240 15th Street SE
Puyallup, WA

Traffic Impact Analysis

October 20, 2022

Prepared for:

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FINDINGS & CONCLUSIONS

This Traffic Impact Analysis (TIA) has been prepared for the proposed *240 15th Street SE* project located in the City of Puyallup, WA.

Project Proposal. The proposed *240 15th Street SE* project would include up to 135,100 square feet (SF) of building area that is intended for general warehousing use. However, per the request of the City of the Puyallup, since the tenant is unknown, three land use scenarios were evaluated in this Traffic Impact Analysis:

- Scenario A (expected) = General Warehousing use
- Scenario B (low probability) = Manufacturing use
- Scenario C (highly unlikely) = High-Cube Fulfillment Center Warehouse (sort) use

The site was previously occupied by 123,313 SF of high-cube cold-storage warehouse use.

Primary vehicular access to the site is proposed via a single full access driveway on 15th Street SE and also via the existing access shared with the adjacent property to the north. The project is expected to be completed and occupied in 2024.

Project Trip Generation. The new trip generation (after applying trip credit for the existing use) for each of the 3 land use scenarios evaluated for the proposed *240 15th Street SE* project is estimated as follows:

	New Weekday Trips Generated		
Land Use Scenario	Daily	AM Peak Hour	PM Peak Hour
A: Warehousing	-9	26	28
B: Manufacturing	481	78	85
C: High-Cube Fulfillment Center Warehouse (sort)	609	104	147

Intersection LOS Results. Intersection Level of Service (LOS) were evaluated at up to 7 study intersections in the vicinity area for weekday PM peak hour conditions with the project (with each of the 3 land use scenarios). The LOS analysis results indicate that all signalized study intersections are anticipated to meet established LOS standards under 2024 weekday PM peak hour conditions with the project.

Site Access Analysis. Based on the results of the analysis, the individual movements entering and exiting the site at the two proposed stop-controlled site access locations on 15th Street SE are expected to operate at acceptable levels (LOS D or better) with minimal queuing during the weekday PM peak hour with the proposed project (with each of the 3 land use scenarios).

Mitigation

Off-Site SEPA Improvements – Based on the results of the analysis shown in this report, no project-specific off-site transportation mitigation is proposed for concurrency or SEPA purposes.

Transportation Impact Fees – To mitigate long-term transportation impacts, the City administers a Transportation Impact Fee (TIF) to new developments to improve the transportation system to accommodate the higher travel demand added by new development. The net impact fee is calculated based on the project's proposed land use less an impact fee credit for the existing land use. The City's current adopted transportation impact fee is $4,500 per PM peak hour trip. The preliminary estimated transportation net impact fee (after credit for the existing use) for each of the three land use scenarios evaluated for the proposed *240 15th Street SE* project is as follows:

- Scenario A (Warehousing) = $125,550 ($4,500 X 27.9 net new PM peak hour trips).
- Scenario B (Manufacturing) = $383,400 ($4,500 X 85.2 net new PM peak hour trips).
- Scenario C (High Cube Fulfillment Center Warehouse (sort)) = $662,850 ($4,500 X 147.3 net new PM peak hour trips).

Because of the likely Warehousing use but the potential for the 2 others, the Applicant has proposed that transportation impact fess be paid at the issuance of a shell building permit based on the Warehouse use. At the time of the tenant improvement permit an adjustment can be made to assure that transportation impact fees are assessed based upon the actual use.

INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared for the *240 15th Street SE* project located in the City of Puyallup, WA (see Figure 1).

Project Description

The proposed *240 15th Street SE* project would include up to 135,100 square feet (SF) of building area that is intended for general warehousing use. However, per the request of the City of the Puyallup, since the tenant is unknown, three land use scenarios were evaluated in this Traffic Impact Analysis:

- Scenario A (expected) = General Warehousing use
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The site was previously occupied by 123,313 SF of high-cube cold-storage warehouse use.

Primary vehicular access to the site is proposed via a single full access driveway on 15th Street SE and also via the existing access shared with the adjacent property to the north. The project is expected to be completed and occupied in 2024. A preliminary site plan is provided in Figure 2.

Project Approach

The following tasks were undertaken to evaluate and disclose the traffic impacts associated with the *240 15th Street SE* project:

1. Assessed existing conditions through field reconnaissance and reviewed existing planning documents;
2. Described and assessed existing transportation conditions in the area;
3. Documented planned transportation improvements in the site vicinity;
4. Estimated trip generation and documented trip distribution and assignment of project traffic for three potential land use scenarios;
5. Documented traffic forecasts and assumptions for year 2024 weekday PM peak hour conditions without the project and with the project for three potential land use scenarios;
6. Conducted weekday PM peak hour level of service analyses at up to 7 study intersections for 2022 existing and year 2024 conditions without and with the project for three potential land use scenarios;
7. Assessed future PM peak hour LOS and queuing at the proposed site access locations.
8. Identified improvements to mitigate impacts of the project onto the adjacent street system.

Primary Data and Information Sources

- Weekday PM Peak Hour traffic counts, 2022.
- Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.
- *Highway Capacity Manual (HCM) 6th Edition,* TRB.
- City of Puyallup *2022-2027 Six Year Transportation Improvement Program.*
- *Pierce County 2022-2027 Transportation Improvement Program.*
- WSDOT *2022-2025 Statewide Transportation Improvement Program (STIP).*
- Pierce Transit website, September 2022.
- City of Puyallup *Comprehensive Plan*, 2015.

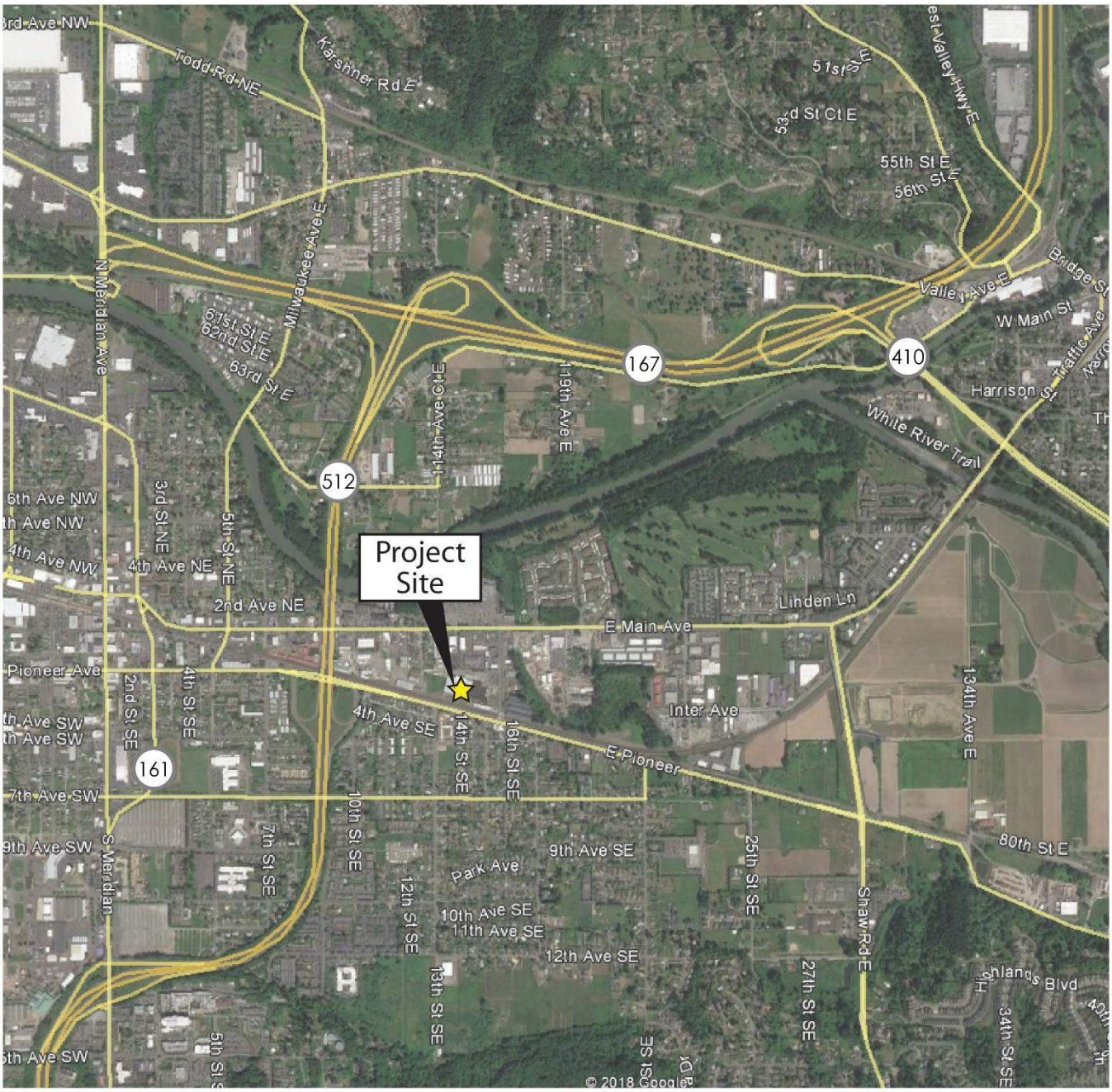

Figure 1: Project Site Vicinity

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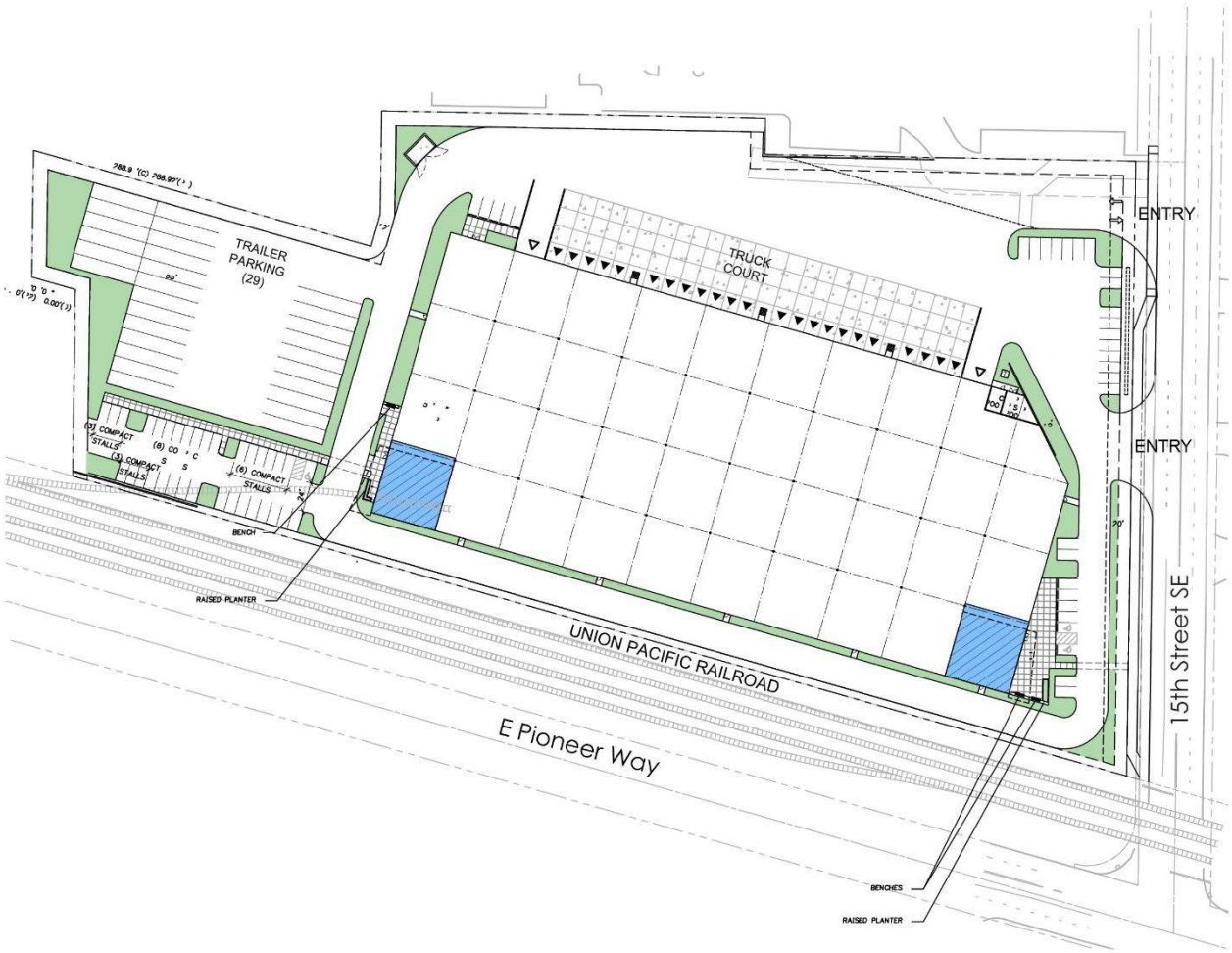


Figure 2: Preliminary Site Plan

EXISTING CONDITIONS

Roadway Network

Table 1 describes the existing characteristics of the streets that would be used as primary routes to and from the site. Roadway characteristics are described in terms of orientation, arterial classification, posted speed limits, number of lanes, paved shoulders, and pedestrian facilities. The relationship of these roadways to the project site is shown in Figure 1.

Table 1
Existing Study Area Roadway Network

Roadway	Orientation	Arterial Classification	# of Lanes	Posted Speed Limit (mph)	Parking	Sidewalks	Bicycle Facilities
15th St SE	North/South	Minor Arterial	4	30	No	Both Sides	None
E Main Ave	East/West	Principal Arterial (*east of Shaw Rd E*)	3-5	35 (east of 15th St SE)	No	Intermittent	None
		Minor Arterial *(west of Shaw Rd E)*		30 (west of 15th St SE)			
Shaw Road E	North/South	Principal Arterial	4-5	35	No	Both Sides	None
E Pioneer Way	East/West	Principal Arterial	2-3	25	No	South Side	No
SR 410	East/West	Urban Freeway/ Expressway	4	40	No	No	No
SR 512	East/West	Urban Freeway/ Expressway	4	60	No	No	No

Study Intersections

The City of Puyallup requires a detailed traffic analysis at intersections impacted by 25 or more peak hour project trips. Based on this requirement, the following seven study intersections were included in this traffic study:

1. SR 512 Eastbound (EB) Ramps / E Pioneer Way
2. 15th Street SE / E Pioneer Way
3. 15th Street SE / E Main Ave
4. Shaw Road E / E Main Ave
5. Shaw Road E / E Pioneer Way
6. SR 410 Eastbound (EB) Ramps / E Main Ave
7. SR 410 Westbound (WB) Ramps / E Main Ave

It should be noted that based on the anticipated distribution of project trips, all seven study intersections were evaluated for the future scenario without the project and with Scenario C (high-cube fulfillment center (sort) use) but only intersections #2, 3, 4, 6, and 7 were evaluated with Scenario B (manufacturing use) and only intersections #2 and 3 were evaluated with Scenario A (general warehousing use).

Existing Traffic Volumes

Existing weekday PM peak hour traffic volumes at the seven study intersections were based on traffic counts conducted in March 2022. The PM peak hour represents the highest one-hour time period between 4:00 and 6:00 PM. Appendix A includes the existing peak hour traffic count sheets.

Consistent with the traffic analyses for a recent industrial project in the vicinity of the *240 15th Street SE* project, true (unserved) demand was accounted for at the study intersections on Shaw Road E that were identified by the City as operating at or near capacity during the weekday PM peak hour.

True Demand

True demand is generally defined as the total number of vehicles arriving at an intersection during a given period of time. While standard turning movement counts (TMCs) count the number of vehicles that make a particular movement during a defined period, true demand volumes include the number of vehicles counted during a turning movement count plus the number of vehicles that have arrived at the intersection but have not yet entered the intersection. In order to estimate the total number of vehicles waiting in a queue at the start or end of the PM peak hour, the delta between true demand volumes and turning movement count volumes is calculated (Total Vehicles in Queue = True Demand Volumes less Turning Movement Count Volumes). To account for existing weekday PM peak hour true (unserved) demand at intersections #4 (Shaw Road E/E Main Ave) and #5 (Shaw Road E/E Pioneer Way), the following two approaches were developed and confirmed by the City of Puyallup:

1. Include the vehicle queues observed (by movement) at the start of the peak hour as the "initial queue" in Level of Service (LOS) calculations consistent Synchro HCM 6th Edition Methodology.
2. Include the true demand volumes in LOS calculations by adding the vehicles in queue at the end of the peak hour (i.e. residual queue) to the total turning movement counts.

The resulting 2022 existing PM peak hour true demand volumes and the initial and residual vehicle queues associated with each turning movement are included in Appendix B. A summary of the true demand methodology and detailed true demand volume calculations are also included in Appendix B.

The 2022 existing weekday PM peak hour traffic volumes at the study intersections are illustrated in Figure 3 and reflect true demand volumes at intersections #4 and 5.

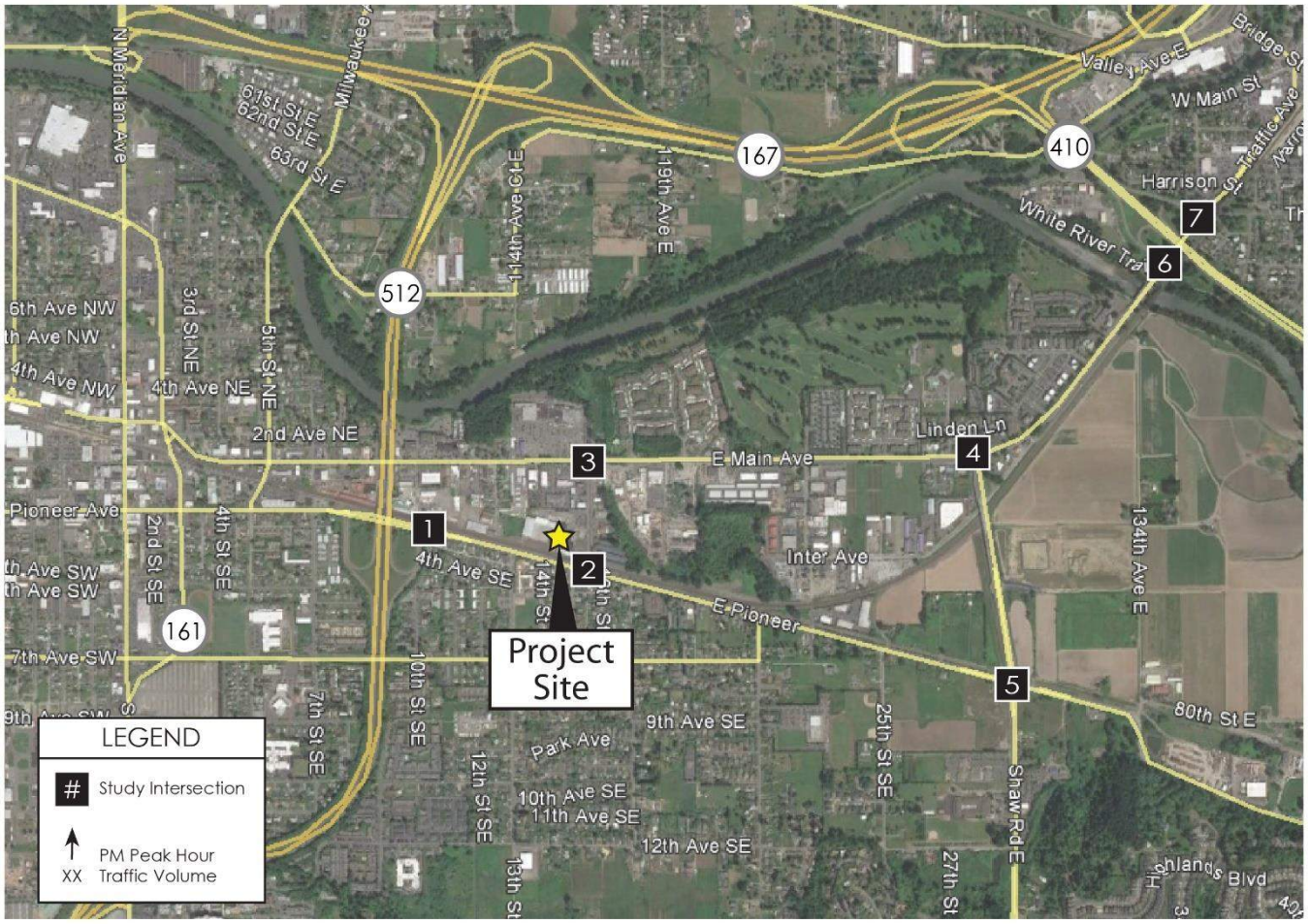
Public Transportation Services

Pierce Transit provides public transportation services in the immediate vicinity of the proposed project. The nearest bus stops are located north of the site on E Main Ave and provide access to Route 409.

Route 409 offers weekday and weekend transit service from the 72nd Street Transit Center to 29th St NE / 5th Ave NE in Puyallup. The current schedule for Route 409 includes approximately 60-minute headways from 9:20 a.m. to 5:20 p.m. on weekdays.

Non-motorized Transportation Facilities

Non-motorized transportation facilities in the project site vicinity include sidewalks on both sides of 15th Street SE, sidewalk on the south side of E Pioneer Way, and intermittent sidewalks along E Main Ave. Pedestrian crosswalks are typically provided at most signalized study intersections in the project vicinity. Based on traffic counts conducted at the study intersections, there is minimal pedestrian activity in the site vicinity.



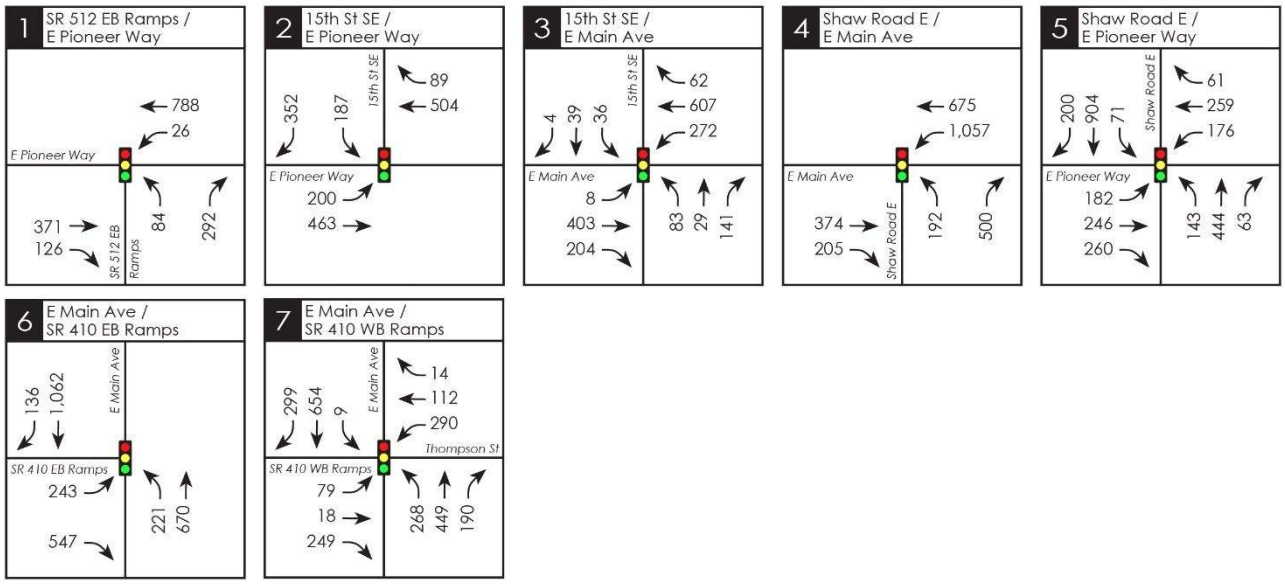


Figure 3: Year 2022 Existing Weekday PM Peak Hour Traffic Volumes

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Level of Service

Existing weekday PM peak hour level of service (LOS) analyses were conducted at seven study intersections.

LOS generally refers to the degree of congestion on a roadway or intersection. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. A letter scale from A to F generally describes intersection LOS. At signalized intersections, LOS A represents free-flow conditions (motorists experience little or no delays), and LOS F represents forced-flow conditions where motorists experience an average delay that exceeds 80 seconds per vehicle.

The LOS reported for signalized intersections represents the average control delay (sec/veh) and can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only).

The LOS reported at stop-controlled intersections is based on the average control delay and can be reported for each controlled minor approach, controlled minor lane group, and controlled major-street movement (and for the overall intersection at all-way stop controlled intersections. Additional v/c ratio criteria apply to lane group or movement LOS only). Table 2 outlines the current HCM 6th Edition LOS criteria for signalized and stop-controlled intersections based on these methodologies.

Table 2
LOS Criteria for Signalized and Stop-Controlled Intersections[1]

SIGNALIZED INTERSECTIONS			UNSIGNALIZED INTERSECTIONS		
Control Delay (sec/veh)	LOS by Volume-to Capacity (V/C) Ratio[2] ≤ 1.0	> 1.0	Control Delay (sec/veh)	LOS by Volume-to Capacity (V/C) Ratio[3] ≤ 1.0	> 1.0
≤ 10	A	F	≤ 10	A	F
> 10 to ≤ 20	B	F	> 10 to ≤ 15	B	F
> 20 to ≤ 35	C	F	> 15 to ≤ 25	C	F
> 35 to ≤ 55	D	F	> 25 to ≤ 35	D	F
> 55 to ≤ 80	E	F	> 35 to ≤ 50	E	F
> 80	F	F	> 50	F	F

1) Source: Highway Capacity Manual, Transportation Research Board, 6th Edition, 2016.
2) For approach-based and intersection-wide assessments at signals, LOS is defined solely by control delay.
3) For unsignalized intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole at two-way stop controlled intersections. For approach-based and intersection-wide assessments at all-way stop controlled intersections, LOS is solely defined by control delay.

Level of service calculations for intersections were based on methodology and procedures outlined in the 6th Edition of the *Highway Capacity Manual (HCM)* using *Synchro 11* traffic analysis software. Existing signal timing used in the analysis was provided by the City of Puyallup and the Washington State Department of Transportation (WSDOT). It should be noted that true demand traffic volumes were included in the LOS analyses at intersections #4 and 5. Additionally, initial queues were included at intersection #5 but not at intersection #4 since its geometry and custom phasing are not supported by HCM 6th Edition methodology. However, as shown in Table 3 below, intersection #4 currently operates at LOS C during the weekday PM peak hour when accounting for true demand volumes; as a result, it is anticipated that the intersection would operate at an acceptable level of service with initial queues included in the analysis. It should be noted that existing peak hour factors (PHF) from the turning movement count volumes were used in the LOS analyses at all study intersections.

Based on the City of Puyallup and WSDOT's LOS standards, the LOS standard is LOS D at all study intersections with exception to the study intersections along the Shaw Road E corridor (intersections #4 and 5) where the LOS standard is LOS E per the Transportation Element of the *Puyallup Comprehensive Plan*.

The 2022 existing PM peak hour LOS analysis results for the study intersections are summarized in Table 3 with detailed LOS worksheets included in Appendix C.

Table 3
2022 Existing PM Peak Hour Level of Service Summary

	PM Peak Hour	
Signalized Study Intersection	LOS	Delay (sec/veh)
1. SR 512 EB Ramps / E Pioneer Way	B	14.5
2. 15th Street SE / E Pioneer Way[1]	C	27.6
3. 15th Street SE / E Main Ave	A	9.3
4. Shaw Road E / E Main Ave[1]	C	24.8
5. Shaw Road E / E Pioneer Way	D	50.7
6. SR 410 EB Ramps / E Main Ave[1]	B	18.3
7. SR 410 WB Ramps / E Main Ave	C	23.1

1 HCM 2000 results reported due to intersection geometry and/or custom phasing not supported by HCM 6th methodology.

As shown in Table 3, all signalized study intersections currently meet established LOS standards under 2022 existing PM peak hour conditions.

FUTURE CONDITIONS

Planned Transportation Improvements

This section documents known planned transportation improvements in the study area based on a review of the City of Puyallup's *2022-2027 Six Year Transportation Improvement Plan*, Pierce County's *2022-2027 Transportation Improvement Program*, and the Washington State Department of Transportation (WSDOT) *2022-2025 Statewide Transportation Improvement Program*.

Puyallup 2022-2027 TIP

- TIP #9: Shaw Road Widening – Phase 4 (12th Ave SE to 23rd Ave SE)
  Description:
  Widen roadway to five lanes with curb, gutter, sidewalk, bike lanes, and street lighting on both sides. This project does not have a planned construction year.
- TIP #12: 21st St SE Road Improvements
  Description:
  This project will scope out some alternatives to improve the roadway to assist in north/south movement and improve the steep/narrow nature of the existing roadway. This project does not have a planned construction year.
- TIP #17: Intersection Signal Control at 5th Ave NE/E Main Ave
  Description:
  This project will construct a new signal at the intersection of 5th Ave NE/E Main Ave. This project is anticipated to be constructed by 2024.
- TIP #25: Adaptive Signals – Intersection Improvements (E Pioneer and E Main Ave)
  Description:
  This project will implement Intelligent Transportation System (ITS) Signal Improvements at five signals on E Pioneer and two signals on E Main Ave from Shaw Rd to 5th St SE. This project does not have a planned construction year.
- TIP #40: Utility Replacement and Roadway Paving (10th St SE)
  Description:
  This project will replace utilities along 10th St E and repave the roadway between E Main Ave and the railroad tracks. This project is anticipated to be constructed by 2023.
- TIP #55: Shared Use Path (E Pioneer)
  Description:
  This project will construct a new shared use path on E Pioneer from 21st St SE to Shaw Rd. Scoping needs to be done to determine the location of the shared use path on northern or southern side of E Pioneer and how to secure property rights. This project is anticipated to be constructed by 2025.

Pierce County 2022-2027 TIP

No capacity related projects were identified within the project vicinity in Pierce County's 2022-2027 *Transportation Improvement Program* (TIP).

WSDOT 2022-2025 STIP

No capacity related projects were identified within the project vicinity in WSDOT's 2022-2025 *Statewide Transportation Improvement Program* (STIP).

Project Trip Generation

The proposed *240 15th Street SE* project would include up to 135,100 square feet (SF) of building area that is intended for general warehousing use. However, per the request of the City of the Puyallup, since the tenant is unknown, three land use scenarios were evaluated in this Traffic Impact Analysis:

- Scenario A (expected) = General Warehousing use
- Scenario B (low probability) = Manufacturing use
- Scenario C (highly unlikely) = High-Cube Fulfillment Center Warehouse (sort) use

Trip generation estimates for the three potential land use scenarios were based on methodology documented in the ITE *Trip Generation* Manual, 11th Edition for Land Use Code (LUC) 150 (Warehousing), LUC 140 (Manufacturing), and LUC 155 (High-Cube Fulfillment Center Warehouse (sort)). Trip generation for the existing use was based LUC 157 (High-Cube Cold Storage Warehouse). Truck trips associated with the proposed and existing uses were estimated separately based on truck trip rates also documented in the ITE *Trip Generation* Manual (11th Edition, 2021) for LUC 140, 150, 155, and 157.

The resulting new weekday daily, AM peak hour, and PM peak hour trip generation estimates are summarized in **Table 4**. The detailed trip generation calculations are included in **Appendix D**.

Table 4
Project Trip Generation Summary

Weekday Time Period / Land Use Scenario	New Trips Generated								
	Non-Truck Trips			Truck Trips			Total Trips		
	In	Out	Total	In	Out	Total	In	Out	Total
SCENARIO A (Warehousing)									
Daily	1	1	2	-5	-6	-11	-4	-5	-9
AM Peak Hour	23	4	27	1	-2	-1	24	2	26
PM Peak Hour	5	23	28	0	0	0	5	23	28
SCENARIO B (Manufacturing)									
Daily	240	241	481	-15	-16	-31	225	225	450
AM Peak Hour	62	16	78	1	-1	0	63	15	78
PM Peak Hour	24	61	85	0	0	0	24	61	85
SCENARIO C (High-Cube Fulfillment Center (sort))									
Daily	338	337	675	-33	-33	-66	305	304	609
AM Peak Hour	88	17	105	1	-2	-1	89	15	104
PM Peak Hour	57	91	148	-1	0	-1	56	91	147

Project Trip Distribution and Assignment

The general distribution of *240 15th Street SE* peak hour project trips was estimated separately for non-trucks (passenger vehicles) and trucks based on existing traffic volumes, the location of population and employment areas in the site vicinity, the type of use that is proposed, and designated truck/heavy haul routes in the project vicinity. The anticipated trip distribution patterns for non-trucks (passenger vehicles) and trucks for the three land use scenarios are illustrated graphically in Figures 4, 5, and 6. The trip distribution is consistent with other approved industrial use traffic studies in the project vicinity. It should be noted that the anticipated distribution patterns of non-truck and truck trips associated with the *240 15th Street SE* project is the same in Figures 4, 5, and 6 since the project trip distribution is anticipated to be the same for each of the three land use scenarios evaluated (warehousing, manufacturing, and high-cube fulfillment center sort).

The assignment of PM peak hour project trips for non-trucks (passenger vehicles) and trucks associated with each of the three (3) land use scenarios evaluated for the *240 15th Street SE* project were calculated separately based on the estimated non-truck and truck trip distributions. The assignment of new PM peak hour trips to the individual site accesses was based on the preliminary layout of the proposed site (see Figure 2) and the types of vehicles (passenger vehicles vs. trucks) anticipated to use each site access. The resulting assignment of new weekday PM peak hour project trips at the study intersections and site driveways is illustrated in Figure 4 for land use Scenario A (warehousing), Figure 5 for land use Scenario B (manufacturing), and Figure 6 for land use Scenario C (high-cube fulfillment center warehouse (sort)).

Future Traffic Volumes

Future year 2024 No Action (without project) weekday PM peak hour traffic volumes were estimated by applying a 2.0 percent annual growth rate to the existing year 2022 volumes. In addition, trips from the 2504 E Main Avenue pipeline project and trips associated with the existing use on the site (since the existing use was not occupied at the time of the 2022 existing counts) were included in the future year No Action traffic volumes. The future 2024 No Action PM peak hour traffic volumes at the seven study intersections are shown in Figure 7.

Future year 2024 weekday PM peak hour traffic volumes with the proposed *240 15th Street SE* project were estimated by adding the peak hour trip assignment from the proposed development for each of the three land use scenarios (shown in Figures 4 to 6) to the No Action weekday PM peak hour traffic volumes (shown in Figure 7). The 2024 With Project weekday PM peak hour traffic volumes at the study intersections are shown in Figure 8 for land use Scenario A (warehousing), Figure 9 for land use Scenario B (manufacturing), and Figure 10 for land use Scenario C (high-cube fulfillment center warehouse (sort)).

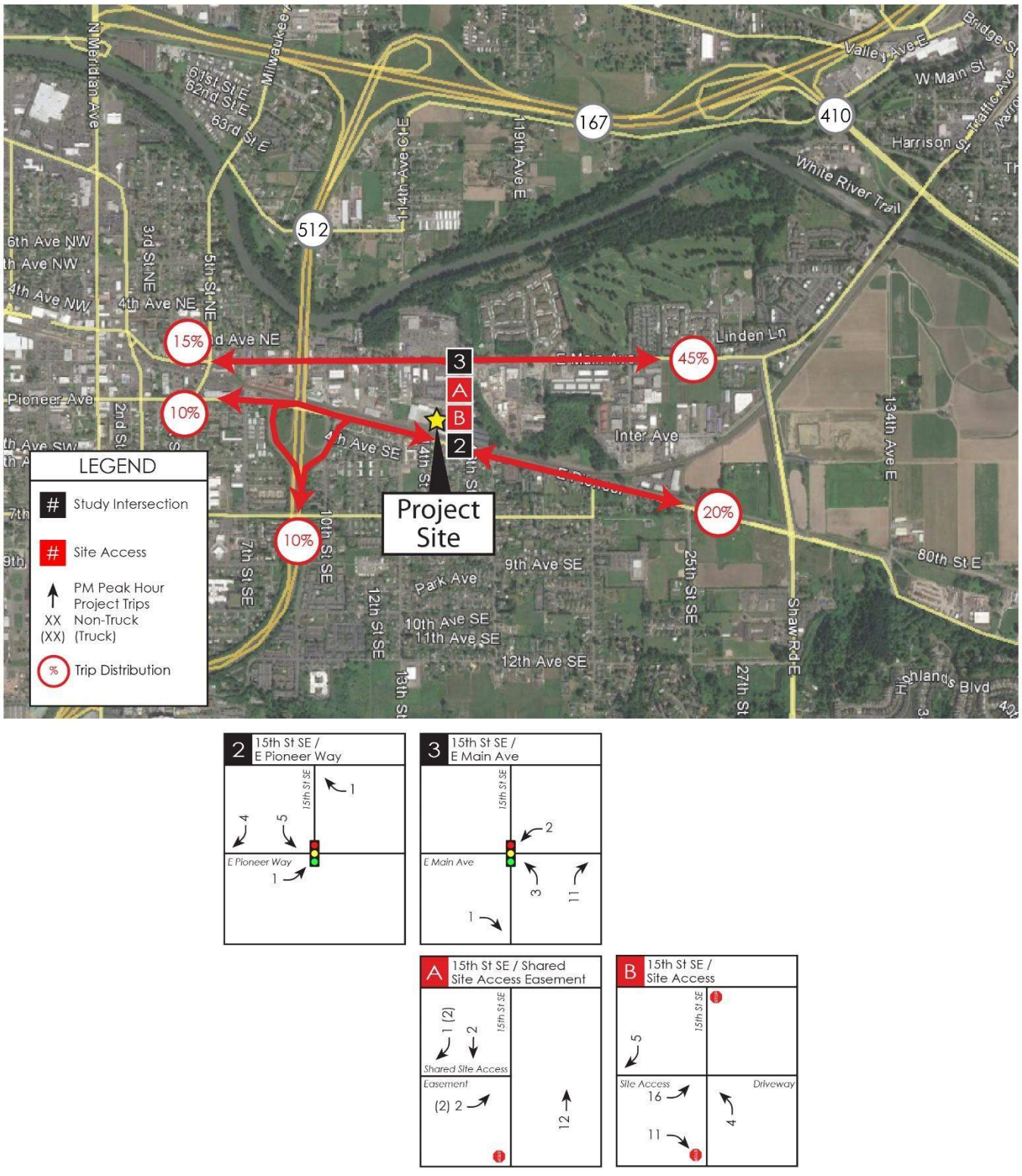

Figure 4: Weekday PM Peak Hour Project Trip Distribution and Assignment (Scenario A)

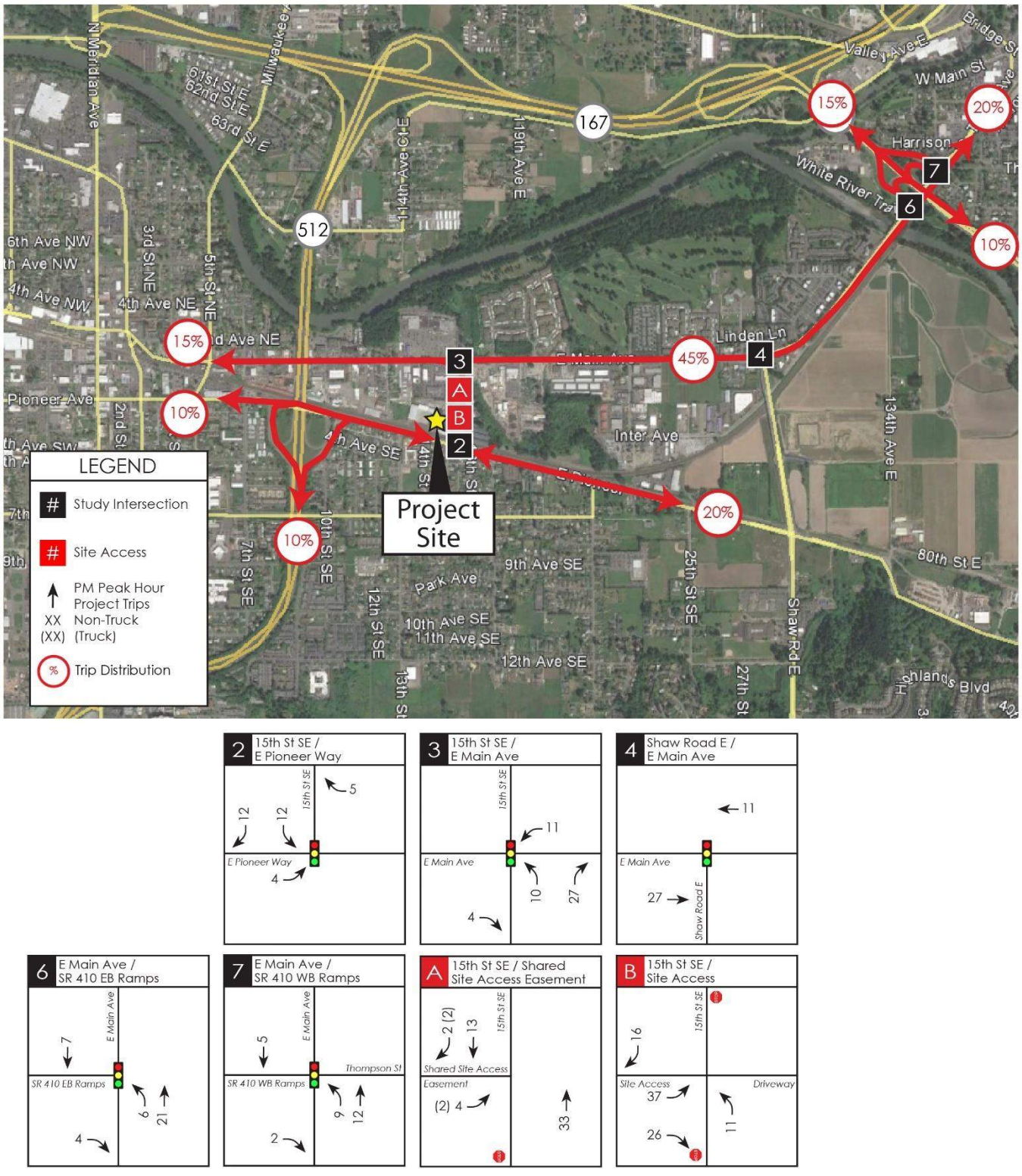

Figure 5: Weekday PM Peak Hour Project Trip Distribution and Assignment (Scenario B)

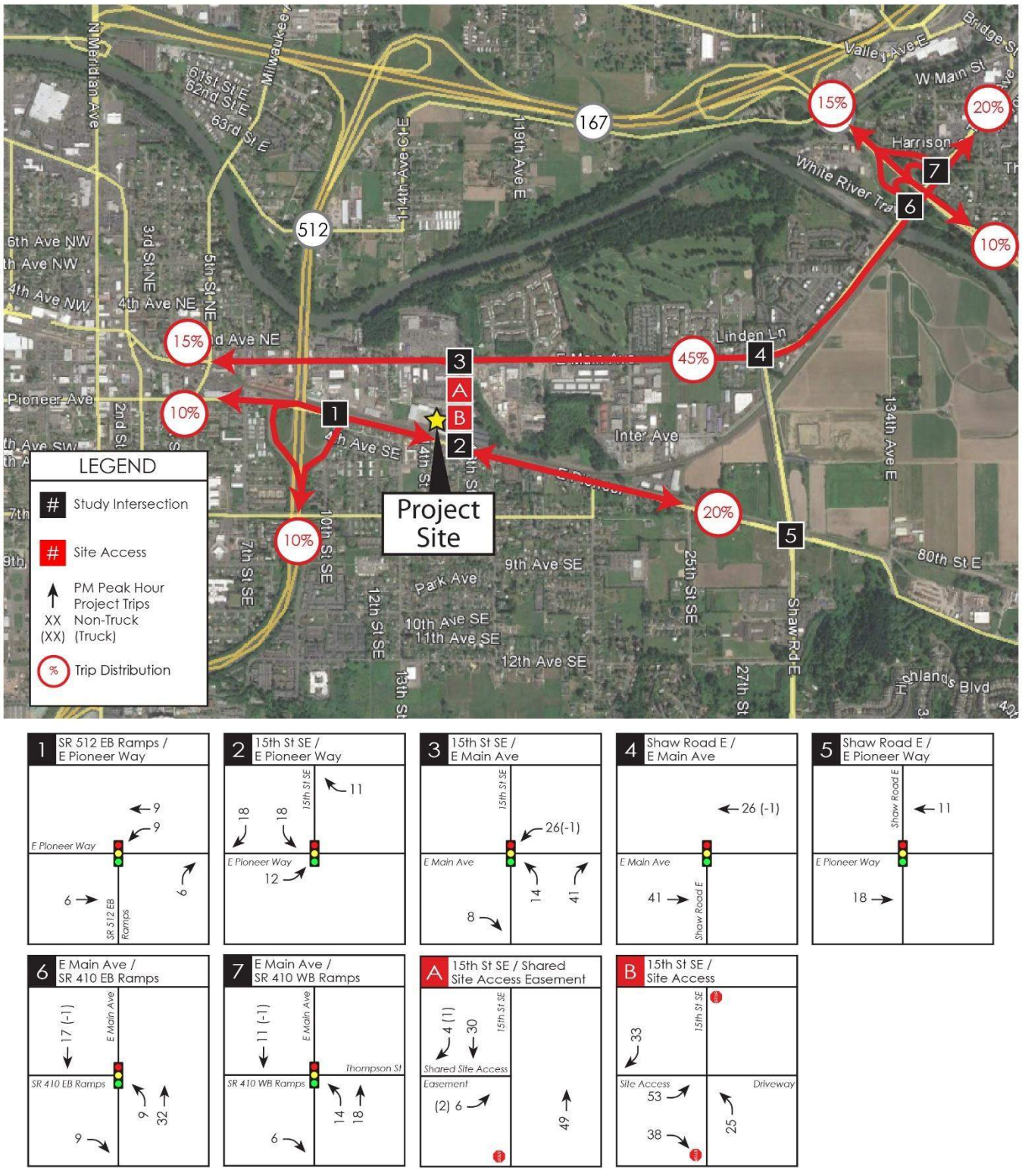

Figure 6: Weekday PM Peak Hour Project Trip Distribution and Assignment (Scenario C)

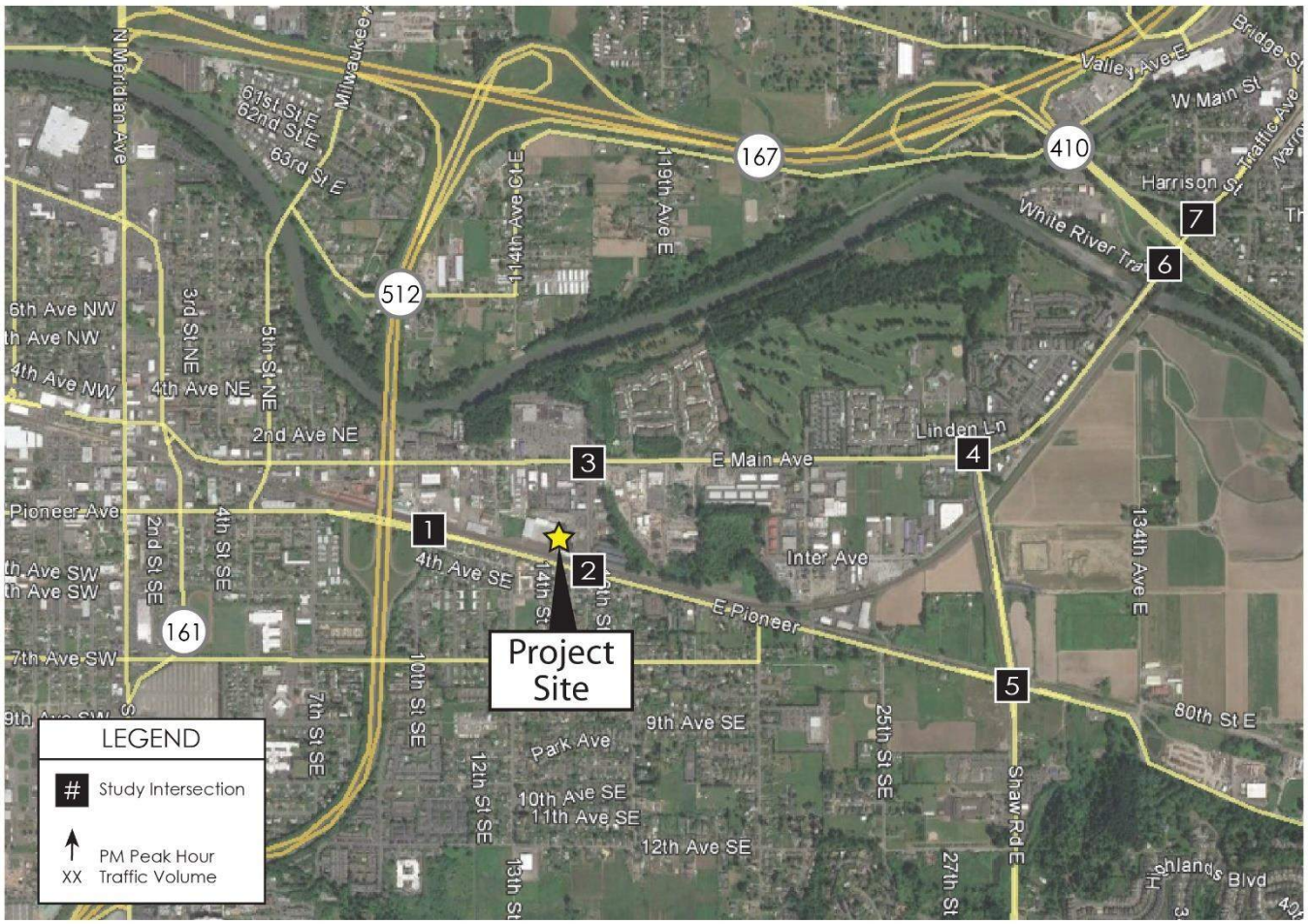

Figure 7: 2024 No Action Weekday PM Peak Hour Traffic Volumes

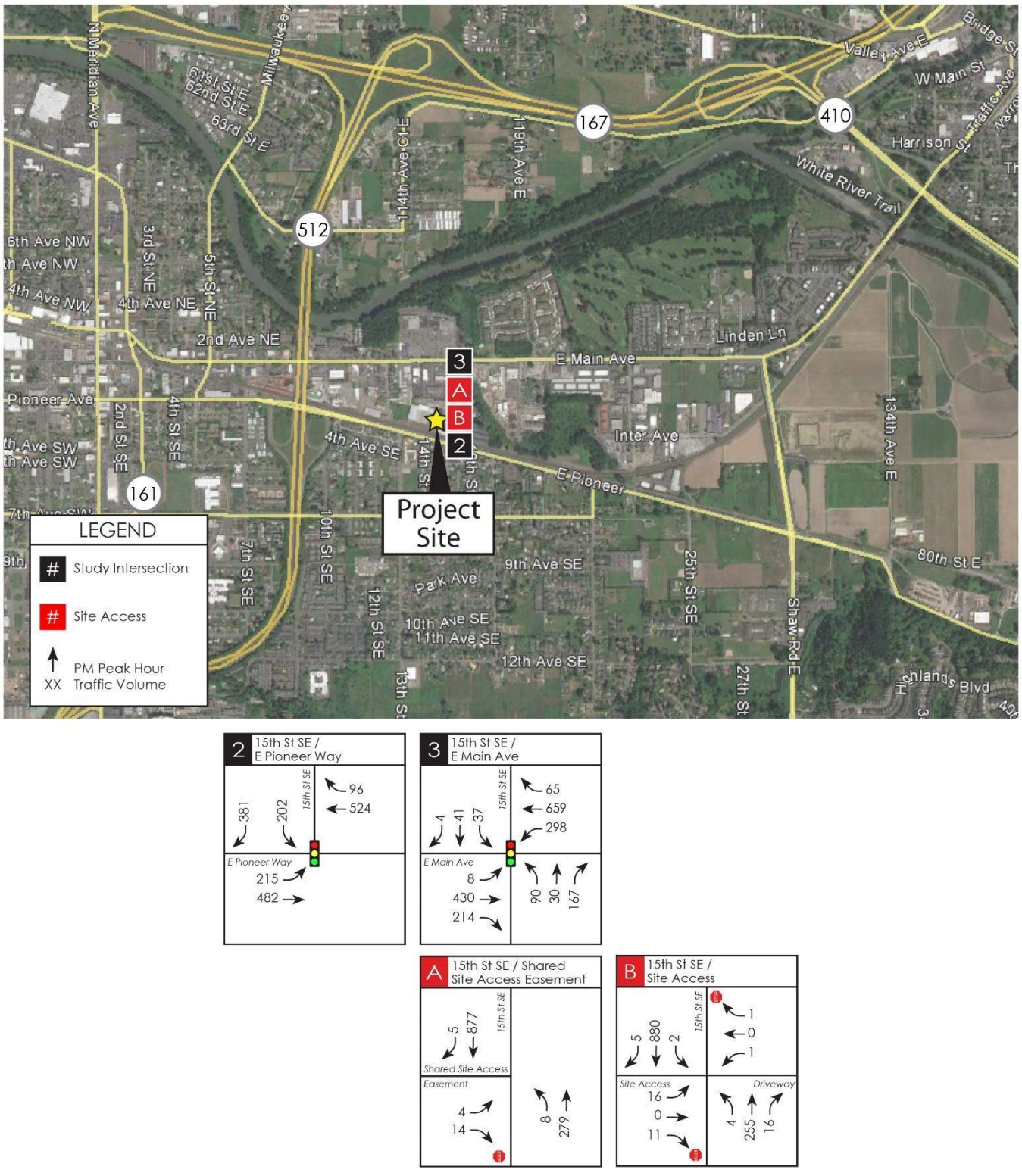

Figure 8: 2024 With Project (Scenario A) Weekday PM Peak Hour Traffic Volumes

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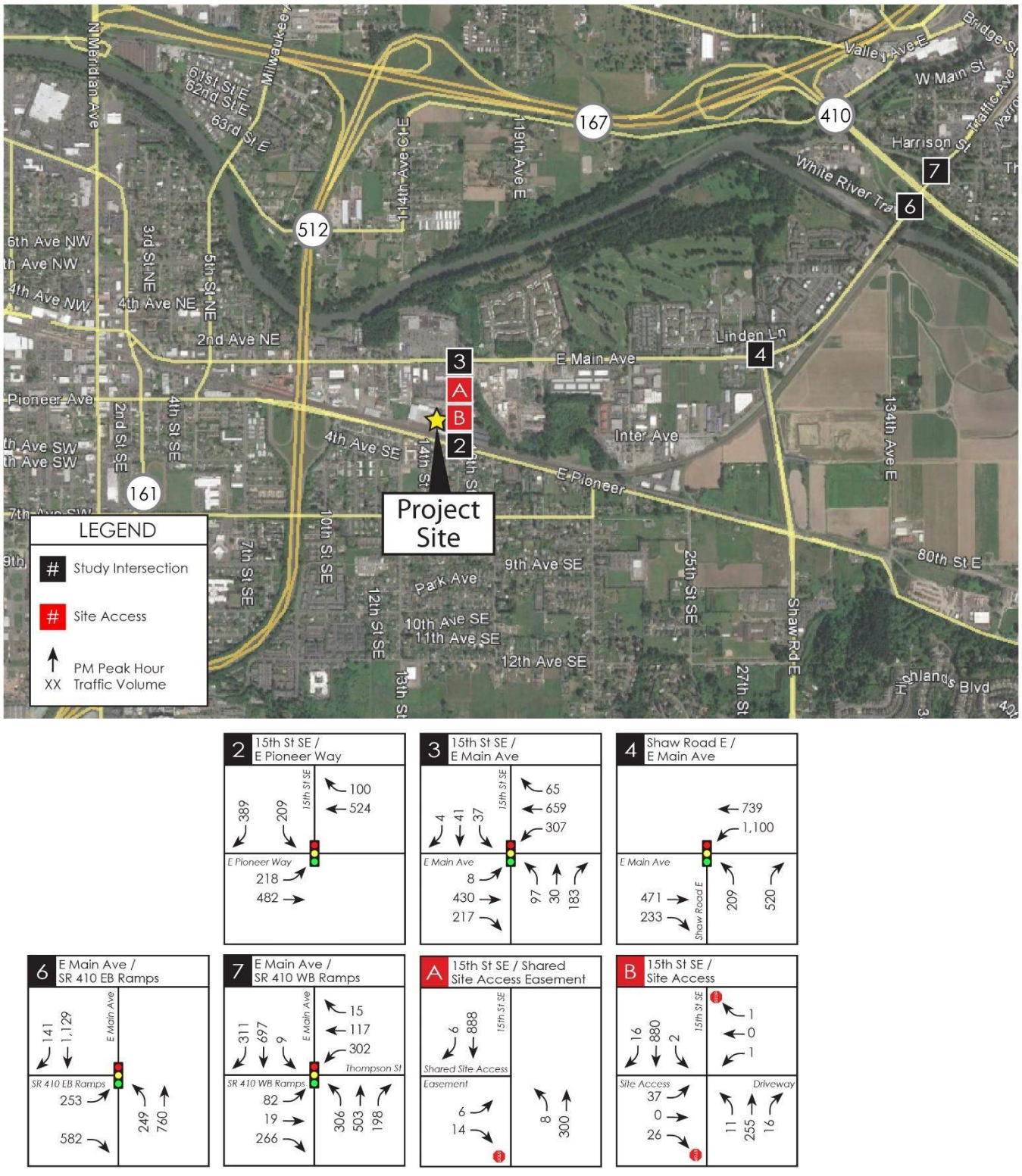

Figure 9: 2024 With Project (Scenario B) Weekday PM Peak Hour Traffic Volumes

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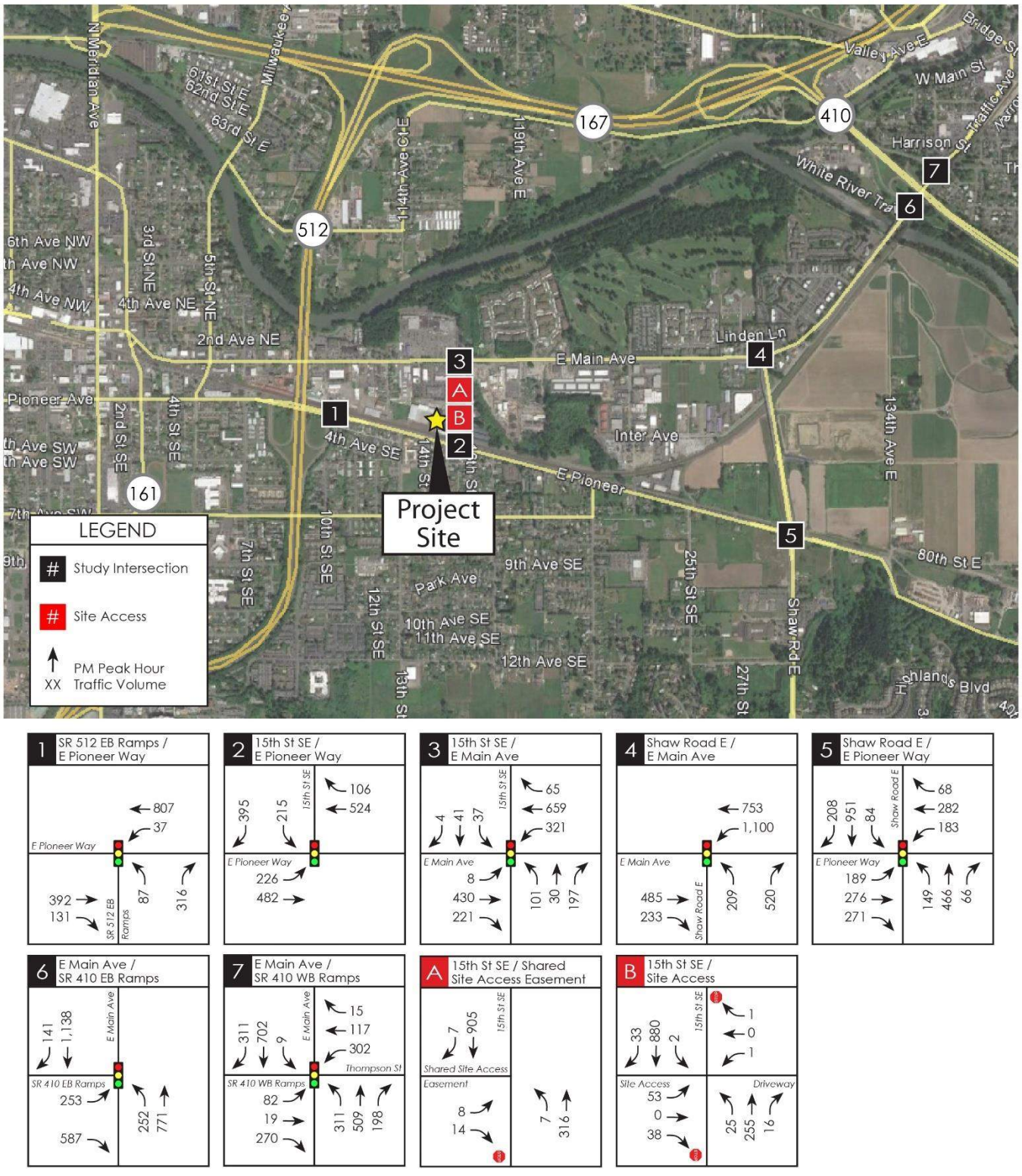


Figure 10: 2024 With Project (Scenario C) Weekday PM Peak Hour Traffic Volumes

Intersection Levels of Service

Future intersection LOS analyses were evaluated at the off-site study intersections for future year 2024 (horizon year) conditions without and with the proposed *240 15th Street SE* project. Given there are no fully funded improvements at the off-site study intersections that are anticipated to be completed prior to the evaluated horizon year (2024), the roadway network assumed in the future LOS analyses at the off-site study intersections was based on existing intersection geometry and signal timing.

The 2024 weekday PM peak hour LOS results at the study intersections without and with the proposed *240 15th Street SE* project (for each of the three evaluated land use scenarios) are summarized in Table 5. The LOS worksheets are included in Appendix C. It should be noted that based on the anticipated distribution of project trips, all seven study intersections were evaluated for the No Action (without project) scenario and with Scenario C (high-cube fulfillment center (sort) use), but only intersections #2, 3, 4, 6, and 7 were evaluated for Scenario B (manufacturing use) and only intersections #2 and 3 were evaluated for Scenario A (general warehousing use).

Based on the City of Puyallup and WSDOT's LOS standards, the LOS standard is LOS D at all study intersections with exception to the study intersections along the Shaw Road E corridor (intersections #4 and 5) where the LOS standard is LOS E per the Transportation Element of the *Puyallup Comprehensive Plan Policy T-3.2.*

Table 5
2024 PM Peak Hour Level of Service Summary

	No Action		With Project					
			Scenario A (Warehousing)		Scenario B (Manufacturing)		Scenario C (Fulfillment Center)	
Signalized Study Intersection	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)	LOS	Delay (sec/ veh)
1. SR 512 EB Ramps / E Pioneer Way	B	14.1	--	--	--	--	B	14.4
2. 15th Street SE / E Pioneer Way[1]	C	28.9	C	29.2	C	29.6	C	30.3
3. 15th Street SE / E Main Ave	A	9.8	A	9.9	B	10.1	B	10.2
4. Shaw Road E / E Main Ave[1]	C	28.2	--	--	C	28.8	C	29.2
5. Shaw Road E / E Pioneer Way	E	56.4	--	--	--	--	E	57.2
6. SR 410 EB Ramps / E Main Ave[1]	B	19.1	--	--	B	19.2	B	19.3
7. SR 410 WB Ramps / E Main Ave	C	24.0	--	--	C	24.2	C	24.3

-- Not evaluated
1 HCM 2000 results reported due to intersection geometry and/or custom phasing not supported by HCM 6th Edition methodology.

2024 No Action

As shown in Table 5, all signalized study intersections are anticipated to meet established LOS standards under 2024 No Action (without project) conditions during the weekday PM peak hour.

2024 With Scenario A (Warehousing)

As shown in Table 5, the two signalized study intersections evaluated under 2024 weekday PM peak hour conditions with Scenario A (warehousing) are both anticipated to meet established LOS standards.

2024 With Scenario B (Manufacturing)

As shown in Table 5, the five signalized study intersections evaluated under 2024 weekday PM peak hour conditions with Scenario B (manufacturing) are all anticipated to meet established LOS standards.

2024 With Scenario C (High-Cube Fulfillment Center Warehouse (sort))

As shown in Table 5, the seven signalized study intersections evaluated under 2024 weekday PM peak hour conditions with Scenario C (high-cube fulfillment center warehouse (sort)) are all anticipated to meet established LOS standards.

Site Access Operations

Vehicular access to/from the proposed *240 15th Street SE* project is proposed via the existing access shared with the adjacent property to the north (for both trucks and non-trucks), and via a new full access driveway on 15th Street SE (for non-trucks only). To assess the operations of the site access locations, level of service (LOS) and queuing were analyzed.

LOS and Queuing Analysis at Site Access

The LOS and queue calculations were conducted using *Synchro 11* software based on methodology outlined in the latest edition of the *Highway Capacity Manual* (6th Edition). The reported queues are estimated 95th percentile queues that are exceeded only 5 percent of the time. Table 6 summarizes the results of the 2024 with project LOS and queue analyses at the site access locations. The LOS and queue worksheets are included in Appendix C.

Table 6
2024 With Project PM Peak Hour Site Access LOS & Queue Summary

	With Project								
	Scenario A (Warehousing)			Scenario B (Manufacturing)			Scenario C (Fulfillment Center)		
Site Access / Movement	LOS	Delay (sec/ veh)	95th % Queue (ft)[1]	LOS	Delay (sec/ veh)	95th % Queue (ft)[1]	LOS	Delay (sec/ veh)	95th % Queue (ft)[1]
A. 15th St SE / Shared Access									
Eastbound Approach (Site Access), stop controlled	C	16.3	<25	C	17.3	<25	C	18.6	<25
Northbound Left-Turn (15th St SE), yield controlled	A	9.9	0	B	10	0	B	10.1	0
B. 15th St SE / Site Access									
Eastbound Approach (Site Access), stop controlled	C	21.8	<25	D	25.7	25	D	32.4	50
Northbound Left-Turn (15th St SE), yield controlled	A	9.9	0	A	9.9	0	B	10.1	<25

1 Queues are 95th Percentile queues. <25' indicates 95th Percentile queue statistically less than 1 vehicle.

As shown in Table 6, all controlled movements at the two site access locations are expected to operate at LOS D or better with minimal queueing in 2024 during the weekday PM peak hour under each of the three land use scenarios evaluated (warehousing, manufacturing, and high-cube fulfillment center (sort)).

MITIGATION

Off-Site SEPA Improvements

Based on the results of the analysis shown in this report, no project-specific off-site transportation mitigation is proposed for concurrency or SEPA purposes.

Transportation Impact Fees

To mitigate long-term transportation impacts, the City administers a Transportation Impact Fee (TIF) to new developments to improve the transportation system to accommodate the higher travel demand added by new development. The net impact fee is calculated based on the project's proposed land use less an impact fee credit for the existing land use. The City's current adopted transportation impact fee is $4,500 per PM peak hour trip. The preliminary estimated transportation net impact fee (after credit for the existing use) for each of the three (3) land use scenarios evaluated for the proposed *240 15th Street SE* project is as follows:

- Scenario A (Warehousing) = $125,550 ($4,500 X 27.9 net new PM peak hour trips).
- Scenario B (Manufacturing) = $383,400 ($4,500 X 85.2 net new PM peak hour trips).
- Scenario C (High Cube Fulfillment Center Warehouse (sort)) = $662,850 ($4,500 X 147.3 net new PM peak hour trips).

Because of the likely Warehousing use but the potential for the 2 others, the Applicant has proposed that transportation impact fess be paid at the issuance of a shell building permit based on the Warehouse use. At the time of the tenant improvement permit an adjustment can be made to assure that transportation impact fees are assessed based upon the actual use..

Appendix A

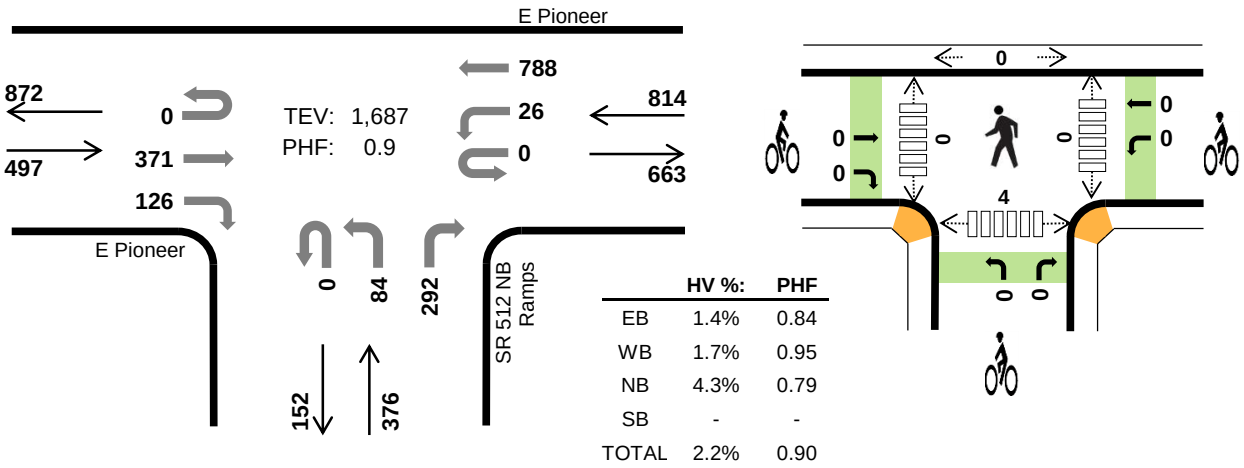
Existing Peak Hour Turning Movement Count Sheets

SR 512 NB Ramps
E Pioneer

N

Peak Hour

Date: 03/22/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



Two-Hour Count Summaries

Interval Start		E Pioneer Eastbound				E Pioneer Westbound				SR 512 NB Ramps Northbound				0 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	106	40	0	5	191	0	0	18	0	71	0	0	0	0	431	0
4:15 PM		**0**	**0**	**85**	**35**	**0**	**7**	**208**	**0**	**0**	**21**	**0**	**59**	**0**	**0**	**0**	**0**	**415**	0
4:30 PM		**0**	**0**	**86**	**25**	**0**	**6**	**206**	**0**	**0**	**19**	**0**	**64**	**0**	**0**	**0**	**0**	**406**	0
4:45 PM		**0**	**0**	**86**	**32**	**0**	**5**	**180**	**0**	**0**	**25**	**0**	**69**	**0**	**0**	**0**	**0**	**397**	1,649
5:00 PM		**0**	**0**	**114**	**34**	**0**	**8**	**194**	**0**	**0**	**19**	**0**	**100**	**0**	**0**	**0**	**0**	**469**	**1,687**
5:15 PM		0	0	101	31	0	10	182	0	0	16	0	64	0	0	0	0	404	1,676
5:30 PM		0	0	107	33	0	11	136	0	0	10	0	58	0	0	0	0	355	1,625
5:45 PM		0	0	112	21	0	5	152	0	0	16	0	44	0	0	0	0	350	1,578
Count Total		0	0	797	251	0	57	1,449	0	0	144	0	529	0	0	0	0	3,227	0
Peak Hour	**All**	**0**	**0**	**371**	**126**	**0**	**26**	**788**	**0**	**0**	**84**	**0**	**292**	**0**	**0**	**0**	**0**	**1,687**	**0**
	HV	**0**	**0**	**4**	**3**	**0**	**1**	**13**	**0**	**0**	**3**	**0**	**13**	**0**	**0**	**0**	**0**	**37**	**0**
	HV%	**-**	**-**	**1%**	**2%**	**-**	**4%**	**2%**	**-**	**-**	**4%**	**-**	**4%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	7	1	3	0	*11*	0	0	0	0	*0*	0	0	0	8	*8*
4:15 PM	**0**	**5**	**5**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
4:30 PM	**2**	**4**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	*2*
4:45 PM	**3**	**2**	**6**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
5:00 PM	**2**	**3**	**5**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	1	2	1	0	*4*	0	0	0	0	*0*	0	0	0	1	*1*
5:45 PM	2	4	1	0	*7*	0	0	0	0	*0*	0	0	0	2	*2*
Count Total	17	21	21	0	*59*	0	0	0	0	*0*	0	0	0	15	*15*
Peak Hr	**7**	**14**	**16**	**0**	***37***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**4**	***4***

Two-Hour Count Summaries - Heavy Vehicles

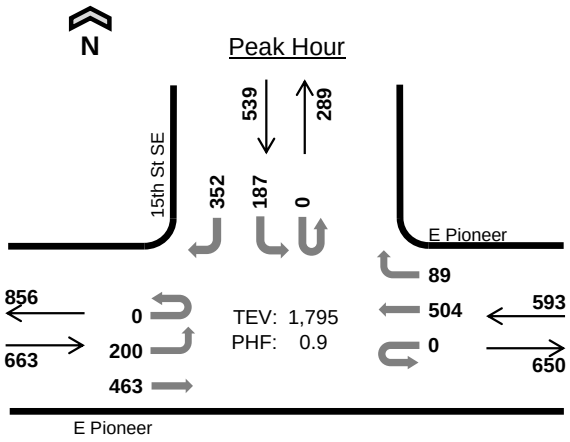
Interval Start	E Pioneer				E Pioneer				SR 512 NB Ramps				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	6	1	0	0	1	0	0	1	0	2	0	0	0	0	11	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**10**	0
4:30 PM	**0**	**0**	**1**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	0
4:45 PM	**0**	**0**	**2**	**1**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**11**	38
5:00 PM	**0**	**0**	**1**	**1**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**10**	**37**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
5:30 PM	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	4	25
5:45 PM	0	0	1	1	0	0	4	0	0	0	0	1	0	0	0	0	7	21
Count Total	0	0	12	5	0	2	19	0	0	4	0	17	0	0	0	0	59	0
Peak Hour	**0**	**0**	**4**	**3**	**0**	**1**	**13**	**0**	**0**	**3**	**0**	**13**	**0**	**0**	**0**	**0**	**37**	**0**

Two-Hour Count Summaries - Bikes

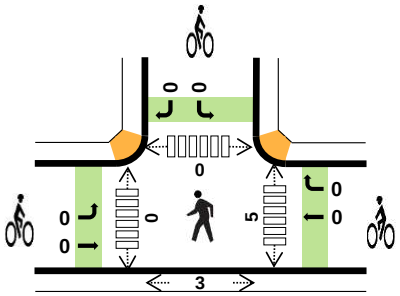
Interval Start	E Pioneer			E Pioneer			SR 512 NB Ramps			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

15th St SE
E Pioneer



Date: 03/22/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	2.6%	0.91
WB	1.7%	0.94
NB	-	-
SB	0.7%	0.84
TOTAL	1.7%	0.90

Two-Hour Count Summaries

Interval Start		E Pioneer Eastbound				E Pioneer Westbound				0 Northbound				15th St SE Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	35	125	0	0	0	136	17	0	0	0	0	0	45	0	88	446	0
4:15 PM		0	50	99	0	0	0	133	17	0	0	0	0	0	39	0	77	415	0
4:30 PM		**0**	**38**	**106**	**0**	**0**	**0**	**139**	**19**	**0**	**0**	**0**	**0**	**0**	**54**	**0**	**92**	**448**	0
4:45 PM		**0**	**54**	**109**	**0**	**0**	**0**	**116**	**20**	**0**	**0**	**0**	**0**	**0**	**39**	**0**	**81**	**419**	1,728
5:00 PM		**0**	**54**	**128**	**0**	**0**	**0**	**129**	**26**	**0**	**0**	**0**	**0**	**0**	**56**	**0**	**105**	**498**	1,780
5:15 PM		**0**	**54**	**120**	**0**	**0**	**0**	**120**	**24**	**0**	**0**	**0**	**0**	**0**	**38**	**0**	**74**	**430**	**1,795**
5:30 PM		0	23	150	0	0	0	114	8	0	0	0	0	0	24	0	36	355	1,702
5:45 PM		0	38	111	0	0	0	105	23	0	0	0	0	0	49	0	69	395	1,678
Count Total		0	346	948	0	0	0	992	154	0	0	0	0	0	344	0	622	3,406	0
Peak Hour	**All**	**0**	**200**	**463**	**0**	**0**	**0**	**504**	**89**	**0**	**0**	**0**	**0**	**0**	**187**	**0**	**352**	**1,795**	**0**
	HV	**0**	**10**	**7**	**0**	**0**	**0**	**9**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**31**	**0**
	HV%	**-**	**5%**	**2%**	**-**	**-**	**-**	**2%**	**1%**	**-**	**-**	**-**	**-**	**-**	**1%**	**-**	**1%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	8	4	0	0	*12*	0	0	0	0	*0*	1	0	0	0	*1*
4:15 PM	2	2	0	2	*6*	1	0	0	0	*1*	1	0	1	0	*2*
4:30 PM	**2**	**4**	**0**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
4:45 PM	**8**	**2**	**0**	**1**	***11***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**0**	**2**	*4*
5:00 PM	**5**	**4**	**0**	**1**	***10***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**0**	**1**	*3*
5:15 PM	**2**	**0**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	1	2	0	0	*3*	0	0	0	0	*0*	1	0	0	1	*2*
5:45 PM	1	3	0	2	*6*	0	0	0	0	*0*	0	0	0	6	*6*
Count Total	29	21	0	8	*58*	1	0	0	0	*1*	8	0	1	10	*19*
Peak Hr	**17**	**10**	**0**	**4**	***31***	**0**	**0**	**0**	**0**	***0***	**5**	**0**	**0**	**3**	***8***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Pioneer Eastbound				E Pioneer Westbound				0 Northbound				15th St SE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	5	3	0	0	0	2	2	0	0	0	0	0	0	0	0	12	0
4:15 PM	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	2	6	0
4:30 PM	**0**	**1**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	0
4:45 PM	**0**	**5**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**11**	36
5:00 PM	**0**	**3**	**2**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**10**	34
5:15 PM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**31**
5:30 PM	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	27
5:45 PM	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	2	6	22
Count Total	0	18	11	0	0	0	18	3	0	0	0	0	0	1	0	7	58	0
Peak Hour	**0**	**10**	**7**	**0**	**0**	**0**	**9**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**31**	**0**

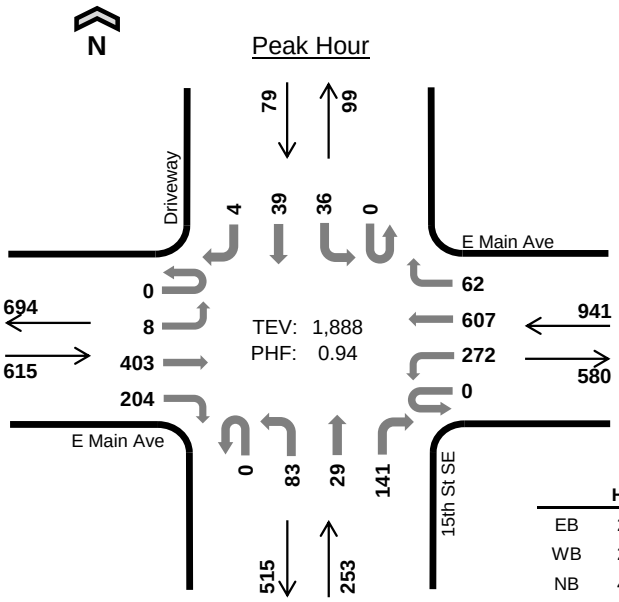
Two-Hour Count Summaries - Bikes

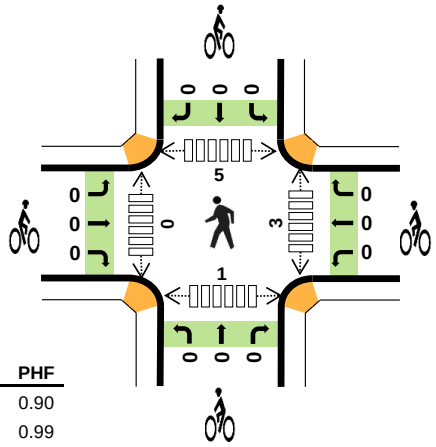
Interval Start	E Pioneer Eastbound			E Pioneer Westbound			0 Northbound			15th St SE Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

15th St SE
E Main Ave

Date: 03/22/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	2.8%	0.90
WB	2.3%	0.99
NB	4.0%	0.87
SB	2.5%	0.86
TOTAL	2.7%	0.94

Two-Hour Count Summaries

Interval Start		E Main Ave Eastbound				E Main Ave Westbound				15th St SE Northbound				Driveway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	2	120	39	0	77	148	19	0	18	6	27	0	15	10	3	484	0
4:15 PM		**0**	**1**	**101**	**46**	**0**	**63**	**150**	**19**	**0**	**18**	**11**	**34**	**0**	**8**	**13**	**1**	**465**	0
4:30 PM		**0**	**4**	**101**	**42**	**0**	**70**	**154**	**13**	**0**	**20**	**8**	**27**	**0**	**8**	**8**	**1**	**456**	0
4:45 PM		**0**	**3**	**94**	**52**	**0**	**70**	**154**	**13**	**0**	**22**	**4**	**36**	**0**	**10**	**5**	**2**	**465**	1,870
5:00 PM		**0**	**0**	**107**	**64**	**0**	**69**	**149**	**17**	**0**	**23**	**6**	**44**	**0**	**10**	**13**	**0**	**502**	**1,888**
5:15 PM		0	1	93	42	0	57	139	11	0	18	8	43	0	17	9	3	441	1,864
5:30 PM		0	0	109	48	0	63	128	10	0	29	1	34	0	5	7	0	434	1,842
5:45 PM		0	2	102	29	0	53	109	7	0	12	10	31	0	5	13	0	373	1,750
Count Total		0	13	827	362	0	522	1,131	109	0	160	54	276	0	78	78	10	3,620	0
Peak Hour	**All**	**0**	**8**	**403**	**204**	**0**	**272**	**607**	**62**	**0**	**83**	**29**	**141**	**0**	**36**	**39**	**4**	**1,888**	**0**
	HV	**0**	**0**	**17**	**0**	**0**	**2**	**17**	**3**	**0**	**4**	**0**	**6**	**0**	**1**	**0**	**1**	**51**	**0**
	HV%	**-**	**0%**	**4%**	**0%**	**-**	**1%**	**3%**	**5%**	**-**	**5%**	**0%**	**4%**	**-**	**3%**	**0%**	**25%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	6	5	7	0	*18*	0	0	0	0	*0*	1	1	2	1	*5*
4:15 PM	**5**	**8**	**1**	**0**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
4:30 PM	**8**	**8**	**1**	**1**	***18***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**1**	**0**	*4*
4:45 PM	**1**	**3**	**3**	**0**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
5:00 PM	**3**	**3**	**5**	**1**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**1**	***3***
5:15 PM	2	5	1	1	*9*	0	0	0	0	*0*	6	0	0	3	*9*
5:30 PM	2	3	1	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	1	2	0	0	*3*	0	0	0	0	*0*	2	0	0	0	*2*
Count Total	28	37	19	3	*87*	0	0	0	0	*0*	12	1	7	5	*25*
Peak Hour	**17**	**22**	**10**	**2**	***51***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**5**	**1**	***9***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Main Ave Eastbound				E Main Ave Westbound				15th St SE Northbound				Driveway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	6	0	0	0	5	0	0	1	0	6	0	0	0	0	18	0
4:15 PM	**0**	**0**	**5**	**0**	**0**	**1**	**7**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**14**	0
4:30 PM	**0**	**0**	**8**	**0**	**0**	**1**	**5**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**18**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**7**	57
5:00 PM	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**1**	**0**	**3**	**0**	**2**	**0**	**1**	**0**	**0**	**12**	**51**
5:15 PM	0	0	1	1	0	0	4	1	0	0	0	1	0	1	0	0	9	46
5:30 PM	0	0	2	0	0	0	3	0	0	1	0	0	0	0	0	0	6	34
5:45 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3	30
Count Total	0	0	27	1	0	4	29	4	0	6	0	13	0	2	0	1	87	0
Peak Hour	**0**	**0**	**17**	**0**	**0**	**2**	**17**	**3**	**0**	**4**	**0**	**6**	**0**	**1**	**0**	**1**	**51**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E Main Ave Eastbound			E Main Ave Westbound			15th St SE Northbound			Driveway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

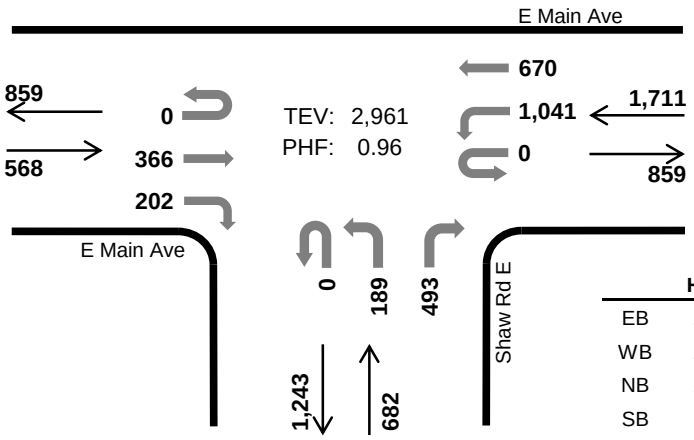
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Shaw Rd E
E Main Ave

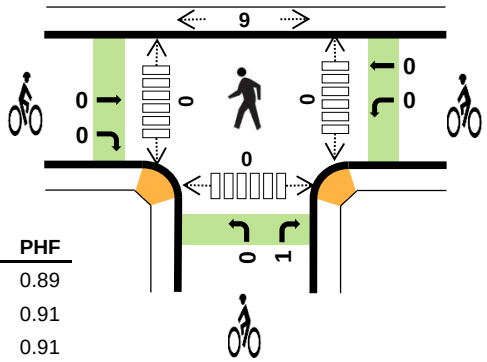
N

Peak Hour

Date: 03/22/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	1.8%	0.89
WB	1.3%	0.91
NB	1.3%	0.91
SB	-	-
TOTAL	1.4%	0.96



Two-Hour Count Summaries

Interval Start	E Main Ave Eastbound				E Main Ave Westbound				Shaw Rd E Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	108	48	0	212	178	0	0	41	0	111	0	0	0	0	698	0
4:15 PM	0	0	90	42	0	189	160	0	0	62	0	120	0	0	0	0	663	0
4:30 PM	**0**	**0**	**89**	**55**	**0**	**232**	**157**	**0**	**0**	**52**	**0**	**135**	**0**	**0**	**0**	**0**	**720**	0
4:45 PM	**0**	**0**	**87**	**56**	**0**	**282**	**188**	**0**	**0**	**48**	**0**	**111**	**0**	**0**	**0**	**0**	**772**	2,853
5:00 PM	**0**	**0**	**104**	**55**	**0**	**256**	**166**	**0**	**0**	**42**	**0**	**128**	**0**	**0**	**0**	**0**	**751**	2,906
5:15 PM	**0**	**0**	**86**	**36**	**0**	**271**	**159**	**0**	**0**	**47**	**0**	**119**	**0**	**0**	**0**	**0**	**718**	**2,961**
5:30 PM	0	0	80	47	0	205	167	0	0	49	0	121	0	0	0	0	669	2,910
5:45 PM	0	0	70	44	0	190	119	0	0	51	0	95	0	0	0	0	569	2,707
Count Total	0	0	714	383	0	1,837	1,294	0	0	392	0	940	0	0	0	0	5,560	0
Peak Hour All	**0**	**0**	**366**	**202**	**0**	**1,041**	**670**	**0**	**0**	**189**	**0**	**493**	**0**	**0**	**0**	**0**	**2,961**	**0**
Peak Hour HV	**0**	**0**	**7**	**3**	**0**	**11**	**12**	**0**	**0**	**5**	**0**	**4**	**0**	**0**	**0**	**0**	**42**	**0**
Peak Hour HV%	**-**	**-**	**2%**	**1%**	**-**	**1%**	**2%**	**-**	**-**	**3%**	**-**	**1%**	**-**	**-**	**-**	**-**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	6	7	7	0	*20*	0	0	0	0	*0*	0	1	2	1	*4*
4:15 PM	2	5	5	0	*12*	0	0	0	0	*0*	0	1	2	0	*3*
4:30 PM	**4**	**6**	**3**	**0**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**7**	**0**	*7*
4:45 PM	**1**	**4**	**1**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**0**	*2*
5:00 PM	**3**	**7**	**1**	**0**	***11***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**2**	**6**	**4**	**0**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	2	5	6	0	*13*	0	0	0	0	*0*	0	2	2	0	*4*
5:45 PM	0	3	2	0	*5*	0	0	0	0	*0*	0	5	7	0	*12*
Count Total	20	43	29	0	*92*	0	0	1	0	*1*	0	9	22	1	*32*
Peak Hr	**10**	**23**	**9**	**0**	***42***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**9**	**0**	***9***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Main Ave				E Main Ave				Shaw Rd E				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	5	1	0	3	4	0	0	4	0	3	0	0	0	0	20	0
4:15 PM	0	0	2	0	0	1	4	0	0	4	0	1	0	0	0	0	12	0
4:30 PM	**0**	**0**	**2**	**2**	**0**	**4**	**2**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**13**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	51
5:00 PM	**0**	**0**	**2**	**1**	**0**	**5**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**11**	42
5:15 PM	**0**	**0**	**2**	**0**	**0**	**2**	**4**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**12**	**42**
5:30 PM	0	0	2	0	0	2	3	0	0	0	0	6	0	0	0	0	13	42
5:45 PM	0	0	0	0	0	2	1	0	0	0	0	2	0	0	0	0	5	41
Count Total	0	0	16	4	0	19	24	0	0	13	0	16	0	0	0	0	92	0
Peak Hour	**0**	**0**	**7**	**3**	**0**	**11**	**12**	**0**	**0**	**5**	**0**	**4**	**0**	**0**	**0**	**0**	**42**	**0**

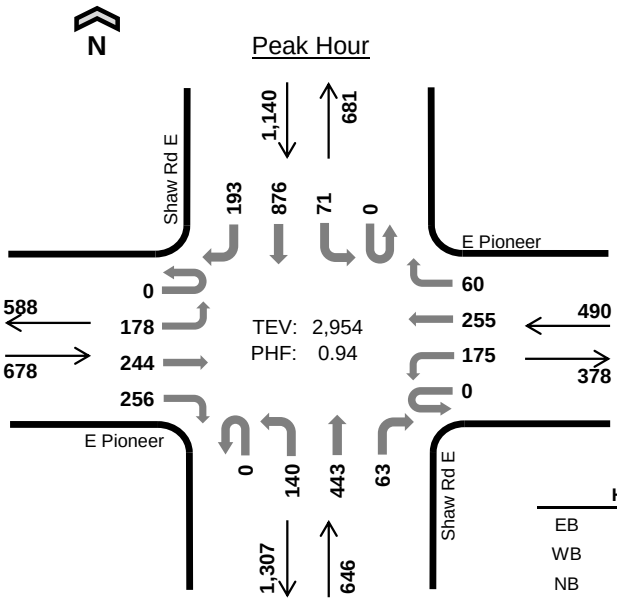
Two-Hour Count Summaries - Bikes

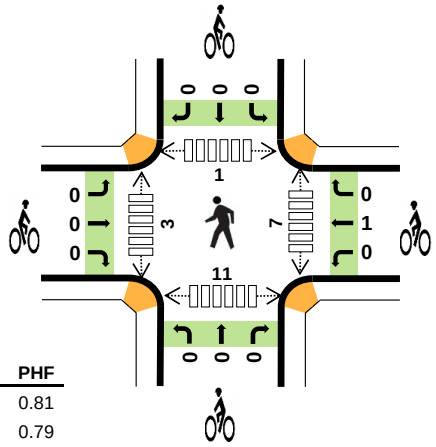
Interval Start	E Main Ave			E Main Ave			Shaw Rd E			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Shaw Rd E
E Pioneer

Date: 03/22/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	0.9%	0.81
WB	1.8%	0.79
NB	1.7%	0.81
SB	1.1%	0.89
TOTAL	1.3%	0.94

Two-Hour Count Summaries

Interval Start		E Pioneer Eastbound				E Pioneer Westbound				Shaw Rd E Northbound				Shaw Rd E Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	31	71	54	0	38	72	21	0	44	118	12	0	12	196	41	710	0
4:15 PM		0	43	50	62	0	35	60	13	0	41	98	20	0	16	189	39	666	0
4:30 PM		**0**	**42**	**70**	**42**	**0**	**54**	**81**	**21**	**0**	**50**	**123**	**27**	**0**	**21**	**207**	**44**	**782**	0
4:45 PM		**0**	**45**	**51**	**54**	**0**	**42**	**60**	**14**	**0**	**34**	**96**	**9**	**0**	**23**	**243**	**56**	**727**	2,885
5:00 PM		**0**	**48**	**75**	**86**	**0**	**40**	**75**	**14**	**0**	**37**	**93**	**12**	**0**	**13**	**219**	**41**	**753**	2,928
5:15 PM		**0**	**43**	**48**	**74**	**0**	**39**	**39**	**11**	**0**	**19**	**131**	**15**	**0**	**14**	**207**	**52**	**692**	**2,954**
5:30 PM		0	60	53	59	0	40	53	10	0	31	82	7	0	16	200	39	650	2,822
5:45 PM		0	24	55	55	0	32	60	13	0	26	104	23	0	21	249	36	698	2,793
Count Total		0	336	473	486	0	320	500	117	0	282	845	125	0	136	1,710	348	5,678	0
Peak Hour	**All**	**0**	**178**	**244**	**256**	**0**	**175**	**255**	**60**	**0**	**140**	**443**	**63**	**0**	**71**	**876**	**193**	**2,954**	**0**
	HV	**0**	**1**	**4**	**1**	**0**	**4**	**4**	**1**	**0**	**2**	**9**	**0**	**0**	**4**	**7**	**1**	**38**	**0**
	HV%	**-**	**1%**	**2%**	**0%**	**-**	**2%**	**2%**	**2%**	**-**	**1%**	**2%**	**0%**	**-**	**6%**	**1%**	**1%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	6	6	4	2	*18*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	2	3	6	3	*14*	0	0	0	0	*0*	3	0	0	5	*8*
4:30 PM	**2**	**3**	**2**	**5**	***12***	**0**	**0**	**0**	**0**	***0***	**6**	**2**	**0**	**10**	*18*
4:45 PM	**1**	**1**	**1**	**1**	***4***	**0**	**1**	**0**	**0**	***1***	**0**	**1**	**1**	**0**	*2*
5:00 PM	**2**	**3**	**4**	**3**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**1**	**2**	**4**	**3**	***10***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**1**	***2***
5:30 PM	0	2	5	1	*8*	0	0	0	0	*0*	1	0	0	3	*4*
5:45 PM	0	1	5	4	*10*	0	0	0	0	*0*	1	0	0	1	*2*
Count Total	14	21	31	22	*88*	0	1	0	0	*1*	12	3	1	20	*36*
Peak Hour	**6**	**9**	**11**	**12**	***38***	**0**	**1**	**0**	**0**	***1***	**7**	**3**	**1**	**11**	***22***

Two-Hour Count Summaries - Heavy Vehicles

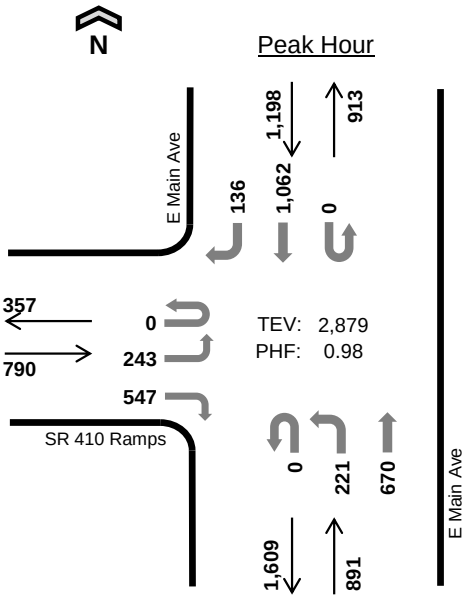
Interval Start	E Pioneer Eastbound				E Pioneer Westbound				Shaw Rd E Northbound				Shaw Rd E Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	4	2	0	1	1	4	0	2	2	0	0	1	1	0	18	0
4:15 PM	0	0	2	0	0	2	1	0	0	1	5	0	0	0	3	0	14	0
4:30 PM	**0**	**1**	**1**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**2**	**3**	**0**	**12**	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**4**	48
5:00 PM	**0**	**0**	**2**	**0**	**0**	**1**	**2**	**0**	**0**	**2**	**2**	**0**	**0**	**2**	**1**	**0**	**12**	42
5:15 PM	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**10**	**38**
5:30 PM	0	0	0	0	0	1	0	1	0	1	4	0	0	0	1	0	8	34
5:45 PM	0	0	0	0	0	0	1	0	0	1	2	2	0	0	4	0	10	40
Count Total	0	1	10	3	0	8	7	6	0	7	22	2	0	5	16	1	88	0
Peak Hour	**0**	**1**	**4**	**1**	**0**	**4**	**4**	**1**	**0**	**2**	**9**	**0**	**0**	**4**	**7**	**1**	**38**	**0**

Two-Hour Count Summaries - Bikes

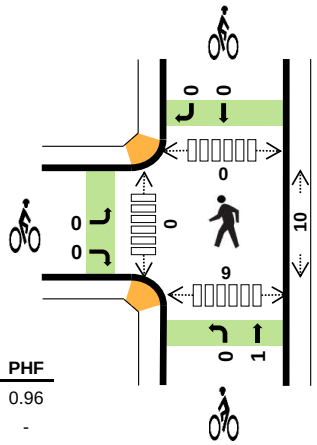
Interval Start	E Pioneer Eastbound			E Pioneer Westbound			Shaw Rd E Northbound			Shaw Rd E Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

E Main Ave
SR 410 Ramps



Date: 03/22/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	5.8%	0.96
WB	-	-
NB	1.5%	0.93
SB	2.5%	0.90
TOTAL	3.1%	0.98

Two-Hour Count Summaries

Interval Start	SR 410 Ramps Eastbound				0 Westbound				E Main Ave Northbound				E Main Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	57	0	102	0	0	0	0	0	60	165	0	0	0	252	28	664	0
4:15 PM	0	64	0	99	0	0	0	0	0	37	146	0	0	0	259	38	643	0
4:30 PM	**0**	**62**	**0**	**141**	**0**	**0**	**0**	**0**	**0**	**60**	**179**	**0**	**0**	**0**	**227**	**34**	**703**	0
4:45 PM	**0**	**59**	**0**	**137**	**0**	**0**	**0**	**0**	**0**	**44**	**150**	**0**	**0**	**0**	**294**	**37**	**721**	2,731
5:00 PM	**0**	**59**	**0**	**146**	**0**	**0**	**0**	**0**	**0**	**66**	**165**	**0**	**0**	**0**	**271**	**27**	**734**	2,801
5:15 PM	**0**	**63**	**0**	**123**	**0**	**0**	**0**	**0**	**0**	**51**	**176**	**0**	**0**	**0**	**270**	**38**	**721**	**2,879**
5:30 PM	0	46	0	112	0	0	0	0	0	44	139	0	0	0	256	40	637	2,813
5:45 PM	0	68	0	105	0	0	0	0	0	33	145	0	0	0	182	28	561	2,653
Count Total	0	478	0	965	0	0	0	0	0	395	1,265	0	0	0	2,011	270	5,384	0
Peak Hour All	**0**	**243**	**0**	**547**	**0**	**0**	**0**	**0**	**0**	**221**	**670**	**0**	**0**	**0**	**1,062**	**136**	**2,879**	**0**
Peak Hour HV	**0**	**34**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**3**	**10**	**0**	**0**	**0**	**23**	**7**	**89**	**0**
Peak Hour HV%	**-**	**14%**	**-**	**2%**	**-**	**-**	**-**	**-**	**-**	**1%**	**1%**	**-**	**-**	**-**	**2%**	**5%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	12	0	6	4	*22*	0	0	0	0	*0*	5	0	0	6	*11*
4:15 PM	18	0	4	8	*30*	0	0	0	0	*0*	4	0	0	3	*7*
4:30 PM	**12**	**0**	**3**	**5**	***20***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**2**	*5*
4:45 PM	**10**	**0**	**1**	**6**	***17***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**3**	*6*
5:00 PM	**10**	**0**	**6**	**13**	***29***	**0**	**0**	**1**	**0**	***1***	**2**	**0**	**0**	**2**	*4*
5:15 PM	**14**	**0**	**3**	**6**	***23***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**0**	**2**	***4***
5:30 PM	10	0	6	7	*23*	0	0	0	0	*0*	1	0	0	1	*2*
5:45 PM	6	0	5	2	*13*	0	0	0	0	*0*	3	0	0	2	*5*
Count Total	92	0	34	51	*177*	0	0	1	0	*1*	23	0	0	21	*44*
Peak Hr	**46**	**0**	**13**	**30**	***89***	**0**	**0**	**1**	**0**	***1***	**10**	**0**	**0**	**9**	***19***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	SR 410 Ramps				0				E Main Ave				E Main Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	8	0	4	0	0	0	0	0	1	5	0	0	0	3	1	22	0
4:15 PM	0	16	0	2	0	0	0	0	0	0	4	0	0	0	4	4	30	0
4:30 PM	**0**	**9**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**2**	**20**	0
4:45 PM	**0**	**9**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**1**	**17**	89
5:00 PM	**0**	**6**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**11**	**2**	**29**	96
5:15 PM	**0**	**10**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**4**	**2**	**23**	**89**
5:30 PM	0	8	0	2	0	0	0	0	0	2	4	0	0	0	6	1	23	92
5:45 PM	0	4	0	2	0	0	0	0	0	0	5	0	0	0	1	1	13	88
Count Total	0	70	0	22	0	0	0	0	0	6	28	0	0	0	37	14	177	0
Peak Hour	**0**	**34**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**3**	**10**	**0**	**0**	**0**	**23**	**7**	**89**	**0**

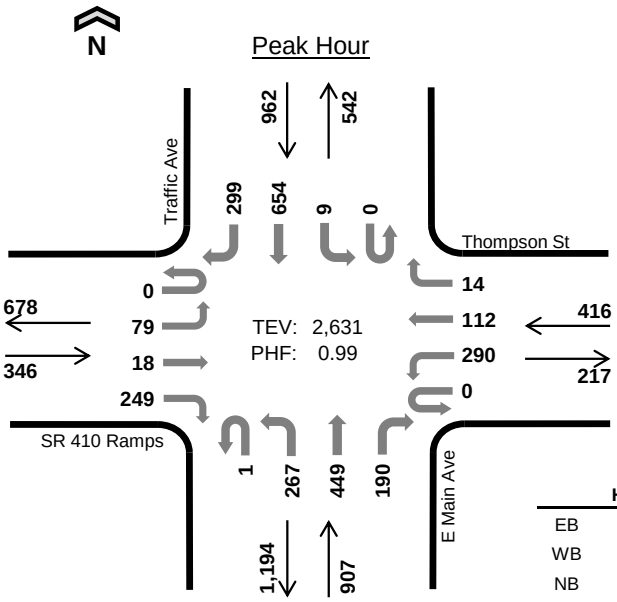
Two-Hour Count Summaries - Bikes

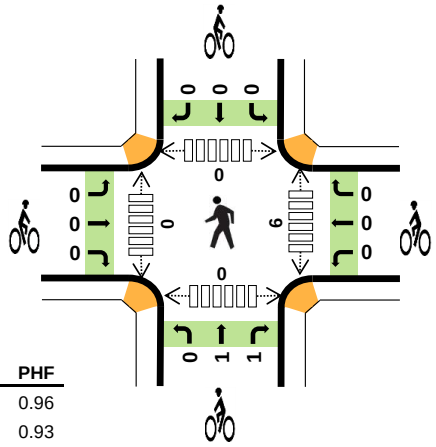
Interval Start	SR 410 Ramps			0			E Main Ave			E Main Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

E Main Ave
SR 410 Ramps

Date: 03/22/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	2.0%	0.96
WB	3.1%	0.93
NB	5.5%	0.93
SB	5.2%	0.93
TOTAL	4.6%	0.99

Two-Hour Count Summaries

Interval Start		SR 410 Ramps Eastbound				Thompson St Westbound				E Main Ave Northbound				Traffic Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	14	5	66	0	61	24	2	0	75	90	47	0	3	152	102	641	0
4:15 PM		0	16	4	70	0	64	37	2	0	55	110	57	0	4	168	77	664	0
4:30 PM		**0**	**24**	**6**	**60**	**0**	**66**	**44**	**2**	**1**	**64**	**129**	**49**	**0**	**3**	**138**	**73**	**659**	0
4:45 PM		**0**	**22**	**5**	**63**	**0**	**81**	**22**	**3**	**0**	**52**	**110**	**48**	**0**	**2**	**181**	**75**	**664**	2,628
5:00 PM		**0**	**16**	**5**	**63**	**0**	**79**	**25**	**3**	**0**	**72**	**100**	**43**	**0**	**2**	**161**	**74**	**643**	2,630
5:15 PM		**0**	**17**	**2**	**63**	**0**	**64**	**21**	**6**	**0**	**79**	**110**	**50**	**0**	**2**	**174**	**77**	**665**	**2,631**
5:30 PM		0	13	4	63	0	62	20	5	0	74	98	31	0	5	168	61	604	2,576
5:45 PM		0	14	2	46	0	37	13	2	0	46	108	43	0	3	132	55	501	2,413
Count Total		0	136	33	494	0	514	206	25	1	517	855	368	0	24	1,274	594	5,041	0
Peak Hour	**All**	**0**	**79**	**18**	**249**	**0**	**290**	**112**	**14**	**1**	**267**	**449**	**190**	**0**	**9**	**654**	**299**	**2,631**	**0**
	HV	**0**	**2**	**3**	**2**	**0**	**8**	**4**	**1**	**0**	**8**	**35**	**7**	**0**	**0**	**18**	**32**	**120**	**0**
	HV%	**-**	**3%**	**17%**	**1%**	**-**	**3%**	**4%**	**7%**	**0%**	**3%**	**8%**	**4%**	**-**	**0%**	**3%**	**11%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	1	2	14	10	*27*	0	0	0	0	*0*	1	0	0	0	*1*
4:15 PM	3	14	16	17	*50*	0	0	0	0	*0*	3	0	0	0	*3*
4:30 PM	**2**	**2**	**14**	**17**	***35***	**0**	**0**	**1**	**0**	***1***	**1**	**0**	**0**	**0**	*1*
4:45 PM	**1**	**4**	**9**	**18**	***32***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
5:00 PM	**3**	**4**	**12**	**7**	***26***	**0**	**0**	**1**	**0**	***1***	**2**	**0**	**0**	**0**	*2*
5:15 PM	**1**	**3**	**15**	**8**	***27***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**0**	**0**	***2***
5:30 PM	5	3	11	4	*23*	0	0	0	0	*0*	1	0	0	0	*1*
5:45 PM	1	1	6	8	*16*	0	0	0	0	*0*	3	0	0	0	*3*
Count Total	17	33	97	89	*236*	0	0	2	0	*2*	14	0	0	0	*14*
Peak Hour	**7**	**13**	**50**	**50**	***120***	**0**	**0**	**2**	**0**	***2***	**6**	**0**	**0**	**0**	***6***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	SR 410 Ramps				Thompson St				E Main Ave				Traffic Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	1	0	1	1	0	0	1	10	3	0	0	1	9	27	0
4:15 PM	0	0	1	2	0	2	12	0	0	2	11	3	0	0	6	11	50	0
4:30 PM	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**11**	**2**	**0**	**0**	**3**	**14**	**35**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**1**	**0**	**1**	**7**	**1**	**0**	**0**	**4**	**14**	**32**	144
5:00 PM	**0**	**0**	**1**	**2**	**0**	**3**	**1**	**0**	**0**	**3**	**6**	**3**	**0**	**0**	**6**	**1**	**26**	143
5:15 PM	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**3**	**11**	**1**	**0**	**0**	**5**	**3**	**27**	**120**
5:30 PM	0	1	1	3	0	2	0	1	0	2	8	1	0	0	2	2	23	108
5:45 PM	0	1	0	0	0	0	1	0	0	1	4	1	0	0	2	6	16	92
Count Total	0	4	5	8	0	13	18	2	0	14	68	15	0	0	29	60	236	0
Peak Hour	**0**	**2**	**3**	**2**	**0**	**8**	**4**	**1**	**0**	**8**	**35**	**7**	**0**	**0**	**18**	**32**	**120**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	SR 410 Ramps			Thompson St			E Main Ave			Traffic Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	1	1	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Appendix B

True Demand

Table B1
Year 2022 Existing PM Peak Hour True Demand Volume Summary

Study Intersection / Movement	Initial Queue (veh)	Turning Movement Counts (veh)	Residual Queue (veh)	True Demand Volume (veh)
4. Shaw Road E / E Main Ave				
Eastbound Thru	5	366	8	374
Eastbound Right	2	202	3	205
Westbound Left	21	1,041	16	1,057
Westbound Thru	9	670	5	675
Northbound Left	3	189	3	192
Northbound Right	0	493	7	500
5. Shaw Road E / E Pioneer Way				
Eastbound Left	3	178	4	182
Eastbound Thru	6	244	2	246
Eastbound Right	1	256	4	260
Westbound Left	1	175	1	176
Westbound Thru	9	255	4	259
Westbound Right	2	60	1	61
Northbound Left	0	140	3	143
Northbound Thru	2	443	1	444
Northbound Right	0	63	0	63
Southbound Left	0	71	0	71
Southbound Thru	10	876	28	904
Southbound Right	2	193	7	200

It should be noted that the volumes in Table B1 are summarized by movement and are not associated with an individual lane. For example, at the intersection of Shaw Road E/E Pioneer Way, the northbound approach channelization includes dual northbound left-turn lanes, one northbound thru lane, and one shared northbound thru-right-turn lane. However, the northbound true demand at the intersection is summarized by the available northbound turn movements (left-turn, thru, and right-turn).

True Demand – Methodology

True Demand:

"True Demand" is defined as the total number vehicles that arrive at an intersection's approach during a 15-minute interval. When 15-minute traffic volumes exceed the capacity of individual traffic movements, the true demand volumes are the number of the vehicles counted for each turning movement period PLUS the number of vehicles that arrived at the intersection during a 15-minute count period but did not yet enter the intersection.

To collect demand volume counts, a separate count will be made of number of vehicles remaining in queue at the beginning of each new 15-minute period for each traffic movement. When added to the standard 15-minute period turning movement counts, the total demand volumes can be estimated for each traffic movement for each 15-minute period.

Methodology:

1. The count of vehicles that makes the turning movement or the number of vehicles that enters the intersection at a particular 15 minutes interval from all arms of an intersection are counted as normal.

2. At the end of the 15 minutes period, the number of vehicles that have already arrived at the intersection and either queuing at the red lights or moving to cross the stop line are identified.

3. The identified vehicles are then counted as per their turning movement and added to the original 15 minutes period in which they arrived (but not serviced).

4. The total turning volume + vehicles that have arrived but not crossed = True demand for that particular 15 minutes.

240 15th Street
True Demand Calculations
Shaw Rd E / E Main Ave

	True Demand - TOTAL											
	E Main Ave Eastbound			E Main Ave Westbound			Shaw Rd E Northbound			- Southbound		
Interval Start	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
4:00 PM	0	108	50	223	181	0	45	0	112	0	0	0
4:15 PM	0	95	44	210	169	0	65	0	120	0	0	0
4:30 PM	0	95	55	255	171	0	54	0	135	0	0	0
4:45 PM	0	87	58	302	194	0	50	0	121	0	0	0
5:00 PM	0	108	55	286	175	0	43	0	128	0	0	0
5:15 PM	0	94	39	287	164	0	50	0	126	0	0	0
5:30 PM	0	83	55	234	176	0	52	0	121	0	0	0
5:45 PM	0	71	44	198	123	0	52	0	96	0	0	0
4:30 - 5:30 PM	0	384	207	1130	704	0	197	0	510	0	0	0

	Turning Movement Counts - TOTAL											
	E Main Ave Eastbound			E Main Ave Westbound			Shaw Rd E Northbound			- Southbound		
Interval Start	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
4:00 PM	0	108	48	212	178	0	41	0	111	0	0	0
4:15 PM	0	90	42	189	160	0	62	0	120	0	0	0
4:30 PM	0	89	55	232	157	0	52	0	135	0	0	0
4:45 PM	0	87	56	282	188	0	48	0	111	0	0	0
5:00 PM	0	104	55	256	166	0	42	0	128	0	0	0
5:15 PM	0	86	36	271	159	0	47	0	119	0	0	0
5:30 PM	0	80	47	205	167	0	49	0	121	0	0	0
5:45 PM	0	70	44	190	119	0	51	0	95	0	0	0
4:30 - 5:30 PM	0	366	202	1041	670	0	189	0	493	0	0	0

PHF = 0.96

	DELTA = VEHICLES IN QUEUE											
	E Main Ave Eastbound			E Main Ave Westbound			Shaw Rd E Northbound			- Southbound		
Interval Start	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
4:00 PM	0	0	2	11	3	0	4	0	1	0	0	0
4:15 PM	0	5	2	21	9	0	3	0	0	0	0	0
4:30 PM	0	6	0	23	14	0	2	0	0	0	0	0
4:45 PM	0	0	2	20	6	0	2	0	10	0	0	0
5:00 PM	0	4	0	30	9	0	1	0	0	0	0	0
5:15 PM	0	8	3	16	5	0	3	0	7	0	0	0
5:30 PM	0	3	8	29	9	0	3	0	0	0	0	0
5:45 PM	0	1	0	8	4	0	1	0	1	0	0	0
4:30 - 5:30 PM	0	18	5	89	34	0	8	0	17	0	0	0

4:30-5:30 PM True Demand Volumes

Initial Queue @ 4:30	0	5	2	21	9	0	3	0	0	0	0	0
Stop Line Count (TMC)	0	366	202	1041	670	0	189	0	493	0	0	0
Queued vehicles @ 5:30	0	8	3	16	5	0	3	0	7	0	0	0
True Demand	0	374	205	1057	675	0	192	0	500	0	0	0

240 15th Street
True Demand Calculations
Shaw Rd E / E Pioneer

	True Demand - TOTAL											
	E Pioneer Eastbound			E Pioneer Westbound			Shaw Rd E Northbound			Shaw Rd E Southbound		
Interval Start	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
4:00 PM	34	75	54	39	77	22	48	120	12	15	212	47
4:15 PM	46	56	63	36	69	15	41	100	20	16	196	41
4:30 PM	48	71	42	57	83	22	53	125	27	23	231	46
4:45 PM	49	52	59	45	64	15	35	99	9	25	268	63
5:00 PM	53	75	86	43	78	16	40	111	12	18	267	52
5:15 PM	47	50	78	40	43	12	22	132	15	14	235	59
5:30 PM	60	53	59	44	60	14	32	94	7	23	255	49
5:45 PM	24	59	56	33	62	13	29	105	23	24	280	40
4:30 - 5:30 PM	197	248	265	185	268	65	150	467	63	80	1001	220

	Turning Movement Counts - TOTAL											
	E Pioneer Eastbound			E Pioneer Westbound			Shaw Rd E Northbound			Shaw Rd E Southbound		
Interval Start	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
4:00 PM	31	71	54	38	72	21	44	118	12	12	196	41
4:15 PM	43	50	62	35	60	13	41	98	20	16	186	39
4:30 PM	42	70	42	54	81	21	50	123	27	21	207	44
4:45 PM	45	51	54	42	60	14	34	96	9	23	243	56
5:00 PM	48	75	86	40	75	14	37	93	12	13	219	41
5:15 PM	43	48	74	39	39	11	19	131	15	14	207	52
5:30 PM	60	53	59	40	53	10	31	82	7	16	200	39
5:45 PM	24	55	55	32	60	13	26	104	23	21	249	36
4:30 - 5:30 PM	178	244	256	175	255	60	140	443	63	71	876	193

PHF = 0.94

	DELTA = VEHICLES IN QUEUE											
	E Pioneer Eastbound			E Pioneer Westbound			Shaw Rd E Northbound			Shaw Rd E Southbound		
Interval Start	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
4:00 PM	3	4	0	1	5	1	4	2	0	3	16	6
4:15 PM	3	6	1	1	9	2	0	2	0	0	10	2
4:30 PM	6	1	0	3	2	1	3	2	0	2	24	2
4:45 PM	4	1	5	3	4	1	1	3	0	2	25	7
5:00 PM	5	0	0	3	3	2	3	18	0	5	48	11
5:15 PM	4	2	4	1	4	1	3	1	0	0	28	7
5:30 PM	0	0	0	4	7	4	1	12	0	7	55	10
5:45 PM	0	4	1	1	2	0	3	1	0	3	31	4
4:30 - 5:30 PM	19	4	9	10	13	5	10	24	0	9	125	27

4:30-5:30 PM True Demand Volumes

Initial Queue @ 4:30	3	6	1	1	9	2	0	2	0	0	10	2
Stop Line Count (TMC)	178	244	256	175	255	60	140	443	63	71	876	193
Queued vehicles @ 5:30	4	2	4	1	4	1	3	1	0	0	28	7
True Demand	182	246	260	176	259	61	143	444	63	71	904	200

Appendix C

Level of Service (LOS) Calculations at Study Intersections

2022 Existing PM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	371	126	26	788	84	292
Future Volume (vph)	371	126	26	788	84	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-3%	
Storage Length (ft)		0	250		0	200
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	811			556	336	
Travel Time (s)	15.8			10.8	6.5	
Confl. Peds. (#/hr)		4				
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	2%	4%	2%	4%	5%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases						4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		5.0	10.0	10.0	10.0
Minimum Split (s)	39.3		12.3	17.3	17.3	17.3
Total Split (s)	67.3		32.3	99.6	32.3	32.3
Total Split (%)	51.0%		24.5%	75.5%	24.5%	24.5%
Yellow Time (s)	4.5		4.5	4.5	4.5	4.5
All-Red Time (s)	2.8		2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3		7.3	7.3	7.3	7.3
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	Min	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 131.9	
Actuated Cycle Length: 50.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SR 512 EB & E Pioneer Way

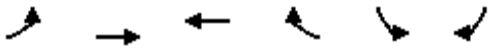
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	371	126	26	788	84	292
Future Volume (veh/h)	371	126	26	788	84	292
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1841	1870	1958	1943
Adj Flow Rate, veh/h	412	140	29	876	93	324
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	1	2	4	2	4	5
Cap, veh/h	697	234	58	1591	474	418
Arrive On Green	0.27	0.27	0.03	0.45	0.25	0.25
Sat Flow, veh/h	2721	883	1753	3647	1865	1647
Grp Volume(v), veh/h	279	273	29	876	93	324
Grp Sat Flow(s),veh/h/ln	1791	1718	1753	1777	1865	1647
Q Serve(g_s), s	6.6	6.8	0.8	8.8	1.9	8.9
Cycle Q Clear(g_c), s	6.6	6.8	0.8	8.8	1.9	8.9
Prop In Lane		0.51	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	475	456	58	1591	474	418
V/C Ratio(X)	0.59	0.60	0.50	0.55	0.20	0.77
Avail Cap(c_a), veh/h	2194	2106	895	6699	952	841
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	15.7	23.3	9.9	14.3	17.0
Incr Delay (d2), s/veh	1.2	1.3	6.4	0.3	0.2	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.4	0.4	2.6	0.7	8.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.8	17.0	29.7	10.2	14.6	20.7
LnGrp LOS	B	B	C	B	B	C
Approach Vol, veh/h	552			905	417	
Approach Delay, s/veh	16.9			10.8	19.3	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		29.2		19.7	8.9	20.3
Change Period (Y+Rc), s		* 7.3		* 7.3	* 7.3	* 7.3
Max Green Setting (Gmax), s		* 92		* 25	* 25	* 60
Max Q Clear Time (g_c+I1), s		10.8		10.9	2.8	8.8
Green Ext Time (p_c), s		7.5		1.5	0.0	3.7

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Notes

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



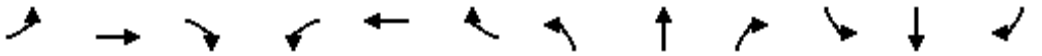
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	200	463	504	89	187	352
Future Volume (vph)	200	463	504	89	187	352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	3539	3465		1787	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1719	3539	3465		1787	1599
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	222	514	560	99	208	391
RTOR Reduction (vph)	0	0	9	0	0	0
Lane Group Flow (vph)	222	514	650	0	208	391
Heavy Vehicles (%)	5%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	NA		Prot	custom
Protected Phases	1	6	2		3	1 3 4
Permitted Phases						
Actuated Green, G (s)	19.2	51.4	26.2		20.2	64.2
Effective Green, g (s)	19.2	51.4	26.2		20.2	64.2
Actuated g/C Ratio	0.19	0.50	0.26		0.20	0.63
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		4.0	
Lane Grp Cap (vph)	322	1776	886		352	1002
v/s Ratio Prot	c0.13	0.15	c0.19		c0.12	c0.24
v/s Ratio Perm						
v/c Ratio	0.69	0.29	0.73		0.59	0.39
Uniform Delay, d1	38.8	14.9	34.9		37.3	9.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.0	0.1	3.2		3.1	0.3
Delay (s)	44.9	14.9	38.1		40.4	9.7
Level of Service	D	B	D		D	A
Approach Delay (s)		24.0	38.1		20.4	
Approach LOS		C	D		C	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	102.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	403	204	272	607	62	83	29	141	36	39	4
Future Volume (vph)	8	403	204	272	607	62	83	29	141	36	39	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1095			809			1163			142	
Travel Time (s)		24.9			18.4			26.4			3.2	
Confl. Peds. (#/hr)	5		1	1		8			4	3		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	0%	1%	3%	5%	5%	0%	4%	3%	0%	25%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Free	Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		Free	4		Free	8		
Detector Phase	5	2	2	1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	7.6	26.6	26.6	7.6	26.6		26.6	26.6		26.6	26.6	
Total Split (s)	24.6	34.6	34.6	26.6	36.6		24.6	24.6		24.6	24.6	
Total Split (%)	28.7%	40.3%	40.3%	31.0%	42.7%		28.7%	28.7%		28.7%	28.7%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6			4.6			4.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Min	Min	None	Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 85.8	
Actuated Cycle Length: 53.6	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: 15th St SE & E Main Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	403	204	272	607	62	83	29	141	36	39	4
Future Volume (veh/h)	8	403	204	272	607	62	83	29	141	36	39	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1885	1856	1826	1826	1900	1841	1856	1900	1530
Adj Flow Rate, veh/h	9	429	217	289	646	0	88	31	0	38	41	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	4	0	1	3	5	5	0	4	3	0	25
Cap, veh/h	401	655	569	602	929		301	44		224	99	9
Arrive On Green	0.01	0.36	0.36	0.15	0.50	0.00	0.10	0.10	0.00	0.10	0.10	0.10
Sat Flow, veh/h	1810	1841	1599	1795	1856	1547	1197	422	1560	731	950	85
Grp Volume(v), veh/h	9	429	217	289	646	0	119	0	0	83	0	0
Grp Sat Flow(s),veh/h/ln	1810	1841	1599	1795	1856	1547	1618	0	1560	1767	0	0
Q Serve(g_s), s	0.1	7.0	3.6	3.0	9.5	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	7.0	3.6	3.0	9.5	0.0	2.4	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.74		1.00	0.46		0.05
Lane Grp Cap(c), veh/h	401	655	569	602	929		345	0		332	0	0
V/C Ratio(X)	0.02	0.66	0.38	0.48	0.70		0.35	0.00		0.25	0.00	0.00
Avail Cap(c_a), veh/h	1405	1551	1348	1438	1668		1022	0		1068	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	9.6	8.6	5.8	6.8	0.0	15.3	0.0	0.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	0.4	0.6	0.9	0.0	0.6	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	0.9	0.6	2.3	0.0	0.8	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.6	10.8	9.0	6.4	7.8	0.0	15.9	0.0	0.0	15.3	0.0	0.0
LnGrp LOS	A	B	A	A	A		B	A		B	A	A
Approach Vol, veh/h		655			935			119			83	
Approach Delay, s/veh		10.1			7.3			15.9			15.3	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	17.3		8.3	4.9	22.4		8.3				
Change Period (Y+Rc), s	4.6	4.6		4.6	4.6	4.6		4.6				
Max Green Setting (Gmax), s	22.0	30.0		20.0	20.0	32.0		20.0				
Max Q Clear Time (g_c+I1), s	5.0	9.0		4.4	2.1	11.5		3.5				
Green Ext Time (p_c), s	0.8	3.4		0.5	0.0	4.5		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

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

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	374	205	1057	675	192	500
Future Volume (vph)	374	205	1057	675	192	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-3%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	3467	1863	1779	2856
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	3467	1863	1779	2856
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	390	214	1101	703	200	521
RTOR Reduction (vph)	0	176	0	0	0	89
Lane Group Flow (vph)	390	38	1101	703	200	432
Heavy Vehicles (%)	2%	2%	1%	2%	3%	1%
Turn Type	NA	Perm	Prot	NA	Prot	custom
Protected Phases	2		1	6	3	3 4 1
Permitted Phases		2				3
Actuated Green, G (s)	17.0	17.0	37.2	59.2	15.9	69.6
Effective Green, g (s)	17.0	17.0	37.2	59.2	15.9	65.1
Actuated g/C Ratio	0.18	0.18	0.39	0.61	0.16	0.67
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	622	278	1335	1141	292	1924
v/s Ratio Prot	0.11		c0.32	c0.38	c0.11	c0.15
v/s Ratio Perm		0.02				
v/c Ratio	0.63	0.14	0.82	0.62	0.68	0.22
Uniform Delay, d1	36.9	33.6	26.8	11.6	38.0	6.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	0.2	4.3	1.0	6.5	0.1
Delay (s)	38.8	33.8	31.0	12.6	44.5	6.1
Level of Service	D	C	C	B	D	A
Approach Delay (s)	37.1			23.9	16.8	
Approach LOS	D			C	B	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	96.6	Sum of lost time (s)	19.5
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

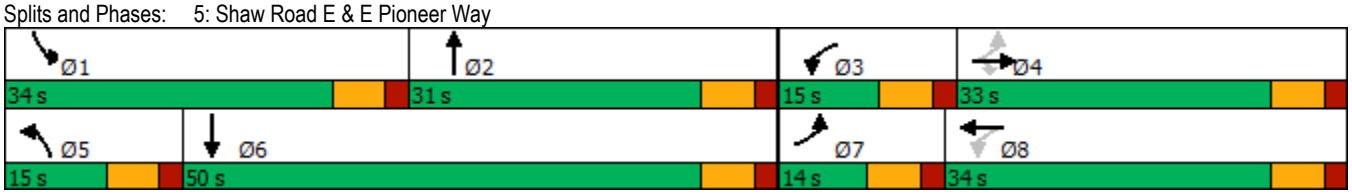
c Critical Lane Group

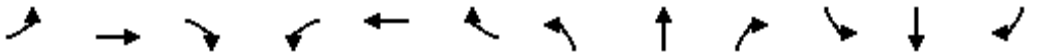
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	246	260	176	259	61	143	444	63	71	904	200
Future Volume (vph)	182	246	260	176	259	61	143	444	63	71	904	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	180		0	250		0	400		0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		800			1013			763			634	
Travel Time (s)		15.6			19.7			14.9			12.4	
Confl. Peds. (#/hr)	1		11	11		1			7			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	1%	2%	2%	2%	1%	2%	0%	6%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.5	43.5	43.5	11.5	53.5		11.5	36.5		11.5	39.5	
Total Split (s)	14.0	33.0	33.0	15.0	34.0		15.0	31.0		34.0	50.0	
Total Split (%)	12.4%	29.2%	29.2%	13.3%	30.1%		13.3%	27.4%		30.1%	44.2%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 113
Actuated Cycle Length: 109.7
Natural Cycle: 120
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Shaw Road E & E Pioneer Way





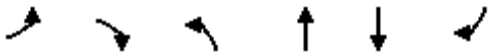
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	246	260	176	259	61	143	444	63	71	904	200
Future Volume (veh/h)	182	246	260	176	259	61	143	444	63	71	904	200
Initial Q (Qb), veh	3	6	1	1	11	0	0	2	0	0	12	0
Ped-Bike Adj(A_pbT)	0.99		0.98	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1870	1870	1870	1885	1870	1900	1811	1885	1885
Adj Flow Rate, veh/h	194	262	277	187	276	65	152	472	67	76	962	213
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	2	1	2	2	2	1	2	0	6	1	1
Cap, veh/h	186	404	336	268	354	54	217	1209	169	98	1162	217
Arrive On Green	0.07	0.21	0.21	0.08	0.22	0.22	0.06	0.39	0.39	0.06	0.38	0.38
Sat Flow, veh/h	1795	1870	1573	1781	1459	344	3483	3122	441	1725	2914	644
Grp Volume(v), veh/h	194	262	277	187	0	341	152	268	271	76	591	584
Grp Sat Flow(s),veh/h/ln	1795	1870	1573	1781	0	1802	1742	1777	1786	1725	1791	1767
Q Serve(g_s), s	7.5	12.9	16.9	8.3	0.0	18.2	4.3	10.9	11.0	4.4	30.6	30.7
Cycle Q Clear(g_c), s	7.5	12.9	16.9	8.3	0.0	18.2	4.3	10.9	11.0	4.4	30.6	30.7
Prop In Lane	1.00		1.00	1.00		0.19	1.00		0.25	1.00		0.36
Lane Grp Cap(c), veh/h	186	404	336	268	0	423	217	687	691	98	686	682
V/C Ratio(X)	1.04	0.65	0.83	0.70	0.00	0.81	0.70	0.39	0.39	0.77	0.86	0.86
Avail Cap(c_a), veh/h	249	494	415	295	0	494	295	687	691	473	776	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	37.0	38.0	30.5	0.0	39.1	47.4	22.3	22.4	47.9	29.8	29.6
Incr Delay (d2), s/veh	65.6	2.1	10.6	6.3	0.0	8.4	4.5	0.4	0.4	12.0	8.9	8.7
Initial Q Delay(d3),s/veh	58.2	4.5	0.4	0.3	0.0	25.3	0.0	0.0	0.0	0.0	3.9	3.9
%ile BackOfQ(50%),veh/ln	7.8	7.3	7.5	4.1	0.0	13.4	2.0	4.6	4.7	2.2	16.1	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	159.7	43.7	49.0	37.2	0.0	72.7	51.9	22.7	22.7	60.0	42.6	42.2
LnGrp LOS	F	D	D	D	A	E	D	C	C	E	D	D
Approach Vol, veh/h		733			528			691			1251	
Approach Delay, s/veh		76.4			60.1			29.1			43.5	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	45.3	15.0	27.8	12.8	44.7	14.0	28.8
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	27.5	24.5	8.5	26.5	8.5	43.5	7.5	27.5
Max Q Clear Time (g_c+I1), s	6.4	13.0	10.3	18.9	6.3	32.7	9.5	20.2
Green Ext Time (p_c), s	0.2	2.4	0.0	1.5	0.1	5.6	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	50.7
HCM 6th LOS	D

Notes

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	243	547	221	670	1062	136
Future Volume (vph)	243	547	221	670	1062	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			0%	0%	
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	0.91	1.00	0.95	0.95	
Frt	0.92	0.85	1.00	1.00	0.98	
Flt Protected	0.98	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3034	1419	1787	3539	3467	
Flt Permitted	0.98	1.00	0.12	1.00	1.00	
Satd. Flow (perm)	3034	1419	227	3539	3467	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	248	558	226	684	1084	139
RTOR Reduction (vph)	214	237	0	0	6	0
Lane Group Flow (vph)	313	42	226	684	1217	0
Heavy Vehicles (%)	14%	2%	1%	2%	2%	5%
Turn Type	Prot	Prot	pm+pt	NA	NA	
Protected Phases	8	8	1	6	2	
Permitted Phases			6			
Actuated Green, G (s)	14.9	14.9	70.1	70.1	52.0	
Effective Green, g (s)	14.9	14.9	70.1	70.1	52.0	
Actuated g/C Ratio	0.15	0.15	0.70	0.70	0.52	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	452	211	371	2480	1802	
v/s Ratio Prot	c0.10	0.03	c0.08	0.19	c0.35	
v/s Ratio Perm			0.34			
v/c Ratio	0.69	0.20	0.61	0.28	0.68	
Uniform Delay, d1	40.4	37.3	12.6	5.5	17.8	
Progression Factor	1.00	1.00	1.00	1.00	0.45	
Incremental Delay, d2	4.5	0.5	2.8	0.3	1.8	
Delay (s)	44.9	37.8	15.4	5.8	9.8	
Level of Service	D	D	B	A	A	
Approach Delay (s)	42.4			8.2	9.8	
Approach LOS	D			A	A	

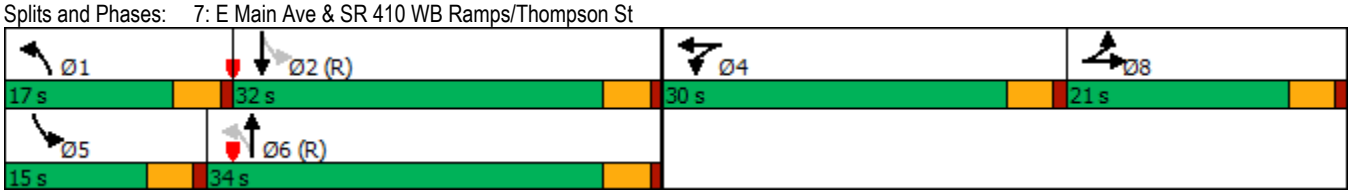
Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

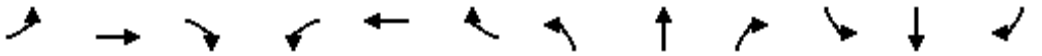
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	18	249	290	112	14	268	449	190	9	654	299
Future Volume (vph)	79	18	249	290	112	14	268	449	190	9	654	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			6%			-3%			-5%	
Storage Length (ft)	170		70	115		50	225		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			25			35			25	
Link Distance (ft)		499			309			676			392	
Travel Time (s)		11.3			8.4			13.2			10.7	
Confl. Peds. (#/hr)						6			6	6		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	3%	17%	1%	3%	4%	7%	3%	8%	4%	0%	3%	11%
Shared Lane Traffic (%)				32%								
Turn Type	Split	NA	Free	Split	NA	Free	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases			Free			Free	6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.5	10.5		10.5	10.5		10.5	28.5		10.5	10.5	
Total Split (s)	21.0	21.0		30.0	30.0		17.0	34.0		15.0	32.0	
Total Split (%)	21.0%	21.0%		30.0%	30.0%		17.0%	34.0%		15.0%	32.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 61 (61%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: E Main Ave & SR 410 WB Ramps/Thompson St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	18	249	290	112	14	268	449	190	9	654	299
Future Volume (veh/h)	79	18	249	290	112	14	268	449	190	9	654	299
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1648	1885	1644	1629	1584	1973	1898	1958	2097	2052	1932
Adj Flow Rate, veh/h	80	18	0	203	239	0	271	454	192	9	661	302
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	17	1	3	4	7	3	8	4	0	3	11
Cap, veh/h	109	102		276	287		437	1406	590	512	1277	583
Arrive On Green	0.06	0.06	0.00	0.18	0.18	0.00	0.09	0.57	0.57	0.01	0.49	0.49
Sat Flow, veh/h	1767	1648	1598	1565	1629	1343	1879	2471	1036	1997	2594	1185
Grp Volume(v), veh/h	80	18	0	203	239	0	271	330	316	9	497	466
Grp Sat Flow(s),veh/h/ln	1767	1648	1598	1565	1629	1343	1879	1803	1705	1997	1949	1830
Q Serve(g_s), s	4.4	1.0	0.0	12.3	14.2	0.0	6.7	9.7	9.8	0.2	17.4	17.4
Cycle Q Clear(g_c), s	4.4	1.0	0.0	12.3	14.2	0.0	6.7	9.7	9.8	0.2	17.4	17.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.61	1.00		0.65
Lane Grp Cap(c), veh/h	109	102		276	287		437	1026	970	512	959	901
V/C Ratio(X)	0.73	0.18		0.74	0.83		0.62	0.32	0.33	0.02	0.52	0.52
Avail Cap(c_a), veh/h	292	272		399	415		503	1026	970	695	959	901
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	44.5	0.0	39.0	39.8	0.0	12.6	11.4	11.4	12.3	17.3	17.3
Incr Delay (d2), s/veh	9.1	0.8	0.0	4.0	9.3	0.0	1.6	0.7	0.8	0.0	2.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.4	0.0	5.0	6.4	0.0	2.7	3.8	3.6	0.1	8.1	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	45.3	0.0	43.0	49.1	0.0	14.2	12.1	12.2	12.3	19.3	19.4
LnGrp LOS	E	D		D	D		B	B	B	B	B	B
Approach Vol, veh/h		98			442			917			972	
Approach Delay, s/veh		53.4			46.3			12.7			19.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	53.7		22.1	5.8	61.4		10.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	12.5	27.5		25.5	10.5	29.5		16.5				
Max Q Clear Time (g_c+I1), s	8.7	19.4		16.2	2.2	11.8		6.4				
Green Ext Time (p_c), s	0.3	4.0		1.4	0.0	3.7		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	23.1	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

2024 No Action PM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	386	131	28	798	87	310
Future Volume (vph)	386	131	28	798	87	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-3%	
Storage Length (ft)		0	250		0	200
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	811			556	336	
Travel Time (s)	15.8			10.8	6.5	
Confl. Peds. (#/hr)		4				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	4%	2%	3%	5%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases						4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		5.0	10.0	10.0	10.0
Minimum Split (s)	39.3		12.3	17.3	17.3	17.3
Total Split (s)	67.3		32.3	99.6	32.3	32.3
Total Split (%)	51.0%		24.5%	75.5%	24.5%	24.5%
Yellow Time (s)	4.5		4.5	4.5	4.5	4.5
All-Red Time (s)	2.8		2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3		7.3	7.3	7.3	7.3
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	Min	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 131.9	
Actuated Cycle Length: 46.8	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SR 512 EB & E Pioneer Way

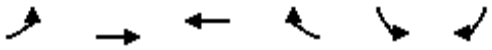
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	386	131	28	798	87	310
Future Volume (veh/h)	386	131	28	798	87	310
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1841	1870	1973	1943
Adj Flow Rate, veh/h	386	131	28	798	87	310
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	2	4	2	3	5
Cap, veh/h	673	225	57	1576	464	407
Arrive On Green	0.26	0.26	0.03	0.44	0.25	0.25
Sat Flow, veh/h	2723	880	1753	3647	1879	1647
Grp Volume(v), veh/h	261	256	28	798	87	310
Grp Sat Flow(s),veh/h/ln	1791	1719	1753	1777	1879	1647
Q Serve(g_s), s	6.0	6.1	0.7	7.6	1.7	8.2
Cycle Q Clear(g_c), s	6.0	6.1	0.7	7.6	1.7	8.2
Prop In Lane		0.51	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	459	440	57	1576	464	407
V/C Ratio(X)	0.57	0.58	0.49	0.51	0.19	0.76
Avail Cap(c_a), veh/h	2278	2186	929	6955	996	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	15.3	22.4	9.4	14.0	16.5
Incr Delay (d2), s/veh	1.1	1.2	6.4	0.3	0.2	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.1	0.4	2.2	0.6	7.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.4	16.5	28.8	9.7	14.3	20.1
LnGrp LOS	B	B	C	A	B	C
Approach Vol, veh/h	517			826	397	
Approach Delay, s/veh	16.5			10.3	18.8	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		28.2		18.9	8.8	19.4
Change Period (Y+Rc), s		* 7.3		* 7.3	* 7.3	* 7.3
Max Green Setting (Gmax), s		* 92		* 25	* 25	* 60
Max Q Clear Time (g_c+I1), s		9.6		10.2	2.7	8.1
Green Ext Time (p_c), s		6.6		1.5	0.0	3.4

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

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



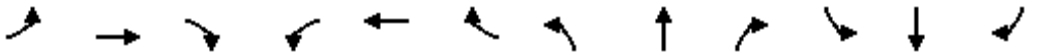
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	214	482	524	95	197	377
Future Volume (vph)	214	482	524	95	197	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	3539	3457		1787	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1719	3539	3457		1787	1599
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	536	582	106	219	419
RTOR Reduction (vph)	0	0	10	0	0	0
Lane Group Flow (vph)	238	536	678	0	219	419
Heavy Vehicles (%)	5%	2%	2%	2%	1%	1%
Turn Type	Prot	NA	NA		Prot	custom
Protected Phases	1	6	2		3	1 3 4
Permitted Phases						
Actuated Green, G (s)	20.3	54.3	28.0		21.8	66.9
Effective Green, g (s)	20.3	54.3	28.0		21.8	66.9
Actuated g/C Ratio	0.19	0.51	0.26		0.20	0.63
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		4.0	
Lane Grp Cap (vph)	326	1797	905		364	1000
v/s Ratio Prot	c0.14	0.15	c0.20		c0.12	c0.26
v/s Ratio Perm						
v/c Ratio	0.73	0.30	0.75		0.60	0.42
Uniform Delay, d1	40.7	15.3	36.2		38.6	10.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.1	0.1	3.4		3.2	0.3
Delay (s)	48.9	15.3	39.7		41.8	10.4
Level of Service	D	B	D		D	B
Approach Delay (s)		25.7	39.7		21.2	
Approach LOS		C	D		C	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	106.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	430	213	296	659	65	87	30	156	37	41	4
Future Volume (vph)	8	430	213	296	659	65	87	30	156	37	41	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1095			809			1163			142	
Travel Time (s)		24.9			18.4			26.4			3.2	
Confl. Peds. (#/hr)	5		1	1		8			4	3		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	0%	1%	3%	5%	5%	0%	5%	3%	0%	25%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Free	Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		Free	4		Free	8		
Detector Phase	5	2	2	1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	7.6	26.6	26.6	7.6	26.6		26.6	26.6		26.6	26.6	
Total Split (s)	24.6	34.6	34.6	26.6	36.6		24.6	24.6		24.6	24.6	
Total Split (%)	28.7%	40.3%	40.3%	31.0%	42.7%		28.7%	28.7%		28.7%	28.7%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6			4.6			4.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Min	Min	None	Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 85.8	
Actuated Cycle Length: 56.7	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: 15th St SE & E Main Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	430	213	296	659	65	87	30	156	37	41	4
Future Volume (veh/h)	8	430	213	296	659	65	87	30	156	37	41	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1885	1856	1826	1826	1900	1826	1856	1900	1530
Adj Flow Rate, veh/h	9	457	227	315	701	0	93	32	0	39	44	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	4	0	1	3	5	5	0	5	3	0	25
Cap, veh/h	374	673	584	596	961		298	45		213	110	9
Arrive On Green	0.01	0.37	0.37	0.16	0.52	0.00	0.11	0.11	0.00	0.11	0.11	0.11
Sat Flow, veh/h	1810	1841	1599	1795	1856	1547	1201	413	1547	685	1005	81
Grp Volume(v), veh/h	9	457	227	315	701	0	125	0	0	87	0	0
Grp Sat Flow(s),veh/h/ln	1810	1841	1599	1795	1856	1547	1614	0	1547	1771	0	0
Q Serve(g_s), s	0.1	7.9	4.0	3.4	11.1	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	7.9	4.0	3.4	11.1	0.0	2.7	0.0	0.0	1.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.74		1.00	0.45		0.05
Lane Grp Cap(c), veh/h	374	673	584	596	961		343	0		332	0	0
V/C Ratio(X)	0.02	0.68	0.39	0.53	0.73		0.36	0.00		0.26	0.00	0.00
Avail Cap(c_a), veh/h	1319	1463	1271	1356	1573		963	0		1011	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.8	10.1	8.9	6.3	7.1	0.0	16.1	0.0	0.0	15.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.4	0.7	1.1	0.0	0.6	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	1.1	0.7	2.7	0.0	0.9	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	11.3	9.3	7.0	8.1	0.0	16.7	0.0	0.0	16.1	0.0	0.0
LnGrp LOS	A	B	A	A	A		B	A		B	A	A
Approach Vol, veh/h		693			1016			125			87	
Approach Delay, s/veh		10.6			7.8			16.7			16.1	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	18.4		8.7	4.9	24.1		8.7				
Change Period (Y+Rc), s	4.6	4.6		4.6	4.6	4.6		4.6				
Max Green Setting (Gmax), s	22.0	30.0		20.0	20.0	32.0		20.0				
Max Q Clear Time (g_c+I1), s	5.4	9.9		4.7	2.1	13.1		3.6				
Green Ext Time (p_c), s	0.9	3.7		0.5	0.0	4.9		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

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

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	444	233	1100	728	209	520
Future Volume (vph)	444	233	1100	728	209	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-3%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3505	1599	3467	1863	1796	2856
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3505	1599	3467	1863	1796	2856
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	462	243	1146	758	218	542
RTOR Reduction (vph)	0	195	0	0	0	64
Lane Group Flow (vph)	463	48	1146	758	218	478
Heavy Vehicles (%)	3%	1%	1%	2%	2%	1%
Turn Type	NA	Perm	Prot	NA	Prot	custom
Protected Phases	2		1	6	3	3 4 1
Permitted Phases		2				3
Actuated Green, G (s)	19.8	19.8	37.2	62.0	17.0	70.7
Effective Green, g (s)	19.8	19.8	37.2	62.0	17.0	66.2
Actuated g/C Ratio	0.20	0.20	0.37	0.62	0.17	0.66
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	690	315	1283	1149	303	1881
v/s Ratio Prot	0.13		c0.33	c0.41	c0.12	c0.17
v/s Ratio Perm		0.03				
v/c Ratio	0.67	0.15	0.89	0.66	0.72	0.25
Uniform Delay, d1	37.3	33.4	29.8	12.4	39.5	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.2	8.3	1.4	7.9	0.1
Delay (s)	39.9	33.6	38.0	13.8	47.4	7.1
Level of Service	D	C	D	B	D	A
Approach Delay (s)	37.7			28.4	18.7	
Approach LOS	D			C	B	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.5	Sum of lost time (s)	19.5
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

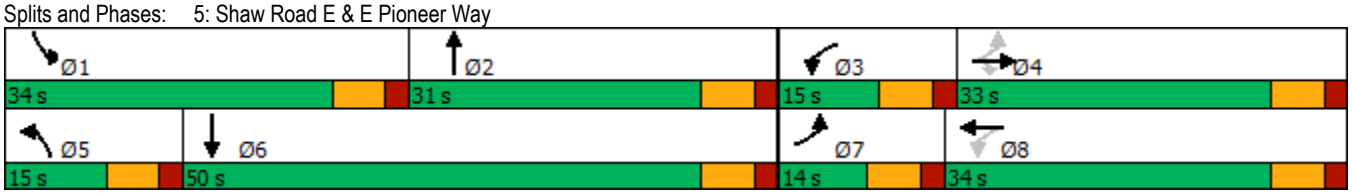
c Critical Lane Group

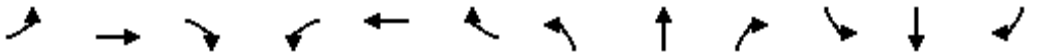
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	258	271	183	271	68	149	466	66	84	951	208
Future Volume (vph)	189	258	271	183	271	68	149	466	66	84	951	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	180		0	250		0	400		0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		800			1013			763			634	
Travel Time (s)		15.6			19.7			14.9			12.4	
Confl. Peds. (#/hr)	1		11	11		1			7			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	1%	2%	2%	2%	1%	2%	0%	5%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.5	43.5	43.5	11.5	53.5		11.5	36.5		11.5	39.5	
Total Split (s)	14.0	33.0	33.0	15.0	34.0		15.0	31.0		34.0	50.0	
Total Split (%)	12.4%	29.2%	29.2%	13.3%	30.1%		13.3%	27.4%		30.1%	44.2%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 113
Actuated Cycle Length: 112.4
Natural Cycle: 130
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Shaw Road E & E Pioneer Way





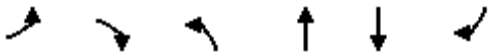
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	258	271	183	271	68	149	466	66	84	951	208
Future Volume (veh/h)	189	258	271	183	271	68	149	466	66	84	951	208
Initial Q (Qb), veh	3	6	1	1	11	0	0	2	0	0	12	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1870	1870	1870	1885	1870	1900	1826	1885	1885
Adj Flow Rate, veh/h	201	274	288	195	288	72	159	496	70	89	1012	221
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	2	1	2	2	2	1	2	0	5	1	1
Cap, veh/h	185	413	345	222	364	53	222	1207	168	114	1195	209
Arrive On Green	0.07	0.22	0.22	0.08	0.23	0.23	0.06	0.39	0.39	0.07	0.39	0.39
Sat Flow, veh/h	1795	1870	1573	1781	1439	360	3483	3124	439	1739	2923	637
Grp Volume(v), veh/h	201	274	288	195	0	360	159	281	285	89	619	614
Grp Sat Flow(s),veh/h/ln	1795	1870	1573	1781	0	1799	1742	1777	1787	1739	1791	1769
Q Serve(g_s), s	7.5	14.0	18.3	8.5	0.0	20.2	4.7	12.1	12.2	5.3	33.8	34.0
Cycle Q Clear(g_c), s	7.5	14.0	18.3	8.5	0.0	20.2	4.7	12.1	12.2	5.3	33.8	34.0
Prop In Lane	1.00		1.00	1.00		0.20	1.00		0.25	1.00		0.36
Lane Grp Cap(c), veh/h	185	413	345	222	0	431	222	685	689	114	695	693
V/C Ratio(X)	1.08	0.66	0.84	0.88	0.00	0.83	0.72	0.41	0.41	0.78	0.89	0.89
Avail Cap(c_a), veh/h	233	474	399	285	0	474	283	685	689	458	746	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	38.1	39.2	33.9	0.0	40.3	49.0	23.5	23.6	49.1	31.2	30.9
Incr Delay (d2), s/veh	82.9	2.8	12.7	21.6	0.0	11.4	6.1	0.4	0.4	10.7	12.3	12.0
Initial Q Delay(d3),s/veh	58.3	4.5	0.4	1.2	0.0	28.3	0.0	0.0	0.0	0.0	4.9	4.7
%ile BackOfQ(50%),veh/ln	8.7	7.9	8.3	5.4	0.0	15.1	2.2	5.1	5.2	2.6	18.5	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	177.2	45.5	52.3	56.6	0.0	80.0	55.2	23.9	24.0	59.9	48.4	47.7
LnGrp LOS	F	D	D	E	A	E	E	C	C	E	D	D
Approach Vol, veh/h		763			555			725			1322	
Approach Delay, s/veh		82.8			71.8			30.8			48.8	
Approach LOS		F			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	46.8	15.0	29.3	13.2	47.0	14.0	30.3
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	27.5	24.5	8.5	26.5	8.5	43.5	7.5	27.5
Max Q Clear Time (g_c+I1), s	7.3	14.2	10.5	20.3	6.7	36.0	9.5	22.2
Green Ext Time (p_c), s	0.2	2.4	0.0	1.4	0.1	4.5	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	56.4
HCM 6th LOS	E

Notes

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	253	578	243	739	1122	141
Future Volume (vph)	253	578	243	739	1122	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			0%	0%	
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	0.91	1.00	0.95	0.95	
Frt	0.92	0.85	1.00	1.00	0.98	
Flt Protected	0.98	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3034	1419	1770	3539	3469	
Flt Permitted	0.98	1.00	0.10	1.00	1.00	
Satd. Flow (perm)	3034	1419	190	3539	3469	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	253	578	243	739	1122	141
RTOR Reduction (vph)	216	245	0	0	7	0
Lane Group Flow (vph)	326	44	243	739	1257	0
Heavy Vehicles (%)	14%	2%	2%	2%	2%	5%
Turn Type	Prot	Prot	pm+pt	NA	NA	
Protected Phases	8	8	1	6	2	
Permitted Phases			6			
Actuated Green, G (s)	15.1	15.1	69.9	69.9	50.0	
Effective Green, g (s)	15.1	15.1	69.9	69.9	50.0	
Actuated g/C Ratio	0.15	0.15	0.70	0.70	0.50	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	458	214	376	2473	1734	
v/s Ratio Prot	c0.11	0.03	c0.10	0.21	c0.36	
v/s Ratio Perm			0.35			
v/c Ratio	0.71	0.20	0.65	0.30	0.72	
Uniform Delay, d1	40.4	37.2	19.0	5.7	19.6	
Progression Factor	1.00	1.00	1.00	1.00	0.42	
Incremental Delay, d2	5.1	0.5	3.8	0.3	2.2	
Delay (s)	45.5	37.7	22.8	6.0	10.5	
Level of Service	D	D	C	A	B	
Approach Delay (s)	42.8			10.2	10.5	
Approach LOS	D			B	B	

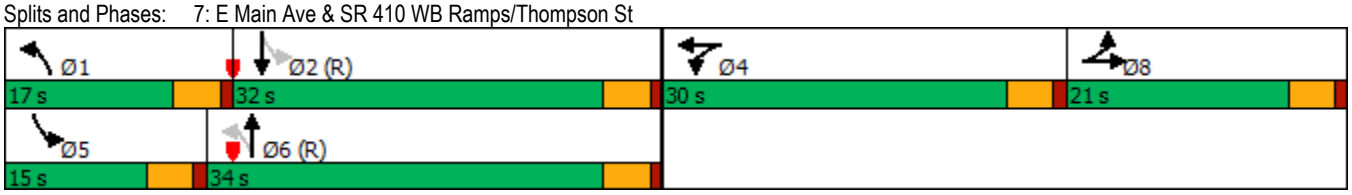
Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

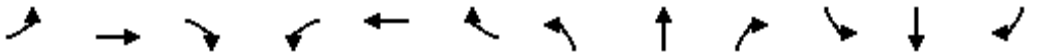
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	19	264	302	117	15	297	491	198	9	692	311
Future Volume (vph)	82	19	264	302	117	15	297	491	198	9	692	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			6%			-3%			-5%	
Storage Length (ft)	170		70	115		50	225		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			25			35			25	
Link Distance (ft)		499			309			676			392	
Travel Time (s)		11.3			8.4			13.2			10.7	
Confl. Peds. (#/hr)						6			6	6		
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
Heavy Vehicles (%)	2%	16%	1%	3%	3%	7%	3%	8%	4%	0%	3%	11%
Shared Lane Traffic (%)				32%								
Turn Type	Split	NA	Free	Split	NA	Free	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases			Free			Free	6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.5	10.5		10.5	10.5		10.5	28.5		10.5	10.5	
Total Split (s)	21.0	21.0		30.0	30.0		17.0	34.0		15.0	32.0	
Total Split (%)	21.0%	21.0%		30.0%	30.0%		17.0%	34.0%		15.0%	32.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 61 (61%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: E Main Ave & SR 410 WB Ramps/Thompson St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	19	264	302	117	15	297	491	198	9	692	311
Future Volume (veh/h)	82	19	264	302	117	15	297	491	198	9	692	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1663	1885	1644	1644	1584	1973	1898	1958	2097	2052	1932
Adj Flow Rate, veh/h	82	19	0	210	246	0	297	491	198	9	692	311
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	16	1	3	3	7	3	8	4	0	3	11
Cap, veh/h	112	105		280	295		429	1416	568	485	1252	562
Arrive On Green	0.06	0.06	0.00	0.18	0.18	0.00	0.10	0.56	0.56	0.01	0.48	0.48
Sat Flow, veh/h	1781	1663	1598	1565	1644	1343	1879	2508	1005	1997	2609	1172
Grp Volume(v), veh/h	82	19	0	210	246	0	297	352	337	9	517	486
Grp Sat Flow(s),veh/h/ln	1781	1663	1598	1565	1644	1343	1879	1803	1711	1997	1949	1832
Q Serve(g_s), s	4.5	1.1	0.0	12.7	14.4	0.0	7.5	10.6	10.7	0.2	18.8	18.8
Cycle Q Clear(g_c), s	4.5	1.1	0.0	12.7	14.4	0.0	7.5	10.6	10.7	0.2	18.8	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.59	1.00		0.64
Lane Grp Cap(c), veh/h	112	105		280	295		429	1018	966	485	935	879
V/C Ratio(X)	0.73	0.18		0.75	0.84		0.69	0.35	0.35	0.02	0.55	0.55
Avail Cap(c_a), veh/h	294	274		399	419		480	1018	966	668	935	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	44.4	0.0	38.9	39.6	0.0	13.9	11.8	11.8	12.9	18.4	18.4
Incr Delay (d2), s/veh	8.9	0.8	0.0	4.7	9.7	0.0	3.2	0.8	0.8	0.0	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.5	0.0	5.3	6.6	0.0	3.2	4.2	4.0	0.1	8.9	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	45.2	0.0	43.6	49.3	0.0	17.1	12.6	12.6	12.9	20.8	20.9
LnGrp LOS	D	D		D	D		B	B	B	B	C	C
Approach Vol, veh/h		101			456			986			1012	
Approach Delay, s/veh		53.1			46.7			14.0			20.8	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.3	52.5		22.4	5.8	61.0		10.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	12.5	27.5		25.5	10.5	29.5		16.5				
Max Q Clear Time (g_c+I1), s	9.5	20.8		16.4	2.2	12.7		6.5				
Green Ext Time (p_c), s	0.3	3.6		1.5	0.0	3.9		0.2				

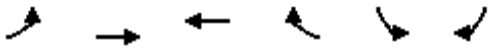
Intersection Summary		
HCM 6th Ctrl Delay	24.0	
HCM 6th LOS	C	

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

2024 With Project PM Peak Hour
(Scenario A – Warehousing)



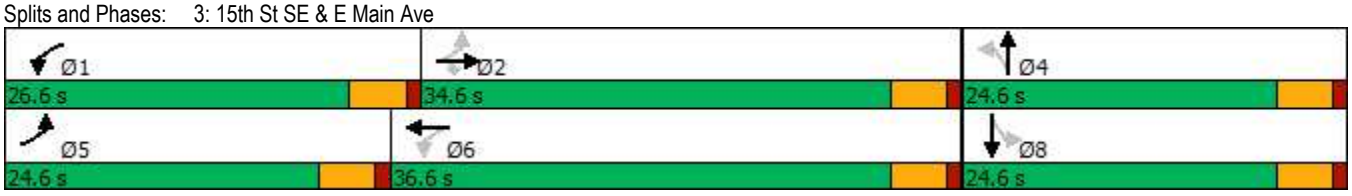
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	215	482	524	96	202	381
Future Volume (vph)	215	482	524	96	202	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	3539	3462		1787	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1719	3539	3462		1787	1599
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	239	536	582	107	224	423
RTOR Reduction (vph)	0	0	10	0	0	0
Lane Group Flow (vph)	239	536	679	0	224	423
Heavy Vehicles (%)	5%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	NA		Prot	custom
Protected Phases	1	6	2		3	1 3 4
Permitted Phases						
Actuated Green, G (s)	20.4	54.5	28.1		22.3	67.5
Effective Green, g (s)	20.4	54.5	28.1		22.3	67.5
Actuated g/C Ratio	0.19	0.51	0.26		0.21	0.63
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		4.0	
Lane Grp Cap (vph)	325	1792	904		370	1003
v/s Ratio Prot	c0.14	0.15	c0.20		c0.13	c0.26
v/s Ratio Perm						
v/c Ratio	0.74	0.30	0.75		0.61	0.42
Uniform Delay, d1	41.1	15.4	36.5		38.7	10.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.4	0.1	3.6		3.2	0.3
Delay (s)	49.4	15.5	40.1		41.9	10.4
Level of Service	D	B	D		D	B
Approach Delay (s)		26.0	40.1		21.3	
Approach LOS		C	D		C	

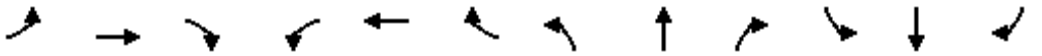
Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	107.6	Sum of lost time (s)	24.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	430	214	298	659	65	90	30	167	37	41	4
Future Volume (vph)	8	430	214	298	659	65	90	30	167	37	41	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1095			809			522			142	
Travel Time (s)		24.9			18.4			11.9			3.2	
Confl. Peds. (#/hr)	5		1	1		8			4	3		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	0%	1%	3%	5%	4%	0%	4%	3%	0%	25%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Free	Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		Free	4		Free	8		
Detector Phase	5	2	2	1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	7.6	26.6	26.6	7.6	26.6		26.6	26.6		26.6	26.6	
Total Split (s)	24.6	34.6	34.6	26.6	36.6		24.6	24.6		24.6	24.6	
Total Split (%)	28.7%	40.3%	40.3%	31.0%	42.7%		28.7%	28.7%		28.7%	28.7%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6			4.6			4.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Min	Min	None	Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 85.8	
Actuated Cycle Length: 56.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: 15th St SE & E Main Ave





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	430	214	298	659	65	90	30	167	37	41	4
Future Volume (veh/h)	8	430	214	298	659	65	90	30	167	37	41	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1885	1856	1826	1841	1900	1841	1856	1900	1530
Adj Flow Rate, veh/h	9	457	228	317	701	0	96	32	0	39	44	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	4	0	1	3	5	4	0	4	3	0	25
Cap, veh/h	372	671	583	595	960		301	45		213	114	9
Arrive On Green	0.01	0.36	0.36	0.16	0.52	0.00	0.11	0.11	0.00	0.11	0.11	0.11
Sat Flow, veh/h	1810	1841	1599	1795	1856	1547	1206	402	1560	673	1017	81
Grp Volume(v), veh/h	9	457	228	317	701	0	128	0	0	87	0	0
Grp Sat Flow(s),veh/h/ln	1810	1841	1599	1795	1856	1547	1609	0	1560	1772	0	0
Q Serve(g_s), s	0.1	8.0	4.0	3.4	11.1	0.0	1.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	8.0	4.0	3.4	11.1	0.0	2.8	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.75		1.00	0.45		0.05
Lane Grp Cap(c), veh/h	372	671	583	595	960		347	0		336	0	0
V/C Ratio(X)	0.02	0.68	0.39	0.53	0.73		0.37	0.00		0.26	0.00	0.00
Avail Cap(c_a), veh/h	1311	1452	1262	1346	1562		956	0		1004	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.9	10.2	9.0	6.3	7.1	0.0	16.1	0.0	0.0	15.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.2	0.4	0.7	1.1	0.0	0.7	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	1.1	0.7	2.8	0.0	1.0	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	11.4	9.4	7.1	8.2	0.0	16.8	0.0	0.0	16.1	0.0	0.0
LnGrp LOS	A	B	A	A	A		B	A		B	A	A
Approach Vol, veh/h		694			1018			128			87	
Approach Delay, s/veh		10.7			7.9			16.8			16.1	
Approach LOS		B			A			B			B	

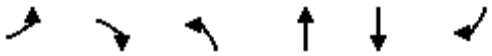
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.7	18.5		8.9	4.9	24.3		8.9				
Change Period (Y+Rc), s	4.6	4.6		4.6	4.6	4.6		4.6				
Max Green Setting (Gmax), s	22.0	30.0		20.0	20.0	32.0		20.0				
Max Q Clear Time (g_c+I1), s	5.4	10.0		4.8	2.1	13.1		3.7				
Green Ext Time (p_c), s	0.9	3.7		0.5	0.0	4.8		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	9.9	
HCM 6th LOS	A	

Notes

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

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	14	8	279	877	5
Future Volume (vph)	4	14	8	279	877	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	124			191	522	
Travel Time (s)	2.8			4.3	11.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	50%	0%	0%	3%	1%	40%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

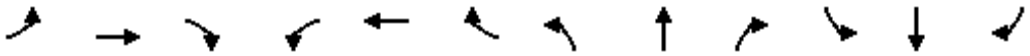
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	14	8	279	877	5
Future Vol, veh/h	4	14	8	279	877	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	50	0	0	3	1	40
Mvmt Flow	4	15	9	300	943	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1114	474	948	0	-	0
Stage 1	946	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	7.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	6.8	-	-	-	-	-
Critical Hdwy Stg 2	6.8	-	-	-	-	-
Follow-up Hdwy	4	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	140	542	732	-	-	-
Stage 1	244	-	-	-	-	-
Stage 2	718	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	138	542	732	-	-	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	240	-	-	-	-	-
Stage 2	718	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.7	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	732	-	328	-	-
HCM Lane V/C Ratio	0.012	-	0.059	-	-
HCM Control Delay (s)	10	0.1	16.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	0	11	1	0	1	4	255	16	2	880	5
Future Volume (vph)	16	0	11	1	0	1	4	255	16	2	880	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		159			128			450			191	
Travel Time (s)		3.6			2.9			10.2			4.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.5

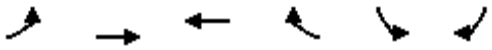
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	0	11	1	0	1	4	255	16	2	880	5
Future Vol, veh/h	16	0	11	1	0	1	4	255	16	2	880	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	1	0
Mvmt Flow	17	0	12	1	0	1	4	268	17	2	926	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1075	1226	466	752	1220	143	931	0	0	285	0	0
Stage 1	933	933	-	285	285	-	-	-	-	-	-	-
Stage 2	142	293	-	467	935	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	177	180	549	303	182	885	743	-	-	1289	-	-
Stage 1	290	348	-	704	679	-	-	-	-	-	-	-
Stage 2	852	674	-	551	347	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	176	178	549	295	180	885	743	-	-	1289	-	-
Mov Cap-2 Maneuver	176	178	-	295	180	-	-	-	-	-	-	-
Stage 1	288	347	-	700	675	-	-	-	-	-	-	-
Stage 2	846	670	-	538	346	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.8	13.2	0.1	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	743	-	-	243	443	1289	-	-
HCM Lane V/C Ratio	0.006	-	-	0.117	0.005	0.002	-	-
HCM Control Delay (s)	9.9	0	-	21.8	13.2	7.8	-	-
HCM Lane LOS	A	A	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0	-	-

2024 With Project PM Peak Hour
(Scenario B – Manufacturing)



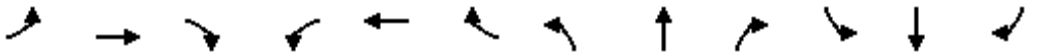
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	218	482	524	100	209	389
Future Volume (vph)	218	482	524	100	209	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	3539	3460		1787	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1719	3539	3460		1787	1599
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	242	536	582	111	232	432
RTOR Reduction (vph)	0	0	10	0	0	0
Lane Group Flow (vph)	242	536	683	0	232	432
Heavy Vehicles (%)	5%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	NA		Prot	custom
Protected Phases	1	6	2		3	1 3 4
Permitted Phases						
Actuated Green, G (s)	20.7	55.0	28.3		23.0	68.5
Effective Green, g (s)	20.7	55.0	28.3		23.0	68.5
Actuated g/C Ratio	0.19	0.51	0.26		0.21	0.63
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		4.0	
Lane Grp Cap (vph)	327	1789	899		377	1006
v/s Ratio Prot	c0.14	0.15	c0.20		c0.13	c0.27
v/s Ratio Perm						
v/c Ratio	0.74	0.30	0.76		0.62	0.43
Uniform Delay, d1	41.5	15.7	37.1		38.9	10.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.7	0.1	3.7		3.4	0.3
Delay (s)	50.2	15.8	40.8		42.3	10.5
Level of Service	D	B	D		D	B
Approach Delay (s)		26.5	40.8		21.6	
Approach LOS		C	D		C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	108.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	430	217	307	659	65	97	30	183	37	41	4
Future Volume (vph)	8	430	217	307	659	65	97	30	183	37	41	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1095			809			522			142	
Travel Time (s)		24.9			18.4			11.9			3.2	
Confl. Peds. (#/hr)	5		1	1		8			4	3		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	0%	1%	3%	5%	4%	0%	4%	3%	0%	25%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Free	Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		Free	4		Free	8		
Detector Phase	5	2	2	1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	7.6	26.6	26.6	7.6	26.6		26.6	26.6		26.6	26.6	
Total Split (s)	24.6	34.6	34.6	26.6	36.6		24.6	24.6		24.6	24.6	
Total Split (%)	28.7%	40.3%	40.3%	31.0%	42.7%		28.7%	28.7%		28.7%	28.7%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6			4.6			4.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Min	Min	None	Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 85.8	
Actuated Cycle Length: 58.2	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: 15th St SE & E Main Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	430	217	307	659	65	97	30	183	37	41	4
Future Volume (veh/h)	8	430	217	307	659	65	97	30	183	37	41	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1885	1856	1826	1841	1900	1841	1856	1900	1530
Adj Flow Rate, veh/h	9	457	231	327	701	0	103	32	0	39	44	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	4	0	1	3	5	4	0	4	3	0	25
Cap, veh/h	369	667	579	594	962		308	45		211	124	10
Arrive On Green	0.01	0.36	0.36	0.16	0.52	0.00	0.12	0.12	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1810	1841	1599	1795	1856	1547	1218	378	1560	648	1045	82
Grp Volume(v), veh/h	9	457	231	327	701	0	135	0	0	87	0	0
Grp Sat Flow(s),veh/h/ln	1810	1841	1599	1795	1856	1547	1596	0	1560	1774	0	0
Q Serve(g_s), s	0.1	8.2	4.2	3.7	11.4	0.0	1.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	8.2	4.2	3.7	11.4	0.0	3.0	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.76		1.00	0.45		0.05
Lane Grp Cap(c), veh/h	369	667	579	594	962		353	0		345	0	0
V/C Ratio(X)	0.02	0.69	0.40	0.55	0.73		0.38	0.00		0.25	0.00	0.00
Avail Cap(c_a), veh/h	1288	1422	1235	1317	1529		934	0		985	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.1	10.5	9.2	6.5	7.2	0.0	16.3	0.0	0.0	15.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.4	0.8	1.1	0.0	0.7	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	1.1	0.8	2.9	0.0	1.0	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	11.8	9.7	7.3	8.3	0.0	17.0	0.0	0.0	16.2	0.0	0.0
LnGrp LOS	A	B	A	A	A		B	A		B	A	A
Approach Vol, veh/h		697			1028			135			87	
Approach Delay, s/veh		11.0			8.0			17.0			16.2	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	18.7		9.2	4.9	24.7		9.2				
Change Period (Y+Rc), s	4.6	4.6		4.6	4.6	4.6		4.6				
Max Green Setting (Gmax), s	22.0	30.0		20.0	20.0	32.0		20.0				
Max Q Clear Time (g_c+I1), s	5.7	10.2		5.0	2.1	13.4		3.7				
Green Ext Time (p_c), s	0.9	3.7		0.6	0.0	4.8		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	10.1	
HCM 6th LOS	B	

Notes

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

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	471	233	1100	739	209	520
Future Volume (vph)	471	233	1100	739	209	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-3%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1599	3467	1863	1796	2856
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1599	3467	1863	1796	2856
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	491	243	1146	770	218	542
RTOR Reduction (vph)	0	193	0	0	0	56
Lane Group Flow (vph)	491	50	1146	770	218	486
Heavy Vehicles (%)	2%	1%	1%	2%	2%	1%
Turn Type	NA	Perm	Prot	NA	Prot	custom
Protected Phases	2		1	6	3	3 4 1
Permitted Phases		2				3
Actuated Green, G (s)	20.8	20.8	37.2	63.0	17.0	70.7
Effective Green, g (s)	20.8	20.8	37.2	63.0	17.0	66.2
Actuated g/C Ratio	0.20	0.20	0.37	0.62	0.17	0.65
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	725	327	1270	1156	300	1862
v/s Ratio Prot	0.14		c0.33	c0.41	c0.12	c0.17
v/s Ratio Perm		0.03				
v/c Ratio	0.68	0.15	0.90	0.67	0.73	0.26
Uniform Delay, d1	37.3	33.1	30.4	12.4	40.0	7.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.2	9.1	1.5	8.5	0.1
Delay (s)	39.8	33.3	39.5	13.9	48.5	7.5
Level of Service	D	C	D	B	D	A
Approach Delay (s)	37.6			29.2	19.2	
Approach LOS	D			C	B	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	101.5	Sum of lost time (s)	19.5
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

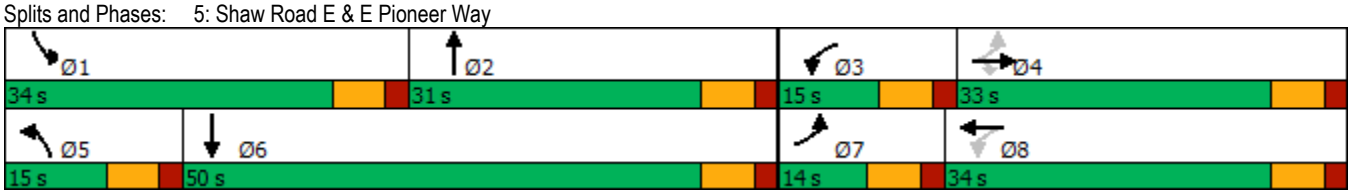
c Critical Lane Group

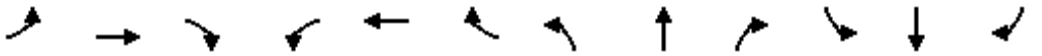
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	270	271	183	276	68	149	466	66	84	951	208
Future Volume (vph)	189	270	271	183	276	68	149	466	66	84	951	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	180		0	250		0	400		0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		800			1013			763			634	
Travel Time (s)		15.6			19.7			14.9			12.4	
Confl. Peds. (#/hr)	1		11	11		1			7			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	2%	1%	2%	1%	2%	1%	2%	0%	6%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.5	43.5	43.5	11.5	53.5		11.5	36.5		11.5	39.5	
Total Split (s)	14.0	33.0	33.0	15.0	34.0		15.0	31.0		34.0	50.0	
Total Split (%)	12.4%	29.2%	29.2%	13.3%	30.1%		13.3%	27.4%		30.1%	44.2%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 113
Actuated Cycle Length: 112.6
Natural Cycle: 130
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Shaw Road E & E Pioneer Way





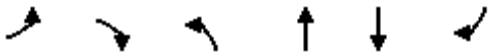
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	270	271	183	276	68	149	466	66	84	951	208
Future Volume (veh/h)	189	270	271	183	276	68	149	466	66	84	951	208
Initial Q (Qb), veh	3	6	1	1	11	0	0	2	0	0	12	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1870	1885	1870	1885	1870	1900	1811	1885	1885
Adj Flow Rate, veh/h	201	287	288	195	294	72	159	496	70	89	1012	221
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	2	1	2	1	2	1	2	0	6	1	1
Cap, veh/h	185	416	347	220	370	52	222	1204	168	114	1194	209
Arrive On Green	0.07	0.22	0.22	0.08	0.23	0.23	0.06	0.38	0.38	0.07	0.39	0.39
Sat Flow, veh/h	1795	1870	1574	1781	1458	357	3483	3124	439	1725	2923	637
Grp Volume(v), veh/h	201	287	288	195	0	366	159	281	285	89	619	614
Grp Sat Flow(s),veh/h/ln	1795	1870	1574	1781	0	1815	1742	1777	1787	1725	1791	1769
Q Serve(g_s), s	7.5	14.8	18.3	8.5	0.0	20.4	4.7	12.1	12.2	5.3	33.9	34.1
Cycle Q Clear(g_c), s	7.5	14.8	18.3	8.5	0.0	20.4	4.7	12.1	12.2	5.3	33.9	34.1
Prop In Lane	1.00		1.00	1.00		0.20	1.00		0.25	1.00		0.36
Lane Grp Cap(c), veh/h	185	416	347	220	0	437	222	684	688	114	695	693
V/C Ratio(X)	1.08	0.69	0.83	0.89	0.00	0.84	0.72	0.41	0.41	0.78	0.89	0.89
Avail Cap(c_a), veh/h	232	473	398	278	0	477	283	684	688	453	744	735
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	38.4	39.2	33.9	0.0	40.4	49.1	23.6	23.7	49.2	31.2	31.0
Incr Delay (d2), s/veh	83.1	3.6	12.4	23.3	0.0	11.7	6.2	0.4	0.4	10.9	12.4	12.1
Initial Q Delay(d3),s/veh	58.3	4.9	0.4	1.3	0.0	28.2	0.0	0.0	0.0	0.0	4.9	4.7
%ile BackOfQ(50%),veh/ln	8.7	8.4	8.3	5.5	0.0	15.3	2.2	5.1	5.2	2.7	18.5	18.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	177.4	46.9	52.0	58.5	0.0	80.3	55.3	24.1	24.1	60.0	48.6	47.9
LnGrp LOS	F	D	D	E	A	F	E	C	C	E	D	D
Approach Vol, veh/h		776			561			725			1322	
Approach Delay, s/veh		82.6			72.7			30.9			49.0	
Approach LOS		F			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	46.8	15.0	29.5	13.2	47.0	14.0	30.5
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	27.5	24.5	8.5	26.5	8.5	43.5	7.5	27.5
Max Q Clear Time (g_c+I1), s	7.3	14.2	10.5	20.3	6.7	36.1	9.5	22.4
Green Ext Time (p_c), s	0.2	2.4	0.0	1.5	0.1	4.4	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	56.8
HCM 6th LOS	E

Notes

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	253	582	249	760	1129	141
Future Volume (vph)	253	582	249	760	1129	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			0%	0%	
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	0.91	1.00	0.95	0.95	
Frt	0.92	0.85	1.00	1.00	0.98	
Flt Protected	0.98	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3034	1419	1787	3574	3469	
Flt Permitted	0.98	1.00	0.10	1.00	1.00	
Satd. Flow (perm)	3034	1419	185	3574	3469	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	253	582	249	760	1129	141
RTOR Reduction (vph)	218	247	0	0	7	0
Lane Group Flow (vph)	326	44	249	760	1263	0
Heavy Vehicles (%)	14%	2%	1%	1%	2%	5%
Turn Type	Prot	Prot	pm+pt	NA	NA	
Protected Phases	8	8	1	6	2	
Permitted Phases			6			
Actuated Green, G (s)	15.1	15.1	69.9	69.9	49.6	
Effective Green, g (s)	15.1	15.1	69.9	69.9	49.6	
Actuated g/C Ratio	0.15	0.15	0.70	0.70	0.50	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	458	214	382	2498	1720	
v/s Ratio Prot	c0.11	0.03	c0.10	0.21	c0.36	
v/s Ratio Perm			0.35			
v/c Ratio	0.71	0.21	0.65	0.30	0.73	
Uniform Delay, d1	40.4	37.2	20.0	5.8	20.0	
Progression Factor	1.00	1.00	1.00	1.00	0.41	
Incremental Delay, d2	5.2	0.5	4.0	0.3	2.3	
Delay (s)	45.5	37.7	24.0	6.1	10.5	
Level of Service	D	D	C	A	B	
Approach Delay (s)	42.8			10.5	10.5	
Approach LOS	D			B	B	

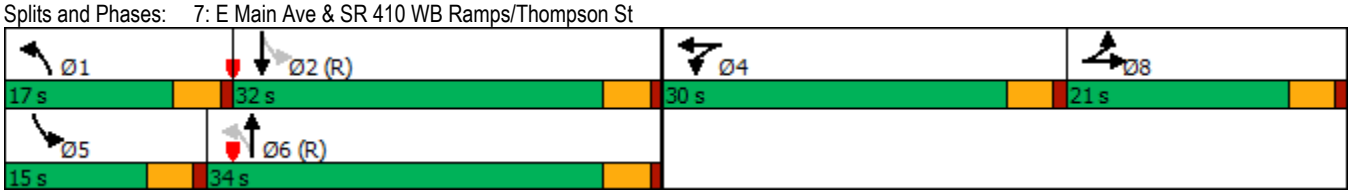
Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

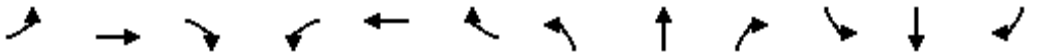
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	19	266	302	117	15	306	503	198	9	697	311
Future Volume (vph)	82	19	266	302	117	15	306	503	198	9	697	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			6%			-3%			-5%	
Storage Length (ft)	170		70	115		50	225		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			25			35			25	
Link Distance (ft)		499			309			676			392	
Travel Time (s)		11.3			8.4			13.2			10.7	
Confl. Peds. (#/hr)						6			6	6		
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
Heavy Vehicles (%)	2%	16%	1%	3%	3%	7%	3%	8%	4%	0%	3%	11%
Shared Lane Traffic (%)				32%								
Turn Type	Split	NA	Free	Split	NA	Free	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases			Free			Free	6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.5	10.5		10.5	10.5		10.5	28.5		10.5	10.5	
Total Split (s)	21.0	21.0		30.0	30.0		17.0	34.0		15.0	32.0	
Total Split (%)	21.0%	21.0%		30.0%	30.0%		17.0%	34.0%		15.0%	32.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 61 (61%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: E Main Ave & SR 410 WB Ramps/Thompson St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	19	266	302	117	15	306	503	198	9	697	311
Future Volume (veh/h)	82	19	266	302	117	15	306	503	198	9	697	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1663	1885	1644	1644	1584	1973	1898	1958	2097	2052	1932
Adj Flow Rate, veh/h	82	19	0	210	246	0	306	503	198	9	697	311
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	16	1	3	3	7	3	8	4	0	3	11
Cap, veh/h	112	105		280	295		431	1427	559	479	1248	557
Arrive On Green	0.06	0.06	0.00	0.18	0.18	0.00	0.10	0.56	0.56	0.01	0.48	0.48
Sat Flow, veh/h	1781	1663	1598	1565	1644	1343	1879	2527	989	1997	2615	1167
Grp Volume(v), veh/h	82	19	0	210	246	0	306	358	343	9	519	489
Grp Sat Flow(s),veh/h/ln	1781	1663	1598	1565	1644	1343	1879	1803	1714	1997	1949	1833
Q Serve(g_s), s	4.5	1.1	0.0	12.7	14.4	0.0	7.8	10.8	10.9	0.2	19.0	19.0
Cycle Q Clear(g_c), s	4.5	1.1	0.0	12.7	14.4	0.0	7.8	10.8	10.9	0.2	19.0	19.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.58	1.00		0.64
Lane Grp Cap(c), veh/h	112	105		280	295		431	1018	968	479	930	875
V/C Ratio(X)	0.73	0.18		0.75	0.84		0.71	0.35	0.35	0.02	0.56	0.56
Avail Cap(c_a), veh/h	294	274		399	419		476	1018	968	662	930	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	44.4	0.0	38.9	39.6	0.0	14.2	11.8	11.8	13.1	18.6	18.6
Incr Delay (d2), s/veh	8.9	0.8	0.0	4.7	9.7	0.0	3.7	0.8	0.9	0.0	2.4	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.5	0.0	5.3	6.6	0.0	3.4	4.2	4.1	0.1	9.0	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	45.2	0.0	43.6	49.3	0.0	18.0	12.6	12.7	13.1	21.1	21.2
LnGrp LOS	D	D		D	D		B	B	B	B	C	C
Approach Vol, veh/h		101			456			1007			1017	
Approach Delay, s/veh		53.1			46.7			14.3			21.1	
Approach LOS		D			D			B			C	

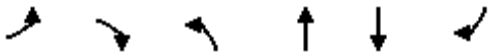
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.6	52.2		22.4	5.8	61.0		10.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	12.5	27.5		25.5	10.5	29.5		16.5				
Max Q Clear Time (g_c+I1), s	9.8	21.0		16.4	2.2	12.9		6.5				
Green Ext Time (p_c), s	0.3	3.6		1.5	0.0	4.0		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	14	8	300	888	6
Future Volume (vph)	6	14	8	300	888	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	124			191	522	
Travel Time (s)	2.8			4.3	11.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	33%	0%	0%	2%	1%	33%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

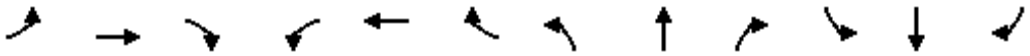
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	14	8	300	888	6
Future Vol, veh/h	6	14	8	300	888	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	33	0	0	2	1	33
Mvmt Flow	6	15	9	323	955	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1138	481	961	0	-	0
Stage 1	958	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Critical Hdwy	7.46	6.9	4.1	-	-	-
Critical Hdwy Stg 1	6.46	-	-	-	-	-
Critical Hdwy Stg 2	6.46	-	-	-	-	-
Follow-up Hdwy	3.83	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	153	537	724	-	-	-
Stage 1	269	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	151	537	724	-	-	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	265	-	-	-	-	-
Stage 2	748	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.7	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	724	-	304	-	-
HCM Lane V/C Ratio	0.012	-	0.071	-	-
HCM Control Delay (s)	10	0.1	17.7	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	0	26	1	0	1	11	255	16	2	880	16
Future Volume (vph)	37	0	26	1	0	1	11	255	16	2	880	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		159			128			450			191	
Travel Time (s)		3.6			2.9			10.2			4.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	26	1	0	1	11	255	16	2	880	16
Future Vol, veh/h	37	0	26	1	0	1	11	255	16	2	880	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	1	0
Mvmt Flow	39	0	27	1	0	1	12	268	17	2	926	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1097	1248	472	768	1248	143	943	0	0	285	0	0
Stage 1	939	939	-	301	301	-	-	-	-	-	-	-
Stage 2	158	309	-	467	947	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	170	175	544	295	175	885	736	-	-	1289	-	-
Stage 1	288	345	-	689	669	-	-	-	-	-	-	-
Stage 2	834	663	-	551	342	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	167	171	544	276	171	885	736	-	-	1289	-	-
Mov Cap-2 Maneuver	167	171	-	276	171	-	-	-	-	-	-	-
Stage 1	283	344	-	676	656	-	-	-	-	-	-	-
Stage 2	817	650	-	522	341	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.4	13.6	0.5	0
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	736	-	-	234	421	1289	-	-
HCM Lane V/C Ratio	0.016	-	-	0.283	0.005	0.002	-	-
HCM Control Delay (s)	10	0.1	-	26.4	13.6	7.8	-	-
HCM Lane LOS	A	A	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.1	0	0	-	-

2024 With Project PM Peak Hour
(Scenario C – High-Cube Fulfillment Center (sort))

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	392	131	37	807	87	316
Future Volume (vph)	392	131	37	807	87	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-3%	
Storage Length (ft)		0	250		0	200
Storage Lanes		0	1		1	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	811			556	336	
Travel Time (s)	15.8			10.8	6.5	
Confl. Peds. (#/hr)		4				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	3%	2%	3%	4%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	6		5	2	4	
Permitted Phases						4
Detector Phase	6		5	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		5.0	10.0	10.0	10.0
Minimum Split (s)	39.3		12.3	17.3	17.3	17.3
Total Split (s)	67.3		32.3	99.6	32.3	32.3
Total Split (%)	51.0%		24.5%	75.5%	24.5%	24.5%
Yellow Time (s)	4.5		4.5	4.5	4.5	4.5
All-Red Time (s)	2.8		2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3		7.3	7.3	7.3	7.3
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		None	Min	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 131.9	
Actuated Cycle Length: 49.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SR 512 EB & E Pioneer Way

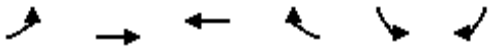
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	392	131	37	807	87	316
Future Volume (veh/h)	392	131	37	807	87	316
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1856	1870	1973	1958
Adj Flow Rate, veh/h	392	131	37	807	87	316
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	2	3	2	3	4
Cap, veh/h	676	223	72	1594	466	412
Arrive On Green	0.26	0.26	0.04	0.45	0.25	0.25
Sat Flow, veh/h	2734	871	1767	3647	1879	1659
Grp Volume(v), veh/h	264	259	37	807	87	316
Grp Sat Flow(s),veh/h/ln	1791	1720	1767	1777	1879	1659
Q Serve(g_s), s	6.2	6.3	1.0	7.8	1.8	8.5
Cycle Q Clear(g_c), s	6.2	6.3	1.0	7.8	1.8	8.5
Prop In Lane		0.51	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	459	441	72	1594	466	412
V/C Ratio(X)	0.58	0.59	0.52	0.51	0.19	0.77
Avail Cap(c_a), veh/h	2233	2144	918	6815	976	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	15.7	22.6	9.5	14.3	16.8
Incr Delay (d2), s/veh	1.1	1.2	5.7	0.3	0.2	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.2	0.5	2.3	0.7	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.8	16.9	28.3	9.7	14.5	20.4
LnGrp LOS	B	B	C	A	B	C
Approach Vol, veh/h	523			844	403	
Approach Delay, s/veh	16.8			10.5	19.1	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		28.9		19.2	9.3	19.6
Change Period (Y+Rc), s		* 7.3		* 7.3	* 7.3	* 7.3
Max Green Setting (Gmax), s		* 92		* 25	* 25	* 60
Max Q Clear Time (g_c+I1), s		9.8		10.5	3.0	8.3
Green Ext Time (p_c), s		6.7		1.5	0.1	3.5

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Notes

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



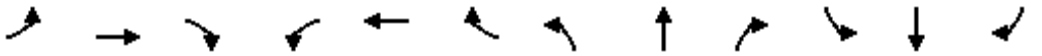
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	226	482	524	106	215	395
Future Volume (vph)	226	482	524	106	215	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	3539	3455		1787	1599
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1719	3539	3455		1787	1599
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	251	536	582	118	239	439
RTOR Reduction (vph)	0	0	11	0	0	0
Lane Group Flow (vph)	251	536	689	0	239	439
Heavy Vehicles (%)	5%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	NA		Prot	custom
Protected Phases	1	6	2		3	1 3 4
Permitted Phases						
Actuated Green, G (s)	21.3	56.1	28.8		23.5	69.6
Effective Green, g (s)	21.3	56.1	28.8		23.5	69.6
Actuated g/C Ratio	0.19	0.51	0.26		0.21	0.63
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0	3.0		4.0	
Lane Grp Cap (vph)	331	1798	901		380	1008
v/s Ratio Prot	c0.15	0.15	c0.20		c0.13	c0.27
v/s Ratio Perm						
v/c Ratio	0.76	0.30	0.76		0.63	0.44
Uniform Delay, d1	42.1	15.7	37.7		39.5	10.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.6	0.1	3.9		3.7	0.3
Delay (s)	51.7	15.8	41.6		43.2	10.7
Level of Service	D	B	D		D	B
Approach Delay (s)		27.3	41.6		22.1	
Approach LOS		C	D		C	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	430	221	321	659	65	101	30	197	37	41	4
Future Volume (vph)	8	430	221	321	659	65	101	30	197	37	41	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	200		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1095			809			522			142	
Travel Time (s)		24.9			18.4			11.9			3.2	
Confl. Peds. (#/hr)	5		1	1		8			4	3		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	4%	0%	1%	3%	5%	4%	0%	4%	3%	0%	25%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Free	Perm	NA	Free	Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		Free	4		Free	8		
Detector Phase	5	2	2	1	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	7.6	26.6	26.6	7.6	26.6		26.6	26.6		26.6	26.6	
Total Split (s)	24.6	34.6	34.6	26.6	36.6		24.6	24.6		24.6	24.6	
Total Split (%)	28.7%	40.3%	40.3%	31.0%	42.7%		28.7%	28.7%		28.7%	28.7%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6		3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6			4.6			4.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Min	Min	None	Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 85.8	
Actuated Cycle Length: 58.8	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: 15th St SE & E Main Ave



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	430	221	321	659	65	101	30	197	37	41	4
Future Volume (veh/h)	8	430	221	321	659	65	101	30	197	37	41	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1841	1900	1885	1856	1826	1841	1900	1841	1856	1900	1530
Adj Flow Rate, veh/h	9	457	235	341	701	0	107	32	0	39	44	4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	4	0	1	3	5	4	0	4	3	0	25
Cap, veh/h	369	663	576	597	968		311	45		209	130	10
Arrive On Green	0.01	0.36	0.36	0.17	0.52	0.00	0.12	0.12	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1810	1841	1599	1795	1856	1547	1224	366	1560	634	1060	82
Grp Volume(v), veh/h	9	457	235	341	701	0	139	0	0	87	0	0
Grp Sat Flow(s),veh/h/ln	1810	1841	1599	1795	1856	1547	1590	0	1560	1776	0	0
Q Serve(g_s), s	0.1	8.4	4.4	3.9	11.5	0.0	1.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	8.4	4.4	3.9	11.5	0.0	3.2	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.77		1.00	0.45		0.05
Lane Grp Cap(c), veh/h	369	663	576	597	968		356	0		349	0	0
V/C Ratio(X)	0.02	0.69	0.41	0.57	0.72		0.39	0.00		0.25	0.00	0.00
Avail Cap(c_a), veh/h	1271	1395	1212	1292	1500		916	0		968	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.3	10.8	9.5	6.7	7.3	0.0	16.6	0.0	0.0	16.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.5	0.9	1.0	0.0	0.7	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	1.2	0.9	3.0	0.0	1.1	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.3	12.1	10.0	7.6	8.3	0.0	17.3	0.0	0.0	16.3	0.0	0.0
LnGrp LOS	A	B	A	A	A		B	A		B	A	A
Approach Vol, veh/h		701			1042			139			87	
Approach Delay, s/veh		11.3			8.1			17.3			16.3	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	18.9		9.5	4.9	25.2		9.5				
Change Period (Y+Rc), s	4.6	4.6		4.6	4.6	4.6		4.6				
Max Green Setting (Gmax), s	22.0	30.0		20.0	20.0	32.0		20.0				
Max Q Clear Time (g_c+I1), s	5.9	10.4		5.2	2.1	13.5		3.7				
Green Ext Time (p_c), s	0.9	3.7		0.6	0.0	4.8		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	10.2	
HCM 6th LOS	B	

Notes

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

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	485	233	1100	753	209	520
Future Volume (vph)	485	233	1100	753	209	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			0%	-3%	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1599	3467	1863	1796	2856
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3539	1599	3467	1863	1796	2856
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	505	243	1146	784	218	542
RTOR Reduction (vph)	0	192	0	0	0	53
Lane Group Flow (vph)	505	51	1146	784	218	489
Heavy Vehicles (%)	2%	1%	1%	2%	2%	1%
Turn Type	NA	Perm	Prot	NA	Prot	custom
Protected Phases	2		1	6	3	3 4 1
Permitted Phases		2				3
Actuated Green, G (s)	21.4	21.4	37.2	63.6	17.0	70.7
Effective Green, g (s)	21.4	21.4	37.2	63.6	17.0	66.2
Actuated g/C Ratio	0.21	0.21	0.36	0.62	0.17	0.65
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	741	335	1263	1160	299	1851
v/s Ratio Prot	0.14		c0.33	c0.42	c0.12	c0.17
v/s Ratio Perm		0.03				
v/c Ratio	0.68	0.15	0.91	0.68	0.73	0.26
Uniform Delay, d1	37.2	32.9	30.8	12.5	40.4	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.2	9.5	1.6	8.6	0.1
Delay (s)	39.8	33.2	40.4	14.1	49.0	7.7
Level of Service	D	C	D	B	D	A
Approach Delay (s)	37.6			29.7	19.5	
Approach LOS	D			C	B	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	102.1	Sum of lost time (s)	19.5
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

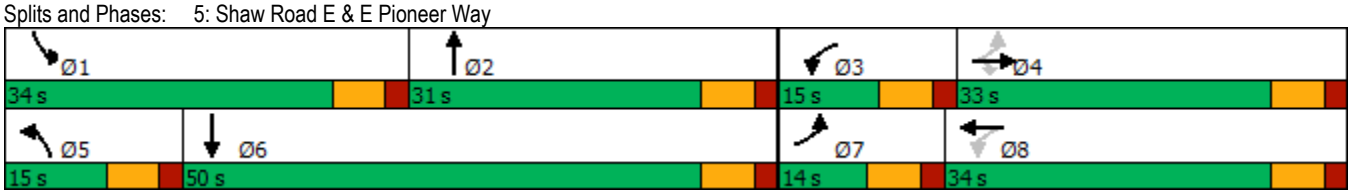
c Critical Lane Group

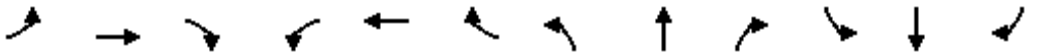
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	276	271	183	282	68	149	466	66	84	951	208
Future Volume (vph)	189	276	271	183	282	68	149	466	66	84	951	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	180		0	250		0	400		0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			No
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		800			1013			763			634	
Travel Time (s)		15.6			19.7			14.9			12.4	
Confl. Peds. (#/hr)	1		11	11		1			7			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	2%	1%	2%	1%	2%	0%	6%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	11.5	43.5	43.5	11.5	53.5		11.5	36.5		11.5	39.5	
Total Split (s)	14.0	33.0	33.0	15.0	34.0		15.0	31.0		34.0	50.0	
Total Split (%)	12.4%	29.2%	29.2%	13.3%	30.1%		13.3%	27.4%		30.1%	44.2%	
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5		6.5	6.5		6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 113
Actuated Cycle Length: 112.8
Natural Cycle: 130
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Shaw Road E & E Pioneer Way





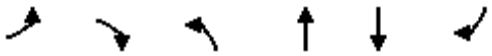
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	276	271	183	282	68	149	466	66	84	951	208
Future Volume (veh/h)	189	276	271	183	282	68	149	466	66	84	951	208
Initial Q (Qb), veh	3	6	1	1	11	0	0	2	0	0	12	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1885	1870	1885	1870	1900	1811	1885	1885
Adj Flow Rate, veh/h	201	294	288	195	300	72	159	496	70	89	1012	221
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	2	1	2	1	2	0	6	1	1
Cap, veh/h	185	422	350	220	373	50	221	1202	167	114	1192	209
Arrive On Green	0.07	0.22	0.22	0.08	0.23	0.23	0.06	0.38	0.38	0.07	0.39	0.39
Sat Flow, veh/h	1795	1885	1574	1781	1464	351	3483	3124	439	1725	2923	637
Grp Volume(v), veh/h	201	294	288	195	0	372	159	281	285	89	619	614
Grp Sat Flow(s),veh/h/ln	1795	1885	1574	1781	0	1816	1742	1777	1787	1725	1791	1769
Q Serve(g_s), s	7.5	15.1	18.3	8.5	0.0	20.8	4.7	12.2	12.3	5.3	34.1	34.3
Cycle Q Clear(g_c), s	7.5	15.1	18.3	8.5	0.0	20.8	4.7	12.2	12.3	5.3	34.1	34.3
Prop In Lane	1.00		1.00	1.00		0.19	1.00		0.25	1.00		0.36
Lane Grp Cap(c), veh/h	185	422	350	220	0	440	221	682	686	114	694	692
V/C Ratio(X)	1.08	0.70	0.82	0.89	0.00	0.85	0.72	0.41	0.42	0.78	0.89	0.89
Avail Cap(c_a), veh/h	230	475	397	277	0	475	282	682	686	451	741	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	38.5	39.2	33.9	0.0	40.5	49.3	23.8	23.8	49.3	31.4	31.2
Incr Delay (d2), s/veh	83.6	3.8	11.9	23.7	0.0	12.5	6.3	0.4	0.4	10.9	12.6	12.3
Initial Q Delay(d3),s/veh	58.3	4.8	0.3	1.3	0.0	29.0	0.0	0.0	0.0	0.0	5.0	4.8
%ile BackOfQ(50%),veh/ln	8.7	8.7	8.2	5.5	0.0	15.8	2.3	5.2	5.2	2.7	18.6	18.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	177.9	47.1	51.4	59.0	0.0	82.0	55.5	24.2	24.3	60.2	49.0	48.3
LnGrp LOS	F	D	D	E	A	F	E	C	C	E	D	D
Approach Vol, veh/h		783			567			725			1322	
Approach Delay, s/veh		82.2			74.1			31.1			49.4	
Approach LOS		F			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	46.9	15.0	29.8	13.2	47.1	14.0	30.8
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	27.5	24.5	8.5	26.5	8.5	43.5	7.5	27.5
Max Q Clear Time (g_c+I1), s	7.3	14.3	10.5	20.3	6.7	36.3	9.5	22.8
Green Ext Time (p_c), s	0.2	2.4	0.0	1.5	0.1	4.3	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	57.2
HCM 6th LOS	E

Notes

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	253	587	252	771	1138	141
Future Volume (vph)	253	587	252	771	1138	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			0%	0%	
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	0.91	1.00	0.95	0.95	
Frt	0.92	0.85	1.00	1.00	0.98	
Flt Protected	0.98	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3034	1419	1787	3574	3469	
Flt Permitted	0.98	1.00	0.09	1.00	1.00	
Satd. Flow (perm)	3034	1419	176	3574	3469	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	253	587	252	771	1138	141
RTOR Reduction (vph)	220	248	0	0	7	0
Lane Group Flow (vph)	327	45	252	771	1272	0
Heavy Vehicles (%)	14%	2%	1%	1%	2%	5%
Turn Type	Prot	Prot	pm+pt	NA	NA	
Protected Phases	8	8	1	6	2	
Permitted Phases			6			
Actuated Green, G (s)	15.3	15.3	69.7	69.7	49.1	
Effective Green, g (s)	15.3	15.3	69.7	69.7	49.1	
Actuated g/C Ratio	0.15	0.15	0.70	0.70	0.49	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	464	217	382	2491	1703	
v/s Ratio Prot	c0.11	0.03	c0.11	0.22	c0.37	
v/s Ratio Perm			0.35			
v/c Ratio	0.70	0.21	0.66	0.31	0.75	
Uniform Delay, d1	40.2	37.0	21.2	5.9	20.5	
Progression Factor	1.00	1.00	1.00	1.00	0.41	
Incremental Delay, d2	4.8	0.5	4.1	0.3	2.4	
Delay (s)	45.0	37.5	25.3	6.2	10.9	
Level of Service	D	D	C	A	B	
Approach Delay (s)	42.4			10.9	10.9	
Approach LOS	D			B	B	

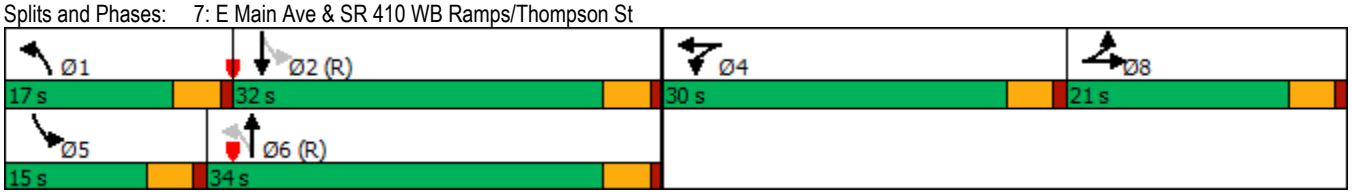
Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

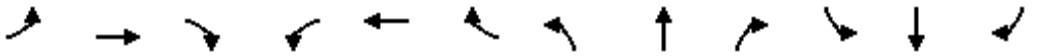
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	19	270	302	117	15	311	509	198	9	702	311
Future Volume (vph)	82	19	270	302	117	15	311	509	198	9	702	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			6%			-3%			-5%	
Storage Length (ft)	170		70	115		50	225		0	175		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			25			35			25	
Link Distance (ft)		499			309			676			392	
Travel Time (s)		11.3			8.4			13.2			10.7	
Confl. Peds. (#/hr)						6			6	6		
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
Heavy Vehicles (%)	2%	16%	1%	3%	3%	7%	3%	8%	4%	0%	3%	11%
Shared Lane Traffic (%)				32%								
Turn Type	Split	NA	Free	Split	NA	Free	pm+pt	NA		pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases			Free			Free	6			2		
Detector Phase	8	8		4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.5	10.5		10.5	10.5		10.5	28.5		10.5	10.5	
Total Split (s)	21.0	21.0		30.0	30.0		17.0	34.0		15.0	32.0	
Total Split (%)	21.0%	21.0%		30.0%	30.0%		17.0%	34.0%		15.0%	32.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 61 (61%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: E Main Ave & SR 410 WB Ramps/Thompson St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	19	270	302	117	15	311	509	198	9	702	311
Future Volume (veh/h)	82	19	270	302	117	15	311	509	198	9	702	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1663	1885	1644	1644	1584	1973	1898	1958	2097	2052	1932
Adj Flow Rate, veh/h	82	19	0	210	246	0	311	509	198	9	702	311
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	16	1	3	3	7	3	8	4	0	3	11
Cap, veh/h	112	105		280	295		431	1432	554	476	1247	552
Arrive On Green	0.06	0.06	0.00	0.18	0.18	0.00	0.10	0.56	0.56	0.01	0.48	0.48
Sat Flow, veh/h	1781	1663	1598	1565	1644	1343	1879	2536	982	1997	2622	1161
Grp Volume(v), veh/h	82	19	0	210	246	0	311	361	346	9	522	491
Grp Sat Flow(s),veh/h/ln	1781	1663	1598	1565	1644	1343	1879	1803	1715	1997	1949	1834
Q Serve(g_s), s	4.5	1.1	0.0	12.7	14.4	0.0	8.0	10.9	11.0	0.2	19.2	19.2
Cycle Q Clear(g_c), s	4.5	1.1	0.0	12.7	14.4	0.0	8.0	10.9	11.0	0.2	19.2	19.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.57	1.00		0.63
Lane Grp Cap(c), veh/h	112	105		280	295		431	1018	968	476	927	872
V/C Ratio(X)	0.73	0.18		0.75	0.84		0.72	0.35	0.36	0.02	0.56	0.56
Avail Cap(c_a), veh/h	294	274		399	419		473	1018	968	659	927	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	44.4	0.0	38.9	39.6	0.0	14.5	11.8	11.9	13.1	18.8	18.8
Incr Delay (d2), s/veh	8.9	0.8	0.0	4.7	9.7	0.0	4.1	0.8	0.9	0.0	2.5	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.5	0.0	5.3	6.6	0.0	3.5	4.3	4.1	0.1	9.1	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	45.2	0.0	43.6	49.3	0.0	18.6	12.7	12.7	13.2	21.2	21.4
LnGrp LOS	D	D		D	D		B	B	B	B	C	C
Approach Vol, veh/h		101			456			1018			1022	
Approach Delay, s/veh		53.1			46.7			14.5			21.2	
Approach LOS		D			D			B			C	

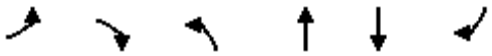
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	52.1		22.4	5.8	61.0		10.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	12.5	27.5		25.5	10.5	29.5		16.5				
Max Q Clear Time (g_c+I1), s	10.0	21.2		16.4	2.2	13.0		6.5				
Green Ext Time (p_c), s	0.3	3.5		1.5	0.0	4.0		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	14	8	316	905	7
Future Volume (vph)	8	14	8	316	905	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	124			191	522	
Travel Time (s)	2.8			4.3	11.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	25%	0%	0%	2%	1%	14%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

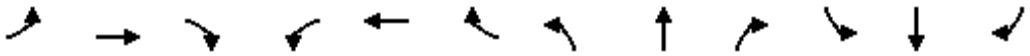
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	14	8	316	905	7
Future Vol, veh/h	8	14	8	316	905	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	25	0	0	2	1	14
Mvmt Flow	9	15	9	340	973	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1165	491	981	0	-	0
Stage 1	977	-	-	-	-	-
Stage 2	188	-	-	-	-	-
Critical Hdwy	7.3	6.9	4.1	-	-	-
Critical Hdwy Stg 1	6.3	-	-	-	-	-
Critical Hdwy Stg 2	6.3	-	-	-	-	-
Follow-up Hdwy	3.75	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	156	529	712	-	-	-
Stage 1	277	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	154	529	712	-	-	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	273	-	-	-	-	-
Stage 2	761	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	712	-	281	-	-
HCM Lane V/C Ratio	0.012	-	0.084	-	-
HCM Control Delay (s)	10.1	0.1	19	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	0	38	1	0	1	25	255	16	2	880	33
Future Volume (vph)	53	0	38	1	0	1	25	255	16	2	880	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		159			128			450			191	
Travel Time (s)		3.6			2.9			10.2			4.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	0	38	1	0	1	25	255	16	2	880	33
Future Vol, veh/h	53	0	38	1	0	1	25	255	16	2	880	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	1	0
Mvmt Flow	56	0	40	1	0	1	26	268	17	2	926	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1134	1285	481	796	1294	143	961	0	0	285	0	0
Stage 1	948	948	-	329	329	-	-	-	-	-	-	-
Stage 2	186	337	-	467	965	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	160	166	537	281	164	885	724	-	-	1289	-	-
Stage 1	284	342	-	664	650	-	-	-	-	-	-	-
Stage 2	804	645	-	551	336	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	154	158	537	251	156	885	724	-	-	1289	-	-
Mov Cap-2 Maneuver	154	158	-	251	156	-	-	-	-	-	-	-
Stage 1	272	341	-	635	622	-	-	-	-	-	-	-
Stage 2	769	617	-	508	335	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	33.6	14.3	1	0
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	724	-	-	219	391	1289	-	-
HCM Lane V/C Ratio	0.036	-	-	0.437	0.005	0.002	-	-
HCM Control Delay (s)	10.2	0.2	-	33.6	14.3	7.8	-	-
HCM Lane LOS	B	A	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.1	0	0	-	-

Appendix D

Trip Generation Calculations

240 15th Street SE (Puyallup)
Trip Generation Summary - SCENARIO A

Land Use	Units [1]	ITE LUC [2]	Directional Distribution In	Directional Distribution Out	Trip Rate or Equation [2]	Trips Generated In	Trips Generated Out	Trips Generated Total	TRUCKS Truck Trip Rate [2]	Truck Distribution In	Truck Distribution Out	Truck Trip Generation In	Truck Trip Generation Out	Truck Trip Generation Total	Non-Truck Trip Generation In	Non-Truck Trip Generation Out	Non-Truck Trip Generation Total
Daily																	
Proposed Use:																	
Warehousing	135,100 GFA	150	50%	50%	T = 1.58(X)+38.29	126	126	252	0.60	50%	50%	41	40	81	85	86	171
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	2.12	-130	-131	-261	0.75	50%	50%	-46	-46	-92	-84	-85	-169
					Net New Daily Trips =	**-4**	**-5**	**-9**				**-5**	**-6**	**-11**	**1**	**1**	**2**
AM Peak Hour																	
Proposed Use:																	
Warehousing	135,100 GFA	150	77%	23%	T = 0.12(X)+23.62	31	9	40	0.02	52%	48%	2	1	3	29	8	37
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.11	-7	-7	-14	0.03	33%	67%	-1	-3	-4	-6	-4	-10
					Net New AM Peak Hour Trips =	**24**	**2**	**26**				**1**	**-2**	**-1**	**23**	**4**	**27**
PM Peak Hour																	
Proposed Use:																	
Warehousing	135,100 GFA	150	28%	72%	T = 0.12(X)+26.48	12	31	43	0.03	52%	48%	2	2	4	10	29	39
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.12	-7	-8	-15	0.03	50%	50%	-2	-2	-4	-5	-6	-11
					Net New PM Peak Hour Trips =	**5**	**23**	**28**				**0**	**0**	**0**	**5**	**23**	**28**

Notes:

[1] GFA = Gross Floor Area.

[2] Land Use Code and trip rates/equations based on ITE *Trip Generation* Manual, 11th Edition, 2021.

240 15th Street SE (Puyallup)
Trip Generation Summary - SCENARIO A (Warehousing)

Land Use	Units [1]	ITE LUC [2]	Directional Distribution In	Directional Distribution Out	Trip Rate or Equation [2]	Trips Generated In	Trips Generated Out	Trips Generated Total	TRUCKS Truck Trip Rate [2]	Truck Distribution In	Truck Distribution Out	Truck Trip Generation In	Truck Trip Generation Out	Truck Trip Generation Total	Non-Truck Trip Generation In	Non-Truck Trip Generation Out	Non-Truck Trip Generation Total
Daily																	
Proposed Use:																	
Warehousing	135,100 GFA	150	50%	50%	T = 1.58(X)+38.29	125.8	125.9	251.7	0.60	50%	50%	40.6	40.5	81.1	85.2	85.4	170.6
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	2.12	-130.7	-130.7	-261.4	0.75	50%	50%	-46.3	-46.2	-92.5	-84.4	-84.5	-168.9
					Net New Daily Trips =	**-4.9**	**-4.8**	**-9.7**				**-5.7**	**-5.7**	**-11.4**	**0.8**	**0.9**	**1.7**
AM Peak Hour																	
Proposed Use:																	
Warehousing	135,100 GFA	150	77%	23%	T = 0.12(X)+23.62	30.6	9.2	39.8	0.02	52%	48%	1.4	1.3	2.7	29.2	7.9	37.1
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.11	-6.8	-6.8	-13.6	0.03	33%	67%	-1.2	-2.5	-3.7	-5.6	-4.3	-9.9
					Net New AM Peak Hour Trips =	**23.8**	**2.4**	**26.2**				**0.2**	**-1.2**	**-1.0**	**23.6**	**3.6**	**27.2**
PM Peak Hour																	
Proposed Use:																	
Warehousing	135,100 GFA	150	28%	72%	T = 0.12(X)+26.48	12	30.7	42.7	0.03	52%	48%	2.1	2.0	4.1	9.9	28.7	38.6
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.12	-7.4	-7.4	-14.8	0.03	50%	50%	-1.9	-1.8	-3.7	-5.5	-5.6	-11.1
					Net New PM Peak Hour Trips =	**4.6**	**23.3**	**27.9**				**0.2**	**0.2**	**0.4**	**4.4**	**23.1**	**27.5**

Notes:
[1] GFA = Gross Floor Area.
[2] Land Use Code and trip rates/equations based on ITE *Trip Generation* Manual, 11th Edition, 2021.

240 15th Street SE (Puyallup)
Trip Generation Summary - SCENARIO B

Land Use	Units [1]	ITE LUC [2]	Directional Distribution In	Directional Distribution Out	Trip Rate or Equation [2]	Trips Generated In	Trips Generated Out	Trips Generated Total	TRUCKS Truck Trip Rate [2]	Truck Distribution In	Truck Distribution Out	Truck Trip Generation In	Truck Trip Generation Out	Truck Trip Generation Total	Non-Truck Trip Generation In	Non-Truck Trip Generation Out	Non-Truck Trip Generation Total
Daily																	
Proposed Use:																	
Manufacturing	135,100 GFA	140	50%	50%	T = 3.77(X)+201.98	355	356	711	0.45	50%	50%	31	30	61	324	326	650
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	2.12	-130	-131	-261	0.75	50%	50%	-46	-46	-92	-84	-85	-169
					Net New Daily Trips =	**225**	**225**	**450**				**-15**	**-16**	**-31**	**240**	**241**	**481**
AM Peak Hour																	
Proposed Use:																	
Manufacturing	135,100 GFA	140	76%	24%	T = 0.61(X)+9.54	70	22	92	0.03	56%	44%	2	2	4	68	20	88
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.11	-7	-7	-14	0.03	33%	67%	-1	-3	-4	-6	-4	-10
					Net New AM Peak Hour Trips =	**63**	**15**	**78**				**1**	**-1**	**0**	**62**	**16**	**78**
PM Peak Hour																	
Proposed Use:																	
Manufacturing	135,100 GFA	140	31%	69%	T = 0.87(X)-17.5	31	69	100	0.03	41%	59%	2	2	4	29	67	96
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.12	-7	-8	-15	0.03	50%	50%	-2	-2	-4	-5	-6	-11
					Net New PM Peak Hour Trips =	**24**	**61**	**85**				**0**	**0**	**0**	**24**	**61**	**85**

Notes:
[1] GFA = Gross Floor Area.
[2] Land Use Code and trip rates/equations based on ITE *Trip Generation* Manual, 11th Edition, 2021.

240 15th Street SE (Puyallup)
Trip Generation Summary - SCENARIO B (Manufacturing)

Land Use	Units [1]	ITE LUC [2]	Directional Distribution In	Directional Distribution Out	Trip Rate or Equation [2]	Trips Generated In	Trips Generated Out	Trips Generated Total	TRUCKS Truck Trip Rate [2]	Truck Distribution In	Truck Distribution Out	Truck Trip Generation In	Truck Trip Generation Out	Truck Trip Generation Total	Non-Truck Trip Generation In	Non-Truck Trip Generation Out	Non-Truck Trip Generation Total
Daily																	
Proposed Use:																	
Manufacturing	135,100 GFA	140	50%	50%	T = 3.77(X)+201.98	355.6	355.7	711.3	0.45	50%	50%	30.4	30.4	60.8	325	325	651
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	2.12	-130.7	-130.7	-261.4	0.75	50%	50%	-46.3	-46.2	-92.5	-84	-85	-169
					Net New Daily Trips =	**224.9**	**225.0**	**449.9**				**-15.9**	**-15.8**	**-31.7**	**240.8**	**240.8**	**481.6**
AM Peak Hour																	
Proposed Use:																	
Manufacturing	135,100 GFA	140	76%	24%	T = 0.61(X)+9.54	69.9	22.1	92.0	0.03	56%	44%	2.3	1.8	4.1	68	20	88
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.11	-6.8	-6.8	-13.6	0.03	33%	67%	-1.2	-2.5	-3.7	-6	-4	-10
					Net New AM Peak Hour Trips =	**63.1**	**15.3**	**78.4**				**1.10**	**-0.70**	**0.40**	**62.00**	**16.00**	**78.00**
PM Peak Hour																	
Proposed Use:																	
Manufacturing	135,100 GFA	140	31%	69%	T = 0.87(X)-17.5	31.0	69.0	100.0	0.03	41%	59%	1.7	2.4	4.1	29	67	96
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.12	-7.4	-7.4	-14.8	0.03	50%	50%	-1.9	-1.8	-3.7	-6	-6	-11
					Net New PM Peak Hour Trips =	**23.6**	**61.6**	**85.2**				**-0.2**	**0.6**	**0.4**	**23.8**	**61.0**	**84.8**

Notes:
[1] GFA = Gross Floor Area.
[2] Land Use Code and trip rates/equations based on ITE *Trip Generation* Manual, 11th Edition, 2021.

240 15th Street SE (Puyallup)
Trip Generation Summary - SCENARIO C

Land Use	Units [1]	ITE LUC [2]	Directional Distribution In	Directional Distribution Out	Trip Rate or Equation [2]	Trips Generated In	Trips Generated Out	Trips Generated Total	TRUCKS Truck Trip Rate [2]	Truck Distribution In	Truck Distribution Out	Truck Trip Generation In	Truck Trip Generation Out	Truck Trip Generation Total	Non-Truck Trip Generation In	Non-Truck Trip Generation Out	Non-Truck Trip Generation Total
Daily																	
Proposed Use:																	
High Cube Fulfillment Center - Sort	135,100 GFA	155	50%	50%	6.44	435	435	870	0.19	50%	50%	13	13	26	422	422	844
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	2.12	-130	-131	-261	0.75	50%	50%	-46	-46	-92	-84	-85	-169
					Net New Daily Trips =	**305**	**304**	**609**				**-33**	**-33**	**-66**	**338**	**337**	**675**
AM Peak Hour																	
Proposed Use:																	
High Cube Fulfillment Center - Sort	135,100 GFA	155	81%	19%	0.87	96	22	118	0.02	50%	50%	2	1	3	94	21	115
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.11	-7	-7	-14	0.03	33%	67%	-1	-3	-4	-6	-4	-10
					Net New AM Peak Hour Trips =	**89**	**15**	**104**				**1**	**-2**	**-1**	**88**	**17**	**105**
PM Peak Hour																	
Proposed Use:																	
High Cube Fulfillment Center - Sort	135,100 GFA	155	39%	61%	1.20	63	99	162	0.02	46%	54%	1	2	3	62	97	159
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.12	-7	-8	-15	0.03	50%	50%	-2	-2	-4	-5	-6	-11
					Net New PM Peak Hour Trips =	**56**	**91**	**147**				**-1**	**0**	**-1**	**57**	**91**	**148**

Notes:
[1] GFA = Gross Floor Area.
[2] Land Use Code and trip rates/equations based on ITE *Trip Generation* Manual, 11th Edition, 2021.

240 15th Street SE (Puyallup)
Trip Generation Summary - SCENARIO C (High-Cube Fulfillment Center)

Land Use	Units [1]	ITE LUC [2]	Directional Distribution In	Directional Distribution Out	Trip Rate or Equation [2]	Trips Generated In	Trips Generated Out	Trips Generated Total	TRUCKS Truck Trip Rate [2]	Truck Distribution In	Truck Distribution Out	Truck Trip Generation In	Truck Trip Generation Out	Truck Trip Generation Total	Non-Truck Trip Generation In	Non-Truck Trip Generation Out	Non-Truck Trip Generation Total
Daily																	
Proposed Use:																	
High Cube Fulfillment Center - Sort	135,100 GFA	155	50%	50%	6.44	435.0	435.0	870.0	0.19	50%	50%	12.9	12.8	25.7	422.1	422.2	844.3
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	2.12	-130.7	-130.7	-261.4	0.75	50%	50%	-46.3	-46.2	-92.5	-84.4	-84.5	-168.9
					Net New Daily Trips =	**304.3**	**304.3**	**608.6**				**-33.4**	**-33.4**	**-66.8**	**337.7**	**337.7**	**675.4**
AM Peak Hour																	
Proposed Use:																	
High Cube Fulfillment Center - Sort	135,100 GFA	155	81%	19%	0.87	95.2	22.3	117.5	0.02	50%	50%	1.4	1.3	2.7	93.8	21.0	114.8
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.11	-6.8	-6.8	-13.6	0.03	33%	67%	-1.2	-2.5	-3.7	-5.6	-4.3	-9.9
					Net New AM Peak Hour Trips =	**88.4**	**15.5**	**103.9**				**0.2**	**-1.2**	**-1.0**	**88.2**	**16.7**	**104.9**
PM Peak Hour																	
Proposed Use:																	
High Cube Fulfillment Center - Sort	135,100 GFA	155	39%	61%	1.20	63.2	98.9	162.1	0.02	46%	54%	1.2	1.5	2.7	62.0	97.4	159.4
Existing Use:																	
High-Cube Cold-Storage Warehouse	123,313 GFA	157	50%	50%	0.12	-7.4	-7.4	-14.8	0.03	50%	50%	-1.9	-1.8	-3.7	-5.5	-5.6	-11.1
					Net New PM Peak Hour Trips =	**55.8**	**91.5**	**147.3**				**-0.7**	**-0.3**	**-1.0**	**56.5**	**91.8**	**148.3**

Notes:
[1] GFA = Gross Floor Area.
[2] Land Use Code and trip rates/equations based on ITE *Trip Generation* Manual, 11th Edition, 2021.