitted Phases	4	
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	40.0	33.0
Total Split (s)	47.0	33.0
Total Split (%)	35.6%	25%
Yellow Time (s)	4.0	2.0
All-Red Time (s)	2.0	1.0
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)	24.4	
Actuated g/C Ratio	0.18	
v/c Ratio	0.34	
Control Delay	8.0	
Queue Delay	0.0	
Total Delay	8.0	
LOS	A	
Approach Delay		
Approach LOS		
Intersection Summary		


























Level of Service  
2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Existing Plus Site PM

Intersection							
Int Delay, s/veh	1.4						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰ ↱ ↱ ↱ ↱ ↱	↰ ↱ ↱ ↱ ↱ ↱	↰ ↱ ↱ ↱ ↱ ↱		↰ ↱ ↱ ↱ ↱ ↱	↰ ↱ ↱ ↱ ↱ ↱
Traffic Vol, veh/h	5	25	1875	1450	10	10	95
Future Vol, veh/h	5	25	1875	1450	10	10	95
Conflicting Peds, #/hr	0	6	0	0	6	2	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	99	99	99	97	97	48	48
Heavy Vehicles, %	0	0	1	1	0	0	0
Mvmt Flow	5	25	1894	1495	10	21	198
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	1099	1511	0	-	0	2326	759
Stage 1	-	-	-	-	-	1506	-
Stage 2	-	-	-	-	-	820	-
Critical Hdwy	5.6	5.3	-	-	-	5.7	7.1
Critical Hdwy Stg 1	-	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	-	6	-
Follow-up Hdwy	2.3	3.1	-	-	-	3.8	3.9
Pot Cap-1 Maneuver	*1012	*751	-	-	-	*64	*597
Stage 1	-	-	-	-	-	*613	-
Stage 2	-	-	-	-	-	*496	-
Platoon blocked, %	1	1	-	-	-	-	1
Mov Cap-1 Maneuver	*763	*763	-	-	-	*61	*594
Mov Cap-2 Maneuver	-	-	-	-	-	*61	-
Stage 1	-	-	-	-	-	*585	-
Stage 2	-	-	-	-	-	*493	-
Approach	EB		WB		SB		
HCM Control Delay, s	0.2		0		21.5		
HCM LOS					C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	*763	-	-	-	61	594	
HCM Lane V/C Ratio	0.04	-	-	-	0.342	0.333	
HCM Control Delay (s)	9.9	-	-	-	92	14.1	
HCM Lane LOS	A	-	-	-	F	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2	1.5	
Notes							
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon							

Level of Service  
3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	45	1790	50	135	1310	65	100	10	135	30	10	55
Future Volume (veh/h)	45	1790	50	135	1310	65	100	10	135	30	10	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1767	1885	1900	1870	1900	1767	1900	1900	1900
Adj Flow Rate, veh/h	46	1845	52	141	1365	68	115	11	155	39	13	72
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.87	0.87	0.87	0.76	0.76	0.76
Percent Heavy Veh, %	0	1	0	9	1	0	2	0	9	0	0	0
Cap, veh/h	338	3887	109	219	3455	172	237	13	190	112	243	201
Arrive On Green	0.02	0.76	0.76	0.69	0.69	0.69	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1810	5144	145	225	5020	250	1289	106	1489	1226	1900	1576
Grp Volume(v), veh/h	46	1230	667	141	933	500	115	0	166	39	13	72
Grp Sat Flow(s),veh/h/ln	1810	1716	1858	225	1716	1839	1289	0	1594	1226	1900	1576
Q Serve(g_s), s	0.6	12.3	12.3	55.7	10.5	10.5	7.7	0.0	9.1	2.4	0.5	3.8
Cycle Q Clear(g_c), s	0.6	12.3	12.3	61.9	10.5	10.5	8.3	0.0	9.1	11.5	0.5	3.8
Prop In Lane	1.00		0.08	1.00		0.14	1.00		0.93	1.00		1.00
Lane Grp Cap(c), veh/h	338	2592	1404	219	2362	1266	237	0	204	112	243	201
V/C Ratio(X)	0.14	0.47	0.48	0.64	0.40	0.40	0.49	0.00	0.81	0.35	0.05	0.36
Avail Cap(c_a), veh/h	458	2592	1404	219	2362	1266	237	0	204	112	243	201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.3	4.2	4.2	17.5	6.0	6.0	38.1	0.0	38.2	44.0	34.5	35.9
Incr Delay (d2), s/veh	0.1	0.6	1.2	13.7	0.5	0.9	0.6	0.0	20.6	0.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.9	3.3	3.2	3.0	3.4	2.4	0.0	4.7	0.9	0.2	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.3	4.8	5.3	31.2	6.5	6.9	38.7	0.0	58.8	44.7	34.5	36.3
LnGrp LOS	A	A	A	C	A	A	D	A	E	D	C	D
Approach Vol, veh/h		1943			1574			281			124	
Approach Delay, s/veh		5.0			8.8			50.6			38.7	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		73.0		17.0	6.1	66.9		17.0				
Change Period (Y+Rc), s		5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s		68.0		11.5	8.0	56.0		11.5				
Max Q Clear Time (g_c+I1), s		14.3		11.1	2.6	63.9		13.5				
Green Ext Time (p_c), s		21.5		0.0	0.0	0.0		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			10.9									
HCM 6th LOS			B									
<b>Notes</b>												



























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



# Level of Service 3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	45	1790	50	135	1310	65	100	10	135	30	10	55
Future Volume (veh/h)	45	1790	50	135	1310	65	100	10	135	30	10	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1885	1900	1767	1885	1900	1870	1900	1767	1900	1900	1900
Adj Flow Rate, veh/h	46	1845	52	141	1365	68	115	11	155	39	13	72
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96	0.87	0.87	0.87	0.76	0.76	0.76
Percent Heavy Veh, %	0	1	0	9	1	0	2	0	9	0	0	0
Cap, veh/h	347	3528	99	237	3554	177	261	18	248	139	315	263
Arrive On Green	0.02	0.69	0.69	0.08	1.00	1.00	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1810	5144	145	1682	5020	250	1294	106	1495	1228	1900	1584
Grp Volume(v), veh/h	46	1230	667	141	933	500	115	0	166	39	13	72
Grp Sat Flow(s),veh/h/ln	1810	1716	1858	1682	1716	1839	1294	0	1602	1228	1900	1584
Q Serve(g_s), s	1.0	23.7	23.8	3.5	0.0	0.0	11.1	0.0	13.0	4.1	0.8	5.4
Cycle Q Clear(g_c), s	1.0	23.7	23.8	3.5	0.0	0.0	11.8	0.0	13.0	17.1	0.8	5.4
Prop In Lane	1.00		0.08	1.00		0.14	1.00		0.93	1.00		1.00
Lane Grp Cap(c), veh/h	347	2353	1274	237	2429	1302	261	0	266	139	315	263
V/C Ratio(X)	0.13	0.52	0.52	0.60	0.38	0.38	0.44	0.00	0.62	0.28	0.04	0.27
Avail Cap(c_a), veh/h	394	2353	1274	268	2429	1302	338	0	362	212	429	358
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.1	10.4	10.4	10.4	0.0	0.0	52.2	0.0	52.4	60.4	47.3	49.2
Incr Delay (d2), s/veh	0.1	0.8	1.5	2.8	0.5	0.9	0.4	0.0	0.9	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	8.4	9.3	1.4	0.2	0.3	3.6	0.0	5.3	1.3	0.4	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.1	11.2	11.9	13.3	0.5	0.9	52.7	0.0	53.3	60.8	47.3	49.4
LnGrp LOS	A	B	B	B	A	A	D	A	D	E	D	D
Approach Vol, veh/h	1943			1574			281			124		
Approach Delay, s/veh	11.3			1.7			53.0			52.7		
Approach LOS	B			A			D			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	97.6		27.9	6.5	100.6		27.9				
Change Period (Y+Rc), s	4.0	5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s	8.0	82.0		30.5	6.0	84.0		30.5				
Max Q Clear Time (g_c+I1), s	5.5	25.8		15.0	3.0	2.0		19.1				
Green Ext Time (p_c), s	0.1	21.8		0.8	0.0	13.7		0.1				

## Intersection Summary

HCM 6th Ctrl Delay 11.8  
HCM 6th LOS B

## Notes

























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	1445	305	200	985	150	290	1030	230	445	1290	275
Future Volume (veh/h)	250	1445	305	200	985	150	290	1030	230	445	1290	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1870	1856	1885	1885	1900	1885	1900	1870
Adj Flow Rate, veh/h	269	1554	328	222	1094	167	312	1108	247	459	1330	284
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90	0.93	0.93	0.93	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	1	0	2	3	1	1	0	1	0	2
Cap, veh/h	322	1525	637	260	1270	194	371	1270	283	520	1830	702
Arrive On Green	0.09	0.30	0.30	0.07	0.28	0.28	0.11	0.30	0.30	0.15	0.35	0.35
Sat Flow, veh/h	3456	5147	1577	3510	4461	680	3483	4201	936	3483	5187	1572
Grp Volume(v), veh/h	269	1554	328	222	835	426	312	905	450	459	1330	284
Grp Sat Flow(s),veh/h/ln	1728	1716	1577	1755	1702	1737	1742	1716	1706	1742	1729	1572
Q Serve(g_s), s	10.3	40.0	14.1	8.4	31.4	31.4	11.9	33.7	33.8	17.4	30.1	16.5
Cycle Q Clear(g_c), s	10.3	40.0	14.1	8.4	31.4	31.4	11.9	33.7	33.8	17.4	30.1	16.5
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	322	1525	637	260	969	494	371	1038	516	520	1830	702
V/C Ratio(X)	0.84	1.02	0.51	0.85	0.86	0.86	0.84	0.87	0.87	0.88	0.73	0.40
Avail Cap(c_a), veh/h	384	1525	637	260	969	494	490	1118	556	520	1830	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.2	47.5	14.6	61.8	45.8	45.8	59.2	44.6	44.6	56.2	38.0	25.3
Incr Delay (d2), s/veh	12.9	28.0	0.7	23.1	8.0	14.5	9.8	10.1	18.1	16.2	2.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	20.6	4.9	4.5	14.1	15.3	5.7	15.5	16.5	8.7	12.9	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.1	75.5	15.4	84.8	53.8	60.3	69.0	54.7	62.8	72.4	40.6	27.0
LnGrp LOS	E	F	B	F	D	E	E	D	E	E	D	C
Approach Vol, veh/h	2151			1483			1667			2073		
Approach Delay, s/veh	66.0			60.3			59.5			45.8		
Approach LOS	E			E			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.4	53.6	17.6	44.4	26.2	46.8	16.0	46.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	6.0	* 6				
Max Green Setting (Gmax), s	19.0	44.0	15.0	35.0	19.0	* 44	10.0	* 40				
Max Q Clear Time (g_c+I1), s	13.9	32.1	12.3	33.4	19.4	35.8	10.4	42.0				
Green Ext Time (p_c), s	0.5	7.3	0.2	1.1	0.0	5.1	0.0	0.0				

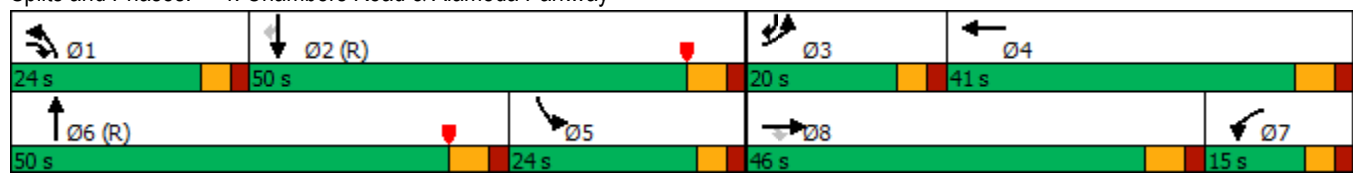
Intersection Summary

HCM 6th Ctrl Delay 57.7  
HCM 6th LOS E

Notes




































\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		 	  	
Traffic Volume (veh/h)	250	1445	305	200	985	150	290	1030	230	445	1290	275
Future Volume (veh/h)	250	1445	305	200	985	150	290	1030	230	445	1290	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1870	1856	1885	1885	1900	1885	1900	1870
Adj Flow Rate, veh/h	269	1554	328	222	1094	167	312	1108	247	459	1330	284
Peak Hour Factor	0.93	0.93	0.93	0.90	0.90	0.90	0.93	0.93	0.93	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	1	0	2	3	1	1	0	1	0	2
Cap, veh/h	326	1563	645	272	1501	684	362	1244	277	505	1787	691
Arrive On Green	0.09	0.30	0.30	0.08	0.29	0.29	0.10	0.30	0.30	0.15	0.34	0.34
Sat Flow, veh/h	3456	5147	1577	3510	5106	1552	3483	4200	936	3483	5187	1571
Grp Volume(v), veh/h	269	1554	328	222	1094	167	312	905	450	459	1330	284
Grp Sat Flow(s),veh/h/ln	1728	1716	1577	1755	1702	1552	1742	1716	1705	1742	1729	1571
Q Serve(g_s), s	10.3	40.7	13.8	8.4	26.0	2.1	11.9	34.0	34.1	17.5	30.5	16.7
Cycle Q Clear(g_c), s	10.3	40.7	13.8	8.4	26.0	2.1	11.9	34.0	34.1	17.5	30.5	16.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	326	1563	645	272	1501	684	362	1016	505	505	1787	691
V/C Ratio(X)	0.82	0.99	0.51	0.82	0.73	0.24	0.86	0.89	0.89	0.91	0.74	0.41
Avail Cap(c_a), veh/h	461	1563	645	286	1501	684	387	1067	531	505	1787	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	46.9	14.2	61.3	42.8	10.1	59.5	45.4	45.4	56.8	39.0	25.9
Incr Delay (d2), s/veh	8.1	21.3	0.7	16.1	1.8	0.2	17.0	11.7	20.6	20.3	2.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	20.0	4.8	4.3	11.0	1.8	6.0	15.8	17.0	9.0	13.1	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.1	68.2	14.8	77.4	44.6	10.2	76.5	57.1	66.0	77.1	41.9	27.7
LnGrp LOS	E	E	B	E	D	B	E	E	E	E	D	C
Approach Vol, veh/h		2151			1483			1667			2073	
Approach Delay, s/veh		60.1			45.7			63.2			47.7	
Approach LOS		E			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	52.5	17.8	45.7	25.6	46.0	16.5	47.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	6.0	* 6				
Max Green Setting (Gmax), s	15.0	46.0	18.0	34.0	19.0	* 42	11.0	* 41				
Max Q Clear Time (g_c+I1), s	13.9	32.5	12.3	28.0	19.5	36.1	10.4	42.7				
Green Ext Time (p_c), s	0.1	8.0	0.4	3.6	0.0	3.9	0.0	0.0				

Intersection Summary

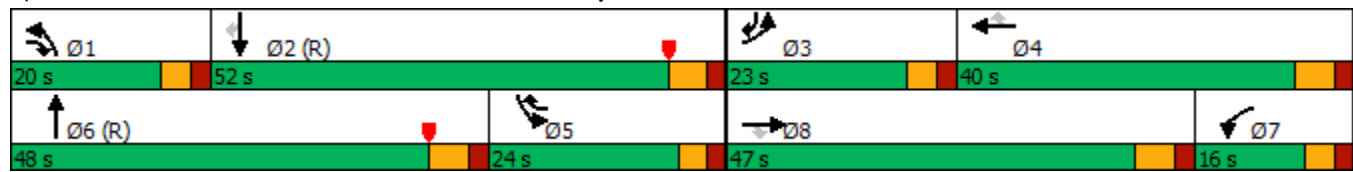
HCM 6th Ctrl Delay 54.4

HCM 6th LOS D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.























Splits and Phases: 4: Chambers Road & Alameda Parkway





Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Existing Plus Site PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	70	95	50	55	125	80	430	65	115	470	85
Future Volume (vph)	100	70	95	50	55	125	80	430	65	115	470	85
Satd. Flow (prot)	1805	1737	0	1543	2715	0	1805	3574	1324	1347	3514	0
Flt Permitted	0.604			0.443			0.355			0.489		
Satd. Flow (perm)	1131	1737	0	719	2715	0	674	3574	1291	689	3514	0
Satd. Flow (RTOR)		46			142				149		16	
Lane Group Flow (vph)	116	191	0	57	205	0	85	457	69	120	579	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	32.0	32.0		13.0	45.0		13.0	44.0	44.0	13.0	44.0	
Total Split (%)	24.2%	24.2%		9.8%	34.1%		9.8%	33.3%	33.3%	9.8%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	18.5	18.5		28.8	27.7		73.0	71.0	71.0	75.5	73.5	
Actuated g/C Ratio	0.14	0.14		0.22	0.21		0.55	0.54	0.54	0.57	0.56	
v/c Ratio	0.73	0.68		0.30	0.30		0.19	0.24	0.09	0.27	0.29	
Control Delay	79.2	51.8		45.2	13.9		22.0	21.3	0.2	15.7	12.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	79.2	51.8		45.2	13.9		22.0	21.3	0.2	15.7	12.6	
LOS	E	D		D	B		C	C	A	B	B	
Approach Delay		62.1			20.7			19.0			13.2	
Approach LOS		E			C			B			B	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 113 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 24.1

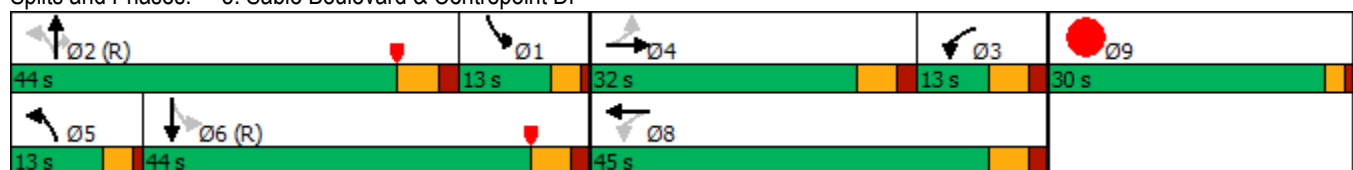
Intersection LOS: C

Intersection Capacity Utilization 63.6%

ICU Level of Service B

Analysis Period (min) 15
























Splits and Phases: 5: Sable Boulevard & Centrepoint Dr



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	265	85	130	210	75	60	400	175	105	435	75
Future Volume (vph)	100	265	85	130	210	75	60	400	175	105	435	75
Satd. Flow (prot)	1656	1825	0	1805	1900	1568	1770	3300	0	1805	3574	1482
Flt Permitted	0.302			0.442			0.381			0.418		
Satd. Flow (perm)	525	1825	0	838	1900	1540	709	3300	0	791	3574	1449
Satd. Flow (RTOR)		14				182		48				118
Lane Group Flow (vph)	116	407	0	141	228	82	65	618	0	113	468	81
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	18.0	42.0		24.0	24.0	24.0	12.0	23.0		14.0	25.0	25.0
Total Split (%)	15.0%	35.0%		20.0%	20.0%	20.0%	10.0%	19.2%		11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	38.6	37.6		21.9	21.9	21.9	53.8	51.8		55.8	53.8	53.8
Actuated g/C Ratio	0.32	0.31		0.18	0.18	0.18	0.45	0.43		0.46	0.45	0.45
v/c Ratio	0.42	0.70		0.93	0.66	0.19	0.17	0.43		0.26	0.29	0.11
Control Delay	34.4	42.4		105.1	56.1	1.0	27.6	26.5		29.3	26.3	3.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	34.4	42.4		105.1	56.1	1.0	27.6	26.5		29.3	26.3	3.1
LOS	C	D		F	E	A	C	C		C	C	A
Approach Delay		40.6			61.4			26.6			24.0	
Approach LOS		D			E			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 35.8

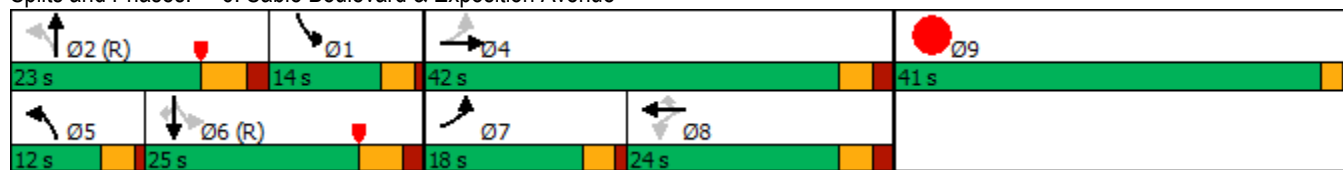
Intersection LOS: D

Intersection Capacity Utilization 72.3%

ICU Level of Service C

Analysis Period (min) 15
























Splits and Phases: 6: Sable Boulevard & Exposition Avenue



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	265	85	130	210	75	60	400	175	105	435	75
Future Volume (vph)	100	265	85	130	210	75	60	400	175	105	435	75
Satd. Flow (prot)	1656	1825	0	1805	1900	1568	1770	3300	0	1805	3574	1482
Flt Permitted	0.335			0.167			0.375			0.418		
Satd. Flow (perm)	582	1825	0	317	1900	1540	698	3300	0	791	3574	1449
Satd. Flow (RTOR)		13				218		48				155
Lane Group Flow (vph)	116	407	0	141	228	82	65	618	0	113	468	81
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		9.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	18.0	33.0		9.0	24.0	24.0	12.0	23.0		14.0	25.0	25.0
Total Split (%)	15.0%	27.5%		7.5%	20.0%	20.0%	10.0%	19.2%		11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	38.0	27.5		32.4	23.9	23.9	52.3	50.3		54.3	52.3	52.3
Actuated g/C Ratio	0.32	0.23		0.27	0.20	0.20	0.44	0.42		0.45	0.44	0.44
v/c Ratio	0.41	0.95		0.79	0.60	0.17	0.18	0.44		0.27	0.30	0.11
Control Delay	33.8	77.4		65.1	52.5	0.8	27.9	27.1		29.6	26.8	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	33.8	77.4		65.1	52.5	0.8	27.9	27.1		29.6	26.8	0.3
LOS	C	E		E	D	A	C	C		C	C	A
Approach Delay		67.7			47.1			27.2			24.1	
Approach LOS		E			D			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 39.3

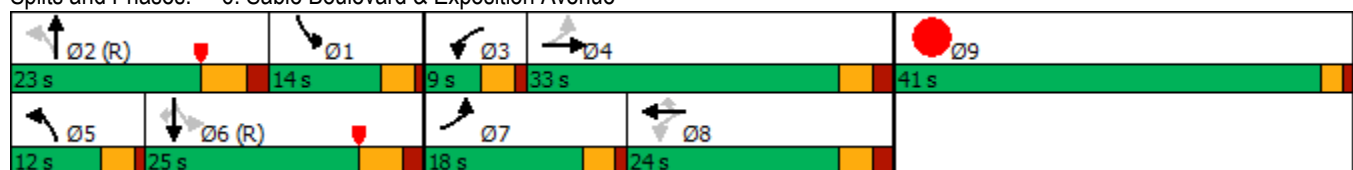
Intersection LOS: D

Intersection Capacity Utilization 71.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	





















Level of Service  
7: Centrepont Dr & Exposition Avenue

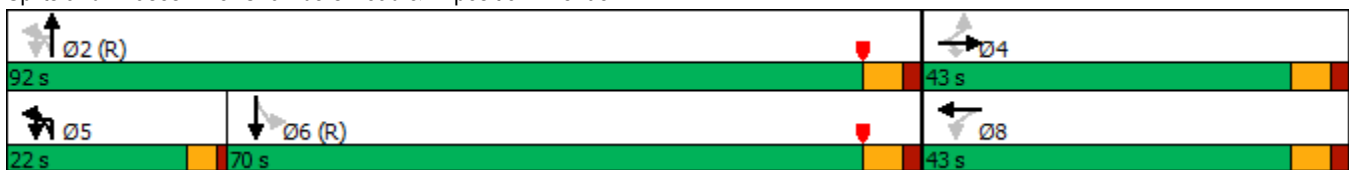
Metro Center - Amendment  
Existing Plus Site PM

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	470	40	15	300	30	15	10	10	55	15	40
Future Vol, veh/h	50	470	40	15	300	30	15	10	10	55	15	40
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	96	96	96	83	83	83	86	86	86
Heavy Vehicles, %	0	0	0	0	0	17	0	0	0	4	0	6
Mvmt Flow	59	553	47	16	313	31	18	12	12	64	17	47
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	344	0	0	603	0	0	1091	1074	580	1052	1066	313
Stage 1	-	-	-	-	-	-	698	698	-	345	345	-
Stage 2	-	-	-	-	-	-	393	376	-	707	721	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.354
Pot Cap-1 Maneuver	1257	-	-	967	-	-	194	222	652	203	224	*836
Stage 1	-	-	-	-	-	-	491	453	-	776	689	-
Stage 2	-	-	-	-	-	-	728	663	-	477	437	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	1257	-	-	964	-	-	163	207	650	181	209	*836
Mov Cap-2 Maneuver	-	-	-	-	-	-	163	207	-	181	209	-
Stage 1	-	-	-	-	-	-	466	431	-	740	677	-
Stage 2	-	-	-	-	-	-	658	652	-	433	415	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.4			24.7			24.4		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3		
Capacity (veh/h)	225	1257	-	-	964	-	-	181	209	836		
HCM Lane V/C Ratio	0.187	0.047	-	-	0.016	-	-	0.353	0.083	0.056		
HCM Control Delay (s)	24.7	8	-	-	8.8	-	-	35.4	23.8	9.6		
HCM Lane LOS	C	A	-	-	A	-	-	E	C	A		
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	1.5	0.3	0.2		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	235	20	320	45	10	35	5	155	1305	20	70	1555
Future Volume (veh/h)	235	20	320	45	10	35	5	155	1305	20	70	1555
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99		1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1900		1870	1885	1900	1900	1885
Adj Flow Rate, veh/h	273	23	372	51	11	40		172	1450	22	71	1587
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88		0.90	0.90	0.90	0.98	0.98
Percent Heavy Veh, %	0	0	1	0	0	0		2	1	0	0	1
Cap, veh/h	301	21	435	40	16	10		307	3326	50	235	2605
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27		0.06	0.64	0.64	1.00	1.00
Sat Flow, veh/h	912	77	1589	0	58	38		1781	5222	79	365	4736
Grp Volume(v), veh/h	296	0	372	102	0	0		172	953	519	71	1149
Grp Sat Flow(s),veh/h/ln	989	0	1589	96	0	0		1781	1716	1870	365	1716
Q Serve(g_s), s	0.0	0.0	30.0	0.0	0.0	0.0		5.5	18.8	18.8	3.9	0.0
Cycle Q Clear(g_c), s	37.0	0.0	30.0	37.0	0.0	0.0		5.5	18.8	18.8	11.0	0.0
Prop In Lane	0.92		1.00	0.50		0.39		1.00		0.04	1.00	
Lane Grp Cap(c), veh/h	322	0	435	66	0	0		307	2186	1191	235	1887
V/C Ratio(X)	0.92	0.00	0.85	1.54	0.00	0.00		0.56	0.44	0.44	0.30	0.61
Avail Cap(c_a), veh/h	322	0	435	66	0	0		442	2186	1191	235	1887
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	0.0	46.4	53.2	0.0	0.0		10.7	12.3	12.3	0.5	0.0
Incr Delay (d2), s/veh	30.1	0.0	15.2	304.8	0.0	0.0		1.6	0.6	1.2	3.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	0.0	13.8	7.9	0.0	0.0		2.2	7.0	7.8	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.6	0.0	61.6	358.1	0.0	0.0		12.3	12.9	13.5	3.8	1.5
LnGrp LOS	F	A	E	F	A	A		B	B	B	A	A
Approach Vol, veh/h	668				102				1644		1821	
Approach Delay, s/veh	70.0				358.1				13.0		2.0	
Approach LOS	E				F				B		A	
Timer - Assigned Phs	2		4		5		6		8			
Phs Duration (G+Y+Rc), s	92.0		43.0		11.7		80.3		43.0			
Change Period (Y+Rc), s	6.0		6.0		4.0		6.0		6.0			
Max Green Setting (Gmax), s	86.0		37.0		18.0		64.0		37.0			
Max Q Clear Time (g_c+I1), s	20.8		39.0		7.5		13.0		39.0			
Green Ext Time (p_c), s	14.0		0.0		0.3		21.4		0.0			
Intersection Summary												
HCM 6th Ctrl Delay			25.6									
HCM 6th LOS			C									
Notes												




























Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site PM

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	160
Future Volume (veh/h)	160
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	163
Peak Hour Factor	0.98
Percent Heavy Veh, %	0
Cap, veh/h	267
Arrive On Green	1.00
Sat Flow, veh/h	486
Grp Volume(v), veh/h	601
Grp Sat Flow(s),veh/h/ln	1791
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.27
Lane Grp Cap(c), veh/h	985
V/C Ratio(X)	0.61
Avail Cap(c_a), veh/h	985
HCM Platoon Ratio	2.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	2.8
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.8
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	2.8
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Existing Plus Site PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	235	20	320	45	10	35	160	1305	20	70	1555	160
Future Volume (veh/h)	235	20	320	45	10	35	160	1305	20	70	1555	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1900	1870	1885	1900	1900	1885	1900
Adj Flow Rate, veh/h	273	23	372	51	11	40	178	1450	22	71	1587	163
Peak Hour Factor	0.86	0.86	0.86	0.88	0.88	0.88	0.90	0.90	0.90	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	1	0	0	0	2	1	0	0	1	0
Cap, veh/h	342	24	606	57	20	24	302	3094	47	212	2370	243
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.06	0.59	0.59	1.00	1.00	1.00
Sat Flow, veh/h	912	77	1590	54	62	74	1781	5222	79	365	4736	486
Grp Volume(v), veh/h	296	0	372	102	0	0	178	953	519	71	1149	601
Grp Sat Flow(s),veh/h/ln	989	0	1590	190	0	0	1781	1716	1870	365	1716	1790
Q Serve(g_s), s	0.0	0.0	25.5	3.7	0.0	0.0	6.3	21.1	21.1	5.5	0.0	0.0
Cycle Q Clear(g_c), s	39.3	0.0	25.5	43.0	0.0	0.0	6.3	21.1	21.1	14.3	0.0	0.0
Prop In Lane	0.92		1.00	0.50		0.39	1.00		0.04	1.00		0.27
Lane Grp Cap(c), veh/h	366	0	606	100	0	0	302	2033	1108	212	1717	896
V/C Ratio(X)	0.81	0.00	0.61	1.02	0.00	0.00	0.59	0.47	0.47	0.33	0.67	0.67
Avail Cap(c_a), veh/h	366	0	606	100	0	0	336	2033	1108	212	1717	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	0.0	33.8	55.9	0.0	0.0	13.4	15.5	15.5	0.9	0.0	0.0
Incr Delay (d2), s/veh	12.7	0.0	1.8	94.2	0.0	0.0	2.2	0.8	1.4	4.2	2.1	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	0.0	10.3	6.1	0.0	0.0	2.6	8.1	9.0	0.2	0.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	0.0	35.6	150.1	0.0	0.0	15.6	16.3	16.9	5.1	2.1	4.0
LnGrp LOS	E	A	D	F	A	A	B	B	B	A	A	A
Approach Vol, veh/h	668		102				1650				1821	
Approach Delay, s/veh	45.3		150.1				16.4				2.8	
Approach LOS	D		F				B				A	
Timer - Assigned Phs	2		4		5		6		8			
Phs Duration (G+Y+Rc), s	86.0		49.0		12.4		73.6		49.0			
Change Period (Y+Rc), s	6.0		6.0		4.0		6.0		6.0			
Max Green Setting (Gmax), s	80.0		43.0		11.0		65.0		43.0			
Max Q Clear Time (g_c+I1), s	23.1		41.3		8.3		16.3		45.0			
Green Ext Time (p_c), s	13.8		0.6		0.1		21.1		0.0			
Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									
Notes												

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

Splits and Phases: 8: Chambers Road & Exposition Avenue








Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Existing Plus Site PM

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵ ↵ ↵	↵ ↵ ↵		↵ ↵ ↵	↵ ↵ ↵	
Traffic Vol, veh/h	30	0	45	65	0	45	65	1455	55	25	1675	40
Future Vol, veh/h	30	0	45	65	0	45	65	1455	55	25	1675	40
Conflicting Peds, #/hr	1	0	0	0	0	1	3	0	11	11	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	76	76	76	98	98	98	95	95	95
Heavy Vehicles, %	0	0	0	0	0	2	0	1	0	0	0	0
Mvmt Flow	40	0	60	86	0	59	66	1485	56	26	1763	42
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2566	3523	906	2413	3516	783	1808	0	0	1552	0	0
Stage 1	1839	1839	-	1656	1656	-	-	-	-	-	-	-
Stage 2	727	1684	-	757	1860	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.14	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.92	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*205	*14	*532	*303	*14	*587	*669	-	-	*742	-	-
Stage 1	*546	*519	-	*559	*546	-	-	-	-	-	-	-
Stage 2	*605	*523	-	*546	*519	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*165	*12	*530	*239	*12	*580	*667	-	-	*734	-	-
Mov Cap-2 Maneuver	*165	*12	-	*239	*12	-	-	-	-	-	-	-
Stage 1	*490	*499	-	*499	*487	-	-	-	-	-	-	-
Stage 2	*489	*467	-	*467	*499	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	24.7			25.8			0.5			0.1		
HCM LOS	C			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	* 667	-	-	281	315	* 734	-	-				
HCM Lane V/C Ratio	0.099	-	-	0.356	0.459	0.036	-	-				
HCM Control Delay (s)	11	-	-	24.7	25.8	10.1	-	-				
HCM Lane LOS	B	-	-	C	D	B	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	1.6	2.3	0.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined			*: All major volume in platoon			

Level of Service  
10: Centrepont Dr & Walsh Drive

Metro Center - Amendment  
Existing Plus Site PM





Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	15	5	80	95	15
Future Vol, veh/h	25	15	5	80	95	15
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	79	79	81	81
Heavy Vehicles, %	0	14	0	9	3	0
Mvmt Flow	37	22	6	101	117	19
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	243	68	136	0	-	0
Stage 1	127	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Critical Hdwy	6.6	7.11	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.433	2.2	-	-	-
Pot Cap-1 Maneuver	802	*1017	1522	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	799	*1017	1522	-	-	-
Mov Cap-2 Maneuver	789	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	9.5		0.4		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1522		-	861	-	-
HCM Lane V/C Ratio	0.004		-	0.068	-	-
HCM Control Delay (s)	7.4		-	9.5	-	-
HCM Lane LOS	A		-	A	-	-
HCM 95th %tile Q(veh)	0		-	0.2	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
11: Centrepoint Dr & Center Avenue

Metro Center - Amendment  
Existing Plus Site PM

Intersection

Int Delay, s/veh 3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	65	80	25	55	105
Future Vol, veh/h	10	65	80	25	55	105
Conflicting Peds, #/hr	3	0	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	63	76	76	80	80
Heavy Vehicles, %	0	0	6	0	0	2
Mvmt Flow	16	103	105	33	69	131




Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	399	127	0
Stage 1	127	-	-
Stage 2	272	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	634	929	-
Stage 1	904	-	-
Stage 2	797	-	-
Platoon blocked, %	1	-	-
Mov Cap-1 Maneuver	598	925	-
Mov Cap-2 Maneuver	641	-	-
Stage 1	899	-	-
Stage 2	757	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	2.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	873	1445
HCM Lane V/C Ratio	-	-	0.136	0.048
HCM Control Delay (s)	-	-	9.8	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

Level of Service  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Existing Plus Site PM

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	100	85	70	75	60	115
Future Vol, veh/h	100	85	70	75	60	115
Conflicting Peds, #/hr	10	0	0	10	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	92	92	87	87
Heavy Vehicles, %	20	10	3	2	0	25
Mvmt Flow	120	102	76	82	69	132
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	168	0	-	0	469	127
Stage 1	-	-	-	-	127	-
Stage 2	-	-	-	-	342	-
Critical Hdwy	4.3	-	-	-	6.4	6.45
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.38	-	-	-	3.5	3.525
Pot Cap-1 Maneuver	1308	-	-	-	568	865
Stage 1	-	-	-	-	904	-
Stage 2	-	-	-	-	732	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1296	-	-	-	502	857
Mov Cap-2 Maneuver	-	-	-	-	502	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	725	-
Approach	EB	WB		SB		
HCM Control Delay, s	4.4	0		12.4		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1296	-	-	-	690	
HCM Lane V/C Ratio	0.093	-	-	-	0.292	
HCM Control Delay (s)	8.1	0	-	-	12.4	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	1.2	

Level of Service  
13: A1 Access & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site PM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑	↗		↑↑↑↑		↗
Traffic Vol, veh/h	1865	35	0	1555	0	25
Future Vol, veh/h	1865	35	0	1555	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	96	96	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1923	36	0	1620	0	30
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	962
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*481
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*481
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		13	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	481	-	-	-		
HCM Lane V/C Ratio	0.062	-	-	-		
HCM Control Delay (s)	13	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
14: Fraser Ct & Alameda Parkway

Metro Center - Amendment  
Existing Plus Site PM

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑		↗
Traffic Vol, veh/h	1930	25	35	1510	0	55
Future Vol, veh/h	1930	25	35	1510	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2032	26	38	1624	0	65
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2058	0	-	1029
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	*602	-	0	*479
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-	1	-	-	1
Mov Cap-1 Maneuver	-	-	*602	-	-	*479
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		13.7	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	479	-	-	* 602	-	
HCM Lane V/C Ratio	0.137	-	-	0.063	-	
HCM Control Delay (s)	13.7	-	-	11.4	-	
HCM Lane LOS	B	-	-	B	-	
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon



Level of Service  
15: Grandby St & Alameda Parkway





Metro Center - Amendment  
Existing Plus Site PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↗
Traffic Vol, veh/h	1945	40	0	1545	0	55
Future Vol, veh/h	1945	40	0	1545	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2047	42	0	1661	0	65
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1045
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*479
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*479
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		13.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	479	-	-	-		
HCM Lane V/C Ratio	0.137	-	-	-		
HCM Control Delay (s)	13.7	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.5	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
17: Alameda Drive & Dakota Ave

Metro Center - Amendment  
Existing Plus Site PM

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		<div>↕</div>			<div>↕</div>			<div>↕</div>			<div>↕</div>	
Traffic Vol, veh/h	60	0	50	15	0	65	60	115	15	20	85	90
Future Vol, veh/h	60	0	50	15	0	65	60	115	15	20	85	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	0	60	18	0	77	71	137	18	24	101	107
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	530	500	155	521	544	146	208	0	0	155	0	0
Stage 1	203	203	-	288	288	-	-	-	-	-	-	-
Stage 2	327	297	-	233	256	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	460	473	891	466	446	901	1363	-	-	1425	-	-
Stage 1	799	733	-	720	674	-	-	-	-	-	-	-
Stage 2	686	668	-	770	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	397	438	891	410	413	901	1363	-	-	1425	-	-
Mov Cap-2 Maneuver	397	438	-	410	413	-	-	-	-	-	-	-
Stage 1	753	719	-	679	636	-	-	-	-	-	-	-
Stage 2	591	630	-	705	683	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14		10.6		2.5		0.8					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1363	-	-	531	736	1425	-	-				
HCM Lane V/C Ratio	0.052	-	-	0.247	0.129	0.017	-	-				
HCM Control Delay (s)	7.8	0	-	14	10.6	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	1	0.4	0.1	-	-				

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	0	0	70	0	20	0	10	35	30	25	5
Future Vol, veh/h	25	0	0	70	0	20	0	10	35	30	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	0	0	83	0	24	0	12	42	36	30	6
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	150	159	33	138	141	33	36	0	0	54	0	0
Stage 1	105	105	-	33	33	-	-	-	-	-	-	-
Stage 2	45	54	-	105	108	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	818	733	1041	833	750	1041	1575	-	-	1551	-	-
Stage 1	901	808	-	983	868	-	-	-	-	-	-	-
Stage 2	969	850	-	901	806	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	784	715	1041	818	732	1041	1575	-	-	1551	-	-
Mov Cap-2 Maneuver	784	715	-	818	732	-	-	-	-	-	-	-
Stage 1	901	789	-	983	868	-	-	-	-	-	-	-
Stage 2	947	850	-	879	787	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9.8		9.8		0		3.7					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1575	-	-	784	859	1551	-	-				
HCM Lane V/C Ratio	-	-	-	0.038	0.125	0.023	-	-				
HCM Control Delay (s)	0	-	-	9.8	9.8	7.4	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-				

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	20	10	0	55	30	10	5	25	35	5	5
Future Vol, veh/h	15	20	10	0	55	30	10	5	25	35	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	24	12	0	65	36	12	6	30	42	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	36	0	0	155	167	30	167	155	83
Stage 1	-	-	-	-	-	-	66	66	-	83	83	-
Stage 2	-	-	-	-	-	-	89	101	-	84	72	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1491	-	-	1575	-	-	812	726	1044	797	737	976
Stage 1	-	-	-	-	-	-	945	840	-	925	826	-
Stage 2	-	-	-	-	-	-	918	811	-	924	835	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1491	-	-	1575	-	-	795	717	1044	763	728	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	795	717	-	763	728	-
Stage 1	-	-	-	-	-	-	934	830	-	914	826	-
Stage 2	-	-	-	-	-	-	906	811	-	881	825	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.5			0			9.1			10		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	920	1491	-	-	1575	-	-	778				
HCM Lane V/C Ratio	0.052	0.012	-	-	-	-	-	0.069				
HCM Control Delay (s)	9.1	7.4	0	-	0	-	-	10				
HCM Lane LOS	A	A	A	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2				

Level of Service  
20: Chambers Road & Dakota Ave

Metro Center - Amendment  
Existing Plus Site PM

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑↗			↑↑↑↗	
Traffic Vol, veh/h	0	0	30	0	0	40	0	1510	40	0	1730	65
Future Vol, veh/h	0	0	30	0	0	40	0	1510	40	0	1730	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	95	95	95	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	36	0	0	48	0	1589	42	0	1802	68
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	935	-	-	816	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*529	0	0	*567	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1			1		-	-		-	-
Mov Cap-1 Maneuver	-	-	*529	-	-	*567	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.3		11.9		0		0					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBT		NBR EBLn1WBLn1		SBT		SBR					
Capacity (veh/h)	-		529 567		-		-					
HCM Lane V/C Ratio	-		0.068 0.084		-		-					
HCM Control Delay (s)	-		12.3 11.9		-		-					
HCM Lane LOS	-		B B		-		-					
HCM 95th %tile Q(veh)	-		0.2 0.3		-		-					
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				





Level of Service  
21: Dakota St & Centrepont Dr




Metro Center - Amendment  
Existing Plus Site PM

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	
Traffic Vol, veh/h	170	60	10	175	35	10
Future Vol, veh/h	170	60	10	175	35	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	202	71	12	208	42	12
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	273	0	434	202
Stage 1	-	-	-	-	202	-
Stage 2	-	-	-	-	232	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1306	-	616	921
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	807	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1306	-	610	921
Mov Cap-2 Maneuver	-	-	-	-	610	-
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	800	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		10.9	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	659	-	-	1306	-	
HCM Lane V/C Ratio	0.081	-	-	0.009	-	
HCM Control Delay (s)	10.9	-	-	7.8	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Level of Service  
22: Centrepoint Dr & Fraser Ct

Metro Center - Amendment  
Existing Plus Site PM





Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	15	35	15	30	55	45	85	15	20	110	10
Future Vol, veh/h	10	15	35	15	30	55	45	85	15	20	110	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	18	42	18	36	65	54	101	18	24	131	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	454	412	137	433	409	110	143	0	0	119	0	0
Stage 1	185	185	-	218	218	-	-	-	-	-	-	-
Stage 2	269	227	-	215	191	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	516	530	911	533	532	943	1440	-	-	1469	-	-
Stage 1	817	747	-	784	723	-	-	-	-	-	-	-
Stage 2	737	716	-	787	742	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	434	500	911	473	502	943	1440	-	-	1469	-	-
Mov Cap-2 Maneuver	434	500	-	473	502	-	-	-	-	-	-	-
Stage 1	784	734	-	753	694	-	-	-	-	-	-	-
Stage 2	625	687	-	720	729	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.2		11.6		2.4		1.1					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1440	-	-	656	668	1469	-	-				
HCM Lane V/C Ratio	0.037	-	-	0.109	0.178	0.016	-	-				
HCM Control Delay (s)	7.6	0	-	11.2	11.6	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.6	0	-	-				

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	0	45	5	0	95
Future Vol, veh/h	5	0	45	5	0	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	0	54	6	0	113
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	170	57	0	0	60	0
Stage 1	57	-	-	-	-	-
Stage 2	113	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	820	1009	-	-	1544	-
Stage 1	966	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	820	1009	-	-	1544	-
Mov Cap-2 Maneuver	820	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.4	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	820		1544	-	
HCM Lane V/C Ratio	-	0.007		-	-	
HCM Control Delay (s)	-	9.4		0	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	0		0	-	



Level of Service  
24: Grandby St & Virginia Ave

Metro Center - Amendment  
Existing Plus Site PM

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	5	0	0	5	5	0	30	0	0	10	0
Future Vol, veh/h	0	5	0	0	5	5	0	30	0	0	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	6	0	0	6	6	0	36	0	0	12	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	6	0	0	21	18	6	33	15	9
Stage 1	-	-	-	-	-	-	6	6	-	9	9	-
Stage 2	-	-	-	-	-	-	15	12	-	24	6	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1607	-	-	1615	-	-	992	876	1077	974	879	1073
Stage 1	-	-	-	-	-	-	1016	891	-	1012	888	-
Stage 2	-	-	-	-	-	-	1005	886	-	994	891	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1615	-	-	982	876	1077	944	879	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	982	876	-	944	879	-
Stage 1	-	-	-	-	-	-	1016	891	-	1012	888	-
Stage 2	-	-	-	-	-	-	992	886	-	954	891	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			9.3			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	876	1607	-	-	1615	-	-	879				
HCM Lane V/C Ratio	0.041	-	-	-	-	-	-	0.014				
HCM Control Delay (s)	9.3	0	-	-	0	-	-	9.2				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				




Level of Service  
25: Chambers Road & Virginia Ave

Metro Center - Amendment  
Existing Plus Site PM

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↗↗↗		↗ ↗↗↗		
Traffic Vol, veh/h	0	0	0	0	0	60	0	1490	40	10	1740	10
Future Vol, veh/h	0	0	0	0	0	60	0	1490	40	10	1740	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	95	95	95	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	71	0	1568	42	10	1813	10
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	912	-	-	805	-	0	0	1610	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-	-	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-	-	3.12	-	-
Pot Cap-1 Maneuver	0	0	*529	0	0	*587	0	-	-	*737	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %			1			1		-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*529	-	-	*587	-	-	-	*737	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0		12		0		0.1					
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1		SBL	SBT	SBR			
Capacity (veh/h)	-		-		-		587	* 737	-			
HCM Lane V/C Ratio	-		-		0.122		0.014	-				
HCM Control Delay (s)	-		-		0		12	10	-			
HCM Lane LOS	-		-		A		B	A	-			
HCM 95th %tile Q(veh)	-		-		-		0.4	0	-			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		


































Level of Service  
26: Center Avenue & Grandby St

Metro Center - Amendment  
Existing Plus Site PM

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	65	75	25	5	5
Future Vol, veh/h	10	65	75	25	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	77	89	30	6	6
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	119	0	-	0	205	104
Stage 1	-	-	-	-	104	-
Stage 2	-	-	-	-	101	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1469	-	-	-	783	951
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	923	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1469	-	-	-	776	951
Mov Cap-2 Maneuver	-	-	-	-	776	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	923	-
Approach	EB	WB		SB		
HCM Control Delay, s	1	0		9.3		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1469	-	-	-	855	
HCM Lane V/C Ratio	0.008	-	-	-	0.014	
HCM Control Delay (s)	7.5	0	-	-	9.3	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	115	1275	150	35	2205	155	195	340	55	135	230	150
Future Volume (vph)	115	1275	150	35	2205	155	195	340	55	135	230	150
Satd. Flow (prot)	1787	5085	1524	3502	5085	1583	3400	3539	1615	3400	3471	1599
Flt Permitted	0.089			0.140			0.460			0.516		
Satd. Flow (perm)	167	5085	1499	516	5085	1535	1637	3539	1578	1835	3471	1565
Satd. Flow (RTOR)			190			182			140			172
Lane Group Flow (vph)	132	1466	172	38	2371	167	229	400	65	155	264	172
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0	40.0
Total Split (s)	14.0	16.0	16.0	24.0	26.0	26.0	14.0	49.0	49.0	10.0	45.0	45.0
Total Split (%)	10.6%	12.1%	12.1%	18.2%	19.7%	19.7%	10.6%	37.1%	37.1%	7.6%	34.1%	34.1%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	62.3	61.3	61.3	63.6	62.6	62.6	21.7	20.7	20.7	16.9	15.9	15.9
Actuated g/C Ratio	0.47	0.46	0.46	0.48	0.47	0.47	0.16	0.16	0.16	0.13	0.12	0.12
v/c Ratio	0.56	0.62	0.22	0.06	0.98	0.20	0.53	0.72	0.18	0.49	0.63	0.51
Control Delay	36.7	31.2	4.7	29.4	48.1	4.9	44.5	51.6	6.2	59.3	61.8	12.4
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	36.7	31.2	4.7	29.4	48.1	4.9	44.5	51.6	6.2	59.3	61.8	12.4
LOS	D	C	A	C	D	A	D	D	A	E	E	B
Approach Delay		29.1			45.0			45.0			46.8	
Approach LOS		C			D			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 104 (79%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 40.2

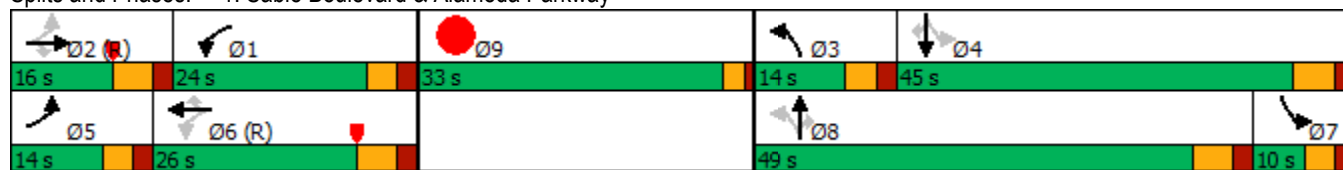
Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway




































Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background AM

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	33.0
Total Split (s)	33.0
Total Split (%)	25%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	115	1275	150	35	2205	155	195	340	55	135	230	150
Future Volume (vph)	115	1275	150	35	2205	155	195	340	55	135	230	150
Satd. Flow (prot)	1787	5085	1524	3502	5085	1583	3400	3539	1615	3400	3471	1599
Flt Permitted	0.089			0.140			0.460			0.516		
Satd. Flow (perm)	167	5085	1499	516	5085	1535	1637	3539	1578	1835	3471	1565
Satd. Flow (RTOR)			190			182			140			172
Lane Group Flow (vph)	132	1466	172	38	2371	167	229	400	65	155	264	172
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0	40.0
Total Split (s)	14.0	16.0	16.0	24.0	26.0	26.0	14.0	49.0	49.0	10.0	45.0	45.0
Total Split (%)	10.6%	12.1%	12.1%	18.2%	19.7%	19.7%	10.6%	37.1%	37.1%	7.6%	34.1%	34.1%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	62.3	61.3	61.3	63.6	62.6	62.6	21.7	20.7	20.7	16.9	15.9	15.9
Actuated g/C Ratio	0.47	0.46	0.46	0.48	0.47	0.47	0.16	0.16	0.16	0.13	0.12	0.12
v/c Ratio	0.56	0.62	0.22	0.06	0.98	0.20	0.53	0.72	0.18	0.49	0.63	0.51
Control Delay	36.7	31.2	4.7	29.4	48.1	4.9	44.5	51.6	6.2	59.3	61.8	12.4
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	36.7	31.2	4.7	29.4	48.1	4.9	44.5	51.6	6.2	59.3	61.8	12.4
LOS	D	C	A	C	D	A	D	D	A	E	E	B
Approach Delay		29.1			45.0			45.0			46.8	
Approach LOS		C			D			D			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 104 (79%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 40.2

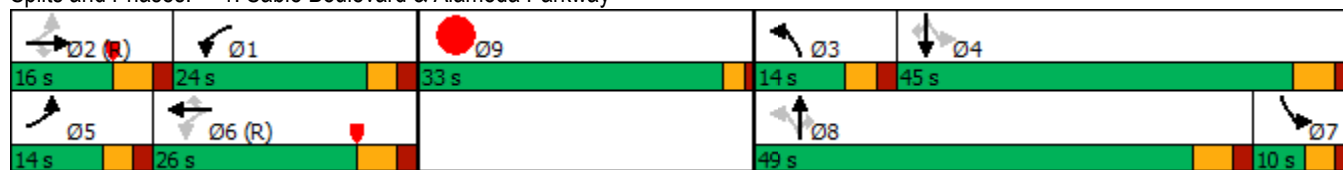
Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway



Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	33.0
Total Split (s)	33.0
Total Split (%)	25%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
2: Alameda Parkway & Municipal Ctr Access



























Metro Center - Amendment  
Future (2040) Background AM

Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑↑↑	↑↑↑↱		↰	↰
Traffic Vol, veh/h	165	1365	2415	50	10	40
Future Vol, veh/h	165	1365	2415	50	10	40
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	94	94	80	80
Heavy Vehicles, %	1	2	1	0	0	6
Mvmt Flow	185	1534	2569	53	13	50
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	2622	0	-	0	3581	1311
Stage 1	-	-	-	-	2596	-
Stage 2	-	-	-	-	985	-
Critical Hdwy	5.32	-	-	-	5.7	7.22
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	3.11	-	-	-	3.8	3.96
Pot Cap-1 Maneuver	*433	-	-	-	*13	*340
Stage 1	-	-	-	-	*354	-
Stage 2	-	-	-	-	*618	-
Platoon blocked, %	1	-	-	-		1
Mov Cap-1 Maneuver	*433	-	-	-	*~ 7	*340
Mov Cap-2 Maneuver	-	-	-	-	*~ 7	-
Stage 1	-	-	-	-	*203	-
Stage 2	-	-	-	-	*618	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.1	0		286.5		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 433	-	-	-	7	340
HCM Lane V/C Ratio	0.428	-	-	-	1.786	0.147
HCM Control Delay (s)	19.4	-	-	-	\$ 1362.8	17.4
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	2.1	-	-	-	2.5	0.5
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon



Level of Service  
3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	65	1265	45	120	2405	35	25	5	40	0	0	35
Future Volume (veh/h)	65	1265	45	120	2405	35	25	5	40	0	0	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1544	1826	1885	1900	1203	1900	1544	1900	1900	1841
Adj Flow Rate, veh/h	70	1360	48	128	2559	37	27	5	43	0	0	43
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	0	1	24	5	1	0	47	0	24	0	0	4
Cap, veh/h	182	4453	157	356	4323	62	98	10	83	48	109	89
Arrive On Green	0.02	0.87	0.87	1.00	1.00	1.00	0.06	0.06	0.06	0.00	0.00	0.06
Sat Flow, veh/h	1810	5103	180	373	5227	75	869	169	1452	1379	1900	1544
Grp Volume(v), veh/h	70	914	494	128	1677	919	27	0	48	0	0	43
Grp Sat Flow(s),veh/h/ln	1810	1716	1852	373	1716	1871	869	0	1621	1379	1900	1544
Q Serve(g_s), s	0.8	6.9	6.9	0.1	0.0	0.0	4.5	0.0	4.3	0.0	0.0	4.1
Cycle Q Clear(g_c), s	0.8	6.9	6.9	0.2	0.0	0.0	4.5	0.0	4.3	0.0	0.0	4.1
Prop In Lane	1.00		0.10	1.00		0.04	1.00		0.90	1.00		1.00
Lane Grp Cap(c), veh/h	182	2994	1616	356	2837	1548	98	0	93	48	109	89
V/C Ratio(X)	0.38	0.31	0.31	0.36	0.59	0.59	0.28	0.00	0.52	0.00	0.00	0.48
Avail Cap(c_a), veh/h	245	2994	1616	356	2837	1548	225	0	330	249	386	314
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	1.6	1.7	1.7	0.0	0.0	0.0	68.8	0.0	68.7	0.0	0.0	68.5
Incr Delay (d2), s/veh	0.5	0.3	0.5	2.8	0.9	1.7	0.6	0.0	1.6	0.0	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.3	1.5	0.3	0.4	0.7	1.0	0.0	1.8	0.0	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.1	1.9	2.2	2.8	0.9	1.7	69.3	0.0	70.3	0.0	0.0	70.1
LnGrp LOS	A	A	A	A	A	A	E	A	E	A	A	E
Approach Vol, veh/h		1478			2724			75			43	
Approach Delay, s/veh		2.0			1.3			70.0			70.1	
Approach LOS		A			A			E			E	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		135.9		14.1	6.8	129.0		14.1				
Change Period (Y+Rc), s		5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s		109.0		30.5	8.0	97.0		30.5				
Max Q Clear Time (g_c+I1), s		8.9		6.5	2.8	2.2		6.1				
Green Ext Time (p_c), s		13.3		0.2	0.0	59.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			3.4									
HCM 6th LOS			A									
Notes												

























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background AM

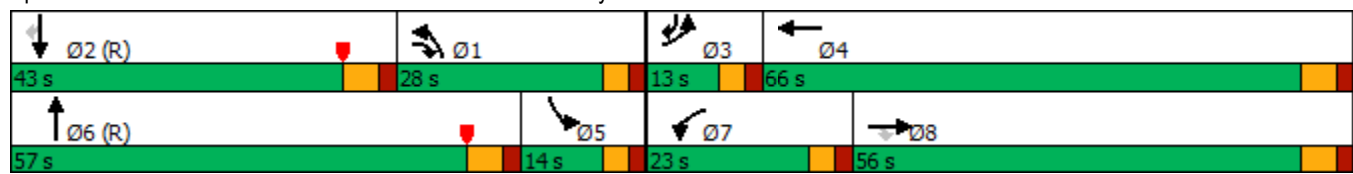
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	965	150	245	1965	265	370	1380	270	215	860	225
Future Volume (veh/h)	195	965	150	245	1965	265	370	1380	270	215	860	225
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1870	1885	1870	1870	1885	1885	1885	1900	1841	1856	1856
Adj Flow Rate, veh/h	207	1027	160	263	2113	285	425	1586	310	236	945	247
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.87	0.87	0.87	0.91	0.91	0.91
Percent Heavy Veh, %	3	2	1	2	2	1	1	1	0	4	3	3
Cap, veh/h	183	1852	865	313	1824	242	625	1468	285	204	1117	427
Arrive On Green	0.11	0.73	0.73	0.09	0.40	0.40	0.24	0.45	0.45	0.06	0.22	0.22
Sat Flow, veh/h	3428	5106	1595	3456	4561	604	3483	4319	839	3401	5066	1555
Grp Volume(v), veh/h	207	1027	160	263	1567	831	425	1258	638	236	945	247
Grp Sat Flow(s),veh/h/ln	1714	1702	1595	1728	1702	1761	1742	1716	1727	1700	1689	1555
Q Serve(g_s), s	8.0	13.9	1.0	11.2	60.0	60.0	16.6	51.0	51.0	9.0	26.8	12.5
Cycle Q Clear(g_c), s	8.0	13.9	1.0	11.2	60.0	60.0	16.6	51.0	51.0	9.0	26.8	12.5
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	183	1852	865	313	1362	704	625	1167	587	204	1117	427
V/C Ratio(X)	1.13	0.55	0.18	0.84	1.15	1.18	0.68	1.08	1.09	1.16	0.85	0.58
Avail Cap(c_a), veh/h	183	1852	865	415	1362	704	625	1167	587	204	1250	468
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.0	15.0	2.8	67.1	45.0	45.0	53.2	41.1	41.1	70.5	56.0	21.3
Incr Delay (d2), s/veh	106.5	0.4	0.1	11.1	76.9	95.1	3.0	50.2	62.8	111.6	7.9	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	3.8	0.6	5.4	39.1	44.0	7.2	27.7	29.9	7.0	12.1	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	173.5	15.4	2.9	78.2	121.9	140.1	56.2	91.3	103.9	182.1	63.9	26.9
LnGrp LOS	F	B	A	E	F	F	E	F	F	F	E	C
Approach Vol, veh/h	1394			2661			2321			1428		
Approach Delay, s/veh	37.5			123.2			88.3			77.1		
Approach LOS	D			F			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.9	39.1	13.0	66.0	14.0	57.0	18.6	60.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	23.0	37.0	8.0	60.0	9.0	51.0	18.0	50.0				
Max Q Clear Time (g_c+I1), s	18.6	28.8	10.0	62.0	11.0	53.0	13.2	15.9				
Green Ext Time (p_c), s	0.6	4.3	0.0	0.0	0.0	0.0	0.4	8.9				

Intersection Summary

HCM 6th Ctrl Delay 89.1

HCM 6th LOS F

Splits and Phases: 4: Chambers Road & Alameda Parkway



























# Level of Service

## 4: Chambers Road & Alameda Parkway

# Metro Center - Amendment

Future (2040) Background AM - with Improvements

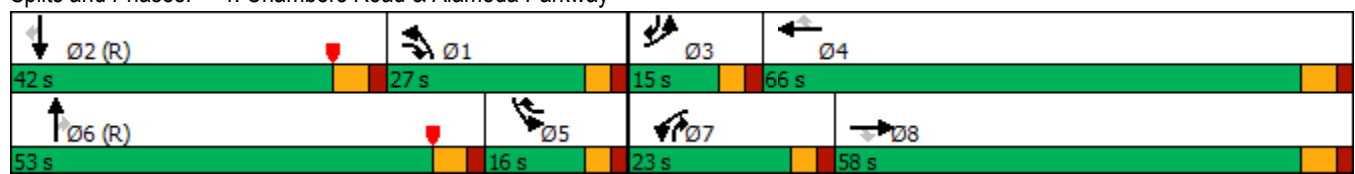
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	965	150	245	1965	265	370	1380	270	215	860	225
Future Volume (veh/h)	195	965	150	245	1965	265	370	1380	270	215	860	225
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1856	1870	1885	1870	1870	1885	1885	1885	1900	1841	1856	1856
Adj Flow Rate, veh/h	207	1027	160	263	2113	285	425	1586	310	236	945	247
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.87	0.87	0.87	0.91	0.91	0.91
Percent Heavy Veh, %	3	2	1	2	2	1	1	1	0	4	3	3
Cap, veh/h	229	1920	869	313	2042	755	586	1613	647	249	1106	444
Arrive On Green	0.13	0.75	0.75	0.09	0.40	0.40	0.34	0.63	0.63	0.07	0.22	0.22
Sat Flow, veh/h	3428	5106	1595	3456	5106	1595	3483	5147	1598	3401	5066	1555
Grp Volume(v), veh/h	207	1027	160	263	2113	285	425	1586	310	236	945	247
Grp Sat Flow(s),veh/h/ln	1714	1702	1595	1728	1702	1595	1742	1716	1598	1700	1689	1555
Q Serve(g_s), s	8.9	12.5	0.9	11.2	60.0	3.8	16.1	45.0	10.8	10.4	26.9	12.5
Cycle Q Clear(g_c), s	8.9	12.5	0.9	11.2	60.0	3.8	16.1	45.0	10.8	10.4	26.9	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	1920	869	313	2042	755	586	1613	647	249	1106	444
V/C Ratio(X)	0.91	0.53	0.18	0.84	1.03	0.38	0.72	0.98	0.48	0.95	0.85	0.56
Avail Cap(c_a), veh/h	229	1920	869	415	2042	755	586	1613	647	249	1216	478
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.5	13.2	2.6	67.1	45.0	12.6	46.7	27.6	8.8	69.2	56.3	20.9
Incr Delay (d2), s/veh	35.2	0.3	0.1	11.1	29.5	0.3	4.4	18.8	2.5	42.3	8.5	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	3.4	0.5	5.4	30.1	4.0	6.2	15.1	3.6	5.9	12.2	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.8	13.5	2.7	78.2	74.5	12.9	51.1	46.5	11.3	111.5	64.8	25.8
LnGrp LOS	F	B	A	E	F	B	D	D	B	F	E	C
Approach Vol, veh/h	1394				2661				2321			
Approach Delay, s/veh	25.0				68.2				42.6			
Approach LOS	C				E				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.3	38.7	15.0	66.0	16.0	53.0	18.6	62.4				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	22.0	36.0	10.0	60.0	11.0	47.0	18.0	52.0				
Max Q Clear Time (g_c+I1), s	18.1	28.9	10.9	62.0	12.4	47.0	13.2	14.5				
Green Ext Time (p_c), s	0.6	3.9	0.0	0.0	0.0	0.0	0.4	9.0				

### Intersection Summary

HCM 6th Ctrl Delay 52.5























HCM 6th LOS D

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	15	25	35	30	60	20	515	50	40	350	25
Future Volume (vph)	15	15	25	35	30	60	20	515	50	40	350	25
Satd. Flow (prot)	1805	1659	0	1492	2832	0	1805	3610	1429	1367	3504	0
Flt Permitted	0.685			0.724			0.465			0.428		
Satd. Flow (perm)	1285	1659	0	1137	2832	0	881	3610	1375	609	3504	0
Satd. Flow (RTOR)		32			71				149		5	
Lane Group Flow (vph)	19	51	0	41	106	0	23	592	57	47	441	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	29.0	29.0		15.0	44.0		14.0	42.0	42.0	16.0	44.0	
Total Split (%)	22.0%	22.0%		11.4%	33.3%		10.6%	31.8%	31.8%	12.1%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	7.7	7.7		17.3	17.3		90.7	88.7	88.7	92.3	90.3	
Actuated g/C Ratio	0.06	0.06		0.13	0.13		0.69	0.67	0.67	0.70	0.68	
v/c Ratio	0.25	0.40		0.25	0.24		0.04	0.24	0.06	0.10	0.18	
Control Delay	66.7	38.0		52.8	20.1		12.6	11.9	0.1	30.6	27.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	66.7	38.0		52.8	20.1		12.6	11.9	0.1	30.6	27.9	
LOS	E	D		D	C		B	B	A	C	C	
Approach Delay		45.8			29.2			10.9			28.2	
Approach LOS		D			C			B			C	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 54 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 20.7

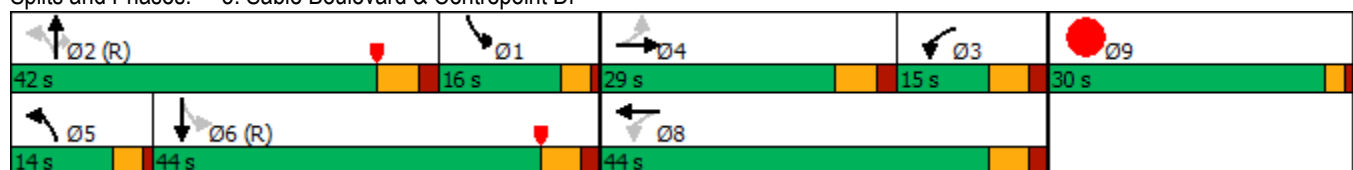
Intersection LOS: C

Intersection Capacity Utilization 53.4%

ICU Level of Service A

Analysis Period (min) 15






















Splits and Phases: 5: Sable Boulevard & Centrepoint Dr



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Background AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	15	25	35	30	60	20	515	50	40	350	25
Future Volume (vph)	15	15	25	35	30	60	20	515	50	40	350	25
Satd. Flow (prot)	1805	1659	0	1492	2832	0	1805	3610	1429	1367	3504	0
Flt Permitted	0.685			0.724			0.465			0.428		
Satd. Flow (perm)	1285	1659	0	1137	2832	0	881	3610	1375	609	3504	0
Satd. Flow (RTOR)		32			71				149		5	
Lane Group Flow (vph)	19	51	0	41	106	0	23	592	57	47	441	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	29.0	29.0		15.0	44.0		14.0	42.0	42.0	16.0	44.0	
Total Split (%)	22.0%	22.0%		11.4%	33.3%		10.6%	31.8%	31.8%	12.1%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	7.7	7.7		17.3	17.3		90.7	88.7	88.7	92.3	90.3	
Actuated g/C Ratio	0.06	0.06		0.13	0.13		0.69	0.67	0.67	0.70	0.68	
v/c Ratio	0.25	0.40		0.25	0.24		0.04	0.24	0.06	0.10	0.18	
Control Delay	66.7	38.0		52.8	20.1		12.6	11.9	0.1	30.6	27.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	66.7	38.0		52.8	20.1		12.6	11.9	0.1	30.6	27.9	
LOS	E	D		D	C		B	B	A	C	C	
Approach Delay		45.8			29.2			10.9			28.2	
Approach LOS		D			C			B			C	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 54 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 20.7

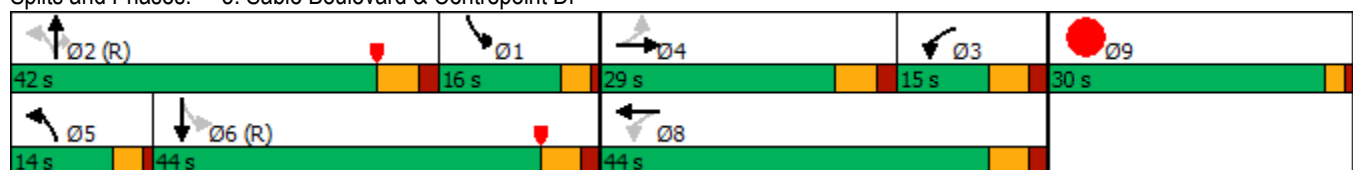
Intersection LOS: C

Intersection Capacity Utilization 53.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr


























Level of Service  
5: Sable Boulevard & Centrepont Dr

Metro Center - Amendment  
Future (2040) Background AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	55	10	115	150	100	40	435	130	70	295	45
Future Volume (vph)	50	55	10	115	150	100	40	435	130	70	295	45
Satd. Flow (prot)	1556	1852	0	1805	1900	1599	1752	3386	0	1805	3471	1404
Flt Permitted	0.358			0.711			0.496			0.414		
Satd. Flow (perm)	586	1852	0	1347	1900	1577	911	3386	0	782	3471	1367
Satd. Flow (RTOR)		9				127		26				118
Lane Group Flow (vph)	54	71	0	129	169	112	44	627	0	82	347	53
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	12.0	50.0		38.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Split (%)	10.0%	41.7%		31.7%	31.7%	31.7%	10.0%	14.2%		10.0%	14.2%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	28.0	27.0		17.4	17.4	17.4	66.2	64.2		66.4	64.4	64.4
Actuated g/C Ratio	0.23	0.22		0.14	0.14	0.14	0.55	0.54		0.55	0.54	0.54
v/c Ratio	0.27	0.17		0.66	0.61	0.33	0.08	0.34		0.17	0.19	0.07
Control Delay	36.0	30.0		63.4	56.7	7.8	24.7	22.2		26.2	22.3	0.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	36.0	30.0		63.4	56.7	7.8	24.7	22.2		26.2	22.3	0.2
LOS	D	C		E	E	A	C	C		C	C	A
Approach Delay		32.6			45.5			22.4			20.5	
Approach LOS		C			D			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 28.2

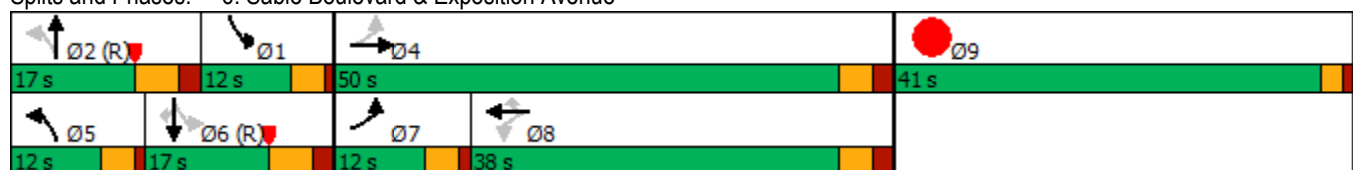
Intersection LOS: C

Intersection Capacity Utilization 55.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue




























Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background AM

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	55	10	115	150	100	40	435	130	70	295	45
Future Volume (vph)	50	55	10	115	150	100	40	435	130	70	295	45
Satd. Flow (prot)	1556	1852	0	1805	1900	1599	1752	3386	0	1805	3471	1404
Flt Permitted	0.358			0.711			0.496			0.414		
Satd. Flow (perm)	586	1852	0	1347	1900	1577	911	3386	0	782	3471	1367
Satd. Flow (RTOR)		9				127		26				118
Lane Group Flow (vph)	54	71	0	129	169	112	44	627	0	82	347	53
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	12.0	50.0		38.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Split (%)	10.0%	41.7%		31.7%	31.7%	31.7%	10.0%	14.2%		10.0%	14.2%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	28.0	27.0		17.4	17.4	17.4	66.2	64.2		66.4	64.4	64.4
Actuated g/C Ratio	0.23	0.22		0.14	0.14	0.14	0.55	0.54		0.55	0.54	0.54
v/c Ratio	0.27	0.17		0.66	0.61	0.33	0.08	0.34		0.17	0.19	0.07
Control Delay	36.0	30.0		63.4	56.7	7.8	24.7	22.2		26.2	22.3	0.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	36.0	30.0		63.4	56.7	7.8	24.7	22.2		26.2	22.3	0.2
LOS	D	C		E	E	A	C	C		C	C	A
Approach Delay		32.6			45.5			22.4			20.5	
Approach LOS		C			D			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 28.2

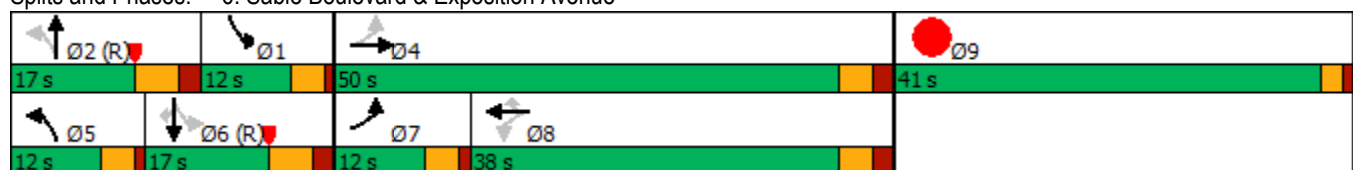
Intersection LOS: C

Intersection Capacity Utilization 55.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	






















Level of Service  
7: Centrepont Dr & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background AM

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	130	10	5	285	90	35	30	25	15	5	5
Future Vol, veh/h	20	130	10	5	285	90	35	30	25	15	5	5
Conflicting Peds, #/hr	2	0	1	1	0	2	1	0	4	4	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	89	89	89	84	84	84	81	81	81
Heavy Vehicles, %	0	2	0	0	1	3	4	5	5	22	0	0
Mvmt Flow	21	138	11	6	320	101	42	36	30	19	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	423	0	0	150	0	0	577	622	149	557	526	323
Stage 1	-	-	-	-	-	-	187	187	-	334	334	-
Stage 2	-	-	-	-	-	-	390	435	-	223	192	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.55	6.25	7.32	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4.045	3.345	3.698	4	3.3
Pot Cap-1 Maneuver	1155	-	-	1465	-	-	425	399	950	412	460	*853
Stage 1	-	-	-	-	-	-	856	762	-	752	697	-
Stage 2	-	-	-	-	-	-	721	607	-	778	767	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	1152	-	-	1464	-	-	410	389	946	363	449	*851
Mov Cap-2 Maneuver	-	-	-	-	-	-	410	389	-	363	449	-
Stage 1	-	-	-	-	-	-	840	747	-	737	693	-
Stage 2	-	-	-	-	-	-	706	604	-	702	753	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0.1			14.7			13.8		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3		
Capacity (veh/h)	476	1152	-	-	1464	-	-	363	449	851		
HCM Lane V/C Ratio	0.225	0.018	-	-	0.004	-	-	0.051	0.014	0.007		
HCM Control Delay (s)	14.7	8.2	-	-	7.5	-	-	15.5	13.1	9.3		
HCM Lane LOS	B	A	-	-	A	-	-	C	B	A		
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0	-	-	0.2	0	0		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Traffic Volume (veh/h)	95	10	50	45	15	55	15	220	1950	10	25	1125
Future Volume (veh/h)	95	10	50	45	15	55	15	220	1950	10	25	1125
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1870	1900	1841	1752	1900	1870		1885	1885	1693	1826	1870
Adj Flow Rate, veh/h	100	11	53	54	18	66		247	2191	11	28	1278
Peak Hour Factor	0.95	0.95	0.95	0.83	0.83	0.83		0.89	0.89	0.89	0.88	0.88
Percent Heavy Veh, %	2	0	4	10	0	2		1	1	14	5	2
Cap, veh/h	200	20	318	81	35	76		404	3782	19	137	2922
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20		0.07	0.72	0.72	1.00	1.00
Sat Flow, veh/h	757	97	1558	233	170	370		1795	5285	27	172	4683
Grp Volume(v), veh/h	111	0	53	138	0	0		247	1422	780	28	929
Grp Sat Flow(s),veh/h/ln	854	0	1558	773	0	0		1795	1716	1880	172	1702
Q Serve(g_s), s	0.0	0.0	4.2	9.8	0.0	0.0		7.1	30.2	30.2	5.8	0.0
Cycle Q Clear(g_c), s	18.7	0.0	4.2	28.5	0.0	0.0		7.1	30.2	30.2	22.3	0.0
Prop In Lane	0.90		1.00	0.39		0.48		1.00		0.01	1.00	
Lane Grp Cap(c), veh/h	220	0	318	191	0	0		404	2455	1346	137	2124
V/C Ratio(X)	0.50	0.00	0.17	0.72	0.00	0.00		0.61	0.58	0.58	0.21	0.44
Avail Cap(c_a), veh/h	232	0	332	205	0	0		646	2455	1346	137	2124
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.8	0.0	49.2	62.2	0.0	0.0		7.7	10.4	10.4	2.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.2	10.9	0.0	0.0		1.5	1.0	1.8	3.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	1.7	5.8	0.0	0.0		2.8	10.7	12.0	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	0.0	49.4	73.2	0.0	0.0		9.2	11.4	12.2	5.3	0.7
LnGrp LOS	E	A	D	E	A	A		A	B	B	A	A
Approach Vol, veh/h		164			138				2449			1442
Approach Delay, s/veh		54.3			73.2				11.4			0.9
Approach LOS		D			E				B			A
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		113.3		36.7	13.8	99.6		36.7				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		106.0		32.0	30.0	72.0		32.0				
Max Q Clear Time (g_c+I1), s		32.2		20.7	9.1	24.3		30.5				
Green Ext Time (p_c), s		31.9		0.5	0.7	15.1		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			11.5									
HCM 6th LOS			B									
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved ignoring U-Turning movement.												
Splits and Phases: 8: Chambers Road & Exposition Avenue												


























Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background AM

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	120
Future Volume (veh/h)	120
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1885
Adj Flow Rate, veh/h	136
Peak Hour Factor	0.88
Percent Heavy Veh, %	1
Cap, veh/h	311
Arrive On Green	1.00
Sat Flow, veh/h	498
Grp Volume(v), veh/h	485
Grp Sat Flow(s),veh/h/ln	1778
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.28
Lane Grp Cap(c), veh/h	1109
V/C Ratio(X)	0.44
Avail Cap(c_a), veh/h	1109
HCM Platoon Ratio	2.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	1.3
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.4
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	1.3
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	10	50	45	15	55	235	1950	10	25	1125	120
Future Volume (veh/h)	95	10	50	45	15	55	235	1950	10	25	1125	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1900	1841	1752	1900	1870	1885	1885	1693	1826	1870	1885
Adj Flow Rate, veh/h	100	11	53	54	18	66	264	2191	11	28	1278	136
Peak Hour Factor	0.95	0.95	0.95	0.83	0.83	0.83	0.89	0.89	0.89	0.88	0.88	0.88
Percent Heavy Veh, %	2	0	4	10	0	2	1	1	14	5	2	1
Cap, veh/h	148	139	204	197	26	94	419	4130	21	156	3558	1109
Arrive On Green	0.04	0.07	0.07	0.04	0.07	0.07	0.06	0.78	0.78	1.00	1.00	1.00
Sat Flow, veh/h	1781	1900	1554	1668	355	1303	1795	5285	27	172	5106	1591
Grp Volume(v), veh/h	100	11	53	54	0	84	264	1422	780	28	1278	136
Grp Sat Flow(s),veh/h/ln	1781	1900	1554	1668	0	1659	1795	1716	1880	172	1702	1591
Q Serve(g_s), s	6.0	0.8	4.6	4.5	0.0	7.4	6.0	23.2	23.2	3.2	0.0	0.0
Cycle Q Clear(g_c), s	6.0	0.8	4.6	4.5	0.0	7.4	6.0	23.2	23.2	13.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.79	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	148	139	204	197	0	119	419	2682	1470	156	3558	1109
V/C Ratio(X)	0.67	0.08	0.26	0.27	0.00	0.71	0.63	0.53	0.53	0.18	0.36	0.12
Avail Cap(c_a), veh/h	148	405	422	199	0	354	674	2682	1470	156	3558	1109
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	64.7	64.8	58.6	61.4	0.0	68.1	4.8	6.1	6.1	0.7	0.0	0.0
Incr Delay (d2), s/veh	11.4	0.2	0.7	0.7	0.0	7.4	1.6	0.8	1.4	2.4	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.4	1.9	2.0	0.0	3.4	2.1	7.3	8.3	0.1	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.1	65.0	59.3	62.1	0.0	75.5	6.3	6.9	7.5	3.0	0.3	0.2
LnGrp LOS	E	E	E	E	A	E	A	A	A	A	A	A
Approach Vol, veh/h	164			138			2466			1442		
Approach Delay, s/veh	69.9			70.2			7.0			0.3		
Approach LOS	E			E			A			A		
Timer - Assigned Phs	2			3			4			5		
Phs Duration (G+Y+Rc), s	123.2			9.8			17.0			12.7		
Change Period (Y+Rc), s	6.0			4.0			6.0			4.0		
Max Green Setting (Gmax), s	96.0			6.0			32.0			30.0		
Max Q Clear Time (g_c+I1), s	25.2			6.5			6.6			8.0		
Green Ext Time (p_c), s	31.4			0.0			0.2			0.7		

Intersection Summary

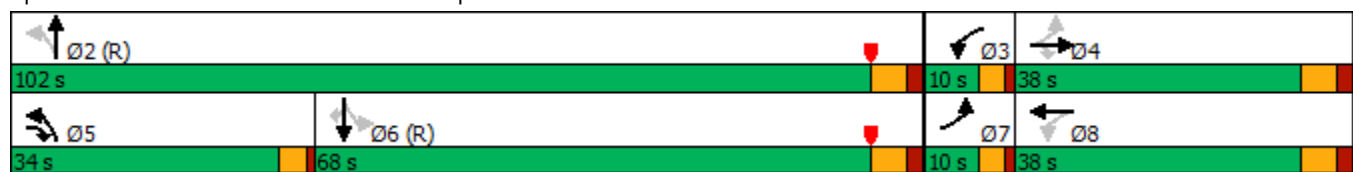
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

Splits and Phases: 8: Chambers Road & Exposition Avenue



Level of Service  
9: Chambers Road & Center Avenue























Metro Center - Amendment  
Future (2040) Background AM

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙ ↑↑↑			↙ ↑↑↑		
Traffic Vol, veh/h	10	0	5	65	5	50	50	2000	50	25	1200	25
Future Vol, veh/h	10	0	5	65	5	50	50	2000	50	25	1200	25
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	88	88	88	89	89	89	91	91	91
Heavy Vehicles, %	0	0	0	2	0	0	0	1	3	0	2	0
Mvmt Flow	13	0	7	74	6	57	56	2247	56	27	1319	27
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2401	3802	676	2972	3787	1152	1346	0	0	2303	0	0
Stage 1	1387	1387	-	2387	2387	-	-	-	-	-	-	-
Stage 2	1014	2415	-	585	1400	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.44	6.5	7.1	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.34	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.74	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.82	4	3.9	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*315	11	*640	*314	12	*449	*806	-	-	*565	-	-
Stage 1	*641	615	-	*358	373	-	-	-	-	-	-	-
Stage 2	*461	353	-	*654	604	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*150	10	*638	*283	11	*449	*806	-	-	*565	-	-
Mov Cap-2 Maneuver	*150	10	-	*283	11	-	-	-	-	-	-	-
Stage 1	*597	585	-	*333	348	-	-	-	-	-	-	-
Stage 2	*369	328	-	*614	575	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	24.9		107.9		0.2		0.2					
HCM LOS	C		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	* 806	-	-	201	151	* 565	-	-				
HCM Lane V/C Ratio	0.07	-	-	0.098	0.903	0.049	-	-				
HCM Control Delay (s)	9.8	-	-	24.9	107.9	11.7	-	-				
HCM Lane LOS	A	-	-	C	F	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.3	6.3	0.2	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				



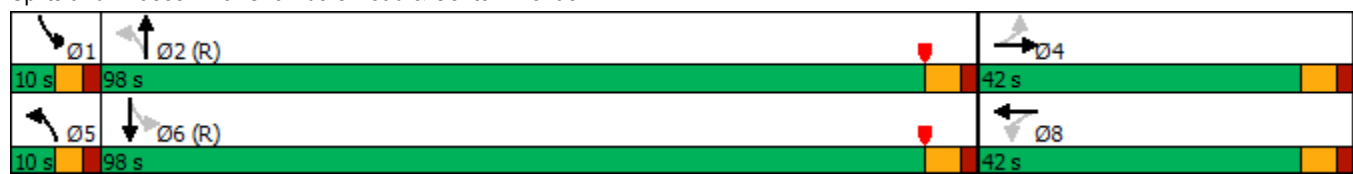
Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Background AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	10	0	5	65	5	50	50	2000	50	25	1200	25
Future Volume (veh/h)	10	0	5	65	5	50	50	2000	50	25	1200	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1900	1900	1900	1885	1856	1900	1870	1900
Adj Flow Rate, veh/h	13	0	7	74	6	57	56	2247	56	27	1319	27
Peak Hour Factor	0.76	0.76	0.76	0.88	0.88	0.88	0.89	0.89	0.89	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	2	0	0	0	1	3	0	2	0
Cap, veh/h	136	8	57	128	15	76	407	3852	96	208	3801	78
Arrive On Green	0.12	0.00	0.12	0.12	0.12	0.12	0.06	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	816	70	477	769	126	638	1810	5165	128	1810	5150	105
Grp Volume(v), veh/h	20	0	0	137	0	0	56	1491	812	27	872	474
Grp Sat Flow(s),veh/h/ln	1364	0	0	1533	0	0	1810	1716	1862	1810	1702	1851
Q Serve(g_s), s	0.0	0.0	0.0	11.2	0.0	0.0	1.1	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	1.7	0.0	0.0	12.9	0.0	0.0	1.1	0.0	0.0	0.5	0.0	0.0
Prop In Lane	0.65		0.35	0.54		0.42	1.00		0.07	1.00		0.06
Lane Grp Cap(c), veh/h	201	0	0	219	0	0	407	2559	1389	208	2513	1367
V/C Ratio(X)	0.10	0.00	0.00	0.63	0.00	0.00	0.14	0.58	0.58	0.13	0.35	0.35
Avail Cap(c_a), veh/h	375	0	0	402	0	0	412	2559	1389	228	2513	1367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.0	0.0	0.0	63.8	0.0	0.0	4.0	0.0	0.0	4.3	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.9	0.0	0.0	0.1	0.8	1.5	0.3	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	5.3	0.0	0.0	0.4	0.3	0.6	0.2	0.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	0.0	0.0	66.8	0.0	0.0	4.2	0.8	1.5	4.5	0.4	0.7
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h	20			137			2359			1373		
Approach Delay, s/veh	59.2			66.8			1.1			0.6		
Approach LOS	E			E			A			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	117.9		23.8	9.5	116.7		23.8				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	92.0		36.0	5.0	92.0		36.0				
Max Q Clear Time (g_c+l1), s	2.5	2.0		3.7	3.1	2.0		14.9				
Green Ext Time (p_c), s	0.0	37.7		0.1	0.0	12.2		0.7				






Intersection Summary

HCM 6th Ctrl Delay 3.5  
HCM 6th LOS A  
Splits and Phases: 9: Chambers Road & Center Avenue







Level of Service  
10: Centrepont Dr & Walsh Drive

Metro Center - Amendment  
Future (2040) Background AM

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	25	115	20	40
Future Vol, veh/h	5	5	25	115	20	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	59	59	85	85	82	82
Heavy Vehicles, %	100	0	0	3	14	0
Mvmt Flow	8	8	29	135	24	49
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	242	37	73	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	193	-	-	-	-	-
Critical Hdwy	8.1	6.9	4.1	-	-	-
Critical Hdwy Stg 1	7.3	-	-	-	-	-
Critical Hdwy Stg 2	6.9	-	-	-	-	-
Follow-up Hdwy	4.45	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	543	1034	1540	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	533	1034	1540	-	-	-
Mov Cap-2 Maneuver	546	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.2	1.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1540	-	715	-	-	
HCM Lane V/C Ratio	0.019	-	0.024	-	-	
HCM Control Delay (s)	7.4	-	10.2	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	






Level of Service  
11: Centrepoint Dr & Center Avenue

Metro Center - Amendment  
Future (2040) Background AM

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	50	110	10	5	50
Future Vol, veh/h	10	50	110	10	5	50
Conflicting Peds, #/hr	0	0	0	9	9	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	87	87	88	88
Heavy Vehicles, %	0	0	4	0	0	6
Mvmt Flow	11	57	126	11	6	57
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	182	141	0	0	146	0
Stage 1	141	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	6.6	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	819	912	-	-	1448	-
Stage 1	891	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	808	904	-	-	1436	-
Mov Cap-2 Maneuver	786	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.4	0		0.7		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		882	1436	
HCM Lane V/C Ratio	-	-		0.077	0.004	
HCM Control Delay (s)	-	-		9.4	7.5	
HCM Lane LOS	-	-		A	A	
HCM 95th %tile Q(veh)	-	-		0.3	0	

























Level of Service  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Future (2040) Background AM

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	30	90	70	25	45
Future Vol, veh/h	45	30	90	70	25	45
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	86	86	91	91
Heavy Vehicles, %	20	10	3	2	0	25
Mvmt Flow	57	38	105	81	27	49
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	200	0	-	0	293	160
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	4.4	-	-	-	6.6	6.575
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.39	-	-	-	3.5	3.5375
Pot Cap-1 Maneuver	1260	-	-	-	703	821
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	897	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1243	-	-	-	653	810
Mov Cap-2 Maneuver	-	-	-	-	686	-
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	886	-
Approach	EB	WB		SB		
HCM Control Delay, s	4.8	0		10		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1243	-	-	-	686	810
HCM Lane V/C Ratio	0.046	-	-	-	0.04	0.061
HCM Control Delay (s)	8	-	-	-	10.5	9.7
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	0.2

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	1755	220	90	1655	215	200	445	85	435	440	160
Future Volume (vph)	195	1755	220	90	1655	215	200	445	85	435	440	160
Satd. Flow (prot)	1787	5187	1568	3502	5136	1599	3303	3574	1615	3467	3539	1583
Flt Permitted	0.216			0.205			0.323			0.476		
Satd. Flow (perm)	406	5187	1534	755	5136	1550	1112	3574	1569	1722	3539	1528
Satd. Flow (RTOR)			190			190			149			172
Lane Group Flow (vph)	207	1867	234	96	1761	229	217	484	92	468	473	172
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0	40.0
Total Split (s)	19.0	14.0	14.0	24.0	19.0	19.0	14.0	45.0	45.0	16.0	47.0	47.0
Total Split (%)	14.4%	10.6%	10.6%	18.2%	14.4%	14.4%	10.6%	34.1%	34.1%	12.1%	35.6%	35.6%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	46.1	44.1	44.1	41.9	39.9	39.9	25.0	24.0	24.0	29.6	28.6	28.6
Actuated g/C Ratio	0.35	0.33	0.33	0.32	0.30	0.30	0.19	0.18	0.18	0.22	0.22	0.22
v/c Ratio	0.54	1.08	0.37	0.15	1.13	0.38	0.54	0.75	0.23	0.78	0.62	0.37
Control Delay	41.8	85.3	12.4	39.3	109.5	12.5	56.0	62.9	14.5	59.8	49.6	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	85.3	12.4	39.3	109.5	12.5	56.0	62.9	14.5	59.8	49.6	7.5
LOS	D	F	B	D	F	B	E	E	B	E	D	A
Approach Delay		74.0			95.7			55.4			47.4	
Approach LOS		E			F			E			D	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 74.1

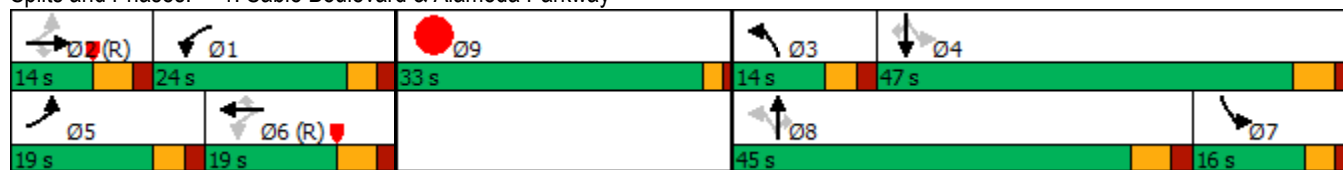
Intersection LOS: E

Intersection Capacity Utilization 92.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway



Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background PM


































Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	33.0
Total Split (s)	33.0
Total Split (%)	25%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

# Level of Service

## 1: Sable Boulevard & Alameda Parkway

# Metro Center - Amendment

Future (2040) Background PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  		 	 		 	 	
Traffic Volume (vph)	195	1755	220	90	1655	215	200	445	85	435	440	160
Future Volume (vph)	195	1755	220	90	1655	215	200	445	85	435	440	160
Satd. Flow (prot)	1787	5187	1568	3502	5136	1599	3303	3574	1615	3467	3539	1583
Flt Permitted	0.143			0.138			0.336			0.476		
Satd. Flow (perm)	269	5187	1534	508	5136	1550	1157	3574	1569	1722	3539	1528
Satd. Flow (RTOR)			190			182			140			172
Lane Group Flow (vph)	207	1867	234	96	1761	229	217	484	92	468	473	172
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0	40.0
Total Split (s)	19.0	24.0	24.0	24.0	29.0	29.0	14.0	35.0	35.0	16.0	37.0	37.0
Total Split (%)	14.4%	18.2%	18.2%	18.2%	22.0%	22.0%	10.6%	26.5%	26.5%	12.1%	28.0%	28.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	46.5	45.5	45.5	50.5	49.5	49.5	24.5	23.5	23.5	28.3	27.3	27.3
Actuated g/C Ratio	0.35	0.34	0.34	0.38	0.38	0.38	0.19	0.18	0.18	0.21	0.21	0.21
v/c Ratio	0.77	1.04	0.36	0.15	0.92	0.33	0.54	0.76	0.23	0.82	0.65	0.38
Control Delay	55.1	74.3	11.6	36.8	47.7	11.3	57.9	64.6	16.5	64.2	52.0	8.3
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	55.1	74.3	11.6	36.8	47.7	11.3	57.9	64.6	16.5	64.2	52.0	8.3
LOS	E	E	B	D	D	B	E	E	B	E	D	A
Approach Delay		66.2			43.2			57.2			50.4	
Approach LOS		E			D			E			D	

### Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 54.7

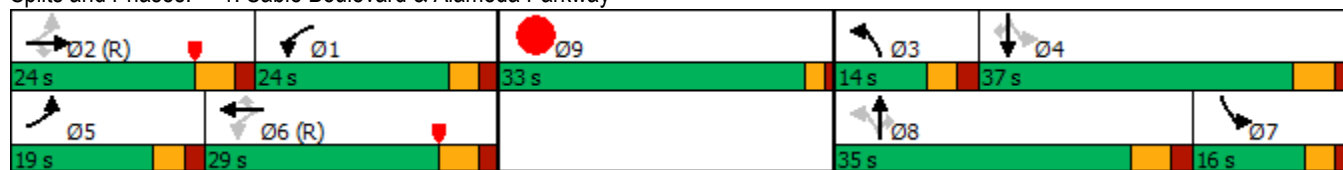
Intersection LOS: D

Intersection Capacity Utilization 92.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway



Level of Service  
1: Sable Boulevard & Alameda Parkway







Metro Center - Amendment  
Future (2040) Background PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	33.0
Total Split (s)	33.0
Total Split (%)	25%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	





























Level of Service  
2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Future (2040) Background PM

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	2255	1775	15	15	120
Future Vol, veh/h	35	2255	1775	15	15	120
Conflicting Peds, #/hr	6	0	0	6	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	70	70
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	37	2374	1868	16	21	171
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1890	0	-	0	2908	948
Stage 1	-	-	-	-	1882	-
Stage 2	-	-	-	-	1026	-
Critical Hdwy	5.3	-	-	-	5.7	7.1
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	3.1	-	-	-	3.8	3.9
Pot Cap-1 Maneuver	*635	-	-	-	*31	*505
Stage 1	-	-	-	-	*518	-
Stage 2	-	-	-	-	*395	-
Platoon blocked, %	1	-	-	-		1
Mov Cap-1 Maneuver	*632	-	-	-	*29	*502
Mov Cap-2 Maneuver	-	-	-	-	*29	-
Stage 1	-	-	-	-	*484	-
Stage 2	-	-	-	-	*393	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		45.4		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 632	-	-	-	29	502
HCM Lane V/C Ratio	0.058	-	-	-	0.739	0.341
HCM Control Delay (s)	11	-	-	-	281.9	15.8
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	0.2	-	-	-	2.4	1.5
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	55	2195	20	80	1670	85	55	15	110	40	10	65
Future Volume (veh/h)	55	2195	20	80	1670	85	55	15	110	40	10	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.98		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1767	1885	1900	1870	1900	1767	1900	1900	1900
Adj Flow Rate, veh/h	59	2335	21	85	1777	90	62	17	124	48	12	77
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.89	0.89	0.89	0.84	0.84	0.84
Percent Heavy Veh, %	0	1	0	9	1	0	2	0	9	0	0	0
Cap, veh/h	266	4061	36	134	3634	184	243	30	221	143	296	246
Arrive On Green	0.02	0.77	0.77	1.00	1.00	1.00	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1810	5260	47	143	5015	254	1288	195	1420	1254	1900	1582
Grp Volume(v), veh/h	59	1522	834	85	1215	652	62	0	141	48	12	77
Grp Sat Flow(s),veh/h/ln	1810	1716	1876	143	1716	1838	1288	0	1615	1254	1900	1582
Q Serve(g_s), s	1.2	26.4	26.4	85.5	0.0	0.0	6.2	0.0	11.7	5.3	0.8	6.3
Cycle Q Clear(g_c), s	1.2	26.4	26.4	105.1	0.0	0.0	7.0	0.0	11.7	17.1	0.8	6.3
Prop In Lane	1.00		0.03	1.00		0.14	1.00		0.88	1.00		1.00
Lane Grp Cap(c), veh/h	266	2649	1449	134	2486	1332	243	0	251	143	296	246
V/C Ratio(X)	0.22	0.57	0.58	0.63	0.49	0.49	0.26	0.00	0.56	0.33	0.04	0.31
Avail Cap(c_a), veh/h	330	2649	1449	134	2486	1332	314	0	340	212	400	333
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.4	6.8	6.8	10.1	0.0	0.0	55.0	0.0	56.6	64.5	52.0	54.3
Incr Delay (d2), s/veh	0.2	0.9	1.7	20.7	0.7	1.3	0.2	0.0	0.7	0.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	8.3	9.4	2.1	0.2	0.5	2.1	0.0	4.9	1.7	0.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	7.7	8.5	30.8	0.7	1.3	55.2	0.0	57.4	65.0	52.1	54.6
LnGrp LOS	A	A	A	C	A	A	E	A	E	E	D	D
Approach Vol, veh/h		2415			1952			203			137	
Approach Delay, s/veh		7.9			2.2			56.7			58.0	
Approach LOS		A			A			E			E	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		116.9		28.1	6.9	110.1		28.1				
Change Period (Y+Rc), s		5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s		104.0		30.5	8.0	92.0		30.5				
Max Q Clear Time (g_c+I1), s		28.4		13.7	3.2	107.1		19.1				
Green Ext Time (p_c), s		37.0		0.6	0.0	0.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			9.1									
HCM 6th LOS			A									
Notes												























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	1745	370	195	1185	195	350	1305	280	565	1585	300
Future Volume (veh/h)	250	1745	370	195	1185	195	350	1305	280	565	1585	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1870	1856	1885	1885	1900	1885	1900	1870
Adj Flow Rate, veh/h	272	1897	402	214	1302	214	380	1418	304	601	1686	319
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	2	3	1	1	0	1	0	2
Cap, veh/h	310	1668	788	194	1307	215	602	1594	341	528	1806	689
Arrive On Green	0.18	0.65	0.65	0.06	0.30	0.30	0.35	0.75	0.75	0.15	0.35	0.35
Sat Flow, veh/h	3456	5147	1578	3510	4408	724	3483	4238	906	3483	5187	1571
Grp Volume(v), veh/h	272	1897	402	214	1005	511	380	1147	575	601	1686	319
Grp Sat Flow(s),veh/h/ln	1728	1716	1578	1755	1702	1729	1742	1716	1713	1742	1729	1571
Q Serve(g_s), s	11.1	47.0	0.0	8.0	42.8	42.8	13.2	36.3	36.6	22.0	45.5	12.5
Cycle Q Clear(g_c), s	11.1	47.0	0.0	8.0	42.8	42.8	13.2	36.3	36.6	22.0	45.5	12.5
Prop In Lane	1.00		1.00	1.00		0.42	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	310	1668	788	194	1009	513	602	1290	644	528	1806	689
V/C Ratio(X)	0.88	1.14	0.51	1.10	1.00	1.00	0.63	0.89	0.89	1.14	0.93	0.46
Avail Cap(c_a), veh/h	310	1668	788	194	1009	513	602	1290	644	528	1824	695
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	25.5	11.0	68.5	50.9	50.9	43.6	15.7	15.7	61.5	45.6	14.5
Incr Delay (d2), s/veh	23.6	69.7	0.6	95.6	27.3	38.7	2.1	9.4	17.0	82.8	10.4	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	22.6	4.2	6.1	21.6	23.6	5.1	7.4	8.8	15.7	20.8	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.4	95.2	11.5	164.1	78.2	89.6	45.7	25.1	32.8	144.3	56.0	16.8
LnGrp LOS	F	F	B	F	E	F	D	C	C	F	E	B
Approach Vol, veh/h		2571			1730			2102			2606	
Approach Delay, s/veh		80.7			92.2			30.9			71.6	
Approach LOS		F			F			C			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.0	56.5	18.0	49.0	27.0	60.5	14.0	53.0				
Change Period (Y+Rc), s	6.0	* 6	5.0	6.0	5.0	6.0	6.0	* 6				
Max Green Setting (Gmax), s	17.0	* 51	13.0	42.0	22.0	46.0	8.0	* 47				
Max Q Clear Time (g_c+I1), s	15.2	47.5	13.1	44.8	24.0	38.6	10.0	49.0				
Green Ext Time (p_c), s	0.3	3.0	0.0	0.0	0.0	5.6	0.0	0.0				

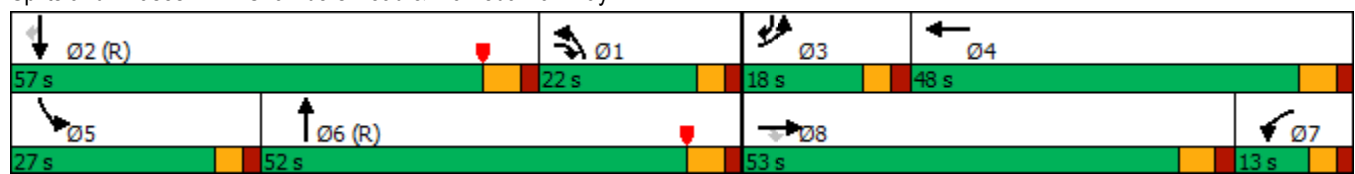
Intersection Summary

HCM 6th Ctrl Delay	68.7
HCM 6th LOS	E

Notes

























\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Background PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	1745	370	195	1185	195	350	1305	280	565	1585	300
Future Volume (veh/h)	250	1745	370	195	1185	195	350	1305	280	565	1585	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1870	1856	1885	1885	1900	1885	1900	1870
Adj Flow Rate, veh/h	272	1897	402	214	1302	214	380	1418	304	601	1686	319
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	2	3	1	1	0	1	0	2
Cap, veh/h	321	1739	833	242	1638	759	652	1815	674	577	1681	656
Arrive On Green	0.19	0.68	0.68	0.07	0.32	0.32	0.37	0.71	0.71	0.17	0.32	0.32
Sat Flow, veh/h	3456	5147	1579	3510	5106	1553	3483	5147	1596	3483	5187	1570
Grp Volume(v), veh/h	272	1897	402	214	1302	214	380	1418	304	601	1686	319
Grp Sat Flow(s),veh/h/ln	1728	1716	1579	1755	1702	1553	1742	1716	1596	1742	1729	1570
Q Serve(g_s), s	11.0	49.0	0.0	8.8	33.7	11.9	12.7	26.2	4.1	24.0	47.0	13.4
Cycle Q Clear(g_c), s	11.0	49.0	0.0	8.8	33.7	11.9	12.7	26.2	4.1	24.0	47.0	13.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	1739	833	242	1638	759	652	1815	674	577	1681	656
V/C Ratio(X)	0.85	1.09	0.48	0.88	0.79	0.28	0.58	0.78	0.45	1.04	1.00	0.49
Avail Cap(c_a), veh/h	453	1739	833	242	1638	759	652	1815	674	577	1681	656
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.0	23.5	9.1	66.9	44.9	22.2	40.8	17.7	6.7	60.5	49.0	16.7
Incr Delay (d2), s/veh	10.1	50.8	0.4	29.6	2.8	0.2	1.3	3.4	2.2	49.0	22.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	19.6	3.6	4.9	14.4	4.3	4.8	6.2	2.2	14.4	23.3	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.1	74.3	9.6	96.5	47.7	22.4	42.2	21.1	8.9	109.5	71.6	19.2
LnGrp LOS	E	F	A	F	D	C	D	C	A	F	F	B
Approach Vol, veh/h	2571			1730			2102			2606		
Approach Delay, s/veh	63.5			50.6			23.2			73.9		
Approach LOS	E			D			C			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.1	53.0	18.5	52.5	29.0	57.1	16.0	55.0				
Change Period (Y+Rc), s	6.0	* 6	5.0	6.0	5.0	6.0	6.0	* 6				
Max Green Setting (Gmax), s	17.0	* 47	19.0	40.0	24.0	40.0	10.0	* 49				
Max Q Clear Time (g_c+I1), s	14.7	49.0	13.0	35.7	26.0	28.2	10.8	51.0				
Green Ext Time (p_c), s	0.3	0.0	0.5	2.8	0.0	6.4	0.0	0.0				

Intersection Summary

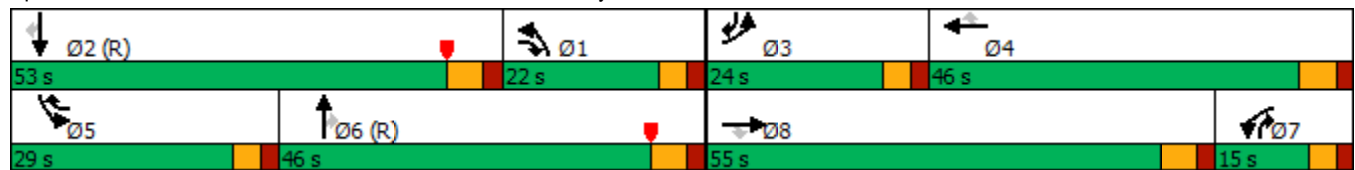
HCM 6th Ctrl Delay 54.6

HCM 6th LOS D

Notes























\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	90	120	35	70	65	100	540	30	40	600	110
Future Volume (vph)	125	90	120	35	70	65	100	540	30	40	600	110
Satd. Flow (prot)	1805	1712	0	1543	2852	0	1805	3574	1324	1347	3506	0
Flt Permitted	0.657			0.361			0.264			0.433		
Satd. Flow (perm)	1152	1712	0	582	2852	0	500	3574	1257	603	3506	0
Satd. Flow (RTOR)		45			72				149		16	
Lane Group Flow (vph)	140	236	0	39	150	0	108	581	32	43	755	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	32.0	32.0		13.0	45.0		13.0	44.0	44.0	13.0	44.0	
Total Split (%)	24.2%	24.2%		9.8%	34.1%		9.8%	33.3%	33.3%	9.8%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	20.4	20.4		30.7	29.6		73.2	71.2	71.2	73.6	71.6	
Actuated g/C Ratio	0.15	0.15		0.23	0.22		0.55	0.54	0.54	0.56	0.54	
v/c Ratio	0.79	0.78		0.22	0.22		0.30	0.30	0.04	0.11	0.40	
Control Delay	82.1	60.5		42.3	20.1		23.3	22.5	0.1	15.2	12.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	82.1	60.5		42.3	20.1		23.3	22.5	0.1	15.2	12.4	
LOS	F	E		D	C		C	C	A	B	B	
Approach Delay		68.5			24.7			21.6			12.5	
Approach LOS		E			C			C			B	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 113 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 26.9

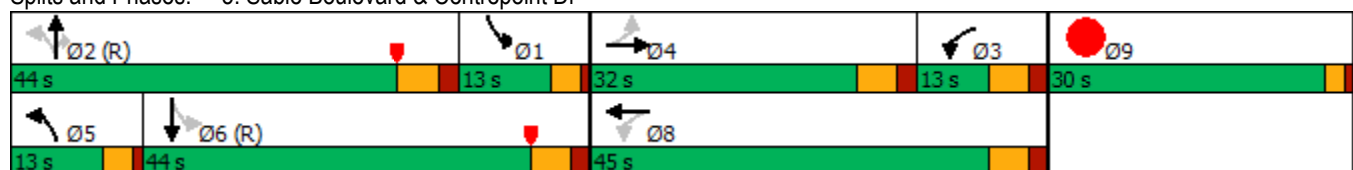
Intersection LOS: C

Intersection Capacity Utilization 73.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Background PM - with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	125	90	120	35	70	65	100	540	30	40	600	110
Future Volume (vph)	125	90	120	35	70	65	100	540	30	40	600	110
Satd. Flow (prot)	1805	1712	0	1543	2852	0	1805	3574	1324	1347	3506	0
Flt Permitted	0.657			0.366			0.264			0.433		
Satd. Flow (perm)	1152	1712	0	590	2852	0	500	3574	1257	603	3506	0
Satd. Flow (RTOR)		46			72				149		16	
Lane Group Flow (vph)	140	236	0	39	150	0	108	581	32	43	755	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	34.0	34.0		11.0	45.0		13.0	44.0	44.0	13.0	44.0	
Total Split (%)	25.8%	25.8%		8.3%	34.1%		9.8%	33.3%	33.3%	9.8%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	20.8	20.8		31.0	29.9		73.0	71.0	71.0	73.5	71.5	
Actuated g/C Ratio	0.16	0.16		0.23	0.23		0.55	0.54	0.54	0.56	0.54	
v/c Ratio	0.77	0.77		0.22	0.21		0.30	0.30	0.04	0.11	0.40	
Control Delay	79.1	58.2		41.7	19.9		23.8	22.7	0.1	14.7	12.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	79.1	58.2		41.7	19.9		23.8	22.7	0.1	14.7	12.3	
LOS	E	E		D	B		C	C	A	B	B	
Approach Delay		66.0			24.4			21.9			12.4	
Approach LOS		E			C			C			B	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 113 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 26.4

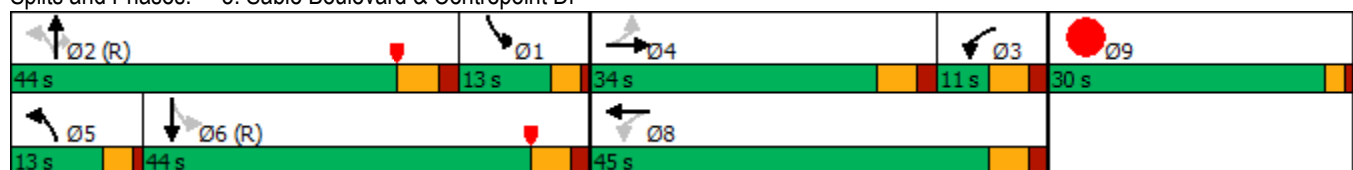
Intersection LOS: C

Intersection Capacity Utilization 73.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr



Level of Service  
5: Sable Boulevard & Centrepont Dr























Metro Center - Amendment  
Future (2040) Background PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	



Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	315	105	140	255	90	75	470	200	130	540	85
Future Volume (vph)	110	315	105	140	255	90	75	470	200	130	540	85
Satd. Flow (prot)	1656	1821	0	1805	1900	1568	1770	3304	0	1805	3574	1482
Flt Permitted	0.192			0.291			0.301			0.346		
Satd. Flow (perm)	334	1821	0	552	1900	1540	560	3304	0	655	3574	1449
Satd. Flow (RTOR)		14				182		46				118
Lane Group Flow (vph)	124	472	0	152	277	98	82	728	0	140	581	91
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	18.0	42.0		24.0	24.0	24.0	12.0	23.0		14.0	25.0	25.0
Total Split (%)	15.0%	35.0%		20.0%	20.0%	20.0%	10.0%	19.2%		11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	38.0	37.0		21.2	21.2	21.2	51.8	49.8		56.0	54.0	54.0
Actuated g/C Ratio	0.32	0.31		0.18	0.18	0.18	0.43	0.42		0.47	0.45	0.45
v/c Ratio	0.53	0.83		1.57	0.83	0.23	0.26	0.52		0.35	0.36	0.13
Control Delay	38.9	51.0		331.7	69.2	1.3	28.6	28.6		30.9	26.7	4.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	38.9	51.0		331.7	69.2	1.3	28.6	28.6		30.9	26.7	4.2
LOS	D	D		F	E	A	C	C		C	C	A
Approach Delay		48.5			132.3			28.6			24.9	
Approach LOS		D			F			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.57

Intersection Signal Delay: 51.8

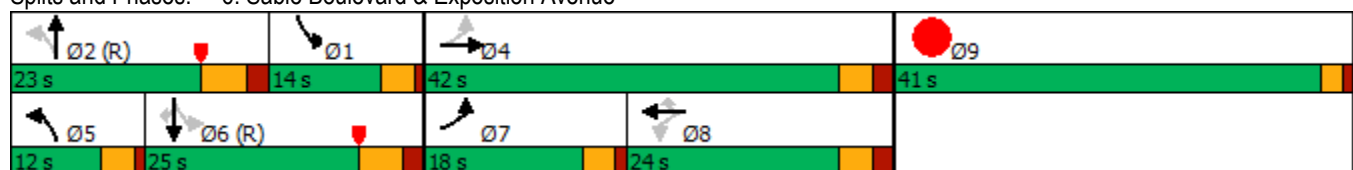
Intersection LOS: D

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15























Splits and Phases: 6: Sable Boulevard & Exposition Avenue



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background PM - with Improvements

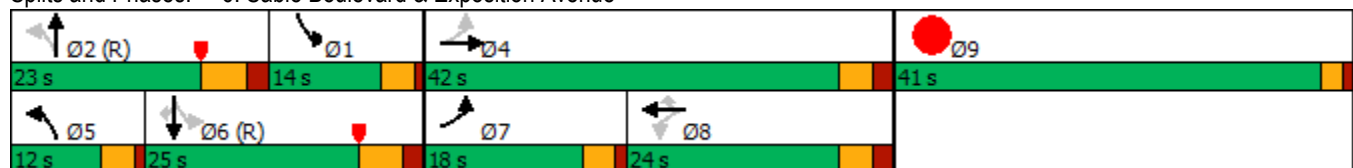
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	315	105	140	255	90	75	470	200	130	540	85
Future Volume (vph)	110	315	105	140	255	90	75	470	200	130	540	85
Satd. Flow (prot)	1656	1821	0	1805	1900	1568	1770	3304	0	1805	3574	1482
Flt Permitted	0.192			0.291			0.301			0.346		
Satd. Flow (perm)	334	1821	0	552	1900	1540	560	3304	0	655	3574	1449
Satd. Flow (RTOR)		14				182		46				118
Lane Group Flow (vph)	124	472	0	152	277	98	82	728	0	140	581	91
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	18.0	42.0		24.0	24.0	24.0	12.0	23.0		14.0	25.0	25.0
Total Split (%)	15.0%	35.0%		20.0%	20.0%	20.0%	10.0%	19.2%		11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	38.0	37.0		21.2	21.2	21.2	51.8	49.8		56.0	54.0	54.0
Actuated g/C Ratio	0.32	0.31		0.18	0.18	0.18	0.43	0.42		0.47	0.45	0.45
v/c Ratio	0.53	0.83		1.57	0.83	0.23	0.26	0.52		0.35	0.36	0.13
Control Delay	38.9	51.0		331.7	69.2	1.3	28.6	28.6		30.9	26.7	4.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	38.9	51.0		331.7	69.2	1.3	28.6	28.6		30.9	26.7	4.2
LOS	D	D		F	E	A	C	C		C	C	A
Approach Delay		48.5			132.3			28.6			24.9	
Approach LOS		D			F			C			C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.57  
 Intersection Signal Delay: 51.8  
 Intersection Capacity Utilization 78.0%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service D

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	
























Level of Service  
7: Centrepont Dr & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background PM

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	595	50	25	375	25	25	10	15	60	20	25
Future Vol, veh/h	20	595	50	25	375	25	25	10	15	60	20	25
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	94	94	94	88	88	88	89	89	89
Heavy Vehicles, %	0	0	0	0	0	17	0	0	0	4	0	6
Mvmt Flow	23	676	57	27	399	27	28	11	17	67	22	28
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	426	0	0	736	0	0	1246	1234	708	1218	1235	399
Stage 1	-	-	-	-	-	-	754	754	-	453	453	-
Stage 2	-	-	-	-	-	-	492	480	-	765	782	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.354
Pot Cap-1 Maneuver	*1170	-	-	824	-	-	152	178	568	156	178	*767
Stage 1	-	-	-	-	-	-	483	434	-	697	621	-
Stage 2	-	-	-	-	-	-	659	599	-	466	412	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	*1170	-	-	822	-	-	126	168	567	138	168	*767
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	168	-	138	168	-
Stage 1	-	-	-	-	-	-	473	424	-	683	601	-
Stage 2	-	-	-	-	-	-	591	579	-	432	403	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.6			34.9			38.8		
HCM LOS							D			E		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3		
Capacity (veh/h)	176	* 1170	-	-	822	-	-	138	168	767		
HCM Lane V/C Ratio	0.323	0.019	-	-	0.032	-	-	0.489	0.134	0.037		
HCM Control Delay (s)	34.9	8.1	-	-	9.5	-	-	53.8	29.7	9.9		
HCM Lane LOS	D	A	-	-	A	-	-	F	D	A		
HCM 95th %tile Q(veh)	1.3	0.1	-	-	0.1	-	-	2.3	0.5	0.1		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									  			  
Traffic Volume (veh/h)	300	30	395	55	10	45	10	185	1585	30	95	1915
Future Volume (veh/h)	300	30	395	55	10	45	10	185	1585	30	95	1915
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99		1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1900		1870	1885	1900	1900	1885
Adj Flow Rate, veh/h	337	34	444	61	11	50		203	1742	33	100	2016
Peak Hour Factor	0.89	0.89	0.89	0.90	0.90	0.90		0.91	0.91	0.91	0.95	0.95
Percent Heavy Veh, %	0	0	1	0	0	0		2	1	0	0	1
Cap, veh/h	316	27	471	37	14	10		227	3227	61	167	2431
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30		0.08	0.62	0.62	0.68	0.68
Sat Flow, veh/h	905	91	1590	0	48	34		1781	5199	98	272	4745
Grp Volume(v), veh/h	371	0	444	122	0	0		203	1149	626	100	1452
Grp Sat Flow(s),veh/h/ln	996	0	1590	82	0	0		1781	1716	1866	272	1716
Q Serve(g_s), s	0.0	0.0	39.5	0.0	0.0	0.0		9.5	27.7	27.7	44.6	44.7
Cycle Q Clear(g_c), s	43.0	0.0	39.5	43.0	0.0	0.0		9.5	27.7	27.7	56.6	44.7
Prop In Lane	0.91		1.00	0.50		0.41		1.00		0.05	1.00	
Lane Grp Cap(c), veh/h	343	0	471	62	0	0		227	2130	1158	167	1758
V/C Ratio(X)	1.08	0.00	0.94	1.98	0.00	0.00		0.89	0.54	0.54	0.60	0.83
Avail Cap(c_a), veh/h	343	0	471	62	0	0		280	2130	1158	167	1758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	0.0	49.8	55.9	0.0	0.0		38.0	15.7	15.7	25.3	18.4
Incr Delay (d2), s/veh	72.5	0.0	27.5	494.1	0.0	0.0		25.0	1.0	1.8	15.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.7	0.0	19.4	10.8	0.0	0.0		8.9	10.6	11.8	3.2	15.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.4	0.0	77.2	550.0	0.0	0.0		63.0	16.7	17.5	40.3	23.0
LnGrp LOS	F	A	E	F	A	A		E	B	B	D	C
Approach Vol, veh/h		815			122				1978			2321
Approach Delay, s/veh		99.6			550.0				21.7			25.3
Approach LOS		F			F				C			C
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		96.0		49.0	15.7	80.3		49.0				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		90.0		43.0	16.0	70.0		43.0				
Max Q Clear Time (g_c+I1), s		29.7		45.0	11.5	58.6		45.0				
Green Ext Time (p_c), s		19.6		0.0	0.2	10.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay 47.7

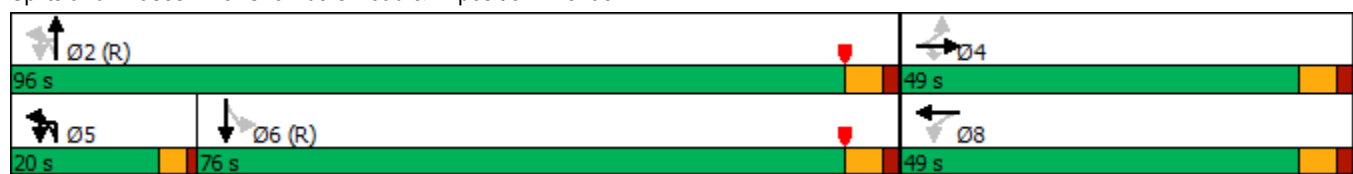
HCM 6th LOS D

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

Splits and Phases: 8: Chambers Road & Exposition Avenue


























## Metro Center - Amendment

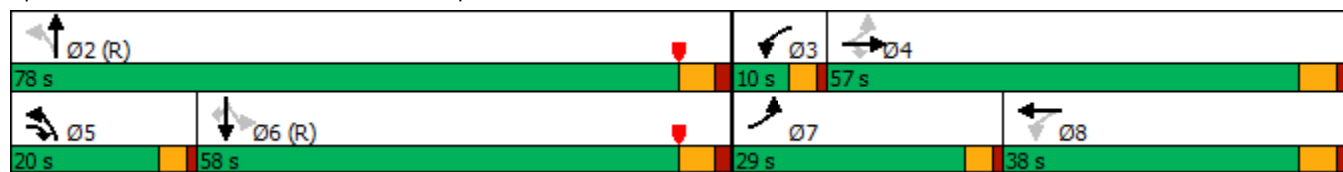
### Future (2040) Background PM

Page C-154

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Background PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	30	395	55	10	45	195	1585	30	95	1915	195
Future Volume (veh/h)	300	30	395	55	10	45	195	1585	30	95	1915	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1900	1870	1885	1900	1900	1885	1900
Adj Flow Rate, veh/h	337	34	444	61	11	50	214	1742	33	100	2016	205
Peak Hour Factor	0.89	0.89	0.89	0.90	0.90	0.90	0.91	0.91	0.91	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	1	0	0	0	2	1	0	0	1	0
Cap, veh/h	507	524	559	255	43	197	248	2990	57	148	2430	750
Arrive On Green	0.17	0.28	0.28	0.04	0.15	0.15	0.08	0.58	0.58	0.94	0.94	0.94
Sat Flow, veh/h	1810	1900	1589	1810	296	1345	1781	5199	98	272	5147	1588
Grp Volume(v), veh/h	337	34	444	61	0	61	214	1149	626	100	2016	205
Grp Sat Flow(s),veh/h/ln	1810	1900	1589	1810	0	1641	1781	1716	1866	272	1716	1588
Q Serve(g_s), s	22.3	1.9	36.5	4.1	0.0	4.8	8.7	31.0	31.1	52.3	14.6	1.4
Cycle Q Clear(g_c), s	22.3	1.9	36.5	4.1	0.0	4.8	8.7	31.0	31.1	68.5	14.6	1.4
Prop In Lane	1.00		1.00	1.00		0.82	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	507	524	559	255	0	240	248	1973	1073	148	2430	750
V/C Ratio(X)	0.66	0.06	0.79	0.24	0.00	0.25	0.86	0.58	0.58	0.68	0.83	0.27
Avail Cap(c_a), veh/h	515	668	679	260	0	362	310	1973	1073	148	2430	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	40.4	38.7	42.3	49.8	0.0	54.9	24.9	19.7	19.7	12.5	2.5	2.2
Incr Delay (d2), s/veh	3.2	0.1	5.4	0.5	0.0	0.6	17.9	1.3	2.3	18.2	2.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	0.9	15.3	1.9	0.0	2.0	4.7	12.2	13.7	2.4	2.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	38.8	47.7	50.3	0.0	55.4	42.8	20.9	22.0	30.8	5.4	2.9
LnGrp LOS	D	D	D	D	A	E	D	C	C	C	A	A
Approach Vol, veh/h	815				122		1989				2321	
Approach Delay, s/veh	45.6				52.9		23.6				6.2	
Approach LOS	D				D		C				A	
Timer - Assigned Phs	2		3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	89.4		9.6	46.0	14.9	74.5	28.4	27.2				
Change Period (Y+Rc), s	6.0		4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	72.0		6.0	51.0	16.0	52.0	25.0	32.0				
Max Q Clear Time (g_c+I1), s	33.1		6.1	38.5	10.7	70.5	24.3	6.8				
Green Ext Time (p_c), s	17.1		0.0	1.5	0.3	0.0	0.1	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			20.0									
HCM 6th LOS			C									
Notes												



























Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Background PM

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵ ↵ ↵ ↵			↵ ↵ ↵ ↵		
Traffic Vol, veh/h	10	0	25	80	0	55	15	1845	70	35	2100	15
Future Vol, veh/h	10	0	25	80	0	55	15	1845	70	35	2100	15
Conflicting Peds, #/hr	1	0	0	0	0	1	3	0	11	11	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	95	95	95	94	94	94
Heavy Vehicles, %	0	0	0	0	0	2	0	1	0	0	0	0
Mvmt Flow	12	0	30	95	0	65	16	1942	74	37	2234	16
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	3129	4378	1128	2990	4349	1020	2253	0	0	2027	0	0
Stage 1	2319	2319	-	2022	2022	-	-	-	-	-	-	-
Stage 2	810	2059	-	968	2327	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.14	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.92	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*81	*1	*433	*127	*1	*484	*545	-	-	*613	-	-
Stage 1	*444	*422	-	*500	*475	-	-	-	-	-	-	-
Stage 2	*500	*475	-	*444	*422	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*65	*1	*432	*109	*1	*479	*543	-	-	*606	-	-
Mov Cap-2 Maneuver	*65	*1	-	*109	*1	-	-	-	-	-	-	-
Stage 1	*430	*395	-	*480	*456	-	-	-	-	-	-	-
Stage 2	*418	*456	-	*388	*395	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	34		131.6		0.1		0.2					
HCM LOS	D		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	* 543	-	-	165	159	* 606	-	-				
HCM Lane V/C Ratio	0.029	-	-	0.253	1.011	0.061	-	-				
HCM Control Delay (s)	11.8	-	-	34	131.6	11.3	-	-				
HCM Lane LOS	B	-	-	D	F	B	-	-				
HCM 95th %tile Q(veh)	0.1	-	-	1	7.9	0.2	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

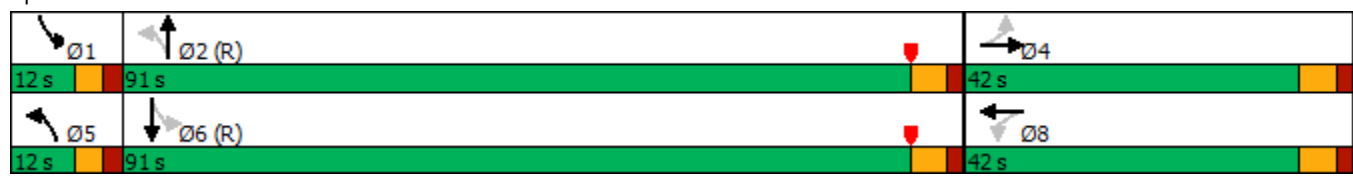
Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Background PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	10	0	25	80	0	55	15	1845	70	35	2100	15
Future Volume (veh/h)	10	0	25	80	0	55	15	1845	70	35	2100	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1870	1900	1885	1900	1900	1900	1900
Adj Flow Rate, veh/h	12	0	30	95	0	65	16	1942	74	37	2234	16
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	2	0	1	0	0	0	0
Cap, veh/h	74	16	145	150	3	78	204	3721	142	255	3942	28
Arrive On Green	0.12	0.00	0.12	0.12	0.00	0.12	0.03	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	339	127	1165	889	26	626	1810	5086	193	1810	5313	38
Grp Volume(v), veh/h	42	0	0	160	0	0	16	1309	707	37	1454	796
Grp Sat Flow(s),veh/h/ln	1632	0	0	1540	0	0	1810	1716	1849	1810	1729	1893
Q Serve(g_s), s	0.0	0.0	0.0	11.3	0.0	0.0	0.3	0.0	0.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	14.6	0.0	0.0	0.3	0.0	0.0	0.7	0.0	0.0
Prop In Lane	0.29		0.71	0.59		0.41	1.00		0.10	1.00		0.02
Lane Grp Cap(c), veh/h	235	0	0	231	0	0	204	2510	1353	255	2566	1404
V/C Ratio(X)	0.18	0.00	0.00	0.69	0.00	0.00	0.08	0.52	0.52	0.14	0.57	0.57
Avail Cap(c_a), veh/h	424	0	0	414	0	0	262	2510	1353	294	2566	1404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	0.0	0.0	61.7	0.0	0.0	4.6	0.0	0.0	4.2	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	3.7	0.0	0.0	0.1	0.6	1.2	0.3	0.9	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	6.0	0.0	0.0	0.1	0.2	0.4	0.3	0.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	0.0	0.0	65.4	0.0	0.0	4.7	0.6	1.2	4.5	0.9	1.7
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		42			160			2032			2287	
Approach Delay, s/veh		57.4			65.4			0.8			1.2	
Approach LOS		E			E			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	112.1		24.0	7.4	113.6		24.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	85.0		36.0	7.0	85.0		36.0				
Max Q Clear Time (g_c+I1), s	2.7	2.0		5.3	2.3	2.0		16.6				
Green Ext Time (p_c), s	0.0	27.4		0.2	0.0	34.7		0.8				






Intersection Summary

HCM 6th Ctrl Delay 3.8  
 HCM 6th LOS A  
 Splits and Phases: 9: Chambers Road & Center Avenue







Level of Service  
10: Centrepont Dr & Walsh Drive

Metro Center - Amendment  
Future (2040) Background PM

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	20	5	50	85	15
Future Vol, veh/h	30	20	5	50	85	15
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	86	86	87	87
Heavy Vehicles, %	0	14	0	9	3	0
Mvmt Flow	38	25	6	58	98	17
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	180	58	115	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	73	-	-	-	-	-
Critical Hdwy	6.6	7.11	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.433	2.2	-	-	-
Pot Cap-1 Maneuver	876	*1017	1549	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	872	*1017	1549	-	-	-
Mov Cap-2 Maneuver	837	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	9.3		0.7		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1549		-	901	-	-
HCM Lane V/C Ratio	0.004		-	0.069	-	-
HCM Control Delay (s)	7.3		-	9.3	-	-
HCM Lane LOS	A		-	A	-	-
HCM 95th %tile Q(veh)	0		-	0.2	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon






Level of Service  
11: Centrepont Dr & Center Avenue

Metro Center - Amendment  
Future (2040) Background PM

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	25	60	20	25	90
Future Vol, veh/h	10	25	60	20	25	90
Conflicting Peds, #/hr	3	0	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	77	77	84	84	86	86
Heavy Vehicles, %	0	0	6	0	0	2
Mvmt Flow	13	32	71	24	29	105
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	202	88	0	0	100	0
Stage 1	88	-	-	-	-	-
Stage 2	114	-	-	-	-	-
Critical Hdwy	6.6	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	849	976	-	-	1505	-
Stage 1	940	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	826	971	-	-	1498	-
Mov Cap-2 Maneuver	806	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.1	0	1.6			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	917	1498	-	
HCM Lane V/C Ratio	-	-	0.05	0.019	-	
HCM Control Delay (s)	-	-	9.1	7.5	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

































Level of Service  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Future (2040) Background PM

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	70	50	35	45	85
Future Vol, veh/h	60	70	50	35	45	85
Conflicting Peds, #/hr	10	0	0	10	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	92	92	89	89
Heavy Vehicles, %	13	3	5	5	0	12
Mvmt Flow	69	80	54	38	51	96
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	102	0	-	0	261	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	4.295	-	-	-	6.6	6.38
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.3235	-	-	-	3.5	3.414
Pot Cap-1 Maneuver	1418	-	-	-	734	947
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	853	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1404	-	-	-	684	938
Mov Cap-2 Maneuver	-	-	-	-	706	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	844	-
Approach	EB	WB		SB		
HCM Control Delay, s	3.6	0		9.7		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1404	-	-	-	706	938
HCM Lane V/C Ratio	0.049	-	-	-	0.072	0.102
HCM Control Delay (s)	7.7	-	-	-	10.5	9.3
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	0.3

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			 	  		 	 		 	 
Traffic Volume (vph)	115	1305	175	5	35	2250	190	265	390	65	155	255
Future Volume (vph)	115	1305	175	5	35	2250	190	265	390	65	155	255
Satd. Flow (prot)	1787	5085	1524	0	3502	5085	1583	3400	3539	1615	3400	3471
Flt Permitted	0.098				0.123			0.444			0.488	
Satd. Flow (perm)	184	5085	1499	0	453	5085	1535	1580	3539	1578	1736	3471
Satd. Flow (RTOR)			190				182			140		
Lane Group Flow (vph)	132	1500	201	0	43	2419	204	312	459	76	178	293
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2		2	6	6		6	8		8	4	
Detector Phase	5	2	2	1	1	6	6	3	8	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0
Total Split (s)	14.0	16.0	16.0	24.0	24.0	26.0	26.0	14.0	49.0	49.0	10.0	45.0
Total Split (%)	10.6%	12.1%	12.1%	18.2%	18.2%	19.7%	19.7%	10.6%	37.1%	37.1%	7.6%	34.1%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	6.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	58.4	57.4	57.4		59.3	58.3	58.3	24.3	23.3	23.3	18.5	17.5
Actuated g/C Ratio	0.44	0.43	0.43		0.45	0.44	0.44	0.18	0.18	0.18	0.14	0.13
v/c Ratio	0.54	0.68	0.26		0.07	1.08	0.26	0.64	0.74	0.19	0.51	0.64
Control Delay	38.5	34.4	7.5		31.9	77.7	8.3	45.6	49.8	4.4	58.4	60.0
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	34.4	7.5		31.9	77.7	8.3	45.6	49.8	4.4	58.4	60.0
LOS	D	C	A		C	E	A	D	D	A	E	E
Approach Delay		31.8				71.7			44.2			46.6
Approach LOS		C				E			D			D

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 104 (79%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 52.9

Intersection LOS: D

Intersection Capacity Utilization 88.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway



































Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM

Lane Group	SBR	Ø9
Lane Configurations		
Traffic Volume (vph)	150	
Future Volume (vph)	150	
Satd. Flow (prot)	1599	
Flt Permitted		
Satd. Flow (perm)	1565	
Satd. Flow (RTOR)	172	
Lane Group Flow (vph)	172	
Turn Type	Perm	
Protected Phases		9
Permitted Phases	4	
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	40.0	33.0
Total Split (s)	45.0	33.0
Total Split (%)	34.1%	25%
Yellow Time (s)	4.0	2.0
All-Red Time (s)	2.0	1.0
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)	17.5	
Actuated g/C Ratio	0.13	
v/c Ratio	0.48	
Control Delay	11.4	
Queue Delay	0.0	
Total Delay	11.4	
LOS	B	
Approach Delay		
Approach LOS		
Intersection Summary		

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			 	  		 	 		 	 
Traffic Volume (vph)	115	1305	175	5	35	2250	190	265	390	65	155	255
Future Volume (vph)	115	1305	175	5	35	2250	190	265	390	65	155	255
Satd. Flow (prot)	1787	5085	1524	0	3502	5085	1583	3400	3539	1615	3400	3471
Flt Permitted	0.098				0.123			0.444			0.488	
Satd. Flow (perm)	184	5085	1499	0	453	5085	1535	1580	3539	1578	1736	3471
Satd. Flow (RTOR)			190				182			140		
Lane Group Flow (vph)	132	1500	201	0	43	2419	204	312	459	76	178	293
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2		2	6	6		6	8		8	4	
Detector Phase	5	2	2	1	1	6	6	3	8	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0
Total Split (s)	14.0	16.0	16.0	24.0	24.0	26.0	26.0	14.0	49.0	49.0	10.0	45.0
Total Split (%)	10.6%	12.1%	12.1%	18.2%	18.2%	19.7%	19.7%	10.6%	37.1%	37.1%	7.6%	34.1%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	6.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	58.4	57.4	57.4		59.3	58.3	58.3	24.3	23.3	23.3	18.5	17.5
Actuated g/C Ratio	0.44	0.43	0.43		0.45	0.44	0.44	0.18	0.18	0.18	0.14	0.13
v/c Ratio	0.54	0.68	0.26		0.07	1.08	0.26	0.64	0.74	0.19	0.51	0.64
Control Delay	38.5	34.4	7.5		31.9	77.7	8.3	45.1	49.3	4.4	58.4	60.0
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	34.4	7.5		31.9	77.7	8.3	45.1	49.3	4.4	58.4	60.0
LOS	D	C	A		C	E	A	D	D	A	E	E
Approach Delay		31.8				71.7			43.7			46.6
Approach LOS		C				E			D			D

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 104 (79%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 52.8

Intersection LOS: D

Intersection Capacity Utilization 88.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway











Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Lane Group	SBR	Ø9
Lane Configurations		
Traffic Volume (vph)	150	
Future Volume (vph)	150	
Satd. Flow (prot)	1599	
Flt Permitted		
Satd. Flow (perm)	1565	
Satd. Flow (RTOR)	172	
Lane Group Flow (vph)	172	
Turn Type	Perm	
Protected Phases		9
Permitted Phases	4	
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	40.0	33.0
Total Split (s)	45.0	33.0
Total Split (%)	34.1%	25%
Yellow Time (s)	4.0	2.0
All-Red Time (s)	2.0	1.0
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)	17.5	
Actuated g/C Ratio	0.13	
v/c Ratio	0.48	
Control Delay	11.4	
Queue Delay	0.0	
Total Delay	11.4	
LOS	B	
Approach Delay		
Approach LOS		
Intersection Summary		



























Level of Service  
2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Future (2040) Total AM

Intersection							
Int Delay, s/veh	5.6						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	165	1435	2495	50	10	40
Future Vol, veh/h	10	165	1435	2495	50	10	40
Conflicting Peds, #/hr	0	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	89	89	89	94	94	80	80
Heavy Vehicles, %	1	1	2	1	0	0	6
Mvmt Flow	11	185	1612	2654	53	13	50
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	1976	2707	0	-	0	3719	1354
Stage 1	-	-	-	-	-	2681	-
Stage 2	-	-	-	-	-	1038	-
Critical Hdwy	5.62	5.32	-	-	-	5.7	7.22
Critical Hdwy Stg 1	-	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	-	6	-
Follow-up Hdwy	2.31	3.11	-	-	-	3.8	3.96
Pot Cap-1 Maneuver	*554	*411	-	-	-	*~ 11	*323
Stage 1	-	-	-	-	-	*336	-
Stage 2	-	-	-	-	-	*597	-
Platoon blocked, %	1	1	-	-	-	-	1
Mov Cap-1 Maneuver	*415	*415	-	-	-	*~ 6	*323
Mov Cap-2 Maneuver	-	-	-	-	-	*~ 6	-
Stage 1	-	-	-	-	-	*177	-
Stage 2	-	-	-	-	-	*597	-
Approach	EB		WB		SB		
HCM Control Delay, s	2.3		0		\$ 342		
HCM LOS					F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	* 415	-	-	-	6	323	
HCM Lane V/C Ratio	0.474	-	-	-	2.083	0.155	
HCM Control Delay (s)	21.3	-	-	-	\$ 1637.4	18.2	
HCM Lane LOS	C	-	-	-	F	C	
HCM 95th %tile Q(veh)	2.5	-	-	-	2.6	0.5	
Notes							
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon							

Level of Service  
3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	65	1320	75	155	2415	35	95	5	125	0	0	35
Future Volume (veh/h)	65	1320	75	155	2415	35	95	5	125	0	0	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1544	1826	1885	1900	1203	1900	1544	1900	1900	1841
Adj Flow Rate, veh/h	70	1419	81	165	2569	37	102	5	134	0	0	43
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	0	1	24	5	1	0	47	0	24	0	0	4
Cap, veh/h	175	3946	225	290	3892	56	168	8	214	48	262	214
Arrive On Green	0.02	0.79	0.79	1.00	1.00	1.00	0.14	0.14	0.14	0.00	0.00	0.14
Sat Flow, veh/h	1810	4980	284	342	5227	75	874	58	1554	1270	1900	1553
Grp Volume(v), veh/h	70	978	522	165	1684	922	102	0	139	0	0	43
Grp Sat Flow(s),veh/h/ln	1810	1716	1833	342	1716	1871	874	0	1612	1270	1900	1553
Q Serve(g_s), s	1.3	12.4	12.4	9.7	0.0	0.0	17.1	0.0	12.2	0.0	0.0	3.7
Cycle Q Clear(g_c), s	1.3	12.4	12.4	14.9	0.0	0.0	17.1	0.0	12.2	0.0	0.0	3.7
Prop In Lane	1.00		0.16	1.00		0.04	1.00		0.96	1.00		1.00
Lane Grp Cap(c), veh/h	175	2719	1452	290	2555	1393	168	0	222	48	262	214
V/C Ratio(X)	0.40	0.36	0.36	0.57	0.66	0.66	0.61	0.00	0.63	0.00	0.00	0.20
Avail Cap(c_a), veh/h	234	2719	1452	290	2555	1393	226	0	328	131	386	316
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	3.8	4.5	4.5	0.4	0.0	0.0	63.1	0.0	61.0	0.0	0.0	57.4
Incr Delay (d2), s/veh	0.5	0.4	0.7	7.8	1.4	2.5	1.3	0.0	1.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.8	4.2	0.6	0.5	1.0	3.9	0.0	5.1	0.0	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.4	4.9	5.2	8.2	1.4	2.5	64.5	0.0	62.1	0.0	0.0	57.5
LnGrp LOS	A	A	A	A	A	A	E	A	E	A	A	E
Approach Vol, veh/h		1570			2771			241			43	
Approach Delay, s/veh		5.0			2.1			63.1			57.5	
Approach LOS		A			A			E			E	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		123.9		26.1	7.2	116.7		26.1				
Change Period (Y+Rc), s		5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s		109.0		30.5	8.0	97.0		30.5				
Max Q Clear Time (g_c+I1), s		14.4		19.1	3.3	16.9		5.7				
Green Ext Time (p_c), s		15.0		0.7	0.0	56.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			6.8									
HCM 6th LOS			A									
Notes												



























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



# Level of Service 3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	65	1320	75	155	2415	35	95	5	125	0	0	35
Future Volume (veh/h)	65	1320	75	155	2415	35	95	5	125	0	0	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1544	1826	1885	1900	1203	1900	1544	1900	1900	1841
Adj Flow Rate, veh/h	70	1419	81	165	2569	37	102	5	134	0	0	43
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93	0.81	0.81	0.81
Percent Heavy Veh, %	0	1	24	5	1	0	47	0	24	0	0	4
Cap, veh/h	175	3615	206	328	3886	56	168	8	214	48	262	214
Arrive On Green	0.02	0.73	0.73	0.08	1.00	1.00	0.14	0.14	0.14	0.00	0.00	0.14
Sat Flow, veh/h	1810	4980	284	1739	5227	75	874	58	1554	1270	1900	1553
Grp Volume(v), veh/h	70	978	522	165	1684	922	102	0	139	0	0	43
Grp Sat Flow(s),veh/h/ln	1810	1716	1833	1739	1716	1871	874	0	1612	1270	1900	1553
Q Serve(g_s), s	1.5	16.4	16.4	3.9	0.0	0.0	17.1	0.0	12.2	0.0	0.0	3.7
Cycle Q Clear(g_c), s	1.5	16.4	16.4	3.9	0.0	0.0	17.1	0.0	12.2	0.0	0.0	3.7
Prop In Lane	1.00		0.16	1.00		0.04	1.00		0.96	1.00		1.00
Lane Grp Cap(c), veh/h	175	2491	1331	328	2551	1391	168	0	222	48	262	214
V/C Ratio(X)	0.40	0.39	0.39	0.50	0.66	0.66	0.61	0.00	0.63	0.00	0.00	0.20
Avail Cap(c_a), veh/h	232	2491	1331	351	2551	1391	226	0	328	131	386	316
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	4.9	7.9	7.9	6.0	0.0	0.0	63.1	0.0	61.0	0.0	0.0	57.4
Incr Delay (d2), s/veh	0.5	0.5	0.9	1.2	1.4	2.5	1.3	0.0	1.1	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.7	6.2	1.2	0.5	1.0	3.9	0.0	5.1	0.0	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	8.3	8.7	7.2	1.4	2.5	64.5	0.0	62.1	0.0	0.0	57.5
LnGrp LOS	A	A	A	A	A	A	E	A	E	A	A	E
Approach Vol, veh/h		1570			2771			241			43	
Approach Delay, s/veh		8.3			2.1			63.1			57.5	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	113.9		26.1	7.3	116.5		26.1				
Change Period (Y+Rc), s	4.0	5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s	8.0	97.0		30.5	8.0	97.0		30.5				
Max Q Clear Time (g_c+I1), s	5.9	18.4		19.1	3.5	2.0		5.7				
Green Ext Time (p_c), s	0.1	14.8		0.7	0.0	50.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			7.9									
HCM 6th LOS			A									
Notes												























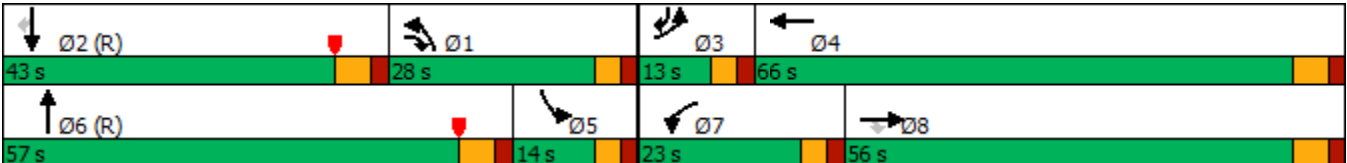
User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway






































Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	1060	165	270	1995	265	385	1395	295	215	880	245
Future Volume (veh/h)	265	1060	165	270	1995	265	385	1395	295	215	880	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1885	1870	1870	1885	1885	1885	1900	1841	1856	1856
Adj Flow Rate, veh/h	282	1128	176	290	2145	285	443	1603	339	236	967	269
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.87	0.87	0.87	0.91	0.91	0.91
Percent Heavy Veh, %	3	2	1	2	2	1	1	1	0	4	3	3
Cap, veh/h	183	1813	848	339	1828	238	613	1447	304	204	1135	432
Arrive On Green	0.11	0.71	0.71	0.10	0.40	0.40	0.23	0.45	0.45	0.06	0.22	0.22
Sat Flow, veh/h	3428	5106	1595	3456	4570	596	3483	4255	893	3401	5066	1556
Grp Volume(v), veh/h	282	1128	176	290	1587	843	443	1290	652	236	967	269
Grp Sat Flow(s),veh/h/ln	1714	1702	1595	1728	1702	1762	1742	1716	1717	1700	1689	1556
Q Serve(g_s), s	8.0	17.2	1.3	12.4	60.0	60.0	17.6	51.0	51.0	9.0	27.5	13.8
Cycle Q Clear(g_c), s	8.0	17.2	1.3	12.4	60.0	60.0	17.6	51.0	51.0	9.0	27.5	13.8
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	183	1813	848	339	1362	705	613	1167	584	204	1135	432
V/C Ratio(X)	1.54	0.62	0.21	0.85	1.17	1.20	0.72	1.11	1.12	1.16	0.85	0.62
Avail Cap(c_a), veh/h	183	1813	848	415	1362	705	613	1167	584	204	1250	468
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.0	16.5	3.1	66.6	45.0	45.0	54.1	41.1	41.1	70.5	55.8	21.5
Incr Delay (d2), s/veh	269.4	0.7	0.1	13.6	82.8	101.8	4.2	60.4	73.6	111.6	8.1	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	4.5	0.7	6.1	40.2	45.4	7.7	29.3	31.5	7.0	12.4	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	336.4	17.2	3.2	80.2	127.8	146.8	58.3	101.4	114.7	182.1	64.0	28.1
LnGrp LOS	F	B	A	F	F	F	E	F	F	F	E	C
Approach Vol, veh/h		1586			2720			2385			1472	
Approach Delay, s/veh		72.4			128.6			97.0			76.4	
Approach LOS		E			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.4	39.6	13.0	66.0	14.0	57.0	19.7	59.3				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	23.0	37.0	8.0	60.0	9.0	51.0	18.0	50.0				
Max Q Clear Time (g_c+I1), s	19.6	29.5	10.0	62.0	11.0	53.0	14.4	19.2				
Green Ext Time (p_c), s	0.6	4.1	0.0	0.0	0.0	0.0	0.3	9.8				
Intersection Summary												
HCM 6th Ctrl Delay			99.0									
HCM 6th LOS			F									
Splits and Phases: 4: Chambers Road & Alameda Parkway												
												

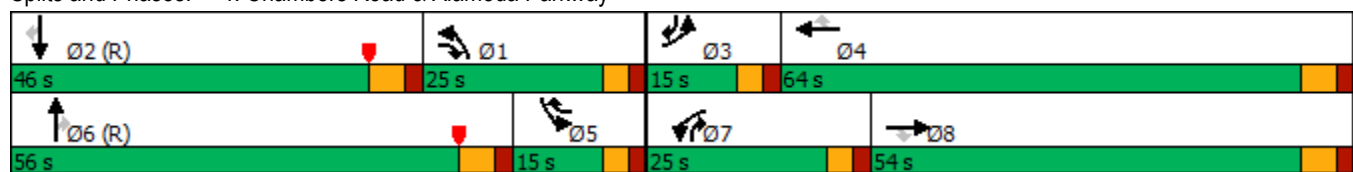
Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		 	  	
Traffic Volume (veh/h)	265	1060	165	270	1995	265	385	1395	295	215	880	245
Future Volume (veh/h)	265	1060	165	270	1995	265	385	1395	295	215	880	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1870	1885	1870	1870	1885	1885	1885	1900	1841	1856	1856
Adj Flow Rate, veh/h	282	1128	176	290	2145	285	443	1603	339	236	967	269
Peak Hour Factor	0.94	0.94	0.94	0.93	0.93	0.93	0.87	0.87	0.87	0.91	0.91	0.91
Percent Heavy Veh, %	3	2	1	2	2	1	1	1	0	4	3	3
Cap, veh/h	229	1809	836	342	1974	733	591	1683	682	248	1167	463
Arrive On Green	0.13	0.71	0.71	0.10	0.39	0.39	0.34	0.65	0.65	0.07	0.23	0.23
Sat Flow, veh/h	3428	5106	1595	3456	5106	1595	3483	5147	1598	3401	5066	1556
Grp Volume(v), veh/h	282	1128	176	290	2145	285	443	1603	339	236	967	269
Grp Sat Flow(s),veh/h/ln	1714	1702	1595	1728	1702	1595	1742	1716	1598	1700	1689	1556
Q Serve(g_s), s	10.0	17.3	1.3	12.4	58.0	4.3	16.9	42.9	11.2	10.4	27.2	13.4
Cycle Q Clear(g_c), s	10.0	17.3	1.3	12.4	58.0	4.3	16.9	42.9	11.2	10.4	27.2	13.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	1809	836	342	1974	733	591	1683	682	248	1167	463
V/C Ratio(X)	1.23	0.62	0.21	0.85	1.09	0.39	0.75	0.95	0.50	0.95	0.83	0.58
Avail Cap(c_a), veh/h	229	1809	836	461	1974	733	591	1716	692	248	1351	520
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	16.6	3.2	66.5	46.0	13.8	46.7	24.9	7.6	69.3	54.9	20.2
Incr Delay (d2), s/veh	137.1	0.7	0.1	10.6	48.2	0.3	5.3	13.2	2.6	43.5	6.9	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	4.6	0.7	5.9	32.6	4.2	6.6	13.0	3.6	6.0	12.2	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	202.1	17.3	3.4	77.0	94.2	14.1	52.0	38.1	10.2	112.7	61.8	25.5
LnGrp LOS	F	B	A	E	F	B	D	D	B	F	E	C
Approach Vol, veh/h		1586			2720			2385			1472	
Approach Delay, s/veh		48.6			83.9			36.7			63.3	
Approach LOS		D			F			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.5	40.5	15.0	64.0	16.0	55.0	19.9	59.1				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	20.0	40.0	10.0	58.0	10.0	50.0	20.0	48.0				
Max Q Clear Time (g_c+I1), s	18.9	29.2	12.0	60.0	12.4	44.9	14.4	19.3				
Green Ext Time (p_c), s	0.2	5.3	0.0	0.0	0.0	4.2	0.5	9.6				























Intersection Summary

HCM 6th Ctrl Delay 59.6  
HCM 6th LOS E  
Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	15	25	90	30	185	20	520	70	85	355	25
Future Volume (vph)	15	15	25	90	30	185	20	520	70	85	355	25
Satd. Flow (prot)	1805	1659	0	1492	2641	0	1805	3610	1429	1367	3504	0
Flt Permitted	0.571			0.724			0.453			0.426		
Satd. Flow (perm)	1074	1659	0	1137	2641	0	858	3610	1375	606	3504	0
Satd. Flow (RTOR)		32			218				149		5	
Lane Group Flow (vph)	19	51	0	106	253	0	23	598	80	100	447	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	29.0	29.0		15.0	44.0		14.0	42.0	42.0	16.0	44.0	
Total Split (%)	22.0%	22.0%		11.4%	33.3%		10.6%	31.8%	31.8%	12.1%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	8.1	8.1		22.3	22.3		83.2	81.2	81.2	87.3	85.3	
Actuated g/C Ratio	0.06	0.06		0.17	0.17		0.63	0.62	0.62	0.66	0.65	
v/c Ratio	0.29	0.39		0.48	0.40		0.04	0.27	0.09	0.23	0.20	
Control Delay	69.5	37.0		55.9	10.5		15.4	15.0	0.2	39.1	31.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	69.5	37.0		55.9	10.5		15.4	15.0	0.2	39.1	31.7	
LOS	E	D		E	B		B	B	A	D	C	
Approach Delay		45.8			23.9			13.3			33.0	
Approach LOS		D			C			B			C	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 54 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 23.4

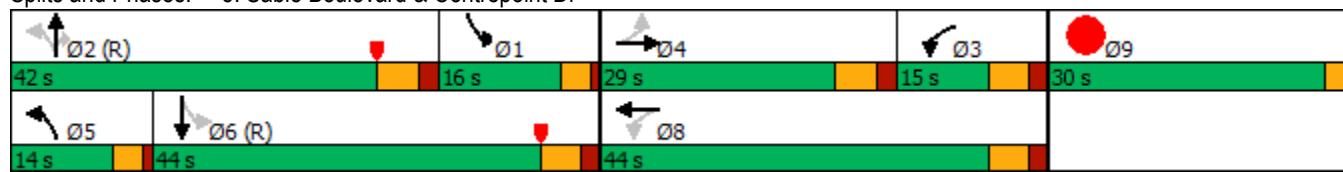
Intersection LOS: C

Intersection Capacity Utilization 55.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr


























Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	



Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	15	25	90	30	185	20	520	70	85	355	25
Future Volume (vph)	15	15	25	90	30	185	20	520	70	85	355	25
Satd. Flow (prot)	1805	1659	0	1492	1900	1357	1805	3610	1429	1367	3501	0
Flt Permitted	0.734			0.724			0.454			0.426		
Satd. Flow (perm)	1376	1659	0	1137	1900	1322	858	3610	1375	606	3501	0
Satd. Flow (RTOR)		32				218			149		5	
Lane Group Flow (vph)	19	51	0	106	35	218	23	598	80	100	447	0
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0	31.0	9.5	27.0	27.0	9.5	35.0	
Total Split (s)	29.0	29.0		15.0	44.0	44.0	14.0	42.0	42.0	16.0	44.0	
Total Split (%)	22.0%	22.0%		11.4%	33.3%	33.3%	10.6%	31.8%	31.8%	12.1%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	7.6	7.6		22.2	22.2	22.2	83.2	81.2	81.2	87.4	85.4	
Actuated g/C Ratio	0.06	0.06		0.17	0.17	0.17	0.63	0.62	0.62	0.66	0.65	
v/c Ratio	0.24	0.40		0.48	0.11	0.54	0.04	0.27	0.09	0.23	0.20	
Control Delay	65.6	38.1		55.9	43.6	10.7	15.3	15.0	0.2	39.0	31.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	65.6	38.1		55.9	43.6	10.7	15.3	15.0	0.2	39.0	31.6	
LOS	E	D		E	D	B	B	B	A	D	C	
Approach Delay		45.6			27.2			13.3			32.9	
Approach LOS		D			C			B			C	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 54 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 24.0

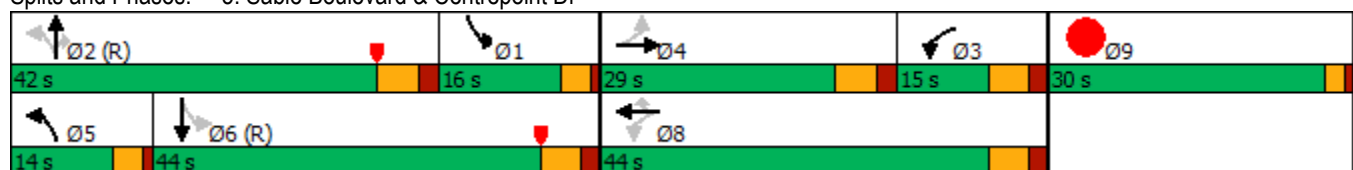
Intersection LOS: C

Intersection Capacity Utilization 55.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr


























Level of Service  
5: Sable Boulevard & Centrepont Dr

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	65	10	135	160	105	40	450	140	70	335	65
Future Volume (vph)	55	65	10	135	160	105	40	450	140	70	335	65
Satd. Flow (prot)	1556	1858	0	1805	1900	1599	1752	3377	0	1805	3471	1404
Flt Permitted	0.365			0.704			0.459			0.402		
Satd. Flow (perm)	597	1858	0	1334	1900	1577	844	3377	0	760	3471	1367
Satd. Flow (RTOR)		7				127		27				118
Lane Group Flow (vph)	60	82	0	152	180	118	44	656	0	82	394	76
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	12.0	50.0		38.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Split (%)	10.0%	41.7%		31.7%	31.7%	31.7%	10.0%	14.2%		10.0%	14.2%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	30.1	29.1		19.5	19.5	19.5	64.1	62.1		64.2	62.2	62.2
Actuated g/C Ratio	0.25	0.24		0.16	0.16	0.16	0.53	0.52		0.54	0.52	0.52
v/c Ratio	0.29	0.18		0.70	0.58	0.33	0.09	0.37		0.17	0.22	0.10
Control Delay	34.6	30.4		63.8	53.1	8.0	26.4	23.5		27.6	23.8	2.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	34.6	30.4		63.8	53.1	8.0	26.4	23.5		27.6	23.8	2.7
LOS	C	C		E	D	A	C	C		C	C	A
Approach Delay		32.2			44.9			23.7			21.4	
Approach LOS		C			D			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 28.8

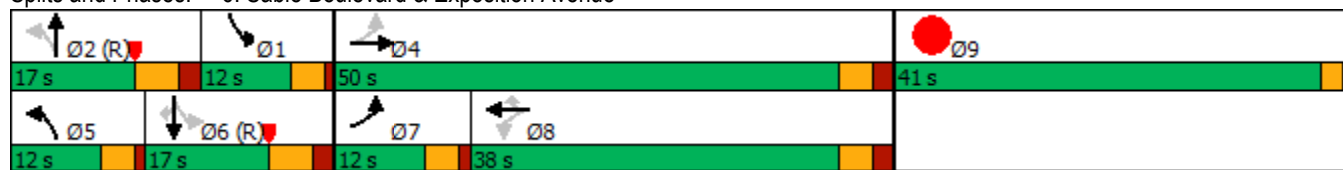
Intersection LOS: C

Intersection Capacity Utilization 56.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue

























Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	65	10	135	160	105	40	450	140	70	335	65
Future Volume (vph)	55	65	10	135	160	105	40	450	140	70	335	65
Satd. Flow (prot)	1556	1858	0	1805	1900	1599	1752	3377	0	1805	3471	1404
Flt Permitted							0.465			0.402		
Satd. Flow (perm)	1636	1858	0	1895	1900	1577	855	3377	0	760	3471	1367
Satd. Flow (RTOR)		6				127		27				164
Lane Group Flow (vph)	60	82	0	152	180	118	44	656	0	82	394	76
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		9.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	12.0	38.0		12.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Split (%)	10.0%	31.7%		10.0%	31.7%	31.7%	10.0%	14.2%		10.0%	14.2%	14.2%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	11.0	10.3		17.7	16.7	16.7	66.9	64.9		67.1	65.1	65.1
Actuated g/C Ratio	0.09	0.09		0.15	0.14	0.14	0.56	0.54		0.56	0.54	0.54
v/c Ratio	0.40	0.50		0.54	0.68	0.36	0.08	0.36		0.17	0.21	0.09
Control Delay	58.1	58.1		54.0	61.7	9.3	23.5	21.7		25.3	21.5	0.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.1	58.1		54.0	61.7	9.3	23.5	21.7		25.3	21.5	0.2
LOS	E	E		D	E	A	C	C		C	C	A
Approach Delay		58.1			45.3			21.8			19.1	
Approach LOS		E			D			C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 29.5

Intersection LOS: C

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	






















Level of Service  
7: Centrepont Dr & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	130	10	5	290	95	35	30	25	40	5	35
Future Vol, veh/h	40	130	10	5	290	95	35	30	25	40	5	35
Conflicting Peds, #/hr	2	0	1	1	0	2	1	0	4	4	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	89	89	89	84	84	84	81	81	81
Heavy Vehicles, %	0	2	0	0	1	3	4	5	5	22	0	0
Mvmt Flow	43	138	11	6	326	107	42	36	30	49	6	43
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	435	0	0	150	0	0	648	678	149	607	576	329
Stage 1	-	-	-	-	-	-	231	231	-	340	340	-
Stage 2	-	-	-	-	-	-	417	447	-	267	236	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.55	6.25	7.32	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4.045	3.345	3.698	4	3.3
Pot Cap-1 Maneuver	1140	-	-	1465	-	-	381	370	950	381	431	849
Stage 1	-	-	-	-	-	-	808	727	-	745	692	-
Stage 2	-	-	-	-	-	-	691	598	-	733	731	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	1138	-	-	1464	-	-	346	353	946	328	412	847
Mov Cap-2 Maneuver	-	-	-	-	-	-	346	353	-	328	412	-
Stage 1	-	-	-	-	-	-	776	698	-	715	688	-
Stage 2	-	-	-	-	-	-	647	594	-	646	703	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.8			0.1			16.4			14		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3		
Capacity (veh/h)	423	1138	-	-	1464	-	-	328	412	847		
HCM Lane V/C Ratio	0.253	0.037	-	-	0.004	-	-	0.151	0.015	0.051		
HCM Control Delay (s)	16.4	8.3	-	-	7.5	-	-	17.9	13.9	9.5		
HCM Lane LOS	C	A	-	-	A	-	-	C	B	A		
HCM 95th %tile Q(veh)	1	0.1	-	-	0	-	-	0.5	0	0.2		

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Traffic Volume (veh/h)	95	10	75	45	15	55	15	225	1980	10	25	1190
Future Volume (veh/h)	95	10	75	45	15	55	15	225	1980	10	25	1190
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1870	1900	1841	1752	1900	1870		1885	1885	1693	1826	1870
Adj Flow Rate, veh/h	100	11	79	54	18	66		253	2225	11	28	1352
Peak Hour Factor	0.95	0.95	0.95	0.83	0.83	0.83		0.89	0.89	0.89	0.88	0.88
Percent Heavy Veh, %	2	0	4	10	0	2		1	1	14	5	2
Cap, veh/h	201	20	319	81	35	75		388	3779	19	133	2916
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20		0.07	0.72	0.72	1.00	1.00
Sat Flow, veh/h	757	97	1558	232	170	368		1795	5285	26	167	4690
Grp Volume(v), veh/h	111	0	79	138	0	0		253	1444	792	28	981
Grp Sat Flow(s),veh/h/ln	854	0	1558	769	0	0		1795	1716	1880	167	1702
Q Serve(g_s), s	0.0	0.0	6.4	9.9	0.0	0.0		7.3	31.1	31.1	6.3	0.0
Cycle Q Clear(g_c), s	18.7	0.0	6.4	28.6	0.0	0.0		7.3	31.1	31.1	23.4	0.0
Prop In Lane	0.90		1.00	0.39		0.48		1.00		0.01	1.00	
Lane Grp Cap(c), veh/h	221	0	319	191	0	0		388	2453	1345	133	2116
V/C Ratio(X)	0.50	0.00	0.25	0.72	0.00	0.00		0.65	0.59	0.59	0.21	0.46
Avail Cap(c_a), veh/h	232	0	332	204	0	0		628	2453	1345	133	2116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	0.0	49.9	62.2	0.0	0.0		7.8	10.5	10.5	2.1	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.4	11.1	0.0	0.0		1.9	1.0	1.9	3.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	2.6	5.9	0.0	0.0		2.9	11.0	12.4	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	0.0	50.3	73.3	0.0	0.0		9.7	11.6	12.4	5.7	0.7
LnGrp LOS	E	A	D	E	A	A		A	B	B	A	A
Approach Vol, veh/h		190			138				2489			1522
Approach Delay, s/veh		53.9			73.3				11.6			1.0
Approach LOS		D			E				B			A
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		113.3		36.7	14.0	99.3		36.7				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		106.0		32.0	30.0	72.0		32.0				
Max Q Clear Time (g_c+I1), s		33.1		20.7	9.3	25.4		30.6				
Green Ext Time (p_c), s		32.8		0.6	0.7	16.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			11.7									
HCM 6th LOS			B									
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved ignoring U-Turning movement.												
Splits and Phases: 8: Chambers Road & Exposition Avenue												




























Metro Center - Amendment  
Future (2040) Total AM

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Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	10	75	45	15	55	240	1980	10	25	1190	125
Future Volume (veh/h)	95	10	75	45	15	55	240	1980	10	25	1190	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1841	1752	1900	1870	1885	1885	1693	1826	1870	1885
Adj Flow Rate, veh/h	100	11	79	54	18	66	270	2225	11	28	1352	142
Peak Hour Factor	0.95	0.95	0.95	0.83	0.83	0.83	0.89	0.89	0.89	0.88	0.88	0.88
Percent Heavy Veh, %	2	0	4	10	0	2	1	1	14	5	2	1
Cap, veh/h	148	139	203	195	26	94	399	4131	20	152	3561	1109
Arrive On Green	0.04	0.07	0.07	0.04	0.07	0.07	0.06	0.78	0.78	1.00	1.00	1.00
Sat Flow, veh/h	1781	1900	1554	1668	355	1303	1795	5285	26	167	5106	1591
Grp Volume(v), veh/h	100	11	79	54	0	84	270	1444	792	28	1352	142
Grp Sat Flow(s),veh/h/ln	1781	1900	1554	1668	0	1659	1795	1716	1880	167	1702	1591
Q Serve(g_s), s	6.0	0.8	7.0	4.5	0.0	7.4	6.2	23.8	23.8	3.6	0.0	0.0
Cycle Q Clear(g_c), s	6.0	0.8	7.0	4.5	0.0	7.4	6.2	23.8	23.8	14.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.79	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	148	139	203	195	0	119	399	2682	1470	152	3561	1109
V/C Ratio(X)	0.67	0.08	0.39	0.28	0.00	0.71	0.68	0.54	0.54	0.18	0.38	0.13
Avail Cap(c_a), veh/h	148	405	421	197	0	354	487	2682	1470	152	3561	1109
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	64.7	64.8	59.7	61.4	0.0	68.1	4.8	6.2	6.2	0.8	0.0	0.0
Incr Delay (d2), s/veh	11.4	0.2	1.2	0.8	0.0	7.4	2.8	0.8	1.4	2.5	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.4	2.9	2.0	0.0	3.4	2.3	7.5	8.5	0.1	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.1	65.0	60.9	62.1	0.0	75.5	7.6	7.0	7.6	3.3	0.3	0.2
LnGrp LOS	E	E	E	E	A	E	A	A	A	A	A	A
Approach Vol, veh/h		190			138			2506			1522	
Approach Delay, s/veh		69.1			70.3			7.2			0.3	
Approach LOS		E			E			A			A	
Timer - Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		123.2	9.8	17.0	12.6	110.6	10.0	16.8				
Change Period (Y+Rc), s		6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s		96.0	6.0	32.0	16.0	76.0	6.0	32.0				
Max Q Clear Time (g_c+I1), s		25.8	6.5	9.0	8.2	16.8	8.0	9.4				
Green Ext Time (p_c), s		32.3	0.0	0.3	0.5	16.9	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			9.5									
HCM 6th LOS			A									
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved ignoring U-Turning movement.												
Splits and Phases: 8: Chambers Road & Exposition Avenue												

























Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Total AM

Intersection												
Int Delay, s/veh	35.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵	↑↑↑		↵	↑↑↑	
Traffic Vol, veh/h	65	0	40	65	5	50	75	2005	50	25	1230	40
Future Vol, veh/h	65	0	40	65	5	50	75	2005	50	25	1230	40
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	88	88	88	89	89	89	91	91	91
Heavy Vehicles, %	0	0	0	2	0	0	0	1	3	0	2	0
Mvmt Flow	86	0	53	74	6	57	84	2253	56	27	1352	44
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2500	3905	701	3047	3899	1155	1396	0	0	2309	0	0
Stage 1	1428	1428	-	2449	2449	-	-	-	-	-	-	-
Stage 2	1072	2477	-	598	1450	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.44	6.5	7.1	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.34	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.74	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.82	4	3.9	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*314	7	*640	*268	7	*449	781	-	-	563	-	-
Stage 1	*586	580	-	*295	329	-	-	-	-	-	-	-
Stage 2	*461	310	-	*654	563	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*~ 39	6	*638	*217	6	*449	781	-	-	563	-	-
Mov Cap-2 Maneuver	*~ 39	6	-	*217	6	-	-	-	-	-	-	-
Stage 1	*523	552	-	*263	293	-	-	-	-	-	-	-
Stage 2	*352	277	-	*569	536	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	724.3		\$ 318.5		0.4		0.2					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	781	-	-	61	96	563	-	-				
HCM Lane V/C Ratio	0.108	-	-	2.265	1.42	0.049	-	-				
HCM Control Delay (s)	10.2	-	-	\$ 724.3	\$ 318.5	11.7	-	-				
HCM Lane LOS	B	-	-	F	F	B	-	-				
HCM 95th %tile Q(veh)	0.4	-	-	13.5	10.1	0.2	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (veh/h)	65	0	40	65	5	50	75	2005	50	25	1230	40
Future Volume (veh/h)	65	0	40	65	5	50	75	2005	50	25	1230	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1870	1900	1900	1900	1885	1856	1900	1870	1900
Adj Flow Rate, veh/h	86	0	53	74	6	57	84	2253	56	27	1352	44
Peak Hour Factor	0.76	0.76	0.76	0.88	0.88	0.88	0.89	0.89	0.89	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	2	0	0	0	1	3	0	2	0
Cap, veh/h	143	6	68	132	17	80	391	3788	94	205	3675	120
Arrive On Green	0.13	0.00	0.13	0.13	0.13	0.13	0.06	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	799	49	523	728	134	614	1810	5165	128	1810	5079	165
Grp Volume(v), veh/h	139	0	0	137	0	0	84	1495	814	27	906	490
Grp Sat Flow(s),veh/h/ln	1371	0	0	1476	0	0	1810	1716	1862	1810	1702	1841
Q Serve(g_s), s	1.7	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	15.0	0.0	0.0	13.3	0.0	0.0	1.8	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.62		0.38	0.54		0.42	1.00		0.07	1.00		0.09
Lane Grp Cap(c), veh/h	218	0	0	230	0	0	391	2516	1366	205	2463	1332
V/C Ratio(X)	0.64	0.00	0.00	0.60	0.00	0.00	0.21	0.59	0.60	0.13	0.37	0.37
Avail Cap(c_a), veh/h	375	0	0	391	0	0	441	2516	1366	249	2463	1332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	0.0	0.0	62.3	0.0	0.0	4.5	0.0	0.0	4.8	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	2.5	0.0	0.0	0.2	0.8	1.5	0.3	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.0	5.2	0.0	0.0	0.6	0.3	0.6	0.2	0.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	0.0	0.0	64.8	0.0	0.0	4.8	0.8	1.5	5.1	0.4	0.8
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h		139			137			2393			1423	
Approach Delay, s/veh		66.2			64.8			1.2			0.6	
Approach LOS		E			E			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	116.0		25.6	9.8	114.5		25.6				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	90.0		36.0	9.0	88.0		36.0				
Max Q Clear Time (g_c+l1), s	2.6	2.0		17.0	3.8	2.0		15.3				
Green Ext Time (p_c), s	0.0	37.7		0.7	0.1	13.0		0.7				

Intersection Summary

HCM 6th Ctrl Delay 5.3  
HCM 6th LOS A  
Splits and Phases: 9: Chambers Road & Center Avenue







Level of Service  
10: Centrepont Dr & Walsh Drive

Metro Center - Amendment  
Future (2040) Total AM

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	25	140	70	40
Future Vol, veh/h	5	5	25	140	70	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	59	59	85	85	82	82
Heavy Vehicles, %	100	0	0	3	14	0
Mvmt Flow	8	8	29	165	85	49





Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	333	67	134
Stage 1	110	-	-
Stage 2	223	-	-
Critical Hdwy	8.1	6.9	4.1
Critical Hdwy Stg 1	7.3	-	-
Critical Hdwy Stg 2	6.9	-	-
Follow-up Hdwy	4.45	3.3	2.2
Pot Cap-1 Maneuver	477	1011	1477
Stage 1	707	-	-
Stage 2	604	-	-
Platoon blocked, %	1	1	1
Mov Cap-1 Maneuver	467	1011	1477
Mov Cap-2 Maneuver	504	-	-
Stage 1	692	-	-
Stage 2	604	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1477	-	673	-	-
HCM Lane V/C Ratio	0.02	-	0.025	-	-
HCM Control Delay (s)	7.5	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-




Level of Service  
11: Centrepont Dr & Center Avenue

Metro Center - Amendment  
Future (2040) Total AM

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	75	135	15	70	95
Future Vol, veh/h	20	75	135	15	70	95
Conflicting Peds, #/hr	0	0	0	9	9	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	87	87	88	88
Heavy Vehicles, %	0	0	4	0	0	6
Mvmt Flow	23	85	155	17	80	108
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	441	173	0	0	181	0
Stage 1	173	-	-	-	-	-
Stage 2	268	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	598	876	-	-	1407	-
Stage 1	862	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	559	868	-	-	1395	-
Mov Cap-2 Maneuver	617	-	-	-	-	-
Stage 1	854	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.2	0		3.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	800		1395	-	
HCM Lane V/C Ratio	-	0.135		0.057	-	
HCM Control Delay (s)	-	10.2		7.7	-	
HCM Lane LOS	-	B		A	-	
HCM 95th %tile Q(veh)	-	0.5		0.2	-	

Level of Service  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Future (2040) Total AM

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	85	45	125	115	50	120
Future Vol, veh/h	85	45	125	115	50	120
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	86	86	91	91
Heavy Vehicles, %	20	10	3	2	0	25
Mvmt Flow	108	57	145	134	55	132
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	293	0	-	0	499	226
Stage 1	-	-	-	-	226	-
Stage 2	-	-	-	-	273	-
Critical Hdwy	4.3	-	-	-	6.4	6.45
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.38	-	-	-	3.5	3.525
Pot Cap-1 Maneuver	1173	-	-	-	540	759
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	784	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1157	-	-	-	476	749
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	774	-
Approach	EB	WB		SB		
HCM Control Delay, s	5.5	0		12.9		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1157	-	-	-	641	
HCM Lane V/C Ratio	0.093	-	-	-	0.291	
HCM Control Delay (s)	8.4	0	-	-	12.9	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	1.2	

Level of Service  
13: A1 Access & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑	↗		↑↑↑↑		↗
Traffic Vol, veh/h	1515	20	0	2545	0	45
Future Vol, veh/h	1515	20	0	2545	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1722	23	0	2737	0	54
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	861
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*559
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*559
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		12.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	559	-	-	-		
HCM Lane V/C Ratio	0.096	-	-	-		
HCM Control Delay (s)	12.1	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.3	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon



Level of Service  
14: Fraser Ct & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑		↗
Traffic Vol, veh/h	1420	30	20	2605	0	60
Future Vol, veh/h	1420	30	20	2605	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1527	32	22	2801	0	71
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1559	0	-	780
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	*736	-	0	*585
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-	1	-	-	1
Mov Cap-1 Maneuver	-	-	*736	-	-	*585
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		12	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	585	-	-	* 736	-	
HCM Lane V/C Ratio	0.122	-	-	0.029	-	
HCM Control Delay (s)	12	-	-	10	-	
HCM Lane LOS	B	-	-	B	-	
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
15: Grandby St & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↓			↑↑↑↑		↗
Traffic Vol, veh/h	1455	20	0	2625	0	35
Future Vol, veh/h	1455	20	0	2625	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1565	22	0	2823	0	42
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	794
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*585
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*585
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.6	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	585	-	-	-		
HCM Lane V/C Ratio	0.071	-	-	-		
HCM Control Delay (s)	11.6	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
17: Alameda Drive & Dakota Ave

Metro Center - Amendment  
Future (2040) Total AM

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	100	0	80	20	0	30	25	95	45	75	110	40
Future Vol, veh/h	100	0	80	20	0	30	25	95	45	75	110	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	119	0	95	24	0	36	30	113	54	89	131	48
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	551	560	155	581	557	140	179	0	0	167	0	0
Stage 1	333	333	-	200	200	-	-	-	-	-	-	-
Stage 2	218	227	-	381	357	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	445	437	891	425	439	908	1397	-	-	1411	-	-
Stage 1	681	644	-	802	736	-	-	-	-	-	-	-
Stage 2	784	716	-	641	628	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	397	397	891	353	399	908	1397	-	-	1411	-	-
Mov Cap-2 Maneuver	397	397	-	353	399	-	-	-	-	-	-	-
Stage 1	665	599	-	783	718	-	-	-	-	-	-	-
Stage 2	735	699	-	532	584	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	16.4		12.2		1.2		2.6					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1397	-	-	527	557	1411	-	-				
HCM Lane V/C Ratio	0.021	-	-	0.407	0.107	0.063	-	-				
HCM Control Delay (s)	7.6	0	-	16.4	12.2	7.7	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	2	0.4	0.2	-	-				

Level of Service  
18: Fraser Ct & Dakota Ave

Metro Center - Amendment  
Future (2040) Total AM

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	0	50	0	15	0	20	25	20	10	20
Future Vol, veh/h	25	0	0	50	0	15	0	20	25	20	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	0	0	60	0	18	0	24	30	24	12	24
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	120	126	24	111	123	39	36	0	0	54	0	0
Stage 1	72	72	-	39	39	-	-	-	-	-	-	-
Stage 2	48	54	-	72	84	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	855	764	1052	867	767	1033	1575	-	-	1551	-	-
Stage 1	938	835	-	976	862	-	-	-	-	-	-	-
Stage 2	965	850	-	938	825	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	830	752	1052	857	755	1033	1575	-	-	1551	-	-
Mov Cap-2 Maneuver	830	752	-	857	755	-	-	-	-	-	-	-
Stage 1	938	822	-	976	862	-	-	-	-	-	-	-
Stage 2	948	850	-	923	812	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9.5		9.4		0		2.9					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1575	-	-	830	892	1551	-	-				
HCM Lane V/C Ratio	-	-	-	0.036	0.087	0.015	-	-				
HCM Control Delay (s)	0	-	-	9.5	9.4	7.4	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-				

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	10	5	0	35	15	0	10	10	15	0	5
Future Vol, veh/h	10	10	5	0	35	15	0	10	10	15	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	12	6	0	42	18	0	12	12	18	0	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	60	0	0	18	0	0	93	99	15	102	93	51
Stage 1	-	-	-	-	-	-	39	39	-	51	51	-
Stage 2	-	-	-	-	-	-	54	60	-	51	42	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1544	-	-	1599	-	-	891	791	1065	879	797	1017
Stage 1	-	-	-	-	-	-	976	862	-	962	852	-
Stage 2	-	-	-	-	-	-	958	845	-	962	860	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1599	-	-	880	785	1065	854	791	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	880	785	-	854	791	-
Stage 1	-	-	-	-	-	-	968	855	-	954	852	-
Stage 2	-	-	-	-	-	-	952	845	-	930	853	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.9			0			9.1			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	904	1544	-	-	1599	-	-	890				
HCM Lane V/C Ratio	0.026	0.008	-	-	-	-	-	0.027				
HCM Control Delay (s)	9.1	7.3	0	-	0	-	-	9.2				
HCM Lane LOS	A	A	A	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

Level of Service  
20: Chambers Road & Dakota Ave

Metro Center - Amendment  
Future (2040) Total AM

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↗↗↗			↗↗↗	
Traffic Vol, veh/h	0	0	15	0	0	25	0	2055	45	0	1290	30
Future Vol, veh/h	0	0	15	0	0	25	0	2055	45	0	1290	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	88	88	88	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	18	0	0	30	0	2335	51	0	1418	33

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	726	-	-	1193	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-
Pot Cap-1 Maneuver	0	0	*620	0	0	*430	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1			1	-	-
Mov Cap-1 Maneuver	-	-	*620	-	-	*430	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	14	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	620	430	-
HCM Lane V/C Ratio	-	-	0.029	0.069	-
HCM Control Delay (s)	-	-	11	14	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Level of Service  
21: Dakota St & Centrepont Dr

Metro Center - Amendment  
Future (2040) Total AM

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘↗	
Traffic Vol, veh/h	110	25	5	240	75	20
Future Vol, veh/h	110	25	5	240	75	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	131	30	6	286	89	24
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	161	0	429	131
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	298	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1436	-	604	975
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	753	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1436	-	602	975
Mov Cap-2 Maneuver	-	-	-	-	602	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	750	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		11.6	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	655	-	-	1436	-	
HCM Lane V/C Ratio	0.173	-	-	0.004	-	
HCM Control Delay (s)	11.6	-	-	7.5	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.6	-	-	0	-	

Level of Service  
22: Centrepont Dr & Fraser Ct




Metro Center - Amendment  
Future (2040) Total AM





Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	20	75	15	10	45	20	175	10	15	75	5
Future Vol, veh/h	25	20	75	15	10	45	20	175	10	15	75	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	24	89	18	12	54	24	208	12	18	89	6
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	423	396	92	447	393	214	95	0	0	220	0	0
Stage 1	128	128	-	262	262	-	-	-	-	-	-	-
Stage 2	295	268	-	185	131	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	541	541	965	522	543	826	1499	-	-	1349	-	-
Stage 1	876	790	-	743	691	-	-	-	-	-	-	-
Stage 2	713	687	-	817	788	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	485	524	965	446	526	826	1499	-	-	1349	-	-
Mov Cap-2 Maneuver	485	524	-	446	526	-	-	-	-	-	-	-
Stage 1	860	779	-	730	679	-	-	-	-	-	-	-
Stage 2	643	675	-	709	777	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.3		11.3		0.7		1.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1499	-	-	717	653	1349	-	-				
HCM Lane V/C Ratio	0.016	-	-	0.199	0.128	0.013	-	-				
HCM Control Delay (s)	7.4	0	-	11.3	11.3	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.7	0.4	0	-	-				



Level of Service  
23: Fraser Ct & Virginia Ave

Metro Center - Amendment  
Future (2040) Total AM

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	0	45	5	0	60
Future Vol, veh/h	10	0	45	5	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	0	54	6	0	71
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	128	57	0	0	60	0
Stage 1	57	-	-	-	-	-
Stage 2	71	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	866	1009	-	-	1544	-
Stage 1	966	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	866	1009	-	-	1544	-
Mov Cap-2 Maneuver	866	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 866		1544	-	
HCM Lane V/C Ratio	-	- 0.014		-	-	
HCM Control Delay (s)	-	- 9.2		0	-	
HCM Lane LOS	-	- A		A	-	
HCM 95th %tile Q(veh)	-	- 0		0	-	

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	5	0	0	10	5	0	15	0	0	5	0
Future Vol, veh/h	0	5	0	0	10	5	0	15	0	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	6	0	0	12	6	0	18	0	0	6	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	18	0	0	6	0	0	24	24	6	30	21	15
Stage 1	-	-	-	-	-	-	6	6	-	15	15	-
Stage 2	-	-	-	-	-	-	18	18	-	15	6	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1599	-	-	1615	-	-	987	869	1077	979	873	1065
Stage 1	-	-	-	-	-	-	1016	891	-	1005	883	-
Stage 2	-	-	-	-	-	-	1001	880	-	1005	891	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1599	-	-	1615	-	-	982	869	1077	963	873	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	982	869	-	963	873	-
Stage 1	-	-	-	-	-	-	1016	891	-	1005	883	-
Stage 2	-	-	-	-	-	-	994	880	-	985	891	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			9.2			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	869	1599	-	-	1615	-	-	873				
HCM Lane V/C Ratio	0.021	-	-	-	-	-	-	0.007				
HCM Control Delay (s)	9.2	0	-	-	0	-	-	9.2				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Level of Service  
25: Chambers Road & Virginia Ave

Metro Center - Amendment  
Future (2040) Total AM

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑		↗↑↑↑		
Traffic Vol, veh/h	0	0	5	0	0	25	0	2075	45	5	1290	5
Future Vol, veh/h	0	0	5	0	0	25	0	2075	45	5	1290	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	88	88	88	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	0	0	30	0	2358	51	5	1418	5

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	712	-	-	1205	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	5.34
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	3.12
Pot Cap-1 Maneuver	0	0	*620	0	0	*430	0	520
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %			1			1	-	1
Mov Cap-1 Maneuver	-	-	*620	-	-	*430	-	520
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-




Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	14	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	620	430	520	-
HCM Lane V/C Ratio	-	-	0.01	0.069	0.011	-
HCM Control Delay (s)	-	-	10.9	14	12	-
HCM Lane LOS	-	-	B	B	B	-
HCM 95th %tile Q(veh)	-	-	0	0.2	0	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

































Level of Service  
26: Center Avenue & Grandby St

Metro Center - Amendment  
Future (2040) Total AM

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	85	110	10	5	0
Future Vol, veh/h	5	85	110	10	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	101	131	12	6	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	143	0	-	0	250	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	113	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1440	-	-	-	739	911
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	912	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1440	-	-	-	736	911
Mov Cap-2 Maneuver	-	-	-	-	736	-
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	912	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		9.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1440	-	-	-	736	
HCM Lane V/C Ratio	0.004	-	-	-	0.008	
HCM Control Delay (s)	7.5	0	-	-	9.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			 	  		 	 		 	 
Traffic Volume (vph)	195	1805	270	5	90	1685	240	235	480	100	470	480
Future Volume (vph)	195	1805	270	5	90	1685	240	235	480	100	470	480
Satd. Flow (prot)	1787	5187	1568	0	3502	5136	1599	3303	3574	1615	3467	3539
Flt Permitted	0.248				0.234			0.305			0.459	
Satd. Flow (perm)	466	5187	1534	0	862	5136	1550	1051	3574	1569	1661	3539
Satd. Flow (RTOR)			190				190			149		
Lane Group Flow (vph)	207	1920	287	0	101	1793	255	255	522	109	505	516
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2		2	6	6		6	8		8	4	
Detector Phase	5	2	2	1	1	6	6	3	8	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0
Total Split (s)	19.0	14.0	14.0	24.0	24.0	19.0	19.0	14.0	45.0	45.0	16.0	47.0
Total Split (%)	14.4%	10.6%	10.6%	18.2%	18.2%	14.4%	14.4%	10.6%	34.1%	34.1%	12.1%	35.6%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	6.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	43.2	41.2	41.2		39.5	37.5	37.5	26.7	25.7	25.7	31.6	30.6
Actuated g/C Ratio	0.33	0.31	0.31		0.30	0.28	0.28	0.20	0.19	0.19	0.24	0.23
v/c Ratio	0.55	1.19	0.47		0.16	1.23	0.44	0.60	0.75	0.26	0.79	0.63
Control Delay	43.8	128.5	17.8		40.5	148.9	15.8	54.3	59.0	14.3	59.5	48.5
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	128.5	17.8		40.5	148.9	15.8	54.3	59.0	14.3	59.5	48.5
LOS	D	F	B		D	F	B	D	E	B	E	D
Approach Delay		108.1				128.0			52.1			47.2
Approach LOS		F				F			D			D

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 96.1

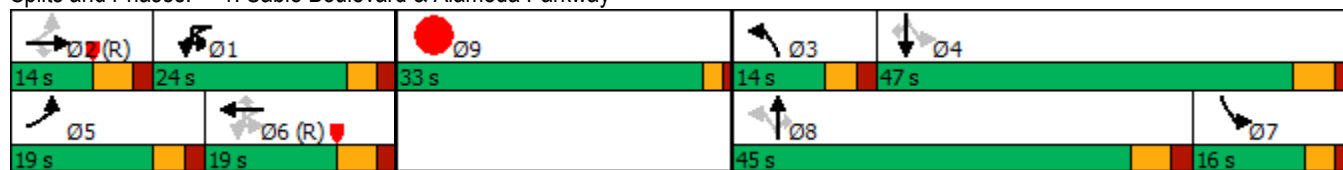
Intersection LOS: F

Intersection Capacity Utilization 94.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway



































Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM

Lane Group	SBR	Ø9
Lane Configurations		
Traffic Volume (vph)	160	
Future Volume (vph)	160	
Satd. Flow (prot)	1583	
Flt Permitted		
Satd. Flow (perm)	1528	
Satd. Flow (RTOR)	172	
Lane Group Flow (vph)	172	
Turn Type	Perm	
Protected Phases		9
Permitted Phases	4	
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	40.0	33.0
Total Split (s)	47.0	33.0
Total Split (%)	35.6%	25%
Yellow Time (s)	4.0	2.0
All-Red Time (s)	2.0	1.0
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)	30.6	
Actuated g/C Ratio	0.23	
v/c Ratio	0.35	
Control Delay	7.1	
Queue Delay	0.0	
Total Delay	7.1	
LOS	A	
Approach Delay		
Approach LOS		
Intersection Summary		

Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			 	  		 	 		 	 
Traffic Volume (vph)	195	1805	270	5	90	1685	240	235	480	100	470	480
Future Volume (vph)	195	1805	270	5	90	1685	240	235	480	100	470	480
Satd. Flow (prot)	1787	5187	1568	0	3502	5136	1599	3303	3574	1615	3467	3539
Flt Permitted	0.112				0.109			0.354			0.459	
Satd. Flow (perm)	210	5187	1534	0	401	5136	1550	1220	3574	1569	1661	3539
Satd. Flow (RTOR)			190				182			190		
Lane Group Flow (vph)	207	1920	287	0	101	1793	255	255	522	109	505	516
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2		2	6	6		6	8		8	4	
Detector Phase	5	2	2	1	1	6	6	3	8	8	7	4
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	34.0	34.0	10.0	10.0	33.0	33.0	10.0	41.0	41.0	10.0	40.0
Total Split (s)	19.0	41.0	41.0	12.0	12.0	34.0	34.0	14.0	30.0	30.0	16.0	32.0
Total Split (%)	14.4%	31.1%	31.1%	9.1%	9.1%	25.8%	25.8%	10.6%	22.7%	22.7%	12.1%	24.2%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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
Total Lost Time (s)	5.0	6.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	54.1	53.1	53.1		46.1	45.1	45.1	25.0	24.0	24.0	31.6	30.6
Actuated g/C Ratio	0.41	0.40	0.40		0.35	0.34	0.34	0.19	0.18	0.18	0.24	0.23
v/c Ratio	0.78	0.92	0.39		0.33	1.02	0.39	0.59	0.80	0.25	0.76	0.63
Control Delay	51.2	45.7	12.7		45.7	69.7	13.8	64.6	72.7	13.3	58.1	49.9
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	45.7	12.7		45.7	69.7	13.8	64.6	72.7	13.3	58.1	49.9
LOS	D	D	B		D	E	B	E	E	B	E	D
Approach Delay		42.3				61.9			63.1			47.2
Approach LOS		D				E			E			D

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 52.3

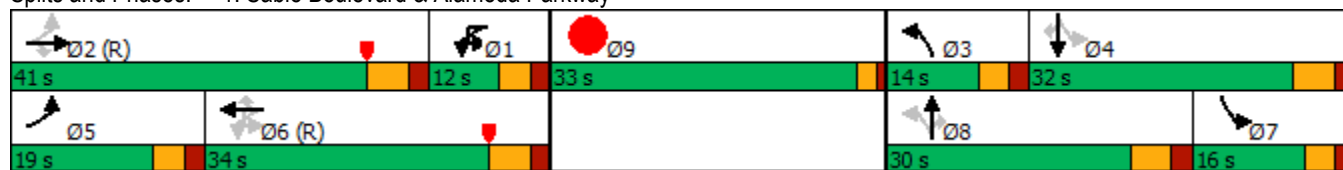
Intersection LOS: D

Intersection Capacity Utilization 94.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Sable Boulevard & Alameda Parkway



Level of Service  
1: Sable Boulevard & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Lane Group	SBR	Ø9
Lane Configurations		
Traffic Volume (vph)	160	
Future Volume (vph)	160	
Satd. Flow (prot)	1583	
Flt Permitted		
Satd. Flow (perm)	1528	
Satd. Flow (RTOR)	182	
Lane Group Flow (vph)	172	
Turn Type	Perm	
Protected Phases		9
Permitted Phases	4	
Detector Phase	4	
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	40.0	33.0
Total Split (s)	32.0	33.0
Total Split (%)	24.2%	25%
Yellow Time (s)	4.0	2.0
All-Red Time (s)	2.0	1.0
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag	Lag	
Lead-Lag Optimize?	Yes	
Recall Mode	None	None
Act Effct Green (s)	30.6	
Actuated g/C Ratio	0.23	
v/c Ratio	0.35	
Control Delay	7.2	
Queue Delay	0.0	
Total Delay	7.2	
LOS	A	
Approach Delay		
Approach LOS		
Intersection Summary		





























Level of Service  
2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Future (2040) Total PM

Intersection							
Int Delay, s/veh	2.3						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↱	↱↱↱	↱↱↱		↱	↱
Traffic Vol, veh/h	5	35	2350	1830	15	15	120
Future Vol, veh/h	5	35	2350	1830	15	15	120
Conflicting Peds, #/hr	0	6	0	0	6	2	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	70	70
Heavy Vehicles, %	0	0	1	1	0	0	0
Mvmt Flow	5	37	2474	1926	16	21	171
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	1418	1948	0	-	0	3016	977
Stage 1	-	-	-	-	-	1940	-
Stage 2	-	-	-	-	-	1076	-
Critical Hdwy	5.6	5.3	-	-	-	5.7	7.1
Critical Hdwy Stg 1	-	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	-	6	-
Follow-up Hdwy	2.3	3.1	-	-	-	3.8	3.9
Pot Cap-1 Maneuver	*856	*635	-	-	-	*27	*505
Stage 1	-	-	-	-	-	*518	-
Stage 2	-	-	-	-	-	*375	-
Platoon blocked, %	1	1	-	-	-		1
Mov Cap-1 Maneuver	*634	*634	-	-	-	*25	*502
Mov Cap-2 Maneuver	-	-	-	-	-	*25	-
Stage 1	-	-	-	-	-	*481	-
Stage 2	-	-	-	-	-	*372	-
Approach	EB		WB		SB		
HCM Control Delay, s	0.2		0		53.5		
HCM LOS					F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	*634	-	-	-	25	502	
HCM Lane V/C Ratio	0.066	-	-	-	0.857	0.341	
HCM Control Delay (s)	11.1	-	-	-	\$354.7	15.8	
HCM Lane LOS	B	-	-	-	F	C	
HCM 95th %tile Q(veh)	0.2	-	-	-	2.6	1.5	
Notes							
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon							

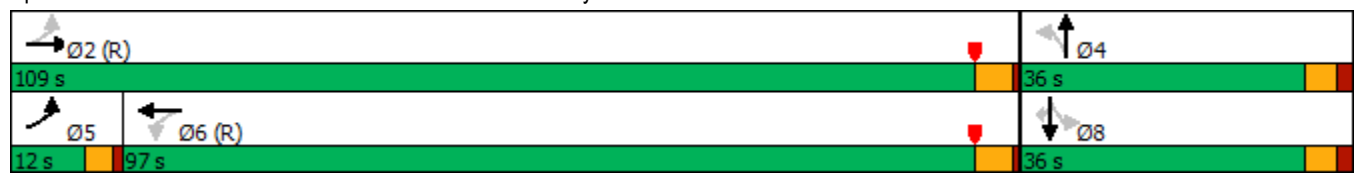
Level of Service  
3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	55	2255	55	155	1665	85	110	15	160	40	10	65
Future Volume (veh/h)	55	2255	55	155	1665	85	110	15	160	40	10	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1767	1885	1900	1870	1900	1767	1900	1900	1900
Adj Flow Rate, veh/h	59	2399	59	165	1771	90	124	17	180	48	12	77
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.89	0.89	0.89	0.84	0.84	0.84
Percent Heavy Veh, %	0	1	0	9	1	0	2	0	9	0	0	0
Cap, veh/h	262	3862	95	118	3506	178	275	25	265	128	342	286
Arrive On Green	0.02	0.75	0.75	1.00	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1810	5166	127	129	5014	254	1291	139	1470	1195	1900	1586
Grp Volume(v), veh/h	59	1590	868	165	1211	650	124	0	197	48	12	77
Grp Sat Flow(s),veh/h/ln	1810	1716	1862	129	1716	1838	1291	0	1609	1195	1900	1586
Q Serve(g_s), s	1.3	31.6	32.0	76.4	0.0	0.0	12.7	0.0	16.6	5.7	0.8	6.1
Cycle Q Clear(g_c), s	1.3	31.6	32.0	101.4	0.0	0.0	13.5	0.0	16.6	22.3	0.8	6.1
Prop In Lane	1.00		0.07	1.00		0.14	1.00		0.91	1.00		1.00
Lane Grp Cap(c), veh/h	262	2565	1392	118	2399	1285	275	0	290	128	342	286
V/C Ratio(X)	0.22	0.62	0.62	1.40	0.50	0.51	0.45	0.00	0.68	0.37	0.04	0.27
Avail Cap(c_a), veh/h	325	2565	1392	118	2399	1285	314	0	338	164	400	334
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.3	8.6	8.7	28.6	0.0	0.0	54.6	0.0	55.5	65.9	49.0	51.2
Incr Delay (d2), s/veh	0.2	1.1	2.1	223.5	0.8	1.4	0.4	0.0	3.0	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	10.6	11.9	11.5	0.3	0.5	4.2	0.0	7.0	1.8	0.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	9.8	10.8	252.1	0.8	1.4	55.0	0.0	58.5	66.6	49.1	51.4
LnGrp LOS	A	A	B	F	A	A	E	A	E	E	D	D
Approach Vol, veh/h		2517			2026			321			137	
Approach Delay, s/veh		10.0			21.4			57.2			56.5	
Approach LOS		B			C			E			E	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		113.4		31.6	7.0	106.4		31.6				
Change Period (Y+Rc), s		5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s		104.0		30.5	8.0	92.0		30.5				
Max Q Clear Time (g_c+I1), s		34.0		18.6	3.3	103.4		24.3				
Green Ext Time (p_c), s		39.0		0.8	0.0	0.0		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									
Notes												



























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway



# Level of Service 3: Alameda Drive & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	55	2255	55	155	1665	85	110	15	160	40	10	65
Future Volume (veh/h)	55	2255	55	155	1665	85	110	15	160	40	10	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1767	1885	1900	1870	1900	1767	1900	1900	1900
Adj Flow Rate, veh/h	59	2399	59	165	1771	90	124	17	180	48	12	77
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.89	0.89	0.89	0.84	0.84	0.84
Percent Heavy Veh, %	0	1	0	9	1	0	2	0	9	0	0	0
Cap, veh/h	257	3458	85	184	3500	178	275	25	265	128	342	286
Arrive On Green	0.02	0.67	0.67	0.10	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1810	5166	127	1682	5014	254	1291	139	1470	1195	1900	1586
Grp Volume(v), veh/h	59	1590	868	165	1211	650	124	0	197	48	12	77
Grp Sat Flow(s),veh/h/ln	1810	1716	1862	1682	1716	1838	1291	0	1609	1195	1900	1586
Q Serve(g_s), s	1.5	41.4	41.9	5.3	0.0	0.0	12.7	0.0	16.6	5.7	0.8	6.1
Cycle Q Clear(g_c), s	1.5	41.4	41.9	5.3	0.0	0.0	13.5	0.0	16.6	22.3	0.8	6.1
Prop In Lane	1.00		0.07	1.00		0.14	1.00		0.91	1.00		1.00
Lane Grp Cap(c), veh/h	257	2297	1246	184	2395	1283	275	0	290	128	342	286
V/C Ratio(X)	0.23	0.69	0.70	0.90	0.51	0.51	0.45	0.00	0.68	0.37	0.04	0.27
Avail Cap(c_a), veh/h	317	2297	1246	192	2395	1283	314	0	338	164	400	334
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.1	14.8	14.8	31.3	0.0	0.0	54.6	0.0	55.5	65.9	49.0	51.2
Incr Delay (d2), s/veh	0.2	1.7	3.2	37.1	0.8	1.4	0.4	0.0	3.0	0.7	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	15.3	17.4	5.7	0.3	0.5	4.2	0.0	7.0	1.8	0.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	16.5	18.1	68.4	0.8	1.4	55.0	0.0	58.5	66.6	49.1	51.4
LnGrp LOS	A	B	B	E	A	A	E	A	E	E	D	D
Approach Vol, veh/h		2517			2026			321			137	
Approach Delay, s/veh		16.8			6.5			57.2			56.5	
Approach LOS		B			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	102.1		31.6	7.2	106.2		31.6				
Change Period (Y+Rc), s	4.0	5.0		5.5	4.0	5.0		5.5				
Max Green Setting (Gmax), s	8.0	92.0		30.5	8.0	92.0		30.5				
Max Q Clear Time (g_c+I1), s	7.3	43.9		18.6	3.5	2.0		24.3				
Green Ext Time (p_c), s	0.0	31.4		0.8	0.0	23.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			B									
Notes												























User approved pedestrian interval to be less than phase max green.

Splits and Phases: 3: Alameda Drive & Alameda Parkway

								
Ø1	Ø2 (R)							
12 s	97 s							
								
Ø5	Ø6 (R)							
12 s	97 s							

Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	1810	385	245	1240	195	365	1310	295	565	1620	340
Future Volume (veh/h)	305	1810	385	245	1240	195	365	1310	295	565	1620	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1870	1856	1885	1885	1900	1885	1900	1870
Adj Flow Rate, veh/h	332	1967	418	269	1363	214	397	1424	321	601	1723	362
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	2	3	1	1	0	1	0	2
Cap, veh/h	310	1668	699	194	1317	207	408	1330	299	1477	3273	1138
Arrive On Green	0.18	0.65	0.65	0.06	0.30	0.30	0.12	0.32	0.32	0.42	0.63	0.63
Sat Flow, veh/h	3456	5147	1578	3510	4441	697	3483	4193	942	3483	5187	1578
Grp Volume(v), veh/h	332	1967	418	269	1045	532	397	1164	581	601	1723	362
Grp Sat Flow(s),veh/h/ln	1728	1716	1578	1755	1702	1734	1742	1716	1705	1742	1729	1578
Q Serve(g_s), s	13.0	47.0	28.6	8.0	43.0	43.0	16.5	46.0	46.0	17.4	26.6	12.1
Cycle Q Clear(g_c), s	13.0	47.0	28.6	8.0	43.0	43.0	16.5	46.0	46.0	17.4	26.6	12.1
Prop In Lane	1.00		1.00	1.00		0.40	1.00		0.55	1.00		1.00
Lane Grp Cap(c), veh/h	310	1668	699	194	1009	514	408	1088	541	1477	3273	1138
V/C Ratio(X)	1.07	1.18	0.60	1.39	1.03	1.04	0.97	1.07	1.07	0.41	0.53	0.32
Avail Cap(c_a), veh/h	310	1668	699	194	1009	514	408	1088	541	1477	3273	1138
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	25.5	22.5	68.5	51.0	51.0	63.8	49.5	49.5	29.1	14.8	7.3
Incr Delay (d2), s/veh	71.4	87.2	1.4	203.5	37.7	49.1	37.1	48.0	59.9	0.2	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	25.3	6.9	9.0	23.2	25.3	9.3	26.5	28.1	7.3	10.1	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.9	112.7	23.9	272.0	88.7	100.1	100.9	97.5	109.4	29.2	15.4	8.1
LnGrp LOS	F	F	C	F	F	F	F	F	F	C	B	A
Approach Vol, veh/h		2717			1846			2142			2686	
Approach Delay, s/veh		101.2			118.7			101.3			17.5	
Approach LOS		F			F			F			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	97.6	18.0	49.0	67.6	52.0	14.0	53.0				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	6.0	* 6	6.0	* 6				
Max Green Setting (Gmax), s	17.0	51.0	13.0	42.0	22.0	* 46	8.0	* 47				
Max Q Clear Time (g_c+I1), s	18.5	28.6	15.0	45.0	19.4	48.0	10.0	49.0				
Green Ext Time (p_c), s	0.0	14.5	0.0	0.0	0.7	0.0	0.0	0.0				

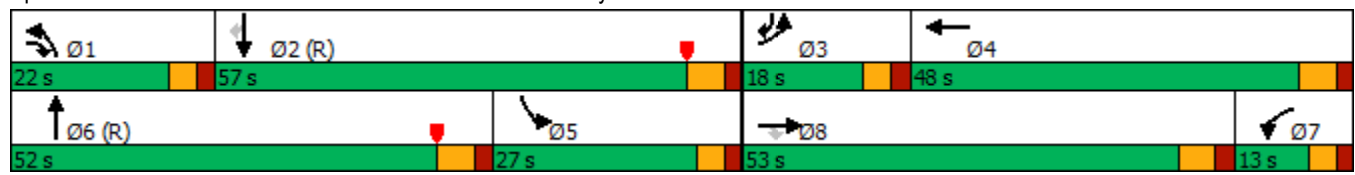
Intersection Summary

HCM 6th Ctrl Delay	80.7
HCM 6th LOS	F

Notes






































\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Splits and Phases: 4: Chambers Road & Alameda Parkway



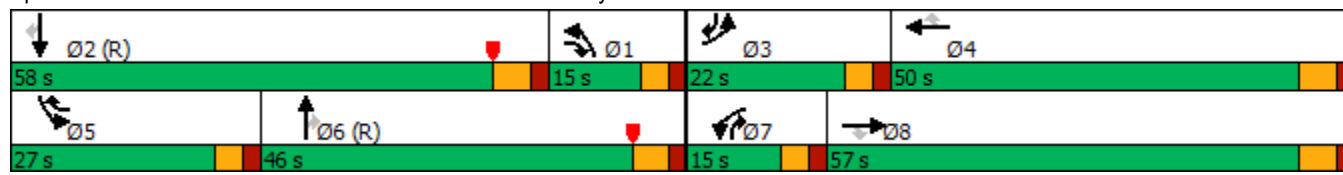
Level of Service  
4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		  	  	
Traffic Volume (veh/h)	305	1810	385	245	1240	195	365	1310	295	565	1620	340
Future Volume (veh/h)	305	1810	385	245	1240	195	365	1310	295	565	1620	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1885	1885	1900	1870	1856	1885	1885	1900	1885	1900	1870
Adj Flow Rate, veh/h	332	1967	418	269	1363	214	397	1424	321	601	1723	362
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	1	0	2	3	1	1	0	1	0	2
Cap, veh/h	374	1810	858	242	1595	724	659	2057	750	528	1843	730
Arrive On Green	0.22	0.70	0.70	0.07	0.31	0.31	0.38	0.80	0.80	0.15	0.36	0.36
Sat Flow, veh/h	3456	5147	1580	3510	5106	1553	3483	5147	1598	3483	5187	1572
Grp Volume(v), veh/h	332	1967	418	269	1363	214	397	1424	321	601	1723	362
Grp Sat Flow(s),veh/h/ln	1728	1716	1580	1755	1702	1553	1742	1716	1598	1742	1729	1572
Q Serve(g_s), s	13.5	51.0	3.9	10.0	36.3	12.4	13.3	18.0	8.6	22.0	46.5	15.4
Cycle Q Clear(g_c), s	13.5	51.0	3.9	10.0	36.3	12.4	13.3	18.0	8.6	22.0	46.5	15.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	1810	858	242	1595	724	659	2057	750	528	1843	730
V/C Ratio(X)	0.89	1.09	0.49	1.11	0.85	0.30	0.60	0.69	0.43	1.14	0.93	0.50
Avail Cap(c_a), veh/h	405	1810	858	242	1595	724	659	2057	750	528	1860	735
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	21.5	6.4	67.5	46.8	24.1	40.7	10.5	7.6	61.5	45.1	16.8
Incr Delay (d2), s/veh	19.6	48.9	0.4	90.9	4.8	0.2	1.5	1.9	1.8	82.8	10.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	18.9	2.8	7.5	15.8	4.6	5.0	4.0	2.4	15.7	21.2	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.5	70.4	6.8	158.4	51.5	24.4	42.2	12.5	9.4	144.3	55.5	19.2
LnGrp LOS	E	F	A	F	D	C	D	B	A	F	E	B
Approach Vol, veh/h		2717			1846			2142			2686	
Approach Delay, s/veh		61.3			63.9			17.5			70.4	
Approach LOS		E			E			B			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.0	57.5	20.7	51.3	27.0	64.5	15.0	57.0				
Change Period (Y+Rc), s	6.0	* 6	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	10.0	* 52	17.0	44.0	22.0	40.0	10.0	51.0				
Max Q Clear Time (g_c+I1), s	15.3	48.5	15.5	38.3	24.0	20.0	12.0	53.0				
Green Ext Time (p_c), s	0.0	3.0	0.2	4.1	0.0	11.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			54.4									
HCM 6th LOS			D									
Notes												























\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Splits and Phases: 4: Chambers Road & Alameda Parkway



Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	90	120	65	70	140	100	550	75	130	600	110
Future Volume (vph)	125	90	120	65	70	140	100	550	75	130	600	110
Satd. Flow (prot)	1805	1737	0	1543	2744	0	1805	3574	1324	1347	3514	0
Flt Permitted	0.566			0.367			0.258			0.429		
Satd. Flow (perm)	1061	1737	0	596	2744	0	490	3574	1291	605	3514	0
Satd. Flow (RTOR)		45			156				149		16	
Lane Group Flow (vph)	140	236	0	72	234	0	108	591	81	138	755	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0		9.5	27.0	27.0	9.5	35.0	
Total Split (s)	32.0	32.0		13.0	45.0		13.0	44.0	44.0	13.0	44.0	
Total Split (%)	24.2%	24.2%		9.8%	34.1%		9.8%	33.3%	33.3%	9.8%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
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)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	20.9	20.9		31.2	30.1		70.0	68.0	68.0	72.9	70.9	
Actuated g/C Ratio	0.16	0.16		0.24	0.23		0.53	0.52	0.52	0.55	0.54	
v/c Ratio	0.83	0.75		0.40	0.31		0.31	0.32	0.11	0.34	0.40	
Control Delay	89.5	57.5		48.8	14.1		23.7	23.2	0.3	18.5	14.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	89.5	57.5		48.8	14.1		23.7	23.2	0.3	18.5	14.6	
LOS	F	E		D	B		C	C	A	B	B	
Approach Delay		69.4			22.3			20.9			15.2	
Approach LOS		E			C			C			B	

Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 113 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 26.7

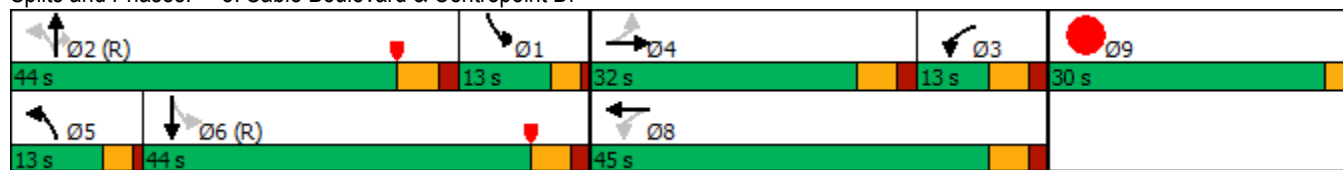
Intersection LOS: C

Intersection Capacity Utilization 66.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr


























Level of Service  
5: Sable Boulevard & Centrepont Dr

Metro Center - Amendment  
Future (2040) Total PM

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

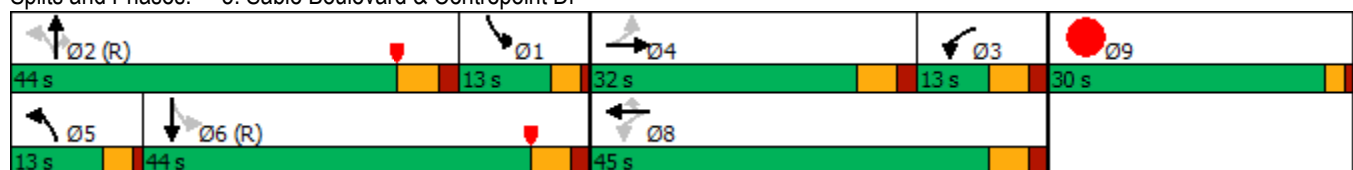
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	90	120	65	70	140	100	550	75	130	600	110
Future Volume (vph)	125	90	120	65	70	140	100	550	75	130	600	110
Satd. Flow (prot)	1805	1737	0	1543	1900	1302	1805	3574	1324	1347	3508	0
Flt Permitted	0.706			0.351			0.263			0.429		
Satd. Flow (perm)	1319	1737	0	570	1900	1263	499	3574	1291	605	3508	0
Satd. Flow (RTOR)		45				156			149		16	
Lane Group Flow (vph)	140	236	0	72	78	156	108	591	81	138	755	0
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	31.0	31.0		11.0	31.0	31.0	9.5	27.0	27.0	9.5	35.0	
Total Split (s)	32.0	32.0		13.0	45.0	45.0	13.0	44.0	44.0	13.0	44.0	
Total Split (%)	24.2%	24.2%		9.8%	34.1%	34.1%	9.8%	33.3%	33.3%	9.8%	33.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lead	Lead		Lag			Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Min	C-Min	None	C-Min	
Act Effect Green (s)	19.7	19.7		30.0	28.9	28.9	71.3	69.3	69.3	74.3	72.3	
Actuated g/C Ratio	0.15	0.15		0.23	0.22	0.22	0.54	0.52	0.52	0.56	0.55	
v/c Ratio	0.71	0.79		0.43	0.19	0.39	0.30	0.31	0.11	0.34	0.39	
Control Delay	72.5	62.3		51.3	40.1	8.4	23.0	22.4	0.3	16.7	12.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	72.5	62.3		51.3	40.1	8.4	23.0	22.4	0.3	16.7	12.7	
LOS	E	E		D	D	A	C	C	A	B	B	
Approach Delay		66.1			26.6			20.2			13.3	
Approach LOS		E			C			C			B	

Intersection Summary

Cycle Length: 132  
 Actuated Cycle Length: 132  
 Offset: 113 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 25.7  
 Intersection Capacity Utilization 64.6%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr




























Level of Service  
5: Sable Boulevard & Centrepont Dr

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	30.0
Total Split (s)	30.0
Total Split (%)	23%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM

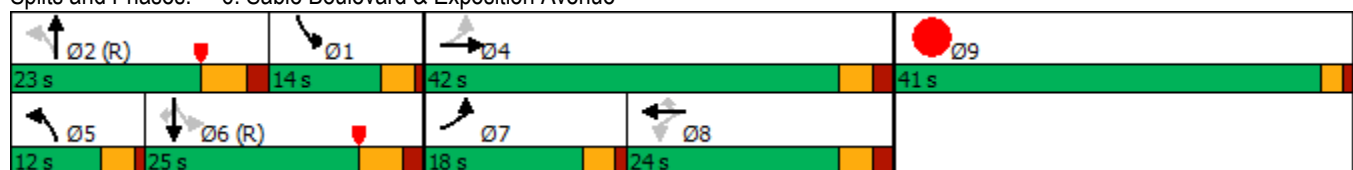
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	330	105	160	265	95	75	500	220	130	565	95
Future Volume (vph)	125	330	105	160	265	95	75	500	220	130	565	95
Satd. Flow (prot)	1656	1825	0	1805	1900	1568	1770	3300	0	1805	3574	1482
Flt Permitted	0.162			0.257			0.285			0.312		
Satd. Flow (perm)	282	1825	0	488	1900	1540	530	3300	0	591	3574	1449
Satd. Flow (RTOR)		14				182		48				118
Lane Group Flow (vph)	140	489	0	174	288	103	82	782	0	140	608	102
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		8	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		28.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	18.0	42.0		24.0	24.0	24.0	12.0	23.0		14.0	25.0	25.0
Total Split (%)	15.0%	35.0%		20.0%	20.0%	20.0%	10.0%	19.2%		11.7%	20.8%	20.8%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	38.0	37.0		20.8	20.8	20.8	51.8	49.8		56.0	54.0	54.0
Actuated g/C Ratio	0.32	0.31		0.17	0.17	0.17	0.43	0.42		0.47	0.45	0.45
v/c Ratio	0.61	0.85		2.07	0.88	0.25	0.27	0.56		0.37	0.38	0.14
Control Delay	42.7	53.7		547.0	75.9	1.4	28.8	29.2		31.8	26.9	5.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	42.7	53.7		547.0	75.9	1.4	28.8	29.2		31.8	26.9	5.6
LOS	D	D		F	E	A	C	C		C	C	A
Approach Delay		51.2			207.4			29.2			25.2	
Approach LOS		D			F			C			C	

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 2.07  
 Intersection Signal Delay: 67.4  
 Intersection Capacity Utilization 79.9%  
 Analysis Period (min) 15

Intersection LOS: E  
 ICU Level of Service D

Splits and Phases: 6: Sable Boulevard & Exposition Avenue


























Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	330	105	160	265	95	75	500	220	130	565	95
Future Volume (vph)	125	330	105	160	265	95	75	500	220	130	565	95
Satd. Flow (prot)	1656	1825	0	1805	1900	1568	1770	3300	0	1805	3574	1482
Flt Permitted	0.380			0.122			0.245			0.291		
Satd. Flow (perm)	660	1825	0	232	1900	1540	456	3300	0	551	3574	1449
Satd. Flow (RTOR)		13				182		46				118
Lane Group Flow (vph)	140	489	0	174	288	103	82	782	0	140	608	102
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.0	30.0		9.0	28.0	28.0	9.0	34.0		9.0	33.0	33.0
Total Split (s)	13.0	38.0		13.0	38.0	38.0	10.0	18.0		10.0	18.0	18.0
Total Split (%)	10.8%	31.7%		10.8%	31.7%	31.7%	8.3%	15.0%		8.3%	15.0%	15.0%
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	C-Min
Act Effect Green (s)	42.5	32.7		42.8	32.8	32.8	47.1	45.1		47.6	45.6	45.6
Actuated g/C Ratio	0.35	0.27		0.36	0.27	0.27	0.39	0.38		0.40	0.38	0.38
v/c Ratio	0.46	0.97		0.87	0.55	0.19	0.31	0.62		0.50	0.45	0.16
Control Delay	30.0	75.0		64.7	42.1	0.7	33.6	32.7		41.2	32.5	6.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.0	75.0		64.7	42.1	0.7	33.6	32.7		41.2	32.5	6.6
LOS	C	E		E	D	A	C	C		D	C	A
Approach Delay		65.0			41.5			32.8			30.8	
Approach LOS		E			D			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 40.9

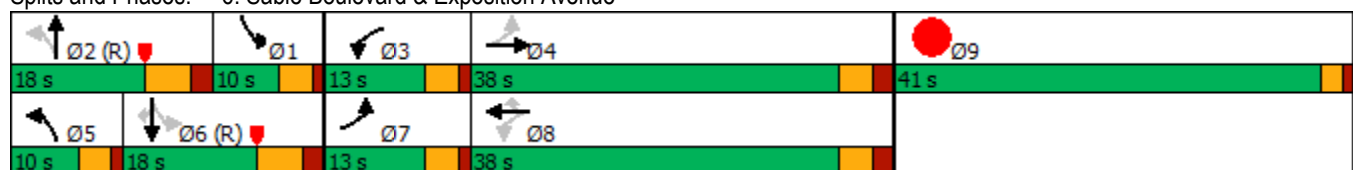
Intersection LOS: D

Intersection Capacity Utilization 79.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Level of Service  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	41.0
Total Split (s)	41.0
Total Split (%)	34%
Yellow Time (s)	2.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	






















Level of Service  
7: Centrepont Dr & Exposition Avenue

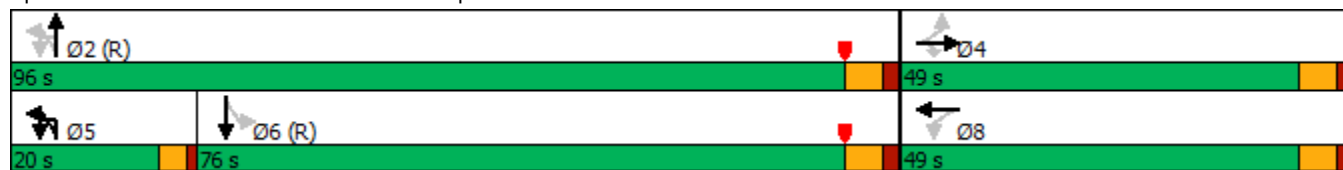
Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	7.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	595	50	25	380	35	25	10	15	70	20	50
Future Vol, veh/h	55	595	50	25	380	35	25	10	15	70	20	50
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	94	94	94	88	88	88	89	89	89
Heavy Vehicles, %	0	0	0	0	0	17	0	0	0	4	0	6
Mvmt Flow	63	676	57	27	404	37	28	11	17	79	22	56
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	441	0	0	736	0	0	1350	1329	708	1303	1320	404
Stage 1	-	-	-	-	-	-	834	834	-	458	458	-
Stage 2	-	-	-	-	-	-	516	495	-	845	862	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.354
Pot Cap-1 Maneuver	1151	-	-	824	-	-	129	156	568	136	158	*767
Stage 1	-	-	-	-	-	-	403	374	-	690	617	-
Stage 2	-	-	-	-	-	-	633	587	-	388	355	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	1151	-	-	822	-	-	98	142	567	116	144	*767
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	142	-	116	144	-
Stage 1	-	-	-	-	-	-	380	352	-	653	596	-
Stage 2	-	-	-	-	-	-	546	567	-	344	335	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.5			46.3			51		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3		
Capacity (veh/h)	142	1151	-	-	822	-	-	116	144	767		
HCM Lane V/C Ratio	0.4	0.054	-	-	0.032	-	-	0.678	0.156	0.073		
HCM Control Delay (s)	46.3	8.3	-	-	9.5	-	-	84.9	34.6	10.1		
HCM Lane LOS	E	A	-	-	A	-	-	F	D	B		
HCM 95th %tile Q(veh)	1.7	0.2	-	-	0.1	-	-	3.6	0.5	0.2		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations									 			 
Traffic Volume (veh/h)	300	30	405	55	10	45	10	200	1640	30	95	1960
Future Volume (veh/h)	300	30	405	55	10	45	10	200	1640	30	95	1960
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99		1.00		0.99	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1900		1870	1885	1900	1900	1885
Adj Flow Rate, veh/h	337	34	455	61	11	50		220	1802	33	100	2063
Peak Hour Factor	0.89	0.89	0.89	0.90	0.90	0.90		0.91	0.91	0.91	0.95	0.95
Percent Heavy Veh, %	0	0	1	0	0	0		2	1	0	0	1
Cap, veh/h	316	27	471	37	14	10		262	3229	59	157	2475
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30		0.07	0.62	0.62	1.00	1.00
Sat Flow, veh/h	905	91	1590	0	48	34		1781	5203	95	257	4743
Grp Volume(v), veh/h	371	0	455	122	0	0		220	1188	647	100	1486
Grp Sat Flow(s),veh/h/ln	996	0	1590	82	0	0		1781	1716	1867	257	1716
Q Serve(g_s), s	0.0	0.0	40.9	0.0	0.0	0.0		8.0	29.1	29.2	43.5	0.0
Cycle Q Clear(g_c), s	43.0	0.0	40.9	43.0	0.0	0.0		8.0	29.1	29.2	58.3	0.0
Prop In Lane	0.91		1.00	0.50		0.41		1.00		0.05	1.00	
Lane Grp Cap(c), veh/h	343	0	471	62	0	0		262	2130	1159	157	1791
V/C Ratio(X)	1.08	0.00	0.97	1.98	0.00	0.00		0.84	0.56	0.56	0.64	0.83
Avail Cap(c_a), veh/h	343	0	471	62	0	0		332	2130	1159	157	1791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00		1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	0.0	50.3	55.9	0.0	0.0		18.8	16.0	16.0	5.7	0.0
Incr Delay (d2), s/veh	72.5	0.0	32.5	494.1	0.0	0.0		14.1	1.1	1.9	17.9	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.7	0.0	20.6	10.8	0.0	0.0		4.2	11.2	12.4	1.4	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.4	0.0	82.8	550.0	0.0	0.0		32.9	17.0	17.9	23.7	4.6
LnGrp LOS	F	A	F	F	A	A		C	B	B	C	A
Approach Vol, veh/h		826			122				2055			2374
Approach Delay, s/veh		102.4			550.0				19.0			6.9
Approach LOS		F			F				B			A
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		96.0		49.0	14.3	81.7		49.0				
Change Period (Y+Rc), s		6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		90.0		43.0	16.0	70.0		43.0				
Max Q Clear Time (g_c+I1), s		31.2		45.0	10.0	60.3		45.0				
Green Ext Time (p_c), s		20.7		0.0	0.3	8.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			38.5									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												
User approved ignoring U-Turning movement.												
Splits and Phases: 8: Chambers Road & Exposition Avenue												



Level of Service  
8: Chambers Road & Exposition Avenue


























Metro Center - Amendment  
Future (2040) Total PM

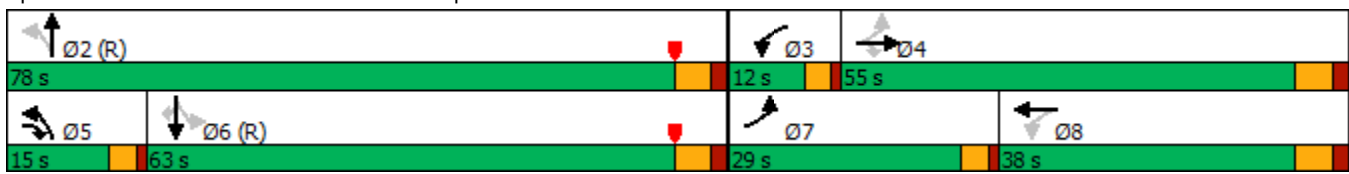
Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	200
Future Volume (veh/h)	200
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.99
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	211
Peak Hour Factor	0.95
Percent Heavy Veh, %	0
Cap, veh/h	250
Arrive On Green	1.00
Sat Flow, veh/h	480
Grp Volume(v), veh/h	788
Grp Sat Flow(s),veh/h/ln	1792
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.27
Lane Grp Cap(c), veh/h	935
V/C Ratio(X)	0.84
Avail Cap(c_a), veh/h	935
HCM Platoon Ratio	2.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	9.1
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	2.4
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	9.1
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	



Level of Service  
8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			  	
Traffic Volume (veh/h)	300	30	405	55	10	45	210	1640	30	95	1960	200
Future Volume (veh/h)	300	30	405	55	10	45	210	1640	30	95	1960	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1900	1900	1900	1870	1885	1900	1900	1885	1900
Adj Flow Rate, veh/h	337	34	455	61	11	50	231	1802	33	100	2063	211
Peak Hour Factor	0.89	0.89	0.89	0.90	0.90	0.90	0.91	0.91	0.91	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	1	0	0	0	2	1	0	0	1	0
Cap, veh/h	514	534	568	259	45	206	239	2965	54	137	2401	741
Arrive On Green	0.17	0.28	0.28	0.04	0.15	0.15	0.08	0.57	0.57	0.93	0.93	0.93
Sat Flow, veh/h	1810	1900	1589	1810	296	1346	1781	5203	95	257	5147	1588
Grp Volume(v), veh/h	337	34	455	61	0	61	231	1188	647	100	2063	211
Grp Sat Flow(s),veh/h/ln	1810	1900	1589	1810	0	1642	1781	1716	1867	257	1716	1588
Q Serve(g_s), s	22.1	1.9	37.4	4.1	0.0	4.7	10.2	33.0	33.1	49.6	19.7	1.8
Cycle Q Clear(g_c), s	22.1	1.9	37.4	4.1	0.0	4.7	10.2	33.0	33.1	67.6	19.7	1.8
Prop In Lane	1.00		1.00	1.00		0.82	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	514	534	568	259	0	251	239	1955	1064	137	2401	741
V/C Ratio(X)	0.66	0.06	0.80	0.24	0.00	0.24	0.97	0.61	0.61	0.73	0.86	0.28
Avail Cap(c_a), veh/h	524	642	658	290	0	362	239	1955	1064	137	2401	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	39.8	38.1	42.0	49.1	0.0	54.1	29.7	20.5	20.5	16.9	3.3	2.7
Incr Delay (d2), s/veh	2.9	0.0	6.2	0.5	0.0	0.5	48.5	1.4	2.6	22.4	3.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	0.9	15.8	1.9	0.0	2.0	7.4	13.1	14.6	3.6	2.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	38.2	48.1	49.5	0.0	54.6	78.2	21.9	23.1	39.4	6.6	3.4
LnGrp LOS	D	D	D	D	A	D	E	C	C	D	A	A
Approach Vol, veh/h	826			122			2066			2374		
Approach Delay, s/veh	45.5			52.0			28.6			7.7		
Approach LOS	D			D			C			A		
Timer - Assigned Phs	2			3			4			5		
Phs Duration (G+Y+Rc), s	88.6			9.6			46.8			15.0		
Change Period (Y+Rc), s	6.0			4.0			6.0			4.0		
Max Green Setting (Gmax), s	72.0			8.0			49.0			11.0		
Max Q Clear Time (g_c+I1), s	35.1			6.1			39.4			12.2		
Green Ext Time (p_c), s	17.6			0.0			1.4			0.0		
Intersection Summary												
HCM 6th Ctrl Delay 22.5												
HCM 6th LOS C												
Notes												



Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	19.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕ ↕ ↕	↕ ↕ ↕		↕ ↕ ↕		
Traffic Vol, veh/h	35	0	50	80	0	55	65	1850	70	35	2125	50
Future Vol, veh/h	35	0	50	80	0	55	65	1850	70	35	2125	50
Conflicting Peds, #/hr	1	0	0	0	0	1	3	0	11	11	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	95	95	95	94	94	94
Heavy Vehicles, %	0	0	0	0	0	2	0	1	0	0	0	0
Mvmt Flow	42	0	60	95	0	65	68	1947	74	37	2261	53

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	3281	4533	1160	3109	4522	1023	2317	0	0	2032	0	0
Stage 1	2365	2365	-	2131	2131	-	-	-	-	-	-	-
Stage 2	916	2168	-	978	2391	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.14	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.92	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*50	*0	*433	*~ 88	0	*484	*545	-	-	*613	-	-
Stage 1	*444	*422	-	*490	469	-	-	-	-	-	-	-
Stage 2	*500	*438	-	*444	419	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*~ 37	*0	*432	*~ 65	0	*479	*543	-	-	*606	-	-
Mov Cap-2 Maneuver	*~ 37	*0	-	*~ 65	0	-	-	-	-	-	-	-
Stage 1	*387	*395	-	*424	406	-	-	-	-	-	-	-
Stage 2	*377	*379	-	*360	392	-	-	-	-	-	-	-



















Approach	EB		WB		NB		SB	
HCM Control Delay, s	280.4		\$ 389		0.4		0.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 543	-	-	80	100	* 606	-	-
HCM Lane V/C Ratio	0.126	-	-	1.265	1.607	0.061	-	-
HCM Control Delay (s)	12.6	-	-	280.4	\$ 389	11.3	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	7.6	12.4	0.2	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	50	80	0	55	65	1850	70	35	2125	50
Future Volume (veh/h)	35	0	50	80	0	55	65	1850	70	35	2125	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1870	1900	1885	1900	1900	1900	1900
Adj Flow Rate, veh/h	42	0	60	95	0	65	68	1947	74	37	2261	53
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.95	0.95	0.95	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	2	0	1	0	0	0	0
Cap, veh/h	106	14	121	148	5	77	223	3672	139	251	3734	87
Arrive On Green	0.13	0.00	0.13	0.13	0.00	0.13	0.06	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	530	103	905	809	34	577	1810	5087	193	1810	5213	122
Grp Volume(v), veh/h	102	0	0	160	0	0	68	1312	709	37	1498	816
Grp Sat Flow(s),veh/h/ln	1538	0	0	1419	0	0	1810	1716	1849	1810	1729	1877
Q Serve(g_s), s	0.0	0.0	0.0	7.4	0.0	0.0	1.4	0.0	0.0	0.8	0.0	0.0
Cycle Q Clear(g_c), s	8.7	0.0	0.0	16.0	0.0	0.0	1.4	0.0	0.0	0.8	0.0	0.0
Prop In Lane	0.41		0.59	0.59		0.41	1.00		0.10	1.00		0.06
Lane Grp Cap(c), veh/h	241	0	0	230	0	0	223	2477	1335	251	2477	1345
V/C Ratio(X)	0.42	0.00	0.00	0.70	0.00	0.00	0.31	0.53	0.53	0.15	0.60	0.61
Avail Cap(c_a), veh/h	412	0	0	396	0	0	277	2477	1335	290	2477	1345
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.0	0.0	0.0	61.4	0.0	0.0	4.6	0.0	0.0	4.8	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	3.8	0.0	0.0	0.6	0.6	1.2	0.3	1.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	0.0	6.0	0.0	0.0	0.5	0.2	0.4	0.3	0.4	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	0.0	0.0	65.1	0.0	0.0	5.2	0.6	1.2	5.0	1.1	2.0
LnGrp LOS	E	A	A	E	A	A	A	A	A	A	A	A
Approach Vol, veh/h	102			160			2089			2351		
Approach Delay, s/veh	59.2			65.1			1.0			1.5		
Approach LOS	E			E			A			A		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	110.7		25.5	9.7	109.9		25.5				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	85.0		36.0	9.0	83.0		36.0				
Max Q Clear Time (g_c+I1), s	2.8	2.0		10.7	3.4	2.0		18.0				
Green Ext Time (p_c), s	0.0	27.5		0.5	0.0	36.7		0.8				





Intersection Summary

HCM 6th Ctrl Delay 4.7  
 HCM 6th LOS A  
 Splits and Phases: 9: Chambers Road & Center Avenue







Level of Service  
10: Centrepont Dr & Walsh Drive

Metro Center - Amendment  
Future (2040) Total PM

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	20	5	95	120	15
Future Vol, veh/h	30	20	5	95	120	15
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	86	86	87	87
Heavy Vehicles, %	0	14	0	9	3	0
Mvmt Flow	38	25	6	110	138	17
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	272	78	155	0	-	0
Stage 1	147	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.6	7.11	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.433	2.2	-	-	-
Pot Cap-1 Maneuver	770	*1017	1497	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	767	*1017	1497	-	-	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	9.6		0.4		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497		-	851	-	-
HCM Lane V/C Ratio	0.004		-	0.073	-	-
HCM Control Delay (s)	7.4		-	9.6	-	-
HCM Lane LOS	A		-	A	-	-
HCM 95th %tile Q(veh)	0		-	0.2	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
11: Centrepoint Dr & Center Avenue

Metro Center - Amendment  
Future (2040) Total PM

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	75	90	35	60	120
Future Vol, veh/h	15	75	90	35	60	120
Conflicting Peds, #/hr	3	0	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	77	77	84	84	86	86
Heavy Vehicles, %	0	0	6	0	0	2
Mvmt Flow	19	97	107	42	70	140
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	416	133	0	0	154	0
Stage 1	133	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	619	922	-	-	1439	-
Stage 1	898	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	584	918	-	-	1432	-
Mov Cap-2 Maneuver	630	-	-	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.9	0	2.5			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	853	1432	-	
HCM Lane V/C Ratio	-	-	0.137	0.049	-	
HCM Control Delay (s)	-	-	9.9	7.6	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-	

Level of Service  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Future (2040) Total PM

Intersection

Int Delay, s/veh 6.2

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations

Traffic Vol, veh/h 115 95 75 85 65 140

Future Vol, veh/h 115 95 75 85 65 140

Conflicting Peds, #/hr 10 0 0 10 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - - -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 87 87 92 92 89 89

Heavy Vehicles, % 13 3 5 5 0 12

Mvmt Flow 132 109 82 92 73 157

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 184 0 - 0 511 138

Stage 1 - - - - 138 -

Stage 2 - - - - 373 -

Critical Hdwy 4.23 - - - 6.4 6.32

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy 2.317 - - - 3.5 3.408

Pot Cap-1 Maneuver 1327 - - - 541 884

Stage 1 - - - - 894 -

Stage 2 - - - - 712 -

Platoon blocked, % - - - - 1

Mov Cap-1 Maneuver 1314 - - - 473 876

Mov Cap-2 Maneuver - - - - 473 -

Stage 1 - - - - 790 -

Stage 2 - - - - 705 -

Approach EB WB SB

HCM Control Delay, s 4.4 0 12.8

HCM LOS B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1314 - - - 690

HCM Lane V/C Ratio 0.101 - - - 0.334

HCM Control Delay (s) 8 0 - - 12.8

HCM Lane LOS A A - - B

HCM 95th %tile Q(veh) 0.3 - - - 1.5

Level of Service  
13: A1 Access & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑	↗		↑↑↑↑		↗
Traffic Vol, veh/h	2350	35	0	1955	0	25
Future Vol, veh/h	2350	35	0	1955	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2500	37	0	2080	0	30
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	-	-	-	1250
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*363
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*363
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		15.8		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	363	-	-	-		
HCM Lane V/C Ratio	0.082	-	-	-		
HCM Control Delay (s)	15.8	-	-	-		
HCM Lane LOS	C	-	-	-		
HCM 95th %tile Q(veh)	0.3	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
14: Fraser Ct & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑		↗
Traffic Vol, veh/h	2430	25	35	1910	0	55
Future Vol, veh/h	2430	25	35	1910	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2613	27	38	2054	0	65
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2640	0	-	1320
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	*452	-	0	*359
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-	1	-	-	1
Mov Cap-1 Maneuver	-	-	*452	-	-	*359
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		17.3	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	359	-	-	* 452	-	
HCM Lane V/C Ratio	0.182	-	-	0.083	-	
HCM Control Delay (s)	17.3	-	-	13.7	-	
HCM Lane LOS	C	-	-	B	-	
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon







Level of Service  
15: Grandby St & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↗
Traffic Vol, veh/h	2440	40	0	1945	0	55
Future Vol, veh/h	2440	40	0	1945	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2624	43	0	2091	0	65
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	-	-	-	1334
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*341
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*341
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		18		
HCM LOS				C		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	341	-	-	-		
HCM Lane V/C Ratio	0.192	-	-	-		
HCM Control Delay (s)	18	-	-	-		
HCM Lane LOS	C	-	-	-		
HCM 95th %tile Q(veh)	0.7	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Level of Service  
17: Alameda Drive & Dakota Ave

Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	0	50	20	0	80	60	145	20	25	105	90
Future Vol, veh/h	60	0	50	20	0	80	60	145	20	25	105	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	0	60	24	0	95	71	173	24	30	125	107
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	614	578	179	596	619	185	232	0	0	197	0	0
Stage 1	239	239	-	327	327	-	-	-	-	-	-	-
Stage 2	375	339	-	269	292	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	404	427	864	415	404	857	1336	-	-	1376	-	-
Stage 1	764	708	-	686	648	-	-	-	-	-	-	-
Stage 2	646	640	-	737	671	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	336	392	864	362	370	857	1336	-	-	1376	-	-
Mov Cap-2 Maneuver	336	392	-	362	370	-	-	-	-	-	-	-
Stage 1	718	690	-	645	609	-	-	-	-	-	-	-
Stage 2	540	602	-	669	654	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.7		11.5		2.1		0.9					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1336	-	-	465	673	1376	-	-				
HCM Lane V/C Ratio	0.053	-	-	0.282	0.177	0.022	-	-				
HCM Control Delay (s)	7.8	0	-	15.7	11.5	7.7	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.1	0.6	0.1	-	-				

Level of Service  
18: Fraser Ct & Dakota Ave

Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	0	70	0	20	0	10	35	30	25	5
Future Vol, veh/h	25	0	0	70	0	20	0	10	35	30	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	0	0	83	0	24	0	12	42	36	30	6
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	150	159	33	138	141	33	36	0	0	54	0	0
Stage 1	105	105	-	33	33	-	-	-	-	-	-	-
Stage 2	45	54	-	105	108	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	818	733	1041	833	750	1041	1575	-	-	1551	-	-
Stage 1	901	808	-	983	868	-	-	-	-	-	-	-
Stage 2	969	850	-	901	806	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	784	715	1041	818	732	1041	1575	-	-	1551	-	-
Mov Cap-2 Maneuver	784	715	-	818	732	-	-	-	-	-	-	-
Stage 1	901	789	-	983	868	-	-	-	-	-	-	-
Stage 2	947	850	-	879	787	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9.8		9.8		0		3.7					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1575	-	-	784	859	1551	-	-				
HCM Lane V/C Ratio	-	-	-	0.038	0.125	0.023	-	-				
HCM Control Delay (s)	0	-	-	9.8	9.8	7.4	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-				

Level of Service  
19: Grandby St & Dakota Ave

Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	20	10	0	55	30	10	5	25	35	5	5
Future Vol, veh/h	15	20	10	0	55	30	10	5	25	35	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	24	12	0	65	36	12	6	30	42	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	36	0	0	155	167	30	167	155	83
Stage 1	-	-	-	-	-	-	66	66	-	83	83	-
Stage 2	-	-	-	-	-	-	89	101	-	84	72	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1491	-	-	1575	-	-	812	726	1044	797	737	976
Stage 1	-	-	-	-	-	-	945	840	-	925	826	-
Stage 2	-	-	-	-	-	-	918	811	-	924	835	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1491	-	-	1575	-	-	795	717	1044	763	728	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	795	717	-	763	728	-
Stage 1	-	-	-	-	-	-	934	830	-	914	826	-
Stage 2	-	-	-	-	-	-	906	811	-	881	825	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.5			0			9.1			10		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	920	1491	-	-	1575	-	-	778				
HCM Lane V/C Ratio	0.052	0.012	-	-	-	-	-	0.069				
HCM Control Delay (s)	9.1	7.4	0	-	0	-	-	10				
HCM Lane LOS	A	A	A	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2				

Level of Service  
20: Chambers Road & Dakota Ave

Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑			↑↑↑	
Traffic Vol, veh/h	0	0	30	0	0	50	0	1915	50	0	2185	65
Future Vol, veh/h	0	0	30	0	0	50	0	1915	50	0	2185	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	93	93	93	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	36	0	0	60	0	2059	54	0	2324	69

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	1197	-	-	1057	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-
Pot Cap-1 Maneuver	0	0	*413	0	0	*466	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1			1	-	-
Mov Cap-1 Maneuver	-	-	*413	-	-	*466	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.5	13.9	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	413 466	-	-
HCM Lane V/C Ratio	-	-	0.086 0.128	-	-
HCM Control Delay (s)	-	-	14.5 13.9	-	-
HCM Lane LOS	-	-	B B	-	-
HCM 95th %tile Q(veh)	-	-	0.3 0.4	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon





Level of Service  
21: Dakota St & Centrepont Dr

Metro Center - Amendment  
Future (2040) Total PM

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘↗	
Traffic Vol, veh/h	200	60	10	205	35	10
Future Vol, veh/h	200	60	10	205	35	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	238	71	12	244	42	12
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	309	0	506	238
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	268	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1267	-	560	894
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	777	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1267	-	555	894
Mov Cap-2 Maneuver	-	-	-	-	555	-
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	770	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		11.5	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	606	-	-	1267	-	
HCM Lane V/C Ratio	0.088	-	-	0.009	-	
HCM Control Delay (s)	11.5	-	-	7.9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Level of Service  
22: Centrepont Dr & Fraser Ct

Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	15	35	15	30	55	45	100	15	20	130	10
Future Vol, veh/h	10	15	35	15	30	55	45	100	15	20	130	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	18	42	18	36	65	54	119	18	24	155	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	496	454	161	475	451	128	167	0	0	137	0	0
Stage 1	209	209	-	236	236	-	-	-	-	-	-	-
Stage 2	287	245	-	239	215	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	484	502	884	500	504	922	1411	-	-	1447	-	-
Stage 1	793	729	-	767	710	-	-	-	-	-	-	-
Stage 2	720	703	-	764	725	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	405	472	884	442	474	922	1411	-	-	1447	-	-
Mov Cap-2 Maneuver	405	472	-	442	474	-	-	-	-	-	-	-
Stage 1	760	716	-	735	680	-	-	-	-	-	-	-
Stage 2	607	673	-	697	712	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.5		11.9		2.2		0.9					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1411	-	-	625	637	1447	-	-				
HCM Lane V/C Ratio	0.038	-	-	0.114	0.187	0.016	-	-				
HCM Control Delay (s)	7.7	0	-	11.5	11.9	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.7	0.1	-	-				

Level of Service  
23: Fraser Ct & Virginia Ave





Metro Center - Amendment  
Future (2040) Total PM

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	5	0	45	5	0	95
Future Vol, veh/h	5	0	45	5	0	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	0	54	6	0	113
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	170	57	0	0	60	0
Stage 1	57	-	-	-	-	-
Stage 2	113	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	820	1009	-	-	1544	-
Stage 1	966	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	820	1009	-	-	1544	-
Mov Cap-2 Maneuver	820	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.4	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	820	1544	-	
HCM Lane V/C Ratio	-	-	0.007	-	-	
HCM Control Delay (s)	-	-	9.4	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	



Level of Service  
24: Grandby St & Virginia Ave

Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	5	0	0	5	5	0	30	0	0	10	0
Future Vol, veh/h	0	5	0	0	5	5	0	30	0	0	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	6	0	0	6	6	0	36	0	0	12	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	6	0	0	21	18	6	33	15	9
Stage 1	-	-	-	-	-	-	6	6	-	9	9	-
Stage 2	-	-	-	-	-	-	15	12	-	24	6	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1607	-	-	1615	-	-	992	876	1077	974	879	1073
Stage 1	-	-	-	-	-	-	1016	891	-	1012	888	-
Stage 2	-	-	-	-	-	-	1005	886	-	994	891	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1615	-	-	982	876	1077	944	879	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	982	876	-	944	879	-
Stage 1	-	-	-	-	-	-	1016	891	-	1012	888	-
Stage 2	-	-	-	-	-	-	992	886	-	954	891	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			9.3			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	876	1607	-	-	1615	-	-	879				
HCM Lane V/C Ratio	0.041	-	-	-	-	-	-	0.014				
HCM Control Delay (s)	9.3	0	-	-	0	-	-	9.2				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Level of Service  
25: Chambers Road & Virginia Ave

Metro Center - Amendment  
Future (2040) Total PM

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↕↕↕			↗↕↕	↕↕↕	
Traffic Vol, veh/h	0	0	0	0	0	75	0	1890	50	5	2205	10
Future Vol, veh/h	0	0	0	0	0	75	0	1890	50	5	2205	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	93	93	93	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	89	0	2032	54	5	2346	11

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	1179	-	-	1043	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	5.34
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	3.12
Pot Cap-1 Maneuver	0	0	*413	0	0	*484	0	*609
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %			1			1	-	1
Mov Cap-1 Maneuver	-	-	*413	-	-	*484	-	*609
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-




Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.1	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	- 484	* 609	-	-
HCM Lane V/C Ratio	-	-	- 0.184	0.009	-	-
HCM Control Delay (s)	-	-	0 14.1	11	-	-
HCM Lane LOS	-	-	A B	B	-	-
HCM 95th %tile Q(veh)	-	-	- 0.7	0	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Level of Service  
26: Center Avenue & Grandby St

Metro Center - Amendment  
Future (2040) Total PM

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	80	85	25	5	5
Future Vol, veh/h	10	80	85	25	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	95	101	30	6	6
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	131	0	-	0	235	116
Stage 1	-	-	-	-	116	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1454	-	-	-	753	936
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1454	-	-	-	746	936
Mov Cap-2 Maneuver	-	-	-	-	746	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	906	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		9.4		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1454	-	-	-	830	
HCM Lane V/C Ratio	0.008	-	-	-	0.014	
HCM Control Delay (s)	7.5	0	-	-	9.4	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Existing Plus Site AM - Sensitivity Test

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵	↑↑↑		↵	↑↑↑	
Traffic Vol, veh/h	60	0	40	50	5	40	65	1575	40	20	975	30
Future Vol, veh/h	60	0	40	50	5	40	65	1575	40	20	975	30
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	84	84	84	87	87	87	91	91	91
Heavy Vehicles, %	0	0	0	2	0	0	0	1	3	0	2	0
Mvmt Flow	100	0	67	60	6	48	75	1865	46	22	1104	33
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2064	3226	572	2527	3219	956	1137	0	0	1911	0	0
Stage 1	1165	1165	-	2038	2038	-	-	-	-	-	-	-
Stage 2	899	2061	-	489	1181	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.44	6.5	7.1	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.34	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.74	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.82	4	3.9	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*455	36	*695	*272	37	*564	842	-	-	535	-	-
Stage 1	*639	631	-	*277	342	-	-	-	-	-	-	-
Stage 2	*579	329	-	*709	619	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*324	32	*693	*221	32	*564	842	-	-	535	-	-
Mov Cap-2 Maneuver	*324	32	-	*221	32	-	-	-	-	-	-	-
Stage 1	*582	605	-	*253	312	-	-	-	-	-	-	-
Stage 2	*474	300	-	*613	593	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	19.5		40.5		0.4		0.2					
HCM LOS	C		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	842	-	-	412	210	535	-	-				
HCM Lane V/C Ratio	0.089	-	-	0.405	0.539	0.041	-	-				
HCM Control Delay (s)	9.7	-	-	19.5	40.5	12	-	-				
HCM Lane LOS	A	-	-	C	E	B	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	1.9	2.8	0.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Level of Service  
9: Chambers Road & Center Avenue

Metro Center - Amendment  
Existing Plus Site PM - Sensitivity Test

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵	↕↕↕		↵	↕↕↕	
Traffic Vol, veh/h	30	0	45	65	0	45	65	1455	55	25	1675	40
Future Vol, veh/h	30	0	45	65	0	45	65	1455	55	25	1675	40
Conflicting Peds, #/hr	1	0	0	0	0	1	3	0	11	11	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	85	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	76	76	76	98	98	98	95	95	95
Heavy Vehicles, %	0	0	0	0	0	2	0	1	0	0	0	0
Mvmt Flow	40	0	60	86	0	59	66	1559	56	26	1851	42
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	2684	3685	950	2522	3678	820	1896	0	0	1626	0	0
Stage 1	1927	1927	-	1730	1730	-	-	-	-	-	-	-
Stage 2	757	1758	-	792	1948	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	7.1	6.4	6.5	7.14	5.3	-	-	5.3	-	-
Critical Hdwy Stg 1	7.3	5.5	-	7.3	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.7	5.5	-	6.7	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	4	3.9	3.8	4	3.92	3.1	-	-	3.1	-	-
Pot Cap-1 Maneuver	*150	8	*532	*229	9	*587	*669	-	-	737	-	-
Stage 1	*515	500	-	*469	487	-	-	-	-	-	-	-
Stage 2	*605	467	-	*546	482	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*121	7	*530	*181	7	*580	*667	-	-	730	-	-
Mov Cap-2 Maneuver	*121	7	-	*181	7	-	-	-	-	-	-	-
Stage 1	*463	480	-	*419	435	-	-	-	-	-	-	-
Stage 2	*489	417	-	*467	463	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	33.2		36.9			0.4			0.1			
HCM LOS	D		E									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	* 667	-	-	225	252	730	-	-				
HCM Lane V/C Ratio	0.099	-	-	0.444	0.574	0.036	-	-				
HCM Control Delay (s)	11	-	-	33.2	36.9	10.1	-	-				
HCM Lane LOS	B	-	-	D	E	B	-	-				
HCM 95th %tile Q(veh)	0.3	-	-	2.1	3.3	0.1	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon				

































## **Appendix D. Queueing Worksheets**

## Queues

## 1: Sable Boulevard &amp; Alameda Parkway

## Metro Center - Amendment

Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			 	  		 	 		 	 
Traffic Volume (vph)	115	1305	175	5	35	2250	190	265	390	65	155	255
Future Volume (vph)	115	1305	175	5	35	2250	190	265	390	65	155	255
Satd. Flow (prot)	1787	5085	1524	0	3502	5085	1583	3400	3539	1615	3400	3471
Flt Permitted	0.098				0.123			0.444			0.488	
Satd. Flow (perm)	184	5085	1499	0	453	5085	1535	1580	3539	1578	1736	3471
Satd. Flow (RTOR)			190				182			140		
Lane Group Flow (vph)	132	1500	201	0	43	2419	204	312	459	76	178	293
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2		2	6	6		6	8		8	4	
Total Split (s)	14.0	16.0	16.0	24.0	24.0	26.0	26.0	14.0	49.0	49.0	10.0	45.0
Total Lost Time (s)	5.0	6.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Act Effect Green (s)	58.4	57.4	57.4		59.3	58.3	58.3	24.3	23.3	23.3	18.5	17.5
Actuated g/C Ratio	0.44	0.43	0.43		0.45	0.44	0.44	0.18	0.18	0.18	0.14	0.13
v/c Ratio	0.54	0.68	0.26		0.07	1.08	0.26	0.64	0.74	0.19	0.51	0.64
Control Delay	38.5	34.4	7.5		31.9	77.7	8.3	45.1	49.3	4.4	58.4	60.0
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	34.4	7.5		31.9	77.7	8.3	45.1	49.3	4.4	58.4	60.0
LOS	D	C	A		C	E	A	D	D	A	E	E
Approach Delay		31.8				71.7			43.7			46.6
Approach LOS		C				E			D			D
Queue Length 50th (ft)	66	367	5		9	724	10	125	198	5	73	128
Queue Length 95th (ft)	161	#751	70		33	#1389	91	156	232	29	97	157
Internal Link Dist (ft)		573				350			1144			460
Turn Bay Length (ft)	250		175		175		100	275		275	150	
Base Capacity (vph)	244	2211	759		642	2245	779	487	1152	608	350	1025
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.68	0.26		0.07	1.08	0.26	0.64	0.40	0.13	0.51	0.29

## Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 104 (79%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 52.8

Intersection LOS: D

Intersection Capacity Utilization 88.6%

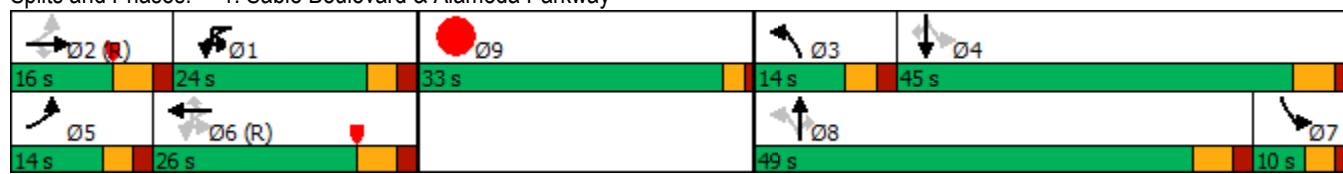
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

## Splits and Phases: 1: Sable Boulevard &amp; Alameda Parkway



## Queues

## 1: Sable Boulevard &amp; Alameda Parkway

## Metro Center - Amendment







Future (2040) Total AM - with Improvements

Lane Group	SBR	Ø9
Lane Configurations		
Traffic Volume (vph)	150	
Future Volume (vph)	150	
Satd. Flow (prot)	1599	
Flt Permitted		
Satd. Flow (perm)	1565	
Satd. Flow (RTOR)	172	
Lane Group Flow (vph)	172	
Turn Type	Perm	
Protected Phases		9
Permitted Phases	4	
Total Split (s)	45.0	33.0
Total Lost Time (s)	6.0	
Act Effct Green (s)	17.5	
Actuated g/C Ratio	0.13	
v/c Ratio	0.48	
Control Delay	11.4	
Queue Delay	0.0	
Total Delay	11.4	
LOS	B	
Approach Delay		
Approach LOS		
Queue Length 50th (ft)	0	
Queue Length 95th (ft)	55	
Internal Link Dist (ft)		
Turn Bay Length (ft)	150	
Base Capacity (vph)	583	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.30	
Intersection Summary		



## Queues 2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Future (2040) Total AM - with Improvements






















Intersection							
Int Delay, s/veh	5.6						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	10	165	1435	2495	50	10	40
Future Vol, veh/h	10	165	1435	2495	50	10	40
Conflicting Peds, #/hr	0	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	89	89	89	94	94	80	80
Heavy Vehicles, %	1	1	2	1	0	0	6
Mvmt Flow	11	185	1612	2654	53	13	50
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	1976	2707	0	-	0	3719	1354
Stage 1	-	-	-	-	-	2681	-
Stage 2	-	-	-	-	-	1038	-
Critical Hdwy	5.62	5.32	-	-	-	5.7	7.22
Critical Hdwy Stg 1	-	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	-	6	-
Follow-up Hdwy	2.31	3.11	-	-	-	3.8	3.96
Pot Cap-1 Maneuver	*554	*411	-	-	-	*~ 11	*323
Stage 1	-	-	-	-	-	*336	-
Stage 2	-	-	-	-	-	*597	-
Platoon blocked, %	1	1	-	-	-	-	1
Mov Cap-1 Maneuver	*415	*415	-	-	-	*~ 6	*323
Mov Cap-2 Maneuver	-	-	-	-	-	*~ 6	-
Stage 1	-	-	-	-	-	*177	-
Stage 2	-	-	-	-	-	*597	-
Approach	EB		WB		SB		
HCM Control Delay, s	2.3		0		\$ 342		
HCM LOS					F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	* 415	-	-	-	6	323	
HCM Lane V/C Ratio	0.474	-	-	-	2.083	0.155	
HCM Control Delay (s)	21.3	-	-	-	\$ 1637.4	18.2	
HCM Lane LOS	C	-	-	-	F	C	
HCM 95th %tile Q(veh)	2.5	-	-	-	2.6	0.5	
Notes							
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon							

## Queues

## 3: Alameda Drive &amp; Alameda Parkway

## Metro Center - Amendment

Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	1320	75	155	2415	35	95	5	125	0	0	35
Future Volume (vph)	65	1320	75	155	2415	35	95	5	125	0	0	35
Satd. Flow (prot)	1805	5023	0	1719	5126	0	1228	1302	0	1900	1900	1553
Flt Permitted	0.037			0.138			0.757					
Satd. Flow (perm)	70	5023	0	250	5126	0	976	1302	0	1900	1900	1530
Satd. Flow (RTOR)		12			3			134				87
Lane Group Flow (vph)	70	1500	0	165	2606	0	102	139	0	0	0	43
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm		Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Total Split (s)	12.0	102.0		12.0	102.0		36.0	36.0		36.0	36.0	36.0
Total Lost Time (s)	4.0	5.0		4.0	5.0		5.5	5.5		5.5	5.5	5.5
Act Effect Green (s)	114.2	107.2		118.8	109.5		20.0	20.0				20.0
Actuated g/C Ratio	0.76	0.71		0.79	0.73		0.13	0.13				0.13
v/c Ratio	0.57	0.42		0.59	0.70		0.78	0.48				0.15
Control Delay	39.5	9.8		18.2	4.8		98.5	14.7				1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0				0.0
Total Delay	39.5	9.8		18.2	4.8		98.5	14.7				1.2
LOS	D	A		B	A		F	B				A
Approach Delay		11.1			5.6			50.2			1.2	
Approach LOS		B			A			D			A	
Queue Length 50th (ft)	16	200		30	73		98	4				0
Queue Length 95th (ft)	73	286		m32	m178		158	66				0
Internal Link Dist (ft)		502			561			270			228	
Turn Bay Length (ft)	285			185			100					100
Base Capacity (vph)	149	3592		283	3742		198	371				380
Starvation Cap Reductn	0	0		0	0		0	0				0
Spillback Cap Reductn	0	0		0	0		0	0				0
Storage Cap Reductn	0	0		0	0		0	0				0
Reduced v/c Ratio	0.47	0.42		0.58	0.70		0.52	0.37				0.11

## Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 32 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 9.8

Intersection LOS: A













Intersection Capacity Utilization 75.5%

ICU Level of Service D

Analysis Period (min) 15

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

























## Splits and Phases: 3: Alameda Drive &amp; Alameda Parkway

											
Ø1	Ø2 (R)		Ø3	Ø4		Ø5	Ø6 (R)		Ø7	Ø8	
12 s	102 s		12 s	102 s		12 s	102 s		36 s	36 s	

# Queues

## 4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	1060	165	270	1995	265	385	1395	295	215	880	245
Future Volume (vph)	265	1060	165	270	1995	265	385	1395	295	215	880	245
Satd. Flow (prot)	3400	5085	1599	3433	5085	1599	3467	5136	1615	3367	5036	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3400	5085	1575	3431	5085	1599	3464	5136	1576	3363	5036	1545
Satd. Flow (RTOR)			95			102			58			138
Lane Group Flow (vph)	282	1128	176	290	2145	285	443	1603	339	236	967	269
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Total Split (s)	15.0	54.0	25.0	25.0	64.0	15.0	25.0	56.0	25.0	15.0	46.0	15.0
Total Lost Time (s)	5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Act Effect Green (s)	10.0	50.6	75.7	17.4	58.0	69.0	24.1	50.0	68.4	10.0	35.9	46.9
Actuated g/C Ratio	0.07	0.34	0.50	0.12	0.39	0.46	0.16	0.33	0.46	0.07	0.24	0.31
v/c Ratio	1.25	0.66	0.21	0.73	1.09	0.36	0.80	0.94	0.45	1.05	0.80	0.46
Control Delay	200.0	38.2	5.0	74.9	93.1	12.3	60.8	45.5	9.2	139.7	59.1	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	200.0	38.2	5.0	74.9	93.1	12.3	60.8	45.5	9.2	139.7	59.1	13.4
LOS	F	D	A	E	F	B	E	D	A	F	E	B
Approach Delay		63.3			82.7			43.2			63.7	
Approach LOS		E			F			D			E	
Queue Length 50th (ft)	~181	228	24	142	~863	80	220	564	97	~129	328	63
Queue Length 95th (ft)	#278	267	57	191	#953	133	#318	538	39	#221	370	119
Internal Link Dist (ft)		486			518			285			699	
Turn Bay Length (ft)	185		450	200		200	225		200	200		325
Base Capacity (vph)	226	1715	845	457	1966	790	556	1712	781	224	1342	579
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	1.25	0.66	0.21	0.63	1.09	0.36	0.80	0.94	0.43	1.05	0.72	0.46

### Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 32 (21%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 63.9

Intersection LOS: E

Intersection Capacity Utilization 102.1%

ICU Level of Service G

Analysis Period (min) 15

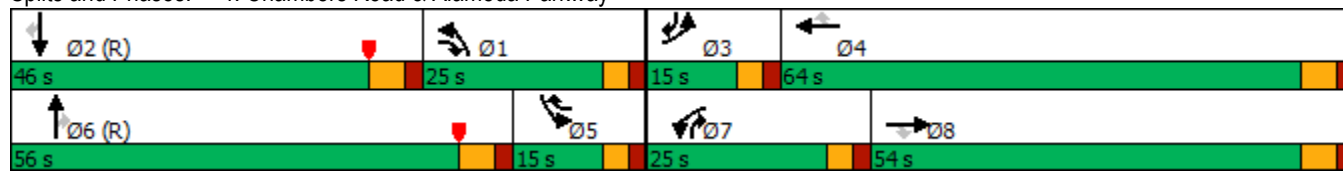
~ Volume exceeds capacity, queue is theoretically infinite.

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: 4: Chambers Road & Alameda Parkway



# Queues

## 5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	15	25	90	30	185	20	520	70	85	355	25
Future Volume (vph)	15	15	25	90	30	185	20	520	70	85	355	25
Satd. Flow (prot)	1805	1659	0	1492	1900	1357	1805	3610	1429	1367	3501	0
Flt Permitted	0.734			0.724			0.454			0.426		
Satd. Flow (perm)	1376	1659	0	1137	1900	1322	858	3610	1375	606	3501	0
Satd. Flow (RTOR)		32				218			149		5	
Lane Group Flow (vph)	19	51	0	106	35	218	23	598	80	100	447	0
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	29.0	29.0		15.0	44.0	44.0	14.0	42.0	42.0	16.0	44.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	
Act Effect Green (s)	7.6	7.6		22.2	22.2	22.2	83.2	81.2	81.2	87.4	85.4	
Actuated g/C Ratio	0.06	0.06		0.17	0.17	0.17	0.63	0.62	0.62	0.66	0.65	
v/c Ratio	0.24	0.40		0.48	0.11	0.54	0.04	0.27	0.09	0.23	0.20	
Control Delay	65.6	38.1		55.9	43.6	10.7	15.3	15.0	0.2	39.0	31.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	65.6	38.1		55.9	43.6	10.7	15.3	15.0	0.2	39.0	31.6	
LOS	E	D		E	D	B	B	B	A	D	C	
Approach Delay		45.6			27.2			13.3			32.9	
Approach LOS		D			C			B			C	
Queue Length 50th (ft)	16	16		81	25	0	6	104	0	64	158	
Queue Length 95th (ft)	36	46		125	51	53	29	238	0	132	239	
Internal Link Dist (ft)		258			445			1343			1144	
Turn Bay Length (ft)				100			150		150	225		
Base Capacity (vph)	239	315		221	546	535	612	2221	903	494	2265	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.08	0.16		0.48	0.06	0.41	0.04	0.27	0.09	0.20	0.20	

### Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 54 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 24.0

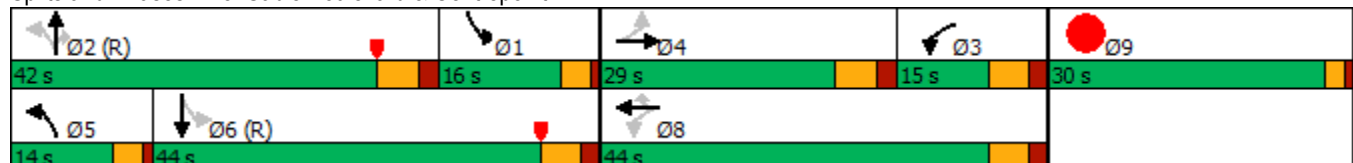
Intersection LOS: C

Intersection Capacity Utilization 55.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr



Queues  
5: Sable Boulevard & Centrepoint Dr
























Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Total Split (s)	30.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

# Queues

## 6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	65	10	135	160	105	40	450	140	70	335	65
Future Volume (vph)	55	65	10	135	160	105	40	450	140	70	335	65
Satd. Flow (prot)	1556	1858	0	1805	1900	1599	1752	3377	0	1805	3471	1404
Flt Permitted							0.465			0.402		
Satd. Flow (perm)	1636	1858	0	1895	1900	1577	855	3377	0	760	3471	1367
Satd. Flow (RTOR)		6				127		27				164
Lane Group Flow (vph)	60	82	0	152	180	118	44	656	0	82	394	76
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Total Split (s)	12.0	38.0		12.0	38.0	38.0	12.0	17.0		12.0	17.0	17.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Act Effect Green (s)	11.0	10.3		17.7	16.7	16.7	66.9	64.9		67.1	65.1	65.1
Actuated g/C Ratio	0.09	0.09		0.15	0.14	0.14	0.56	0.54		0.56	0.54	0.54
v/c Ratio	0.40	0.50		0.54	0.68	0.36	0.08	0.36		0.17	0.21	0.09
Control Delay	58.1	58.1		54.0	61.7	9.3	23.5	21.7		25.3	21.5	0.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.1	58.1		54.0	61.7	9.3	23.5	21.7		25.3	21.5	0.2
LOS	E	E		D	E	A	C	C		C	C	A
Approach Delay		58.1			45.3			21.8			19.1	
Approach LOS		E			D			C			B	
Queue Length 50th (ft)	44	57		111	134	0	14	130		25	72	0
Queue Length 95th (ft)	86	106		168	198	43	63	#404		98	197	0
Internal Link Dist (ft)		378			1322			338			1343	
Turn Bay Length (ft)	300			250		400	250			175		325
Base Capacity (vph)	155	515		279	522	525	540	1838		494	1882	816
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.39	0.16		0.54	0.34	0.22	0.08	0.36		0.17	0.21	0.09

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 29.5

Intersection LOS: C

Intersection Capacity Utilization 56.3%

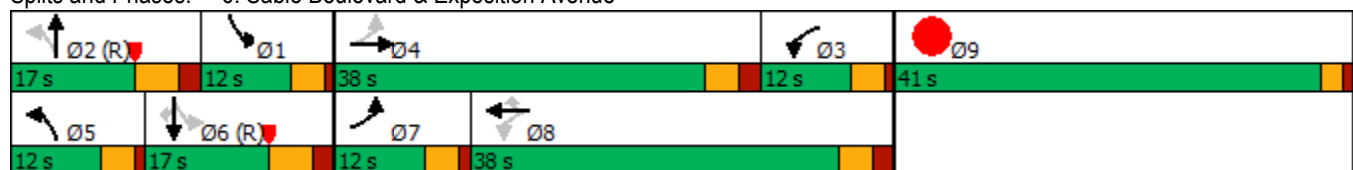
ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

### Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Queues  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Total Split (s)	41.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Queues  
7: Centrepont Dr & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	130	10	5	290	95	35	30	25	40	5	35
Future Vol, veh/h	40	130	10	5	290	95	35	30	25	40	5	35
Conflicting Peds, #/hr	2	0	1	1	0	2	1	0	4	4	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	89	89	89	84	84	84	81	81	81
Heavy Vehicles, %	0	2	0	0	1	3	4	5	5	22	0	0
Mvmt Flow	43	138	11	6	326	107	42	36	30	49	6	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	435	0	0	150	0	0	648	678	149	607	576	329
Stage 1	-	-	-	-	-	-	231	231	-	340	340	-
Stage 2	-	-	-	-	-	-	417	447	-	267	236	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.14	6.55	6.25	7.32	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.55	-	6.32	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.536	4.045	3.345	3.698	4	3.3
Pot Cap-1 Maneuver	1140	-	-	1465	-	-	381	370	950	381	431	849
Stage 1	-	-	-	-	-	-	808	727	-	745	692	-
Stage 2	-	-	-	-	-	-	691	598	-	733	731	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	1138	-	-	1464	-	-	346	353	946	328	412	847
Mov Cap-2 Maneuver	-	-	-	-	-	-	346	353	-	328	412	-
Stage 1	-	-	-	-	-	-	776	698	-	715	688	-
Stage 2	-	-	-	-	-	-	647	594	-	646	703	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.1	16.4	14
HCM LOS			C	B
























Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3
Capacity (veh/h)	423	1138	-	-	1464	-	-	328	412	847
HCM Lane V/C Ratio	0.253	0.037	-	-	0.004	-	-	0.151	0.015	0.051
HCM Control Delay (s)	16.4	8.3	-	-	7.5	-	-	17.9	13.9	9.5
HCM Lane LOS	C	A	-	-	A	-	-	C	B	A
HCM 95th %tile Q(veh)	1	0.1	-	-	0	-	-	0.5	0	0.2



# Queues

## 8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	10	75	45	15	55	240	1980	10	25	1190	125
Future Volume (vph)	95	10	75	45	15	55	240	1980	10	25	1190	125
Satd. Flow (prot)	1770	1900	1553	1641	1633	0	1787	5126	0	1719	5085	1599
Flt Permitted	0.702			0.572			0.148			0.067		
Satd. Flow (perm)	1306	1900	1553	988	1633	0	278	5126	0	121	5085	1562
Satd. Flow (RTOR)			79		44			1				126
Lane Group Flow (vph)	100	11	79	54	84	0	270	2236	0	28	1352	142
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	7	4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Total Split (s)	10.0	38.0	20.0	10.0	38.0		20.0	102.0		82.0	82.0	82.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0		4.0	6.0		6.0	6.0	6.0
Act Effct Green (s)	20.2	12.8	29.1	22.8	9.5		115.4	113.4		93.5	93.5	93.5
Actuated g/C Ratio	0.13	0.09	0.19	0.15	0.06		0.77	0.76		0.62	0.62	0.62
v/c Ratio	0.48	0.07	0.22	0.25	0.58		0.72	0.58		0.37	0.43	0.14
Control Delay	66.3	63.7	9.2	55.0	50.4		22.0	8.9		26.7	16.7	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	66.3	63.7	9.2	55.0	50.4		22.0	8.9		26.7	16.7	4.3
LOS	E	E	A	D	D		C	A		C	B	A
Approach Delay		42.4			52.2			10.3			15.7	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	96	10	0	45	38		69	335		12	219	20
Queue Length 95th (ft)	146	31	41	81	83		153	332		17	173	1
Internal Link Dist (ft)		1143			172			328			588	
Turn Bay Length (ft)	150						200			100		200
Base Capacity (vph)	209	405	388	217	382		397	3876		75	3170	1021
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	83		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.48	0.03	0.20	0.25	0.22		0.68	0.59		0.37	0.43	0.14

### Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 69 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 15.0

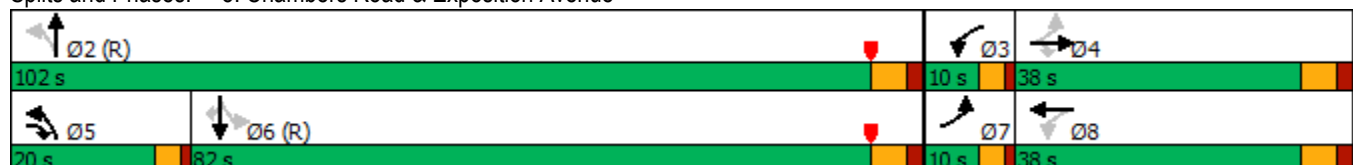
Intersection LOS: B

Intersection Capacity Utilization 73.7%

ICU Level of Service D

Analysis Period (min) 15


Splits and Phases: 8: Chambers Road & Exposition Avenue



# Queues

## 9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕↕↕		↗	↕↕↕	
Traffic Volume (vph)	65	0	40	65	5	50	75	2005	50	25	1230	40
Future Volume (vph)	65	0	40	65	5	50	75	2005	50	25	1230	40
Satd. Flow (prot)	0	1738	0	0	1728	0	1805	5113	0	1805	5063	0
Flt Permitted		0.695			0.755		0.158			0.052		
Satd. Flow (perm)	0	1246	0	0	1338	0	300	5113	0	99	5063	0
Satd. Flow (RTOR)		58			22			4			5	
Lane Group Flow (vph)	0	139	0	0	137	0	84	2309	0	27	1396	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	42.0	42.0		42.0	42.0		14.0	96.0		12.0	94.0	
Total Lost Time (s)		6.0			6.0		5.0	6.0		5.0	6.0	
Act Effct Green (s)		18.4			18.4		118.5	112.9		114.6	107.6	
Actuated g/C Ratio		0.12			0.12		0.79	0.75		0.76	0.72	
v/c Ratio		0.68			0.75		0.27	0.60		0.19	0.38	
Control Delay		52.4			76.3		4.4	9.5		11.5	6.0	
Queue Delay		0.0			0.0		0.0	0.1		0.0	0.0	
Total Delay		52.4			76.3		4.4	9.6		11.5	6.0	
LOS		D			E		A	A		B	A	
Approach Delay		52.4			76.3			9.4			6.1	
Approach LOS		D			E			A			A	
Queue Length 50th (ft)		77			111		6	535		4	113	
Queue Length 95th (ft)		111			173		18	523		m9	130	
Internal Link Dist (ft)		215			320			588			291	
Turn Bay Length (ft)							225			85		
Base Capacity (vph)		343			337		328	3848		155	3632	
Starvation Cap Reductn		0			0		0	367		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.41			0.41		0.26	0.66		0.17	0.38	

### Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 65 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 68.1%

ICU Level of Service C

Analysis Period (min) 15






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

Splits and Phases: 9: Chambers Road & Center Avenue







Queues  
10: Centrepoint Dr & Walsh Drive

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	25	140	70	40
Future Vol, veh/h	5	5	25	140	70	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	59	59	85	85	82	82
Heavy Vehicles, %	100	0	0	3	14	0
Mvmt Flow	8	8	29	165	85	49
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	333	67	134	0	-	0
Stage 1	110	-	-	-	-	-
Stage 2	223	-	-	-	-	-
Critical Hdwy	8.1	6.9	4.1	-	-	-
Critical Hdwy Stg 1	7.3	-	-	-	-	-
Critical Hdwy Stg 2	6.9	-	-	-	-	-
Follow-up Hdwy	4.45	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	477	1011	1477	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	467	1011	1477	-	-	-
Mov Cap-2 Maneuver	504	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.5	1.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1477	-	673	-	-	
HCM Lane V/C Ratio	0.02	-	0.025	-	-	
HCM Control Delay (s)	7.5	-	10.5	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	




Queues  
11: Centrepoint Dr & Center Avenue

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	75	135	15	70	95
Future Vol, veh/h	20	75	135	15	70	95
Conflicting Peds, #/hr	0	0	0	9	9	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	87	87	88	88
Heavy Vehicles, %	0	0	4	0	0	6
Mvmt Flow	23	85	155	17	80	108
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	441	173	0	0	181	0
Stage 1	173	-	-	-	-	-
Stage 2	268	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	598	876	-	-	1407	-
Stage 1	862	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	559	868	-	-	1395	-
Mov Cap-2 Maneuver	617	-	-	-	-	-
Stage 1	854	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.2	0		3.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	800	1395	-	
HCM Lane V/C Ratio	-	-	0.135	0.057	-	
HCM Control Delay (s)	-	-	10.2	7.7	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-	

Queues  
12: Centrepoint Dr & Alameda Drive

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	85	45	125	115	50	120
Future Vol, veh/h	85	45	125	115	50	120
Conflicting Peds, #/hr	14	0	0	14	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	86	86	91	91
Heavy Vehicles, %	20	10	3	2	0	25
Mvmt Flow	108	57	145	134	55	132
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	293	0	-	0	499	226
Stage 1	-	-	-	-	226	-
Stage 2	-	-	-	-	273	-
Critical Hdwy	4.3	-	-	-	6.4	6.45
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.38	-	-	-	3.5	3.525
Pot Cap-1 Maneuver	1173	-	-	-	540	759
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	784	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1157	-	-	-	476	749
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	774	-
Approach	EB	WB		SB		
HCM Control Delay, s	5.5	0		12.9		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1157	-	-	-	641	
HCM Lane V/C Ratio	0.093	-	-	-	0.291	
HCM Control Delay (s)	8.4	0	-	-	12.9	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	1.2	

Queues  
13: A1 Access & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑	↗		↑↑↑↑		↗
Traffic Vol, veh/h	1515	20	0	2545	0	45
Future Vol, veh/h	1515	20	0	2545	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1722	23	0	2737	0	54
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	-	-	-	861
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*559
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*559
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		12.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	559	-	-	-		
HCM Lane V/C Ratio	0.096	-	-	-		
HCM Control Delay (s)	12.1	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.3	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Queues  
14: Fraser Ct & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↰	↑↑↑		↱
Traffic Vol, veh/h	1420	30	20	2605	0	60
Future Vol, veh/h	1420	30	20	2605	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1527	32	22	2801	0	71
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	1559	0	-	780
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	5.34	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.12	-	-	3.92
Pot Cap-1 Maneuver	-	-	*736	-	0	*585
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-	1	-	-	1
Mov Cap-1 Maneuver	-	-	*736	-	-	*585
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.1		12		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	585	-	-	* 736	-	
HCM Lane V/C Ratio	0.122	-	-	0.029	-	
HCM Control Delay (s)	12	-	-	10	-	
HCM Lane LOS	B	-	-	B	-	
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	
Notes						
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon						

Queues  
15: Grandby St & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↗
Traffic Vol, veh/h	1455	20	0	2625	0	35
Future Vol, veh/h	1455	20	0	2625	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1565	22	0	2823	0	42
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	794
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*585
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*585
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	11.6			
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	585	-	-	-		
HCM Lane V/C Ratio	0.071	-	-	-		
HCM Control Delay (s)	11.6	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon



Queues  
17: Alameda Drive & Dakota Ave

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	100	0	80	20	0	30	25	95	45	75	110	40
Future Vol, veh/h	100	0	80	20	0	30	25	95	45	75	110	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	119	0	95	24	0	36	30	113	54	89	131	48
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	551	560	155	581	557	140	179	0	0	167	0	0
Stage 1	333	333	-	200	200	-	-	-	-	-	-	-
Stage 2	218	227	-	381	357	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	445	437	891	425	439	908	1397	-	-	1411	-	-
Stage 1	681	644	-	802	736	-	-	-	-	-	-	-
Stage 2	784	716	-	641	628	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	397	397	891	353	399	908	1397	-	-	1411	-	-
Mov Cap-2 Maneuver	397	397	-	353	399	-	-	-	-	-	-	-
Stage 1	665	599	-	783	718	-	-	-	-	-	-	-
Stage 2	735	699	-	532	584	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	16.4		12.2		1.2		2.6					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1397	-	-	527	557	1411	-	-				
HCM Lane V/C Ratio	0.021	-	-	0.407	0.107	0.063	-	-				
HCM Control Delay (s)	7.6	0	-	16.4	12.2	7.7	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	2	0.4	0.2	-	-				

Queues  
18: Fraser Ct & Dakota Ave

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	0	50	0	15	0	20	25	20	10	20
Future Vol, veh/h	25	0	0	50	0	15	0	20	25	20	10	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	0	0	60	0	18	0	24	30	24	12	24
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	120	126	24	111	123	39	36	0	0	54	0	0
Stage 1	72	72	-	39	39	-	-	-	-	-	-	-
Stage 2	48	54	-	72	84	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	855	764	1052	867	767	1033	1575	-	-	1551	-	-
Stage 1	938	835	-	976	862	-	-	-	-	-	-	-
Stage 2	965	850	-	938	825	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	830	752	1052	857	755	1033	1575	-	-	1551	-	-
Mov Cap-2 Maneuver	830	752	-	857	755	-	-	-	-	-	-	-
Stage 1	938	822	-	976	862	-	-	-	-	-	-	-
Stage 2	948	850	-	923	812	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.5		9.4			0			2.9			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1575	-	-	830	892	1551	-	-				
HCM Lane V/C Ratio	-	-	-	0.036	0.087	0.015	-	-				
HCM Control Delay (s)	0	-	-	9.5	9.4	7.4	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-				

Queues  
19: Grandby St & Dakota Ave

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	10	5	0	35	15	0	10	10	15	0	5
Future Vol, veh/h	10	10	5	0	35	15	0	10	10	15	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	12	6	0	42	18	0	12	12	18	0	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	60	0	0	18	0	0	93	99	15	102	93	51
Stage 1	-	-	-	-	-	-	39	39	-	51	51	-
Stage 2	-	-	-	-	-	-	54	60	-	51	42	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1544	-	-	1599	-	-	891	791	1065	879	797	1017
Stage 1	-	-	-	-	-	-	976	862	-	962	852	-
Stage 2	-	-	-	-	-	-	958	845	-	962	860	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1599	-	-	880	785	1065	854	791	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	880	785	-	854	791	-
Stage 1	-	-	-	-	-	-	968	855	-	954	852	-
Stage 2	-	-	-	-	-	-	952	845	-	930	853	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.9			0			9.1			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	904	1544	-	-	1599	-	-	890				
HCM Lane V/C Ratio	0.026	0.008	-	-	-	-	-	0.027				
HCM Control Delay (s)	9.1	7.3	0	-	0	-	-	9.2				
HCM Lane LOS	A	A	A	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

Queues  
20: Chambers Road & Dakota Ave

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑			↑↑↑	
Traffic Vol, veh/h	0	0	15	0	0	25	0	2055	45	0	1290	30
Future Vol, veh/h	0	0	15	0	0	25	0	2055	45	0	1290	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	88	88	88	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	18	0	0	30	0	2335	51	0	1418	33

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	726	-	-	1193	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-
Pot Cap-1 Maneuver	0	0	*620	0	0	*430	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1			1	-	-
Mov Cap-1 Maneuver	-	-	*620	-	-	*430	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-







Approach	EB	WB	NB	SB
HCM Control Delay, s	11	14	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	620	430	-
HCM Lane V/C Ratio	-	-	0.029	0.069	-
HCM Control Delay (s)	-	-	11	14	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Queues  
21: Dakota St & Centrepont Dr

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	25	5	240	75	20
Future Vol, veh/h	110	25	5	240	75	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	131	30	6	286	89	24
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	161	0	429	131
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	298	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1436	-	604	975
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	753	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1436	-	602	975
Mov Cap-2 Maneuver	-	-	-	-	602	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	750	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		11.6	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	655	-	-	1436	-	
HCM Lane V/C Ratio	0.173	-	-	0.004	-	
HCM Control Delay (s)	11.6	-	-	7.5	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.6	-	-	0	-	




Queues  
22: Centrepoint Dr & Fraser Ct

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	20	75	15	10	45	20	175	10	15	75	5
Future Vol, veh/h	25	20	75	15	10	45	20	175	10	15	75	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	24	89	18	12	54	24	208	12	18	89	6
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	423	396	92	447	393	214	95	0	0	220	0	0
Stage 1	128	128	-	262	262	-	-	-	-	-	-	-
Stage 2	295	268	-	185	131	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	541	541	965	522	543	826	1499	-	-	1349	-	-
Stage 1	876	790	-	743	691	-	-	-	-	-	-	-
Stage 2	713	687	-	817	788	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	485	524	965	446	526	826	1499	-	-	1349	-	-
Mov Cap-2 Maneuver	485	524	-	446	526	-	-	-	-	-	-	-
Stage 1	860	779	-	730	679	-	-	-	-	-	-	-
Stage 2	643	675	-	709	777	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.3		11.3		0.7		1.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1499	-	-	717	653	1349	-	-				
HCM Lane V/C Ratio	0.016	-	-	0.199	0.128	0.013	-	-				
HCM Control Delay (s)	7.4	0	-	11.3	11.3	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.7	0.4	0	-	-				





Queues  
23: Fraser Ct & Virginia Ave

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	0	45	5	0	60
Future Vol, veh/h	10	0	45	5	0	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	0	54	6	0	71
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	128	57	0	0	60	0
Stage 1	57	-	-	-	-	-
Stage 2	71	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	866	1009	-	-	1544	-
Stage 1	966	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	866	1009	-	-	1544	-
Mov Cap-2 Maneuver	866	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	866		1544	-	
HCM Lane V/C Ratio	-	0.014		-	-	
HCM Control Delay (s)	-	9.2		0	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	0		0	-	

Queues  
24: Grandby St & Virginia Ave

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	5	0	0	10	5	0	15	0	0	5	0
Future Vol, veh/h	0	5	0	0	10	5	0	15	0	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	6	0	0	12	6	0	18	0	0	6	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	18	0	0	6	0	0	24	24	6	30	21	15
Stage 1	-	-	-	-	-	-	6	6	-	15	15	-
Stage 2	-	-	-	-	-	-	18	18	-	15	6	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1599	-	-	1615	-	-	987	869	1077	979	873	1065
Stage 1	-	-	-	-	-	-	1016	891	-	1005	883	-
Stage 2	-	-	-	-	-	-	1001	880	-	1005	891	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1599	-	-	1615	-	-	982	869	1077	963	873	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	982	869	-	963	873	-
Stage 1	-	-	-	-	-	-	1016	891	-	1005	883	-
Stage 2	-	-	-	-	-	-	994	880	-	985	891	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			9.2			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	869	1599	-	-	1615	-	-	873				
HCM Lane V/C Ratio	0.021	-	-	-	-	-	-	0.007				
HCM Control Delay (s)	9.2	0	-	-	0	-	-	9.2				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				






Queues  
25: Chambers Road & Virginia Ave

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑↘		↘↑↑↑		
Traffic Vol, veh/h	0	0	5	0	0	25	0	2075	45	5	1290	5
Future Vol, veh/h	0	0	5	0	0	25	0	2075	45	5	1290	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	88	88	88	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	6	0	0	30	0	2358	51	5	1418	5
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	712	-	-	1205	-	0	0	2409	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-	-	5.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-	-	3.12	-	-
Pot Cap-1 Maneuver	0	0	*620	0	0	*430	0	-	-	520	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %			1			1		-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*620	-	-	*430	-	-	-	520	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.9		14		0		0					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBT		NBR		EBLn1WBLn1		SBL	SBT	SBR			
Capacity (veh/h)	-		-		620 430		520	-	-			
HCM Lane V/C Ratio	-		-		0.01 0.069		0.011	-	-			
HCM Control Delay (s)	-		-		10.9 14		12	-	-			
HCM Lane LOS	-		-		B B		B	-	-			
HCM 95th %tile Q(veh)	-		-		0 0.2		0	-	-			
Notes												
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon												

Queues  
26: Center Avenue & Grandby St

Metro Center - Amendment  
Future (2040) Total AM - with Improvements

































Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	85	110	10	5	0
Future Vol, veh/h	5	85	110	10	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	101	131	12	6	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	143	0	-	0	250	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	113	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1440	-	-	-	739	911
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	912	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1440	-	-	-	736	911
Mov Cap-2 Maneuver	-	-	-	-	736	-
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	912	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		9.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1440	-	-	-	736	
HCM Lane V/C Ratio	0.004	-	-	-	0.008	
HCM Control Delay (s)	7.5	0	-	-	9.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

## Queues

## 1: Sable Boulevard &amp; Alameda Parkway

## Metro Center - Amendment

Future (2040) Total PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		  			 	  		 	 		 	 
Traffic Volume (vph)	195	1805	270	5	90	1685	240	235	480	100	470	480
Future Volume (vph)	195	1805	270	5	90	1685	240	235	480	100	470	480
Satd. Flow (prot)	1787	5187	1568	0	3502	5136	1599	3303	3574	1615	3467	3539
Flt Permitted	0.112				0.109			0.354			0.459	
Satd. Flow (perm)	210	5187	1534	0	401	5136	1550	1220	3574	1569	1661	3539
Satd. Flow (RTOR)			190				182			190		
Lane Group Flow (vph)	207	1920	287	0	101	1793	255	255	522	109	505	516
Turn Type	pm+pt	NA	Perm	pm+pt	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	1	6		3	8		7	4
Permitted Phases	2		2	6	6		6	8		8	4	
Total Split (s)	19.0	41.0	41.0	12.0	12.0	34.0	34.0	14.0	30.0	30.0	16.0	32.0
Total Lost Time (s)	5.0	6.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0
Act Effect Green (s)	54.1	53.1	53.1		46.1	45.1	45.1	25.0	24.0	24.0	31.6	30.6
Actuated g/C Ratio	0.41	0.40	0.40		0.35	0.34	0.34	0.19	0.18	0.18	0.24	0.23
v/c Ratio	0.78	0.92	0.39		0.33	1.02	0.39	0.59	0.80	0.25	0.76	0.63
Control Delay	51.2	45.7	12.7		45.7	69.7	13.8	64.6	72.7	13.3	58.1	49.9
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	45.7	12.7		45.7	69.7	13.8	64.6	72.7	13.3	58.1	49.9
LOS	D	D	B		D	E	B	E	E	B	E	D
Approach Delay		42.3				61.9			63.1			47.2
Approach LOS		D				E			E			D
Queue Length 50th (ft)	112	539	50		28	554	42	105	233	9	196	207
Queue Length 95th (ft)	#300	#897	159		61	#909	141	164	310	70	#351	285
Internal Link Dist (ft)		573				350			1144			460
Turn Bay Length (ft)	250		175		175		100	275		275	150	
Base Capacity (vph)	271	2087	730		304	1754	649	431	680	452	661	820
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.92	0.39		0.33	1.02	0.39	0.59	0.77	0.24	0.76	0.63

## Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 52.3

Intersection LOS: D

Intersection Capacity Utilization 94.6%

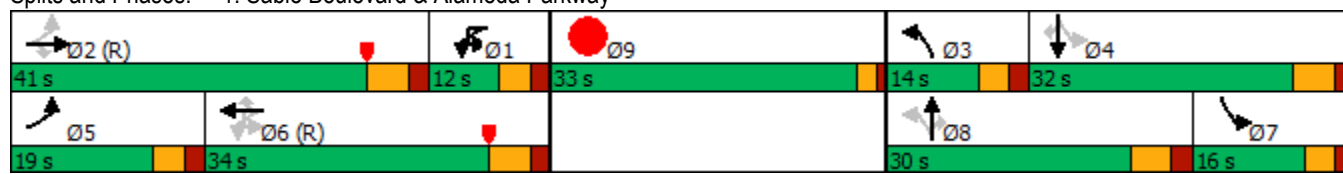
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

## Splits and Phases: 1: Sable Boulevard &amp; Alameda Parkway



## Queues

## 1: Sable Boulevard &amp; Alameda Parkway







## Metro Center - Amendment

Future (2040) Total PM - with Improvements

Lane Group	SBR	Ø9
Lane Configurations		
Traffic Volume (vph)	160	
Future Volume (vph)	160	
Satd. Flow (prot)	1583	
Flt Permitted		
Satd. Flow (perm)	1528	
Satd. Flow (RTOR)	182	
Lane Group Flow (vph)	172	
Turn Type	Perm	
Protected Phases		9
Permitted Phases	4	
Total Split (s)	32.0	33.0
Total Lost Time (s)	6.0	
Act Effct Green (s)	30.6	
Actuated g/C Ratio	0.23	
v/c Ratio	0.35	
Control Delay	7.2	
Queue Delay	0.0	
Total Delay	7.2	
LOS	A	
Approach Delay		
Approach LOS		
Queue Length 50th (ft)	0	
Queue Length 95th (ft)	55	
Internal Link Dist (ft)		
Turn Bay Length (ft)	150	
Base Capacity (vph)	494	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.35	
Intersection Summary		

## Queues 2: Alameda Parkway & Municipal Ctr Access

Metro Center - Amendment  
Future (2040) Total PM - with Improvements




























Intersection							
Int Delay, s/veh	2.3						
Movement	EBU	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	5	35	2350	1830	15	15	120
Future Vol, veh/h	5	35	2350	1830	15	15	120
Conflicting Peds, #/hr	0	6	0	0	6	2	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0	0
Veh in Median Storage, #	-	-	0	0	-	0	-
Grade, %	-	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	70	70
Heavy Vehicles, %	0	0	1	1	0	0	0
Mvmt Flow	5	37	2474	1926	16	21	171
Major/Minor	Major1		Major2		Minor2		
Conflicting Flow All	1418	1948	0	-	0	3016	977
Stage 1	-	-	-	-	-	1940	-
Stage 2	-	-	-	-	-	1076	-
Critical Hdwy	5.6	5.3	-	-	-	5.7	7.1
Critical Hdwy Stg 1	-	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	-	6	-
Follow-up Hdwy	2.3	3.1	-	-	-	3.8	3.9
Pot Cap-1 Maneuver	*856	*635	-	-	-	*27	*505
Stage 1	-	-	-	-	-	*518	-
Stage 2	-	-	-	-	-	*375	-
Platoon blocked, %	1	1	-	-	-	-	1
Mov Cap-1 Maneuver	*634	*634	-	-	-	*25	*502
Mov Cap-2 Maneuver	-	-	-	-	-	*25	-
Stage 1	-	-	-	-	-	*481	-
Stage 2	-	-	-	-	-	*372	-
Approach	EB		WB		SB		
HCM Control Delay, s	0.2		0		53.5		
HCM LOS					F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	*634	-	-	-	25	502	
HCM Lane V/C Ratio	0.066	-	-	-	0.857	0.341	
HCM Control Delay (s)	11.1	-	-	-	\$354.7	15.8	
HCM Lane LOS	B	-	-	-	F	C	
HCM 95th %tile Q(veh)	0.2	-	-	-	2.6	1.5	
Notes							
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    *: All major volume in platoon							

## Queues

## 3: Alameda Drive &amp; Alameda Parkway

## Metro Center - Amendment

Future (2040) Total PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	55	2255	55	155	1665	85	110	15	160	40	10	65
Future Volume (vph)	55	2255	55	155	1665	85	110	15	160	40	10	65
Satd. Flow (prot)	1805	5110	0	1656	5093	0	1770	1497	0	1805	1900	1615
Flt Permitted	0.108			0.041			0.750			0.263		
Satd. Flow (perm)	205	5110	0	71	5093	0	1379	1497	0	499	1900	1575
Satd. Flow (RTOR)		5			10			92				77
Lane Group Flow (vph)	59	2458	0	165	1861	0	124	197	0	48	12	77
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Total Split (s)	12.0	97.0		12.0	97.0		36.0	36.0		36.0	36.0	36.0
Total Lost Time (s)	4.0	5.0		4.0	5.0		5.5	5.5		5.5	5.5	5.5
Act Effect Green (s)	99.2	93.3		118.1	109.7		17.4	17.4		17.4	17.4	17.4
Actuated g/C Ratio	0.68	0.64		0.81	0.76		0.12	0.12		0.12	0.12	0.12
v/c Ratio	0.30	0.75		0.60	0.48		0.75	0.76		0.81	0.05	0.30
Control Delay	8.7	19.7		48.5	3.2		87.3	50.2		131.6	53.5	13.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	8.7	19.7		48.5	3.2		87.3	50.2		131.6	53.5	13.8
LOS	A	B		D	A		F	D		F	D	B
Approach Delay		19.4			6.9			64.5			58.5	
Approach LOS		B			A			E			E	
Queue Length 50th (ft)	9	553		120	60		115	98		45	10	0
Queue Length 95th (ft)	23	620		m138	m68		176	177		#89	27	39
Internal Link Dist (ft)		502			561			270			228	
Turn Bay Length (ft)	285			185			100			100		100
Base Capacity (vph)	232	3288		274	3856		290	387		104	399	392
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	0.25	0.75		0.60	0.48		0.43	0.51		0.46	0.03	0.20

## Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 145

Offset: 64 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 18.3

Intersection LOS: B

Intersection Capacity Utilization 85.7%

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.

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

## Splits and Phases: 3: Alameda Drive &amp; Alameda Parkway

		
Ø1	Ø2 (R)	Ø4
12 s	97 s	36 s
		
Ø5	Ø6 (R)	Ø8
12 s	97 s	36 s

# Queues

## 4: Chambers Road & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗
Traffic Volume (vph)	305	1810	385	245	1240	195	365	1310	295	565	1620	340
Future Volume (vph)	305	1810	385	245	1240	195	365	1310	295	565	1620	340
Satd. Flow (prot)	3433	5136	1599	3502	5085	1568	3467	5136	1615	3467	5187	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3424	5136	1549	3497	5085	1522	3464	5136	1572	3460	5187	1550
Satd. Flow (RTOR)			98			143			98			68
Lane Group Flow (vph)	332	1967	418	269	1363	214	397	1424	321	601	1723	362
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	3	8	1	7	4	5	1	6	7	5	2	3
Permitted Phases			8			4			6			2
Total Split (s)	22.0	57.0	15.0	15.0	50.0	27.0	15.0	46.0	15.0	27.0	58.0	22.0
Total Lost Time (s)	5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Act Effect Green (s)	16.6	51.0	62.0	10.0	44.4	67.4	10.0	40.0	51.0	22.0	52.0	69.6
Actuated g/C Ratio	0.11	0.35	0.43	0.07	0.31	0.46	0.07	0.28	0.35	0.15	0.36	0.48
v/c Ratio	0.85	1.09	0.58	1.12	0.87	0.27	1.66	1.01	0.52	1.14	0.93	0.46
Control Delay	95.4	85.1	18.9	151.8	55.1	8.0	348.1	64.5	14.6	138.3	54.2	14.3
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	95.4	85.1	18.9	151.8	55.1	8.0	348.1	64.5	14.6	138.3	54.2	14.3
LOS	F	F	B	F	E	A	F	E	B	F	D	B
Approach Delay		76.1			63.7			109.6			67.7	
Approach LOS		E			E			F			E	
Queue Length 50th (ft)	171	~747	138	~149	449	35	~282	~506	137	~341	570	126
Queue Length 95th (ft)	#240	#846	212	#244	513	84	#384	#596	106	#463	640	188
Internal Link Dist (ft)		486			518			285			699	
Turn Bay Length (ft)	185		450	200		200	225		200	200		325
Base Capacity (vph)	402	1806	721	241	1558	791	239	1416	619	526	1860	787
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	1.09	0.58	1.12	0.87	0.27	1.66	1.01	0.52	1.14	0.93	0.46

### Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 145

Offset: 96 (66%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.66

Intersection Signal Delay: 78.9

Intersection LOS: E

Intersection Capacity Utilization 102.0%

ICU Level of Service G

Analysis Period (min) 15

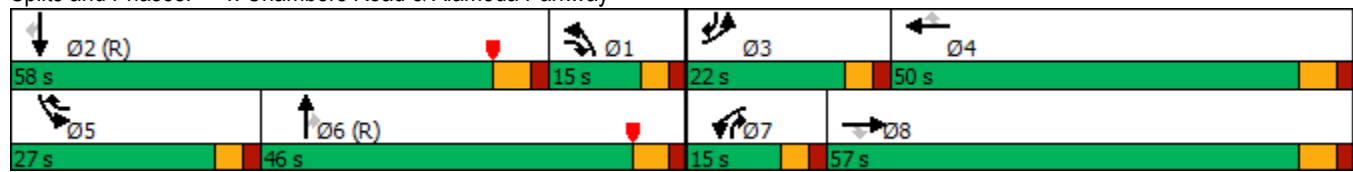
~ Volume exceeds capacity, queue is theoretically infinite.

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: 4: Chambers Road & Alameda Parkway



# Queues

## 5: Sable Boulevard & Centrepoint Dr

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	90	120	65	70	140	100	550	75	130	600	110
Future Volume (vph)	125	90	120	65	70	140	100	550	75	130	600	110
Satd. Flow (prot)	1805	1737	0	1543	1900	1302	1805	3574	1324	1347	3508	0
Flt Permitted	0.706			0.351			0.263			0.429		
Satd. Flow (perm)	1319	1737	0	570	1900	1263	499	3574	1291	605	3508	0
Satd. Flow (RTOR)		45				156			149		16	
Lane Group Flow (vph)	140	236	0	72	78	156	108	591	81	138	755	0
Turn Type	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	32.0	32.0		13.0	45.0	45.0	13.0	44.0	44.0	13.0	44.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	
Act Effect Green (s)	19.7	19.7		30.0	28.9	28.9	71.3	69.3	69.3	74.3	72.3	
Actuated g/C Ratio	0.15	0.15		0.23	0.22	0.22	0.54	0.52	0.52	0.56	0.55	
v/c Ratio	0.71	0.79		0.43	0.19	0.39	0.30	0.31	0.11	0.34	0.39	
Control Delay	72.5	62.3		51.3	40.1	8.4	23.0	22.4	0.3	16.7	12.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	72.5	62.3		51.3	40.1	8.4	23.0	22.4	0.3	16.7	12.7	
LOS	E	E		D	D	A	C	C	A	B	B	
Approach Delay		66.1			26.6			20.2			13.3	
Approach LOS		E			C			C			B	
Queue Length 50th (ft)	115	161		50	53	0	42	140	0	28	82	
Queue Length 95th (ft)	178	240		88	92	53	120	295	0	72	311	
Internal Link Dist (ft)		258			445			1343			1144	
Turn Bay Length (ft)				100			150		150	225		
Base Capacity (vph)	259	378		187	561	483	364	1886	751	406	1928	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.54	0.62		0.39	0.14	0.32	0.30	0.31	0.11	0.34	0.39	

### Intersection Summary

Cycle Length: 132

Actuated Cycle Length: 132

Offset: 113 (86%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 25.7

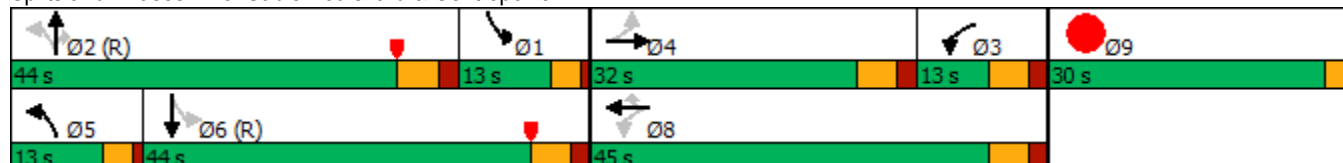
Intersection LOS: C

Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Sable Boulevard & Centrepoint Dr





Queues  
5: Sable Boulevard & Centrepoint Dr
























Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Total Split (s)	30.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

# Queues

## 6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	330	105	160	265	95	75	500	220	130	565	95
Future Volume (vph)	125	330	105	160	265	95	75	500	220	130	565	95
Satd. Flow (prot)	1656	1825	0	1805	1900	1568	1770	3300	0	1805	3574	1482
Flt Permitted	0.380			0.122			0.245			0.291		
Satd. Flow (perm)	660	1825	0	232	1900	1540	456	3300	0	551	3574	1449
Satd. Flow (RTOR)		13				182		46				118
Lane Group Flow (vph)	140	489	0	174	288	103	82	782	0	140	608	102
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Total Split (s)	13.0	38.0		13.0	38.0	38.0	10.0	18.0		10.0	18.0	18.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	6.0		4.0	6.0	6.0
Act Effect Green (s)	42.5	32.7		42.8	32.8	32.8	47.1	45.1		47.6	45.6	45.6
Actuated g/C Ratio	0.35	0.27		0.36	0.27	0.27	0.39	0.38		0.40	0.38	0.38
v/c Ratio	0.46	0.97		0.87	0.55	0.19	0.31	0.62		0.50	0.45	0.16
Control Delay	30.0	75.0		64.7	42.1	0.7	33.6	32.7		41.2	32.5	6.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	30.0	75.0		64.7	42.1	0.7	33.6	32.7		41.2	32.5	6.6
LOS	C	E		E	D	A	C	C		D	C	A
Approach Delay		65.0			41.5			32.8			30.8	
Approach LOS		E			D			C			C	
Queue Length 50th (ft)	71	365		90	191	0	35	213		65	170	0
Queue Length 95th (ft)	118	#569		#210	282	0	#118	#622		#256	#482	41
Internal Link Dist (ft)		378			1322			338			1343	
Turn Bay Length (ft)	300			250		400	250			175		325
Base Capacity (vph)	309	511		201	522	555	262	1270		280	1356	623
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.45	0.96		0.87	0.55	0.19	0.31	0.62		0.50	0.45	0.16

### Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 40.9

Intersection LOS: D

Intersection Capacity Utilization 79.0%

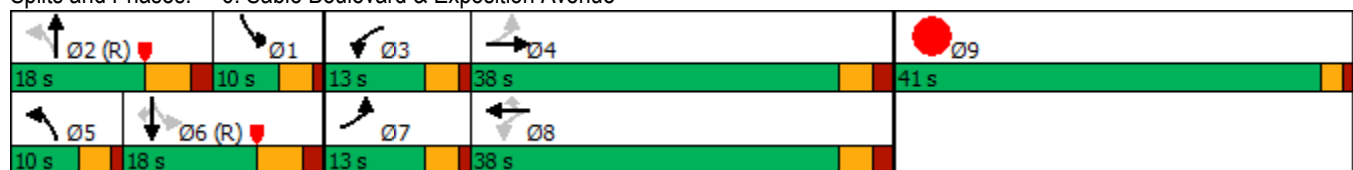
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Sable Boulevard & Exposition Avenue












Queues  
6: Sable Boulevard & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Total Split (s)	41.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Queues  
7: Centrepont Dr & Exposition Avenue
























Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection												
Int Delay, s/veh	7.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	595	50	25	380	35	25	10	15	70	20	50
Future Vol, veh/h	55	595	50	25	380	35	25	10	15	70	20	50
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	225	-	-	300	-	100	-	-	-	90	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	94	94	94	88	88	88	89	89	89
Heavy Vehicles, %	0	0	0	0	0	17	0	0	0	4	0	6
Mvmt Flow	63	676	57	27	404	37	28	11	17	79	22	56
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	441	0	0	736	0	0	1350	1329	708	1303	1320	404
Stage 1	-	-	-	-	-	-	834	834	-	458	458	-
Stage 2	-	-	-	-	-	-	516	495	-	845	862	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.14	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.14	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.536	4	3.354
Pot Cap-1 Maneuver	1151	-	-	824	-	-	129	156	568	136	158	*767
Stage 1	-	-	-	-	-	-	403	374	-	690	617	-
Stage 2	-	-	-	-	-	-	633	587	-	388	355	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	1151	-	-	822	-	-	98	142	567	116	144	*767
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	142	-	116	144	-
Stage 1	-	-	-	-	-	-	380	352	-	653	596	-
Stage 2	-	-	-	-	-	-	546	567	-	344	335	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.5			46.3			51		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	SBLn3		
Capacity (veh/h)	142	1151	-	-	822	-	-	116	144	767		
HCM Lane V/C Ratio	0.4	0.054	-	-	0.032	-	-	0.678	0.156	0.073		
HCM Control Delay (s)	46.3	8.3	-	-	9.5	-	-	84.9	34.6	10.1		
HCM Lane LOS	E	A	-	-	A	-	-	F	D	B		
HCM 95th %tile Q(veh)	1.7	0.2	-	-	0.1	-	-	3.6	0.5	0.2		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

# Queues

## 8: Chambers Road & Exposition Avenue

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	30	405	55	10	45	210	1640	30	95	1960	200
Future Volume (vph)	300	30	405	55	10	45	210	1640	30	95	1960	200
Satd. Flow (prot)	1805	1900	1599	1805	1641	0	1770	5114	0	1805	5136	1615
Flt Permitted	0.436			0.735			0.056			0.113		
Satd. Flow (perm)	824	1900	1575	1393	1641	0	104	5114	0	215	5136	1567
Satd. Flow (RTOR)			97		50			3				113
Lane Group Flow (vph)	337	34	455	61	61	0	231	1835	0	100	2063	211
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	7	4	5	3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Total Split (s)	29.0	55.0	15.0	12.0	38.0		15.0	78.0		63.0	63.0	63.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0		4.0	6.0		6.0	6.0	6.0
Act Effect Green (s)	35.7	24.1	53.4	15.5	7.3		101.3	99.3		68.0	68.0	68.0
Actuated g/C Ratio	0.25	0.17	0.37	0.11	0.05		0.70	0.68		0.47	0.47	0.47
v/c Ratio	0.91	0.11	0.70	0.36	0.47		0.60	0.52		1.00	0.86	0.27
Control Delay	79.3	51.2	35.0	48.6	33.7		41.0	12.5		103.0	16.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.5	0.0
Total Delay	79.3	51.2	35.0	48.6	33.7		41.0	12.5		103.0	17.1	1.9
LOS	E	D	C	D	C		D	B		F	B	A
Approach Delay		53.7			41.2			15.7			19.4	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	292	28	290	45	10		149	301		31	235	9
Queue Length 95th (ft)	#416	59	381	81	58		244	372		m#214	504	4
Internal Link Dist (ft)		1143			172			328			588	
Turn Bay Length (ft)	150						200			100		200
Base Capacity (vph)	373	642	646	174	401		386	3502		100	2408	794
Starvation Cap Reductn	0	0	0	0	0		0	0		0	96	0
Spillback Cap Reductn	0	0	0	0	0		0	12		0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.90	0.05	0.70	0.35	0.15		0.60	0.53		1.00	0.89	0.27

### Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 145

Offset: 126 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 86.3%

ICU Level of Service E

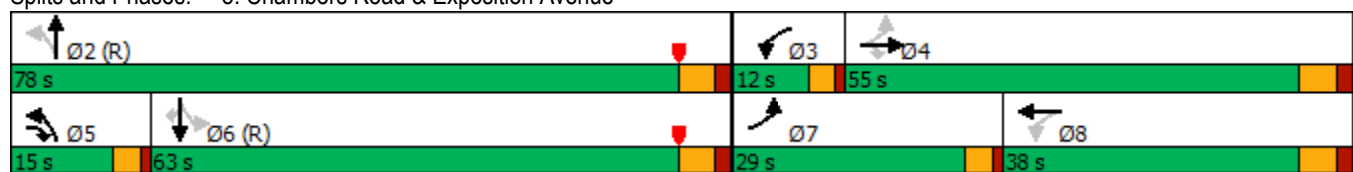
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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























Splits and Phases: 8: Chambers Road & Exposition Avenue



# Queues

## 9: Chambers Road & Center Avenue

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Traffic Volume (vph)	35	0	50	80	0	55	65	1850	70	35	2125	50
Future Volume (vph)	35	0	50	80	0	55	65	1850	70	35	2125	50
Satd. Flow (prot)	0	1715	0	0	1720	0	1805	5098	0	1805	5167	0
Flt Permitted		0.786			0.705		0.048			0.075		
Satd. Flow (perm)	0	1375	0	0	1249	0	91	5098	0	142	5167	0
Satd. Flow (RTOR)		60			60			7			4	
Lane Group Flow (vph)	0	102	0	0	160	0	68	2021	0	37	2314	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	42.0	42.0		42.0	42.0		14.0	91.0		12.0	89.0	
Total Lost Time (s)		6.0			6.0		5.0	6.0		5.0	6.0	
Act Effct Green (s)		16.8			16.8		114.2	107.2		112.2	106.2	
Actuated g/C Ratio		0.12			0.12		0.79	0.74		0.77	0.73	
v/c Ratio		0.48			0.81		0.44	0.54		0.21	0.61	
Control Delay		33.1			66.9		31.1	6.8		4.0	4.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		33.1			66.9		31.1	6.9		4.0	4.5	
LOS		C			E		C	A		A	A	
Approach Delay		33.1			66.9			7.7			4.5	
Approach LOS		C			E			A			A	
Queue Length 50th (ft)		37			94		10	121		3	102	
Queue Length 95th (ft)		81			152		m52	508		m5	m155	
Internal Link Dist (ft)		215			320			588			291	
Turn Bay Length (ft)							225			85		
Base Capacity (vph)		386			355		181	3769		191	3784	
Starvation Cap Reductn		0			0		0	243		0	0	
Spillback Cap Reductn		1			1		0	0		0	90	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.26			0.45		0.38	0.57		0.19	0.63	

### Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 145

Offset: 140 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 8.6

Intersection LOS: A

Intersection Capacity Utilization 72.9%

ICU Level of Service C

Analysis Period (min) 15





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

### Splits and Phases: 9: Chambers Road & Center Avenue







Queues  
10: Centrepoint Dr & Walsh Drive

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	20	5	95	120	15
Future Vol, veh/h	30	20	5	95	120	15
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	86	86	87	87
Heavy Vehicles, %	0	14	0	9	3	0
Mvmt Flow	38	25	6	110	138	17
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	272	78	155	0	-	0
Stage 1	147	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.6	7.11	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.433	2.2	-	-	-
Pot Cap-1 Maneuver	770	*1017	1497	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	767	*1017	1497	-	-	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	9.6		0.4		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBL		NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497		-	851	-	-
HCM Lane V/C Ratio	0.004		-	0.073	-	-
HCM Control Delay (s)	7.4		-	9.6	-	-
HCM Lane LOS	A		-	A	-	-
HCM 95th %tile Q(veh)	0		-	0.2	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Queues  
11: Centrepoint Dr & Center Avenue




Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	75	90	35	60	120
Future Vol, veh/h	15	75	90	35	60	120
Conflicting Peds, #/hr	3	0	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	77	77	84	84	86	86
Heavy Vehicles, %	0	0	6	0	0	2
Mvmt Flow	19	97	107	42	70	140
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	416	133	0	0	154	0
Stage 1	133	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	619	922	-	-	1439	-
Stage 1	898	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	584	918	-	-	1432	-
Mov Cap-2 Maneuver	630	-	-	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.9	0		2.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	853	1432	-	
HCM Lane V/C Ratio	-	-	0.137	0.049	-	
HCM Control Delay (s)	-	-	9.9	7.6	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-	



Queues  
12: Centrepont Dr & Alameda Drive

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection						
Int Delay, s/veh	6.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	115	95	75	85	65	140
Future Vol, veh/h	115	95	75	85	65	140
Conflicting Peds, #/hr	10	0	0	10	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	92	92	89	89
Heavy Vehicles, %	13	3	5	5	0	12
Mvmt Flow	132	109	82	92	73	157
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	184	0	-	0	511	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	373	-
Critical Hdwy	4.23	-	-	-	6.4	6.32
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.317	-	-	-	3.5	3.408
Pot Cap-1 Maneuver	1327	-	-	-	541	884
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	712	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1314	-	-	-	473	876
Mov Cap-2 Maneuver	-	-	-	-	473	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	705	-
Approach	EB	WB		SB		
HCM Control Delay, s	4.4	0		12.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1314	-	-	-	690	
HCM Lane V/C Ratio	0.101	-	-	-	0.334	
HCM Control Delay (s)	8	0	-	-	12.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	1.5	

Queues  
13: A1 Access & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↑	↗		↑↑↑↑		↗
Traffic Vol, veh/h	2350	35	0	1955	0	25
Future Vol, veh/h	2350	35	0	1955	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2500	37	0	2080	0	30
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	-	-	-	1250
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*363
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*363
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		15.8		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	363	-	-	-		
HCM Lane V/C Ratio	0.082	-	-	-		
HCM Control Delay (s)	15.8	-	-	-		
HCM Lane LOS	C	-	-	-		
HCM 95th %tile Q(veh)	0.3	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Queues  
14: Fraser Ct & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↑	↑↑↑		↑
Traffic Vol, veh/h	2430	25	35	1910	0	55
Future Vol, veh/h	2430	25	35	1910	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2613	27	38	2054	0	65

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	2640
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	5.34	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.12	-
Pot Cap-1 Maneuver	-	*452	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	1	1
Mov Cap-1 Maneuver	-	*452	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	359	-	-	* 452	-
HCM Lane V/C Ratio	0.182	-	-	0.083	-
HCM Control Delay (s)	17.3	-	-	13.7	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Queues  
15: Grandby St & Alameda Parkway

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑↓			↑↑↑		↗
Traffic Vol, veh/h	2440	40	0	1945	0	55
Future Vol, veh/h	2440	40	0	1945	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2624	43	0	2091	0	65
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	1334
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	*341
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*341
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		18		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	341	-	-	-		
HCM Lane V/C Ratio	0.192	-	-	-		
HCM Control Delay (s)	18	-	-	-		
HCM Lane LOS	C	-	-	-		
HCM 95th %tile Q(veh)	0.7	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Queues  
17: Alameda Drive & Dakota Ave

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	60	0	50	20	0	80	60	145	20	25	105	90
Future Vol, veh/h	60	0	50	20	0	80	60	145	20	25	105	90
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	0	60	24	0	95	71	173	24	30	125	107
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	614	578	179	596	619	185	232	0	0	197	0	0
Stage 1	239	239	-	327	327	-	-	-	-	-	-	-
Stage 2	375	339	-	269	292	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	404	427	864	415	404	857	1336	-	-	1376	-	-
Stage 1	764	708	-	686	648	-	-	-	-	-	-	-
Stage 2	646	640	-	737	671	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	336	392	864	362	370	857	1336	-	-	1376	-	-
Mov Cap-2 Maneuver	336	392	-	362	370	-	-	-	-	-	-	-
Stage 1	718	690	-	645	609	-	-	-	-	-	-	-
Stage 2	540	602	-	669	654	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.7		11.5		2.1		0.9					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1336	-	-	465	673	1376	-	-				
HCM Lane V/C Ratio	0.053	-	-	0.282	0.177	0.022	-	-				
HCM Control Delay (s)	7.8	0	-	15.7	11.5	7.7	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	1.1	0.6	0.1	-	-				

Queues  
18: Fraser Ct & Dakota Ave

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	0	70	0	20	0	10	35	30	25	5
Future Vol, veh/h	25	0	0	70	0	20	0	10	35	30	25	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	0	0	83	0	24	0	12	42	36	30	6
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	150	159	33	138	141	33	36	0	0	54	0	0
Stage 1	105	105	-	33	33	-	-	-	-	-	-	-
Stage 2	45	54	-	105	108	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	818	733	1041	833	750	1041	1575	-	-	1551	-	-
Stage 1	901	808	-	983	868	-	-	-	-	-	-	-
Stage 2	969	850	-	901	806	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	784	715	1041	818	732	1041	1575	-	-	1551	-	-
Mov Cap-2 Maneuver	784	715	-	818	732	-	-	-	-	-	-	-
Stage 1	901	789	-	983	868	-	-	-	-	-	-	-
Stage 2	947	850	-	879	787	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9.8		9.8		0		3.7					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1575	-	-	784	859	1551	-	-				
HCM Lane V/C Ratio	-	-	-	0.038	0.125	0.023	-	-				
HCM Control Delay (s)	0	-	-	9.8	9.8	7.4	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-				

Queues  
19: Grandby St & Dakota Ave

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	20	10	0	55	30	10	5	25	35	5	5
Future Vol, veh/h	15	20	10	0	55	30	10	5	25	35	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	24	12	0	65	36	12	6	30	42	6	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	36	0	0	155	167	30	167	155	83
Stage 1	-	-	-	-	-	-	66	66	-	83	83	-
Stage 2	-	-	-	-	-	-	89	101	-	84	72	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1491	-	-	1575	-	-	812	726	1044	797	737	976
Stage 1	-	-	-	-	-	-	945	840	-	925	826	-
Stage 2	-	-	-	-	-	-	918	811	-	924	835	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1491	-	-	1575	-	-	795	717	1044	763	728	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	795	717	-	763	728	-
Stage 1	-	-	-	-	-	-	934	830	-	914	826	-
Stage 2	-	-	-	-	-	-	906	811	-	881	825	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.5			0			9.1			10		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	920	1491	-	-	1575	-	-	778				
HCM Lane V/C Ratio	0.052	0.012	-	-	-	-	-	0.069				
HCM Control Delay (s)	9.1	7.4	0	-	0	-	-	10				
HCM Lane LOS	A	A	A	-	A	-	-	B				
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.2				

Queues  
20: Chambers Road & Dakota Ave

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑			↑↑↑	
Traffic Vol, veh/h	0	0	30	0	0	50	0	1915	50	0	2185	65
Future Vol, veh/h	0	0	30	0	0	50	0	1915	50	0	2185	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	93	93	93	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	36	0	0	60	0	2059	54	0	2324	69

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	1197	-	-	1057	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	-
Pot Cap-1 Maneuver	0	0	*413	0	0	*466	0	-
Stage 1	0	0	-	0	0	-	0	-
Stage 2	0	0	-	0	0	-	0	-
Platoon blocked, %			1			1	-	-
Mov Cap-1 Maneuver	-	-	*413	-	-	*466	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.5	13.9	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBT	SBR
Capacity (veh/h)	-	-	413	466	-
HCM Lane V/C Ratio	-	-	0.086	0.128	-
HCM Control Delay (s)	-	-	14.5	13.9	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon







Queues  
21: Dakota St & Centrepont Dr

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘↗	
Traffic Vol, veh/h	200	60	10	205	35	10
Future Vol, veh/h	200	60	10	205	35	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	238	71	12	244	42	12
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	309	0	506	238
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	268	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1267	-	560	894
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	777	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1267	-	555	894
Mov Cap-2 Maneuver	-	-	-	-	555	-
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	770	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		11.5	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	606	-	-	1267	-	
HCM Lane V/C Ratio	0.088	-	-	0.009	-	
HCM Control Delay (s)	11.5	-	-	7.9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	




Queues  
22: Centrepoint Dr & Fraser Ct

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	15	35	15	30	55	45	100	15	20	130	10
Future Vol, veh/h	10	15	35	15	30	55	45	100	15	20	130	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	18	42	18	36	65	54	119	18	24	155	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	496	454	161	475	451	128	167	0	0	137	0	0
Stage 1	209	209	-	236	236	-	-	-	-	-	-	-
Stage 2	287	245	-	239	215	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	484	502	884	500	504	922	1411	-	-	1447	-	-
Stage 1	793	729	-	767	710	-	-	-	-	-	-	-
Stage 2	720	703	-	764	725	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	405	472	884	442	474	922	1411	-	-	1447	-	-
Mov Cap-2 Maneuver	405	472	-	442	474	-	-	-	-	-	-	-
Stage 1	760	716	-	735	680	-	-	-	-	-	-	-
Stage 2	607	673	-	697	712	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.5		11.9		2.2		0.9					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1411	-	-	625	637	1447	-	-				
HCM Lane V/C Ratio	0.038	-	-	0.114	0.187	0.016	-	-				
HCM Control Delay (s)	7.7	0	-	11.5	11.9	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.7	0.1	-	-				

Queues  
23: Fraser Ct & Virginia Ave

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	0	45	5	0	95
Future Vol, veh/h	5	0	45	5	0	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	0	54	6	0	113
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	170	57	0	0	60	0
Stage 1	57	-	-	-	-	-
Stage 2	113	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	820	1009	-	-	1544	-
Stage 1	966	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	820	1009	-	-	1544	-
Mov Cap-2 Maneuver	820	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.4	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	820		1544	-	
HCM Lane V/C Ratio	-	0.007		-	-	
HCM Control Delay (s)	-	9.4		0	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	0		0	-	

Queues  
24: Grandby St & Virginia Ave

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	5	0	0	5	5	0	30	0	0	10	0
Future Vol, veh/h	0	5	0	0	5	5	0	30	0	0	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	6	0	0	6	6	0	36	0	0	12	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	6	0	0	21	18	6	33	15	9
Stage 1	-	-	-	-	-	-	6	6	-	9	9	-
Stage 2	-	-	-	-	-	-	15	12	-	24	6	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1607	-	-	1615	-	-	992	876	1077	974	879	1073
Stage 1	-	-	-	-	-	-	1016	891	-	1012	888	-
Stage 2	-	-	-	-	-	-	1005	886	-	994	891	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1615	-	-	982	876	1077	944	879	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	982	876	-	944	879	-
Stage 1	-	-	-	-	-	-	1016	891	-	1012	888	-
Stage 2	-	-	-	-	-	-	992	886	-	954	891	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			9.3			9.2		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	876	1607	-	-	1615	-	-	879				
HCM Lane V/C Ratio	0.041	-	-	-	-	-	-	0.014				
HCM Control Delay (s)	9.3	0	-	-	0	-	-	9.2				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Queues  
25: Chambers Road & Virginia Ave

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗		↑↑↑		↘	↑↑↑	
Traffic Vol, veh/h	0	0	0	0	0	75	0	1890	50	5	2205	10
Future Vol, veh/h	0	0	0	0	0	75	0	1890	50	5	2205	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	93	93	93	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	0	89	0	2032	54	5	2346	11

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	1179	-	-	1043	-	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.14	-	-	7.14	-	5.34
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.92	-	-	3.92	-	3.12
Pot Cap-1 Maneuver	0	0	*413	0	0	*484	0	*609
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %			1			1	-	1
Mov Cap-1 Maneuver	-	-	*413	-	-	*484	-	*609
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-




Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.1	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	- 484	* 609	-	-
HCM Lane V/C Ratio	-	-	- 0.184	0.009	-	-
HCM Control Delay (s)	-	-	0 14.1	11	-	-
HCM Lane LOS	-	-	A B	B	-	-
HCM 95th %tile Q(veh)	-	-	- 0.7	0	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Queues  
26: Center Avenue & Grandby St

Metro Center - Amendment  
Future (2040) Total PM - with Improvements

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	80	85	25	5	5
Future Vol, veh/h	10	80	85	25	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	95	101	30	6	6
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	131	0	-	0	235	116
Stage 1	-	-	-	-	116	-
Stage 2	-	-	-	-	119	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1454	-	-	-	753	936
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1454	-	-	-	746	936
Mov Cap-2 Maneuver	-	-	-	-	746	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	906	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		9.4		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1454	-	-	-	830	
HCM Lane V/C Ratio	0.008	-	-	-	0.014	
HCM Control Delay (s)	7.5	0	-	-	9.4	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

## **Appendix E. Safety Worksheets**

**Alameda-Sable Summary**
**Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022**
**Crash Severity**

By Crashes:	Number of	People:
FAT: 0	Killed:	0
INJ: 57	Injured:	90
PDO: 69		
<b>TOTAL: 126</b>		

**Crash Location**

On Road:	120
Off Road Left:	3
Off Road Right:	2
Off Road at Tee:	0
Off in Median:	1
Off Unknown:	0
Unknown:	0
<b>TOTAL:</b>	<b>126</b>

**Weather Conditions**

None:	117
Rain:	5
Snow/Sleet/Hail:	4
Fog:	0
Dust:	0
Wind:	0
Unknown:	0
<b>TOTAL:</b>	<b>126</b>

**Crash Type**

Overturning:	0	Bridge Abutment:	0
Other Non-Collision:	0	Column/Pier:	0
Pedestrian:	5	Culvert/Headwall:	0
Broadside:	13	Embankment:	0
Head On:	0	Curb:	3
Rear End:	23	Delineator Post:	1
Sideswipe (Same):	10	Fence:	0
Sideswipe (Opposite):	0	Tree:	0
Approach Turn:	66	Lrg Bldrs or Rocks:	0
Overtaking Turn:	3	Barricade:	1
Parked Motor Veh:	0	Wall/Building:	0
Railway Veh:	0	Crash Cushion:	0
Bicycle:	0	Mailbox:	0
Motorized Bicycle:	0	Other Fixed Object:	0
Domestic Animal:	0	Total Fixed Objects:	6
Wild Animal:	0	Rocks in Roadway:	0
Light/Utility Pole:	0	Vehicle Cargo/Debris:	0
Traffic Signal Pole:	0	Road Maint Equip:	0
Sign:	1	Involving Other Object:	0
Bridge Rail:	0	Total Other Object:	0
Guard Rail:	0	<b>TOTAL:</b>	<b>126</b>
Cable Rail:	0		
Concrete Barrier:	0		

**Lighting Conditions**

Daylight:	81
Dawn/Dusk:	5
Dark-Lighted:	39
Dark-Unlighted:	1
Unknown:	0
<b>TOTAL:</b>	<b>126</b>

**Road Conditions**

Dry:	112
Wet:	12
Muddy:	0
Snowy:	1
Icy:	1
Slushy:	0
Foreign Material:	0
Road Treatment:	0
Unknown:	0
Dry W/Icy Road Treatment:	0
Wet W/Icy Road Treatment:	0
Snowy W/Icy Road Treatment:	0
Icy W/Icy Road Treatment:	0
Slushy W/Icy Road Treatment:	0
<b>TOTAL:</b>	<b>126</b>

**Number of Vehicles**

One Car:	9
Two Car:	104
Three or More:	13
Unknown:	0
<b>TOTAL:</b>	<b>126</b>

**Road Description Details by Vehicle**

At Intersection:	100
At Driveway Access:	0
Intersection Related:	26
Non Intersection:	0
In Alley:	0
Roundabout:	0
Ramp:	0
Parking Lot:	0
Unknown:	0
<b>TOTAL:</b>	<b>126</b>





**Felsburg Holt & Ullevig**  
**DiExSys™ Vision Zero Suite**  
**General Summary Report**

05/05/2024

Alameda-Sable Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

Vehicle Type Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Psg'r Car/Psg'r Van:	60	63	8
Psg'r Car/Psg'r Van w/Trl:	0	0	0
Pickup Truck/Utility Van:	13	14	0
Pickup Truck/Utility Van w/Trl:	0	0	1
SUV:	47	37	3
SUV w/Trl:	1	0	0
Truck 10k lbs or Less:	0	0	0
Trucks > 10k lbs/Busses > 15 People:	0	0	0
Motor Home:	0	0	0
School Bus 15 People or Less:	0	0	0
Non School Bus 15 People or Less:	0	0	0
Motorcycle:	0	0	0
Bicycle:	0	0	0
Motorized Bicycle:	0	0	0
Farm Equipment:	0	0	0
Hit and Run/Unknown Vehicle:	5	1	0
Other:	0	2	1
Unknown:	0	0	0
<b>TOTAL:</b>	126	117	13

Mainline/Ramps/Frontage

Crossroad A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	0
H:	0
I:	0
J:	0
Left Frontage Road (L):	0
K:	0
M:	0
N:	0
O:	0
P:	0
Mainline/HOV:	126
Right Frontage Road (R):	0
Rest Area/Truck Ramp (T):	0
Other (Z):	0
<b>TOTAL:</b>	126

Crash Rates

PDO: 69000000 / MVMT  
Injury: 57000000 / MVMT  
Fatal: 0 / 100MVMT  
Total: 126000000 / MVMT

Human Contributing Factor Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Apparent Contributing Factor:	49	114	13
Asleep at the Wheel:	2	0	0
Illness:	0	0	0
Distracted by Passenger:	1	0	0
Driver Inexperience:	14	0	0
Driver Fatigue:	1	0	0
Driver Preoccupied:	15	0	0
Driver Unfamiliar with Area:	5	0	0
Driver Emotionally Upset:	4	0	0
Evading Law Enforcement Officer:	0	0	0
Physical Disability:	0	0	0
Unknown:	35	3	0
<b>TOTAL:</b>	126	117	13

Alameda-Sable Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Condition of Driver Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Impairment Suspected:	120	116	13
Alcohol Involved:	3	1	0
RX, Meds or Drugs Involved:	0	0	0
Illegal Drugs Involved:	1	0	0
Alcohol and Drugs Involved:	0	0	0
Driver/Ped not Observed:	0	0	0
Unknown:	2	0	0
<b>TOTAL:</b>	<b>126</b>	<b>117</b>	<b>13</b>

### Vehicle Direction Details by Vehicle

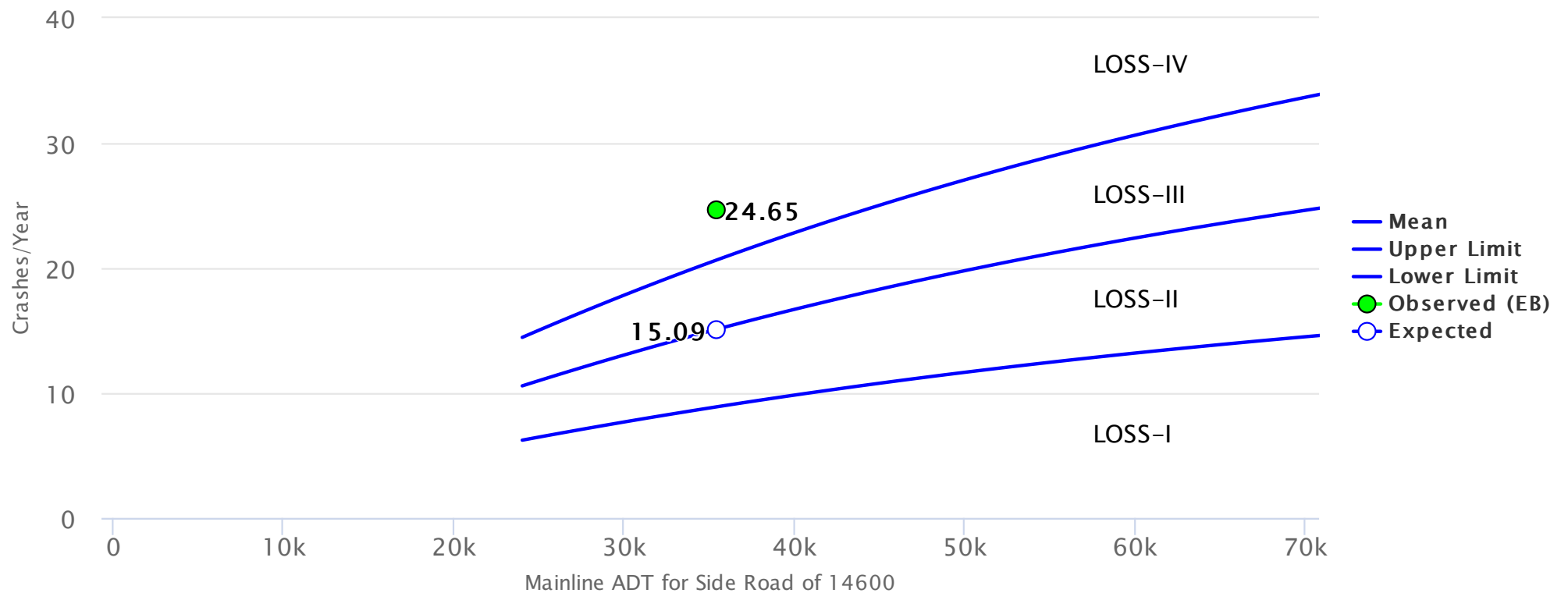
Veh:	Vehicle 1	Vehicle 2	Vehicle 3
North:	26	31	3
Northeast:	0	0	0
East:	36	31	1
Southeast:	1	1	0
South:	36	24	3
Southwest:	0	0	0
West:	26	29	4
Northwest:	1	1	0
Unknown:	0	0	2
<b>TOTAL:</b>	<b>126</b>	<b>117</b>	<b>13</b>

### Vehicle Movement Factor Detail by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Going Straight:	27	84	4
Slowing:	5	5	0
Stopped in Traffic:	1	14	7
Making Right Turn:	8	3	0
Making Left Turn:	75	10	1
Making U-Turn:	1	0	0
Passing:	1	0	0
Backing:	0	0	0
Entering/Leaving Parked Position:	0	0	0
Starting in Traffic:	0	0	0
Parked:	0	0	0
Changing Lanes:	6	0	0
Avoiding Objects in Roadway:	0	0	0
Weaving:	0	0	0
Wrong Way:	0	0	0
Other:	2	1	1
Unknown:	0	0	0
<b>TOTAL:</b>	<b>126</b>	<b>117</b>	<b>13</b>

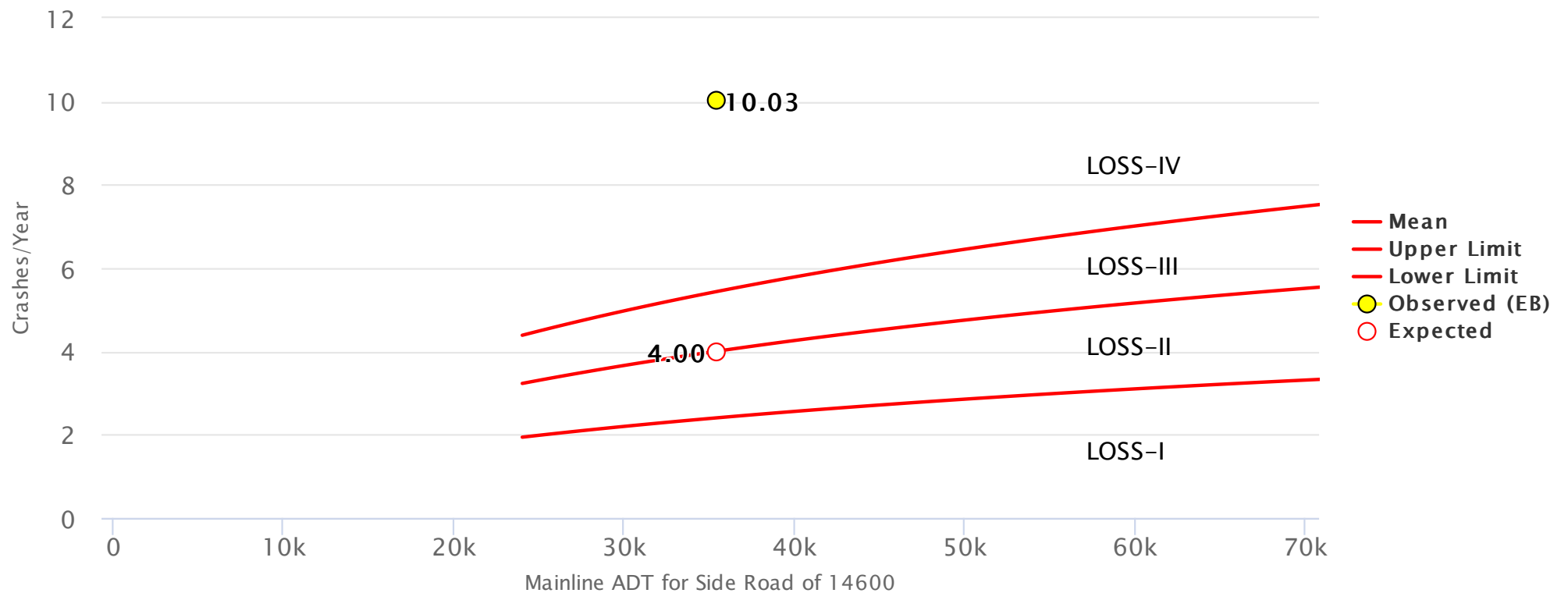
Alameda-Sable

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022



Alameda-Sable

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022





Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
Diagnostics Report

05/05/2024

Alameda-Sable Diagnostics Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average		This Location	Probability
	%	# Crashes	%	%
<b>Crash Severity</b>				
Injury (INJ)	24.91%	57	45.24%	100%
<b>Number Of Vehicles</b>				
Single Vehicle Accidents	3.45%	9	7.14%	98.77%
<b>Crash Type</b>				
Pedestrian	1.99%	5	3.97%	95.92%
Approach Turn	17.16%	66	52.38%	100%
<b>Lighting Conditions</b>				
Dark - Lighted	23.31%	39	30.95%	98.12%

Highway Class: CO - Urban 6-Lane Divided Signalized 4-Leg Intersections - AADT 0-48000 ADT (2018)

Any intentional or inadvertent release of this data or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 USC 409.

**Alameda-Municipal Summary**
**Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022**
**Crash Severity**

By Crashes:	Number of	People:
FAT: 0	Killed: 0	
INJ: 1	Injured: 1	
PDO: 9		
<b>TOTAL: 10</b>		

**Crash Location**

On Road:	10
Off Road Left:	0
Off Road Right:	0
Off Road at Tee:	0
Off in Median:	0
Off Unknown:	0
Unknown:	0
<b>TOTAL:</b>	<b>10</b>

**Weather Conditions**

None:	9
Rain:	1
Snow/Sleet/Hail:	0
Fog:	0
Dust:	0
Wind:	0
Unknown:	0
<b>TOTAL:</b>	<b>10</b>

**Crash Type**

Overturning:	0	Bridge Abutment:	0
Other Non-Collision:	0	Column/Pier:	0
Pedestrian:	0	Culvert/Headwall:	0
Broadside:	8	Embankment:	0
Head On:	0	Curb:	0
Rear End:	1	Delineator Post:	0
Sideswipe (Same):	1	Fence:	0
Sideswipe (Opposite):	0	Tree:	0
Approach Turn:	0	Lrg Bldrs or Rocks:	0
Overtaking Turn:	0	Barricade:	0
Parked Motor Veh:	0	Wall/Building:	0
Railway Veh:	0	Crash Cushion:	0
Bicycle:	0	Mailbox:	0
Motorized Bicycle:	0	Other Fixed Object:	0
Domestic Animal:	0	Total Fixed Objects:	0
Wild Animal:	0	Rocks in Roadway:	0
Light/Utility Pole:	0	Vehicle Cargo/Debris:	0
Traffic Signal Pole:	0	Road Maint Equip:	0
Sign:	0	Involving Other Object:	0
Bridge Rail:	0	Total Other Object:	0
Guard Rail:	0	<b>TOTAL:</b>	<b>10</b>
Cable Rail:	0		
Concrete Barrier:	0		

**Lighting Conditions**

Daylight:	9
Dawn/Dusk:	0
Dark-Lighted:	0
Dark-Unlighted:	1
Unknown:	0
<b>TOTAL:</b>	<b>10</b>

**Road Conditions**

Dry:	9
Wet:	1
Muddy:	0
Snowy:	0
Icy:	0
Slushy:	0
Foreign Material:	0
Road Treatment:	0
Unknown:	0
Dry W/Icy Road Treatment:	0
Wet W/Icy Road Treatment:	0
Snowy W/Icy Road Treatment:	0
Icy W/Icy Road Treatment:	0
Slushy W/Icy Road Treatment:	0
<b>TOTAL:</b>	<b>10</b>

**Number of Vehicles**

One Car:	0
Two Car:	10
Three or More:	0
Unknown:	0
<b>TOTAL:</b>	<b>10</b>

**Road Description Details by Vehicle**

At Intersection:	7
At Driveway Access:	1
Intersection Related:	0
Non Intersection:	2
In Alley:	0
Roundabout:	0
Ramp:	0
Parking Lot:	0
Unknown:	0
<b>TOTAL:</b>	<b>10</b>



Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
General Summary Report

05/05/2024

Alameda-Municipal Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

Vehicle Type Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Psg'r Car/Psg'r Van:	7	8	0
Psg'r Car/Psg'r Van w/Trl:	0	0	0
Pickup Truck/Utility Van:	0	0	0
Pickup Truck/Utility Van w/Trl:	0	0	0
SUV:	2	2	0
SUV w/Trl:	0	0	0
Truck 10k lbs or Less:	0	0	0
Trucks > 10k lbs/Busses > 15 People:	1	0	0
Motor Home:	0	0	0
School Bus 15 People or Less:	0	0	0
Non School Bus 15 People or Less:	0	0	0
Motorcycle:	0	0	0
Bicycle:	0	0	0
Motorized Bicycle:	0	0	0
Farm Equipment:	0	0	0
Hit and Run/Unknown Vehicle:	0	0	0
Other:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	10	10	0

Mainline/Ramps/Frontage

Crossroad A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	0
H:	0
I:	0
J:	0
Left Frontage Road (L):	0
K:	0
M:	0
N:	0
O:	0
P:	0
Mainline/HOV:	10
Right Frontage Road (R):	0
Rest Area/Truck Ramp (T):	0
Other (Z):	0
<b>TOTAL:</b>	10

Crash Rates

PDO:	/ MVMT
Injury:	/ MVMT
Fatal:	/ 100MVMT
Total:	/ MVMT

Human Contributing Factor Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Apparent Contributing Factor:	3	10	0
Asleep at the Wheel:	0	0	0
Illness:	0	0	0
Distracted by Passenger:	0	0	0
Driver Inexperience:	3	0	0
Driver Fatigue:	0	0	0
Driver Preoccupied:	2	0	0
Driver Unfamiliar with Area:	0	0	0
Driver Emotionally Upset:	0	0	0
Evading Law Enforcement Officer:	0	0	0
Physical Disability:	0	0	0
Unknown:	2	0	0
<b>TOTAL:</b>	10	10	0



**Felsburg Holt & Ullevig**  
**DiExSys™ Vision Zero Suite**  
**General Summary Report**

05/05/2024

Alameda-Municipal Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

Condition of Driver Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Impairment Suspected:	10	10	0
Alcohol Involved:	0	0	0
RX, Meds or Drugs Involved:	0	0	0
Illegal Drugs Involved:	0	0	0
Alcohol and Drugs Involved:	0	0	0
Driver/Ped not Observed:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	10	10	0

Vehicle Direction Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
North:	0	0	0
Northeast:	0	0	0
East:	0	0	0
Southeast:	0	0	0
South:	8	0	0
Southwest:	0	0	0
West:	2	10	0
Northwest:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	10	10	0

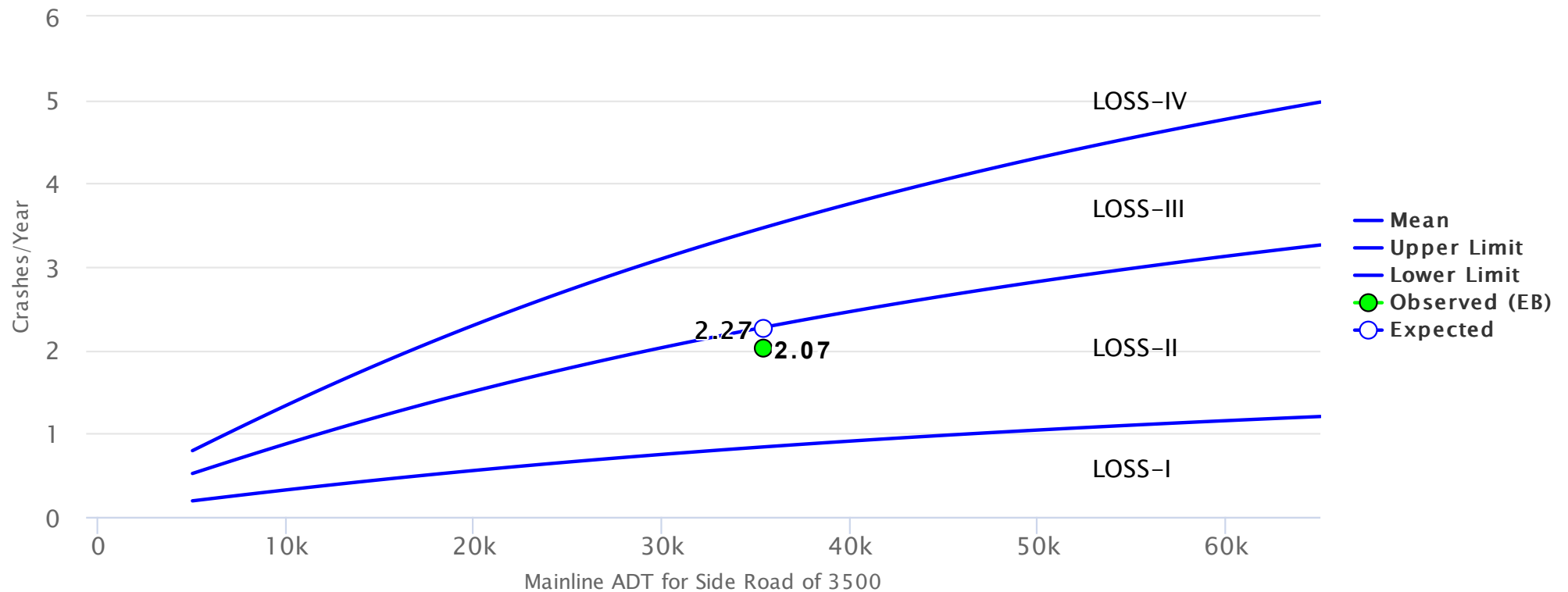
Vehicle Movement Factor Detail by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Going Straight:	1	9	0
Slowing:	0	0	0
Stopped in Traffic:	0	1	0
Making Right Turn:	0	0	0
Making Left Turn:	8	0	0
Making U-Turn:	0	0	0
Passing:	0	0	0
Backing:	0	0	0
Entering/Leaving Parked Position:	0	0	0
Starting in Traffic:	0	0	0
Parked:	0	0	0
Changing Lanes:	1	0	0
Avoiding Objects in Roadway:	0	0	0
Weaving:	0	0	0
Wrong Way:	0	0	0
Other:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	10	10	0



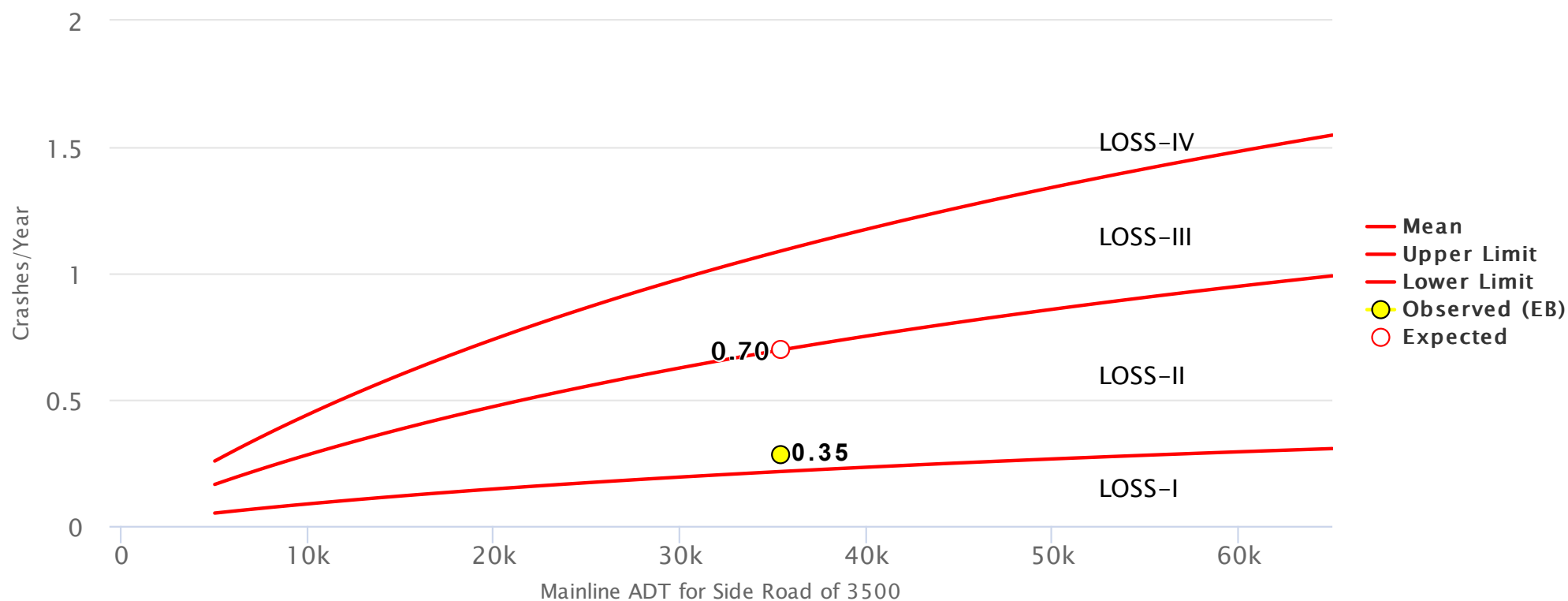
Alameda-Municipal

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022



Alameda-Municipal

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022





Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
Diagnostics Report

05/05/2024

Alameda-Municipal Diagnostics Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average		This Location	Probability
	%	# Crashes	%	%
<b>Number of Vehicles</b>				
Two Vehicle Accidents	81.83%	10	100%	100%
<b>Crash Location</b>				
On Roadway	93.08%	10	100%	100%
<b>Crash Type</b>				
Broadside	22.32%	8	80.00%	100%

Highway Class: CO - Urban 6-Lane Divided Unsignalized 3-Leg Intersections (2018)

Any intentional or inadvertent release of this data or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 USC 409.

Alameda-AlamedaDr Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Crash Severity

By	Crashes:	Number of	People:
FAT:	0	Killed:	0
INJ:	10	Injured:	13
PDO:	9		
<b>TOTAL:</b>	<b>19</b>		

### Crash Location

On Road:	19
Off Road Left:	0
Off Road Right:	0
Off Road at Tee:	0
Off in Median:	0
Off Unknown:	0
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

### Weather Conditions

None:	16
Rain:	1
Snow/Sleet/Hail:	2
Fog:	0
Dust:	0
Wind:	0
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

### Crash Type

Overturning:	0	Bridge Abutment:	0
Other Non-Collision:	0	Column/Pier:	0
Pedestrian:	1	Culvert/Headwall:	0
Broadside:	7	Embankment:	0
Head On:	0	Curb:	0
Rear End:	2	Delineator Post:	0
Sideswipe (Same):	1	Fence:	0
Sideswipe (Opposite):	0	Tree:	0
Approach Turn:	4	Lrg Bldrs or Rocks:	0
Overtaking Turn:	1	Barricade:	0
Parked Motor Veh:	0	Wall/Building:	0
Railway Veh:	0	Crash Cushion:	0
Bicycle:	3	Mailbox:	0
Motorized Bicycle:	0	Other Fixed Object:	0
Domestic Animal:	0	Total Fixed Objects:	0
Wild Animal:	0	Rocks in Roadway:	0
Light/Utility Pole:	0	Vehicle Cargo/Debris:	0
Traffic Signal Pole:	0	Road Maint Equip:	0
Sign:	0	Involving Other Object:	0
Bridge Rail:	0	Total Other Object:	0
Guard Rail:	0	<b>TOTAL:</b>	<b>19</b>
Cable Rail:	0		
Concrete Barrier:	0		

### Lighting Conditions

Daylight:	13
Dawn/Dusk:	2
Dark-Lighted:	4
Dark-Unlighted:	0
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

### Road Conditions

Dry:	13
Wet:	4
Muddy:	0
Snowy:	1
Icy:	0
Slushy:	0
Foreign Material:	0
Road Treatment:	1
Unknown:	0
Dry W/Icy Road Treatment:	0
Wet W/Icy Road Treatment:	1
Snowy W/Icy Road Treatment:	0
Icy W/Icy Road Treatment:	0
Slushy W/Icy Road Treatment:	0
<b>TOTAL:</b>	<b>19</b>

### Number of Vehicles

One Car:	1
Two Car:	17
Three or More:	1
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

### Road Description Details by Vehicle

At Intersection:	16
At Driveway Access:	0
Intersection Related:	3
Non Intersection:	0
In Alley:	0
Roundabout:	0
Ramp:	0
Parking Lot:	0
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

Alameda-AlamedaDr Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Vehicle Type Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Psg'r Car/Psg'r Van:	13	7	1
Psg'r Car/Psg'r Van w/Trl:	0	0	0
Pickup Truck/Utility Van:	2	2	0
Pickup Truck/Utility Van w/Trl:	0	0	0
SUV:	2	4	0
SUV w/Trl:	0	0	0
Truck 10k lbs or Less:	0	0	0
Trucks > 10k lbs/Busses > 15 People:	0	2	0
Motor Home:	0	0	0
School Bus 15 People or Less:	0	0	0
Non School Bus 15 People or Less:	1	0	0
Motorcycle:	0	0	0
Bicycle:	0	2	0
Motorized Bicycle:	0	0	0
Farm Equipment:	0	0	0
Hit and Run/Unknown Vehicle:	1	0	0
Other:	0	1	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>19</b>	<b>18</b>	<b>1</b>

### Mainline/Ramps/Frontage

Crossroad A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	0
H:	0
I:	0
J:	0
Left Frontage Road (L):	0
K:	0
M:	0
N:	0
O:	0
P:	0
Mainline/HOV:	19
Right Frontage Road (R):	0
Rest Area/Truck Ramp (T):	0
Other (Z):	0
<b>TOTAL:</b>	<b>19</b>

### Crash Rates

PDO:	/ MVT
Injury:	/ MVT
Fatal:	/ 100MVT
Total:	/ MVT

### Human Contributing Factor Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Apparent Contributing Factor:	8	18	1
Asleep at the Wheel:	0	0	0
Illness:	0	0	0
Distracted by Passenger:	2	0	0
Driver Inexperience:	3	0	0
Driver Fatigue:	0	0	0
Driver Preoccupied:	0	0	0
Driver Unfamiliar with Area:	0	0	0
Driver Emotionally Upset:	0	0	0
Evading Law Enforcement Officer:	0	0	0
Physical Disability:	0	0	0
Unknown:	6	0	0
<b>TOTAL:</b>	<b>19</b>	<b>25</b>	<b>1</b>

Alameda-AlamedaDr Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Condition of Driver Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Impairment Suspected:	17	18	1
Alcohol Involved:	0	0	0
RX, Meds or Drugs Involved:	0	0	0
Illegal Drugs Involved:	0	0	0
Alcohol and Drugs Involved:	1	0	0
Driver/Ped not Observed:	0	0	0
Unknown:	1	0	0
<b>TOTAL:</b>	<b>19</b>	<b>18</b>	<b>1</b>

### Vehicle Direction Details by Vehicle

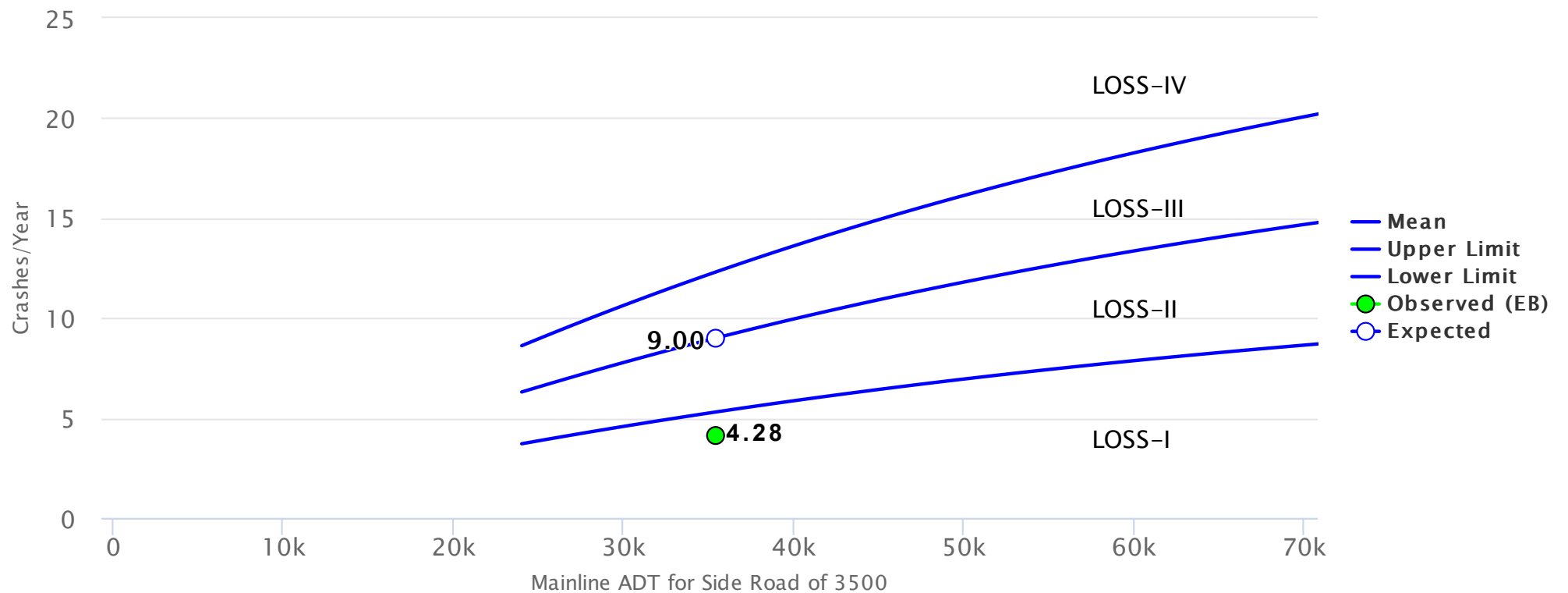
Veh:	Vehicle 1	Vehicle 2	Vehicle 3
North:	0	2	0
Northeast:	0	1	0
East:	6	4	0
Southeast:	0	0	0
South:	4	2	1
Southwest:	1	1	0
West:	7	8	0
Northwest:	1	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>19</b>	<b>18</b>	<b>1</b>

### Vehicle Movement Factor Detail by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Going Straight:	8	13	0
Slowing:	0	0	0
Stopped in Traffic:	0	2	1
Making Right Turn:	6	0	0
Making Left Turn:	5	2	0
Making U-Turn:	0	0	0
Passing:	0	0	0
Backing:	0	0	0
Entering/Leaving Parked Position:	0	0	0
Starting in Traffic:	0	0	0
Parked:	0	0	0
Changing Lanes:	0	0	0
Avoiding Objects in Roadway:	0	0	0
Weaving:	0	0	0
Wrong Way:	0	1	0
Other:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>19</b>	<b>18</b>	<b>1</b>

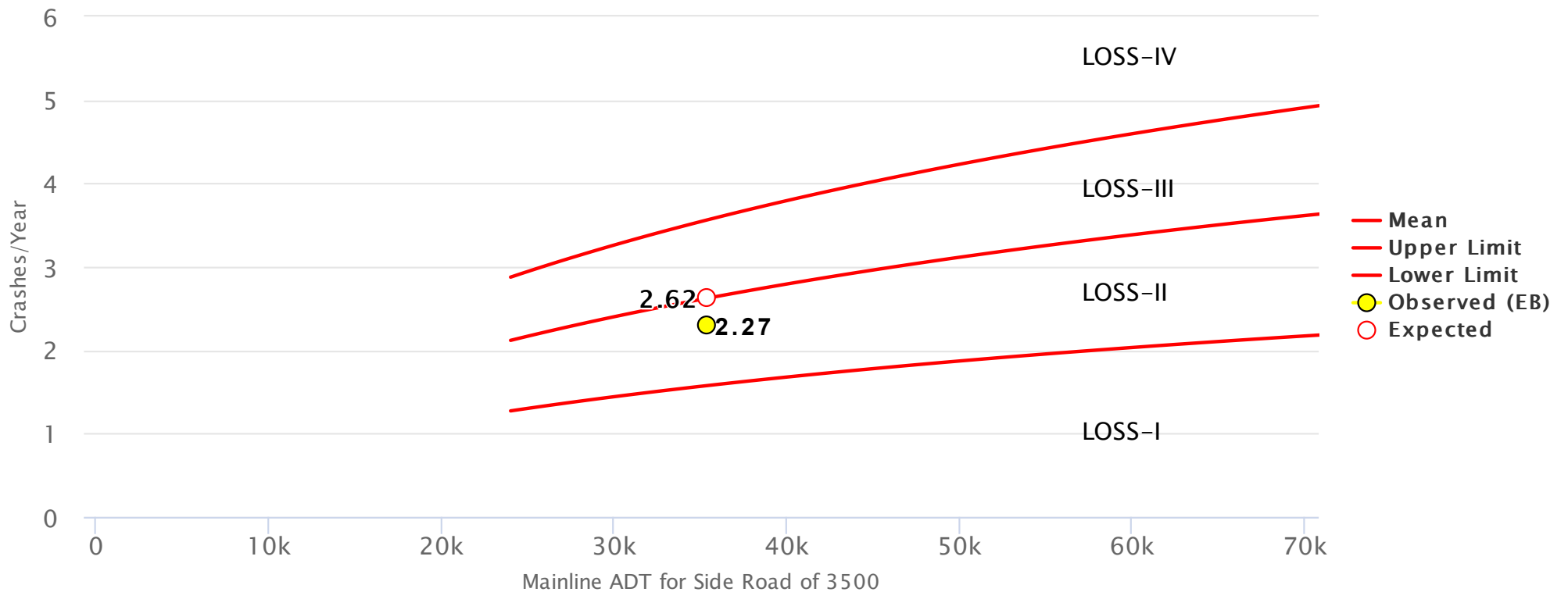
Alameda-AlamedaDr

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022



Alameda-AlamedaDr Severe SPF

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022







Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
Diagnostics Report

05/05/2024

Alameda-AlamedaDr DiagnosticsCutoff: 5 Acc's @ 95

Category/Trait	Statewide Average		This Location		Probability
	%	# Crashes		%	%
Crash Severity					
Injury (INJ)	24.91%	10	52.63%		99.78%
Crash Location					
On Roadway	96.85%	19	100%		100%
Crash Type					
Broadside	11.31%	7	36.84%		99.94%

Highway Class: CO - Urban 6-Lane Divided Signalized 4-Leg Intersections - AADT 0-48000 ADT (2018)

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**Alameda-Chambers Summary**      **Type: Intersection**    **Search Name: Map Boundary Search**    **From: 1/1/2018**    **To: 12/31/2022**

### Crash Severity

By	Crashes:	Number of	People:
FAT:	0	Killed:	0
INJ:	24	Injured:	35
PDO:	46		
<b>TOTAL:</b>	<b>70</b>		

### Crash Location

On Road:	70
Off Road Left:	0
Off Road Right:	0
Off Road at Tee:	0
Off in Median:	0
Off Unknown:	0
Unknown:	0
<b>TOTAL:</b>	<b>70</b>

### Weather Conditions

None:	66
Rain:	1
Snow/Sleet/Hail:	2
Fog:	0
Dust:	0
Wind:	1
Unknown:	0
<b>TOTAL:</b>	<b>70</b>

### Crash Type

Overturning:	0	Bridge Abutment:	0
Other Non-Collision:	0	Column/Pier:	0
Pedestrian:	2	Culvert/Headwall:	0
Broadside:	14	Embankment:	0
Head On:	3	Curb:	0
Rear End:	33	Delineator Post:	0
Sideswipe (Same):	6	Fence:	0
Sideswipe (Opposite):	2	Tree:	0
Approach Turn:	6	Lrg Bldrs or Rocks:	0
Overtaking Turn:	3	Barricade:	0
Parked Motor Veh:	1	Wall/Building:	0
Railway Veh:	0	Crash Cushion:	0
Bicycle:	0	Mailbox:	0
Motorized Bicycle:	0	Other Fixed Object:	0
Domestic Animal:	0	Total Fixed Objects:	0
Wild Animal:	0	Rocks in Roadway:	0
Light/Utility Pole:	0	Vehicle Cargo/Debris:	0
Traffic Signal Pole:	0	Road Maint Equip:	0
Sign:	0	Involving Other Object:	0
Bridge Rail:	0	Total Other Object:	0
Guard Rail:	0	<b>TOTAL:</b>	<b>70</b>
Cable Rail:	0		
Concrete Barrier:	0		

### Lighting Conditions

Daylight:	50
Dawn/Dusk:	1
Dark-Lighted:	19
Dark-Unlighted:	0
Unknown:	0
<b>TOTAL:</b>	<b>70</b>

### Road Conditions

Dry:	63
Wet:	5
Muddy:	0
Snowy:	1
Icy:	1
Slushy:	0
Foreign Material:	0
Road Treatment:	0
Unknown:	0
Dry W/Icy Road Treatment:	0
Wet W/Icy Road Treatment:	0
Snowy W/Icy Road Treatment:	0
Icy W/Icy Road Treatment:	0
Slushy W/Icy Road Treatment:	0
<b>TOTAL:</b>	<b>70</b>

### Number of Vehicles

One Car:	1
Two Car:	61
Three or More:	8
Unknown:	0
<b>TOTAL:</b>	<b>70</b>

### Road Description Details by Vehicle

At Intersection:	45
At Driveway Access:	0
Intersection Related:	25
Non Intersection:	0
In Alley:	0
Roundabout:	0
Ramp:	0
Parking Lot:	0
Unknown:	0
<b>TOTAL:</b>	<b>70</b>

Alameda-Chambers Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Vehicle Type Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Psg'r Car/Psg'r Van:	39	41	4
Psg'r Car/Psg'r Van w/Trl:	0	0	0
Pickup Truck/Utility Van:	13	4	0
Pickup Truck/Utility Van w/Trl:	0	0	0
SUV:	15	22	3
SUV w/Trl:	0	0	0
Truck 10k lbs or Less:	0	0	0
Trucks > 10k lbs/Busses > 15 People:	0	0	0
Motor Home:	0	0	0
School Bus 15 People or Less:	0	0	0
Non School Bus 15 People or Less:	0	0	0
Motorcycle:	0	0	0
Bicycle:	0	0	0
Motorized Bicycle:	0	0	0
Farm Equipment:	0	0	0
Hit and Run/Unknown Vehicle:	2	0	0
Other:	1	2	0
Unknown:	0	0	1
<b>TOTAL:</b>	<b>70</b>	<b>69</b>	<b>8</b>

### Mainline/Ramps/Frontage

Crossroad A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	0
H:	0
I:	0
J:	0
Left Frontage Road (L):	0
K:	0
M:	0
N:	0
O:	0
P:	0
Mainline/HOV:	70
Right Frontage Road (R):	0
Rest Area/Truck Ramp (T):	0
Other (Z):	0
<b>TOTAL:</b>	<b>70</b>

### Crash Rates

PDO: 46000000 / MVMT  
 Injury: 24000000 / MVMT  
 Fatal: 0 / 100MVMT  
 Total: 70000000 / MVMT

### Human Contributing Factor Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Apparent Contributing Factor:	25	67	7
Asleep at the Wheel:	1	0	0
Illness:	4	0	0
Distracted by Passenger:	1	0	0
Driver Inexperience:	5	0	1
Driver Fatigue:	1	0	0
Driver Preoccupied:	14	0	0
Driver Unfamiliar with Area:	0	0	0
Driver Emotionally Upset:	1	0	0
Evading Law Enforcement Officer:	0	0	0
Physical Disability:	0	0	0
Unknown:	18	2	0
<b>TOTAL:</b>	<b>70</b>	<b>69</b>	<b>8</b>

Alameda-Chambers Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Condition of Driver Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Impairment Suspected:	63	69	8
Alcohol Involved:	2	0	0
RX, Meds or Drugs Involved:	0	0	0
Illegal Drugs Involved:	0	0	0
Alcohol and Drugs Involved:	1	0	0
Driver/Ped not Observed:	0	0	0
Unknown:	4	0	0
<b>TOTAL:</b>	<b>70</b>	<b>69</b>	<b>8</b>

### Vehicle Direction Details by Vehicle

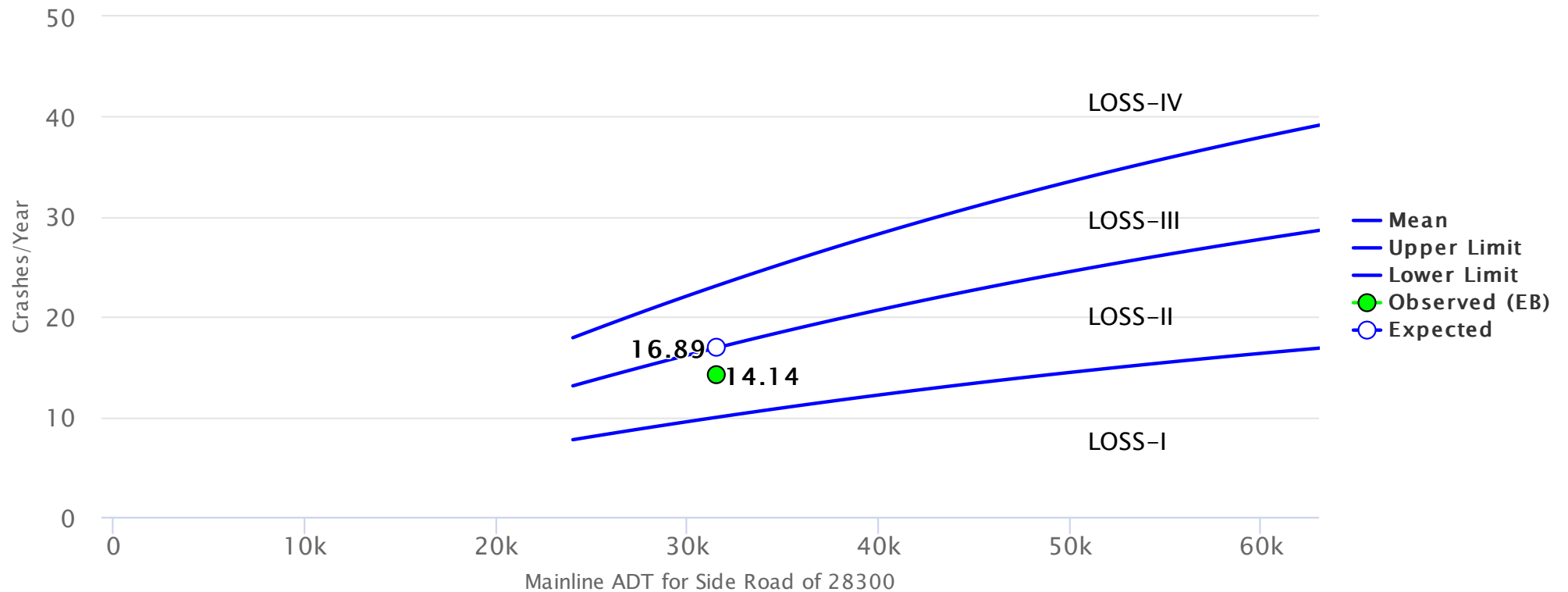
Veh:	Vehicle 1	Vehicle 2	Vehicle 3
North:	24	17	1
Northeast:	0	0	0
East:	14	13	5
Southeast:	0	0	0
South:	16	20	0
Southwest:	0	0	0
West:	15	19	0
Northwest:	0	0	0
Unknown:	1	0	2
<b>TOTAL:</b>	<b>70</b>	<b>69</b>	<b>8</b>

### Vehicle Movement Factor Detail by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Going Straight:	39	27	3
Slowing:	4	7	0
Stopped in Traffic:	3	24	3
Making Right Turn:	4	1	0
Making Left Turn:	8	8	1
Making U-Turn:	1	0	0
Passing:	0	0	0
Backing:	2	0	0
Entering/Leaving Parked Position:	0	0	0
Starting in Traffic:	0	0	0
Parked:	0	1	0
Changing Lanes:	4	1	0
Avoiding Objects in Roadway:	0	0	0
Weaving:	0	0	0
Wrong Way:	1	0	0
Other:	3	0	0
Unknown:	1	0	1
<b>TOTAL:</b>	<b>70</b>	<b>69</b>	<b>8</b>

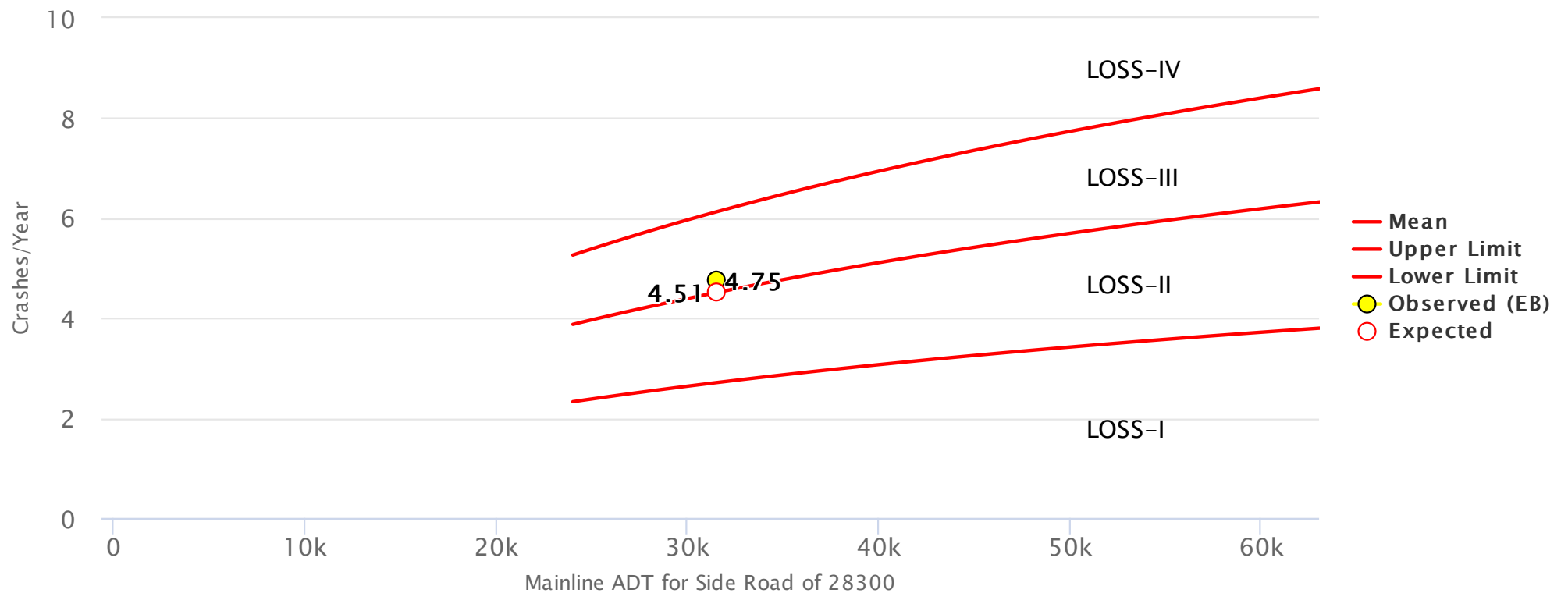
Alameda-Chambers

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022



Alameda-Chambers

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022





Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
Diagnostics Report

05/18/2024

Alameda-Chambers Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average		This Location	Probability
	%	# Crashes	%	%
<b>Crash Severity</b>				
Injury (INJ)	24.91%	24	33.8%	96.58%
<b>Crash Type</b>				
Broadside	11.31%	14	19.72%	98.79%

Highway Class: CO - Urban 6-Lane Divided Signalized 4-Leg Intersections - AADT 0-48000 ADT (2018)

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**Sable-Centrepoint Summary**
**Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022**
**Crash Severity**

By Crashes:	Number of	People:
FAT: 1	Killed: 1	
INJ: 8	Injured: 11	
PDO: 12		
<b>TOTAL: 21</b>		

**Crash Location**

On Road:	21
Off Road Left:	0
Off Road Right:	0
Off Road at Tee:	0
Off in Median:	0
Off Unknown:	0
Unknown:	0
<b>TOTAL:</b>	<b>21</b>

**Weather Conditions**

None:	16
Rain:	0
Snow/Sleet/Hail:	5
Fog:	0
Dust:	0
Wind:	0
Unknown:	0
<b>TOTAL:</b>	<b>21</b>

**Crash Type**

Overturning:	0	Bridge Abutment:	0
Other Non-Collision:	0	Column/Pier:	0
Pedestrian:	0	Culvert/Headwall:	0
Broadside:	11	Embankment:	0
Head On:	0	Curb:	0
Rear End:	4	Delineator Post:	0
Sideswipe (Same):	0	Fence:	0
Sideswipe (Opposite):	0	Tree:	0
Approach Turn:	4	Lrg Bldrs or Rocks:	0
Overtaking Turn:	2	Barricade:	0
Parked Motor Veh:	0	Wall/Building:	0
Railway Veh:	0	Crash Cushion:	0
Bicycle:	0	Mailbox:	0
Motorized Bicycle:	0	Other Fixed Object:	0
Domestic Animal:	0	Total Fixed Objects:	0
Wild Animal:	0	Rocks in Roadway:	0
Light/Utility Pole:	0	Vehicle Cargo/Debris:	0
Traffic Signal Pole:	0	Road Maint Equip:	0
Sign:	0	Involving Other Object:	0
Bridge Rail:	0	Total Other Object:	0
Guard Rail:	0	<b>TOTAL:</b>	<b>21</b>
Cable Rail:	0		
Concrete Barrier:	0		

**Lighting Conditions**

Daylight:	15
Dawn/Dusk:	1
Dark-Lighted:	5
Dark-Unlighted:	0
Unknown:	0
<b>TOTAL:</b>	<b>21</b>

**Road Conditions**

Dry:	15
Wet:	4
Muddy:	0
Snowy:	0
Icy:	2
Slushy:	0
Foreign Material:	0
Road Treatment:	0
Unknown:	0
Dry W/Icy Road Treatment:	0
Wet W/Icy Road Treatment:	0
Snowy W/Icy Road Treatment:	0
Icy W/Icy Road Treatment:	0
Slushy W/Icy Road Treatment:	0
<b>TOTAL:</b>	<b>21</b>

**Number of Vehicles**

One Car:	0
Two Car:	21
Three or More:	0
Unknown:	0
<b>TOTAL:</b>	<b>21</b>

**Road Description Details by Vehicle**

At Intersection:	19
At Driveway Access:	0
Intersection Related:	2
Non Intersection:	0
In Alley:	0
Roundabout:	0
Ramp:	0
Parking Lot:	0
Unknown:	0
<b>TOTAL:</b>	<b>21</b>



Sable-Centrepoint Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Vehicle Type Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Psg'r Car/Psg'r Van:	11	10	0
Psg'r Car/Psg'r Van w/Trl:	0	0	0
Pickup Truck/Utility Van:	4	1	0
Pickup Truck/Utility Van w/Trl:	0	0	0
SUV:	6	9	0
SUV w/Trl:	0	0	0
Truck 10k lbs or Less:	0	0	0
Trucks > 10k lbs/Busses > 15 People:	0	1	0
Motor Home:	0	0	0
School Bus 15 People or Less:	0	0	0
Non School Bus 15 People or Less:	0	0	0
Motorcycle:	0	0	0
Bicycle:	0	0	0
Motorized Bicycle:	0	0	0
Farm Equipment:	0	0	0
Hit and Run/Unknown Vehicle:	0	0	0
Other:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>21</b>	<b>21</b>	<b>0</b>

### Mainline/Ramps/Frontage

Crossroad A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	0
H:	0
I:	0
J:	0
Left Frontage Road (L):	0
K:	0
M:	0
N:	0
O:	0
P:	0
Mainline/HOV:	21
Right Frontage Road (R):	0
Rest Area/Truck Ramp (T):	0
Other (Z):	0
<b>TOTAL:</b>	<b>21</b>

### Crash Rates

PDO:	12000000 / MVMT
Injury:	8000000 / MVMT
Fatal:	100000000 / 100MVMT
Total:	21000000 / MVMT

### Human Contributing Factor Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Apparent Contributing Factor:	8	21	0
Asleep at the Wheel:	0	0	0
Illness:	0	0	0
Distracted by Passenger:	1	0	0
Driver Inexperience:	1	0	0
Driver Fatigue:	0	0	0
Driver Preoccupied:	4	0	0
Driver Unfamiliar with Area:	0	0	0
Driver Emotionally Upset:	1	0	0
Evading Law Enforcement Officer:	0	0	0
Physical Disability:	0	0	0
Unknown:	6	0	0
<b>TOTAL:</b>	<b>21</b>	<b>21</b>	<b>0</b>

**Sable-Centrepoint Summary**
**Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022**
**Condition of Driver Details by Vehicle**

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Impairment Suspected:	20	21	0
Alcohol Involved:	1	0	0
RX, Meds or Drugs Involved:	0	0	0
Illegal Drugs Involved:	0	0	0
Alcohol and Drugs Involved:	0	0	0
Driver/Ped not Observed:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>21</b>	<b>21</b>	<b>0</b>

**Vehicle Direction Details by Vehicle**

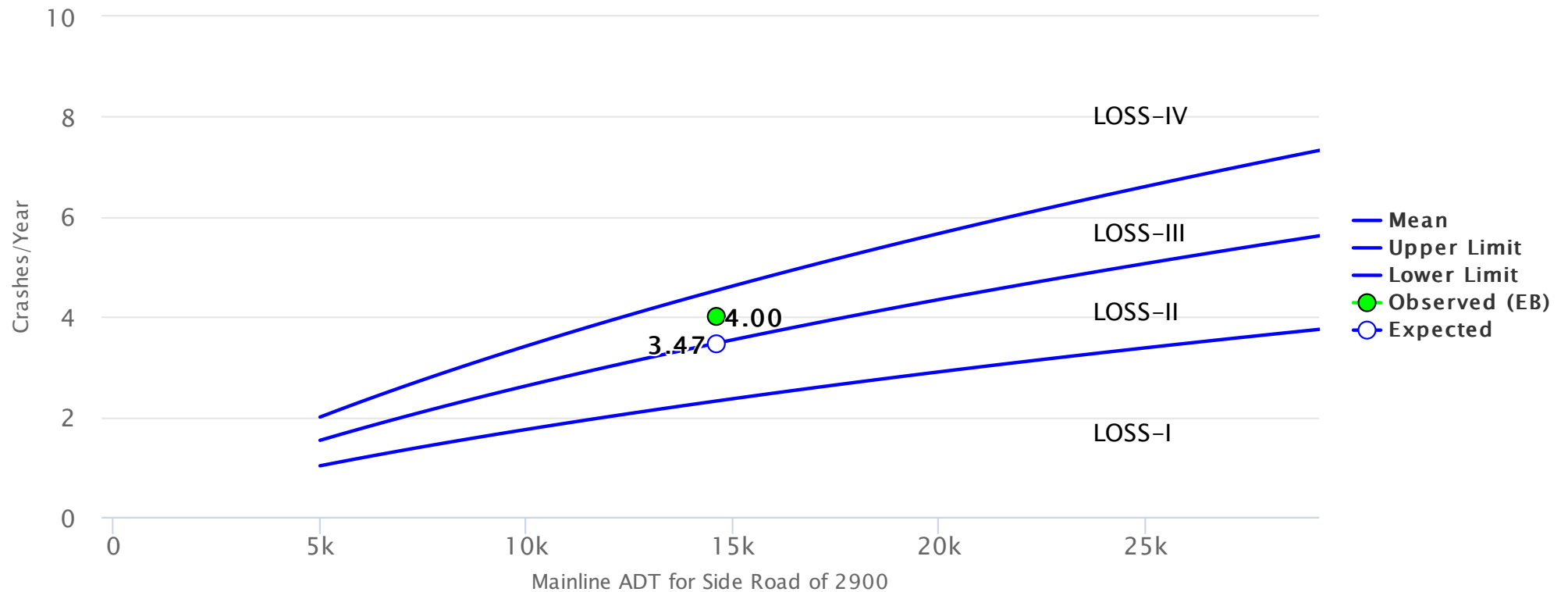
Veh:	Vehicle 1	Vehicle 2	Vehicle 3
North:	8	3	0
Northeast:	0	0	0
East:	4	7	0
Southeast:	0	0	0
South:	8	4	0
Southwest:	0	0	0
West:	1	7	0
Northwest:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>21</b>	<b>21</b>	<b>0</b>

**Vehicle Movement Factor Detail by Vehicle**

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Going Straight:	11	13	0
Slowing:	0	0	0
Stopped in Traffic:	0	3	0
Making Right Turn:	1	0	0
Making Left Turn:	5	5	0
Making U-Turn:	1	0	0
Passing:	1	0	0
Backing:	0	0	0
Entering/Leaving Parked Position:	0	0	0
Starting in Traffic:	0	0	0
Parked:	0	0	0
Changing Lanes:	1	0	0
Avoiding Objects in Roadway:	0	0	0
Weaving:	0	0	0
Wrong Way:	1	0	0
Other:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>21</b>	<b>21</b>	<b>0</b>

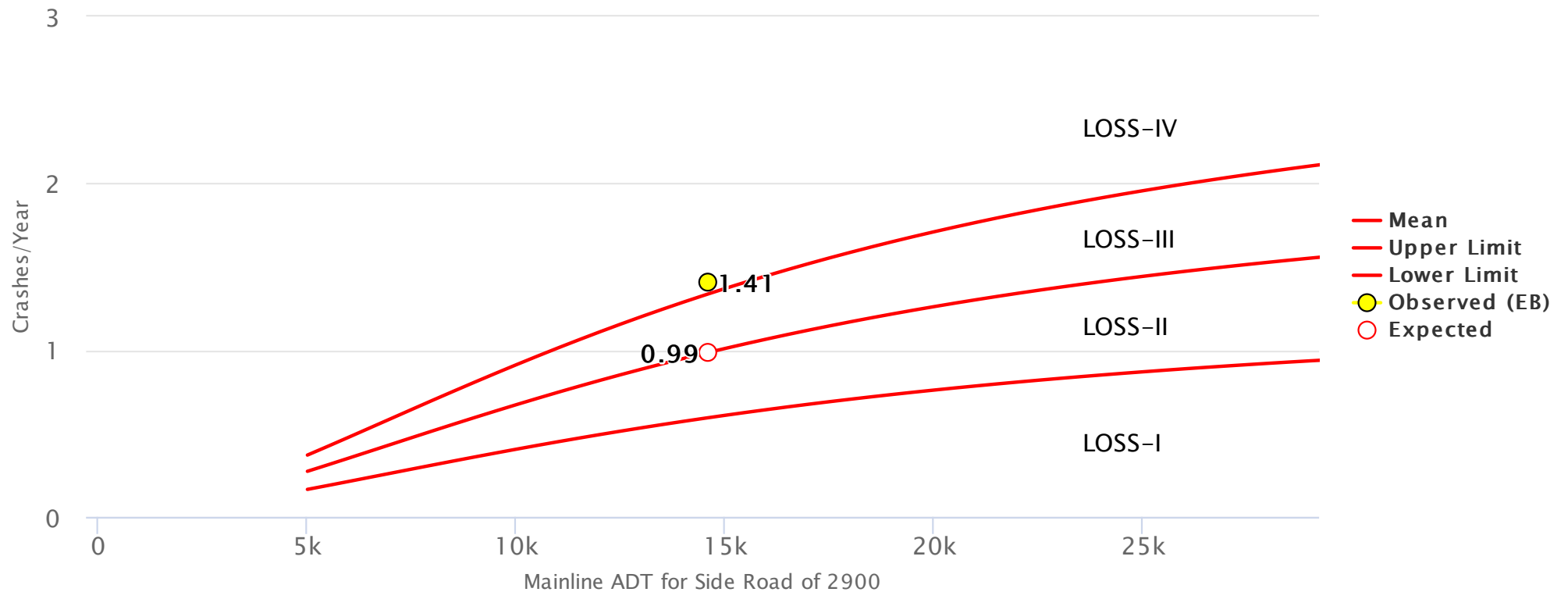
Sable-Centrepoint

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022



Sable-Centrepoint

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022





Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
Diagnostics Report

05/05/2024

Sable-Centrepoint DiagnosticsCutoff: 5 Acc's @ 95

Category/Trait	Statewide Average		This Location	Probability
	%	# Crashes	%	%
Number Of Vehicles				
Two Vehicle Accidents	87.66%	21	100%	100%
Crash Location				
On Road	95.78%	21	100%	100%
Crash Type				
Broadside	14.44%	11	52.38%	100%
Weather Conditions				
Snow or Sleet or Hail	5.86%	5	23.81%	99.9%

Highway Class: CO - Urban 4-Lane Divided Signalized 4-Leg Intersections - AADT 0-32000 ADT (2018)

Any intentional or inadvertent release of this data or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 USC 409.

**Sable-Exposition Summary**
**Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022**
**Crash Severity**

By	Crashes:	Number of	People:
FAT:	0	Killed:	0
INJ:	11	Injured:	15
PDO:	8		
<b>TOTAL:</b>	<b>19</b>		

**Crash Location**

On Road:	17
Off Road Left:	0
Off Road Right:	1
Off Road at Tee:	0
Off in Median:	1
Off Unknown:	0
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

**Weather Conditions**

None:	15
Rain:	2
Snow/Sleet/Hail:	1
Fog:	0
Dust:	0
Wind:	1
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

**Crash Type**

Overturning:	0	Bridge Abutment:	0
Other Non-Collision:	0	Column/Pier:	0
Pedestrian:	0	Culvert/Headwall:	0
Broadside:	4	Embankment:	0
Head On:	1	Curb:	0
Rear End:	4	Delineator Post:	0
Sideswipe (Same):	2	Fence:	0
Sideswipe (Opposite):	0	Tree:	0
Approach Turn:	7	Lrg Bldrs or Rocks:	0
Overtaking Turn:	0	Barricade:	0
Parked Motor Veh:	0	Wall/Building:	0
Railway Veh:	0	Crash Cushion:	0
Bicycle:	0	Mailbox:	0
Motorized Bicycle:	0	Other Fixed Object:	1
Domestic Animal:	0	Total Fixed Objects:	1
Wild Animal:	0	Rocks in Roadway:	0
Light/Utility Pole:	0	Vehicle Cargo/Debris:	0
Traffic Signal Pole:	0	Road Maint Equip:	0
Sign:	0	Involving Other Object:	0
Bridge Rail:	0	Total Other Object:	0
Guard Rail:	0	<b>TOTAL:</b>	<b>19</b>
Cable Rail:	0		
Concrete Barrier:	0		

**Lighting Conditions**

Daylight:	15
Dawn/Dusk:	1
Dark-Lighted:	2
Dark-Unlighted:	1
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

**Road Conditions**

Dry:	14
Wet:	1
Muddy:	0
Snowy:	1
Icy:	3
Slushy:	0
Foreign Material:	0
Road Treatment:	0
Unknown:	0
Dry W/Icy Road Treatment:	0
Wet W/Icy Road Treatment:	0
Snowy W/Icy Road Treatment:	0
Icy W/Icy Road Treatment:	0
Slushy W/Icy Road Treatment:	0
<b>TOTAL:</b>	<b>19</b>

**Number of Vehicles**

One Car:	1
Two Car:	15
Three or More:	3
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

**Road Description Details by Vehicle**

At Intersection:	13
At Driveway Access:	0
Intersection Related:	6
Non Intersection:	0
In Alley:	0
Roundabout:	0
Ramp:	0
Parking Lot:	0
Unknown:	0
<b>TOTAL:</b>	<b>19</b>

Sable-Exposition Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

## Vehicle Type Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Psg'r Car/Psg'r Van:	11	7	2
Psg'r Car/Psg'r Van w/Trl:	0	0	0
Pickup Truck/Utility Van:	1	2	0
Pickup Truck/Utility Van w/Trl:	0	0	0
SUV:	7	9	1
SUV w/Trl:	0	0	0
Truck 10k lbs or Less:	0	0	0
Trucks > 10k lbs/Busses > 15 People:	0	0	0
Motor Home:	0	0	0
School Bus 15 People or Less:	0	0	0
Non School Bus 15 People or Less:	0	0	0
Motorcycle:	0	0	0
Bicycle:	0	0	0
Motorized Bicycle:	0	0	0
Farm Equipment:	0	0	0
Hit and Run/Unknown Vehicle:	0	0	0
Other:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	19	18	3

## Mainline/Ramps/Frontage

Crossroad A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	0
H:	0
I:	0
J:	0
Left Frontage Road (L):	0
K:	0
M:	0
N:	0
O:	0
P:	0
Mainline/HOV:	19
Right Frontage Road (R):	0
Rest Area/Truck Ramp (T):	0
Other (Z):	0
<b>TOTAL:</b>	19

## Crash Rates

PDO: 8000000 / MVMT  
 Injury: 11000000 / MVMT  
 Fatal: 0 / 100MVMT  
 Total: 19000000 / MVMT

## Human Contributing Factor Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Apparent Contributing Factor:	8	18	3
Asleep at the Wheel:	1	0	0
Illness:	0	0	0
Distracted by Passenger:	0	0	0
Driver Inexperience:	2	0	0
Driver Fatigue:	0	0	0
Driver Preoccupied:	3	0	0
Driver Unfamiliar with Area:	0	0	0
Driver Emotionally Upset:	2	0	0
Evading Law Enforcement Officer:	0	0	0
Physical Disability:	0	0	0
Unknown:	3	0	0
<b>TOTAL:</b>	19	18	3



**Felsburg Holt & Ullevig**  
**DiExSys™ Vision Zero Suite**  
**General Summary Report**

05/18/2024

Sable-Exposition Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

Condition of Driver Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Impairment Suspected:	18	18	3
Alcohol Involved:	1	0	0
RX, Meds or Drugs Involved:	0	0	0
Illegal Drugs Involved:	0	0	0
Alcohol and Drugs Involved:	0	0	0
Driver/Ped not Observed:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	19	18	3

Vehicle Direction Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
North:	3	1	2
Northeast:	0	0	0
East:	2	6	0
Southeast:	0	0	0
South:	5	3	0
Southwest:	0	0	0
West:	9	8	1
Northwest:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	19	18	3

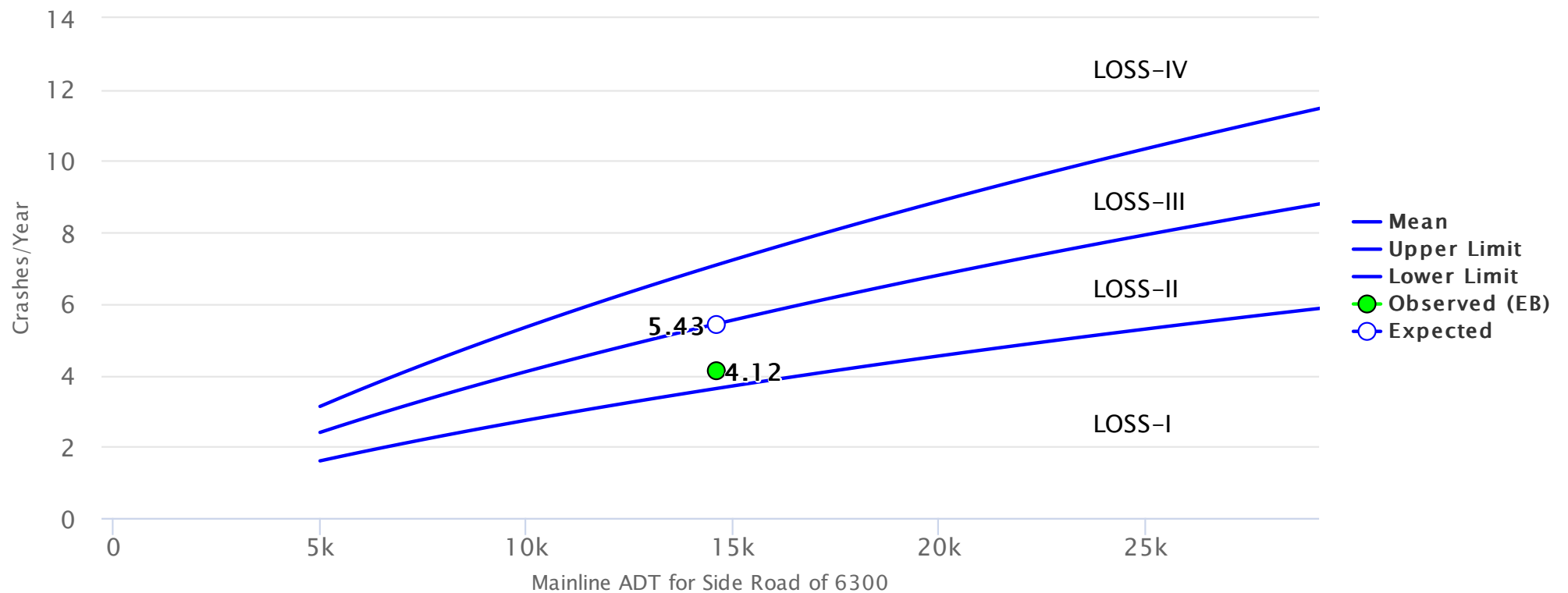
Vehicle Movement Factor Detail by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Going Straight:	9	9	0
Slowing:	1	0	0
Stopped in Traffic:	0	5	3
Making Right Turn:	0	1	0
Making Left Turn:	8	3	0
Making U-Turn:	0	0	0
Passing:	0	0	0
Backing:	0	0	0
Entering/Leaving Parked Position:	0	0	0
Starting in Traffic:	0	0	0
Parked:	0	0	0
Changing Lanes:	0	0	0
Avoiding Objects in Roadway:	0	0	0
Weaving:	0	0	0
Wrong Way:	0	0	0
Other:	1	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	19	18	3



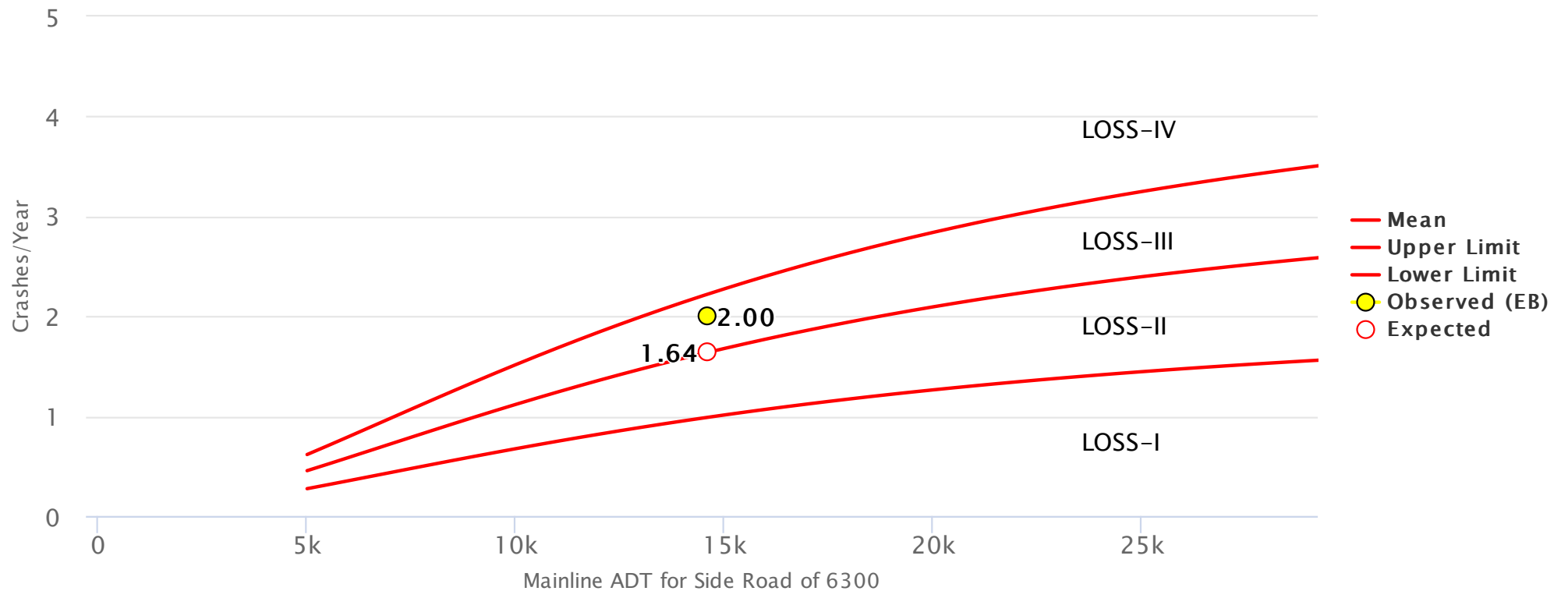
Sable-Exposition

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022



Sable-Exposition

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022





Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
Diagnostics Report

05/18/2024

Sable-ExpositionCutoff: 5 Acc's @ 95

Category/Trait	Statewide Average		This Location	Probability
	%	# Crashes	%	%
Crash Severity				
Injury (INJ)	28.51%	11	57.89%	99.83%
Crash Type				
Approach Turn	16.02%	7	36.84%	99.38%

Highway Class: CO - Urban 4-Lane Divided Signalized 4-Leg Intersections - AADT 0-32000 ADT (2018)

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**Exposition-Chambers Summary**
**Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022**
**Crash Severity**

By Crashes:	Number of	People:
FAT: 0	Killed:	0
INJ: 13	Injured:	21
PDO: 13		
<b>TOTAL: 26</b>		

**Crash Location**

On Road:	25
Off Road Left:	1
Off Road Right:	0
Off Road at Tee:	0
Off in Median:	0
Off Unknown:	0
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

**Weather Conditions**

None:	25
Rain:	0
Snow/Sleet/Hail:	1
Fog:	0
Dust:	0
Wind:	0
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

**Crash Type**

Overturning:	0	Bridge Abutment:	0
Other Non-Collision:	0	Column/Pier:	0
Pedestrian:	2	Culvert/Headwall:	0
Broadside:	5	Embankment:	0
Head On:	1	Curb:	1
Rear End:	4	Delineator Post:	0
Sideswipe (Same):	1	Fence:	0
Sideswipe (Opposite):	0	Tree:	0
Approach Turn:	8	Lrg Bldrs or Rocks:	0
Overtaking Turn:	4	Barricade:	0
Parked Motor Veh:	0	Wall/Building:	0
Railway Veh:	0	Crash Cushion:	0
Bicycle:	0	Mailbox:	0
Motorized Bicycle:	0	Other Fixed Object:	0
Domestic Animal:	0	Total Fixed Objects:	1
Wild Animal:	0	Rocks in Roadway:	0
Light/Utility Pole:	0	Vehicle Cargo/Debris:	0
Traffic Signal Pole:	0	Road Maint Equip:	0
Sign:	0	Involving Other Object:	0
Bridge Rail:	0	Total Other Object:	0
Guard Rail:	0	<b>TOTAL:</b>	<b>26</b>
Cable Rail:	0		
Concrete Barrier:	0		

**Lighting Conditions**

Daylight:	20
Dawn/Dusk:	0
Dark-Lighted:	5
Dark-Unlighted:	1
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

**Road Conditions**

Dry:	22
Wet:	1
Muddy:	0
Snowy:	1
Icy:	1
Slushy:	1
Foreign Material:	0
Road Treatment:	0
Unknown:	0
Dry W/Icy Road Treatment:	0
Wet W/Icy Road Treatment:	0
Snowy W/Icy Road Treatment:	0
Icy W/Icy Road Treatment:	0
Slushy W/Icy Road Treatment:	0
<b>TOTAL:</b>	<b>26</b>

**Number of Vehicles**

One Car:	1
Two Car:	20
Three or More:	5
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

**Road Description Details by Vehicle**

At Intersection:	20
At Driveway Access:	0
Intersection Related:	6
Non Intersection:	0
In Alley:	0
Roundabout:	0
Ramp:	0
Parking Lot:	0
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

Exposition-Chambers Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

## Vehicle Type Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Psg'r Car/Psg'r Van:	10	15	2
Psg'r Car/Psg'r Van w/Trl:	0	0	0
Pickup Truck/Utility Van:	3	2	0
Pickup Truck/Utility Van w/Trl:	0	0	0
SUV:	10	5	3
SUV w/Trl:	0	0	0
Truck 10k lbs or Less:	0	0	0
Trucks > 10k lbs/Busses > 15 People:	0	1	0
Motor Home:	2	0	0
School Bus 15 People or Less:	0	0	0
Non School Bus 15 People or Less:	0	0	0
Motorcycle:	0	0	0
Bicycle:	0	0	0
Motorized Bicycle:	0	0	0
Farm Equipment:	0	0	0
Hit and Run/Unknown Vehicle:	1	0	0
Other:	0	2	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>26</b>	<b>25</b>	<b>5</b>

## Mainline/Ramps/Frontage

Crossroad A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	0
H:	0
I:	0
J:	0
Left Frontage Road (L):	0
K:	0
M:	0
N:	0
O:	0
P:	0
Mainline/HOV:	26
Right Frontage Road (R):	0
Rest Area/Truck Ramp (T):	0
Other (Z):	0
<b>TOTAL:</b>	<b>26</b>

## Crash Rates

PDO: 13000000 / MVMT  
 Injury: 13000000 / MVMT  
 Fatal: 0 / 100MVMT  
 Total: 26000000 / MVMT

## Human Contributing Factor Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Apparent Contributing Factor:	12	22	5
Asleep at the Wheel:	0	0	0
Illness:	0	0	0
Distracted by Passenger:	0	0	0
Driver Inexperience:	2	0	0
Driver Fatigue:	0	0	0
Driver Preoccupied:	3	1	0
Driver Unfamiliar with Area:	0	0	0
Driver Emotionally Upset:	0	1	0
Evading Law Enforcement Officer:	0	0	0
Physical Disability:	0	0	0
Unknown:	9	1	0
<b>TOTAL:</b>	<b>26</b>	<b>25</b>	<b>5</b>

Exposition-Chambers Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Condition of Driver Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Impairment Suspected:	24	24	4
Alcohol Involved:	0	0	0
RX, Meds or Drugs Involved:	0	0	0
Illegal Drugs Involved:	0	0	0
Alcohol and Drugs Involved:	0	0	0
Driver/Ped not Observed:	0	0	0
Unknown:	2	1	1
<b>TOTAL:</b>	<b>26</b>	<b>25</b>	<b>5</b>

### Vehicle Direction Details by Vehicle

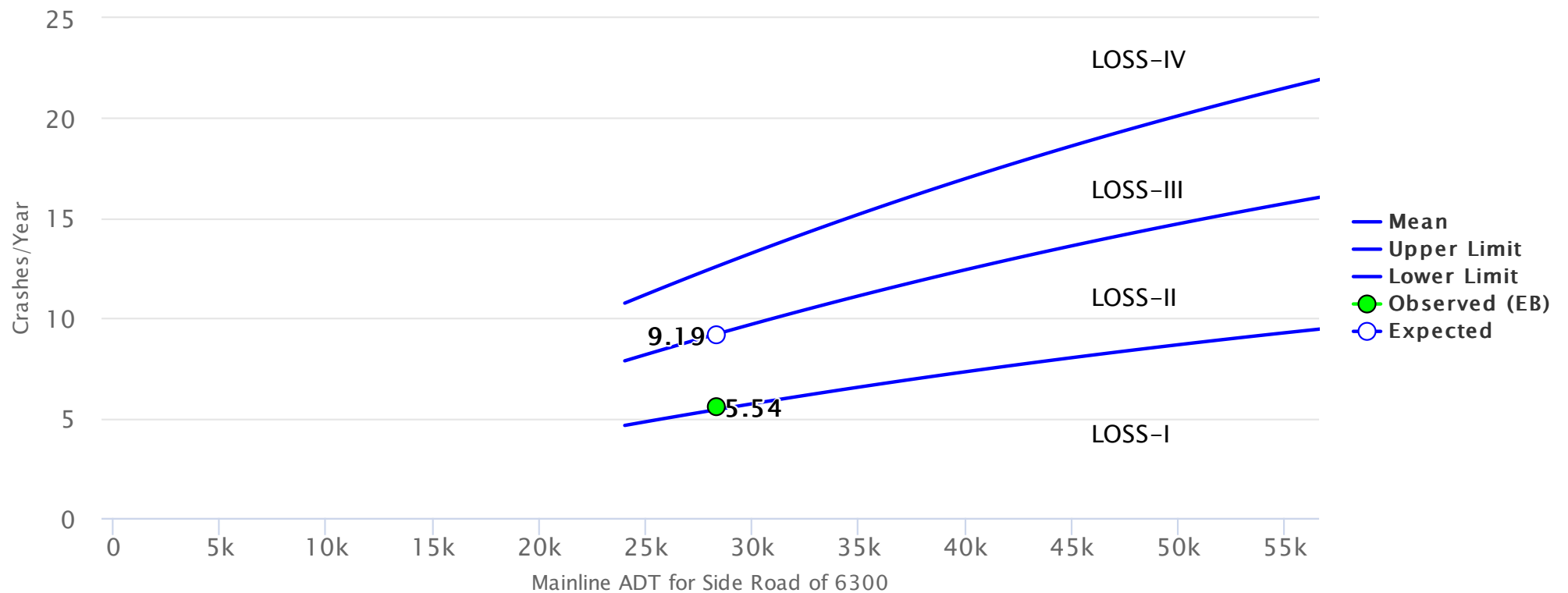
Veh:	Vehicle 1	Vehicle 2	Vehicle 3
North:	8	6	0
Northeast:	0	0	0
East:	4	6	1
Southeast:	0	0	0
South:	11	11	1
Southwest:	1	0	0
West:	2	2	0
Northwest:	0	0	0
Unknown:	0	0	3
<b>TOTAL:</b>	<b>26</b>	<b>25</b>	<b>5</b>

### Vehicle Movement Factor Detail by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Going Straight:	11	17	1
Slowing:	0	1	0
Stopped in Traffic:	1	2	3
Making Right Turn:	4	3	1
Making Left Turn:	8	2	0
Making U-Turn:	1	0	0
Passing:	0	0	0
Backing:	0	0	0
Entering/Leaving Parked Position:	0	0	0
Starting in Traffic:	0	0	0
Parked:	0	0	0
Changing Lanes:	1	0	0
Avoiding Objects in Roadway:	0	0	0
Weaving:	0	0	0
Wrong Way:	0	0	0
Other:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>26</b>	<b>25</b>	<b>5</b>

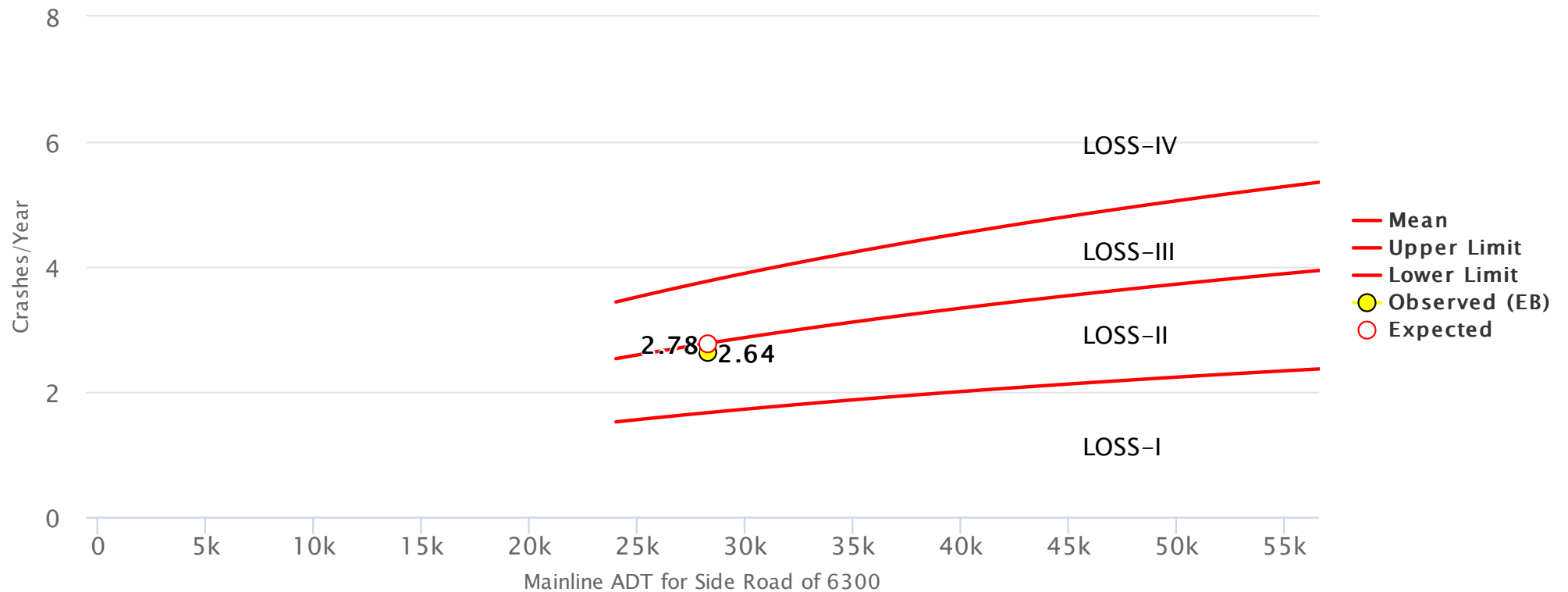
Exposition-Chambers

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022



Exposition-Chambers

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022







Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
Diagnostics Report

05/18/2024

Exposition-Chambers Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average		This Location	Probability
	%	# Crashes	%	%
<b>Crash Severity</b>				
Injury (INJ)	24.91%	13	50%	99.85%
<b>Number Of Vehicles</b>				
Three or More Vehicle Accidents	9.46%	5	19.23%	96.85%
<b>Crash Type</b>				
Approach Turn	17.16%	8	30.77%	97.55%

Highway Class: CO - Urban 6-Lane Divided Signalized 4-Leg Intersections - AADT 0-48000 ADT (2018)

Any intentional or inadvertent release of this data or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 USC 409.

**Center-Chambers Summary**
**Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022**
**Crash Severity**

By Crashes:	Number of	People:
FAT: 0	Killed: 0	
INJ: 5	Injured: 10	
PDO: 21		
<b>TOTAL: 26</b>		

**Crash Location**

On Road:	26
Off Road Left:	0
Off Road Right:	0
Off Road at Tee:	0
Off in Median:	0
Off Unknown:	0
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

**Weather Conditions**

None:	23
Rain:	0
Snow/Sleet/Hail:	3
Fog:	0
Dust:	0
Wind:	0
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

**Crash Type**

Overturning:	0	Bridge Abutment:	0
Other Non-Collision:	0	Column/Pier:	0
Pedestrian:	0	Culvert/Headwall:	0
Broadside:	20	Embankment:	0
Head On:	0	Curb:	0
Rear End:	2	Delineator Post:	0
Sideswipe (Same):	1	Fence:	0
Sideswipe (Opposite):	0	Tree:	0
Approach Turn:	2	Lrg Bldrs or Rocks:	0
Overtaking Turn:	0	Barricade:	0
Parked Motor Veh:	0	Wall/Building:	0
Railway Veh:	0	Crash Cushion:	0
Bicycle:	1	Mailbox:	0
Motorized Bicycle:	0	Other Fixed Object:	0
Domestic Animal:	0	Total Fixed Objects:	0
Wild Animal:	0	Rocks in Roadway:	0
Light/Utility Pole:	0	Vehicle Cargo/Debris:	0
Traffic Signal Pole:	0	Road Maint Equip:	0
Sign:	0	Involving Other Object:	0
Bridge Rail:	0	Total Other Object:	0
Guard Rail:	0	<b>TOTAL:</b>	<b>26</b>
Cable Rail:	0		
Concrete Barrier:	0		

**Lighting Conditions**

Daylight:	20
Dawn/Dusk:	0
Dark-Lighted:	3
Dark-Unlighted:	3
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

**Road Conditions**

Dry:	22
Wet:	0
Muddy:	0
Snowy:	3
Icy:	1
Slushy:	0
Foreign Material:	0
Road Treatment:	0
Unknown:	0
Dry W/Icy Road Treatment:	0
Wet W/Icy Road Treatment:	0
Snowy W/Icy Road Treatment:	0
Icy W/Icy Road Treatment:	0
Slushy W/Icy Road Treatment:	0
<b>TOTAL:</b>	<b>26</b>

**Number of Vehicles**

One Car:	1
Two Car:	23
Three or More:	2
Unknown:	0
<b>TOTAL:</b>	<b>26</b>

**Road Description Details by Vehicle**

At Intersection:	21
At Driveway Access:	0
Intersection Related:	5
Non Intersection:	0
In Alley:	0
Roundabout:	0
Ramp:	0
Parking Lot:	0
Unknown:	0
<b>TOTAL:</b>	<b>26</b>



**Felsburg Holt & Ullevig**  
**DiExSys™ Vision Zero Suite**  
**General Summary Report**

05/18/2024

Center-Chambers Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

Vehicle Type Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Psg'r Car/Psg'r Van:	13	12	2
Psg'r Car/Psg'r Van w/Trl:	1	0	0
Pickup Truck/Utility Van:	6	3	0
Pickup Truck/Utility Van w/Trl:	0	0	0
SUV:	6	10	0
SUV w/Trl:	0	0	0
Truck 10k lbs or Less:	0	0	0
Trucks > 10k lbs/Busses > 15 People:	0	0	0
Motor Home:	0	0	0
School Bus 15 People or Less:	0	0	0
Non School Bus 15 People or Less:	0	0	0
Motorcycle:	0	0	0
Bicycle:	0	0	0
Motorized Bicycle:	0	0	0
Farm Equipment:	0	0	0
Hit and Run/Unknown Vehicle:	0	0	0
Other:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	26	25	2

Mainline/Ramps/Frontage

Crossroad A:	0
B:	0
C:	0
D:	0
E:	0
F:	0
G:	0
H:	0
I:	0
J:	0
Left Frontage Road (L):	0
K:	0
M:	0
N:	0
O:	0
P:	0
Mainline/HOV:	26
Right Frontage Road (R):	0
Rest Area/Truck Ramp (T):	0
Other (Z):	0
<b>TOTAL:</b>	26

Crash Rates

PDO: 21000000 / MVMT  
Injury: 5000000 / MVMT  
Fatal: 0 / 100MVMT  
Total: 26000000 / MVMT

Human Contributing Factor Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Apparent Contributing Factor:	12	24	2
Asleep at the Wheel:	0	0	0
Illness:	0	0	0
Distracted by Passenger:	0	0	0
Driver Inexperience:	4	0	0
Driver Fatigue:	0	0	0
Driver Preoccupied:	1	0	0
Driver Unfamiliar with Area:	0	0	0
Driver Emotionally Upset:	0	0	0
Evading Law Enforcement Officer:	0	0	0
Physical Disability:	0	0	0
Unknown:	9	1	0
<b>TOTAL:</b>	26	25	2

Center-Chambers Summary

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022

### Condition of Driver Details by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
No Impairment Suspected:	23	25	2
Alcohol Involved:	1	0	0
RX, Meds or Drugs Involved:	0	0	0
Illegal Drugs Involved:	0	0	0
Alcohol and Drugs Involved:	0	0	0
Driver/Ped not Observed:	0	0	0
Unknown:	2	0	0
<b>TOTAL:</b>	<b>26</b>	<b>25</b>	<b>2</b>

### Vehicle Direction Details by Vehicle

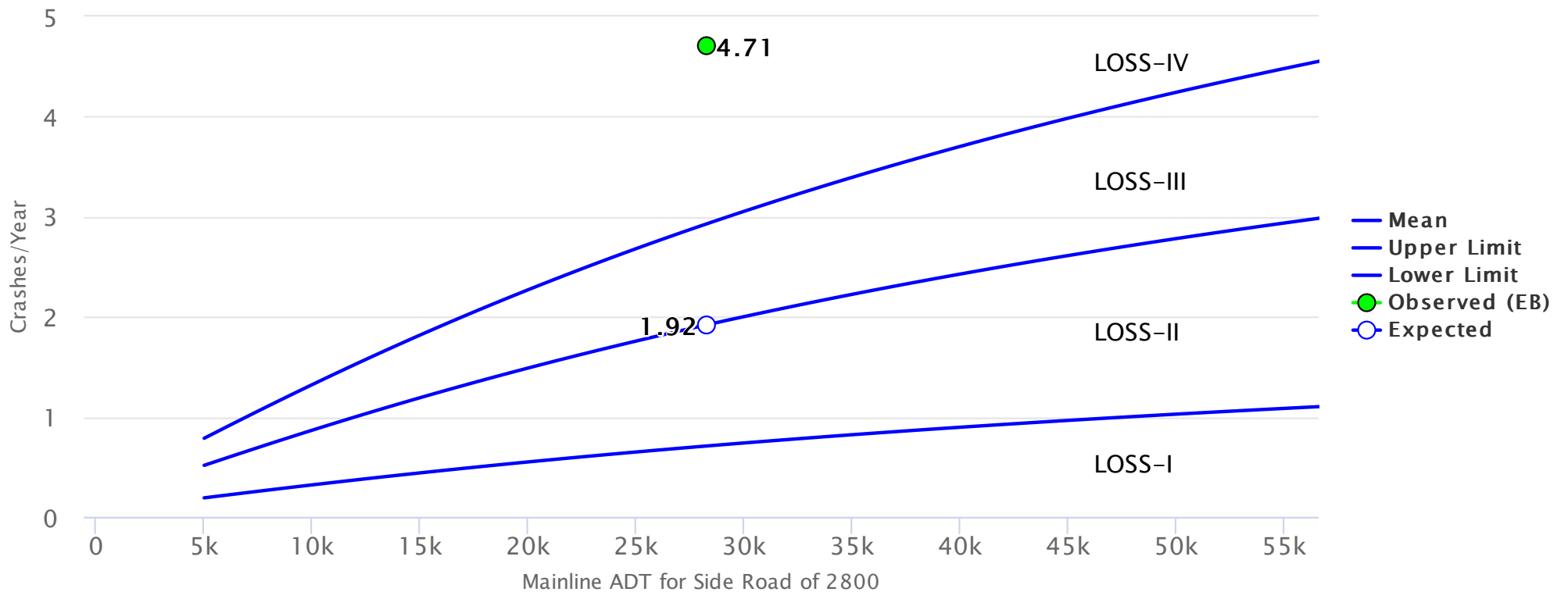
Veh:	Vehicle 1	Vehicle 2	Vehicle 3
North:	1	17	1
Northeast:	0	0	0
East:	4	0	0
Southeast:	0	0	0
South:	4	6	1
Southwest:	0	0	0
West:	17	2	0
Northwest:	0	0	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>26</b>	<b>25</b>	<b>2</b>

### Vehicle Movement Factor Detail by Vehicle

Veh:	Vehicle 1	Vehicle 2	Vehicle 3
Going Straight:	10	23	2
Slowing:	0	0	0
Stopped in Traffic:	1	1	0
Making Right Turn:	1	0	0
Making Left Turn:	12	0	0
Making U-Turn:	0	0	0
Passing:	0	0	0
Backing:	1	0	0
Entering/Leaving Parked Position:	0	0	0
Starting in Traffic:	0	0	0
Parked:	0	0	0
Changing Lanes:	0	0	0
Avoiding Objects in Roadway:	0	0	0
Weaving:	0	0	0
Wrong Way:	0	0	0
Other:	1	1	0
Unknown:	0	0	0
<b>TOTAL:</b>	<b>26</b>	<b>25</b>	<b>2</b>

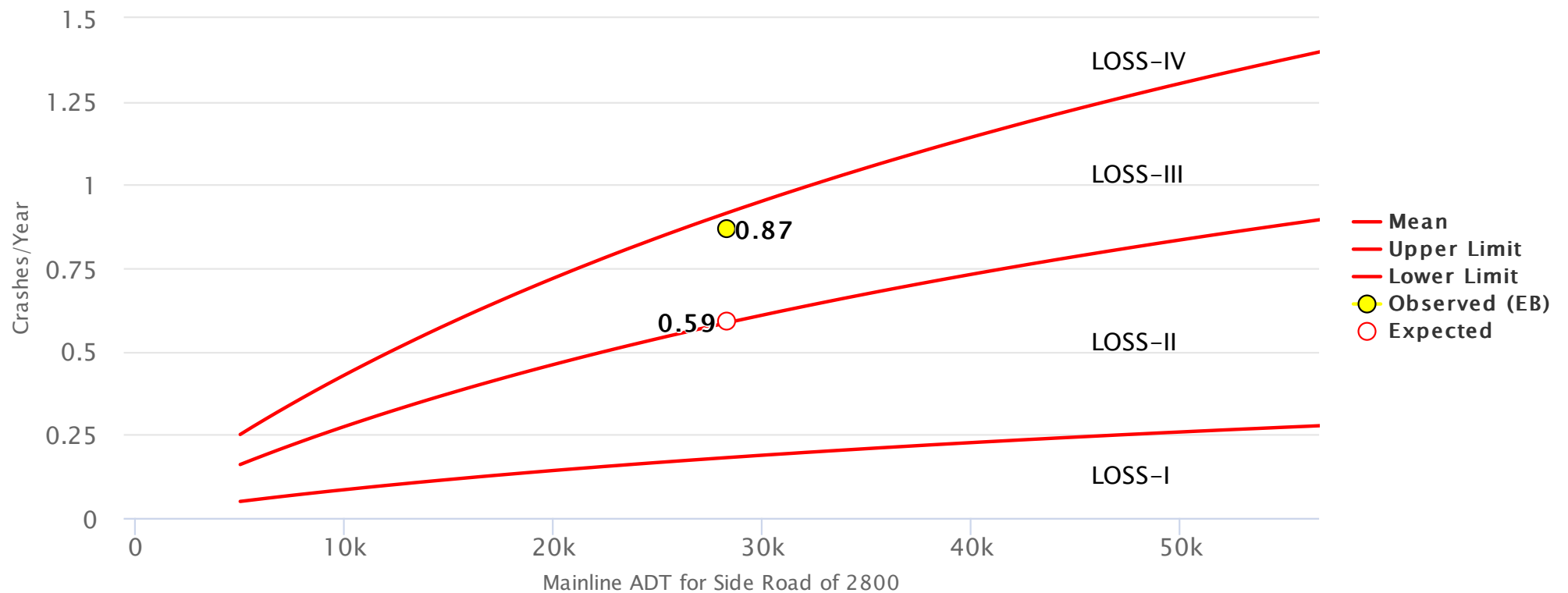
Center-Chambers

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022



Center-Chambers

Type: Intersection Search Name: Map Boundary Search From: 1/1/2018 To: 12/31/2022





Felsburg Holt & Ullevig  
DiExSys™ Vision Zero Suite  
Diagnostics Report

05/18/2024

Center-Chambers Diagnostics Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average		This Location	Probability
	%	# Crashes	%	%
Crash Location				
On Road	93.94%	26	100%	100%
Crash Type				
Broadside	32.77%	20	76.92%	100%

Highway Class: CO - Urban 6-Lane Divided Unsignalized 4-Leg Intersections (2018)

Any intentional or inadvertent release of this data or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 USC 409.

## **Appendix F.     Center Ave & Chambers Rd Signal Warrant Analysis**





July 29, 2024

Mr. Bill Parkhill  
Navona Investors, LLC  
631 High Street  
Denver, CO 80218

RE: Metro Center Master Plan Amendment – Aurora, Colorado  
Center Avenue & Chambers Road Traffic Signal Warrants  
**FHU No. 124134-01**

Dear Mr. Parkhill:

Felsburg Holt & Ullevig (FHU) has prepared this letter to document signal warrant analyses for the Center Avenue & Chambers Road intersection on the southeast corner of the Metro Center site. We have conducted these analyses at the request of City of Aurora staff in support of the Traffic Impact Study (TIS) prepared for the Metro Center Master Plan Amendment. We have prepared this letter to document new traffic signal warrant analyses for the intersection based on new traffic counts conducted at the intersection in April 2024 and on traffic volume forecasts presented in the Metro Center Master Plan Amendment TIS.

## Methodology

The Manual on Uniform Traffic Control Devices (MUTCD) identifies several warrants justifying the use and installation of traffic control signals. Three of these warrants are based on traffic volume:

- Warrant 1 – Eight-Hour Vehicular Volume
- Warrant 2 – Four-Hour Vehicular Volume
- Warrant 3 – Peak Hour

Using April 2024 traffic counts and traffic volume forecasts from the Metro Center Master Plan Amendment TIS, FHU evaluated each of these three volume-based warrants for Existing Conditions, Existing Plus Site, Future (2040) Background Traffic, and Future (2040) Total Traffic scenarios to understand the timeline of when the Center Avenue & Chambers Road intersection may warrant signalization based on traffic volume.

## Warrant Criteria Thresholds

The MUTCD provides the option that, if the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 miles per hour (MPH), or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the thresholds for traffic volumes meeting Warrants 1, 2, and 3 may be reduced to 70 percent of the original values. The posted speed limit on Chambers Road (the major street) is 40 MPH, and the intersection is not located within the built-up area of an isolated community. Therefore, we did not use the 70 percent thresholds in the signal warrant analyses.

MUTCD thresholds also vary based on the lane configurations of the major and minor streets. Chambers Road has four approach lanes in each direction (1 left-turn lane, 2 through lanes, and 1 shared through/right-turn lane). Center Avenue has single approach lanes in each direction (1 shared left-turn/through/right-turn lane). Based on this configuration, it is appropriate to use the MUTCD thresholds for intersections with 2-or-more lanes on the major street and 1 lane on the minor street.

## Minor Street Right-Turn Reductions

The MUTCD notes that traffic signal warrant studies should consider the effects of the right-turn vehicles from the minor-street approaches. City of Aurora's criteria indicate that a 50 percent right-turn volume reduction be used for volume-based signal warrants. This criteria acknowledges that 50 percent of right-turning traffic would

July 29, 2024

Metro Center Master Plan Amendment (**FHU No. 124134-01**)

Center Avenue & Chambers Road Traffic Signal Warrants

Page 2

not benefit from the presence of a traffic signal as they would be able to turn right on red and avoid incurring additional delay.

### **Traffic Volume Forecasts**

Turning movement counts for the Center Avenue & Chambers Road intersection were conducted in April 2024 and included the period from 6:00 a.m. to 7:00 p.m. Consistent with the conditions evaluated in the Master Plan Amendment TIS, we applied a uniform annual growth rate of 1.5 percent to the entire study area to develop traffic volume forecasts for the Future (2040) Background Traffic scenario.

Existing Plus Site and Future (2040) Total Traffic scenario traffic volume forecasts included existing/background traffic volumes and site-generated traffic from proposed development within Metro Center. Although site-generated traffic was evaluated only during morning and evening peak hours in the Master TIS, the Institute of Transportation Engineers provides tools within *Trip Generation* (11th Edition) to estimate distribution of site-generated trips over typical weekdays for most land-use types. We used these tools to approximate the portion of traffic related to Metro Center at the Center Avenue & Chambers Road intersection in 15-minute increments relative to the sum of morning and evening peak hour trips for the site.

### **Signal Warrant Analyses**

The following subsections describe the results of signal warrant analyses for Center Avenue & Chambers Road.

#### **Warrant 1 – Eight-Hour Vehicular Volume**

Warrant 1 is satisfied when, for eight or more hours of an average day, traffic volumes along the major street (total of both approaches) and the higher-volume minor street approach exceed the threshold values specified in Table 4C-1 of the MUTCD. The threshold values for Condition A – Minimum Vehicular Volume are useful when the high approach volumes are the primary reason for signalization. The Condition B – Interruption of Continuous Traffic thresholds are used when major street volumes cause minor street vehicles to suffer excessive delay or experience conflicts when attempting to cross the major street. These threshold values are adjusted downward to account for higher roadway speeds or rural (<10,000 population) conditions. These thresholds also change relative to the number of lanes provided along each intersection approach. Warrant 1 is satisfied when Condition A **or** Condition B is met. Warrant 1 is also satisfied when 80 percent of the threshold traffic volumes in Condition A **and** Condition B are exceeded.

**Table 1** summarizes Warrant 1 analyses. As shown, traffic volumes in all four scenarios would meet criteria for Condition B – Interruption of Continuous Traffic, indicating that the intersection **currently** meets Warrant 1 based on traffic counts from April 2024.

Of note, the addition of traffic volumes from proposed development within Metro Center would not change the higher minor street approach. Westbound Center Avenue would still have higher approach volumes than those of eastbound Center Avenue.

**Table 1. Center Avenue & Chambers Road Warrant 1 Evaluation**

Hour Start	Scenario							
	Existing		Existing Plus Site		Future (2040) Background		Future (2040) Total	
	Major Street	Minor Street	Major Street	Minor Street	Major Street	Minor Street	Major Street	Minor Street
3:45 PM – 4:45 PM	3,201	104	3,305	105	4,065	135	4,165	135
9:30 AM – 10:30 AM	1,614	98	1,675	100	2,050	125	2,110	125
5:45 PM – 6:45 PM	2,769	87	2,785	95	3,515	125	3,620	125
11:00 AM – 12:00 PM	1,616	96	1,700	95	2,055	120	2,140	120
12:00 PM – 1:00 PM	1,880	94	1,970	95	2,385	120	2,475	120
2:30 PM – 3:30 PM	2,631	91	2,700	90	3,340	115	3,405	115
1:15 PM – 2:15 PM	1,961	89	2,020	90	2,485	110	2,545	110
4:45 PM – 5:45 PM	3,203	87	3,320	85	4,065	110	4,185	110
<b>Criteria A</b>	<b>600</b>	<b>150</b>	<b>600</b>	<b>150</b>	<b>600</b>	<b>150</b>	<b>600</b>	<b>150</b>
<b>Criteria B</b>	<b>900</b>	<b>75</b>	<b>900</b>	<b>75</b>	<b>900</b>	<b>75</b>	<b>900</b>	<b>75</b>

**Notes:** 8-hour Warrant Criteria for a Major Street with 2+ Lanes and a Minor Street with 1 Lane

**Blue Highlight:** Meets Criteria A & B

**Green Highlight:** Meets Criteria B

## Warrant 2 – Four-Hour Vehicular Volume

Warrant 2 is fulfilled when traffic volumes for the major street (total of both approaches) and the higher volume minor street plot above the threshold guidelines as represented on Figure 4C-1 or 4C-2 of the MUTCD for any four hours of an average day for the existing combination of approach lanes.

**Attachment 1** summarizes the four-hour vehicular volumes and graphs for Warrant 2. As shown, traffic volumes in all four scenarios would meet criteria for Warrant 2 (the appropriate threshold line for this intersection is highlighted in yellow), indicating that the intersection **currently** meets Warrant 2.

Of note, the addition of traffic volumes from proposed development within Metro Center would not change the higher minor street approach. Westbound Center Avenue would still have higher approach volumes than those of eastbound Center Avenue.

## Warrant 3 – Peak Hour

Warrant 3 is intended for application where traffic conditions are such that for one hour of the day minor street traffic suffers undue delay in entering or crossing the major street. Warrant 3 may also be satisfied when traffic volumes for the major street (total of both approaches) and the higher volume minor street approach plot above the threshold guidelines as represented on Figure 4C-3 or 4C-4 of the MUTCD for the existing combination of approach lanes during the peak hour of the day.

The 2009 Edition of the MUTCD includes the following statement in the Peak Hour Warrant description:

*This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.*

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Center Avenue & Chambers Road Traffic Signal Warrants

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As a result of this statement, Warrant 3 must be used with caution and should not be used for typical public street intersections. Therefore, this warrant is not applicable to Center Avenue & Chambers Road.

**Attachment 2** summarizes the peak hour vehicular volumes and graphs for Warrant 3. As shown on the graphs, traffic volumes in all four scenarios would meet criteria for Warrant 3 (the appropriate threshold line for this intersection is highlighted in yellow). This indicates that the intersection **currently** meets Warrant 3. However, MUTCD's clarification for applying Warrant 3 as described previously precludes the use of this warrant for justifying the signalization of the Center Avenue & Chambers Road intersection.

Of note, the addition of traffic volumes from proposed development within Metro Center would not change the higher minor street approach. Westbound Center Avenue would still have higher approach volumes than those of eastbound Center Avenue.

## Summary

Traffic volume forecasts for the Center Avenue & Chambers Road intersection based on the Metro Center Master Plan Amendment TIS indicate that signalization of the intersection is **currently** warranted based on April 2024 traffic counts using Warrant 1 – Eight-Hour Vehicular Volume and Warrant 2 – Four-Hour Vehicular Volume from the MUTCD. Existing traffic volumes also meet Warrant 3 – Peak Hour, but the application of this warrant should not be considered for the Center Avenue & Chambers Road intersection.

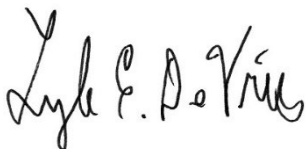
Future traffic volumes anticipated at the intersection also indicate that a traffic signal would be warranted after proposed development occurs in Metro Center. However, it is important to note that new development is not expected to change the higher minor street approach. Westbound Center Avenue would still have higher approach volumes than those of eastbound Center Avenue.

The results of this signal warrant analysis are consistent with the outcomes and recommendations of the Metro Center Master Plan Amendment TIS. Although existing traffic operations meet LOS criteria for Aurora, signalization of this intersection should be considered as soon as possible to accommodate minor street traffic from Center Avenue, both from anticipated development on the west side of Chambers Road and from commercial and residential land uses on the east side of Chambers Road.

If you have any questions about this letter, please contact Lyle DeVries ([lyle.devries@fhueng.com](mailto:lyle.devries@fhueng.com)) or Ryan Saline ([ryan.saline@fhueng.com](mailto:ryan.saline@fhueng.com)) or call 303-721-1440.

Sincerely,

**FELSBURG HOLT & ULLEVIG**



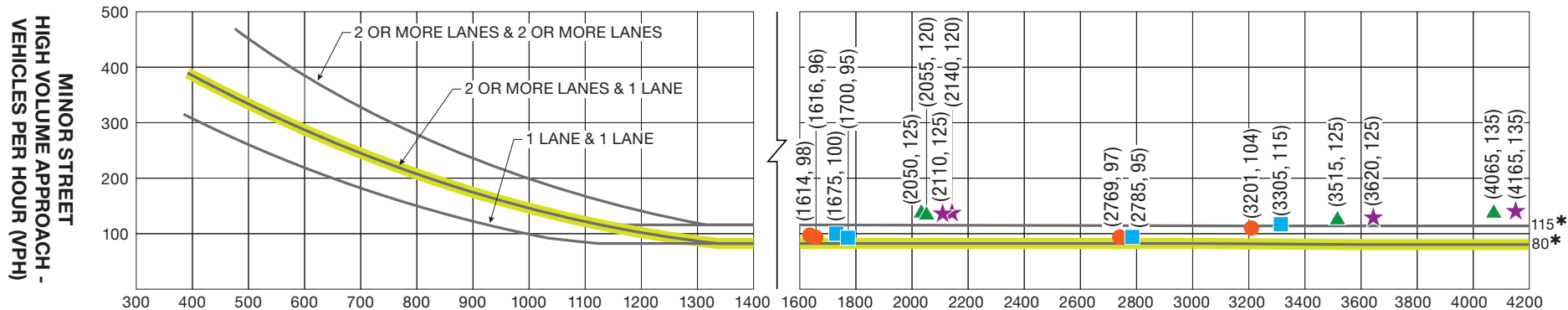
Lyle E. DeVries, PE, PTOE  
Principal



Ryan K. Saline, PE  
Transportation Engineer

**Attachment 1** – Warrant 2 (Four-Hour Vehicular Volume)

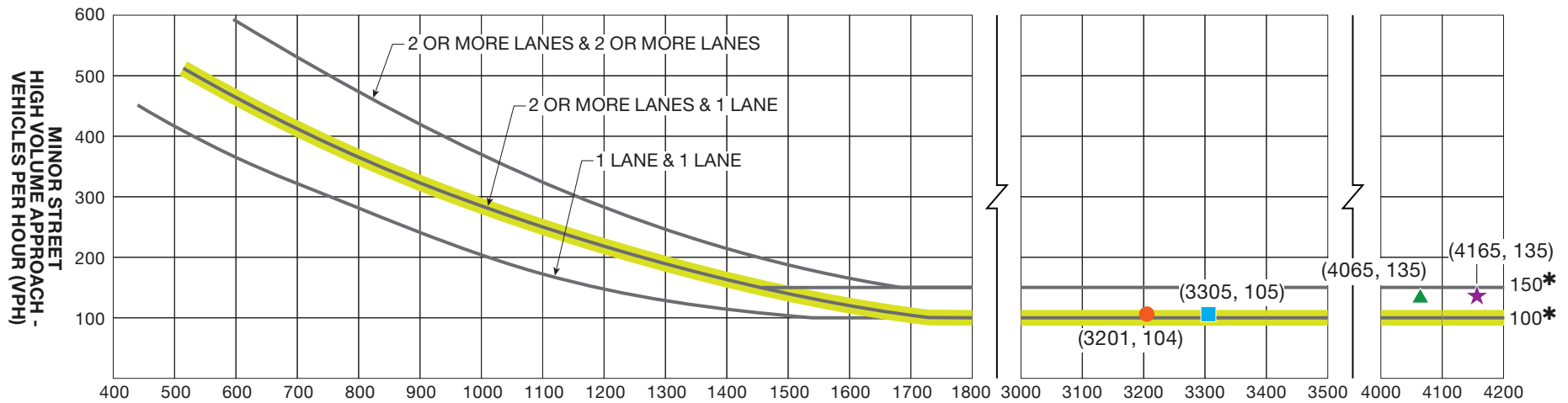
**Attachment 2** – Warrant 3 (Peak Hour)



### MAJOR STREET - TOTAL OF BOTH APPROACHES - VEHICLES PER HOUR (VPH)

\* Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor street approach with one lane.

HOUR RANK	● EXISTING		■ EXISTING PLUS SITE		▲ FUTURE (2040) BACKGROUND		★ FUTURE (2040) TOTAL	
	MINOR ST	MAJOR ST	MINOR ST	MAJOR ST	MINOR ST	MAJOR ST	MINOR ST	MAJOR ST
1	3,201	104	3,305	105	4,065	135	4,165	135
2	1,614	98	1,675	100	3,515	125	3,620	125
3	2,769	97	2,785	95	2,050	125	2,110	125
4	1,616	96	1,700	95	2,055	120	2,140	120



\* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

#### LEGEND

- = Existing (2020)
- = Existing Plus Site (2020)
- ▲ = Future (2040) Background
- ★ = Future (2040) Total

## **Appendix G. Clearance Interval Calculations**

Movement	EBLT	EB	WBLT	WB	NBLT	NB	SBLT	SB
Phase	φ5	φ2	φ1	φ6	φ3	φ8	φ7	φ4
Left-Turn Type	FYA_4	---	FYA_4	---	FYA_4	---	FYA_4	---
Posted Speed Limit (mph)	40	40	40	40	35	35	35	35
Speed for Yellow Change (mph)	35	47	35	47	30	42	30	42
Speed for Red Clearance (mph)	20	47	20	47	20	42	20	42
Average Approach Grade (%)	---	---	---	---	---	---	---	---
Vehicle Clearance Distance (ft)	111	116	190	166	128	140	134	142
Cross to Median Sign	---	---	---	---	---	---	---	---
Pedestrian Detector	---	Yes	---	Yes	---	Yes	---	Yes
Extended Pushbutton	---	---	---	---	---	---	---	---
Curb to Pedestrian Detector (ft)	---	12	---	13	---	14	---	12
Crosswalk Distance (ft)	---	92	---	89	---	120	---	114

Standard Parameters	
Vehicle Length, L	20 ft
Perception-Reaction Time, t	1.0 sec
Deceleration Rate, a	10 ft/sec^2
Walking Speed	3.5 ft/sec
Minimum Walk Time	7 sec

	Yellow	Red	Total
Minimum (sec)	3.0	2.0	5.0
Maximum (sec)	5.0	4.0	7.0
Rounding	Up	Up	Up
Significance	0.5	0.5	0.5

Yellow Change and Red Clearance Intervals

$$\text{Yellow} = t + \frac{V}{2(a + 32.2 * g)}$$

$$\text{Red (w)} = \frac{w + L}{V}$$

V = Speed (feet per second)

g = Approach Grade (percent/100)

w = Vehicle Clearance Distance, stop bar to far edge of last conflicting travel lane (feet)

Pedestrian Clearance Intervals

$$\text{Pedestrian Clearance Time} = \frac{\text{Crosswalk Distance}}{\text{Walking Speed}}$$

$$\text{Walk} + \text{Flashing Don't Walk} + \text{Buffer} \geq \frac{\text{Curb to Pedestrian Detector} + \text{Crosswalk Distance}}{3 \text{ feet per second}}$$

$$\text{Buffer} = \text{Yellow Change Interval} + \text{Red Clearance Interval}$$

	Existing Values							
	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8
	WBLT	EB	NBLT	SB	EBLT	WB	SBLT	NB
Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<b>Total Y+R</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>
Walk	---	5	---	5	---	5	---	5
Flashing Don't Walk	---	23	---	29	---	22	---	30
	Calculated Values							
Yellow Change	4.0	4.5	3.5	4.5	4.0	4.5	3.5	4.5
Red Clearance	7.5	2.0	5.5	3.0	4.5	3.0	5.5	3.0
<b>Total Y+R</b>	<b>11.5</b>	<b>6.5</b>	<b>9.0</b>	<b>7.5</b>	<b>8.5</b>	<b>7.5</b>	<b>9.0</b>	<b>7.5</b>
Walk	---	9	---	9	---	9	---	11
Flashing Don't Walk	---	20	---	26	---	18	---	27
Buffer Interval	11.5	6.5	9	7.5	8.5	7.5	9	7.5

Notes:

- If a Pedestrian Detector is not present, 6 feet used for Curb to Pedestrian Detector per the MUTCD.
- Crosswalk Distance is measured along the middle of the crosswalk from curb to curb or the larger of the from curb to median curb distances if Cross to Median Signs are present per the MUTCD.
- Yellow Change and Red Clearance Intervals matched for thru movements with permissive or protected/permissive left-turns; only the thru movements increased to highest values among left-turns and thrus.
- Yellow Change and Red Clearance Intervals not matched with any other movements for protected only left-turns.
- Buffer Interval used with the Flashing Don't Walk Interval to satisfy the Pedestrian Clearance Time. (FDW + Buffer = Pedestrian Clearance Time)
- Grade assumed to be zero unless observed to be greater than 3%.



Movement	EBLT	EB	WBLT	WB	NBLT	NB	SBLT	SB
Phase	φ5	φ2	φ1	φ6	φ8	φ8	φ4	φ4
Left-Turn Type	Pr/Pm	---	Pr/Pm	---	Perm	---	Perm	---
Posted Speed Limit (mph)	40	40	40	40	30	30	30	30
Speed for Yellow Change (mph)	35	47	35	47	25	37	25	37
Speed for Red Clearance (mph)	20	47	20	47	20	37	20	37
Average Approach Grade (%)	---	---	---	---	---	---	---	---
Vehicle Clearance Distance (ft)	70	71	70	67	84	109	75	103
Cross to Median Sign	---	---	---	---	---	---	---	---
Pedestrian Detector	---	Yes	---	Yes	---	Yes	---	Yes
Extended Pushbutton	---	---	---	---	---	---	---	---
Curb to Pedestrian Detector (ft)	---	26	---	20	---	20	---	21
Crosswalk Distance (ft)	---	56	---	64	---	99	---	99

Standard Parameters	
Vehicle Length, L	20 ft
Perception-Reaction Time, t	1.0 sec
Deceleration Rate, a	10 ft/sec^2
Walking Speed	3.5 ft/sec
Minimum Walk Time	7 sec

	Yellow	Red	Total
Minimum (sec)	3.0	2.0	5.0
Maximum (sec)	5.0	4.0	7.0
Rounding	Up	Up	Up
Significance	0.5	0.5	0.5

Yellow Change and Red Clearance Intervals

$$\text{Yellow} = t + \frac{V}{2(a + 32.2 * g)}$$

$$\text{Red (w)} = \frac{w + L}{V}$$

V = Speed (feet per second)

g = Approach Grade (percent/100)

w = Vehicle Clearance Distance, stop bar to far edge of last conflicting travel lane (feet)

Pedestrian Clearance Intervals

$$\text{Pedestrian Clearance Time} = \frac{\text{Crosswalk Distance}}{\text{Walking Speed}}$$

$$\text{Walk} + \text{Flashing Don't Walk} + \text{Buffer} \geq \frac{\text{Curb to Pedestrian Detector} + \text{Crosswalk Distance}}{3 \text{ feet per second}}$$

$$\text{Buffer} = \text{Yellow Change Interval} + \text{Red Clearance Interval}$$

	Existing Values							
	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8
	WBLT	EB	---	SB	EBLT	WB	---	NB
Yellow Change	4.0	4.0	---	3.5	3.0	4.0	---	3.5
Red Clearance	1.0	1.0	---	2.0	1.0	1.0	---	2.0
Total Y+R	5.0	5.0	---	5.5	4.0	5.0	---	5.5
Walk	---	5	---	5	---	5	---	5
Flashing Don't Walk	---	12	---	25	---	15	---	25
	Calculated Values							
Yellow Change	4.0	4.5	---	4.0	4.0	4.5	---	4.0
Red Clearance	3.5	1.5	---	3.5	3.5	1.5	---	4.0
Total Y+R	7.5	6.0	---	7.5	7.5	6.0	---	8.0
Walk	---	12	---	12	---	9	---	11
Flashing Don't Walk	---	10	---	21	---	13	---	21
Buffer Interval	7.5	6		7.5	7.5	6		8

Notes:

- If a Pedestrian Detector is not present, 6 feet used for Curb to Pedestrian Detector per the MUTCD.
- Crosswalk Distance is measured along the middle of the crosswalk from curb to curb or the larger of the from curb to median curb distances if Cross to Median Signs are present per the MUTCD.
- Yellow Change and Red Clearance Intervals matched for thru movements with permissive or protected/permissive left-turns; only the thru movements increased to highest values among left-turns and thrus.
- Yellow Change and Red Clearance Intervals not matched with any other movements for protected only left-turns.
- Buffer Interval used with the Flashing Don't Walk Interval to satisfy the Pedestrian Clearance Time. (FDW + Buffer = Pedestrian Clearance Time)
- Grade assumed to be zero unless observed to be greater than 3%.

Movement	EBLT	EB	WBLT	WB	NBLT	NB	SBLT	SB
Phase	φ3	φ8	φ7	φ4	φ1	φ6	φ5	φ2
Left-Turn Type	Prot	---	Prot	---	Prot	---	Prot	---
Posted Speed Limit (mph)	40	40	40	40	35	35	35	35
Speed for Yellow Change (mph)	35	47	35	47	30	42	30	42
Speed for Red Clearance (mph)	20	47	20	47	20	42	20	42
Average Approach Grade (%)	---	---	---	---	---	---	---	---
Vehicle Clearance Distance (ft)	118	113	123	119	122	111	109	117
Cross to Median Sign	---	---	---	---	---	---	---	---
Pedestrian Detector	---	Yes	---	Yes	---	Yes	---	Yes
Extended Pushbutton	---	---	---	---	---	---	---	---
Curb to Pedestrian Detector (ft)	---	14	---	15	---	14	---	20
Crosswalk Distance (ft)	---	95	---	105	---	95	---	107

Standard Parameters	
Vehicle Length, L	20 ft
Perception-Reaction Time, t	1.0 sec
Deceleration Rate, a	10 ft/sec^2
Walking Speed	3.5 ft/sec
Minimum Walk Time	7 sec

	Yellow	Red	Total
Minimum (sec)	3.0	2.0	5.0
Maximum (sec)	5.0	4.0	7.0
Rounding	Up	Up	Up
Significance	0.5	0.5	0.5

Yellow Change and Red Clearance Intervals

$$\text{Yellow} = t + \frac{V}{2(a + 32.2 * g)}$$

$$\text{Red (w)} = \frac{w + L}{V}$$

V = Speed (feet per second)

g = Approach Grade (percent/100)

w = Vehicle Clearance Distance, stop bar to far edge of last conflicting travel lane (feet)

Pedestrian Clearance Intervals

$$\text{Pedestrian Clearance Time} = \frac{\text{Crosswalk Distance}}{\text{Walking Speed}}$$

$$\text{Walk} + \text{Flashing Don't Walk} + \text{Buffer} \geq \frac{\text{Curb to Pedestrian Detector} + \text{Crosswalk Distance}}{3 \text{ feet per second}}$$

$$\text{Buffer} = \text{Yellow Change Interval} + \text{Red Clearance Interval}$$

	Existing Values							
	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8
	NBLT	SB	EBLT	WB	SBLT	NB	WBLT	EB
Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<b>Total Y+R</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>
Walk	---	5	---	5	---	5	---	5
Flashing Don't Walk	---	27	---	27	---	24	---	24
	Calculated Values							
Yellow Change	3.5	4.5	4.0	4.5	3.5	4.5	4.0	4.5
Red Clearance	5.0	2.5	5.0	2.5	4.5	2.5	5.0	2.0
<b>Total Y+R</b>	<b>8.5</b>	<b>7.0</b>	<b>9.0</b>	<b>7.0</b>	<b>8.0</b>	<b>7.0</b>	<b>9.0</b>	<b>6.5</b>
Walk	---	12	---	10	---	9	---	9
Flashing Don't Walk	---	24	---	23	---	21	---	21
Buffer Interval	8.5	7	9	7	8	7	9	6.5

Notes:

- If a Pedestrian Detector is not present, 6 feet used for Curb to Pedestrian Detector per the MUTCD.
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- Yellow Change and Red Clearance Intervals matched for thru movements with permissive or protected/permissive left-turns; only the thru movements increased to highest values among left-turns and thrus.
- Yellow Change and Red Clearance Intervals not matched with any other movements for protected only left-turns.
- Buffer Interval used with the Flashing Don't Walk Interval to satisfy the Pedestrian Clearance Time. (FDW + Buffer = Pedestrian Clearance Time)
- Grade assumed to be zero unless observed to be greater than 3%.

Movement	EBLT	EB	WBLT	WB	NBLT	NB	SBLT	SB
Phase	φ4	φ4	φ3	φ8	φ5	φ2	φ1	φ6
Left-Turn Type	Perm	---	Pr/Pm	---	FYA_4	---	FYA_4	---
Posted Speed Limit (mph)	30	30	30	30	35	35	35	35
Speed for Yellow Change (mph)	25	37	25	37	30	42	30	42
Speed for Red Clearance (mph)	20	37	20	37	20	42	20	42
Average Approach Grade (%)	---	---	---	---	---	---	---	---
Vehicle Clearance Distance (ft)	76	90	117	135	74	89	76	76
Cross to Median Sign	---	---	---	---	---	---	---	---
Pedestrian Detector	---	Yes	---	Yes	---	Yes	---	Yes
Extended Pushbutton	---	---	---	---	---	---	---	---
Curb to Pedestrian Detector (ft)	---	9	---	11	---	18	---	11
Crosswalk Distance (ft)	---	84	---	82	---	71	---	97

Standard Parameters	
Vehicle Length, L	20 ft
Perception-Reaction Time, t	1.0 sec
Deceleration Rate, a	10 ft/sec^2
Walking Speed	3.5 ft/sec
Minimum Walk Time	7 sec

	Yellow	Red	Total
Minimum (sec)	3.0	2.0	5.0
Maximum (sec)	5.0	4.0	7.0
Rounding	Up	Up	Up
Significance	0.5	0.5	0.5

Yellow Change and Red Clearance Intervals

$$\text{Yellow} = t + \frac{V}{2(a + 32.2 * g)}$$

$$\text{Red (w)} = \frac{w + L}{V}$$

V = Speed (feet per second)

g = Approach Grade (percent/100)

w = Vehicle Clearance Distance, stop bar to far edge of last conflicting travel lane (feet)

Pedestrian Clearance Intervals

$$\text{Pedestrian Clearance Time} = \frac{\text{Crosswalk Distance}}{\text{Walking Speed}}$$

$$\text{Walk} + \text{Flashing Don't Walk} + \text{Buffer} \geq \frac{\text{Curb to Pedestrian Detector} + \text{Crosswalk Distance}}{3 \text{ feet per second}}$$

$$\text{Buffer} = \text{Yellow Change Interval} + \text{Red Clearance Interval}$$

	Existing Values							
	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8
	SBLT	NB	WBLT	EB	NBLT	SB	---	WB
Yellow Change	3.0	4.0	4.0	4.0	3.0	4.0	---	4.0
Red Clearance	1.0	2.0	2.0	2.0	1.0	2.0	---	2.0
Total Y+R	4.0	6.0	6.0	6.0	4.0	6.0	---	6.0
Walk	---	5	---	5	---	5	---	5
Flashing Don't Walk	---	20	---	20	---	16	---	24
	Calculated Values							
Yellow Change	3.5	4.5	3.0	4.0	3.5	4.5	---	4.0
Red Clearance	3.5	2.0	5.0	3.5	3.5	2.0	---	3.0
Total Y+R	7.0	6.5	8.0	7.5	7.0	6.5	---	7.0
Walk	---	10	---	7	---	8	---	7
Flashing Don't Walk	---	14	---	17	---	22	---	17
Buffer Interval	7	6.5	8	7.5	7	6.5		7

Notes:

- If a Pedestrian Detector is not present, 6 feet used for Curb to Pedestrian Detector per the MUTCD.
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- Yellow Change and Red Clearance Intervals matched for thru movements with permissive or protected/permissive left-turns; only the thru movements increased to highest values among left-turns and thrus.
- Yellow Change and Red Clearance Intervals not matched with any other movements for protected only left-turns.
- Buffer Interval used with the Flashing Don't Walk Interval to satisfy the Pedestrian Clearance Time. (FDW + Buffer = Pedestrian Clearance Time)
- Grade assumed to be zero unless observed to be greater than 3%.

Movement	EBLT	EB	WBLT	WB	NBLT	NB	SBLT	SB
Phase	φ7	φ4	φ3	φ8	φ5	φ2	φ1	φ6
Left-Turn Type	FYA_4	---	FYA_4	---	FYA_4	---	FYA_4	---
Posted Speed Limit (mph)	30	30	30	30	35	35	35	35
Speed for Yellow Change (mph)	25	37	25	37	30	42	30	42
Speed for Red Clearance (mph)	20	37	20	37	20	42	20	42
Average Approach Grade (%)	---	---	---	---	---	---	---	---
Vehicle Clearance Distance (ft)	99	90	93	132	98	101	102	109
Cross to Median Sign	---	---	---	---	---	---	---	---
Pedestrian Detector	---	Yes	---	Yes	---	Yes	---	Yes
Extended Pushbutton	---	---	---	---	---	---	---	---
Curb to Pedestrian Detector (ft)	---	14	---	19	---	24	---	10
Crosswalk Distance (ft)	---	72	---	78	---	89	---	88

Standard Parameters	
Vehicle Length, L	20 ft
Perception-Reaction Time, t	1.0 sec
Deceleration Rate, a	10 ft/sec^2
Walking Speed	3.5 ft/sec
Minimum Walk Time	7 sec

	Yellow	Red	Total
Minimum (sec)	3.0	2.0	5.0
Maximum (sec)	5.0	4.0	7.0
Rounding	Up	Up	Up
Significance	0.5	0.5	0.5

Yellow Change and Red Clearance Intervals

$$\text{Yellow} = t + \frac{V}{2(a + 32.2 * g)}$$

$$\text{Red (w)} = \frac{w + L}{V}$$

V = Speed (feet per second)

g = Approach Grade (percent/100)

w = Vehicle Clearance Distance, stop bar to far edge of last conflicting travel lane (feet)

Pedestrian Clearance Intervals

$$\text{Pedestrian Clearance Time} = \frac{\text{Crosswalk Distance}}{\text{Walking Speed}}$$

$$\text{Walk} + \text{Flashing Don't Walk} + \text{Buffer} \geq \frac{\text{Curb to Pedestrian Detector} + \text{Crosswalk Distance}}{3 \text{ feet per second}}$$

$$\text{Buffer} = \text{Yellow Change Interval} + \text{Red Clearance Interval}$$

	Existing Values							
	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8
	SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB
Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<b>Total Y+R</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>
Walk	---	5	---	5	---	5	---	5
Flashing Don't Walk	---	23	---	29	---	22	---	30
	Calculated Values							
	Yellow Change	Red Clearance	Total Y+R	Walk	Flashing Don't Walk	Buffer Interval		
	3.5	4.5	8.0	13	19	8		
Yellow Change	3.5	4.5	8.0	13	19	8		
Red Clearance	4.5	2.0	6.5	---	---	---		
<b>Total Y+R</b>	<b>8.0</b>	<b>6.5</b>	<b>7.0</b>	<b>7.5</b>	<b>7.0</b>	<b>7.5</b>		
Walk	---	13	---	8	---	---		
Flashing Don't Walk	---	19	---	15	---	---		
Buffer Interval	8	6.5	7	6.5	8	7		

Notes:

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- Yellow Change and Red Clearance Intervals matched for thru movements with permissive or protected/permissive left-turns; only the thru movements increased to highest values among left-turns and thrus.
- Yellow Change and Red Clearance Intervals not matched with any other movements for protected only left-turns.
- Buffer Interval used with the Flashing Don't Walk Interval to satisfy the Pedestrian Clearance Time. (FDW + Buffer = Pedestrian Clearance Time)
- Grade assumed to be zero unless observed to be greater than 3%.

Movement	EBLT	EB	WBLT	WB	NBLT	NB	SBLT	SB
Phase	φ4	φ4	φ8	φ8	φ5	φ2	φ6	φ6
Left-Turn Type	Perm	---	Perm	---	Pr/Pm	---	Perm	---
Posted Speed Limit (mph)	30	30	30	30	40	40	40	40
Speed for Yellow Change (mph)	25	37	25	37	35	47	35	47
Speed for Red Clearance (mph)	20	37	20	37	20	47	20	47
Average Approach Grade (%)	---	---	---	---	---	---	---	---
Vehicle Clearance Distance (ft)	90	117	82	105	71	61	69	74
Cross to Median Sign	---	---	---	---	---	---	---	---
Pedestrian Detector	---	Yes	---	Yes	---	Yes	---	Yes
Extended Pushbutton	---	---	---	---	---	---	---	---
Curb to Pedestrian Detector (ft)	---	14	---	13	---	13	---	12
Crosswalk Distance (ft)	---	100	---	100	---	52	---	70

Standard Parameters	
Vehicle Length, L	20 ft
Perception-Reaction Time, t	1.0 sec
Deceleration Rate, a	10 ft/sec^2
Walking Speed	3.5 ft/sec
Minimum Walk Time	7 sec

	Yellow	Red	Total
Minimum (sec)	3.0	2.0	5.0
Maximum (sec)	5.0	4.0	7.0
Rounding	Up	Up	Up
Significance	0.5	0.5	0.5

Yellow Change and Red Clearance Intervals

$$\text{Yellow} = t + \frac{V}{2(a + 32.2 * g)}$$

$$\text{Red (w)} = \frac{w + L}{V}$$

V = Speed (feet per second)

g = Approach Grade (percent/100)

w = Vehicle Clearance Distance, stop bar to far edge of last conflicting travel lane (feet)

Pedestrian Clearance Intervals

$$\text{Pedestrian Clearance Time} = \frac{\text{Crosswalk Distance}}{\text{Walking Speed}}$$

$$\text{Walk} + \text{Flashing Don't Walk} + \text{Buffer} \geq \frac{\text{Curb to Pedestrian Detector} + \text{Crosswalk Distance}}{3 \text{ feet per second}}$$

$$\text{Buffer} = \text{Yellow Change Interval} + \text{Red Clearance Interval}$$

	Existing Values							
	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8
	---	NB	---	EB	NBLT	SB	---	WB
Yellow Change	---	4.0	---	4.0	3.0	4.0	---	4.0
Red Clearance	---	2.0	---	2.0	1.0	2.0	---	2.0
Total Y+R	---	6.0	---	6.0	4.0	6.0	---	6.0
Walk	---	5	---	5	---	5	---	5
Flashing Don't Walk	---	12	---	26	---	17	---	27
	Calculated Values							
Yellow Change	---	4.5	---	4.0	4.0	4.5	---	4.0
Red Clearance	---	1.5	---	4.0	3.5	3.5	---	3.5
Total Y+R	---	6.0	---	8.0	7.5	8.0	---	7.5
Walk	---	7	---	9	---	8	---	9
Flashing Don't Walk	---	9	---	21	---	12	---	22
Buffer Interval		6		8	7.5	8		7.5

Notes:

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- Grade assumed to be zero unless observed to be greater than 3%.

Movement	EBLT	EB	WBLT	WB	NBLT	NB	SBLT	SB
Phase	φ4	φ4	φ8	φ8	φ5	φ2	φ1	φ6
Left-Turn Type	Perm	---	Perm	---	Pr/Pm	---	Pr/Pm	---
Posted Speed Limit (mph)	40	40	40	40	35	35	35	35
Speed for Yellow Change (mph)	35	47	35	47	30	42	30	42
Speed for Red Clearance (mph)	20	47	20	47	20	42	20	42
Average Approach Grade (%)	---	---	---	---	---	---	---	---
Vehicle Clearance Distance (ft)	90	106	87	105	63	63	66	65
Cross to Median Sign	---	---	---	---	---	---	---	---
Pedestrian Detector	---	No	---	No	---	No	---	No
Extended Pushbutton	---	---	---	---	---	---	---	---
Curb to Pedestrian Detector (ft)	---	6	---	6	---	6	---	6
Crosswalk Distance (ft)	---	105	---	105	---	55	---	59

Standard Parameters	
Vehicle Length, L	20 ft
Perception-Reaction Time, t	1.0 sec
Deceleration Rate, a	10 ft/sec^2
Walking Speed	3.5 ft/sec
Minimum Walk Time	7 sec

	Yellow	Red	Total
Minimum (sec)	3.0	2.0	5.0
Maximum (sec)	5.0	4.0	7.0
Rounding	Up	Up	Up
Significance	0.5	0.5	0.5

Yellow Change and Red Clearance Intervals

$$\text{Yellow} = t + \frac{V}{2(a + 32.2 * g)} \qquad \text{Red (w)} = \frac{w + L}{V}$$

V = Speed (feet per second)

g = Approach Grade (percent/100)

w = Vehicle Clearance Distance, stop bar to far edge of last conflicting travel lane (feet)

Pedestrian Clearance Intervals

$$\text{Pedestrian Clearance Time} = \frac{\text{Crosswalk Distance}}{\text{Walking Speed}}$$

$$\text{Walk} + \text{Flashing Don't Walk} + \text{Buffer} \geq \frac{\text{Curb to Pedestrian Detector} + \text{Crosswalk Distance}}{3 \text{ feet per second}}$$

$$\text{Buffer} = \text{Yellow Change Interval} + \text{Red Clearance Interval}$$

	Existing Values							
	φ1	φ2	φ3	φ4	φ5	φ6	φ7	φ8
	SBLT	NB	---	EB	NBLT	SB	---	WB
Yellow Change	3.0	4.0	---	4.0	3.0	4.0	---	4.0
Red Clearance	2.0	2.0	---	2.0	2.0	2.0	---	2.0
<b>Total Y+R</b>	<b>5.0</b>	<b>6.0</b>	---	<b>6.0</b>	<b>5.0</b>	<b>6.0</b>	---	<b>6.0</b>
Walk	---	5	---	5	---	5	---	5
Flashing Don't Walk	---	10	---	29	---	10	---	29
	Calculated Values							
Yellow Change	3.5	4.5	---	4.5	3.5	4.5	---	4.5
Red Clearance	3.0	1.5	---	4.0	3.0	1.5	---	4.0
<b>Total Y+R</b>	<b>6.5</b>	<b>6.0</b>	---	<b>8.5</b>	<b>6.5</b>	<b>6.0</b>	---	<b>8.5</b>
Walk	---	7	---	7	---	7	---	7
Flashing Don't Walk	---	10	---	22	---	11	---	22
Buffer Interval	6.5	6		8.5	6.5	6		8.5

Notes:

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