

TRANSPORTATION IMPACT ANALYSIS

ATTACHMENT D

to the
Albrae Industrial Project

1st Addendum
to The Globe Planned District
EIR and Supplemental EIR

Memorandum

Date: January 3, 2022
To: Mac Carlsen, Scannell Properties
From: Sam Tabibnia, Fehr & Peers
Subject: **40517 Albrae Street Industrial Project –Transportation Impact Analysis**

OK20-0376

This memorandum summarizes the Transportation Impact Analysis conducted by Fehr & Peers for the proposed industrial project at 40517 Albrae Street in Fremont.

Based on our evaluation:

- The proposed project would have a less-than-significant impact on vehicle miles traveled (VMT).
- The proposed project would not substantially affect intersection level of service (LOS) or queuing at six study intersections in the vicinity of the project.
- The Encyclopedia Circle/Stevenson Boulevard intersection would meet signal warrants regardless of the proposed project; therefore, the project shall coordinate with the City of Fremont to determine if the intersection should be signalized and if it is determined that the intersection should be signalized, the project shall install the traffic signal at this intersection.
- The Albrae Street/Walmart Driveway/Project Driveway intersection would meet signal warrants regardless of the proposed project; therefore, the project shall coordinate with the City of Fremont to determine if the intersection should be signalized and if it is determined that the intersection should be signalized, the project shall contribute its fair share to installing the traffic signal at this intersection. Since signalizing the intersection would increase the delay experienced by the vehicles turning into and out of the Walmart Driveway, alternatively, consider maintaining the intersection as side-street stop-controlled and prohibiting the left-turns out of the Project Driveway, at least during the peak congestion periods.
- Based on the project site plan, the project would provide access and circulation for all travel modes with the implementation of the following recommendations:



- Coordinate with the City of Fremont to restripe Albrae Street to replace the existing two-way left-turn lane along the project frontage with left-turn lanes on southbound and northbound Albrae Street into the existing Walmart driveway and the proposed main project driveway
- Limit northbound Main Street at Stevenson Boulevard to right-turns only, at least during the peak congestion periods, and prohibit through trucks on Main Street
- Provide long-term and short-term bicycle parking as required by the City of Fremont Municipal Code for each project building
- Provide a continuous sidewalk along the project frontage on Albrae Street
- Provide a continuous sidewalk along the project frontage on Encyclopedia Circle

The remainder of this memorandum provides more detail on our assumptions and findings on these topics.

Project Description

The project is located south of Stevenson Boulevard between Albrae Street and Encyclopedia Circle¹. The 22.5-acre project would consist of the following three buildings:

- Building 1 at the southeast part of the site would consist of 8,000 square feet of office and 182,500 square feet of warehouse
- Building 2 at the southwest part of the site would consist of 6,500 square feet of office and 151,280 square feet of warehouse
- Building 3 at the northwest part of the site would consist of 10,000 square feet of office and 36,800 square feet of industrial R&D/manufacturing space.

Overall, the project would provide 24,500 square feet of office, 333,790 square feet of warehouse, and 36,800 square feet of industrial R&D/manufacturing space.

Access to the site would be provided through two driveways on Albrae Street, three driveways on Encyclopedia Circle, and direct access on Main Street. The project would provide 713 automobile parking spaces.

Previously, the site was entitled for a regional retail center. The impacts of the entitled project were evaluated in *The Globe General Plan Amendment EIR* (published in 2005) and *The Globe Supplement to EIR* (published December 2006). The 2006 Supplement evaluated the impacts of 469,900 square feet of shopping center and 88,000 square feet of warehouse located on a 31.5-acre site. It is estimated that the 2006 Supplement assumed approximately 295,000 square feet of

¹ This memorandum assumes that I-880 and Albrae Street are oriented north-south and Stevenson Boulevard is oriented east-west.



shopping center on the 22.5 acres that would be used by the currently proposed industrial project.

CEQA Vehicle Miles Traveled (VMT) Assessment

One performance measure used to quantify automobile travel is vehicle miles traveled (VMT). As required by the State, VMT is the metric used to identify impacts of development projects on transportation in CEQA documents published after July 1, 2020. The VMT assessment presented in this memorandum is completed based on the thresholds and guidelines provided in the *City of Fremont Transportation Impact Analysis Handbook* (Final, June 2020).

The discussion below starts by presenting the City of Fremont's applicable threshold of significance for the project, describes the applicability of VMT screening, and estimates the VMT for the proposed project.

City of Fremont Thresholds of Significance

The State Office of Planning and Research's (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* recommends evaluating VMT impacts using an efficiency-based version of the metric, such as VMT per resident for residential developments or VMT per employee for office or other employment-based developments. Consistent with OPR's guidelines, City of Fremont uses the metric of home-work VMT per employee for evaluating the impacts of employment-based uses, such as the proposed project. The home-work VMT per employee measures all of the commute trips between homes and workplaces and divides that total distance by the number of employees at the site. Consistent with OPR guidelines, City of Fremont does not include heavy-duty truck VMT as part of VMT analysis.

Based on the City of Fremont guidelines, the following significance thresholds are applicable to the project:

- Office Uses: 15% below the regional average VMT per employee
- Industrial Uses: The regional average VMT per employee

VMT Screening Assessment

Screening thresholds can be used to quickly identify projects that can be expected to cause a less than significant impact without conducting a detailed study. The City of Fremont guidelines include several screening methods. The method applicable to the project is the Location Based Screening for Employment criterion.

According to this method, projects that are located in low-VMT areas and that have characteristics similar to other uses already located in those areas can be presumed to generate VMT at similar



rates. The low-VMT areas in Fremont are defined based on the results of the Alameda County Transportation Commission (CTC) Travel Demand Model and are summarized in maps.

Based on the City of Fremont's employment-based screening map, the project is in an area with a VMT 15% below regional average VMT per employee, which would mean that both the office and industrial components of the project would meet this criterion.

However, this criterion also includes the following conditions that must be satisfied for a project to meet the VMT screening requirements:

- Density: If located in an area that has a maximum density below 0.75 FAR, the maximum density allowed must be met
- Parking: No more than the minimum number of parking spaces required

Based on the project site plan, the project would have a FAR of 0.41, compared to a maximum FAR of 0.45. The project would include 713 automobile parking spaces, which is the same as the 713 minimum parking spaces required per City of Fremont Municipal Code. Therefore, the project would not meet the City's screening criterion.

Project VMT Estimates

Since the project would not meet the City's screening criterion for VMT, the VMT for the project is estimated using the Alameda CTC Travel Demand Model. The Alameda CTC Model, which covers the entire nine county Bay Area, is a regional travel demand model that uses socio-economic data and roadway and transit network assumptions to forecast traffic volumes, transit ridership, and VMT using a four-step modeling process that includes trip generation, trip distribution, mode split, and trip assignment. This process accounts for changes in travel patterns due to future growth and expected changes in the transportation network. This analysis uses the VMT per employee data provided in the City of Fremont's public GIS database, which is based on the Alameda CTC Model, and is consistent with the Metropolitan Transportation Commission (MTC) Plan Bay Area 2040 (i.e., Sustainable Communities Strategy) transportation network and land uses for 2020.

As a regional planning tool, the Alameda CTC Model was developed through an extensive model validation process and is intended to replicate existing vehicular travel behavior. Therefore, it can provide a reasonable estimate of the VMT generated in various geographic areas on a typical weekday.

Table 1 summarizes the estimated home-work VMT per employee under 2020 conditions for the project based on the results of the Alameda CTC Model and compares the results to the City of Fremont's thresholds applicable to the project.



Table 1: Daily Vehicle Miles Traveled Summary

Land Use	Home-Work VMT per Employee ¹ (2020)
Project (TAZ 906)	15.1
Bay Area Regional Average (threshold for industrial uses)	18.1
15% below the Bay Area Regional Average (threshold for office uses)	15.4

Notes:

1. Based on the results of the Alameda CTC Travel Demand Model as represented in the City of Fremont public GIS database (<https://egis.fremont.gov/gisapps/fremont/index.html?viewer=Public.gvh>)

Source: Fehr & Peers, 2021.

It is estimated that the project employees would have an average home-work VMT of 13.5 miles per employee per day in 2020, which is more than 15% below the regional average VMT per employee. Thus, both the office and industrial components of the project would have a less than significant impact on VMT. Since the project is consistent with the City of Fremont General Plan, the cumulative VMT impacts of the project is less than significant.

Local Transportation Analysis

This section evaluates the transportation related effects of the project outside of the CEQA process, consistent with the City of Fremont Transportation Impact Analysis (TIA) Handbook. It presents the project trip generation, evaluates the effects of the project on traffic operations, and summarizes access and circulation for various travel modes.

Trip Generation

Trip generation is the process of estimating the number of vehicles that would likely access the Project site. Fehr & Peers estimated the trip generation for the project using the data and methodology published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual, Tenth Edition*, and the *Tenth Edition Supplement*.

The specific tenants for the project have not been selected. The ITE *Trip Generation Manual* provides several different land use types that may be applicable to the proposed warehouse component of the project. **Table 2** summarizes the trip generation rates for these potential uses. To present the most conservative results, this analysis assumes that the warehouse component of the project would be high-cube fulfillment center warehouse (sort), which is the highest trip generating use in the *Trip Generation Manual* that could occupy the warehouse component of the project.



Table 2: Automobile Trip Generation Rate Comparison

Land Use Type	ITE Land Use Code	Daily	Weekday AM Peak Hour ¹	Weekday PM Peak Hour ²
Warehousing	151	1.74	0.17	0.19
High-Cube Transload and Short-Term Storage Warehouse	154	1.40	0.08	0.10
High-Cube Fulfillment Center Warehouse (Non-Sort)	155	1.81	0.15	0.16
High-Cube Fulfillment Center Warehouse (Sort)	155	6.44	0.87	1.20
High-Cube Parcel Hub Warehouse	156	4.63	0.70	0.64

Notes.

1. Peak hour of adjacent street traffic one hour between 7:00 and 9:00 AM.

2. Peak hour of adjacent street traffic one hour between 4:00 and 6:00 PM.

Source: ITE Trip Generation (Tenth Edition Supplement), 2020.

According to the *ITE Trip Generation Tenth Edition Supplement*, the high-cube parcel hub warehouse land use would have the highest truck trip generation of the uses under consideration. To present a conservative estimate, this trip generation estimate applies the truck trip generation rates for the high-cube parcel hub warehouse to the warehouse and manufacturing components of the project. Since trucks are larger and operate slower than passenger vehicles, A passenger car equivalent (PCE) ratio of 2.0 is used to convert the truck trips to passenger vehicle trips (each truck is counted as two passenger vehicles).

Table 3 summarizes the trip generation for the project based on the ITE methodology.

Accounting for the PCE trips, it is estimated that the project would generate about 2,880 daily, and 396 AM and 478 PM peak hour net new trips.

Comparison with the 2005 Entitled Project

Table 4 compares the trip generation for the proposed project with the trips generated by the entitled retail project that was evaluated in the 2006 Supplement. Since retail uses generate minimal trips during the AM peak hour, the 2006 Supplement did not estimate the project trip generation for the AM peak hour or evaluate the project impacts on intersection operations during the AM peak hour.



Table 3: Project Automobile Trip Generation

Land Use	Size ¹	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Office ²	24.5 KSF	240	43	7	50	5	25	30
Warehouse ³	333.8 KSF	2,150	235	55	290	156	245	401
Manufacturing ⁴	36.8 KSF	280	18	5	23	8	17	25
<i>Total Trips</i>		2,670	296	67	363	169	287	456
Truck Traffic Adjustment ⁵		210	27	6	33	9	13	22
Total PCE Trips		2,880	323	73	396	178	300	478

Notes:

- KSF = 1,000 square feet.
- ITE Trip Generation (Tenth Edition) land use category 710 (General Office Building in General Urban/Suburban Setting):
 Daily: $T = 9.74 * X$
 AM Peak Hour: $T = 0.94 * X + 26.49$ (86% in, 14% out)
 PM Peak Hour: $Ln(T) = 0.95 * Ln(X) + 0.36$ (16% in, 84% out)
- ITE Trip Generation (Tenth Edition Supplement) land use category 155 (High-Cube Fulfillment Center Warehouse (Sort) in General Urban/Suburban Setting):
 Daily: $T = 6.44 * X$
 AM Peak Hour: $T = 0.87 * X$ (81% in, 19% out)
 PM Peak Hour: $T = 1.20 * X$ (39% in, 61% out)
- ITE Trip Generation (Tenth Edition) land use category 140 (Manufacturing in General Urban/Suburban Setting):
 Daily: $T = 3.16 * X + 160.04$
 AM Peak Hour: $T = 0.62 * X$ (77% in, 23% out)
 PM Peak Hour: $Ln(T) = 0.67 * X$ (31% in, 69% out)
- Based on ITE Trip Generation (Tenth Edition Supplement), land use category 156 (High-Cube Parcel Hub Warehouse in General Urban/Suburban Setting). Truck trip generation rates applied to the warehouse and manufacturing components of the project:
 Daily: $T = 0.58 * X$
 AM Peak Hour: $T = 0.09 * X$ (directional distribution not provided, assumed 81% in, 19% out)
 PM Peak Hour: $T = 0.06 * X$ (directional distribution not provided, assumed 39% in, 61% out)
 This trip generation estimate assumes a PCE of 2.0 for the truck trips.

Source: Fehr & Peers, 2021.



Table 4: Automobile Trip Generation Comparison

Land Use	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Proposed Industrial Project ¹	2,880	324	73	397	178	300	478
Entitled Retail Project	14,170 ²	N/A	N/A	N/A	398 ³	431 ³	829 ³
Difference	- 11,290	N/A	N/A	N/A	-220	-131	-351

Notes:

1. See Table 3 for details
2. Estimated daily trips for the entitled project on the currently proposed project site based on the total daily trips for the EIR project in *The Globe General Plan Amendment Draft EIR (2005), Appendix B*.
3. Estimated weekday PM peak hour trips for the entitled project on the currently proposed project site based on the total PM peak hour trips for the EIR project in *The Globe Supplement to EIR (December 2006)* and the *6000 Stevenson Boulevard Redevelopment-Supplement Traffic Letter Report (December 2006)*.

Source: Fehr & Peers, 2021.

As previously described in the Project Description section of this memorandum, it is estimated that the 2006 Supplement assumed approximately 295,000 square feet of shopping center on the currently proposed project site. Since the 2006 Supplement evaluated the impacts of a larger project that extended beyond the boundaries of the currently proposed project, the trip generation estimate in Table 4 compares the trip generation for the currently proposed project with the components of the entitled project within the current project boundary as evaluated in the 2006 Supplement. The daily and PM peak hour trips generated by the proposed industrial project are estimated to be about 20% and 58% of the trips generated by the entitled retail project, respectively. Since the currently proposed industrial project would generate fewer trips than the entitled retail project, it would add fewer trips to the intersections in the vicinity of the project and result in fewer and/or less severe impacts.

Since the proposed project would generate more than 100 peak hour trips, a more detailed traffic operations analysis is conducted for the project consistent with the City of Fremont guidelines, outside of the CEQA process. The next section of this memorandum summarizes the traffic operations analysis completed for the project.

Traffic Operations Analysis

This section presents the traffic operations analysis completed for the project. Consistent with OPR guidelines which prohibit the use of delay-based metrics in environmental documents, the traffic operations analysis is conducted outside of the CEQA process. This section starts by describing trip distribution and trip assignment for the project, describing the methodologies used to evaluate traffic operations, followed by selection of study intersections, summary of traffic operations under Existing and Existing Plus Project conditions, and summary of project effects on delay and level of service (LOS) at the study intersections, queuing at the signalized study



intersections, signal warrants at the unsignalized study intersections, and potential improvements at the study intersections.

Trip Distribution, Trip Assignment, and Study Intersection Selection

The trip distribution and assignment process estimates how the vehicle trips generated by the project site would distribute across the roadway network. **Figure 1** shows the trip distribution for the project site. The directions of approach and departure of project trips were based on the trip distribution documented in the 2005 *The Globe General Plan Amendment EIR*, modified to account for the project location, the existing travel patterns and street network serving the project site, and the location of the project driveways. Trips generated by the project were assigned to the roadway network according to the trip distribution described above. This analysis assumes all trucks would use the driveways on Encyclopedia Drive to access the site.

Figure 1 shows the resulting trip assignment at the study intersections for the AM and PM peak hours. Considering the expected traffic congestion and travel times, this analysis assumes that about 75% of the trips to and from the east would use Albrae Street, about 10% would use Main Street, and about 15% would use Encyclopedia Circle; all vehicles to and from the west would use Encyclopedia Circle.

This analysis evaluates the AM and PM peak hour intersection operations at the following six study intersections under Existing and Existing Plus Project conditions:

1. I-880 Northbound Ramps/Stevenson Boulevard
2. I-880 Southbound Ramps/Stevenson Boulevard
3. Albrae Street/Stevenson Boulevard
4. Main Street/Stevenson Boulevard (Unsignalized)
5. Encyclopedia Circle/Stevenson Boulevard (Unsignalized)
6. Albrae Street/Walmart Driveway/Project Driveway (Unsignalized)

These intersections were selected for analysis because the proposed project would add 50 or more peak hour trips, or they are most likely to be affected by the proposed project.

Analysis Methodology and Tools

Intersection operations are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Letter grades range from LOS A, with no congestion and little delay, to LOS F, which represents over-capacity conditions with excessive vehicle delay. The Transportation Research Board's *Highway Capacity Manual (HCM)* provides a methodology to calculate LOS at intersections based on average vehicle delay. **Appendix A** describes the various LOS and the corresponding ranges of delays for both signalized and unsignalized intersections based on HCM 2010 methodology. According to the City's TIA Handbook, the City of Fremont's goal for the



signalized intersections in the project vicinity is LOS D because they are located outside of the Town Centers.

The City of Fremont does not have any LOS goals for unsignalized intersections. Instead, the City requires an assessment of signal warrants at unsignalized intersections.

The intersection operations analysis also includes an assessment of queue length at signalized intersections, which is defined as the length of vehicles waiting to be cleared at the end of a red light. A vehicle is considered to be queued when it approaches within one car length of a stopped vehicle and is itself about to stop. This analysis reports the average and 95th percentile queue lengths² for the movements most affected by the project at the signalized study intersections.

The Synchro 10 Software is used to estimate delay and the corresponding LOS for the signalized and side-street stop-controlled study intersections, as well as queue lengths for the signalized intersections. Synchro uses the equations provided in the 2010 HCM to calculate control delay and queues. These equations use intersection characteristics, such as vehicle and pedestrian volumes, lane geometry, and signal phasings, as inputs in estimating control delay. At intersections that could not be evaluated using the 2010 HCM, the 2000 HCM is used.

Existing Traffic Volumes

Traffic patterns and travel behavior have shifted substantially in Fremont and throughout Bay Area because of the ongoing COVID-19 pandemic and associated shelter-in-place orders. As a result, traditional traffic counts collected under current conditions would not reflect typical traffic volumes prior to the start of the pandemic. Thus, this analysis uses a data-driven method for estimating the existing traffic volumes. While “Big Data” approaches for estimating vehicle volumes have been under development for several years, the recent shift in travel patterns related to the COVID-19 pandemic has accelerated refinements and applications of this methodology. This analysis uses data from StreetLight Data (a big data vendor of anonymous location records from GPS devices) to estimate the turning movement counts at the study intersections.

In early 2020, Fehr & Peers conducted an independent review of StreetLight Data volume estimates by comparing the volume estimates to historical count data. The review concluded that StreetLight volume estimates are a reasonable and acceptable source of data as a replacement for traditional traffic counts. Streetlight Data volume estimates are generally more robust than traditional traffic counts since they assess travel patterns across several months, rather than a single day.³ Streetlight Data volume estimates were downloaded for midweek days (Tuesdays,

² 95th percentile queue is defined as the queue length that has only a 5% probability of being exceeded during the analyzed peak hour.

³ For more information about the Streetlight data collection approach, including the Fehr & Peers white paper “A Transformative Data Collection Solution”, visit: <https://www.fehrandpeers.com/transformative-data-collection-solution/>



Wednesdays, and Thursdays) for the year 2019 (months of March, April, September, and October) and aggregated to averages for the six study intersections. **Appendix B** presents the detailed StreetLight volume data for the study intersections. **Figure 2** shows the existing AM and PM peak hour intersection vehicle volumes (8:00 to 9:00 AM and 5:00 to 6:00 PM), lane configurations, and signal controls at the study intersections.

Existing Plus Project Traffic Volumes

Figure 3 shows the Existing Plus Project traffic volumes, which consists of traffic volumes under Existing No Project conditions (Figure 2) plus traffic generated by the Project (Figure 1). This analysis assumes no other roadway modifications at the study intersections under the Existing Plus Project conditions.

Intersection LOS Analysis

Based on the volumes, intersection controls, and roadway configurations presented on Figures 2 and 3, and the observed signal timings at the signalized study intersections, Fehr & Peers calculated the AM and PM peak hour LOS at the study intersections using the methodologies presented above under Existing and Existing Plus Project conditions. **Table 5** summarizes the weekday AM and PM peak hour intersection LOS analysis results. **Appendix C** provides the detailed calculation worksheets.

According to the City's TIA Handbook, the LOS goal for signalized intersections outside of Town Centers is to maintain LOS D or better. As shown in Table 5, the three signalized study intersections would operate at LOS D or better during the AM and PM peak hours under both the Existing and Existing Plus Project conditions. Thus, the three signalized study intersections would be consistent with the City's LOS goal for signalized intersections outside of Town Centers.

The three unsignalized study intersections operate at an overall LOS A with the side-street stop-controlled approaches operating at LOS D or worse during the AM and PM peak hours under Existing conditions. Under Existing Plus Project conditions, the Main Street/Stevenson Boulevard intersection during both AM and PM peak hours and the Encyclopedia Circle/Stevenson Boulevard and the Albrae Street/Walmart Driveway/Project Driveway intersections during the AM peak hour would continue to operate at an overall LOS A, and the Encyclopedia Circle/Stevenson Boulevard and the Albrae Street/Walmart Driveway/Project Driveway intersections during the PM peak hour would operate at LOS C and LOS F, respectively. the side-street stop-controlled approach of the three unsignalized study intersections would operate at LOS F during one or both peak hours. The application of signal warrants to the three unsignalized study intersections are described in a subsequent subsection of this memorandum.



Table 5: Intersection LOS Summary

#	Intersection	Traffic Control	Peak Hour	Existing No Project		Existing Plus Project	
				Delay (Seconds) ¹	LOS ¹	Delay (Seconds) ¹	LOS ¹
1	I-880 Northbound Ramps/ Stevenson Boulevard	Signal	AM	8	A	8	A
			PM	15	B	16	B
2	I-880 Southbound Ramps/ Stevenson Boulevard	Signal	AM	10	A	12	B
			PM	15	B	15	B
3	Albrae Street/ Stevenson Boulevard ²	Signal	AM	20	C	23	C
			PM	33	C	41	D
4	Main Street/ Stevenson Boulevard	Side-Street Stop	AM	1 (40)	A (E)	1 (49)	A (E)
			PM	2 (97)	A (F)	4 (>120)	A (F)
5	Encyclopedia Circle/ Stevenson Boulevard	Side-Street Stop	AM	1 (25)	A (C)	2 (27)	A (D)
			PM	5 (51)	A (F)	15 (120)	C (F)
6	Albrae Street/Walmart Driveway/Project Driveway	Side-Street Stop	AM	2 (10)	A (A)	4 (67)	A (F)
			PM	7 (32)	A (D)	>120 (>120)	F (F)

Notes

1. Average intersection delay and LOS based on the 2010 HCM method, unless noted. Average delay is reported for signalized intersections. Average delay and delay for the movement or approach with the highest delay is reported for unsignalized intersections.
2. Average intersection delay and LOS based on the HCM 2000 method because the intersection cannot be evaluated in the 2010 HCM.

Source: Fehr & Peers, 2021.

Queuing Summary

Table 6 summarizes the average and 95th percentile queue lengths for the key movements at the study intersections under Existing and Existing Plus Project conditions. **Appendix E** provides the detailed queuing calculations.

The proposed project would increase the average and 95th percentile queue lengths at some of the movements at the study intersections. The average queue lengths would continue to be accommodated within the available storage lengths during both the AM and PM peak hours under Existing Plus Project conditions at all the reported locations. However, the 95th percentile queues would exceed the available storage lengths at the following movements at the Albrae Street/Stevenson Boulevard intersection:



Table 6: Queue Length Summary¹

#	Intersection	Movement ²	Storage Length (feet)	Peak Hour	Existing No Project		Existing Plus Project	
					Average (feet)	95th % (feet)	Average (feet)	95th % (feet)
1	I-880 Northbound Ramps/Stevenson Boulevard	NB Left	350	AM	50	110	70	140
				PM	50	80	60	90
2	I-880 Southbound Ramps/Stevenson Boulevard	SB Right	350	AM	70	120	110	160
				PM	70	100	90	130
3	Albrae Street/Stevenson Boulevard	EB Left	210	AM	10	20	10	30
				PM	30	70	40	70
		EB Thru	380	AM	80	160	100	170
				PM	260	310	280	360
		EB Right	210	AM	0	40	0	40
				PM	0	40	0	40
		WB Left	250	AM	180	220	240	350
				PM	140	220	200	310
		NB Left/Thru	310	AM	20	50	20	50
				PM	180	480	190	490
		NB Right	310	AM	0	20	0	20
				PM	130	290	200	470
		SB Left	280	AM	60	70	60	70
				PM	120	130	120	130
5	Encyclopedia Circle/Stevenson Boulevard	WB Left	200	AM	NA ³	20	NA ³	10
				PM	NA ³	0	NA ³	40

Notes:

Bold indicated queue length exceeding the available storage length

1. Average queue and 95th percentile queue lengths in feet as calculated by Synchro.
2. NB = northbound, SB = southbound, EB = eastbound, WB = westbound.
3. Synchro does not calculate average queue length for unsignalized intersections.

Source: Fehr & Peers, 2021.



- The westbound left-turn lanes during the AM and PM peak hours under Existing Plus Project conditions
- The northbound left/through lane during the PM peak hour under Existing and Existing Plus Project conditions
- The northbound right-turn lanes during the PM peak hour under Existing Plus Project conditions

Although the 95th percentile queues would exceed the available storage length at the locations listed above, the average queues would continue to be contained within the available storage area. In addition, the Albrae Street/Stevenson Boulevard intersection would operate at LOS D or better during the AM and PM peak hours, indicating that the queue exceedance would only occur occasionally during the peak hours and that the queues would generally clear at the end of most signal cycles.

Signal Warrants Analysis

Traffic signal warrants were developed by the Federal Highway Administration (FHWA) and are described in the *Manual of Uniform Traffic Control Devices* (MUTCD, 2009). These warrants correlate the need for a traffic signal at an intersection based on several factors including vehicular and pedestrian volumes, and the crash experience at the intersection. The MUTCD provides nine signal warrants, five of each are applicable to the three unsignalized study intersections. Satisfying one or more of these warrants could justify the installation of a signal at an intersection. However, satisfying one or more of these warrants does not require the installation of a traffic signal at the intersection.

Table 7 summarizes the application of the five warrants to the three unsignalized study intersections. **Appendix E** provides the detailed signal warrant worksheets. In addition, **Appendix F** summarizes five years of crash history at the study intersections, which is used to evaluate Warrant 7 (Crash Experience).

The application of the signal warrants at the three unsignalized intersections is discussed below:

- The Main Street/Stevenson Boulevard intersection would not meet any of the five signal warrants; therefore, installation of a traffic signal at this intersection is not recommended at this time.



Table 7: Signal Warrant Analysis Summary

Warrant ¹	Main Street/ Stevenson Boulevard Intersection	Encyclopedia Circle/ Stevenson Boulevard Intersection	Albrae Street/ Walmart Driveway/ Project Driveway Intersection
Warrant 1: 8-hour Volume	Not Met	Not Met	Met
Warrant 2: 4-Hour Volume	Not Met	Met	Met
Warrant 3: Peak hour Volume	Not Met	Met	Met
Warrant 4: Pedestrian Volume	Not Met	Not Met	Not Met
Warrant 7: Crash Experience	Not Met	Not Met	Not Met

Notes:

1. Based on application of the MUTCD signal warrants (2009 MUTD, Section 4C-01)

Source: Fehr & Peers, 2021.

- The Encyclopedia Circle/Stevenson Boulevard intersection would meet two of the five warrants regardless of the proposed project. It would meet Warrant 2 (4-hour volume) and Warrant 3 (peak-hour volume) primarily due to the traffic volume on the Encyclopedia Circle approach of the intersection turning onto Stevenson Boulevard during the afternoon and evening hours. It is expected that the intersection would meet the signal warrants with the entitled retail project as well. In addition, as shown in Table 5, the stop-controlled northbound Encyclopedia Circle approach at this intersection would operate at LOS F during the PM peak hour regardless of the proposed project.
- The Albrae Street/Walmart Driveway/Project Driveway intersection would meet three of the five warrants regardless of the proposed project. It would meet Warrant 1 (8-hour volume), Warrant 2 (4-hour volume), and Warrant 3 (peak-hour volume) primarily due to the traffic volume on the Walmart Driveway approach of the intersection turning right onto Albrae Street during the afternoon and evening hours. It is expected that the intersection would meet the signal warrants with the entitled retail project as well. As shown in Table 5, the stop-controlled westbound Walmart Driveway at this intersection would operate at LOS D during the PM peak hour under both Existing and Existing Plus Project conditions, and the stop-controlled eastbound Project Driveway would operate at LOS F under Existing Plus Project conditions.

Thus, the following are recommended:

Recommendation 1: Coordinate with City of Fremont to determine if a traffic signal should be installed at the Encyclopedia Circle/Stevenson Boulevard intersection. If the City of Fremont determines that a signal should be installed at the intersection, the project shall install the traffic signal at this intersection.



Recommendation 2: Coordinate with City of Fremont to determine if a traffic signal should be installed at the Albrae Street/Walmart Driveway/Project Driveway intersection. If the City of Fremont determines that a signal should be installed at the intersection, the project shall contribute its fair share to installing a traffic signal at this intersection. Since signalizing the intersection would increase the delay experienced by the vehicles turning into and out of the Walmart Driveway, alternatively, consider maintaining the intersection as side-street stop-controlled and prohibiting the left-turns out of the Project Driveway, at least during the peak congestion periods.

Table 8 summarizes the weekday AM and PM peak hour intersection LOS analysis for these two intersections under Existing Plus Project conditions with the installation of signals. Both intersections would operate at LOS D or better during both AM and PM peak hours after signalization, meeting the City’s LOS goal.

Table 8: Intersection LOS Summary with Improvements

#	Intersection	Peak Hour	Existing Plus Project			Existing Plus Project with Improvements		
			Traffic Control	Delay (Seconds)	LOS	Traffic Control	Delay (Seconds)	LOS
5	Encyclopedia Circle/ Stevenson Boulevard	AM	Side-Street Stop	2 (27)	A (D)	Signal	18	B
		PM	Side-Street Stop	15 (120)	C (F)		27	C
6	Albrae Street/ Walmart Driveway/ Project Driveway	AM	Side-Street Stop	4 (67)	A (F)	Signal	20	C
		PM	Side-Street Stop	> 120 (> 120)	F (F)		52	D

Notes

1. Average intersection delay and LOS based on the 2010 HCM method. Average delay is reported for signalized intersections. Average delay and delay for the movement or approach with the highest delay is reported for unsignalized intersections.

Source: Fehr & Peers, 2021.

Project Access and Circulation

This section summarizes an evaluation of access and circulation for all travel modes based on the project site plan dated November 15, 2021, which is provided in **Appendix G**.

Automobile Access and Circulation

Motor vehicles would access the project site through the following five access points:

- A new driveway on Albrae Street opposite the existing Walmart driveway. This driveway would be 26 feet wide and accommodate passenger vehicles only. Currently, this



segment of Albrae Street provides one motor vehicle lane and one bicycle lane in each direction and a center two-way left-turn lane. It is recommended that this segment be restriped to convert the center two-way left-turn lane to left-turn lanes on both southbound and northbound Albrae Street to serve the existing Walmart site and the proposed project site. As described in the previous section of this memorandum, this driveway may be signalized.

- The project would have access to the existing driveway on Albrae Street just north of the project site. This driveway would be shared with the adjacent shopping center and used primarily by passenger vehicles driving to and from Building 3.
- A new driveway in the northwest corner of the project site on Encyclopedia Circle, just south of the northeast bend in Encyclopedia Circle would be 40 feet wide and accommodate both passenger vehicles and trucks.
- A new driveway in the southwest corner of the project site on Encyclopedia Circle would be 40 feet wide and accommodate both passenger vehicles and trucks.
- A new driveway on the west side of the project site on Encyclopedia Circle midway between the two other driveways would be 26 feet wide and accommodate passenger vehicles only.
- The project would also have direct access on Main Street on the north side of the project site. The access point would have a center median and provide 13-foot lanes in each direction. The median would widen at the project site entry to only allow right-turn access at the site, which would limit through truck access between the site and Stevenson Boulevard on Main Street and minimize potential conflicts between trucks and passenger vehicles and pedestrians accessing the adjacent shopping center. It is also recommended that the northbound Main Street approach at Stevenson Boulevard be limited to right-turns only, at least during the peak congestion periods.

All six access locations would provide adequate sight distance between vehicles entering or exiting the site and pedestrians on the adjacent sidewalks and vehicles in both direction of the adjacent streets.

The project driveways would provide access to the 713 surface parking spaces provided throughout the site. All parking spaces would be perpendicular spaces along two-way drive aisles. The drive aisles that accommodate only passenger vehicles would be generally 26 feet wide, which is adequate space for two-way circulation and would accommodate passenger vehicles maneuvering into and out of the parking spaces. The drive aisles that would also accommodate trucks would be generally 40 feet wide which would provide adequate space for truck circulation as well as passenger vehicle access. Based on a review of the site plan, the project parking lot would provide adequate sight distance throughout the site.



Automobile Parking

The City of Fremont Municipal Code establishes minimum parking requirements for various uses. **Table 9** presents the off-street automobile parking requirements for the project per City Code. The 713 parking spaces provided by the project would meet the minimum 713 parking spaces required by the Code.

Table 9: Automobile Parking Requirements

Building and Use	Size ¹	Parking Rate ²	Minimum Required Parking	Provided Parking Supply	Meets Requirement?
Building 1					
Office	8.0 KSF	5 spaces per KSF	40		
Warehouse	182.5 KSF	1.25 spaces per KSF	228		
<i>Subtotal</i>	<i>190.5 KSF</i>		<i>268</i>		
Minimum Requirement	190.5 KSF	1.6 spaces per KSF	305	305	Yes
Building 2					
Office	6.5 KSF	5 spaces per KSF	33		
Warehouse	151.3 KSF	1.25 spaces per KSF	189		
<i>Subtotal</i>	<i>157.8 KSF</i>		<i>243</i>		
Minimum Requirement	157.8 KSF	1.6 spaces per KSF	253	253	Yes
Building 3					
Industrial	46.8 KSF	3.3 spaces per KSF	155	155	Yes
Total	395.1 KSF		713	713	Yes

Notes:

1. KSF = 1,000 square-feet
2. Per City of Fremont Municipal Code Section 18.183.030

Source: Fehr & Peers, 2021.

Truck Access and Circulation

Most trucks would not be able to enter or exit the site through the driveway on Albrae Street. Thus, trucks would access the site through the two driveways on Encyclopedia Circle. The recommended signal at the Encyclopedia Circle/Stevenson Boulevard intersection would assist trucks in making the turns between Stevenson Boulevard and Encyclopedia Circle..

The project would provide the following loading docks which would be accessed through the two truck driveways on Encyclopedia Circle:



- Building 1 would provide 38 loading docks on the west side of the building
- Building 2 would provide 38 loading docks on the east side of the building
- Building 3 would provide six loading docks on the southwest corner of the building

Bicycle Access and Circulation

Existing bicycle facilities in the vicinity of the project include:

- Class II buffered bicycle lanes on eastbound Stevenson Boulevard west of Cedar Boulevard, and Class II bicycle lanes on westbound Stevenson Street west of Balentine Drive
- Intermittent Class II bicycle lanes on Stevenson Boulevard east of Albrae Street
- Class II bicycle lanes on Balentine Drive north of Stevenson Boulevard
- Class II bicycle lanes on Albrae Street south of Stevenson Boulevard
- Class II bicycle lanes on Boyce Road and Cherry Street

The *City of Fremont's 2018 Bicycle Master Plan* proposes the following near the project site:

- Upgrade the existing Class II bicycles lanes on Boyce Road to Class IV separated bikeway

Considering the uses at the site, the project is expected to generate minimal bicycle trips. Most cyclists are expected to use Stevenson Boulevard and Albrae Street to access the site.

Bicycle Parking

Per City of Fremont Municipal Code Section 18.183.135, the project is required to provide the following bicycle parking:

- Long-term bicycle parking = 1, plus 5% of required automobile parking for tenants or occupants
- Short-term bicycle parking = 4, plus 5% of required automobile parking for visitors

Where long-term bicycle parking is defined as bicycle lockers, indoor bicycle storage, or similar facilities protected from the weather and with a higher degree of security designed to serve primarily employees who leave their bikes for longer periods of times, and short-term bicycle parking is defined as bicycle racks designed to serve visitors who leave their bikes for relatively short periods of time.

The project will provide on-site bicycle parking as required by the Code. Considering the automobile parking requirements for the project, each project building is required to provide the following bicycle parking spaces:

- Building 1: 17 long-term and 20 short-term bicycle parking spaces
- Building 2: 14 long-term and 17 short-term bicycle parking spaces



- Building 3: 9 long-term and 12 short-term bicycle parking spaces

Pedestrian Access and Circulation

In the vicinity of the project, most streets provide a sidewalk on at least one side of the street. The existing sidewalks adjacent to the project site are described below:

- Albrae Street currently provide a nine-foot sidewalk north of the project site on the west side of the street. Adjacent to the project side, intermittent sidewalks with a landscaping strip are currently provided. It is recommended that the project provide a continuous five-foot sidewalk with four feet of landscaping along the project frontage on Albrae Street.
- Encyclopedia Circle provides a 4.5-foot sidewalk on the east side of the street along the north portion of the project frontage and no sidewalk along the south portion of the project frontage. It is recommended that the project provide a continuous five-foot sidewalk along the project frontage on Encyclopedia Circle.
- Main Street provides intermittent eight-foot sidewalks on both sides of the street that connect the site to Stevenson Boulevard.

The signalized Albrae Street/Stevenson Boulevard intersection provides marked crosswalks, pedestrian signal heads with pushbuttons, and one curb ramp per corner on all approaches, except the east approach of the intersection. The unsignalized study intersections on Stevenson Boulevard at Main Street and Encyclopedia do not provide marked crosswalks across Stevenson Boulevard, or the side streets.

The project site would provide sidewalks within the project site adjacent to all three buildings, which can be used to walk between the project buildings, parking facilities within the site, and the sidewalks on the adjacent streets.

Transit Access

As of September 2021, no bus service is provided on the streets adjacent to the project site. The nearest bus stops to the project are on both directions of Stevenson Boulevard just west of Main Street. The bus stop is served by AC Transit Line 216 which provides service to various destinations in Fremont, Newark, and Union City, including the Fremont and Union City BART Stations. No amenities are provided at these bus stops. Access between the bus stop on eastbound Stevenson Boulevard and the project site is provided by walking along the sidewalks on Main Street or Albrae Street. Access between the bus stop on westbound Stevenson Boulevard and the project site is provided by walking along Albrae Street and crossing Stevenson Boulevard at the signalized Albrae Street/ Stevenson Boulevard intersection.



Access and Circulation Summary and Recommendations

The project would provide access and circulation for passenger automobiles, trucks, bicycles, and pedestrians in and around the site. The following are recommended to improve access and circulation for all modes:

- Coordinate with the City of Fremont to restripe Albrae Street to replace the existing two-way left-turn lane along the project frontage with left-turn lanes on southbound and northbound Albrae Street into the existing Walmart driveway and the proposed main project driveway
- Limit northbound Main Street at Stevenson Boulevard to right-turns only, at least during the peak congestion periods, and prohibit through trucks on Main Street
- Provide long-term and short-term bicycle parking as required by the City of Fremont Municipal Code for each project building
- Provide a continuous sidewalk along the project frontage on Albrae Street
- Provide a continuous sidewalk along the project frontage on Encyclopedia Circle

Please contact Sam (stabibnia@fehrandpeers.com, 510-835-1943) with questions or comments.

Attachments:

Figure 1 – Project Trip Assignment and Distribution

Figure 2 – Existing Peak Hour Traffic Volumes, Lane Configurations, and Traffic Controls

Figure 3 – Existing Plus Project Peak Hour Traffic Volumes, Lane Configurations, and Traffic Controls

Appendix A – LOS Evaluation Criteria

Appendix B – Streetlight Intersection Volumes

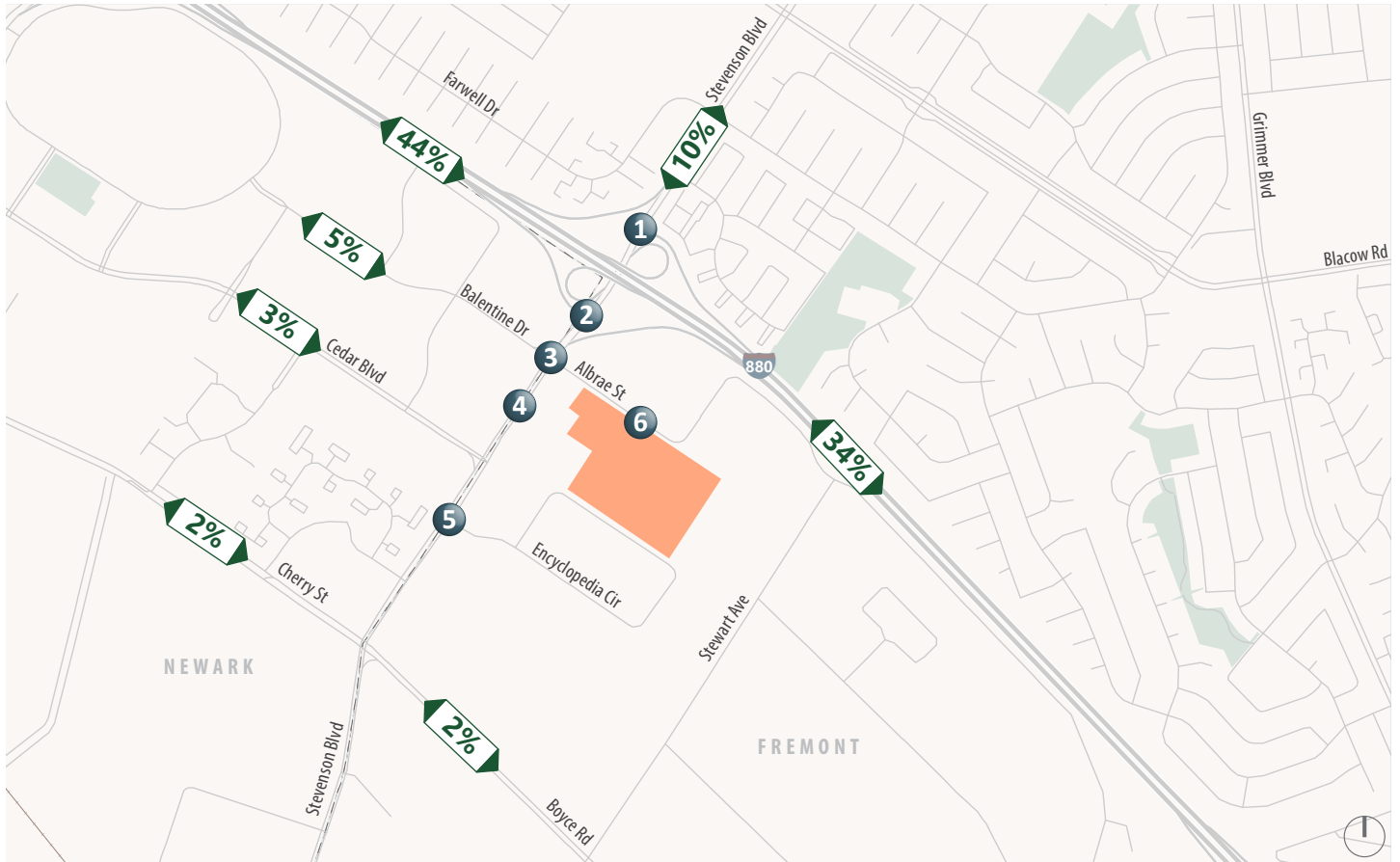
Appendix C – Intersection LOS worksheets

Appendix D – Intersection Queuing worksheets

Appendix E – Signal Warrant worksheets

Appendix F – Collision Summaries

Appendix G – Project Site Plan



1. I-880 NB/Stevenson Blvd	2. I-880 SB/Stevenson Blvd	3. Albrae St/Stevenson Blvd
4. Main St/Stevenson Blvd	5. Encyclopedia Cir/Stevenson Blvd	6. Albrae St/Project Dwy/Walmart Dwy

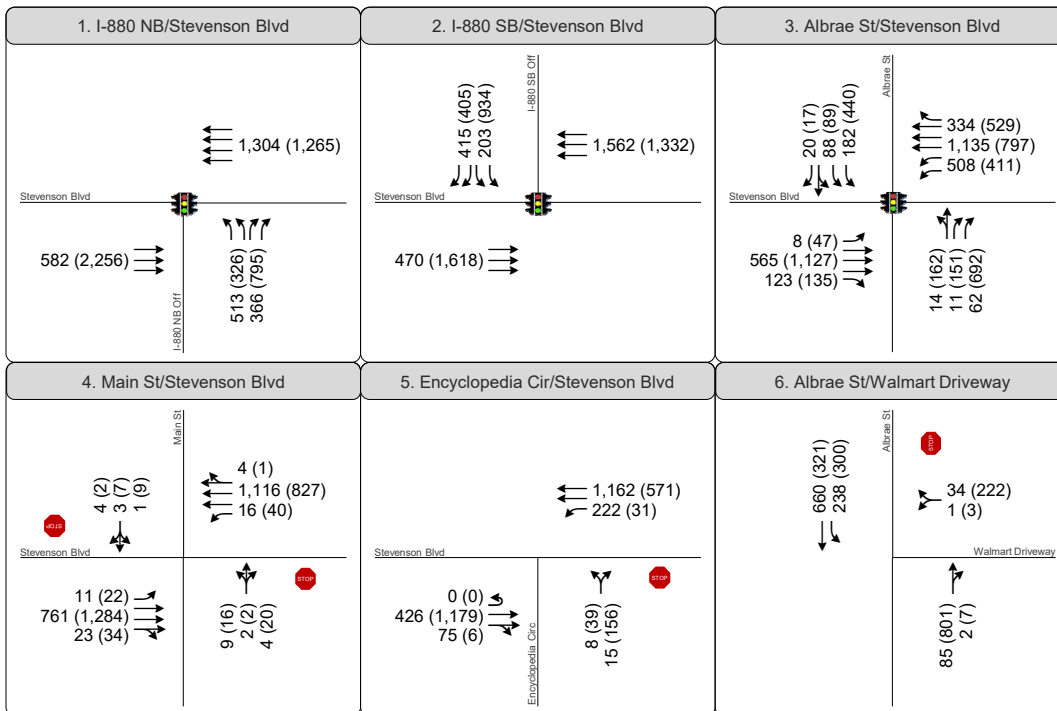
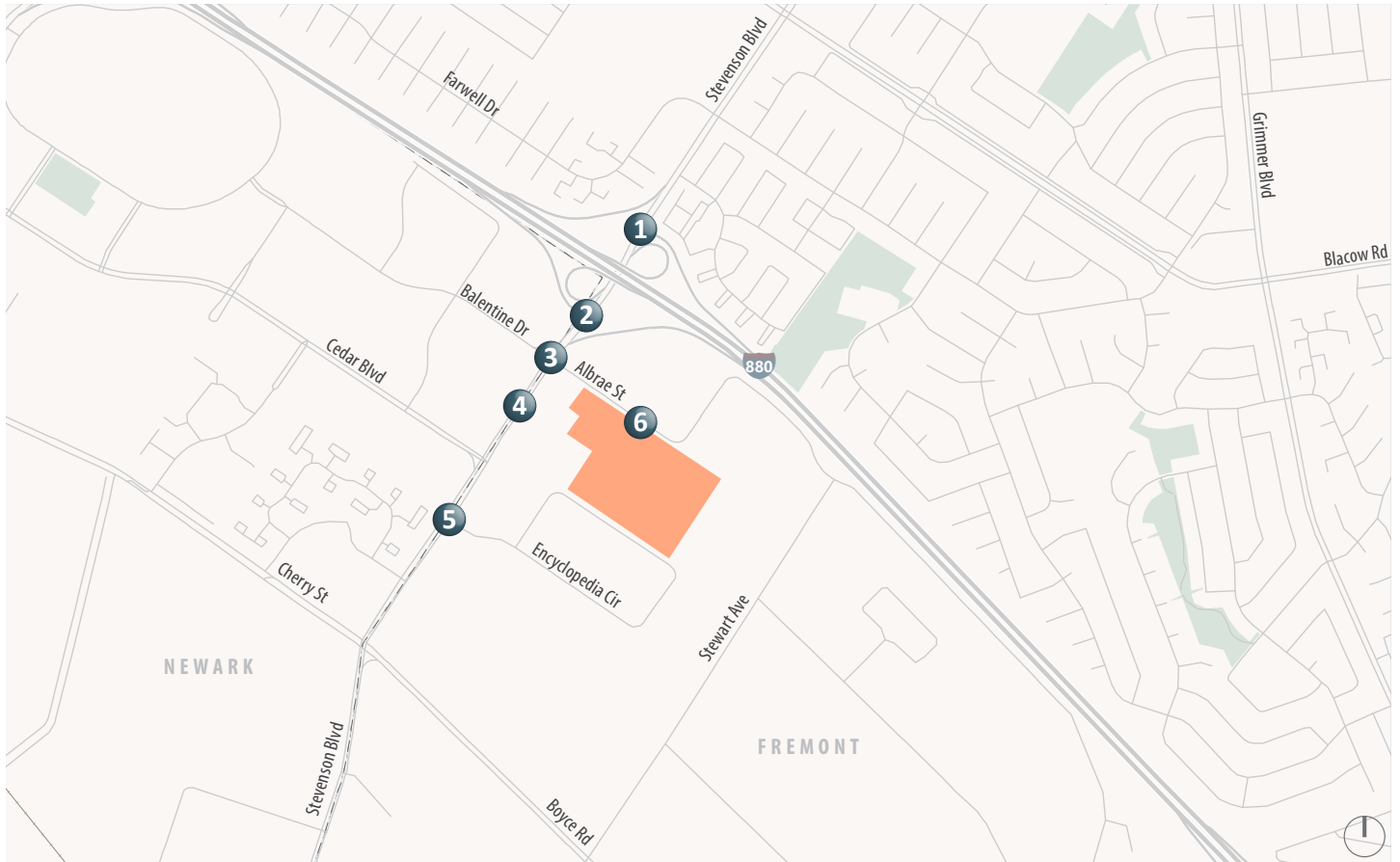
XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign

Project Site Study Intersection Project Trip Distribution



Figure 1

Project Trip Assignment and Distribution

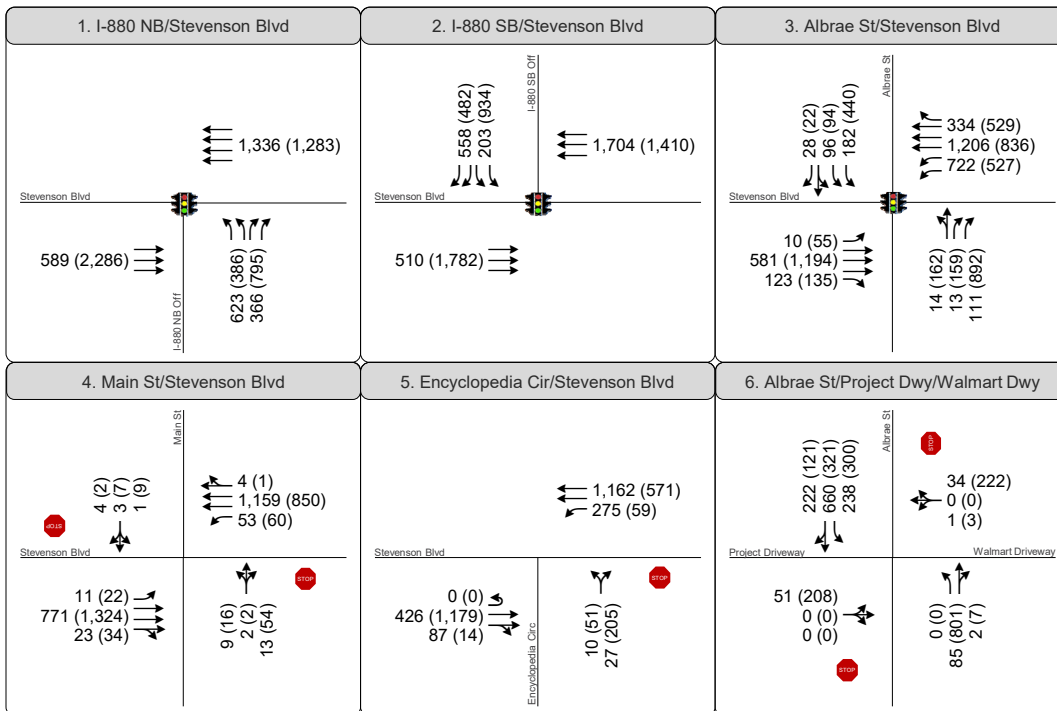
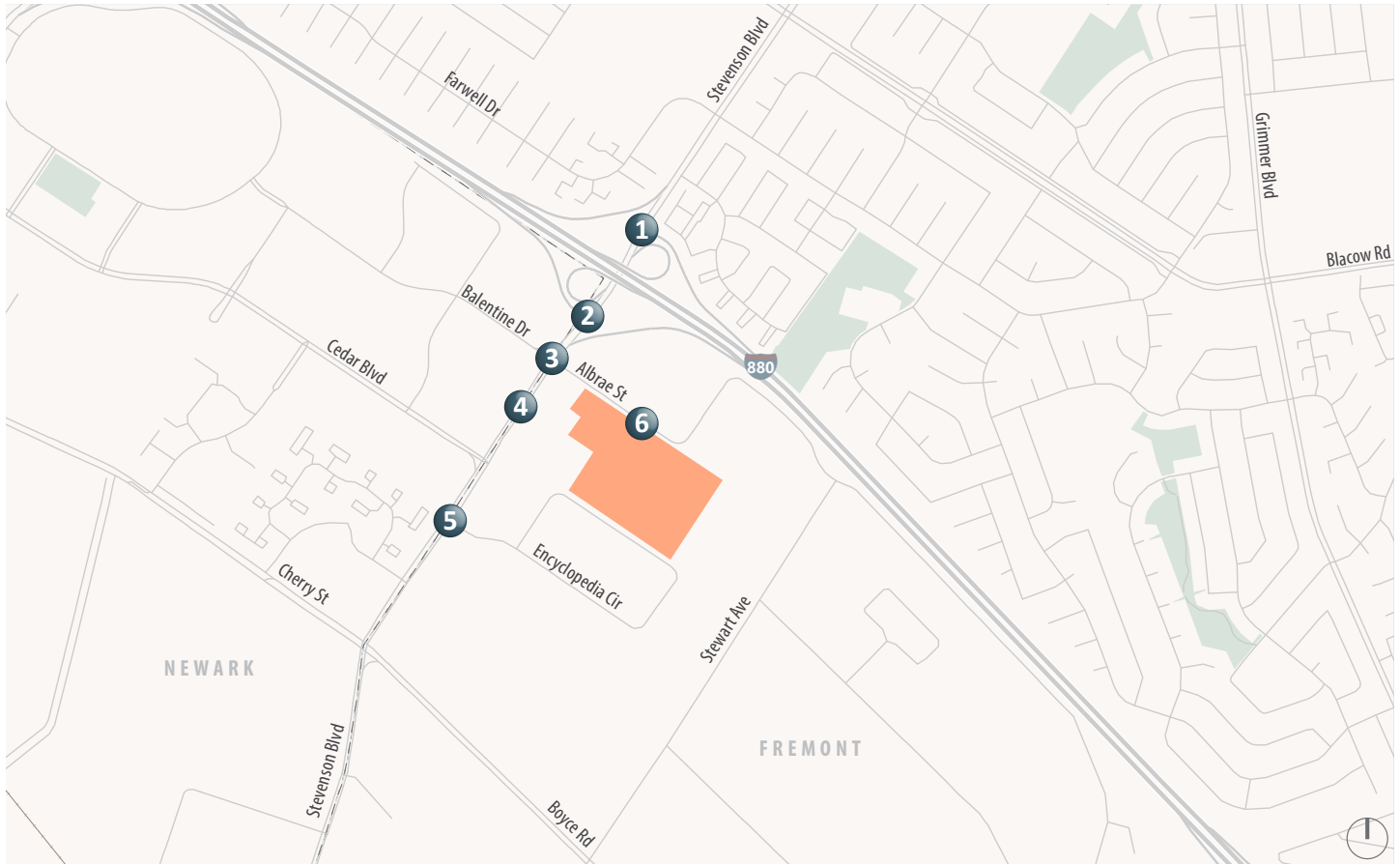


XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign

Project Site Study Intersection



Figure 2
Existing Conditions Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls



XX (YY) AM (PM) Peak Hour Traffic Volumes Signalized Intersection Stop Sign

Project Site Study Intersection



Figure 3

Existing with Project Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

Appendix A:
LOS Evaluation Criteria





Appendix A – Intersection Level of Service Analysis Criteria

Intersection operations are evaluated using the methods provided in the 2010 Highway Capacity Manual (HCM). These methods use intersection characteristics to estimate average control delay and then assigns a Level of Service (LOS) value. Control delay is defined as the delay associated with deceleration, stopping, moving up in the queue, and acceleration experienced by drivers at a signalized intersection. **Tables A-1** and **A-2** describe the various LOS and the corresponding ranges of delays for signalized and unsignalized intersections.

TABLE A-1: SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service Grade	Average Control Vehicle Delay (Seconds)	Description
A	≤ 10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
B	> 10.0 and ≤ 20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
C	> 20.0 and ≤ 35.0	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/ or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
D	> 35.0 and ≤ 55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
E	> 55.0 and ≤ 80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
F	> 80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

Source: Highway Capacity Manual, Transportation Research Board, 2010.



TABLE A-2: UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service Grade	Average Control Vehicle Delay (Seconds)	Description
A	≤ 10.0	Little or No Delays
B	> 10.0 and 15.0	Short Traffic Delays
C	> 15.0 and 25.0	Average Traffic Delays
D	> 25.0 and 35.0	Long Traffic Delays
E	> 35.0 and 50.0	Very Long Traffic Delays
F	> 50.0	Extreme Traffic Delays with Intersection Capacity Exceeded

Source: Highway Capacity Manual, Transportation Research Board, 2010.

Appendix B:
Streetlight Intersection Volumes



Day Type

1: Weekday (Tu-Th)

TURNING MOVEMENT COUNTS

Day Part	W Leg			E Leg			S Leg			N Leg			Total
	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			I-880 WB Off-Ramp - S Leg			O			
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	
00: All Day (12am-12am)	1	16,932	2,492	7	16,494	10,066	5,831	1	8,830	-	-	-	60,655
01: 12am (12am-1am)	-	146	27	-	70	57	33	-	71	-	-	-	403
02: 1am (1am-2am)	-	59	12	-	24	35	26	-	26	-	-	-	182
03: 2am (2am-3am)	-	53	10	-	20	31	39	-	35	-	-	-	189
04: 3am (3am-4am)	-	56	11	-	25	74	20	-	11	-	-	-	196
05: 4am (4am-5am)	-	51	15	-	187	184	28	-	18	-	-	-	483
06: 5am (5am-6am)	-	111	35	-	420	229	89	-	61	-	-	-	945
07: 6am (6am-7am)	-	241	67	1	693	758	219	-	151	-	-	-	2,130
08: 7am (7am-8am)	-	435	90	1	1,249	908	383	-	277	-	-	-	3,344
09: 8am (8am-9am)	-	439	91	-	1,304	946	513	-	366	-	-	-	3,659
10: 9am (9am-10am)	-	489	95	1	1,097	779	439	-	240	-	-	-	3,140
11: 10am (10am-11am)	-	576	110	-	884	590	347	-	322	-	-	-	2,828
12: 11am (11am-12noon)	-	668	142	-	962	471	373	-	344	-	-	-	2,959
13: 12pm (12noon-1pm)	-	834	177	1	953	506	464	-	463	-	-	-	3,399
14: 1pm (1pm-2pm)	1	933	203	1	997	460	438	-	512	-	-	-	3,544
15: 2pm (2pm-3pm)	-	1,505	180	-	910	515	330	-	660	-	-	-	4,100
16: 3pm (3pm-4pm)	-	1,448	160	1	1,054	424	284	-	596	-	-	-	3,968
17: 4pm (4pm-5pm)	-	1,669	140	-	1,040	369	293	-	760	-	-	-	4,270
18: 5pm (5pm-6pm)	1	1,769	232	1	1,265	467	326	-	795	-	-	-	4,857
19: 6pm (6pm-7pm)	-	1,670	225	1	1,137	465	303	-	759	-	-	-	4,560
20: 7pm (7pm-8pm)	-	1,332	163	1	900	511	312	-	715	-	-	-	3,935
21: 8pm (8pm-9pm)	-	1,033	127	-	575	479	243	1	643	-	-	-	3,101
22: 9pm (9pm-10pm)	-	695	118	-	365	333	178	-	467	-	-	-	2,157
23: 10pm (10pm-11pm)	-	383	54	-	212	240	89	-	308	-	-	-	1,286
24: 11pm (11pm-12am)	-	236	32	-	103	127	56	-	203	-	-	-	757

TURNING MOVEMENT PERCENTAGE

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			I-880 WB Off-Ramp - S Leg			O		
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right
	00: All Day (12am-12am)	0%	87%	13%	0%	62%	38%	40%	0%	60%	-	-
01: 12am (12am-1am)	0%	84%	16%	0%	55%	45%	32%	0%	68%	-	-	-
02: 1am (1am-2am)	0%	82%	18%	0%	41%	59%	50%	0%	50%	-	-	-
03: 2am (2am-3am)	0%	84%	16%	0%	39%	61%	53%	0%	47%	-	-	-
04: 3am (3am-4am)	0%	83%	17%	0%	25%	75%	64%	0%	36%	-	-	-
05: 4am (4am-5am)	0%	77%	23%	0%	50%	50%	61%	0%	39%	-	-	-
06: 5am (5am-6am)	0%	76%	24%	0%	65%	35%	59%	0%	41%	-	-	-
07: 6am (6am-7am)	0%	78%	22%	0%	48%	52%	59%	0%	41%	-	-	-
08: 7am (7am-8am)	0%	83%	17%	0%	58%	42%	58%	0%	42%	-	-	-
09: 8am (8am-9am)	0%	83%	17%	0%	58%	42%	58%	0%	42%	-	-	-
10: 9am (9am-10am)	0%	84%	16%	0%	58%	42%	65%	0%	35%	-	-	-
11: 10am (10am-11am)	0%	84%	16%	0%	60%	40%	52%	0%	48%	-	-	-
12: 11am (11am-12noon)	0%	82%	18%	0%	67%	33%	52%	0%	48%	-	-	-
13: 12pm (12noon-1pm)	0%	82%	18%	0%	65%	35%	50%	0%	50%	-	-	-
14: 1pm (1pm-2pm)	0%	82%	18%	0%	68%	32%	46%	0%	54%	-	-	-
15: 2pm (2pm-3pm)	0%	89%	11%	0%	64%	36%	33%	0%	67%	-	-	-
16: 3pm (3pm-4pm)	0%	90%	10%	0%	71%	29%	32%	0%	68%	-	-	-
17: 4pm (4pm-5pm)	0%	92%	8%	0%	74%	26%	28%	0%	72%	-	-	-
18: 5pm (5pm-6pm)	0%	88%	12%	0%	73%	27%	29%	0%	71%	-	-	-
19: 6pm (6pm-7pm)	0%	88%	12%	0%	71%	29%	29%	0%	71%	-	-	-
20: 7pm (7pm-8pm)	0%	89%	11%	0%	64%	36%	30%	0%	70%	-	-	-
21: 8pm (8pm-9pm)	0%	89%	11%	0%	55%	45%	27%	0%	73%	-	-	-
22: 9pm (9pm-10pm)	0%	86%	14%	0%	52%	48%	28%	0%	72%	-	-	-
23: 10pm (10pm-11pm)	0%	88%	12%	0%	47%	53%	22%	0%	78%	-	-	-
24: 11pm (11pm-12am)	0%	88%	12%	0%	45%	55%	22%	0%	78%	-	-	-

Day Type

1: Weekday (Tu-Th)

TURNING MOVEMENT COUNTS

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			0			D EB to Stevenson Blvd Offramp - N			Total
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	
00: All Day (12am-12am)	-	14,666	7,476	-	15,798	3,491	-	-	-	10,107	2	6,581	58,121
01: 12am (12am-1am)	-	111	68	-	84	11	-	-	-	110	-	45	429
02: 1am (1am-2am)	-	38	39	-	33	6	-	-	-	55	-	56	227
03: 2am (2am-3am)	-	64	17	-	51	3	-	-	-	29	-	62	227
04: 3am (3am-4am)	-	54	14	-	31	7	-	-	-	34	-	57	196
05: 4am (4am-5am)	-	60	35	-	117	54	-	-	-	46	-	162	473
06: 5am (5am-6am)	-	110	88	-	302	111	-	-	-	79	-	290	981
07: 6am (6am-7am)	-	269	260	-	513	194	-	-	-	148	-	281	1,664
08: 7am (7am-8am)	-	485	423	-	1,197	264	-	-	-	212	-	247	2,829
09: 8am (8am-9am)	-	470	478	-	1,402	255	-	-	-	203	-	415	3,222
10: 9am (9am-10am)	-	504	405	-	1,239	202	-	-	-	270	-	425	3,045
11: 10am (10am-11am)	-	537	348	-	837	209	-	-	-	361	-	386	2,679
12: 11am (11am-12noon)	-	608	452	-	871	234	-	-	-	418	1	403	2,986
13: 12pm (12noon-1pm)	-	860	437	-	1,003	230	-	-	-	430	1	457	3,418
14: 1pm (1pm-2pm)	-	853	505	-	1,002	221	-	-	-	607	-	436	3,624
15: 2pm (2pm-3pm)	-	1,186	470	-	823	208	-	-	-	961	-	419	4,068
16: 3pm (3pm-4pm)	-	1,235	480	-	924	203	-	-	-	847	-	318	4,008
17: 4pm (4pm-5pm)	-	1,321	530	-	963	189	-	-	-	913	-	349	4,265
18: 5pm (5pm-6pm)	-	1,618	605	-	1,145	223	-	-	-	934	-	405	4,929
19: 6pm (6pm-7pm)	-	1,408	512	-	1,090	165	-	-	-	1,003	-	421	4,597
20: 7pm (7pm-8pm)	-	1,051	402	-	886	161	-	-	-	836	-	337	3,672
21: 8pm (8pm-9pm)	-	781	371	-	549	139	-	-	-	670	-	224	2,735
22: 9pm (9pm-10pm)	-	558	276	-	375	82	-	-	-	461	-	176	1,929
23: 10pm (10pm-11pm)	-	268	171	-	188	63	-	-	-	303	-	95	1,087
24: 11pm (11pm-12am)	-	153	88	-	93	38	-	-	-	208	1	59	638

TURNING MOVEMENT PERCENTAGE

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			0			D EB to Stevenson Blvd Offramp - N		
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right
00: All Day (12am-12am)	0%	66%	34%	0%	82%	18%	-	-	-	61%	0%	39%
01: 12am (12am-1am)	0%	62%	38%	0%	88%	12%	-	-	-	71%	0%	29%
02: 1am (1am-2am)	0%	49%	51%	0%	86%	14%	-	-	-	49%	0%	51%
03: 2am (2am-3am)	0%	79%	21%	0%	94%	6%	-	-	-	32%	0%	68%
04: 3am (3am-4am)	0%	80%	20%	0%	82%	18%	-	-	-	37%	0%	63%
05: 4am (4am-5am)	0%	63%	37%	0%	68%	32%	-	-	-	22%	0%	78%
06: 5am (5am-6am)	0%	56%	44%	0%	73%	27%	-	-	-	21%	0%	79%
07: 6am (6am-7am)	0%	51%	49%	0%	73%	27%	-	-	-	34%	0%	66%
08: 7am (7am-8am)	0%	53%	47%	0%	82%	18%	-	-	-	46%	0%	54%
09: 8am (8am-9am)	0%	50%	50%	0%	85%	15%	-	-	-	33%	0%	67%
10: 9am (9am-10am)	0%	55%	45%	0%	86%	14%	-	-	-	39%	0%	61%
11: 10am (10am-11am)	0%	61%	39%	0%	80%	20%	-	-	-	48%	0%	52%
12: 11am (11am-12noon)	0%	57%	43%	0%	79%	21%	-	-	-	51%	0%	49%
13: 12pm (12noon-1pm)	0%	66%	34%	0%	81%	19%	-	-	-	48%	0%	52%
14: 1pm (1pm-2pm)	0%	63%	37%	0%	82%	18%	-	-	-	58%	0%	42%
15: 2pm (2pm-3pm)	0%	72%	28%	0%	80%	20%	-	-	-	70%	0%	30%
16: 3pm (3pm-4pm)	0%	72%	28%	0%	82%	18%	-	-	-	73%	0%	27%
17: 4pm (4pm-5pm)	0%	71%	29%	0%	84%	16%	-	-	-	72%	0%	28%
18: 5pm (5pm-6pm)	0%	73%	27%	0%	84%	16%	-	-	-	70%	0%	30%
19: 6pm (6pm-7pm)	0%	73%	27%	0%	87%	13%	-	-	-	70%	0%	30%
20: 7pm (7pm-8pm)	0%	72%	28%	0%	85%	15%	-	-	-	71%	0%	29%
21: 8pm (8pm-9pm)	0%	68%	32%	0%	80%	20%	-	-	-	75%	0%	25%
22: 9pm (9pm-10pm)	0%	67%	33%	0%	82%	18%	-	-	-	72%	0%	28%
23: 10pm (10pm-11pm)	0%	61%	39%	0%	75%	25%	-	-	-	76%	0%	24%
24: 11pm (11pm-12am)	0%	64%	36%	0%	71%	29%	-	-	-	78%	0%	22%

Day Type

1: Weekday (Tu-Th)

TURNING MOVEMENT COUNTS

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			Albrae St - S Leg			Balentine Dr - N Leg			Total
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	
00: All Day (12am-12am)	348	11,431	1,770	5,881	10,678	5,484	1,287	1,134	5,241	4,789	1,254	268	49,564
01: 12am (12am-1am)	-	135	2	23	79	23	5	2	19	27	2	1	317
02: 1am (1am-2am)	-	57	-	46	41	6	1	5	10	6	2	1	175
03: 2am (2am-3am)	1	62	3	51	50	12	5	1	13	9	3	-	211
04: 3am (3am-4am)	1	44	4	47	28	13	21	-	18	7	1	-	183
05: 4am (4am-5am)	-	54	6	77	159	34	3	2	18	17	4	1	377
06: 5am (5am-6am)	2	105	20	162	325	51	11	10	24	55	13	2	780
07: 6am (6am-7am)	4	310	55	210	492	60	16	7	61	102	32	1	1,350
08: 7am (7am-8am)	8	565	123	376	823	234	14	11	62	182	88	20	2,505
09: 8am (8am-9am)	8	549	218	500	997	310	23	16	84	187	102	22	3,016
10: 9am (9am-10am)	13	469	143	424	874	361	37	22	153	198	93	14	2,802
11: 10am (10am-11am)	14	495	86	344	517	357	46	39	155	170	45	12	2,279
12: 11am (11am-12noon)	26	562	111	333	548	358	59	67	206	220	69	18	2,579
13: 12pm (12noon-1pm)	37	705	128	384	668	393	108	87	262	283	94	34	3,183
14: 1pm (1pm-2pm)	27	592	96	345	687	381	71	108	351	363	98	23	3,142
15: 2pm (2pm-3pm)	21	845	99	317	586	311	86	81	469	345	85	21	3,266
16: 3pm (3pm-4pm)	24	954	89	351	573	321	92	97	476	312	78	15	3,381
17: 4pm (4pm-5pm)	31	1,025	112	353	540	426	123	113	508	327	90	14	3,663
18: 5pm (5pm-6pm)	47	1,127	135	360	693	456	162	151	692	440	89	17	4,368
19: 6pm (6pm-7pm)	31	923	123	415	609	487	155	123	545	446	74	15	3,945
20: 7pm (7pm-8pm)	26	686	107	308	497	421	110	88	395	349	78	16	3,081
21: 8pm (8pm-9pm)	14	440	73	217	329	217	78	57	345	350	58	10	2,189
22: 9pm (9pm-10pm)	7	347	30	149	265	133	53	35	223	236	39	9	1,525
23: 10pm (10pm-11pm)	4	217	10	60	140	77	11	8	106	100	11	1	745
24: 11pm (11pm-12am)	2	140	2	31	78	36	16	8	39	46	6	1	404

TURNING MOVEMENT PERCENTAGE

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			Albrae St - S Leg			Balentine Dr - N Leg		
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right
00: All Day (12am-12am)	3%	84%	13%	27%	48%	25%	17%	15%	68%	76%	20%	4%
01: 12am (12am-1am)	0%	99%	1%	19%	63%	18%	19%	7%	74%	92%	7%	2%
02: 1am (1am-2am)	0%	100%	0%	49%	44%	7%	6%	31%	62%	70%	24%	6%
03: 2am (2am-3am)	2%	94%	5%	45%	44%	11%	28%	5%	67%	73%	27%	0%
04: 3am (3am-4am)	1%	91%	8%	53%	32%	15%	54%	0%	46%	88%	13%	0%
05: 4am (4am-5am)	0%	90%	10%	29%	59%	13%	13%	10%	76%	77%	18%	5%
06: 5am (5am-6am)	2%	83%	15%	30%	60%	10%	24%	22%	54%	79%	19%	3%
07: 6am (6am-7am)	1%	84%	15%	28%	65%	8%	19%	8%	73%	76%	24%	1%
08: 7am (7am-8am)	1%	81%	18%	26%	57%	16%	16%	13%	71%	63%	30%	7%
09: 8am (8am-9am)	1%	71%	28%	28%	55%	17%	19%	13%	68%	60%	33%	7%
10: 9am (9am-10am)	2%	75%	23%	26%	53%	22%	18%	10%	72%	65%	30%	5%
11: 10am (10am-11am)	2%	83%	15%	28%	42%	29%	19%	16%	65%	75%	20%	5%
12: 11am (11am-12noon)	4%	80%	16%	27%	44%	29%	18%	20%	62%	72%	22%	6%
13: 12pm (12noon-1pm)	4%	81%	15%	27%	46%	27%	24%	19%	57%	69%	23%	8%
14: 1pm (1pm-2pm)	4%	83%	13%	24%	49%	27%	13%	20%	66%	75%	20%	5%
15: 2pm (2pm-3pm)	2%	88%	10%	26%	48%	26%	14%	13%	74%	77%	19%	5%
16: 3pm (3pm-4pm)	2%	89%	8%	28%	46%	26%	14%	15%	72%	77%	19%	4%
17: 4pm (4pm-5pm)	3%	88%	10%	27%	41%	32%	17%	15%	68%	76%	21%	3%
18: 5pm (5pm-6pm)	4%	86%	10%	24%	46%	30%	16%	15%	69%	81%	16%	3%
19: 6pm (6pm-7pm)	3%	86%	11%	27%	40%	32%	19%	15%	66%	83%	14%	3%
20: 7pm (7pm-8pm)	3%	84%	13%	25%	41%	34%	18%	15%	67%	79%	18%	4%
21: 8pm (8pm-9pm)	3%	84%	14%	28%	43%	28%	16%	12%	72%	84%	14%	2%
22: 9pm (9pm-10pm)	2%	90%	8%	27%	48%	24%	17%	11%	72%	83%	14%	3%
23: 10pm (10pm-11pm)	2%	94%	4%	22%	50%	28%	9%	6%	85%	90%	10%	1%
24: 11pm (11pm-12am)	1%	97%	1%	21%	54%	25%	25%	13%	62%	87%	11%	2%

Day Type

1: Weekday (Tu-Th)

TURNING MOVEMENT COUNTS

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			Main St - S Leg			Driveway - N Leg			Total
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	
00: All Day (12am-12am)	290	13,294	334	561	12,056	118	148	106	208	82	87	58	27,340
01: 12am (12am-1am)	-	134	-	3	83	-	1	3	3	-	1	-	229
02: 1am (1am-2am)	-	54	-	-	43	-	-	-	2	-	2	-	101
03: 2am (2am-3am)	3	64	-	1	49	17	-	-	-	-	1	-	135
04: 3am (3am-4am)	-	42	-	1	46	-	4	-	-	-	2	-	95
05: 4am (4am-5am)	-	51	-	3	159	22	-	2	1	6	-	1	246
06: 5am (5am-6am)	15	109	-	2	336	34	-	-	2	3	-	3	504
07: 6am (6am-7am)	10	356	11	8	526	2	1	5	2	5	6	2	935
08: 7am (7am-8am)	17	694	16	17	888	2	3	3	1	1	1	5	1,646
09: 8am (8am-9am)	11	761	23	16	1,116	4	9	2	4	1	3	4	1,953
10: 9am (9am-10am)	9	616	16	19	951	3	6	-	2	5	4	3	1,634
11: 10am (10am-11am)	10	594	12	18	581	5	5	6	6	4	5	4	1,251
12: 11am (11am-12noon)	30	714	38	56	597	5	7	5	7	1	3	1	1,464
13: 12pm (12noon-1pm)	31	835	25	79	762	-	8	7	17	3	6	2	1,775
14: 1pm (1pm-2pm)	23	666	21	37	792	4	15	12	22	6	-	12	1,609
15: 2pm (2pm-3pm)	22	947	22	17	687	4	7	8	17	7	11	-	1,747
16: 3pm (3pm-4pm)	19	1,069	14	20	672	7	10	11	19	1	1	3	1,846
17: 4pm (4pm-5pm)	24	1,184	14	27	617	6	9	9	12	8	2	1	1,913
18: 5pm (5pm-6pm)	22	1,284	34	40	827	1	16	2	20	9	7	2	2,263
19: 6pm (6pm-7pm)	17	1,063	31	60	720	3	18	3	15	9	4	4	1,946
20: 7pm (7pm-8pm)	13	794	31	52	582	1	11	2	20	9	9	6	1,528
21: 8pm (8pm-9pm)	2	495	17	42	393	3	12	4	12	3	6	-	988
22: 9pm (9pm-10pm)	6	353	4	26	317	-	6	9	12	2	9	6	751
23: 10pm (10pm-11pm)	3	223	2	10	160	-	2	2	11	2	5	-	420
24: 11pm (11pm-12am)	3	150	-	5	94	6	3	4	6	-	2	-	274

TURNING MOVEMENT PERCENTAGE

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			Main St - S Leg			Driveway - N Leg		
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right
00: All Day (12am-12am)	2%	96%	2%	4%	95%	1%	32%	23%	45%	36%	38%	25%
01: 12am (12am-1am)	0%	100%	0%	3%	97%	0%	14%	43%	43%	0%	100%	0%
02: 1am (1am-2am)	0%	100%	0%	0%	100%	0%	0%	0%	100%	0%	100%	0%
03: 2am (2am-3am)	4%	96%	0%	1%	73%	25%	-	-	-	0%	100%	0%
04: 3am (3am-4am)	0%	100%	0%	2%	98%	0%	100%	0%	0%	0%	100%	0%
05: 4am (4am-5am)	0%	100%	0%	2%	86%	12%	0%	67%	33%	86%	0%	14%
06: 5am (5am-6am)	12%	88%	0%	0%	90%	9%	0%	0%	100%	52%	0%	48%
07: 6am (6am-7am)	3%	94%	3%	2%	98%	0%	13%	63%	25%	38%	46%	15%
08: 7am (7am-8am)	2%	96%	2%	2%	98%	0%	39%	46%	15%	15%	15%	70%
09: 8am (8am-9am)	1%	96%	3%	1%	98%	0%	60%	14%	26%	13%	38%	50%
10: 9am (9am-10am)	1%	96%	3%	2%	98%	0%	75%	0%	25%	42%	35%	23%
11: 10am (10am-11am)	2%	96%	2%	3%	96%	1%	29%	38%	34%	31%	38%	31%
12: 11am (11am-12noon)	4%	91%	5%	9%	91%	1%	37%	26%	37%	25%	55%	21%
13: 12pm (12noon-1pm)	3%	94%	3%	9%	91%	0%	25%	21%	54%	27%	55%	18%
14: 1pm (1pm-2pm)	3%	94%	3%	4%	95%	0%	31%	25%	44%	33%	0%	67%
15: 2pm (2pm-3pm)	2%	96%	2%	2%	97%	1%	21%	26%	53%	38%	62%	0%
16: 3pm (3pm-4pm)	2%	97%	1%	3%	96%	1%	26%	28%	47%	19%	25%	56%
17: 4pm (4pm-5pm)	2%	97%	1%	4%	95%	1%	29%	30%	41%	73%	18%	9%
18: 5pm (5pm-6pm)	2%	96%	3%	5%	95%	0%	42%	5%	53%	49%	39%	11%
19: 6pm (6pm-7pm)	1%	96%	3%	8%	92%	0%	50%	8%	42%	52%	24%	24%
20: 7pm (7pm-8pm)	2%	95%	4%	8%	92%	0%	32%	6%	62%	39%	36%	25%
21: 8pm (8pm-9pm)	0%	95%	3%	10%	90%	1%	44%	14%	42%	33%	67%	0%
22: 9pm (9pm-10pm)	2%	97%	1%	8%	92%	0%	23%	33%	44%	12%	53%	35%
23: 10pm (10pm-11pm)	1%	98%	1%	6%	94%	0%	13%	13%	73%	29%	71%	0%
24: 11pm (11pm-12am)	2%	98%	0%	5%	89%	6%	25%	30%	46%	0%	100%	0%

Day Type

1: Weekday (Tu-Th)

TURNING MOVEMENT COUNTS

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			Encyclopedia Cir - S Leg			O			Total
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	
00: All Day (12am-12am)	-	10,980	313	1,380	10,541	-	205	-	963	-	-	-	24,381
01: 12am (12am-1am)	-	122	2	22	62	-	1	-	18	-	-	-	227
02: 1am (1am-2am)	-	40	-	30	25	-	-	-	20	-	-	-	116
03: 2am (2am-3am)	-	45	2	32	26	-	2	-	22	-	-	-	129
04: 3am (3am-4am)	-	34	4	14	21	-	4	-	15	-	-	-	92
05: 4am (4am-5am)	-	39	-	17	172	-	1	-	2	-	-	-	231
06: 5am (5am-6am)	-	84	17	64	327	-	3	-	11	-	-	-	506
07: 6am (6am-7am)	-	196	17	150	463	-	1	-	8	-	-	-	834
08: 7am (7am-8am)	-	383	25	167	894	-	3	-	17	-	-	-	1,489
09: 8am (8am-9am)	-	426	75	222	1,162	-	8	-	15	-	-	-	1,908
10: 9am (9am-10am)	-	413	44	104	946	-	6	-	34	-	-	-	1,548
11: 10am (10am-11am)	-	497	16	91	506	-	6	-	51	-	-	-	1,167
12: 11am (11am-12noon)	-	662	31	85	496	-	13	-	75	-	-	-	1,361
13: 12pm (12noon-1pm)	-	775	16	66	718	-	11	-	50	-	-	-	1,636
14: 1pm (1pm-2pm)	-	556	22	82	752	-	10	-	41	-	-	-	1,461
15: 2pm (2pm-3pm)	-	844	24	85	618	-	12	-	29	-	-	-	1,612
16: 3pm (3pm-4pm)	-	915	9	33	568	-	32	-	107	-	-	-	1,664
17: 4pm (4pm-5pm)	-	1,065	5	18	466	-	34	-	112	-	-	-	1,700
18: 5pm (5pm-6pm)	-	1,179	6	31	571	-	39	-	156	-	-	-	1,982
19: 6pm (6pm-7pm)	-	1,005	11	25	521	-	24	-	102	-	-	-	1,688
20: 7pm (7pm-8pm)	-	702	5	38	441	-	16	-	36	-	-	-	1,237
21: 8pm (8pm-9pm)	-	381	2	41	282	-	2	-	10	-	-	-	718
22: 9pm (9pm-10pm)	-	254	2	30	207	-	3	-	13	-	-	-	509
23: 10pm (10pm-11pm)	-	168	1	15	141	-	1	-	56	-	-	-	382
24: 11pm (11pm-12am)	-	109	1	7	62	-	-	-	57	-	-	-	236

TURNING MOVEMENT PERCENTAGE

Day Part	Stevenson Blvd - W Leg			Stevenson Blvd - E Leg			Encyclopedia Cir - S Leg			O		
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right
00: All Day (12am-12am)	0%	97%	3%	12%	88%	0%	18%	0%	82%	-	-	-
01: 12am (12am-1am)	0%	98%	2%	26%	74%	0%	5%	0%	95%	-	-	-
02: 1am (1am-2am)	0%	100%	0%	54%	46%	0%	0%	0%	100%	-	-	-
03: 2am (2am-3am)	0%	96%	4%	55%	45%	0%	8%	0%	92%	-	-	-
04: 3am (3am-4am)	0%	89%	11%	40%	60%	0%	20%	0%	80%	-	-	-
05: 4am (4am-5am)	0%	100%	0%	9%	91%	0%	31%	0%	69%	-	-	-
06: 5am (5am-6am)	0%	83%	17%	16%	84%	0%	21%	0%	79%	-	-	-
07: 6am (6am-7am)	0%	92%	8%	24%	76%	0%	6%	0%	94%	-	-	-
08: 7am (7am-8am)	0%	94%	6%	16%	84%	0%	13%	0%	87%	-	-	-
09: 8am (8am-9am)	0%	85%	15%	16%	84%	0%	34%	0%	66%	-	-	-
10: 9am (9am-10am)	0%	90%	10%	10%	90%	0%	16%	0%	84%	-	-	-
11: 10am (10am-11am)	0%	97%	3%	15%	85%	0%	11%	0%	89%	-	-	-
12: 11am (11am-12noon)	0%	96%	4%	15%	85%	0%	15%	0%	85%	-	-	-
13: 12pm (12noon-1pm)	0%	98%	2%	8%	92%	0%	18%	0%	82%	-	-	-
14: 1pm (1pm-2pm)	0%	96%	4%	10%	90%	0%	19%	0%	81%	-	-	-
15: 2pm (2pm-3pm)	0%	97%	3%	12%	88%	0%	29%	0%	71%	-	-	-
16: 3pm (3pm-4pm)	0%	99%	1%	5%	95%	0%	23%	0%	77%	-	-	-
17: 4pm (4pm-5pm)	0%	100%	0%	4%	96%	0%	23%	0%	77%	-	-	-
18: 5pm (5pm-6pm)	0%	100%	0%	5%	95%	0%	20%	0%	80%	-	-	-
19: 6pm (6pm-7pm)	0%	99%	1%	5%	95%	0%	19%	0%	81%	-	-	-
20: 7pm (7pm-8pm)	0%	99%	1%	8%	92%	0%	31%	0%	69%	-	-	-
21: 8pm (8pm-9pm)	0%	99%	1%	13%	87%	0%	17%	0%	83%	-	-	-
22: 9pm (9pm-10pm)	0%	99%	1%	13%	87%	0%	17%	0%	83%	-	-	-
23: 10pm (10pm-11pm)	0%	99%	1%	10%	90%	0%	2%	0%	98%	-	-	-
24: 11pm (11pm-12am)	0%	99%	1%	10%	90%	0%	0%	0%	100%	-	-	-

Day Type

1: Weekday (Tu-Th)

TURNING MOVEMENT COUNTS







Day Part	O			Walmart Driveway - E Leg			Albrae Street - S Leg			Albrae Street - N Leg			Total
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right	
00: All Day (12am-12am)	-	-	-	1,380	10,541	-	205	-	963	-	-	-	13,088
01: 12am (12am-1am)	-	-	-	-	-	1	-	14	-	2	16	-	33
02: 1am (1am-2am)	-	-	-	-	-	1	-	13	-	3	46	-	63
03: 2am (2am-3am)	-	-	-	-	-	1	-	17	-	13	56	-	87
04: 3am (3am-4am)	-	-	-	-	-	-	-	46	-	9	53	-	108
05: 4am (4am-5am)	-	-	-	-	-	1	-	25	-	10	84	-	120
06: 5am (5am-6am)	-	-	-	-	-	9	-	45	-	24	191	-	269
07: 6am (6am-7am)	-	-	-	1	-	12	-	72	1	42	276	-	404
08: 7am (7am-8am)	-	-	-	2	-	28	-	59	2	125	511	-	727
09: 8am (8am-9am)	-	-	-	1	-	37	-	87	2	240	663	-	1,030
10: 9am (9am-10am)	-	-	-	3	-	69	-	153	2	155	579	-	961
11: 10am (10am-11am)	-	-	-	2	-	81	-	164	4	170	340	-	761
12: 11am (11am-12noon)	-	-	-	3	-	117	-	226	1	222	320	-	889
13: 12pm (12noon-1pm)	-	-	-	1	-	145	-	347	3	257	367	-	1,120
14: 1pm (1pm-2pm)	-	-	-	6	-	169	-	363	2	249	357	-	1,146
15: 2pm (2pm-3pm)	-	-	-	2	-	164	-	477	4	244	324	-	1,215
16: 3pm (3pm-4pm)	-	-	-	4	-	166	-	525	2	220	331	-	1,248
17: 4pm (4pm-5pm)	-	-	-	7	-	193	-	581	2	254	346	-	1,383
18: 5pm (5pm-6pm)	-	-	-	4	-	223	-	802	8	301	323	-	1,661
19: 6pm (6pm-7pm)	-	-	-	4	-	271	-	580	4	292	339	-	1,490
20: 7pm (7pm-8pm)	-	-	-	3	-	208	-	380	6	276	226	-	1,099
21: 8pm (8pm-9pm)	-	-	-	4	-	203	-	266	1	216	143	-	833
22: 9pm (9pm-10pm)	-	-	-	-	-	149	-	132	2	119	97	-	499
23: 10pm (10pm-11pm)	-	-	-	1	-	35	-	74	1	18	48	-	177
24: 11pm (11pm-12am)	-	-	-	-	-	22	-	28	-	2	27	-	79

TURNING MOVEMENT PERCENTAGE

Day Part	O			Walmart Driveway - E Leg			Albrae Street - S Leg			Albrae Street - N Leg		
	EB Left	EB Thru	EB Right	WB Left	WB Thru	WB Right	NB Left	NB Thru	NB Right	SB Left	SB Thru	SB Right
00: All Day (12am-12am)	-	-	-	12%	88%	0%	18%	0%	82%	-	-	-
01: 12am (12am-1am)	-	-	-	0%	0%	100%	0%	100%	0%	11%	89%	0%
02: 1am (1am-2am)	-	-	-	0%	0%	100%	0%	100%	0%	6%	94%	0%
03: 2am (2am-3am)	-	-	-	0%	0%	100%	0%	100%	0%	19%	81%	0%
04: 3am (3am-4am)	-	-	-	-	-	-	0%	100%	0%	15%	85%	0%
05: 4am (4am-5am)	-	-	-	0%	0%	100%	0%	100%	0%	11%	89%	0%
06: 5am (5am-6am)	-	-	-	0%	0%	100%	0%	100%	0%	11%	89%	0%
07: 6am (6am-7am)	-	-	-	8%	0%	92%	0%	99%	1%	13%	87%	0%
08: 7am (7am-8am)	-	-	-	7%	0%	93%	0%	97%	3%	20%	80%	0%
09: 8am (8am-9am)	-	-	-	3%	0%	97%	0%	98%	2%	27%	73%	0%
10: 9am (9am-10am)	-	-	-	4%	0%	96%	0%	99%	1%	21%	79%	0%
11: 10am (10am-11am)	-	-	-	2%	0%	98%	0%	98%	2%	33%	67%	0%
12: 11am (11am-12noon)	-	-	-	3%	0%	98%	0%	100%	0%	41%	59%	0%
13: 12pm (12noon-1pm)	-	-	-	1%	0%	99%	0%	99%	1%	41%	59%	0%
14: 1pm (1pm-2pm)	-	-	-	3%	0%	97%	0%	99%	1%	41%	59%	0%
15: 2pm (2pm-3pm)	-	-	-	1%	0%	99%	0%	99%	1%	43%	57%	0%
16: 3pm (3pm-4pm)	-	-	-	2%	0%	98%	0%	100%	0%	40%	60%	0%
17: 4pm (4pm-5pm)	-	-	-	4%	0%	97%	0%	100%	0%	42%	58%	0%
18: 5pm (5pm-6pm)	-	-	-	2%	0%	98%	0%	99%	1%	48%	52%	0%
19: 6pm (6pm-7pm)	-	-	-	1%	0%	99%	0%	99%	1%	46%	54%	0%
20: 7pm (7pm-8pm)	-	-	-	1%	0%	99%	0%	98%	2%	55%	45%	0%
21: 8pm (8pm-9pm)	-	-	-	2%	0%	98%	0%	100%	0%	60%	40%	0%
22: 9pm (9pm-10pm)	-	-	-	0%	0%	100%	0%	99%	1%	55%	45%	0%
23: 10pm (10pm-11pm)	-	-	-	3%	0%	97%	0%	99%	1%	27%	73%	0%
24: 11pm (11pm-12am)	-	-	-	0%	0%	100%	0%	100%	0%	7%	93%	0%

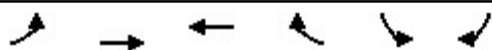
Appendix C
Intersection LOS
Worksheets



								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑			↑↑↑	↘↘	↗↗		
Traffic Volume (veh/h)	582	0	0	1304	513	366		
Future Volume (veh/h)	582	0	0	1304	513	366		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	582	0	0	1304	513	366		
Adj No. of Lanes	3	0	0	4	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2562	0	0	3229	959	777		
Arrive On Green	0.50	0.00	0.00	0.50	0.28	0.28		
Sat Flow, veh/h	5421	0	0	6929	3442	2787		
Grp Volume(v), veh/h	582	0	0	1304	513	366		
Grp Sat Flow(s),veh/h/ln	1695	0	0	1602	1721	1393		
Q Serve(g_s), s	2.4	0.0	0.0	4.7	4.6	4.0		
Cycle Q Clear(g_c), s	2.4	0.0	0.0	4.7	4.6	4.0		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2562	0	0	3229	959	777		
V/C Ratio(X)	0.23	0.00	0.00	0.40	0.53	0.47		
Avail Cap(c_a), veh/h	5253	0	0	6619	3181	2576		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	5.1	0.0	0.0	5.7	11.2	11.0		
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.5	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	2.0	2.3	1.6		
LnGrp Delay(d),s/veh	5.2	0.0	0.0	5.8	11.7	11.5		
LnGrp LOS	A			A	B	B		
Approach Vol, veh/h	582			1304	879			
Approach Delay, s/veh	5.2			5.8	11.6			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		22.5				22.5		14.3
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		38.0				38.0		34.0
Max Q Clear Time (g_c+I1), s		4.4				6.7		6.6
Green Ext Time (p_c), s		4.5				11.9		3.6
Intersection Summary								
HCM 2010 Ctrl Delay			7.5					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
 2: Stevenson Blvd & I-880 SB
































Fremont Industrial Project
 Existing AM NP



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑		↘↘	↘↘		
Traffic Volume (veh/h)	0	470	1562	0	203	415		
Future Volume (veh/h)	0	470	1562	0	203	415		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863		
Adj Flow Rate, veh/h	0	470	1562	0	203	415		
Adj No. of Lanes	0	3	3	0	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	0	2	2	0	2	2		
Cap, veh/h	0	3228	3228	0	733	593		
Arrive On Green	0.00	0.63	0.63	0.00	0.21	0.21		
Sat Flow, veh/h	0	5421	5421	0	3442	2787		
Grp Volume(v), veh/h	0	470	1562	0	203	415		
Grp Sat Flow(s),veh/h/ln	0	1695	1695	0	1721	1393		
Q Serve(g_s), s	0.0	2.2	9.6	0.0	2.9	8.1		
Cycle Q Clear(g_c), s	0.0	2.2	9.6	0.0	2.9	8.1		
Prop In Lane	0.00			0.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	3228	3228	0	733	593		
V/C Ratio(X)	0.00	0.15	0.48	0.00	0.28	0.70		
Avail Cap(c_a), veh/h	0	3228	3228	0	1951	1580		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.00	1.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	4.3	5.7	0.0	19.4	21.5		
Incr Delay (d2), s/veh	0.0	0.1	0.5	0.0	0.2	1.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	1.0	4.5	0.0	1.4	3.2		
LnGrp Delay(d),s/veh	0.0	4.4	6.2	0.0	19.6	23.0		
LnGrp LOS		A	A		B	C		
Approach Vol, veh/h		470	1562		618			
Approach Delay, s/veh		4.4	6.2		21.9			
Approach LOS		A	A		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		42.0		17.1		42.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		37.5		33.5		37.5		
Max Q Clear Time (g_c+I1), s		4.2		10.1		11.6		
Green Ext Time (p_c), s		3.5		2.4		13.6		
Intersection Summary								
HCM 2010 Ctrl Delay			9.6					
HCM 2010 LOS			A					

HCM Signalized Intersection Capacity Analysis
3: Albrae St & Stevenson Blvd

Fremont Industrial Project
Existing AM NP

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		  	  				 	 		
Traffic Volume (vph)	8	565	123	508	1135	334	14	11	62	182	88	20
Future Volume (vph)	8	565	123	508	1135	334	14	11	62	182	88	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.0	4.0	4.5	4.0	4.0		4.0	4.5	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00		1.00	0.88	0.91	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99		1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1770	5085	1555	3433	5085	1562		1812	2779	3221	1681	1557
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	0.99	1.00
Satd. Flow (perm)	1770	5085	1555	3433	5085	1562		1812	2779	3221	1681	1557
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	565	123	508	1135	334	14	11	62	182	88	20
RTOR Reduction (vph)	0	0	65	0	0	0	0	0	48	0	0	17
Lane Group Flow (vph)	8	565	58	508	1135	334	0	25	14	164	106	3
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Turn Type	Prot	NA	Perm	Prot	NA	Free	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases			2			Free			8			4
Actuated Green, G (s)	1.0	52.3	52.3	21.4	72.7	110.0		3.9	25.3	15.9	15.9	15.9
Effective Green, g (s)	1.0	52.3	52.3	21.4	72.7	110.0		3.9	25.3	15.9	15.9	15.9
Actuated g/C Ratio	0.01	0.48	0.48	0.19	0.66	1.00		0.04	0.23	0.14	0.14	0.14
Clearance Time (s)	4.5	4.0	4.0	4.5	4.0			4.0	4.5	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	16	2417	739	667	3360	1562		64	639	465	242	225
v/s Ratio Prot	0.00	0.11		c0.15	c0.22			0.01	0.00	0.05	c0.06	
v/s Ratio Perm			0.04			c0.21			0.00			0.00
v/c Ratio	0.50	0.23	0.08	0.76	0.34	0.21		0.39	0.02	0.35	0.44	0.01
Uniform Delay, d1	54.3	17.0	15.7	41.9	8.1	0.0		51.9	32.8	42.4	43.0	40.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.5	0.2	0.2	5.1	0.3	0.3		3.9	0.0	0.5	1.3	0.0
Delay (s)	76.8	17.3	15.9	47.0	8.4	0.3		55.8	32.8	42.9	44.2	40.3
Level of Service	E	B	B	D	A	A		E	C	D	D	D
Approach Delay (s)		17.7			17.0			39.4			43.2	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			20.3									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			110.0								16.5	
Intersection Capacity Utilization			61.7%									ICU Level of Service B
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙ ↑↑↑ ↘			↙ ↑↑↑			↔			↔		
Traffic Vol, veh/h	11	761	23	16	1116	4	9	2	4	1	3	4
Future Vol, veh/h	11	761	23	16	1116	4	9	2	4	1	3	4
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	75	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	761	23	16	1116	4	9	2	4	1	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1125	0	0	789	0	0	1285	1957	402	1487	1966	570
Stage 1	-	-	-	-	-	-	800	800	-	1155	1155	-
Stage 2	-	-	-	-	-	-	485	1157	-	332	811	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	340	-	-	494	-	-	173	63	511	131	62	398
Stage 1	-	-	-	-	-	-	274	395	-	155	269	-
Stage 2	-	-	-	-	-	-	486	269	-	601	391	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	338	-	-	492	-	-	155	58	506	119	57	394
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	58	-	119	57	-
Stage 1	-	-	-	-	-	-	264	380	-	149	259	-
Stage 2	-	-	-	-	-	-	458	259	-	571	376	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			31.8			39.6		
HCM LOS							D			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	149	338	-	-	492	-	-	112
HCM Lane V/C Ratio	0.101	0.033	-	-	0.033	-	-	0.071
HCM Control Delay (s)	31.8	16	-	-	12.6	-	-	39.6
HCM Lane LOS	D	C	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	0.2

Intersection							
Int Delay, s/veh	1.4						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬆	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	0	426	75	222	1162	8	15
Future Vol, veh/h	0	426	75	222	1162	8	15
Conflicting Peds, #/hr	5	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	426	75	222	1162	8	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	1162	0	0	506	0	1499 261
Stage 1	-	-	-	-	-	469 -
Stage 2	-	-	-	-	-	1030 -
Critical Hdwy	6.44	-	-	4.14	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	-	5.84 -
Follow-up Hdwy	2.52	-	-	2.22	-	3.52 3.32
Pot Cap-1 Maneuver	261	-	-	1055	-	113 738
Stage 1	-	-	-	-	-	596 -
Stage 2	-	-	-	-	-	305 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	261	-	-	1050	-	88 731
Mov Cap-2 Maneuver	-	-	-	-	-	88 -
Stage 1	-	-	-	-	-	593 -
Stage 2	-	-	-	-	-	239 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	24.7
HCM LOS			C







Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	206	261	-	-	1050	-
HCM Lane V/C Ratio	0.112	-	-	-	0.211	-
HCM Control Delay (s)	24.7	0	-	-	9.3	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0.8	-

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	34	85	2	238	660
Future Vol, veh/h	1	34	85	2	238	660
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	34	85	2	238	660

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1232	96	0	0	92
Stage 1	91	-	-	-	-
Stage 2	1141	-	-	-	-
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	196	960	-	-	1503
Stage 1	933	-	-	-	-
Stage 2	305	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	163	951	-	-	1496
Mov Cap-2 Maneuver	163	-	-	-	-
Stage 1	928	-	-	-	-
Stage 2	255	-	-	-	-







Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	836	1496
HCM Lane V/C Ratio	-	-	0.042	0.159
HCM Control Delay (s)	-	-	9.5	7.9
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.6

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑			↑↑↑	↘↘	↗↗		
Traffic Volume (veh/h)	2256	0	0	1265	326	795		
Future Volume (veh/h)	2256	0	0	1265	326	795		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	2256	0	0	1265	326	795		
Adj No. of Lanes	3	0	0	4	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2714	0	0	3420	1205	975		
Arrive On Green	0.53	0.00	0.00	0.53	0.35	0.35		
Sat Flow, veh/h	5421	0	0	6929	3442	2787		
Grp Volume(v), veh/h	2256	0	0	1265	326	795		
Grp Sat Flow(s),veh/h/ln	1695	0	0	1602	1721	1393		
Q Serve(g_s), s	25.6	0.0	0.0	7.9	4.7	17.9		
Cycle Q Clear(g_c), s	25.6	0.0	0.0	7.9	4.7	17.9		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2714	0	0	3420	1205	975		
V/C Ratio(X)	0.83	0.00	0.00	0.37	0.27	0.82		
Avail Cap(c_a), veh/h	2807	0	0	3537	1700	1376		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	13.4	0.0	0.0	9.3	16.1	20.3		
Incr Delay (d2), s/veh	2.2	0.0	0.0	0.1	0.1	2.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	12.2	0.0	0.0	3.4	2.2	7.2		
LnGrp Delay(d),s/veh	15.6	0.0	0.0	9.4	16.2	23.0		
LnGrp LOS	B			A	B	C		
Approach Vol, veh/h	2256			1265	1121			
Approach Delay, s/veh	15.6			9.4	21.0			
Approach LOS	B			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		40.7				40.7		28.1
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		38.0				38.0		34.0
Max Q Clear Time (g_c+I1), s		27.6				9.9		19.9
Green Ext Time (p_c), s		9.2				10.9		4.2
Intersection Summary								
HCM 2010 Ctrl Delay			15.2					
HCM 2010 LOS			B					

































HCM 2010 Signalized Intersection Summary
 2: Stevenson Blvd & I-880 SB

Fremont Industrial Project
 Existing PM NP

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑		↑↑	↑↑		
Traffic Volume (veh/h)	0	1618	1332	0	934	405		
Future Volume (veh/h)	0	1618	1332	0	934	405		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863		
Adj Flow Rate, veh/h	0	1618	1332	0	934	405		
Adj No. of Lanes	0	3	3	0	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	0	2	2	0	2	2		
Cap, veh/h	0	2694	2694	0	1180	956		
Arrive On Green	0.00	0.53	0.53	0.00	0.34	0.34		
Sat Flow, veh/h	0	5421	5421	0	3442	2787		
Grp Volume(v), veh/h	0	1618	1332	0	934	405		
Grp Sat Flow(s),veh/h/ln	0	1695	1695	0	1721	1393		
Q Serve(g_s), s	0.0	15.5	11.8	0.0	17.3	7.9		
Cycle Q Clear(g_c), s	0.0	15.5	11.8	0.0	17.3	7.9		
Prop In Lane	0.00			0.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	2694	2694	0	1180	956		
V/C Ratio(X)	0.00	0.60	0.49	0.00	0.79	0.42		
Avail Cap(c_a), veh/h	0	2694	2694	0	1629	1319		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	0.00	1.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	11.5	10.6	0.0	21.0	17.9		
Incr Delay (d2), s/veh	0.0	1.0	0.7	0.0	1.9	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	7.4	5.6	0.0	8.5	3.1		
LnGrp Delay(d),s/veh	0.0	12.5	11.3	0.0	22.8	18.2		
LnGrp LOS		B	B		C	B		
Approach Vol, veh/h		1618	1332		1339			
Approach Delay, s/veh		12.5	11.3		21.4			
Approach LOS		B	B		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		42.0		28.8		42.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		37.5		33.5		37.5		
Max Q Clear Time (g_c+I1), s		17.5		19.3		13.8		
Green Ext Time (p_c), s		12.1		5.0		10.8		
Intersection Summary								
HCM 2010 Ctrl Delay			14.9					
HCM 2010 LOS			B					

HCM Signalized Intersection Capacity Analysis
3: Albrae St & Stevenson Blvd

Fremont Industrial Project
Existing PM NP

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  		  	  				 	 	 		
Traffic Volume (vph)	47	1127	135	411	797	529	162	151	692	440	89	17	
Future Volume (vph)	47	1127	135	411	797	529	162	151	692	440	89	17	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.0	4.0	4.5	4.0	4.0		4.0	4.5	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00		1.00	0.88	0.91	0.91	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99		1.00	0.99	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	0.98	1.00	
Satd. Flow (prot)	1770	5085	1555	3433	5085	1562		1816	2759	3221	1654	1557	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	0.98	1.00	
Satd. Flow (perm)	1770	5085	1555	3433	5085	1562		1816	2759	3221	1654	1557	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	47	1127	135	411	797	529	162	151	692	440	89	17	
RTOR Reduction (vph)	0	0	100	0	0	0	0	0	119	0	0	14	
Lane Group Flow (vph)	47	1127	35	411	797	529	0	313	573	352	177	3	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5	
Turn Type	Prot	NA	Perm	Prot	NA	Free	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6		8	8	1	4	4		
Permitted Phases			2			Free			8			4	
Actuated Green, G (s)	6.7	27.0	27.0	14.5	34.8	103.0		25.0	39.5	20.0	20.0	20.0	
Effective Green, g (s)	6.7	27.0	27.0	14.5	34.8	103.0		25.0	39.5	20.0	20.0	20.0	
Actuated g/C Ratio	0.07	0.26	0.26	0.14	0.34	1.00		0.24	0.38	0.19	0.19	0.19	
Clearance Time (s)	4.5	4.0	4.0	4.5	4.0			4.0	4.5	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	115	1332	407	483	1718	1562		440	1058	625	321	302	
v/s Ratio Prot	0.03	c0.22		c0.12	0.16			c0.17	0.08	c0.11	0.11		
v/s Ratio Perm			0.02			0.34			0.13			0.00	
v/c Ratio	0.41	0.85	0.09	0.85	0.46	0.34		0.71	0.54	0.56	0.55	0.01	
Uniform Delay, d1	46.2	36.0	28.7	43.2	26.8	0.0		35.7	24.7	37.5	37.5	33.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	6.8	0.4	13.5	0.9	0.6		5.4	0.6	1.2	2.0	0.0	
Delay (s)	48.6	42.8	29.1	56.7	27.7	0.6		41.1	25.3	38.7	39.5	33.5	
Level of Service	D	D	C	E	C	A		D	C	D	D	C	
Approach Delay (s)		41.6			26.3			30.2			38.8		
Approach LOS		D			C			C			D		
Intersection Summary													
HCM 2000 Control Delay			33.0									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.74										
Actuated Cycle Length (s)			103.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			77.6%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

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	22	1284	34	40	827	1	16	2	20	9	7	2
Future Vol, veh/h	22	1284	34	40	827	1	16	2	20	9	7	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	75	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1284	34	40	827	1	16	2	20	9	7	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	833	0	0	1323	0	0	1769	2263	669	1477	2280	424
Stage 1	-	-	-	-	-	-	1350	1350	-	913	913	-
Stage 2	-	-	-	-	-	-	419	913	-	564	1367	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	471	-	-	272	-	-	88	40	343	133	39	495
Stage 1	-	-	-	-	-	-	113	217	-	229	350	-
Stage 2	-	-	-	-	-	-	533	350	-	436	213	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	469	-	-	271	-	-	62	32	340	101	31	490
Mov Cap-2 Maneuver	-	-	-	-	-	-	62	32	-	101	31	-
Stage 1	-	-	-	-	-	-	107	206	-	217	297	-
Stage 2	-	-	-	-	-	-	440	297	-	385	202	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.9			61.6			97.2		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	100	469	-	-	271	-	-	56
HCM Lane V/C Ratio	0.38	0.047	-	-	0.148	-	-	0.321
HCM Control Delay (s)	61.6	13.1	-	-	20.6	-	-	97.2
HCM Lane LOS	F	B	-	-	C	-	-	F
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0.5	-	-	1.1

Intersection							
Int Delay, s/veh	5.2						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬇	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	0	1179	6	31	571	39	156
Future Vol, veh/h	0	1179	6	31	571	39	156
Conflicting Peds, #/hr	5	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	1179	6	31	571	39	156

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	571	0	0	1190	0	1540 603
Stage 1	-	-	-	-	-	1187 -
Stage 2	-	-	-	-	-	353 -
Critical Hdwy	6.44	-	-	4.14	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	-	5.84 -
Follow-up Hdwy	2.52	-	-	2.22	-	3.52 3.32
Pot Cap-1 Maneuver	624	-	-	582	-	106 442
Stage 1	-	-	-	-	-	252 -
Stage 2	-	-	-	-	-	682 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	624	-	-	579	-	99 438
Mov Cap-2 Maneuver	-	-	-	-	-	99 -
Stage 1	-	-	-	-	-	251 -
Stage 2	-	-	-	-	-	642 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	51.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	260	624	-	-	579	-
HCM Lane V/C Ratio	0.75	-	-	-	0.054	-
HCM Control Delay (s)	51.1	0	-	-	11.6	-
HCM Lane LOS	F	A	-	-	B	-
HCM 95th %tile Q(veh)	5.4	0	-	-	0.2	-

Intersection						
Int Delay, s/veh	6.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	222	801	7	300	321
Future Vol, veh/h	3	222	801	7	300	321
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	222	801	7	300	321







Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1736	815	0	0	813
Stage 1	810	-	-	-	-
Stage 2	926	-	-	-	-
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	96	377	-	-	814
Stage 1	438	-	-	-	-
Stage 2	386	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	60	373	-	-	810
Mov Cap-2 Maneuver	60	-	-	-	-
Stage 1	436	-	-	-	-
Stage 2	242	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.2	0	5.8
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	349	810
HCM Lane V/C Ratio	-	-	0.645	0.37
HCM Control Delay (s)	-	-	32.2	12
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	4.3	1.7

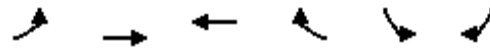
HCM 2010 Signalized Intersection Summary
 1: I-880 NB & Stevenson Blvd

11/11/2021

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑			↑↑↑	↔	↔		
Traffic Volume (veh/h)	589	0	0	1336	623	366		
Future Volume (veh/h)	589	0	0	1336	623	366		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	589	0	0	1336	623	366		
Adj No. of Lanes	3	0	0	4	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2497	0	0	3147	1057	856		
Arrive On Green	0.49	0.00	0.00	0.49	0.31	0.31		
Sat Flow, veh/h	5421	0	0	6929	3442	2787		
Grp Volume(v), veh/h	589	0	0	1336	623	366		
Grp Sat Flow(s),veh/h/ln	1695	0	0	1602	1721	1393		
Q Serve(g_s), s	2.6	0.0	0.0	5.3	6.1	4.2		
Cycle Q Clear(g_c), s	2.6	0.0	0.0	5.3	6.1	4.2		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2497	0	0	3147	1057	856		
V/C Ratio(X)	0.24	0.00	0.00	0.42	0.59	0.43		
Avail Cap(c_a), veh/h	4874	0	0	6141	2951	2390		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	5.8	0.0	0.0	6.5	11.6	11.0		
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.5	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	2.3	2.9	1.6		
LnGrp Delay(d),s/veh	5.9	0.0	0.0	6.6	12.1	11.3		
LnGrp LOS	A			A	B	B		
Approach Vol, veh/h	589			1336	989			
Approach Delay, s/veh	5.9			6.6	11.8			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		23.5				23.5		16.2
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		38.0				38.0		34.0
Max Q Clear Time (g_c+I1), s		4.6				7.3		8.1
Green Ext Time (p_c), s		4.5				12.2		4.1
Intersection Summary								
HCM 2010 Ctrl Delay			8.2					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
 2: Stevenson Blvd & I-880 SB

11/11/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑		↑↑	↑↑		
Traffic Volume (veh/h)	0	510	1704	0	203	558		
Future Volume (veh/h)	0	510	1704	0	203	558		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863		
Adj Flow Rate, veh/h	0	510	1704	0	203	558		
Adj No. of Lanes	0	3	3	0	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	0	2	2	0	2	2		
Cap, veh/h	0	3018	3018	0	909	736		
Arrive On Green	0.00	0.59	0.59	0.00	0.26	0.26		
Sat Flow, veh/h	0	5421	5421	0	3442	2787		
Grp Volume(v), veh/h	0	510	1704	0	203	558		
Grp Sat Flow(s),veh/h/ln	0	1695	1695	0	1721	1393		
Q Serve(g_s), s	0.0	2.9	12.9	0.0	2.9	11.6		
Cycle Q Clear(g_c), s	0.0	2.9	12.9	0.0	2.9	11.6		
Prop In Lane	0.00			0.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	3018	3018	0	909	736		
V/C Ratio(X)	0.00	0.17	0.56	0.00	0.22	0.76		
Avail Cap(c_a), veh/h	0	3018	3018	0	1825	1478		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	5.8	7.8	0.0	18.2	21.4		
Incr Delay (d2), s/veh	0.0	0.1	0.8	0.0	0.1	1.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	1.4	6.2	0.0	1.4	4.6		
LnGrp Delay(d),s/veh	0.0	5.9	8.6	0.0	18.3	23.0		
LnGrp LOS		A	A		B	C		
Approach Vol, veh/h		510	1704		761			
Approach Delay, s/veh		5.9	8.6		21.8			
Approach LOS		A	A		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		42.0		21.2		42.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		37.5		33.5		37.5		
Max Q Clear Time (g_c+I1), s		4.9		13.6		14.9		
Green Ext Time (p_c), s		3.8		3.0		13.8		
Intersection Summary								
HCM 2010 Ctrl Delay			11.5					
HCM 2010 LOS			B					

HCM Signalized Intersection Capacity Analysis

3: Albrae St & Stevenson Blvd

11/11/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	10	581	123	722	1206	334	14	13	111	182	96	28	
Future Volume (vph)	10	581	123	722	1206	334	14	13	111	182	96	28	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.0	4.0	4.5	4.0	4.0		4.0	4.5	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00		1.00	0.88	0.91	0.91	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99		1.00	1.00	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	0.99	1.00	
Satd. Flow (prot)	1770	5085	1536	3433	5085	1562		1816	2781	3221	1682	1557	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	0.99	1.00	
Satd. Flow (perm)	1770	5085	1536	3433	5085	1562		1816	2781	3221	1682	1557	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	10	581	123	722	1206	334	14	13	111	182	96	28	
RTOR Reduction (vph)	0	0	72	0	0	0	0	0	79	0	0	24	
Lane Group Flow (vph)	10	581	51	722	1206	334	0	27	32	164	114	4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5	
Turn Type	Prot	NA	Perm	Prot	NA	Free	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6		8	8	1	4	4		
Permitted Phases			2			Free			8			4	
Actuated Green, G (s)	1.0	45.9	45.9	27.4	72.3	110.0		4.0	31.4	16.2	16.2	16.2	
Effective Green, g (s)	1.0	45.9	45.9	27.4	72.3	110.0		4.0	31.4	16.2	16.2	16.2	
Actuated g/C Ratio	0.01	0.42	0.42	0.25	0.66	1.00		0.04	0.29	0.15	0.15	0.15	
Clearance Time (s)	4.5	4.0	4.0	4.5	4.0			4.0	4.5	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	16	2121	640	855	3342	1562		66	793	474	247	229	
v/s Ratio Prot	0.01	0.11		c0.21	c0.24			0.01	0.01	0.05	c0.07		
v/s Ratio Perm			0.03			c0.21			0.00			0.00	
v/c Ratio	0.62	0.27	0.08	0.84	0.36	0.21		0.41	0.04	0.35	0.46	0.02	
Uniform Delay, d1	54.3	21.1	19.3	39.3	8.5	0.0		51.8	28.4	42.1	42.9	40.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	57.6	0.3	0.2	7.7	0.3	0.3		4.1	0.0	0.4	1.4	0.0	
Delay (s)	111.9	21.4	19.6	46.9	8.8	0.3		55.9	28.4	42.6	44.3	40.1	
Level of Service	F	C	B	D	A	A		E	C	D	D	D	
Approach Delay (s)		22.4			19.7			33.8			43.0		
Approach LOS		C			B			C			D		
Intersection Summary													
HCM 2000 Control Delay			22.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.53										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			67.9%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵ ↑↑↑			↵ ↑↑↑			↕			↕		
Traffic Vol, veh/h	11	771	23	53	1159	4	9	2	13	1	3	4
Future Vol, veh/h	11	771	23	53	1159	4	9	2	13	1	3	4
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	75	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	771	23	53	1159	4	9	2	13	1	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1168	0	0	799	0	0	1386	2084	407	1608	2093	592
Stage 1	-	-	-	-	-	-	810	810	-	1272	1272	-
Stage 2	-	-	-	-	-	-	576	1274	-	336	821	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	324	-	-	489	-	-	151	52	507	111	52	385
Stage 1	-	-	-	-	-	-	269	391	-	128	237	-
Stage 2	-	-	-	-	-	-	428	236	-	597	387	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	322	-	-	487	-	-	125	44	502	92	44	381
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	44	-	92	44	-
Stage 1	-	-	-	-	-	-	259	376	-	123	210	-
Stage 2	-	-	-	-	-	-	370	209	-	556	372	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		0.6		30.1		49.4	
HCM LOS					D		E	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	167	322	-	-	487	-	-	89
HCM Lane V/C Ratio	0.144	0.034	-	-	0.109	-	-	0.09
HCM Control Delay (s)	30.1	16.6	-	-	13.3	-	-	49.4
HCM Lane LOS	D	C	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.4	-	-	0.3

Intersection							
Int Delay, s/veh	1.9						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬇	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	0	426	87	275	1162	10	27
Future Vol, veh/h	0	426	87	275	1162	10	27
Conflicting Peds, #/hr	5	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	426	87	275	1162	10	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	1162	0	0	518	0	1611 267
Stage 1	-	-	-	-	-	475 -
Stage 2	-	-	-	-	-	1136 -
Critical Hdwy	6.44	-	-	4.14	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	-	5.84 -
Follow-up Hdwy	2.52	-	-	2.22	-	3.52 3.32
Pot Cap-1 Maneuver	261	-	-	1044	-	95 731
Stage 1	-	-	-	-	-	592 -
Stage 2	-	-	-	-	-	268 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	261	-	-	1039	-	69 724
Mov Cap-2 Maneuver	-	-	-	-	-	69 -
Stage 1	-	-	-	-	-	589 -
Stage 2	-	-	-	-	-	196 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	26.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	203	261	-	-	1039	-
HCM Lane V/C Ratio	0.182	-	-	-	0.265	-
HCM Control Delay (s)	26.6	0	-	-	9.7	-
HCM Lane LOS	D	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0	-	-	1.1	-

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	51	0	0	1	0	34	0	85	2	238	660	222
Future Vol, veh/h	51	0	0	1	0	34	0	85	2	238	660	222
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	0	0	1	0	34	0	85	2	238	660	222







Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1360	1344	781	1343	1454	96	887	0	0	92	0	0
Stage 1	1252	1252	-	91	91	-	-	-	-	-	-	-
Stage 2	108	92	-	1252	1363	-	-	-	-	-	-	-
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	126	152	395	129	130	960	763	-	-	1503	-	-
Stage 1	211	244	-	916	820	-	-	-	-	-	-	-
Stage 2	897	819	-	211	216	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	106	127	391	112	108	951	759	-	-	1496	-	-
Mov Cap-2 Maneuver	106	127	-	112	108	-	-	-	-	-	-	-
Stage 1	210	204	-	911	816	-	-	-	-	-	-	-
Stage 2	861	815	-	177	181	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	67.1		9.8		0		1.7	
HCM LOS	F		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	759	-	-	106	783	1496	-	-
HCM Lane V/C Ratio	-	-	-	0.481	0.045	0.159	-	-
HCM Control Delay (s)	0	-	-	67.1	9.8	7.9	-	-
HCM Lane LOS	A	-	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	2.1	0.1	0.6	-	-

HCM 2010 Signalized Intersection Summary
 1: I-880 NB & Stevenson Blvd

11/11/2021

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↑			↑↑↑	↘↘	↗↗		
Traffic Volume (veh/h)	2286	0	0	1283	386	795		
Future Volume (veh/h)	2286	0	0	1283	386	795		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	0	0	1863	1863	1863		
Adj Flow Rate, veh/h	2286	0	0	1283	386	795		
Adj No. of Lanes	3	0	0	4	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	0	0	2	2	2		
Cap, veh/h	2710	0	0	3415	1210	980		
Arrive On Green	0.53	0.00	0.00	0.53	0.35	0.35		
Sat Flow, veh/h	5421	0	0	6929	3442	2787		
Grp Volume(v), veh/h	2286	0	0	1283	386	795		
Grp Sat Flow(s),veh/h/ln	1695	0	0	1602	1721	1393		
Q Serve(g_s), s	26.5	0.0	0.0	8.1	5.7	17.9		
Cycle Q Clear(g_c), s	26.5	0.0	0.0	8.1	5.7	17.9		
Prop In Lane		0.00	0.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2710	0	0	3415	1210	980		
V/C Ratio(X)	0.84	0.00	0.00	0.38	0.32	0.81		
Avail Cap(c_a), veh/h	2786	0	0	3511	1687	1366		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	13.7	0.0	0.0	9.5	16.4	20.4		
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.1	0.2	2.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	12.9	0.0	0.0	3.6	2.7	7.2		
LnGrp Delay(d),s/veh	16.2	0.0	0.0	9.5	16.6	23.0		
LnGrp LOS	B			A	B	C		
Approach Vol, veh/h	2286			1283	1181			
Approach Delay, s/veh	16.2			9.5	20.9			
Approach LOS	B			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		41.0				41.0		28.4
Change Period (Y+Rc), s		4.0				4.0		4.0
Max Green Setting (Gmax), s		38.0				38.0		34.0
Max Q Clear Time (g_c+I1), s		28.5				10.1		19.9
Green Ext Time (p_c), s		8.5				11.1		4.4
Intersection Summary								
HCM 2010 Ctrl Delay			15.6					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary
 2: Stevenson Blvd & I-880 SB

11/11/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑		↑↑	↑↑		
Traffic Volume (veh/h)	0	1782	1410	0	934	482		
Future Volume (veh/h)	0	1782	1410	0	934	482		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863		
Adj Flow Rate, veh/h	0	1782	1410	0	934	482		
Adj No. of Lanes	0	3	3	0	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	0	2	2	0	2	2		
Cap, veh/h	0	2682	2682	0	1191	964		
Arrive On Green	0.00	0.53	0.53	0.00	0.35	0.35		
Sat Flow, veh/h	0	5421	5421	0	3442	2787		
Grp Volume(v), veh/h	0	1782	1410	0	934	482		
Grp Sat Flow(s),veh/h/ln	0	1695	1695	0	1721	1393		
Q Serve(g_s), s	0.0	18.1	12.9	0.0	17.3	9.7		
Cycle Q Clear(g_c), s	0.0	18.1	12.9	0.0	17.3	9.7		
Prop In Lane	0.00			0.00	1.00	1.00		
Lane Grp Cap(c), veh/h	0	2682	2682	0	1191	964		
V/C Ratio(X)	0.00	0.66	0.53	0.00	0.78	0.50		
Avail Cap(c_a), veh/h	0	2682	2682	0	1622	1313		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	12.2	11.0	0.0	20.9	18.4		
Incr Delay (d2), s/veh	0.0	1.3	0.7	0.0	1.8	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	8.7	6.2	0.0	8.5	3.8		
LnGrp Delay(d),s/veh	0.0	13.5	11.7	0.0	22.7	18.8		
LnGrp LOS		B	B		C	B		
Approach Vol, veh/h		1782	1410		1416			
Approach Delay, s/veh		13.5	11.7		21.4			
Approach LOS		B	B		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		42.0		29.1		42.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		37.5		33.5		37.5		
Max Q Clear Time (g_c+I1), s		20.1		19.3		14.9		
Green Ext Time (p_c), s		12.0		5.3		11.2		
Intersection Summary								
HCM 2010 Ctrl Delay			15.4					
HCM 2010 LOS			B					

HCM Signalized Intersection Capacity Analysis

3: Albrae St & Stevenson Blvd

11/11/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	55	1194	135	527	836	529	162	159	892	440	94	22	
Future Volume (vph)	55	1194	135	527	836	529	162	159	892	440	94	22	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.0	4.0	4.5	4.0	4.0		4.0	4.5	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00		1.00	0.88	0.91	0.91	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.99		1.00	0.99	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00	
Satd. Flow (prot)	1770	5085	1537	3433	5085	1562		1817	2759	3221	1655	1557	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.98	1.00	
Satd. Flow (perm)	1770	5085	1537	3433	5085	1562		1817	2759	3221	1655	1557	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	55	1194	135	527	836	529	162	159	892	440	94	22	
RTOR Reduction (vph)	0	0	100	0	0	0	0	0	119	0	0	18	
Lane Group Flow (vph)	55	1194	35	527	836	529	0	321	773	352	182	4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5	
Turn Type	Prot	NA	Perm	Prot	NA	Free	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6		8	8	1	4	4		
Permitted Phases			2			Free			8			4	
Actuated Green, G (s)	6.9	27.0	27.0	14.5	34.6	103.0		24.9	39.4	20.1	20.1	20.1	
Effective Green, g (s)	6.9	27.0	27.0	14.5	34.6	103.0		24.9	39.4	20.1	20.1	20.1	
Actuated g/C Ratio	0.07	0.26	0.26	0.14	0.34	1.00		0.24	0.38	0.20	0.20	0.20	
Clearance Time (s)	4.5	4.0	4.0	4.5	4.0			4.0	4.5	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	118	1332	402	483	1708	1562		439	1055	628	322	303	
v/s Ratio Prot	0.03	c0.23		c0.15	0.16			0.18	c0.10	0.11	c0.11		
v/s Ratio Perm			0.02			0.34			0.18			0.00	
v/c Ratio	0.47	0.90	0.09	1.09	0.49	0.34		0.73	0.73	0.56	0.57	0.01	
Uniform Delay, d1	46.3	36.7	28.7	44.2	27.2	0.0		36.0	27.3	37.5	37.5	33.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.9	9.7	0.4	67.9	1.0	0.6		6.2	2.7	1.1	2.3	0.0	
Delay (s)	49.2	46.3	29.1	112.2	28.2	0.6		42.1	30.0	38.6	39.8	33.5	
Level of Service	D	D	C	F	C	A		D	C	D	D	C	
Approach Delay (s)		44.8			43.9			33.2			38.8		
Approach LOS		D			D			C			D		
Intersection Summary													
HCM 2000 Control Delay			41.0									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.80										
Actuated Cycle Length (s)			103.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			81.9%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↑↑↑			↖ ↑↑↑			↕			↕		
Traffic Vol, veh/h	22	1324	34	60	850	1	16	2	54	9	7	2
Future Vol, veh/h	22	1324	34	60	850	1	16	2	54	9	7	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	160	-	75	90	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1324	34	60	850	1	16	2	54	9	7	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	856	0	0	1363	0	0	1859	2366	689	1556	2383	436
Stage 1	-	-	-	-	-	-	1390	1390	-	976	976	-
Stage 2	-	-	-	-	-	-	469	976	-	580	1407	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	459	-	-	260	-	-	78	35	333	119	34	486
Stage 1	-	-	-	-	-	-	106	208	-	207	327	-
Stage 2	-	-	-	-	-	-	497	327	-	426	204	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	457	-	-	259	-	-	48	25	330	74	25	481
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	25	-	74	25	-
Stage 1	-	-	-	-	-	-	100	197	-	196	250	-
Stage 2	-	-	-	-	-	-	368	250	-	334	193	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		1.5		67.1		134.8	
HCM LOS					F		F	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	125	457	-	-	259	-	-	44
HCM Lane V/C Ratio	0.576	0.048	-	-	0.232	-	-	0.409
HCM Control Delay (s)	67.1	13.3	-	-	23	-	-	134.8
HCM Lane LOS	F	B	-	-	C	-	-	F
HCM 95th %tile Q(veh)	2.9	0.2	-	-	0.9	-	-	1.4

Intersection							
Int Delay, s/veh	15.1						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬇	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	0	1179	14	59	571	51	205
Future Vol, veh/h	0	1179	14	59	571	51	205
Conflicting Peds, #/hr	5	0	5	5	0	5	5
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	0	1179	14	59	571	51	205

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	571	0	0	1198	0	1600
Stage 1	-	-	-	-	-	1191
Stage 2	-	-	-	-	-	409
Critical Hdwy	6.44	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	-	5.84
Follow-up Hdwy	2.52	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	624	-	-	578	-	97
Stage 1	-	-	-	-	-	251
Stage 2	-	-	-	-	-	639
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	624	-	-	575	-	86
Mov Cap-2 Maneuver	-	-	-	-	-	86
Stage 1	-	-	-	-	-	250
Stage 2	-	-	-	-	-	571

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	119.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	241	624	-	-	575	-
HCM Lane V/C Ratio	1.062	-	-	-	0.103	-
HCM Control Delay (s)	119.6	0	-	-	12	-
HCM Lane LOS	F	A	-	-	B	-
HCM 95th %tile Q(veh)	10.8	0	-	-	0.3	-

Intersection												
Int Delay, s/veh	664.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	208	0	0	3	0	222	0	801	7	300	321	121
Future Vol, veh/h	208	0	0	3	0	222	0	801	7	300	321	121
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	208	0	0	3	0	222	0	801	7	300	321	121

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1908	1800	392	1797	1857	815	447	0	0	813	0	0
Stage 1	987	987	-	810	810	-	-	-	-	-	-	-
Stage 2	921	813	-	987	1047	-	-	-	-	-	-	-
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	~ 52	80	657	62	74	377	1113	-	-	814	-	-
Stage 1	298	325	-	374	393	-	-	-	-	-	-	-
Stage 2	324	392	-	298	305	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 15	50	651	44	46	373	1108	-	-	810	-	-
Mov Cap-2 Maneuver	~ 15	50	-	44	46	-	-	-	-	-	-	-
Stage 1	297	204	-	372	391	-	-	-	-	-	-	-
Stage 2	~ 131	390	-	187	191	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s \$ 6283		34.3	0	4.9
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1108	-	-	15	339	810	-
HCM Lane V/C Ratio	-	-	-	13.867	0.664	0.37	-
HCM Control Delay (s)	0	-	-	\$ 6283	34.3	12	-
HCM Lane LOS	A	-	-	F	D	B	-
HCM 95th %tile Q(veh)	0	-	-	27	4.5	1.7	-

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

HCM Signalized Intersection Capacity Analysis

5: Encyclopedia Cir & Stevenson Blvd



















11/11/2021



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	426	87	275	1162	10	27
Future Volume (vph)	0	426	87	275	1162	10	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5	4.5	
Lane Util. Factor		0.95		1.00	0.95	1.00	
Frbp, ped/bikes		0.99		1.00	1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	
Frt		0.97		1.00	1.00	0.90	
Flt Protected		1.00		0.95	1.00	0.99	
Satd. Flow (prot)		3431		1770	3539	1636	
Flt Permitted		1.00		0.95	1.00	0.99	
Satd. Flow (perm)		3431		1770	3539	1636	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	426	87	275	1162	10	27
RTOR Reduction (vph)	0	18	0	0	0	25	0
Lane Group Flow (vph)	0	495	0	275	1162	12	0
Confl. Peds. (#/hr)	5		5	5		5	5
Turn Type	Perm	NA		Prot	NA	Prot	
Protected Phases		2		1	6	8	
Permitted Phases	2						
Actuated Green, G (s)		20.2		54.6	74.3	8.7	
Effective Green, g (s)		20.2		54.6	74.3	8.7	
Actuated g/C Ratio		0.20		0.54	0.73	0.09	
Clearance Time (s)		4.5			4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0	
Lane Grp Cap (vph)		682		952	2590	140	
v/s Ratio Prot		c0.14		c0.16	c0.33	c0.01	
v/s Ratio Perm							
v/c Ratio		0.73		0.29	0.45	0.09	
Uniform Delay, d1		38.1		12.8	5.4	42.7	
Progression Factor		1.00		1.00	1.00	1.00	
Incremental Delay, d2		6.6		0.2	0.6	0.3	
Delay (s)		44.7		13.0	6.0	43.0	
Level of Service		D		B	A	D	
Approach Delay (s)		44.7			7.3	43.0	
Approach LOS		D			A	D	
Intersection Summary							
HCM 2000 Control Delay			17.6		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.48				
Actuated Cycle Length (s)			101.5		Sum of lost time (s)		18.0
Intersection Capacity Utilization			54.9%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM 2010 Signalized Intersection Summary
 6: Albrae St & Project Driveway/Walmart Driveway

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	0	0	1	0	34	0	85	2	238	660	222
Future Volume (veh/h)	51	0	0	1	0	34	0	85	2	238	660	222
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	51	0	0	1	0	34	0	85	2	238	660	222
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	483	0	0	51	10	428	2	688	16	285	800	269
Arrive On Green	0.28	0.00	0.00	0.28	0.00	0.28	0.00	0.38	0.38	0.16	0.60	0.60
Sat Flow, veh/h	1381	0	0	7	37	1529	1774	1812	43	1774	1333	448
Grp Volume(v), veh/h	51	0	0	35	0	0	0	0	87	238	0	882
Grp Sat Flow(s),veh/h/ln	1381	0	0	1574	0	0	1774	0	1855	1774	0	1781
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	9.8	0.0	29.4
Cycle Q Clear(g_c), s	1.7	0.0	0.0	1.2	0.0	0.0	0.0	0.0	2.3	9.8	0.0	29.4
Prop In Lane	1.00		0.00	0.03		0.97	1.00		0.02	1.00		0.25
Lane Grp Cap(c), veh/h	483	0	0	490	0	0	2	0	704	285	0	1069
V/C Ratio(X)	0.11	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.12	0.84	0.00	0.83
Avail Cap(c_a), veh/h	483	0	0	490	0	0	118	0	704	438	0	1069
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.63	0.00	0.63
Uniform Delay (d), s/veh	20.0	0.0	0.0	19.9	0.0	0.0	0.0	0.0	15.2	30.5	0.0	11.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	5.4	0.0	4.8
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	0.8	0.0	0.0	0.6	0.0	0.0	0.0	0.0	1.2	5.2	0.0	15.6
LnGrp Delay(d),s/veh	20.5	0.0	0.0	20.2	0.0	0.0	0.0	0.0	15.5	35.9	0.0	16.6
LnGrp LOS	C			C					B	D		B
Approach Vol, veh/h		51			35			87			1120	
Approach Delay, s/veh		20.5			20.2			15.5			20.7	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.5	0.0	49.5		25.5	16.5	33.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		21.0	5.0	35.5		21.0	18.5	22.0				
Max Q Clear Time (g_c+I1), s		3.7	0.0	31.4		3.2	11.8	4.3				
Green Ext Time (p_c), s		0.2	0.0	2.3		0.1	0.4	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			20.4									
HCM 2010 LOS			C									

HCM Signalized Intersection Capacity Analysis
5: Encyclopedia Cir & Stevenson Blvd

11/11/2021



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	0	1179	14	59	571	51	205
Future Volume (vph)	0	1179	14	59	571	51	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5	4.5	
Lane Util. Factor		0.95		1.00	0.95	1.00	
Frbp, ped/bikes		1.00		1.00	1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	
Frt		1.00		1.00	1.00	0.89	
Flt Protected		1.00		0.95	1.00	0.99	
Satd. Flow (prot)		3532		1770	3539	1624	
Flt Permitted		1.00		0.95	1.00	0.99	
Satd. Flow (perm)		3532		1770	3539	1624	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1179	14	59	571	51	205
RTOR Reduction (vph)	0	1	0	0	0	174	0
Lane Group Flow (vph)	0	1192	0	59	571	82	0
Confl. Peds. (#/hr)	5		5	5		5	5
Turn Type	Perm	NA		Prot	NA	Prot	
Protected Phases		2		1	6	8	
Permitted Phases	2						
Actuated Green, G (s)		28.9		25.5	58.9	12.1	
Effective Green, g (s)		28.9		25.5	58.9	12.1	
Actuated g/C Ratio		0.36		0.32	0.74	0.15	
Clearance Time (s)		4.5		4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)		1275		564	2605	245	
v/s Ratio Prot		c0.34		0.03	c0.16	c0.05	
v/s Ratio Perm							
v/c Ratio		0.93		0.10	0.22	0.33	
Uniform Delay, d1		24.6		19.2	3.3	30.4	
Progression Factor		1.00		1.00	1.00	1.00	
Incremental Delay, d2		13.8		0.4	0.2	0.8	
Delay (s)		38.4		19.6	3.5	31.2	
Level of Service		D		B	A	C	
Approach Delay (s)		38.4			5.0	31.2	
Approach LOS		D			A	C	
Intersection Summary							
HCM 2000 Control Delay			27.4		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.56				
Actuated Cycle Length (s)			80.0		Sum of lost time (s)		13.5
Intersection Capacity Utilization			65.8%		ICU Level of Service		C
Analysis Period (min)			15				
c Critical Lane Group							

HCM 2010 Signalized Intersection Summary
 6: Albrae St & Project Driveway/Walmart Driveway

11/16/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	0	0	3	0	222	0	801	7	300	321	121
Future Volume (veh/h)	208	0	0	3	0	222	0	801	7	300	321	121
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	208	0	0	3	0	222	0	801	7	300	321	121
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	0	0	35	3	316	2	802	7	435	931	351
Arrive On Green	0.19	0.00	0.00	0.19	0.00	0.19	0.00	0.44	0.44	0.25	0.72	0.72
Sat Flow, veh/h	674	0	0	7	15	1623	1774	1844	16	1774	1289	486
Grp Volume(v), veh/h	208	0	0	225	0	0	0	0	808	300	0	442
Grp Sat Flow(s),veh/h/ln	674	0	0	1645	0	0	1774	0	1860	1774	0	1775
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.9	16.6	0.0	9.9
Cycle Q Clear(g_c), s	21.0	0.0	0.0	14.6	0.0	0.0	0.0	0.0	46.9	16.6	0.0	9.9
Prop In Lane	1.00		0.00	0.01		0.99	1.00		0.01	1.00		0.27
Lane Grp Cap(c), veh/h	198	0	0	354	0	0	2	0	809	435	0	1282
V/C Ratio(X)	1.05	0.00	0.00	0.64	0.00	0.00	0.00	0.00	1.00	0.69	0.00	0.34
Avail Cap(c_a), veh/h	198	0	0	354	0	0	107	0	809	435	0	1282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.42	0.00	0.42
Uniform Delay (d), s/veh	48.5	0.0	0.0	40.9	0.0	0.0	0.0	0.0	30.5	37.0	0.0	5.5
Incr Delay (d2), s/veh	78.4	0.0	0.0	8.5	0.0	0.0	0.0	0.0	31.2	3.8	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	10.2	0.0	0.0	7.1	0.0	0.0	0.0	0.0	31.0	8.5	0.0	4.9
LnGrp Delay(d),s/veh	127.0	0.0	0.0	49.4	0.0	0.0	0.0	0.0	61.7	40.8	0.0	5.9
LnGrp LOS	F			D					E	D		A
Approach Vol, veh/h		208			225			808			742	
Approach Delay, s/veh		127.0			49.4			61.7			20.0	
Approach LOS		F			D			E			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.5	0.0	82.5		25.5	31.0	51.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		21.0	6.5	55.5		21.0	26.5	47.0				
Max Q Clear Time (g_c+I1), s		23.0	0.0	11.9		16.6	18.6	48.9				
Green Ext Time (p_c), s		0.0	0.0	3.3		0.5	0.6	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			51.5									
HCM 2010 LOS			D									

Appendix D
Intersection Queuing
Worksheets

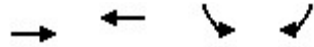


Queues
1: I-880 NB & Stevenson Blvd



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	582	1304	513	366
v/c Ratio	0.23	0.41	0.48	0.33
Control Delay	6.8	7.6	14.4	2.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.8	7.6	14.4	2.9
Queue Length 50th (ft)	24	48	47	0
Queue Length 95th (ft)	54	95	108	25
Internal Link Dist (ft)	196	223	796	
Turn Bay Length (ft)			350	
Base Capacity (vph)	4434	5588	2766	2275
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.19	0.16
Intersection Summary				

Queues
2: Stevenson Blvd & I-880 SB



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	470	1562	203	415
v/c Ratio	0.15	0.50	0.25	0.64
Control Delay	5.5	7.6	19.4	24.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.5	7.6	19.4	24.5
Queue Length 50th (ft)	22	96	31	73
Queue Length 95th (ft)	43	165	54	117
Internal Link Dist (ft)	137	116	521	
Turn Bay Length (ft)				350
Base Capacity (vph)	3142	3142	1894	1518
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.50	0.11	0.27

Intersection Summary

Queues
3: Albrae St & Stevenson Blvd

Fremont Industrial Project
Existing AM NP



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	565	123	508	1135	334	25	62	164	106	20
v/c Ratio	0.09	0.23	0.15	0.76	0.32	0.21	0.25	0.09	0.35	0.44	0.06
Control Delay	52.1	20.1	4.3	49.5	9.2	0.3	55.8	7.1	42.3	45.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	20.1	4.3	49.5	9.4	0.3	55.8	7.1	42.3	45.8	0.3
Queue Length 50th (ft)	6	82	0	176	93	0	17	0	60	79	0
Queue Length 95th (ft)	22	161	36	221	248	0	46	16	73	107	0
Internal Link Dist (ft)		429			163		745			854	
Turn Bay Length (ft)	210			250				310	280		280
Base Capacity (vph)	90	2488	831	827	3597	1562	102	807	1024	535	590
Starvation Cap Reductn	0	0	0	0	1309	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	0.09	0.23	0.15	0.61	0.50	0.21	0.25	0.08	0.16	0.20	0.03

Intersection Summary

Queues
1: I-880 NB & Stevenson Blvd

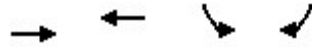


Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2256	1265	326	795
v/c Ratio	0.85	0.38	0.26	0.79
Control Delay	20.2	11.5	16.3	27.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.2	11.5	16.3	27.0
Queue Length 50th (ft)	302	93	51	176
Queue Length 95th (ft)	#500	141	78	246
Internal Link Dist (ft)	196	223	796	
Turn Bay Length (ft)			350	
Base Capacity (vph)	2663	3356	1609	1282
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.85	0.38	0.20	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Stevenson Blvd & I-880 SB



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1618	1332	934	405
v/c Ratio	0.62	0.51	0.76	0.40
Control Delay	14.6	13.2	24.8	16.6
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	14.8	13.2	24.8	16.6
Queue Length 50th (ft)	180	136	186	67
Queue Length 95th (ft)	271	209	248	104
Internal Link Dist (ft)	137	116	521	
Turn Bay Length (ft)				350
Base Capacity (vph)	2626	2626	1584	1283
Starvation Cap Reductn	249	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.51	0.59	0.32
Intersection Summary				

Queues
3: Albrae St & Stevenson Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	47	1127	135	411	797	529	313	692	352	177	17
v/c Ratio	0.35	0.85	0.26	0.85	0.45	0.34	0.71	0.60	0.56	0.55	0.04
Control Delay	52.0	43.2	5.5	60.9	28.0	0.6	48.5	20.6	39.9	42.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	43.2	5.5	60.9	28.0	0.6	48.5	20.6	39.9	42.3	0.2
Queue Length 50th (ft)	30	257	0	138	153	0	183	127	119	120	0
Queue Length 95th (ft)	67	313	38	#216	196	0	#480	#285	134	156	0
Internal Link Dist (ft)		429			163		758			854	
Turn Bay Length (ft)	210			250				310	280		280
Base Capacity (vph)	159	1332	516	483	1761	1562	440	1162	1094	562	626
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	0.30	0.85	0.26	0.85	0.45	0.34	0.71	0.60	0.32	0.31	0.03

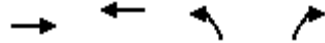
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

1: I-880 NB & Stevenson Blvd

11/11/2021



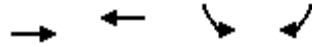
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	589	1336	623	366
v/c Ratio	0.24	0.43	0.54	0.32
Control Delay	7.6	8.5	15.3	2.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.6	8.5	15.3	2.7
Queue Length 50th (ft)	29	59	65	0
Queue Length 95th (ft)	62	111	140	26
Internal Link Dist (ft)	196	223	796	
Turn Bay Length (ft)			350	
Base Capacity (vph)	4197	5289	2607	2165
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.25	0.24	0.17

Intersection Summary

Queues

2: Stevenson Blvd & I-880 SB

11/11/2021



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	510	1704	203	558
v/c Ratio	0.17	0.58	0.21	0.71
Control Delay	7.4	10.5	17.8	25.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.4	10.5	17.8	25.7
Queue Length 50th (ft)	31	141	31	109
Queue Length 95th (ft)	59	236	53	161
Internal Link Dist (ft)	137	116	521	
Turn Bay Length (ft)				350
Base Capacity (vph)	2935	2935	1770	1416
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.17	0.58	0.11	0.39

Intersection Summary

Queues

3: Albrae St & Stevenson Blvd

11/11/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	581	123	722	1206	334	27	111	164	114	28
v/c Ratio	0.11	0.26	0.17	0.84	0.34	0.21	0.26	0.13	0.35	0.46	0.08
Control Delay	52.5	23.7	4.6	49.5	9.5	0.3	56.1	5.1	41.9	46.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	23.7	4.6	49.5	9.7	0.3	56.1	5.1	41.9	46.3	0.5
Queue Length 50th (ft)	7	99	0	244	104	0	18	0	60	84	0
Queue Length 95th (ft)	25	166	36	#352	267	0	49	21	73	114	0
Internal Link Dist (ft)		429			163		753			854	
Turn Bay Length (ft)	210			250				310	280		280
Base Capacity (vph)	92	2194	741	879	3580	1562	104	884	1024	535	590
Starvation Cap Reductn	0	0	0	0	1271	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	0.11	0.26	0.17	0.82	0.52	0.21	0.26	0.13	0.16	0.21	0.05

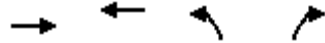
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

1: I-880 NB & Stevenson Blvd

11/11/2021



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2286	1283	386	795
v/c Ratio	0.86	0.38	0.31	0.79
Control Delay	20.9	11.6	16.8	26.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.9	11.6	16.8	26.7
Queue Length 50th (ft)	310	95	62	176
Queue Length 95th (ft)	#512	143	92	246
Internal Link Dist (ft)	196	223	796	
Turn Bay Length (ft)			350	
Base Capacity (vph)	2655	3346	1604	1279
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.86	0.38	0.24	0.62

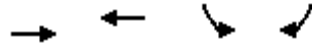
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

2: Stevenson Blvd & I-880 SB

11/11/2021



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1782	1410	934	482
v/c Ratio	0.68	0.54	0.75	0.47
Control Delay	16.1	13.9	24.3	18.0
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	16.3	13.9	24.3	18.0
Queue Length 50th (ft)	215	153	186	86
Queue Length 95th (ft)	312	225	248	129
Internal Link Dist (ft)	137	116	521	
Turn Bay Length (ft)				350
Base Capacity (vph)	2605	2605	1571	1268
Starvation Cap Reductn	234	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	0.54	0.59	0.38

Intersection Summary

Queues

3: Albrae St & Stevenson Blvd

11/11/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	1194	135	527	836	529	321	892	352	182	22
v/c Ratio	0.40	0.90	0.26	1.09	0.48	0.34	0.73	0.77	0.56	0.56	0.05
Control Delay	53.6	46.8	5.5	110.2	28.4	0.6	49.7	26.9	39.7	42.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	46.8	5.5	110.2	28.4	0.6	49.7	26.9	39.7	42.7	0.2
Queue Length 50th (ft)	35	278	0	~202	163	0	189	200	119	124	0
Queue Length 95th (ft)	74	#357	38	#307	206	0	#492	#469	134	160	0
Internal Link Dist (ft)		429			163		763			854	
Turn Bay Length (ft)	210			250				310	280		280
Base Capacity (vph)	159	1332	512	483	1752	1562	438	1159	1094	562	626
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	0.35	0.90	0.26	1.09	0.48	0.34	0.73	0.77	0.32	0.32	0.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Appendix E
Signal Warrant
Worksheets



Warrant Summary

Warrant 1: 8-Hour Vehicular Volume	Not Met
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Warrant 1A: Minimum Vehicular Volume	Not Met
--------------------------------------	---------

OR

Warrant 1B: Interruption of Continuous Traffic	Not Met
------------------------------------------------	---------

OR

Warrant 1C: 80% of Warrant 1A and 1B	Not Met
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Warrant 2: 4-Hour Vehicular Volume	Not Met
-------------------------------------------	----------------

Warrant 3: Peak Hour Vehicular Volume	Not Met
----------------------------------------------	----------------

Warrant 3A: Peak Hour Delay	Not Met
-----------------------------	---------

OR

Warrant 3B: Peak Hour Volume	Not Met
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Warrant 4: Pedestrian Volume	Not Met
-------------------------------------	----------------

Warrant 4A: 4 Hours Pedestrian Volume	Not Met
---------------------------------------	---------

OR

Warrant 4B: Peak Hour Pedestrian Volume	Not Met
-----------------------------------------	---------

AND

Warrant 4C: Gap Analysis	N/A
--------------------------	-----

Warrant 7: Crash Experience	Not Met
------------------------------------	----------------

Warrant 7A: Five or more reported crashes	Not Met
-------------------------------------------	---------

AND ONE OF

Warrant 7B: 80% of Warrant 1A Met?	Not Met
------------------------------------	---------

OR

Warrant 7C: 80% of Warrant 1B Met?	Not Met
------------------------------------	---------

OR

Warrant 7D: 80% of Warrant 4 Met?	Not Met
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Warrant 1A: Minimum Vehicular Volume

The warrant is satisfied when, for each of any 8 hours of an average day, the traffic volumes given in the table below exist on the major street and on the higher-volume minor street approach to the intersection.

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)	Vehicles per hour on higher-volume minor-street approach (one direction only)
Major Street	Minor Street		
1	1	500	150
2 or more	1	600	150
2 or more	2 or more	600	200
1	2 or more	500	200

When the 85-percentile speed of major-street exceeds 40 mph in either an urban or rural area, or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the Minimum Vehicular Volume warrant is 70 percent of the requirements above.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major street (total of both approaches)	Threshold	Veh/hour on higher volume minor street (one direction only)	Threshold	
		URBAN 600		URBAN 150	
12:00 PM	1,732		31		NOT MET
1:00 PM	1,543		49		NOT MET
2:00 PM	1,698		31		NOT MET
3:00 PM	1,801		40		NOT MET
4:00 PM	1,872		30		NOT MET
5:00 PM	2,208		37		NOT MET
6:00 PM	1,893		37		NOT MET
7:00 PM	1,472		33		NOT MET

Number of hours for which warrant met	0
Percentage by which warrant met	0.0%

Warrant Not Met

80% Warrant	
	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major street (total of both approaches)	Threshold	Veh/hour on higher volume minor street	Threshold	
		URBAN 480		URBAN 120	
12:00 PM	1,732		31		NOT MET
1:00 PM	1,543		49		NOT MET
2:00 PM	1,698		31		NOT MET
3:00 PM	1,801		40		NOT MET
4:00 PM	1,872		30		NOT MET
5:00 PM	2,208		37		NOT MET
6:00 PM	1,893		37		NOT MET
7:00 PM	1,472		33		NOT MET

Number of hours for which warrant met	0
Percentage by which warrant met	0.0%

Warrant Not Met

Warrant 1B: Interruption of Continuous Traffic

The warrant is satisfied when, for each of any 8 hours of an average day, the traffic volumes given in the table below exist on the major street and on the higher-volume minor street approach to the intersection, and signal installation will not seriously disrupt progressive traffic flow.

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)	Vehicles per hour on higher-volume minor-street approach (one direction only)
Major Street	Minor Street		
1	1	750	75
2 or more	1	900	75
2 or more	2 or more	900	100
1	2 or more	750	100

The major-street and minor -street volumes are for the same 8 hours. During those 8 hours, the direction of higher volume on the minor street may be on one approach during some hours and on the opposite approach during other hours.

When the 85-percentile speed of major-street exceeds 40 mph in either an urban or rural area, or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the Interruption of Continuous Traffic warrant is 70 percent of the requirements above.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major (total of both approaches)	Threshold	Veh/hour on higher volume minor (one direction only)	Threshold	
		URBAN		URBAN	
		900		75	
12:00 PM	1,732		31		NOT MET
1:00 PM	1,543		49		NOT MET
2:00 PM	1,698		31		NOT MET
3:00 PM	1,801		40		NOT MET
4:00 PM	1,872		30		NOT MET
5:00 PM	2,208		37		NOT MET
6:00 PM	1,893		37		NOT MET
7:00 PM	1,472		33		NOT MET

Number of hours for which warrant met	0
Percentage by which warrant met	0.0%

Warrant Not Met

80% Warrant

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major (total of both approaches)	Threshold	Veh/hour on higher volume minor (one direction only)	Threshold	
		URBAN		URBAN	
		720		60	
12:00 PM	1,732		31		NOT MET
1:00 PM	1,543		49		NOT MET
2:00 PM	1,698		31		NOT MET
3:00 PM	1,801		40		NOT MET
4:00 PM	1,872		30		NOT MET
5:00 PM	2,208		37		NOT MET
6:00 PM	1,893		37		NOT MET
7:00 PM	1,472		33		NOT MET

Number of hours for which warrant met	0
Percentage by which warrant met	0.0%

Warrant Not Met

Warrant 1C: Combination of Warrants

In exceptional cases, signals occasionally may be justified where no single warrant is satisfied but where Warrants 1A and 1B are satisfied to the extent of 80% or more of the stated values.

Analysis

80% of Warrant 1A Met	NO
80% of Warrant 1B Met	NO

Warrant	Not Met
----------------	----------------

Warrant 2: Four-Hour Vehicular Volumes

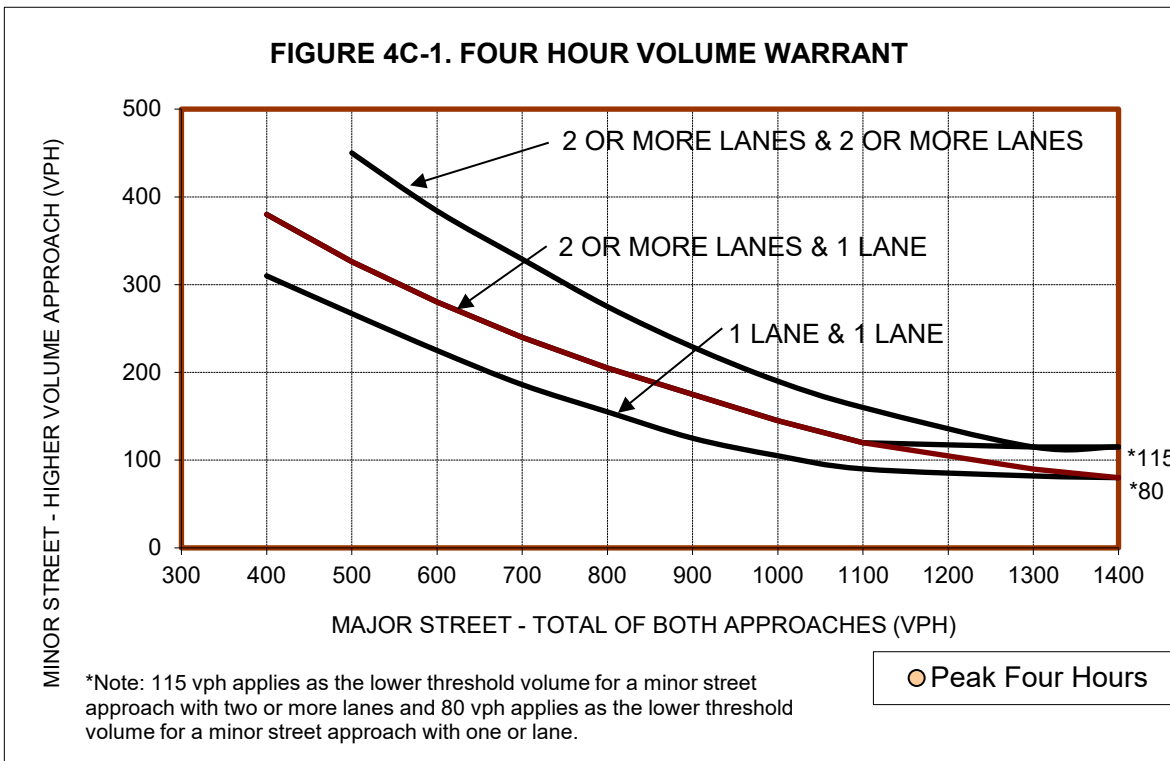
The Four Hour Volume Warrant is satisfied when each of any four hours of an average day the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) all fall above the curve in Figure 4C-1 for the existing combination of approach lanes.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Peak Four Hours

Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
1:00 PM	1,543	49
3:00 PM	1,801	40
5:00 PM	2,208	37
6:00 PM	1,893	37



Warrant Not Met

Warrant 3A: Peak Hour Delay

The peak hour delay warrant 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. The peak hour delay warrant is satisfied when the conditions given below exist for one hour (any four consecutive 15-minute periods) of an average weekday.

The peak hour delay warrant is met when:

1. The total delay experienced by the traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, and
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes, and
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four (or more) approaches or 650 vph for intersections with three approaches.

Analysis

Minor Street Lanes	1
Total Approaches	4
Time	5:00 PM

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced for the Intersection (vph)
Existing	0.7	38	2,263
Limiting Value	4	100	800
Met/ Not Met	Not Met	Not Met	Met

Warrant	Not Met
----------------	----------------

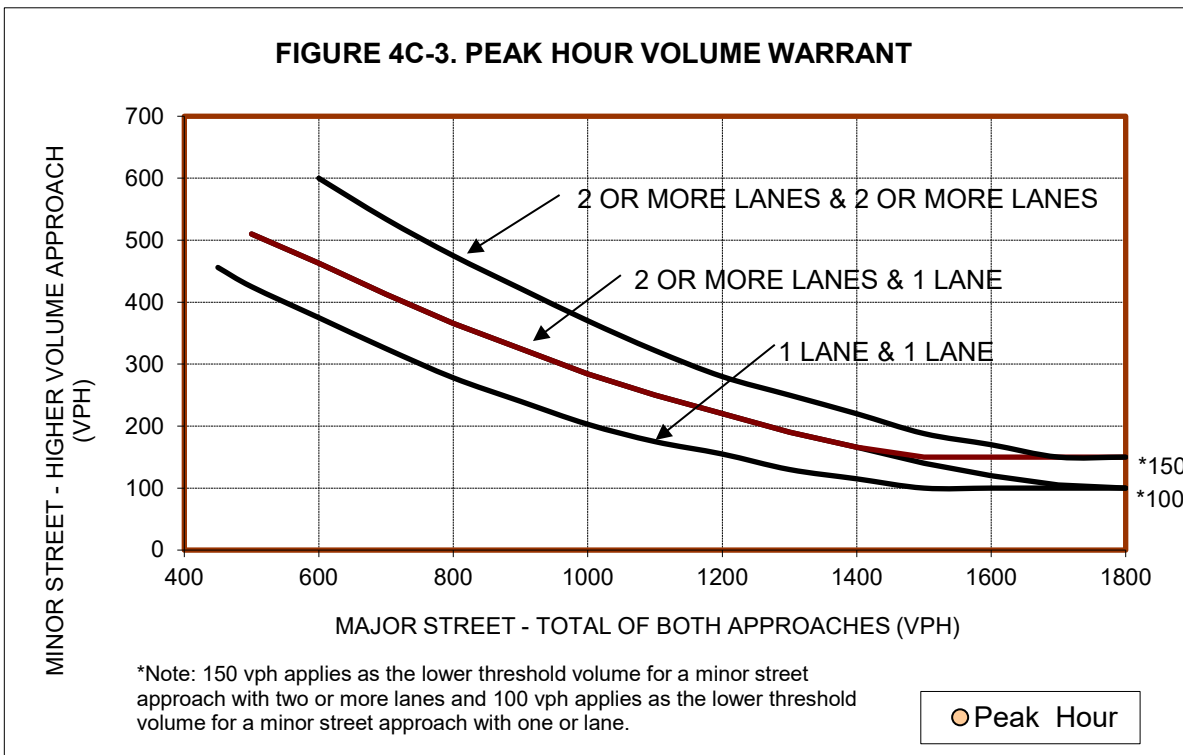
Warrant 3B: Peak Hour Volume

The peak hour volume warrant is satisfied when the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour of the higher volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the curve in Figure 4-5 for the existing combination of approach lanes.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Peak Hour		
Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
5:00 PM	2,208	37



Warrant	Not Met
----------------	----------------

Warrant 7: Crash Experience

The Crash Experience signal warrant conditions are intended for application where severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Standard:

A. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and

B. Warrant 1A or Warrant 1B or 80% of the pedestrian volume warrant is met

Warrant 7A - Five or more reported crashes

	Number	5 or more?
Number of crashes within a 12-month period, of types susceptible to correction by a traffic signal, each involving personal injury or property damage (reportable)	0	N

Plus at least one of the following:	Yes	No
--------------------------------------------	------------	-----------

Warrant 7B - 80% Warrant 1A

Warrant 1A: 80% threshold met?		X
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Warrant 7C - 80% Warrant 1B

Warrant 1B: 80% threshold met?		X
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Warrant 7D - 80% Warrant 4

Warrant 4: 80% threshold met (152 or more peds for any hour, and 80 or more peds for any 4 hours)?		X
----------------------------------------------------------------------------------------------------	--	---

Warrant	Not Met
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Warrant Summary

Warrant 1: 8-Hour Vehicular Volume	Not Met
-------------------------------------------	----------------

Warrant 1A: Minimum Vehicular Volume	Not Met
--------------------------------------	---------

OR

Warrant 1B: Interruption of Continuous Traffic	Not Met
------------------------------------------------	---------

OR

Warrant 1C: 80% of Warrant 1A and 1B	Not Met
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Warrant 2: 4-Hour Vehicular Volume	Met
-------------------------------------------	------------

Warrant 3: Peak Hour Vehicular Volume	Met
----------------------------------------------	------------

Warrant 3A: Peak Hour Delay	Not Met
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OR

Warrant 3B: Peak Hour Volume	Met
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Warrant 4: Pedestrian Volume	Not Met
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Warrant 4A: 4 Hours Pedestrian Volume	Not Met
---------------------------------------	---------

OR

Warrant 4B: Peak Hour Pedestrian Volume	Not Met
-----------------------------------------	---------

AND

Warrant 4C: Gap Analysis	N/A
--------------------------	-----

Warrant 7: Crash Experience	Not Met
------------------------------------	----------------

Warrant 7A: Five or more reported crashes	Not Met
-------------------------------------------	---------

AND ONE OF

Warrant 7B: 80% of Warrant 1A Met?	Not Met
------------------------------------	---------

OR

Warrant 7C: 80% of Warrant 1B Met?	Not Met
------------------------------------	---------

OR

Warrant 7D: 80% of Warrant 4 Met?	Not Met
-----------------------------------	---------

Warrant 1A: Minimum Vehicular Volume

The warrant is satisfied when, for each of any 8 hours of an average day, the traffic volumes given in the table below exist on the major street and on the higher-volume minor street approach to the intersection.

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)	Vehicles per hour on higher-volume minor-street approach (one direction only)
Major Street	Minor Street		
1	1	500	150
2 or more	1	600	150
2 or more	2 or more	600	200
1	2 or more	500	200

When the 85-percentile speed of major-street exceeds 40 mph in either an urban or rural area, or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the Minimum Vehicular Volume warrant is 70 percent of the requirements above.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major street (total of both approaches)	Threshold	Veh/hour on higher volume minor street (one direction only)	Threshold	
		URBAN 600		URBAN 150	
10:00 AM	1,110		57		NOT MET
11:00 AM	1,274		87		NOT MET
12:00 PM	1,575		61		NOT MET
1:00 PM	1,411		50		NOT MET
3:00 PM	1,525		138		NOT MET
4:00 PM	1,554		146		NOT MET
5:00 PM	1,787		195		MET
6:00 PM	1,562		126		NOT MET

Number of hours for which warrant met	1
Percentage by which warrant met	12.5%

Warrant Not Met

80% Warrant

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major street (total of both approaches)	Threshold	Veh/hour on higher volume minor street	Threshold	
		URBAN 480		URBAN 120	
10:00 AM	1,110		57		NOT MET
11:00 AM	1,274		87		NOT MET
12:00 PM	1,575		61		NOT MET
1:00 PM	1,411		50		NOT MET
3:00 PM	1,525		138		MET
4:00 PM	1,554		146		MET
5:00 PM	1,787		195		MET
6:00 PM	1,562		126		MET

Number of hours for which warrant met	4
Percentage by which warrant met	50.0%

Warrant Not Met

Warrant 1B: Interruption of Continuous Traffic

The warrant is satisfied when, for each of any 8 hours of an average day, the traffic volumes given in the table below exist on the major street and on the higher-volume minor street approach to the intersection, and signal installation will not seriously disrupt progressive traffic flow.

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)	Vehicles per hour on higher-volume minor-street approach (one direction only)
Major Street	Minor Street		
1	1	750	75
2 or more	1	900	75
2 or more	2 or more	900	100
1	2 or more	750	100

The major-street and minor -street volumes are for the same 8 hours. During those 8 hours, the direction of higher volume on the minor street may be on one approach during some hours and on the opposite approach during other hours.

When the 85-percentile speed of major-street exceeds 40 mph in either an urban or rural area, or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the Interruption of Continuous Traffic warrant is 70 percent of the requirements above.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major (total of both approaches)	Threshold	Veh/hour on higher volume minor (one direction only)	Threshold	
		URBAN		URBAN	
		900		75	
10:00 AM	1,110		57		NOT MET
11:00 AM	1,274		87		MET
12:00 PM	1,575		61		NOT MET
1:00 PM	1,411		50		NOT MET
3:00 PM	1,525		138		MET
4:00 PM	1,554		146		MET
5:00 PM	1,787		195		MET
6:00 PM	1,562		126		MET

Number of hours for which warrant met	5
Percentage by which warrant met	62.5%

Warrant Not Met

80% Warrant

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major (total of both approaches)	Threshold	Veh/hour on higher volume minor (one direction only)	Threshold	
		URBAN		URBAN	
		720		60	
10:00 AM	1,110		57		NOT MET
11:00 AM	1,274		87		MET
12:00 PM	1,575		61		MET
1:00 PM	1,411		50		NOT MET
3:00 PM	1,525		138		MET
4:00 PM	1,554		146		MET
5:00 PM	1,787		195		MET
6:00 PM	1,562		126		MET

Number of hours for which warrant met	6
Percentage by which warrant met	75.0%

Warrant Not Met

Warrant 1C: Combination of Warrants

In exceptional cases, signals occasionally may be justified where no single warrant is satisfied but where Warrants 1A and 1B are satisfied to the extent of 80% or more of the stated values.

Analysis

80% of Warrant 1A Met	NO
80% of Warrant 1B Met	NO

Warrant	Not Met
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Warrant 2: Four-Hour Vehicular Volumes

The Four Hour Volume Warrant is satisfied when each of any four hours of an average day the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) all fall above the curve in Figure 4C-1 for the existing combination of approach lanes.

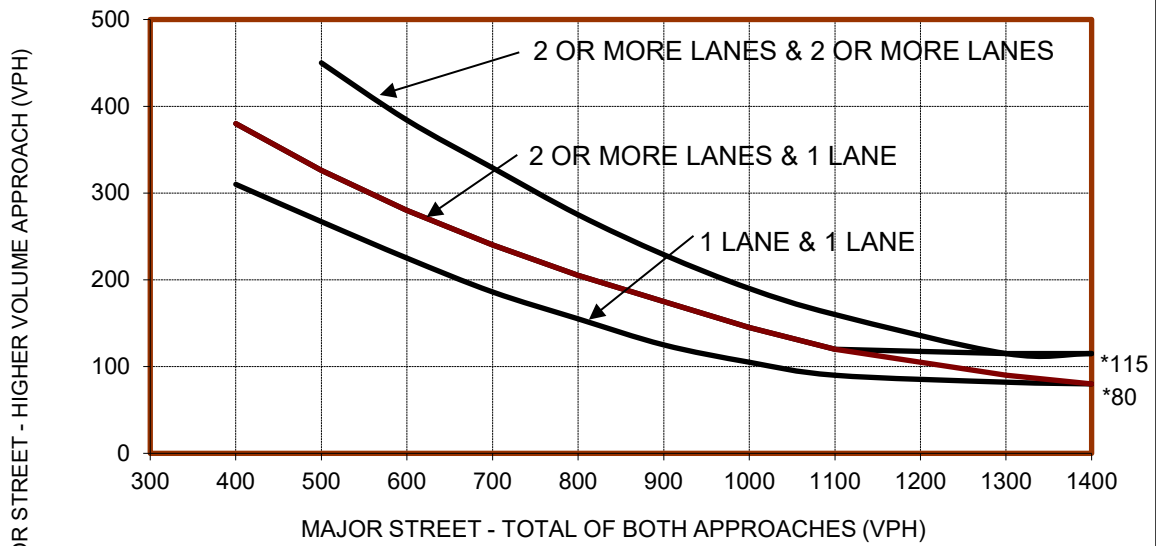
Analysis

	No of lanes
Major Street	2
Minor Street	1

Peak Four Hours

Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
3:00 PM	1,525	138
4:00 PM	1,554	146
5:00 PM	1,787	195
6:00 PM	1,562	126

FIGURE 4C-1. FOUR HOUR VOLUME WARRANT



*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 or lane.

Warrant	Met
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Warrant 3A: Peak Hour Delay

The peak hour delay warrant 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. The peak hour delay warrant is satisfied when the conditions given below exist for one hour (any four consecutive 15-minute periods) of an average weekday.

The peak hour delay warrant is met when:

1. The total delay experienced by the traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, and
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes, and
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four (or more) approaches or 650 vph for intersections with three approaches.

Analysis

Minor Street Lanes	1
Total Approaches	3
Time	5:00 PM

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced for the Intersection (vph)
Existing	2.8	195	1,982
Limiting Value	4	100	650
Met/ Not Met	Not Met	Met	Met

Warrant	Not Met
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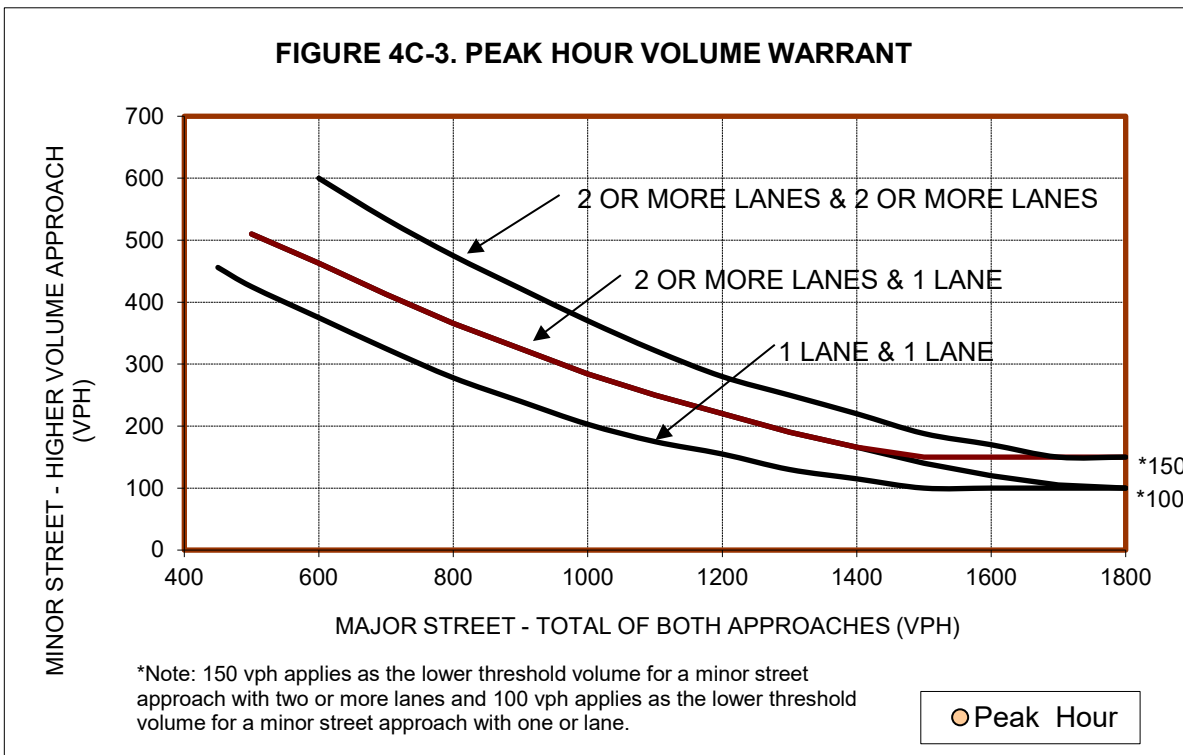
Warrant 3B: Peak Hour Volume

The peak hour volume warrant is satisfied when the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour of the higher volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the curve in Figure 4-5 for the existing combination of approach lanes.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Peak Hour		
Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
5:00 PM	1,787	195



Warrant	Met
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Warrant 7: Crash Experience

The Crash Experience signal warrant conditions are intended for application where severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Standard:

A. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and

B. Warrant 1A or Warrant 1B or 80% of the pedestrian volume warrant is met

Warrant 7A - Five or more reported crashes

	Number	5 or more?
Number of crashes within a 12-month period, of types susceptible to correction by a traffic signal, each involving personal injury or property damage (reportable)	1	N

Plus at least one of the following:	Yes	No
--------------------------------------------	------------	-----------

Warrant 7B - 80% Warrant 1A

Warrant 1A: 80% threshold met?		X
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Warrant 7C - 80% Warrant 1B

Warrant 1B: 80% threshold met?		X
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Warrant 7D - 80% Warrant 4

Warrant 4: 80% threshold met (152 or more peds for any hour, and 80 or more peds for any 4 hours)?		X
----------------------------------------------------------------------------------------------------	--	---

Warrant	Not Met
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Warrant Summary

Warrant 1: 8-Hour Vehicular Volume	Met
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Warrant 1A: Minimum Vehicular Volume	Met
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OR

Warrant 1B: Interruption of Continuous Traffic	Not Met
------------------------------------------------	---------

OR

Warrant 1C: 80% of Warrant 1A and 1B	Not Met
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Warrant 2: 4-Hour Vehicular Volume	Met
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Warrant 3: Peak Hour Vehicular Volume	Met
----------------------------------------------	------------

Warrant 3A: Peak Hour Delay	Not Met
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OR

Warrant 3B: Peak Hour Volume	Met
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Warrant 4: Pedestrian Volume	Not Met
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Warrant 4A: 4 Hours Pedestrian Volume	Not Met
---------------------------------------	---------

OR

Warrant 4B: Peak Hour Pedestrian Volume	Not Met
-----------------------------------------	---------

AND

Warrant 4C: Gap Analysis	N/A
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Warrant 7: Crash Experience	Not Met
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Warrant 7A: Five or more reported crashes	Not Met
-------------------------------------------	---------

AND ONE OF

Warrant 7B: 80% of Warrant 1A Met?	Met
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OR

Warrant 7C: 80% of Warrant 1B Met?	Not Met
------------------------------------	---------

OR

Warrant 7D: 80% of Warrant 4 Met?	Not Met
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Warrant 1A: Minimum Vehicular Volume

The warrant is satisfied when, for each of any 8 hours of an average day, the traffic volumes given in the table below exist on the major street and on the higher-volume minor street approach to the intersection.

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)	Vehicles per hour on higher-volume minor-street approach (one direction only)
Major Street	Minor Street		
1	1	500	150
2 or more	1	600	150
2 or more	2 or more	600	200
1	2 or more	500	200

When the 85-percentile speed of major-street exceeds 40 mph in either an urban or rural area, or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the Minimum Vehicular Volume warrant is 70 percent of the requirements above.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major street (total of both approaches)	Threshold	Veh/hour on higher volume minor street (one direction only)	Threshold	
		URBAN		URBAN	
		600		150	
1:00 PM	971		175		MET
2:00 PM	1,049		166		MET
3:00 PM	1,078		170		MET
4:00 PM	1,183		200		MET
5:00 PM	1,434		227		MET
6:00 PM	1,215		275		MET
7:00 PM	888		211		MET
8:00 PM	626		207		MET

Number of hours for which warrant met	8
Percentage by which warrant met	100.0%

Warrant	Met
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80% Warrant

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major street (total of both approaches)	Threshold	Veh/hour on higher volume minor street	Threshold	
		URBAN		URBAN	
		480		120	
1:00 PM	971		175		MET
2:00 PM	1,049		166		MET
3:00 PM	1,078		170		MET
4:00 PM	1,183		200		MET
5:00 PM	1,434		227		MET
6:00 PM	1,215		275		MET
7:00 PM	888		211		MET
8:00 PM	626		207		MET

Number of hours for which warrant met	8
Percentage by which warrant met	100.0%

Warrant	Met
----------------	------------

Warrant 1B: Interruption of Continuous Traffic

The warrant is satisfied when, for each of any 8 hours of an average day, the traffic volumes given in the table below exist on the major street and on the higher-volume minor street approach to the intersection, and signal installation will not seriously disrupt progressive traffic flow.

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)	Vehicles per hour on higher-volume minor-street approach (one direction only)
Major Street	Minor Street		
1	1	750	75
2 or more	1	900	75
2 or more	2 or more	900	100
1	2 or more	750	100

The major-street and minor -street volumes are for the same 8 hours. During those 8 hours, the direction of higher volume on the minor street may be on one approach during some hours and on the opposite approach during other hours.

When the 85-percentile speed of major-street exceeds 40 mph in either an urban or rural area, or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the Interruption of Continuous Traffic warrant is 70 percent of the requirements above.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major (total of both approaches)	Threshold	Veh/hour on higher volume minor (one direction only)	Threshold	
		URBAN		URBAN	
		900		75	
1:00 PM	971		175		MET
2:00 PM	1,049		166		MET
3:00 PM	1,078		170		MET
4:00 PM	1,183		200		MET
5:00 PM	1,434		227		MET
6:00 PM	1,215		275		MET
7:00 PM	888		211		NOT MET
8:00 PM	626		207		NOT MET

Number of hours for which warrant met	6
Percentage by which warrant met	75.0%

Warrant Not Met

80% Warrant

	No of lanes
Major Street	2
Minor Street	1

Time	Major Street		Minor Street		Warrants MET/NOT
	Volume on major (total of both approaches)	Threshold	Veh/hour on higher volume minor (one direction only)	Threshold	
		URBAN		URBAN	
		720		60	
1:00 PM	971		175		MET
2:00 PM	1,049		166		MET
3:00 PM	1,078		170		MET
4:00 PM	1,183		200		MET
5:00 PM	1,434		227		MET
6:00 PM	1,215		275		MET
7:00 PM	888		211		MET
8:00 PM	626		207		NOT MET

Number of hours for which warrant met	7
Percentage by which warrant met	87.5%

Warrant Not Met

Warrant 1C: Combination of Warrants

In exceptional cases, signals occasionally may be justified where no single warrant is satisfied but where Warrants 1A and 1B are satisfied to the extent of 80% or more of the stated values.

Analysis

80% of Warrant 1A Met	YES
80% of Warrant 1B Met	NO

Warrant	Not Met
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Warrant 2: Four-Hour Vehicular Volumes

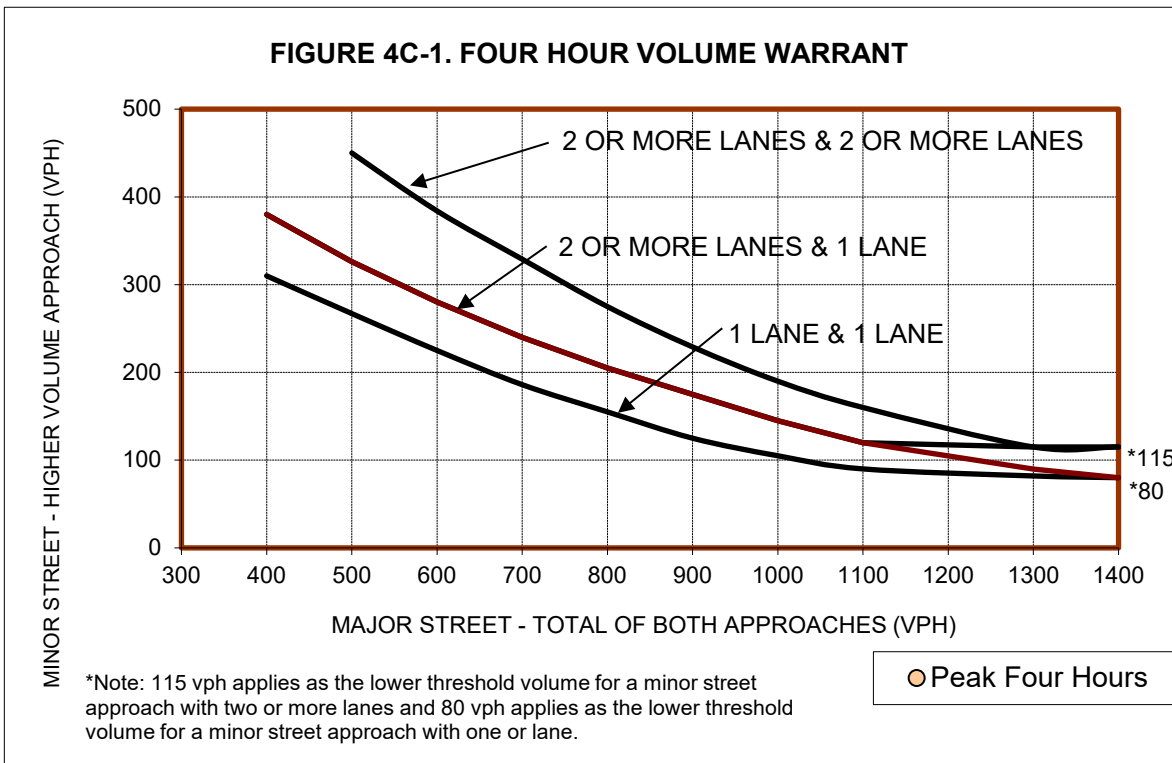
The Four Hour Volume Warrant is satisfied when each of any four hours of an average day the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) all fall above the curve in Figure 4C-1 for the existing combination of approach lanes.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Peak Four Hours

Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
3:00 PM	1,078	170
4:00 PM	1,183	200
5:00 PM	1,434	227
6:00 PM	1,215	275



Warrant	Met
----------------	------------

Warrant 3A: Peak Hour Delay

The peak hour delay warrant 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. The peak hour delay warrant is satisfied when the conditions given below exist for one hour (any four consecutive 15-minute periods) of an average weekday.

The peak hour delay warrant is met when:

1. The total delay experienced by the traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, and
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes, and
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four (or more) approaches or 650 vph for intersections with three approaches.

Analysis

Minor Street Lanes	1
Total Approaches	3
Time	5:00 PM

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced for the Intersection (vph)
Existing	2.0	227	1,661
Limiting Value	4	100	650
Met/ Not Met	Not Met	Met	Met

Warrant	Not Met
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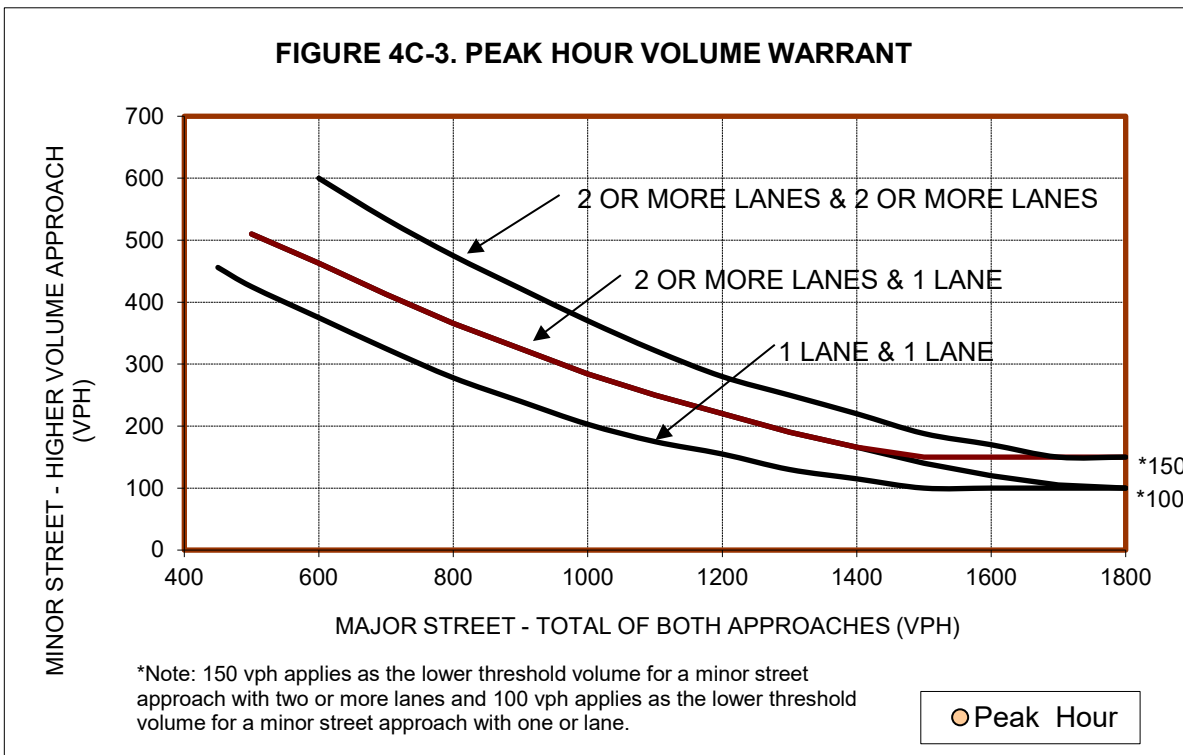
Warrant 3B: Peak Hour Volume

The peak hour volume warrant is satisfied when the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour of the higher volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the curve in Figure 4-5 for the existing combination of approach lanes.

Analysis

	No of lanes
Major Street	2
Minor Street	1

Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
5:00 PM	1,434	227



Warrant	Met
----------------	------------

Warrant 7: Crash Experience

The Crash Experience signal warrant conditions are intended for application where severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Standard:

A. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and

B. Warrant 1A or Warrant 1B or 80% of the pedestrian volume warrant is met

Warrant 7A - Five or more reported crashes

	Number	5 or more?
Number of crashes within a 12-month period, of types susceptible to correction by a traffic signal, each involving personal injury or property damage (reportable)	0	N

Plus at least one of the following:	Yes	No
Warrant 7B - 80% Warrant 1A		
Warrant 1A: 80% threshold met?	X	
Warrant 7C - 80% Warrant 1B		
Warrant 1B: 80% threshold met?		X
Warrant 7D - 80% Warrant 4		
Warrant 4: 80% threshold met (152 or more peds for any hour, and 80 or more peds for any 4 hours)?		X

Warrant	Not Met
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Appendix F

Collision Summaries





Table F-1: Summary of Collisions by Type (2015-2020)

Location	Head-on	Sideswipe	Rear-end	Broadside	Hit Object	Pedestrian-Involved	Other	Total
I-880/Stevenson Boulevard Interchange	0	0	1	2	0	0	1	4
Albrae Street/Stevenson Boulevard Intersection	0	0	6	2	4	0	0	12
Main Street/Stevenson Boulevard Intersection	0	0	0	0	0	0	0	0
Encyclopedia Circle/Stevenson Boulevard Intersection	0	0	0	1	0	0	0	1
Total	0	0	7	5	4	0	1	17

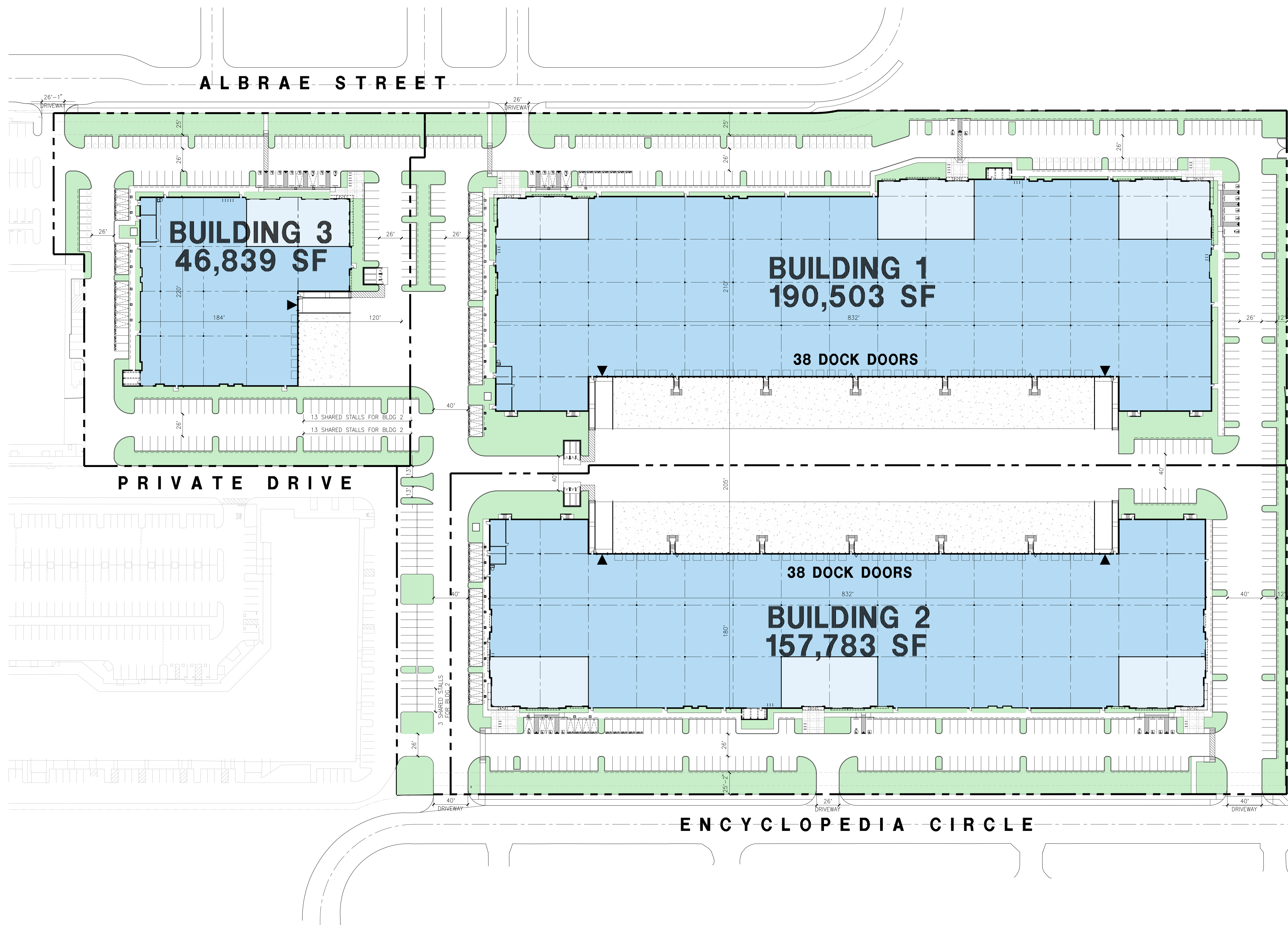
Note:

Based on five-year collision data reported from January 1, 2015 to December 31, 2019

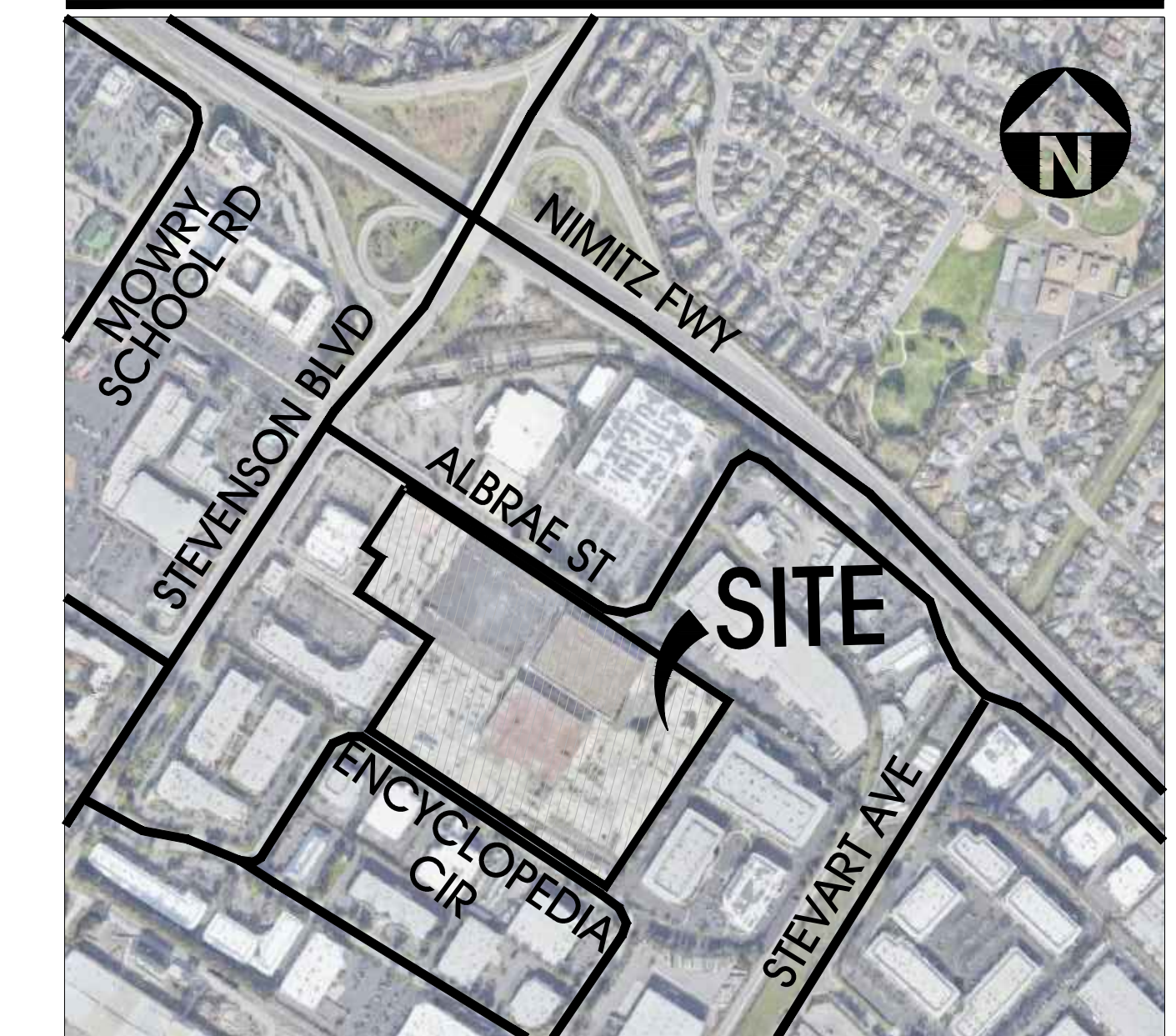
Source: Fehr & Peers, 2020.

Appendix G
Project Site Plan





Aerial Map



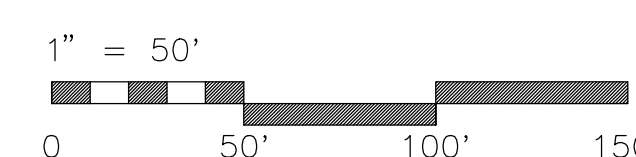
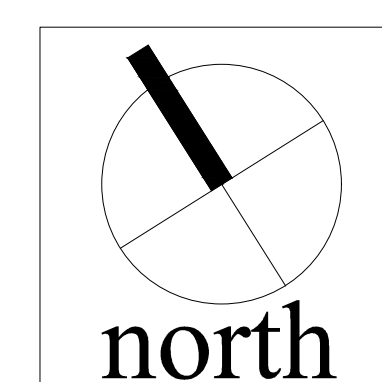
Tabulation

SITE AREA	BLDG 1	BLDG 2	BLDG 3	TOTAL
In s.f.	442,455	369,529	161,873	973,857 s.f.
In acres	10.16	8.48	3.72	22.36 ac
BUILDING AREA				
Office	8,000	6,500	10,000	24,500 s.f.
Warehouse	182,503	151,283		333,786 s.f.
Industrial R&D / Manufacturing			36,839	36,839 s.f.
Commercial - Regional				
TOTAL	190,503	157,783	46,839	395,125 s.f.
FLOOR AREA RATIO				
Allowed	0.45	0.45	0.35	
Provided	0.43	0.43	0.29	0.41
MINIMUM AUTO PARKING				
Office: 5/1000 s.f.	40	33		73 stalls
Warehouse: 1.25/1000 s.f.	230	190		420 stalls
TOTAL	270	223		493 stalls
Min. 1.6/1000 avg	305	253		713 stalls
Min. 3.3/1000 avg			155	
Commercial - Regional: 3.3/1000 avg				
AUTO PARKING PROVIDED				
Standard (9' x 19' including overhang)	189	215	77	481 stalls
Compact (8' x 16' including overhang)	71	53	53	124 stalls
Accessible Standard (9' x 19')	6	5	5	16 stalls
Accessible Van (12' x 19')	2	2	1	5 stalls
Accessible Standard EV (9' x 19')	1	1	1	3 stalls
Accessible Van EV (12' x 19')	1	1	1	3 stalls
Accessible Ambulatory EV (10' x 19')	1	1	0	2 stalls
Clean Air / Vanpool (12% min parking)	6	5	3	14 stalls
(9' x 19' including overhang)				
EV Charging (10% min parking)	28	23	14	65 stalls
(9' x 19' including overhang)				
TOTAL	305	253	155	713 stalls
BICYCLE RACK REQUIRED				
Short Term (4 + 5% of total stalls)	20	17	12	
Long Term (1 + 5% of total stalls)	17	14	9	
BICYCLE RACK PROVIDED				
Short Term (4 + 5% of total stalls)	20	18	12	
Long Term (1 + 5% of total stalls)	18	14	10	
MAXIMUM BUILDING HEIGHT ALLOWED				
Allowed	75'-0"	75'-0"	75'-0"	
Provided	45'-0"	45'-0"	41'-0"	
ZONING ORDINANCE FOR CITY				
Existing (P-2006-10)				
Proposed (P-2021-160)				
SETBACKS				
Building				Landscape
Front/ Street Side - 25'				25'
Rear - 0', 50' if adjacent to R zone				
Sides - 0', 50' if adjacent to R zone				

Legend

- OFFICE
- WAREHOUSE
- DRIVE THRU DOOR

Note: This is a conceptual plan. It is based on preliminary information which is not fully verified and may be incomplete. It is meant as a comparative aid in examining alternate development strategies and any quantities indicated are subject to revision as more reliable information becomes available.



Conceptual Site Plan

Albrae & Encyclopedia

Fremont, CA

