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Transportation Planning & Engineering

TRAFFIC IMPACT ANALYSIS

202 Roosevelt
Enumclaw, Washington

May 16, 2025

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202 ROOSEVELT TRAFFIC IMPACT ANALYSIS

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202 ROOSEVELT TRAFFIC IMPACT ANALYSIS

1. INTRODUCTION

Heath & Associates has been retained to conduct a Traffic Impact Analysis (TIA) for a proposed mixed-use development within the City of Enumclaw. This study evaluates potential transportation impacts associated with the project and has been prepared in accordance with the methodologies outlined in the Enumclaw Municipal Code.

2. PROJECT DESCRIPTION

202 Roosevelt is a proposed commercial development located within the city of Enumclaw limits. Four new commercial buildings are proposed consisting of the following uses.

- Building A: 8,000 square feet (sf) of industrial building space
- Building B: 6,000 sf of general retail
- Building C: 6,000 sf of medical office
- Building D: 960 sf coffee kiosk with a dual-lane drive-through

Overall, a total of ~21,000 sf of new commercial building space is proposed. The site is primarily undeveloped with the exception of a 1,300-sf prefabricated steel building near SR 410 which will be removed for new construction.

Location: The subject property (Tax Parcel No: 2520069116) spans roughly 4.37 acres and is bordered to the north via Roosevelt Avenue (SR 410) and is just east of Watson Street N.

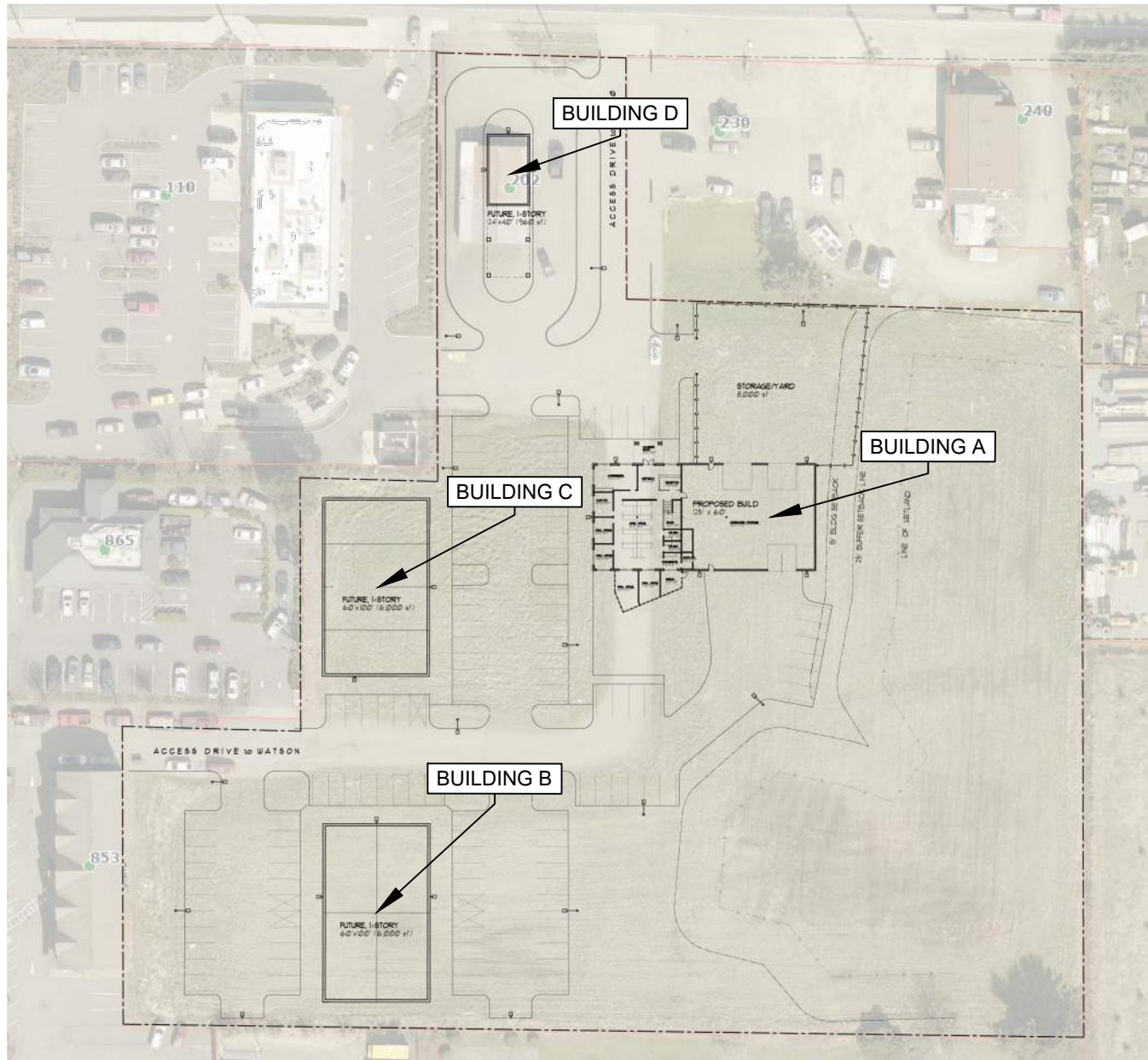
Access: The site currently has two curb cuts along SR 410. As part of the proposed development, the western access will be closed, with continued use of the eastern driveway. In addition, access will be provided to the adjacent properties to the west (Tax Parcel Nos. 252006-9108 and 252006-9123), allowing for internal circulation and connectivity to Watson Street N.

Figure 1 illustrates a vicinity map with nearby roadway network with the subject site highlighted in blue. **Figure 2** displays the conceptual site plan and proposed access configuration.



Figure 1: Vicinity Map





3. EXISTING CONDITIONS

3.1 Existing Street System

The street network serving the proposed project consists of a variety of roadways. The roadways studied for this project are listed below in **Table 1**.

Table 1: Roadway Network

Functional Classification	Roadway	Speed Limit	Lanes	Street Parking	Sidewalk
Major Arterial	SR 164/Griffin Ave ¹	25 mph	2-3	Some	Yes
	SR 410/Roosevelt Ave ²	40 mph	2-5	No	Areas
	SR 169/Porter St ³	25 mph	2	Some	Some
Minor Arterial	Farman St N	35 mph	2	No	No
	Semanski St	25 mph	2	Some	Yes
	Warner Ave	25 mph	2	Some	Yes
	Roosevelt Ave	25 mph	2	Some	Yes
	Garrett St	25 mph	2-3	No	Yes
	Stevenson St	25 mph	2	Yes	Yes
	Cole St	25 mph	2	Some	Yes
Collector	SE 440th St/Battersby Ave	35-25 mph	2	West of Garrett	West of Garrett
	Watson St N	25 mph	2	No	Yes
	Suntop Blvd N	25 mph	2	No	Yes
	Blake St	25 mph	2	Some	Some
	Dickson Ave	25 mph	2	Some	Some
Local	Mt. Villa. Dr	25 mph	2	No	Yes
	Monroe Ave	25 mph	2	Some	Yes

3.2 Transit Service

A review of King County Metro's Schedules & Maps indicates that the nearest public transit service to the subject site is DART Route 915. The closest stop is located at the intersection of Griffin Avenue (SR 164) and SR 410, approximately 1,300 feet west of the site. DART Route 915 offers service between Enumclaw and Auburn, operating on weekdays from 4:36 AM to 7:49 PM, and on Saturdays from 9:50 AM to 6:37 PM. Additional details can be found on King County Metro's webpage.

¹ Managed Access Class 5 2023 ADT - 12,000 vehicles.

² Managed Access Class 4 2023 ADT - 7,800 vehicles.

³ Managed Access Class 4 2023 ADT - 8,300 vehicles.



3.3 Roadway Improvements

A review of the current WSDOT Statewide Transportation Improvement Program (STIP) 2025-2028 and the City of Enumclaw 2025-2030 Transportation Improvement Program indicates two improvement projects planned in the study area. Each project is identified and summarized below.

Battersby Avenue (TIP #: 4): This project aims to improve roadway conditions. The project spans from 255 Battersby Avenue to Farman Street N. The total estimated cost is \$200,000 with an estimated completion year of 2026.

SR 410/SR 164 Signal Modifications (TIP #: 10): This project plans to modify the existing signal phasing and/or timing at the SR 410 & SR 164 intersection which will ultimately increase the efficiency and capacity of the intersection. The project has an estimated completion date of 2026 and is estimated to cost \$100,000.

Although the City's Six-Year Transportation Improvement Program does not currently list this project, an ordinance is in place requiring the construction of a roundabout at the intersection of SR 410 and Suntop Boulevard once the properties on the southwest and southeast corners are developed. Accordingly, the future traffic analysis for this intersection will evaluate scenarios both with and without the roundabout in place.

3.4 Study Area & Existing Peak Hour Volumes

The City of Enumclaw requires intersections that are projected to be impacted by 10 or more project trips to be evaluated. The following 18 intersections were established during the scoping process with the City.

- | | |
|---|--|
| 1. SR 410 & Semanski Street | 10. SR 164 & Blake Street |
| 2. SR 410 & Warner Avenue | 11. SR 410 & SR 164 |
| 3. SR 410 & Roosevelt Avenue | 12. SR 410 & Watson Street N |
| 4. SR 410 & Mt. Villa Drive | 13. SR 410 & Suntop Boulevard N |
| 5. SR 410 & Garrett Street | 14. SR 410 & Farman Street N |
| 6. SR 410 & Stevenson Avenue | 15. Farman Street N & Battersby Avenue |
| 7. SR 410 & Blake Street | 16. Waston Street N & Dickson Avenue |
| 8. Porter Street (SR 169) & Griffin Avenue (SR 164) | 17. Watson Street N & Access |
| 9. SR 164 & Cole Street | 18. SR 410 & Access |



Traffic counts were collected in March during the morning (7:00-9:00 AM) and evening (4:00-6:00 PM) peak periods, which generally represent the highest traffic volumes of the day. For each period, the single highest-volume hour was identified and used in the capacity analysis to represent peak demand conditions.

WSDOT's *Short Count Factoring Guide* was reviewed to determine the need for seasonal adjustment factors. SR 410 is classified as SFG-02 in the guide, which indicates above-average volumes during March. As a result, no seasonal adjustments were applied to the traffic counts.

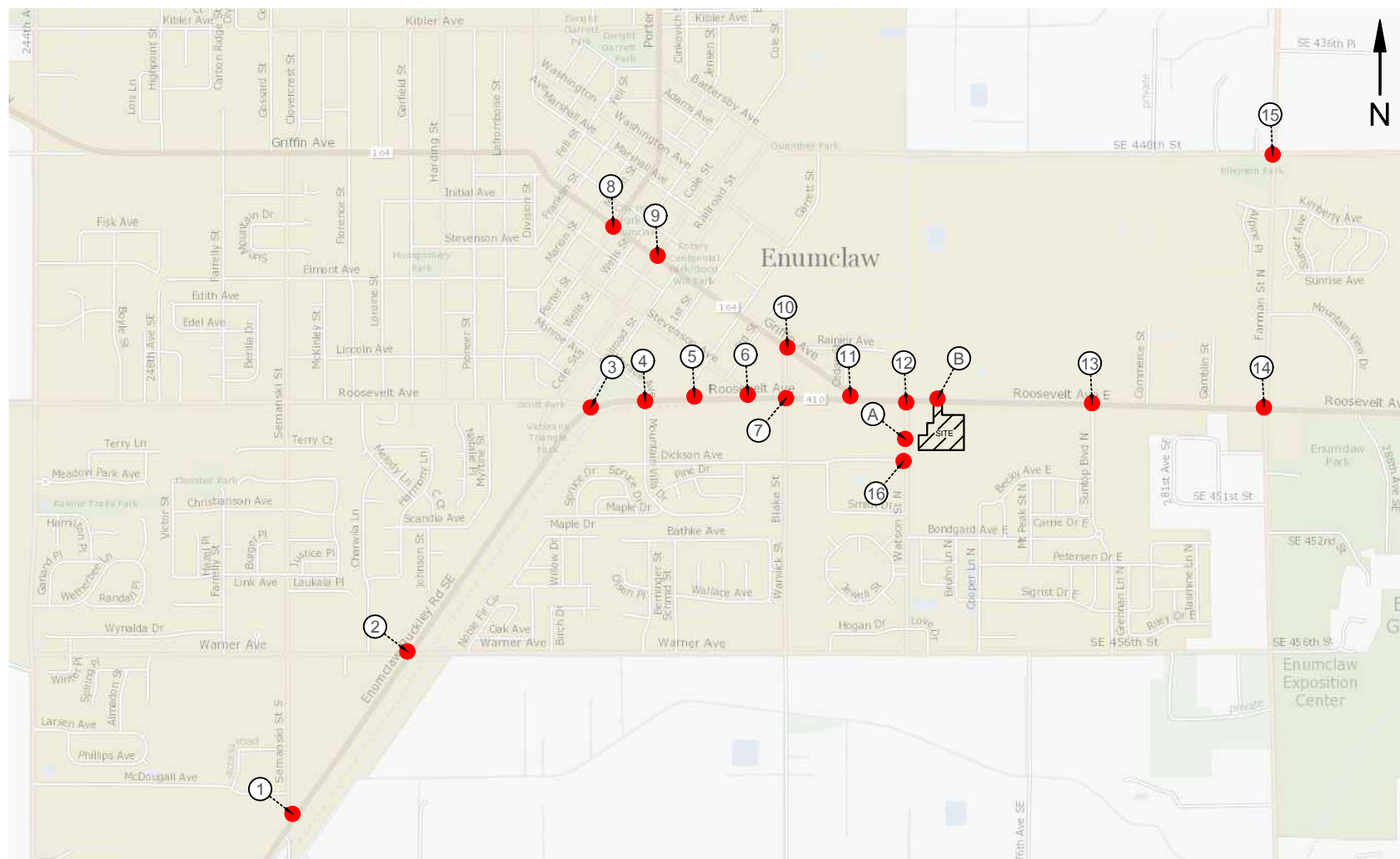
Figure 3 illustrates the geometrics and control types for all study intersections. **Figures 4 and 5** display existing peak hour traffic volumes for the AM and PM periods, respectively.

3.5 Non-Motorist Activity & Infrastructure

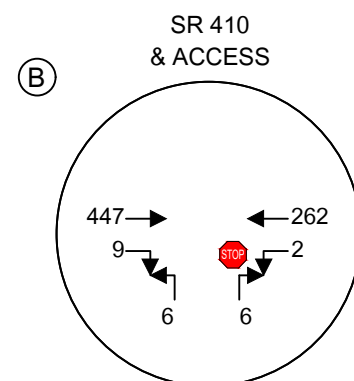
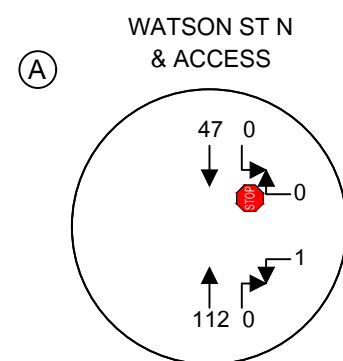
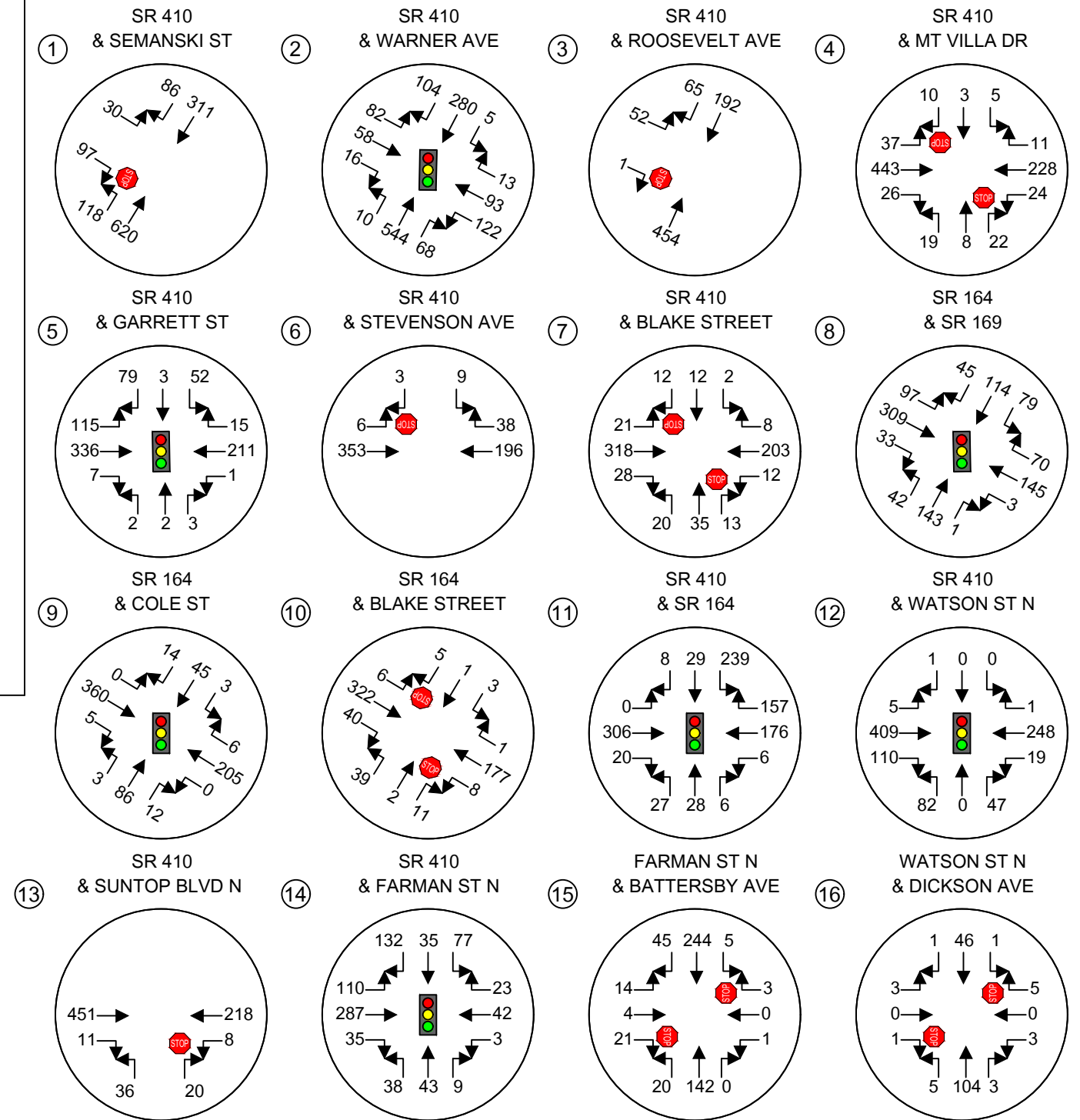
Pedestrian and bicycle activity were monitored during AM and PM peak hour counts at all study intersections. **Figures 6 and 7** highlight peak hour non-motorist crossings.

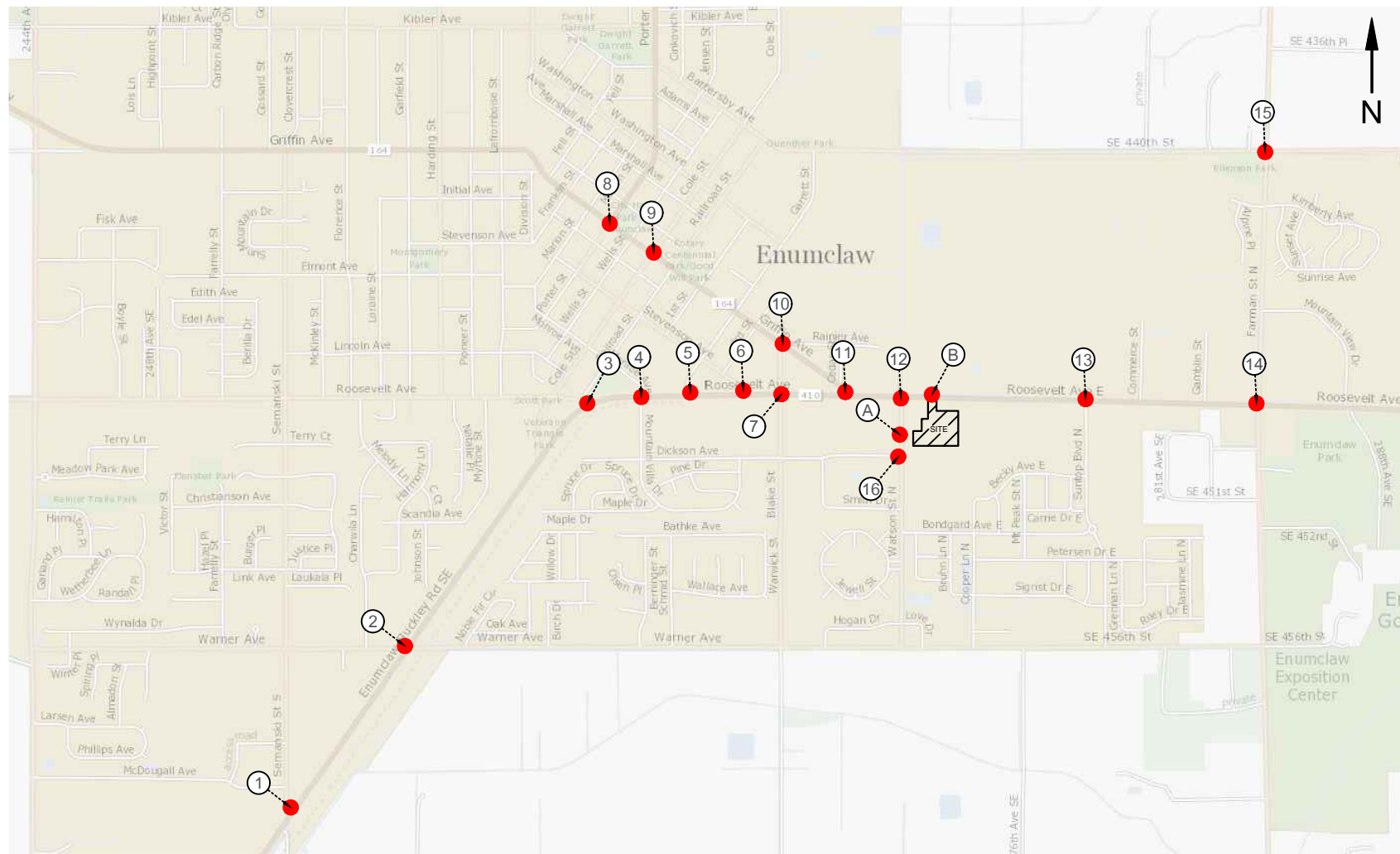
Sidewalk exists along the property's SR 410 frontage and continues westward, where sidewalks are present on both sides of the road west of Watson Street N. To the east, no sidewalk infrastructure is available. Watson Street N includes sidewalks on both sides of the street between SR 410 and SE 456th Street.



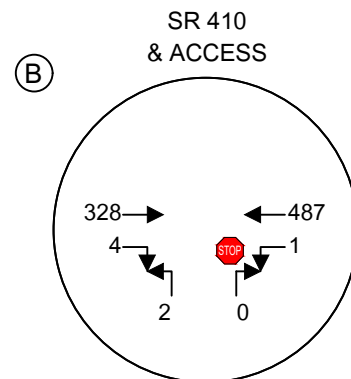
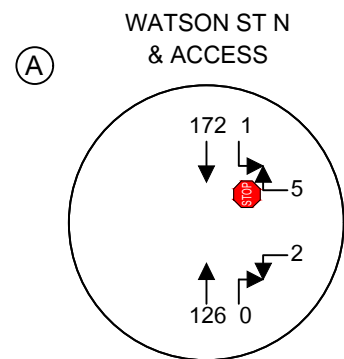
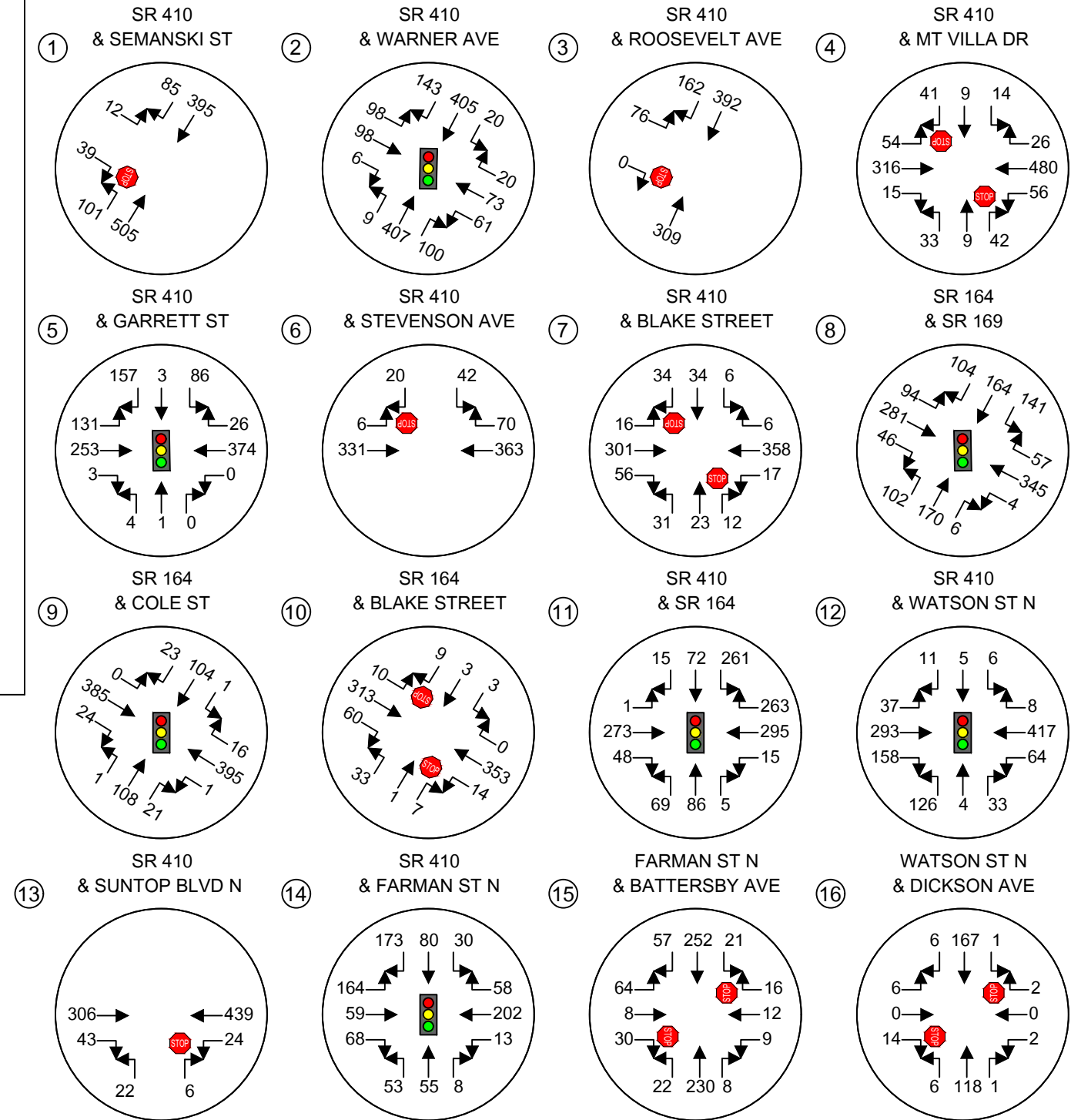


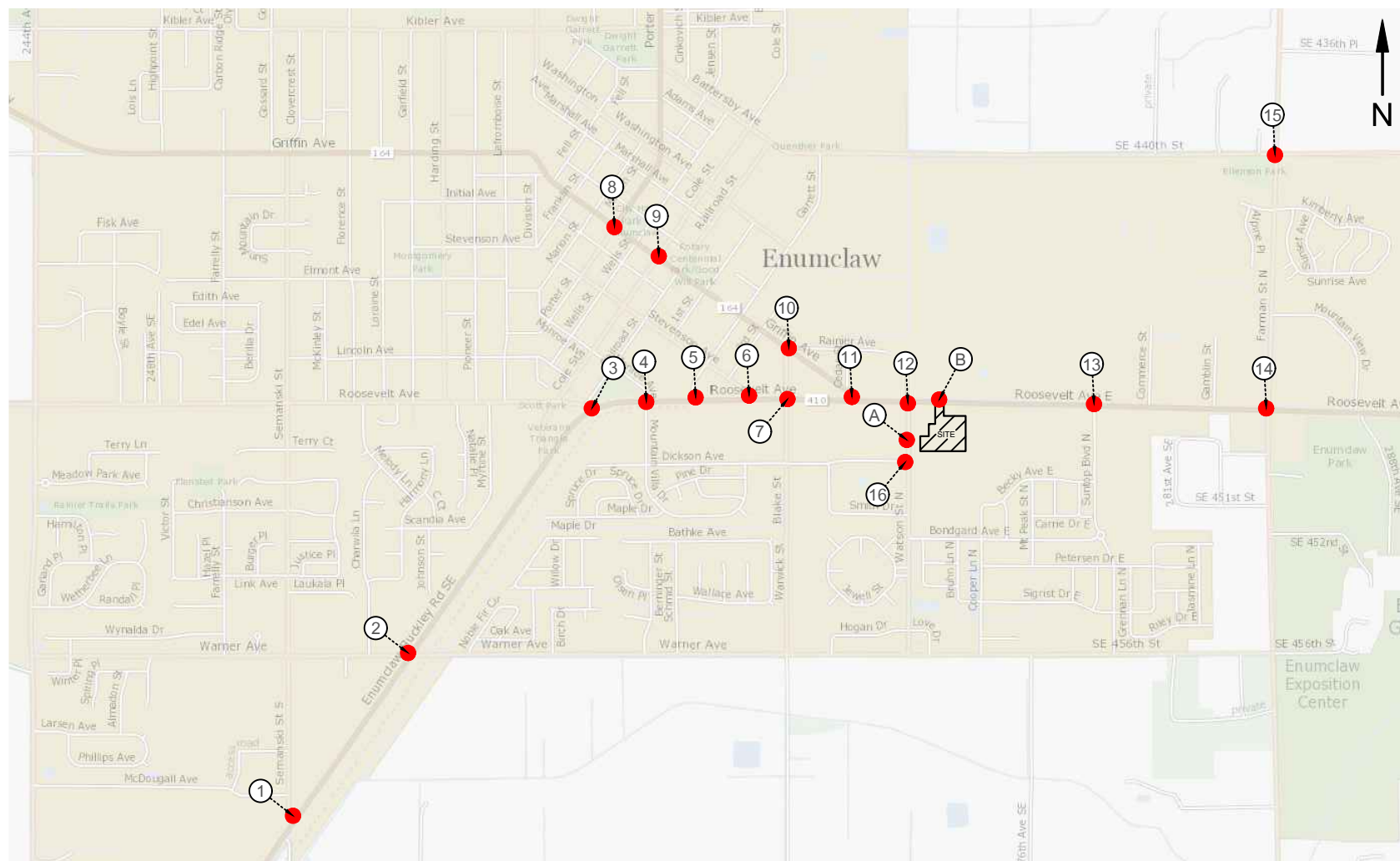
OUTLYING STUDY INTERSECTIONS



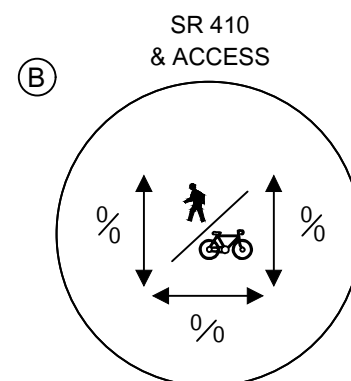
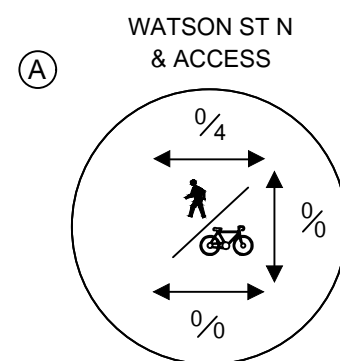
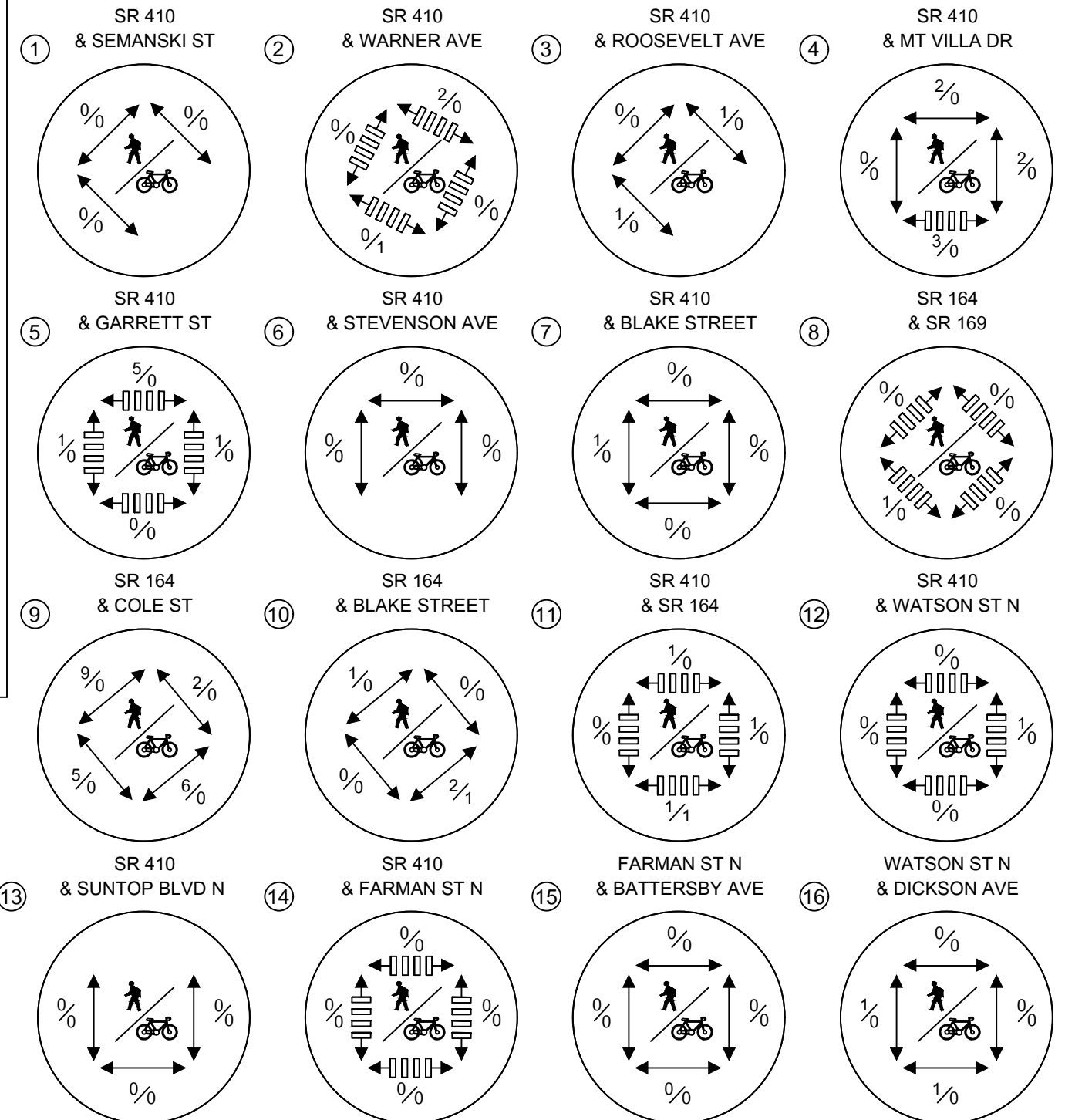


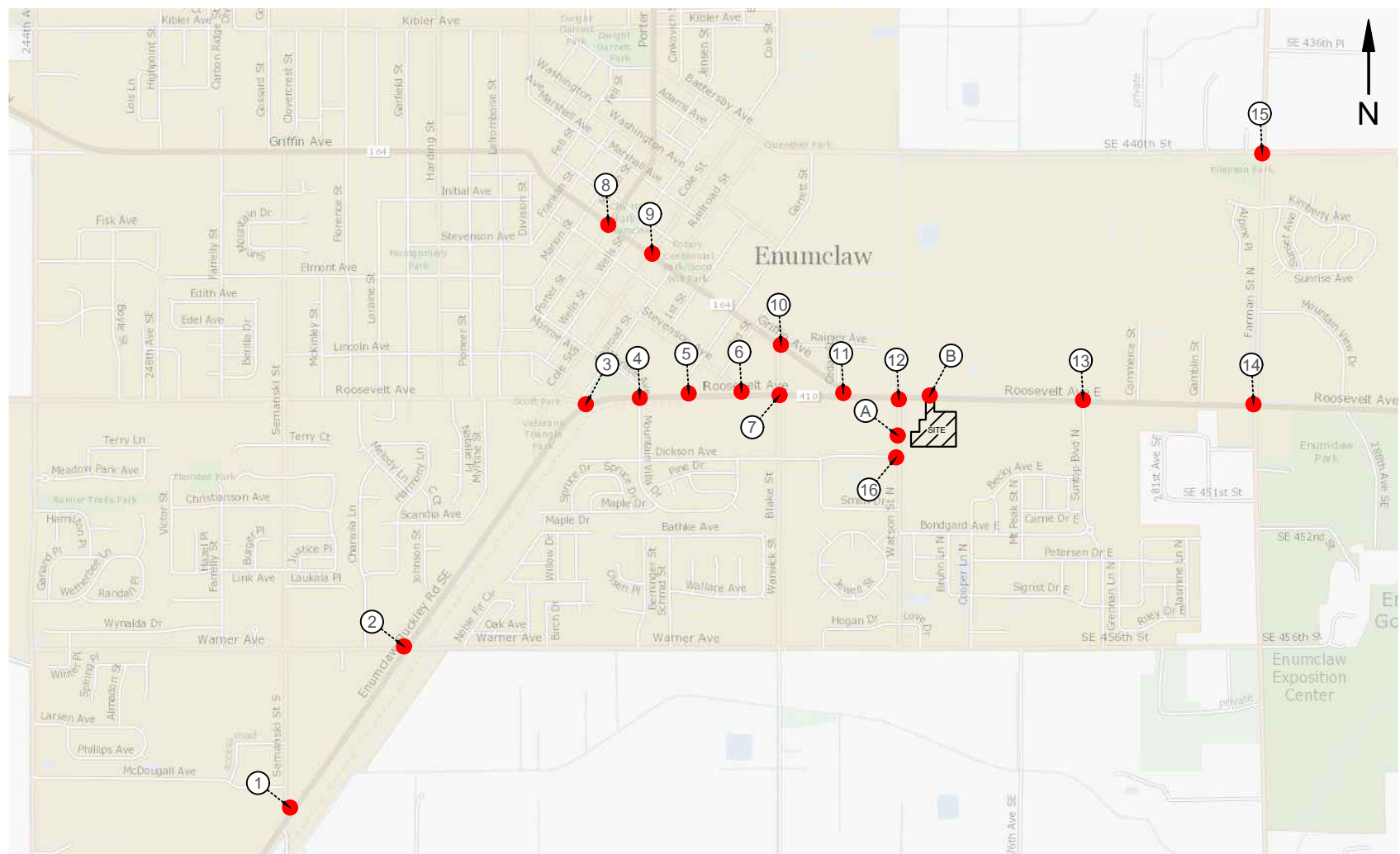
OUTLYING STUDY INTERSECTIONS



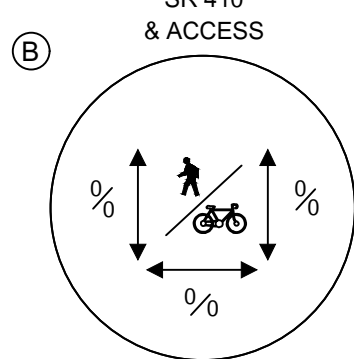
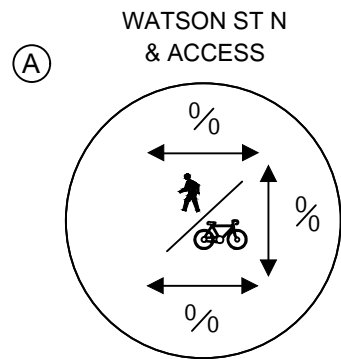
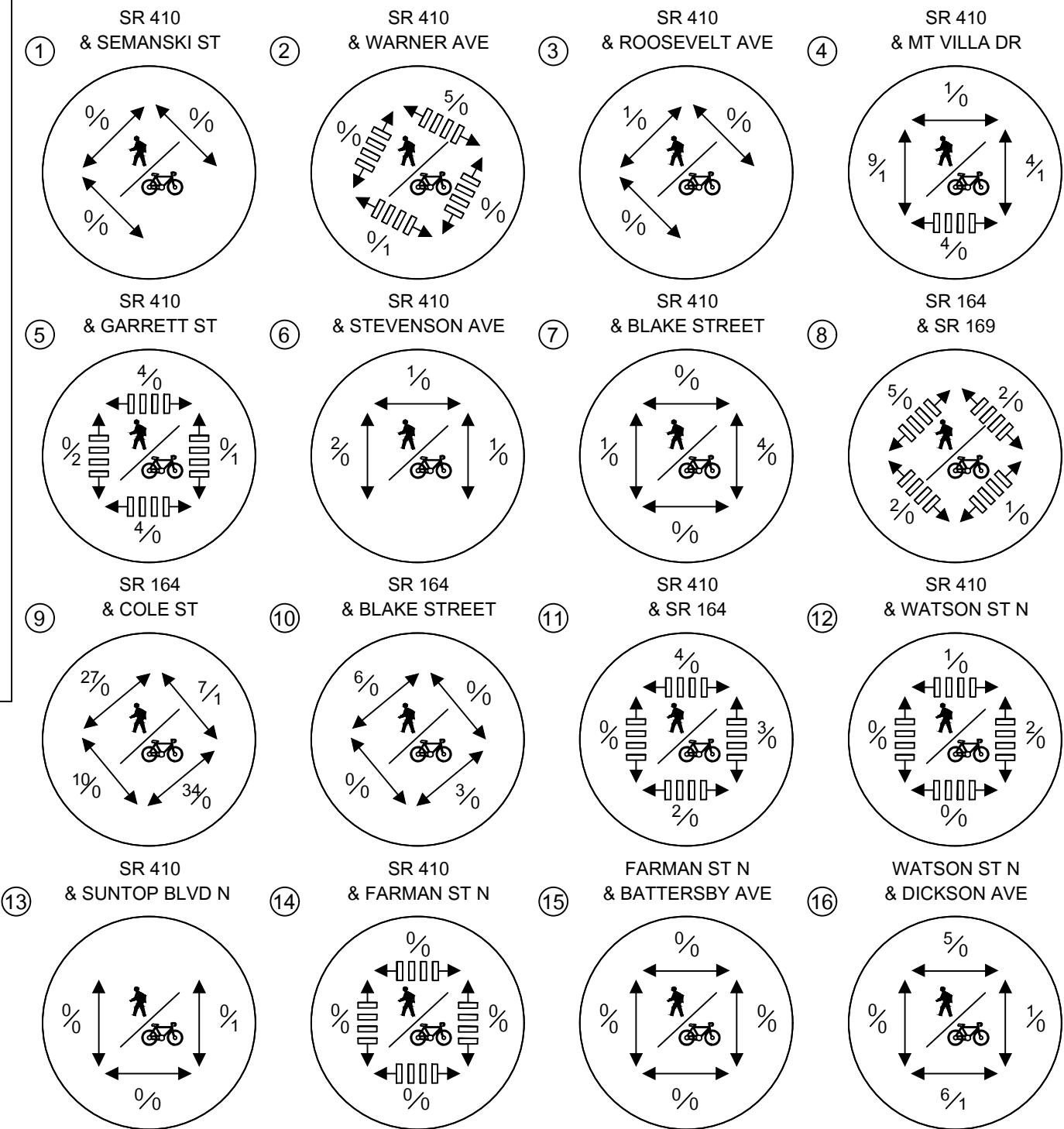


OUTLYING STUDY INTERSECTIONS





OUTLYING STUDY INTERSECTIONS



3.6 Existing Level of Service

Level of Service (LOS) rates⁴ the quality of traffic flow and user experience, typically on a scale from A to F, where:

- **LOS A** represents free-flowing traffic with minimal delays and low congestion.
- **LOS B** indicates stable traffic flow with some minor delays.
- **LOS C** shows moderate traffic flow with noticeable delays at peak times.
- **LOS D** is high-density traffic flow with more frequent and longer delays.
- **LOS E** is near-capacity conditions with significant delays and congestion.
- **LOS F** denotes over-capacity conditions, where traffic flow breaks down, resulting in severe congestion and delays.

LOS calculations were conducted using Synchro 12. For signalized intersections, the overall intersection LOS is reported. For stop-controlled intersections, LOS is based on the worst-performing approach. Signal timing data were obtained from WSDOT and incorporated into the analysis.

Table 2 on the following page provides a summary of LOS results for both the AM and PM peak hours.

⁴Signalized Intersections - Level of Service

Level of Service	Control Delay per Vehicle (sec)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Highway Capacity Manual (HCM), 7th Edition

Stop Controlled Intersections - Level of Service

Level of Service	Control Delay per Vehicle (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50



Table 2: Existing Peak Hour Level of Service*Delays given in seconds per vehicle*

Ref #	Intersection	Control	Peak Hour	Critical Movement	LOS	Delay
1.	SR 410 & Semanski	Stop	AM PM	SB	D B	26.5 14.6
2.	SR 410 & Warner	Signal	AM PM	Overall	C B	23.3 17.1
3.	SR 410 & Roosevelt	Stop	AM PM	EB	B B	13.3 14.7
4.	SR 410 & Mt. Villa	Stop	AM PM	NB	C C	17.3 19.9
5.	SR 410 & Garrett	Signal	AM PM	Overall	B B	10.1 10.8
6.	SR 410 & Stevenson	Stop	AM PM	SB	B B	10.5 12.1
7.	SR 410 & Blake	Stop	AM PM	NB	C C	16.1 18.6
8.	SR 164 & SR 169	Signal	AM PM	Overall	B C	16.4 20.9
9.	SR 164 & Cole	Signal	AM PM	Overall	A B	7.3 10.2
10.	SR 164 & Blake	Stop	AM PM	NB	C C	15.2 21.1
11.	SR 410 & SR 164	Signal	AM PM	Overall	B C	14.9 21.3
12.	SR 410 & Watson	Signal	AM PM	Overall	B B	14.9 19.6
13.	SR 410 & Suntop	Stop	AM PM	NB	B B	13.3 13.1
14.	SR 410 & Farman	Signal	AM PM	Overall	B B	13.1 13.9
15.	Farman & Battersby	Stop	AM PM	EB	B C	12.9 17.7
16.	Watson & Dickson	Stop	AM PM	WB	A B	9.8 10.2
17.	Watson & Project Access	Stop	AM PM	WB	B A	10.7 9.5
18.	SR 410 & Project Access	Stop	AM PM	NB	B B	12.0 13.3



Level of Service Standards⁵: Enumclaw has adopted a standard of LOS D for signalized intersections and LOS E for unsignalized intersections. Moreover, SR 410, SR 164, and SR 169 all comprise a WSDOT standard of LOS D or better.

All intersections are shown to meet City and WSDOT standards, operating at LOS D or better conditions during either peak hour.

3.7 Safety Analysis

Collision history for each study intersection/corridor was requested from WSDOT for the prior five full years between 2019-2023. Refer to **Table 3** on the following page for collision history by year.

⁵ City of Enumclaw's Comprehensive Plan, *Chapter 5 - Transportation*, (2015). & WSDOT Level of Service Standards - ArcGIS.



Table 3: Collision History

Ref #	Intersection/Corridor	2019	2020	2021	2022	2023	Avg/Yr
1	SR 410 & Semanski	1	1	0	2	0	0.8
2	Between Semanski & Warner	3	2	2	5	0	2.4
3	SR 410 & Warner	0	3	0	2	2	1.4
4	Between Warner & Roosevelt	1	6	3	5	8	4.6
5	SR 410 & Roosevelt	2	0	1	2	2	1.4
6	Between Roosevelt & Mt. Villa	0	0	0	1	0	0.2
7	SR 410 & Mt. Villa	2	0	1	3	2	1.6
8	Between Mt. Villa & Garrett	0	0	1	0	0	0.2
9	SR 410 & Garrett	1	2	0	1	0	0.8
10	SR 410 & Stevenson	1	0	0	0	1	0.4
11	SR 410 & Blake	2	0	2	4	5	2.6
12	Between Blake & SR 164	1	0	1	2	0	0.8
13	SR 164 & SR 169	2	1	1	3	2	1.8
14	Between SR 169 & Cole	1	0	2	0	0	0.6
15	SR 164 & Cole	3	1	0	1	0	1.0
16	Between Cole & Blake	3	6	5	9	6	5.8
17	SR 164 & Blake	1	0	0	1	0	0.4
18	Between Blake & SR 410	0	1	1	1	0	0.6
19	SR 410 & SR 164	0	2	2	3	6	2.6
20	Between SR 164 & Watson	0	0	0	0	1	0.2
21	SR 410 & Watson St N	5	5	2	5	2	3.8
22	Between Watson & Suntop	2	1	1	0	0	0.8
23	SR 410 & Suntop Blvd N	0	0	1	0	0	0.2
24	Between Suntop & Farman	0	1	1	0	1	0.6
25	SR 410 & Farman St N	0	5	3	3	0	2.2
26	Between SR 410 & Battersby	0	0	2	1	2	1.0
27	Farman St N & Battersby Ave	0	0	3	1	0	0.8
28	Watson & Dickson	0	0	0	0	1	0.2
29	Between Watson & Dickson	1	0	2	1	0	0.8

A total of 203 collisions were recorded in the study area. The intersection of SR 410 and Watson Street N experienced the highest collision rate, averaging 3.8 collisions per year.

The following sections analyze collision types, severity and contributing factors in an effort to identify any potential trends.



Collision Type Analysis

Summaries of collision types that occurred in the study area are provided in **Table 4** below.

Table 4: Collision History Crash Types

Crash Type	Number of Crashes (2019-2023)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Rear-End	1	7	4	13	0	1	1	0	1	0	0	2	2	1	1
Enter at Angle	0	0	1	0	4	0	6	0	0	2	8	0	4	1	2
Sideswipe	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0
From Opposite Direction	1	1	1	2	0	0	1	0	1	0	1	1	2	0	1
From Same Direction	1	0	0	2	0	0	0	0	0	0	0	1	1	0	0
Stuck Stationary Object	1	1	1	6	2	0	0	0	0	0	4	0	0	1	1
Vehicle Hits Ped/Bike	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Vehicle Overturned	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0

Table 4 Continued

Crash Type	Number of Crashes (2019-2023)														
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
Rear-End	7	0	1	3	1	13	1	0	2	5	0	0	0	1	
Enter at Angle	11	1	1	5	0	2	0	1	1	5	0	2	0	2	
Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
From Opposite Direction	3	1	0	1	0	2	0	0	0	1	1	0	0	0	
From Same Direction	2	0	0	2	0	0	1	0	0	0	0	0	0	0	
Stuck Stationary Object	3	0	1	2	0	2	1	0	0	0	3	1	0	1	
Vehicle Hits Ped/Bike	3	0	0	0	0	0	1	0	0	0	0	1	1	0	
Vehicle Overturned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Head-on	0	0	0	0	0	0	0	0	0	0	1	0	0	0	

The leading collision types in the study area were listed as rear-end (68/203), followed by enter at angle (59/203) with 8 collisions involving non-motorists.



Collision Severity Analysis

A collision severity summary associated with each study intersection is provided below in **Table 5**.

Table 5: Collision History Severity

Collision Severity	Number of Crashes (2019-2023)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fatal (K)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Incapacitating Injury (A)	0	2	1	1	0	0	0	0	0	0	1	0	0	0	0
Non-incapacitating Injury (B)	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0
Possible Injury (C)	1	5	2	7	1	1	0	0	0	1	2	2	0	0	2
Property Damage Only (PDO)/Unknown	3	5	3	14	6	0	8	1	3	1	10	2	8	3	3

Table 5 Continued

Collision Severity	Number of Crashes (2019-2023)														
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
Fatal (K)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
Incapacitating Injury (A)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
Non-incapacitating Injury (B)	4	0	0	1	0	2	1	0	1	0	1	1	1	0	
Possible Injury (C)	6	0	1	4	0	3	1	0	1	1	0	1	0	2	
Property Damage Only (PDO)/Unknown	19	2	2	8	1	14	1	1	1	10	3	2	0	2	

Collisions Involving Incapacitating Injury/Non-Motorists/Fatal:

A more in-depth review of suspected serious injury/non-motorist involved collisions is provided below. The study area includes a total of two fatalities, six incapacitating injury collisions, and four non-motorist collisions.

Fatal Collision 1 Along SR 410 (MP 25.11) - June 2019

- Weather: Clear - Dry - Daylight
- Time of Day: Afternoon
- Summary: Vehicle going straight ahead struck a pedestrian. The driver contributing circumstance is listed as inattention.

Fatal Collision 2 at SR 410 & Garrett - August 2019

- Weather: Clear Or partly Cloudy - Dry - Daylight
- Time of Day: Morning
- Summary: Vehicle turning left (from north to east) struck a pedestrian. The driver contributing circumstance is listed as inattention.



Suspected Serious Injury Collision 1 Along SR 410 (MP 22.63) - December 2019

- Weather: Clear - Dry - Daylight
- Time of Day: Afternoon
- Summary: Northbound motorcycle overturned (overtaking and passing).

Suspected Serious Injury Collision 2 Along SR 410 (MP 22.66) - April 2021

- Weather: Clear - Dry - Daylight
- Time of Day: Morning
- Summary: Southbound vehicle struck a pedestrian. The contributing driver circumstance is listed as eating or drinking.

Suspected Serious Injury Collision 3 at SR 410 & Warner - June 2020

- Weather: Clear or Partly Cloudy - Dry - Daylight
- Time of Day: Afternoon
- Summary: Eastbound vehicle struck another vehicle waiting at the signal (rear-end). The contributing driver's circumstance is listed as follow too close.

Suspected Serious Injury Collision 4 at Warner & Roosevelt - October 2023

- Weather: Clear - Dry - Daylight
- Time of Day: Afternoon
- Summary: Northbound vehicle rear-ended the vehicle in front. The contributing circumstance is listed as distractions.

Suspected Serious Injury Collision 5 at SR 410 & Blake - July 2019

- Weather: Clear - Dry - Daylight
- Time of Day: Afternoon
- Summary: Northbound vehicle struck an eastbound vehicle. The driver contributing circumstance is listed as distractions.

Suspected Serious Injury Collision 6 at Farman & Alpine - June 2022

- Weather: Raining - Wet - Daylight
- Time of Day: Afternoon
- Summary: The collision type is listed as head-on with no contributing circumstance.



Non-Motorist Collision 1 at Farman & Battersby - September 2021

- Weather: Overcast - Dry - Daylight
- Time of Day: Morning
- Summary: Vehicle failed to grant the non-motorist right-of-way when making a left turn and struck the non-motorist.

Non-Motorist Collision 2 at SR 164 & Railroad - January 2019

- Weather: Raining - Wet - Daylight
- Time of Day: Afternoon
- Summary: Left turning vehicle struck a pedestrian. The driver circumstance is listed as inattention.

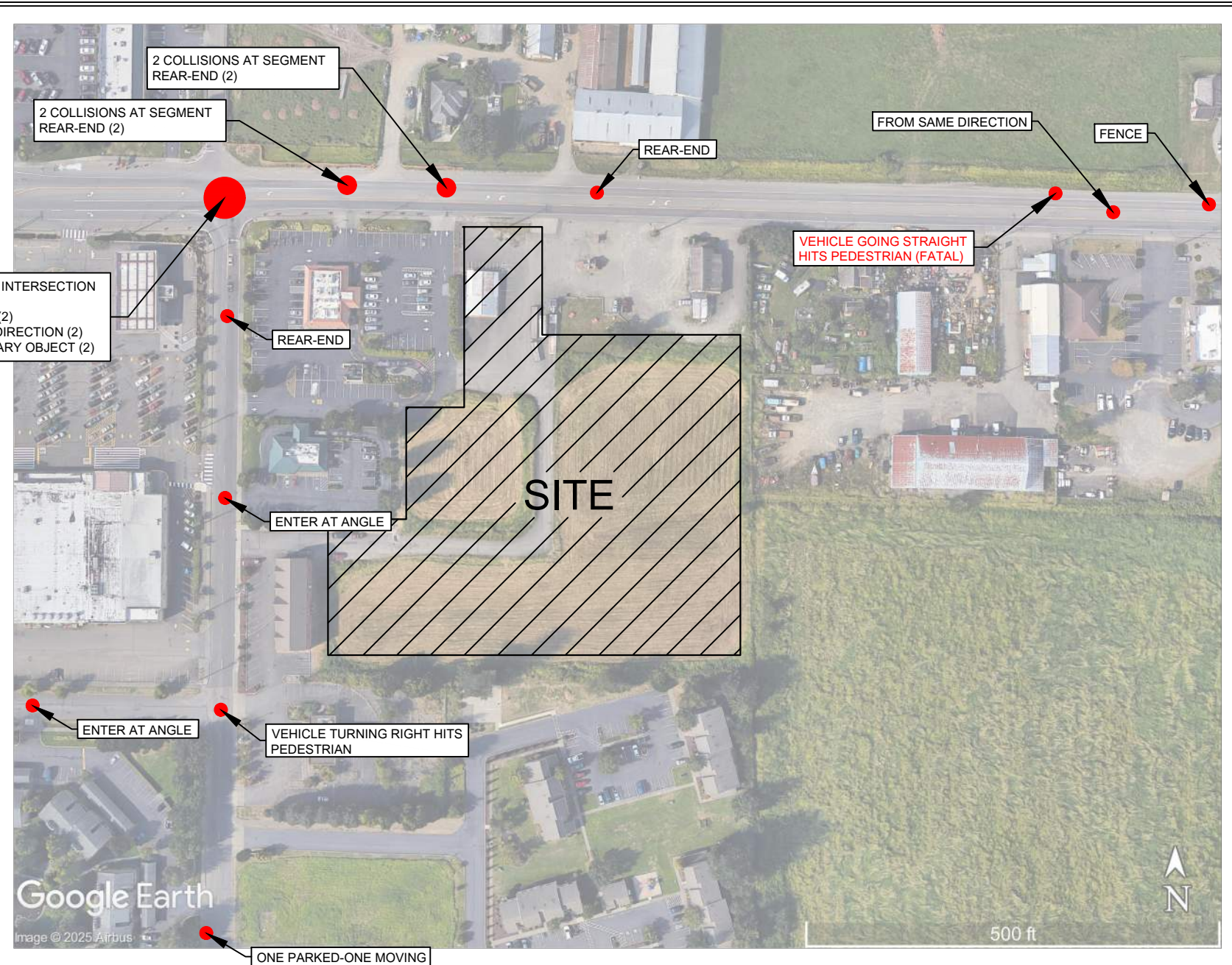
Non-Motorist Collision 3 at SR 164 & Garrett - September 2022

- Weather: Cleary - Dry - Daylight
- Time of Day: Morning
- Summary: Left turning vehicle struck a pedestrian. The driver's circumstance is listed as distractions and did not grant right-of-way to non-motorist.

Non-Motorist Collision 4 at Watson & Dickson - August 2023

- Weather: Cleary - Dry - Dark Streetlights on
- Time of Day: Night
- Summary: Right turning vehicle (from west to south) struck a pedestrian. The driver's contributing circumstance is listed as did not grant right-of-way to non-motorist.

Figure 8 on the following page illustrates the collision history in the vicinity of the project site.



4. FORECAST TRAFFIC DEMAND & ANALYSIS

4.1 Project Trip Generation

Trip generation is defined as the number of vehicle movements that enter or exit the respective project site during a designated time period, such as a specific peak hour (AM or PM) or an entire day. Trip estimates for the project were derived from the Institute of Transportation Engineers (ITE) publication, *Trip Generation*, 11th Edition. Each building is defined below with the associated Land Use Code (LUC).

Building A: is an 8,000 square foot building with a known tenant, KolKay Electrical, an electrical contractor. Per the ITE description, LUC 180 – Specialty Trade Contractor was shown to be most representative of the proposed use. See ITE’s Land Use Description below.

“A specialty trade contractor is a business primarily involved in providing contract repairs and services to meet industrial or residential needs. This land use includes businesses that provide the following services: plumbing, heating and cooling, machine repair, electrical and mechanical repair, industrial supply, roofing, locksmith, weed and pest control, and cleaning.”

- LUC 180 – Specialty Trade Contractor (ITE average rates)

Building B: 6,000 square feet of retail space

- Retail Space – LUC 822 Strip Retail Plaza (ITE equations)
- Per ITE data, pass-by for the similar LUC 821 (Shopping Plaza) is 40%.

Building C: 6,000 square feet of medical/dental office space

- Office Space – LUC 720 Medical/Dental Office (ITE equations)

Building D: Coffee Shop with two Drive-Through lanes

- Coffee Shop – LUC 938 Coffee/Donut Shop with Drive-Through Window and no Indoor Seating (Average Rates - Daily & PM and Equations - AM)
- Pass-by rates – Daily 94% / AM 90% / PM 98%

Refer to **Table 6** on the following page for the estimated trip generation.

Table 6: Project Trip Generation

Bld.	Land Use	Variable	Trip Type	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips		
					In	Out	Total	In	Out	Total
A	LUC 180 Specialty Trade Contractor	8,000 Sq. Ft.	Primary	79	10	3	13	5	10	15
B	LUC 822 Strip Retail	6,000 Sq. Ft.	Primary	290	8	5	13	16	16	32
			Pass-By	193	4	4	8	11	11	22
C	LUC 720 Med/Den Office	6,000 Sq. Ft.	Primary	150	15	4	19	6	15	21
D	LUC 938 Coffee Shop	2 DT Lanes	Primary	21	4	5	9	0	1	1
			Pass-By	337	40	40	80	15	14	29
Total Primary Trips				540	37	17	54	27	42	69
Total Pass-By Trips				530	44	44	88	26	25	51
Total Driveway Trips				1,070	81	61	142	53	67	120

Based on ITE data, the project is estimated to generate up to 1,070 average weekday daily driveway trips with 142 AM peak hour driveway trips (81 inbound / 61 outbound) and 120 PM peak hour driveway trips (53 inbound / 67 outbound). Note that roughly 43% of the site-generated PM peak hour traffic is estimated to be pass-by trips. These types of trips are made by drivers already traveling along the adjacent roadway who make a stop at the site before continuing to their original destination. While pass-by trips do not add new traffic to the surrounding network, they do affect turning movements and driveway operations.

4.2 Distribution & Assignment

Trip distribution describes the anticipated travel routes for inbound and outbound project traffic during the peak hour study periods. Trip distribution is based on anticipated travel routes to and from the site. The percentages and assignment were utilized in the scoping process for determining the study intersections.

Figures 9 and 10 illustrate the AM and PM peak hour trip distribution and assignment, respectively.

4.3 Future Peak Hour Volumes

A 6-year horizon of 2031 was used for future traffic delay analysis assuming full buildout and occupancy of the project site. Forecast 2031 background traffic volumes were derived by applying a three percent compound annual growth rate⁶ to the existing AM and PM peak hour volumes depicted in Figures 4 and 5.

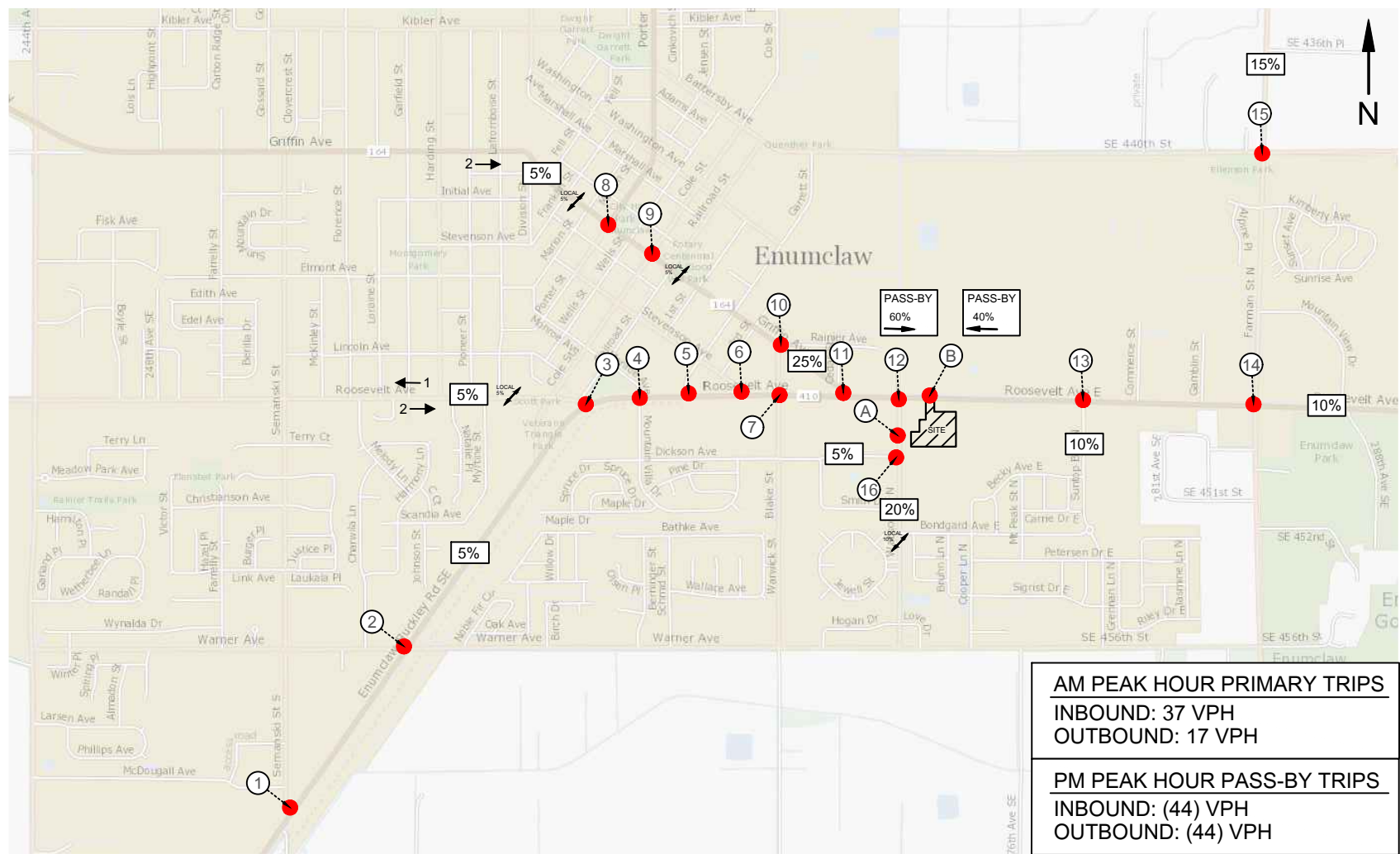
In addition to the background growth rate, the following pipeline projects were included in forecast analysis: Gracepoint NW, Watson Street Apartments, Battersby Plat, Work MPH (Crystal Mountain MHC), The Enumclaw Aquatic Center, Mazatlan Enumclaw, Mountain View Multi, Grainery II, Holdener Phase I, Cole Street Storage, Pickle Farm, Sunrise Meadows/Holdener Phase II, Fiske 410, Gateway Commercial, Stevenson/Gambrel Meadows, Gateway Plat, and Rainier Lodging.

Figures 11 and 12 present pipeline volumes during the AM and PM peak hours. **Figures 13 and 14** display the forecasted 2031 AM and PM peak hour volumes without the project-related trips. **Figures 15 and 16** depict the anticipated 2031 peak hour volumes with the inclusion of the project-related trips.

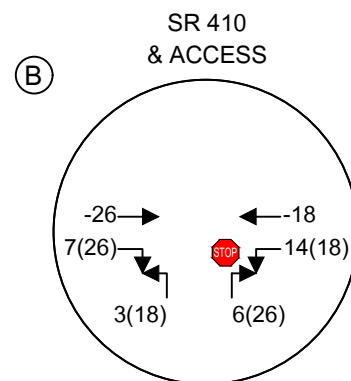
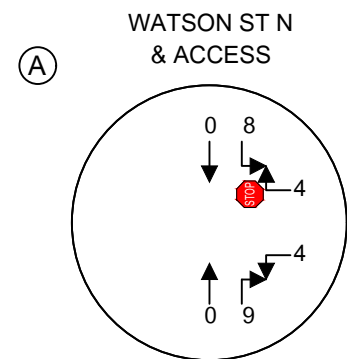
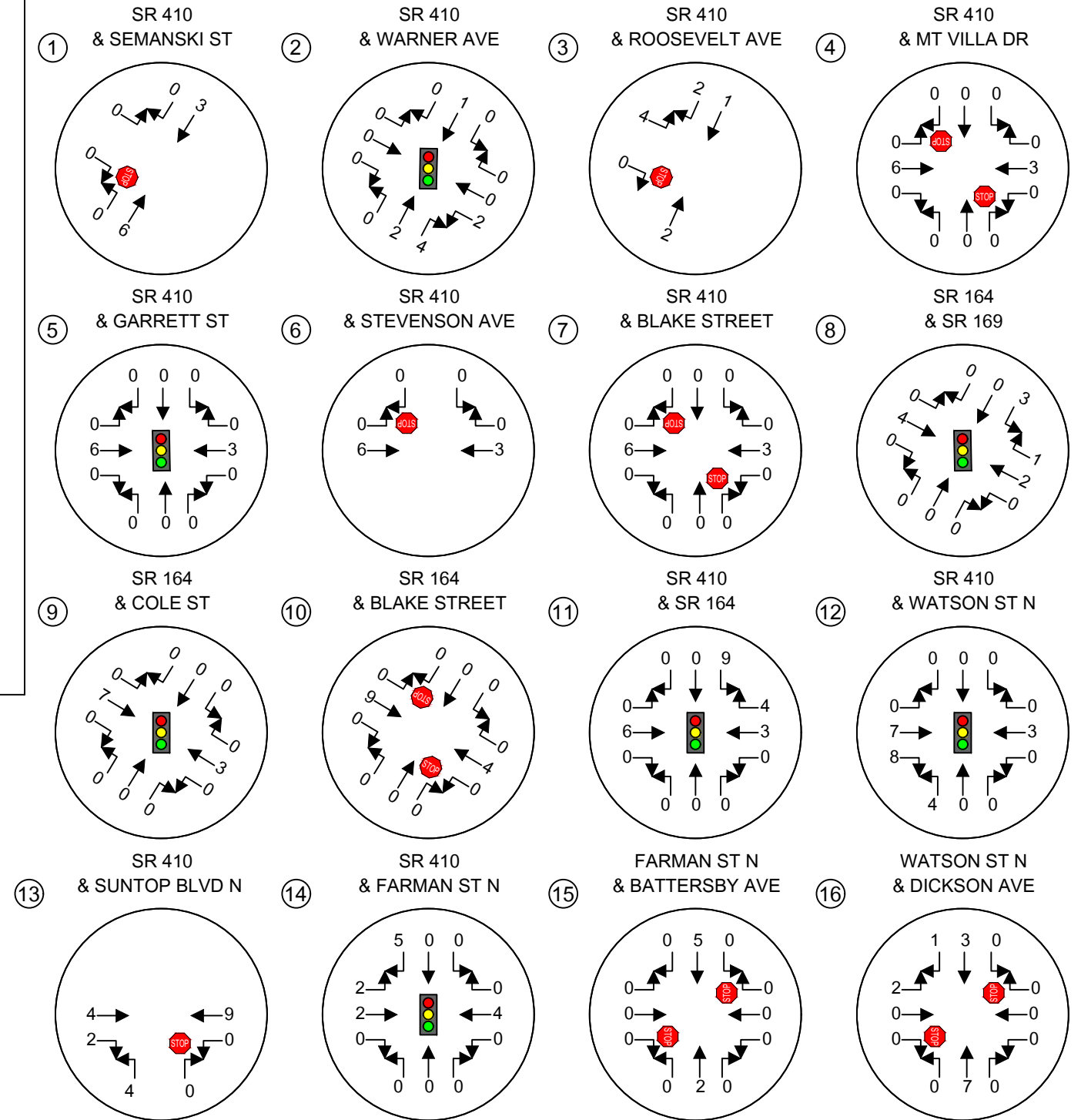
Additionally, the appendix includes **Figures A, B, C, and D**, which focus on the City's long-term planning. These figures illustrate the forecasted 2045 (20-year horizon) AM and PM peak hour volumes both without and with the project.

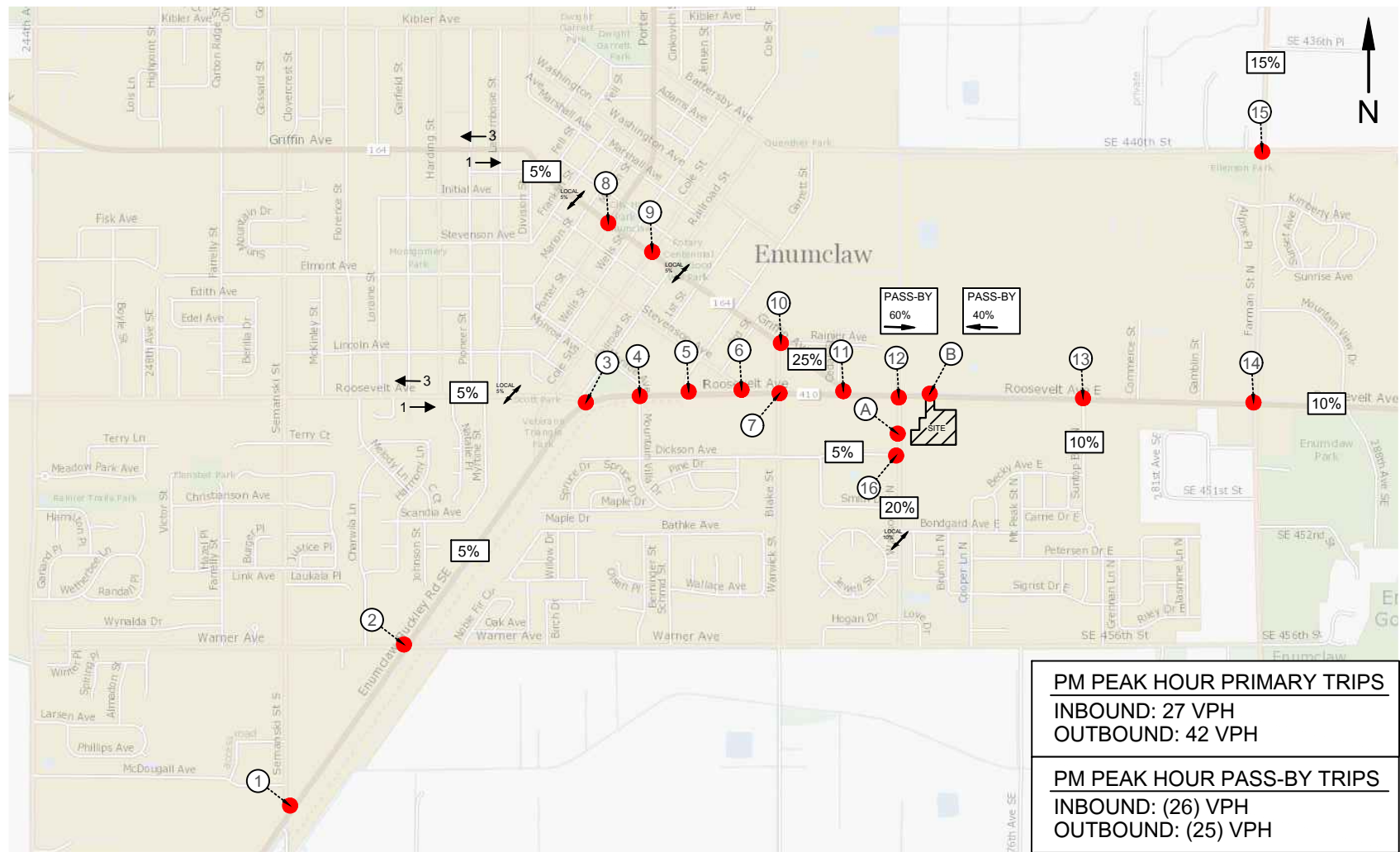
⁶ Per Scoping Comments (12/4/2024).



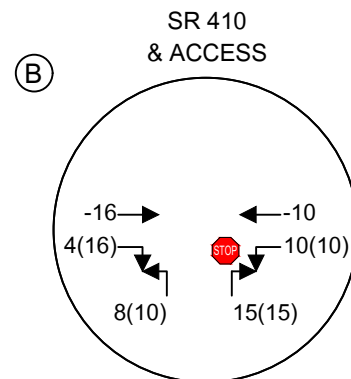
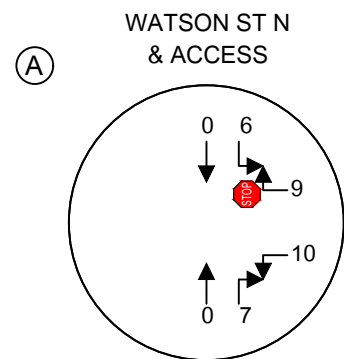
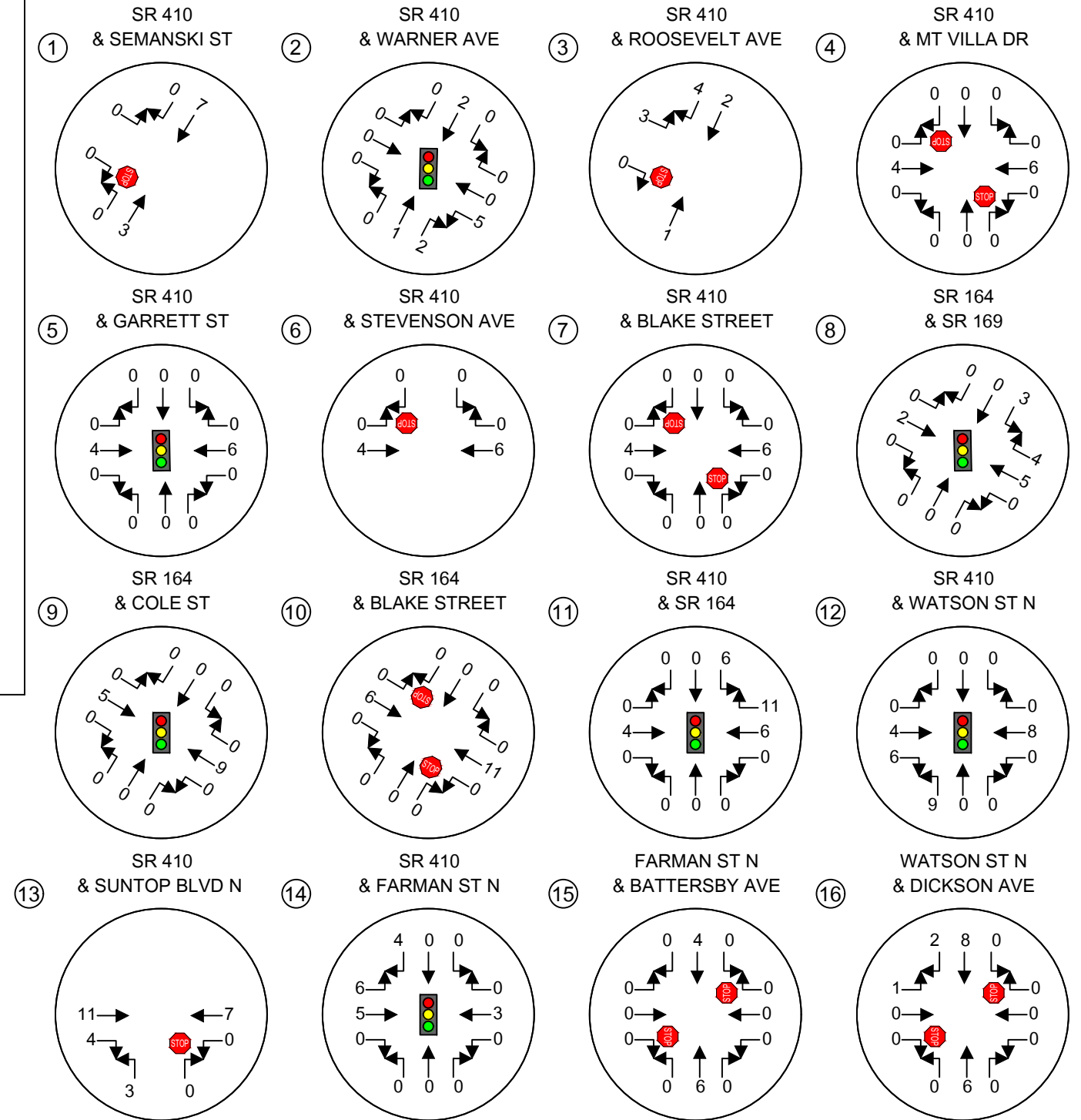


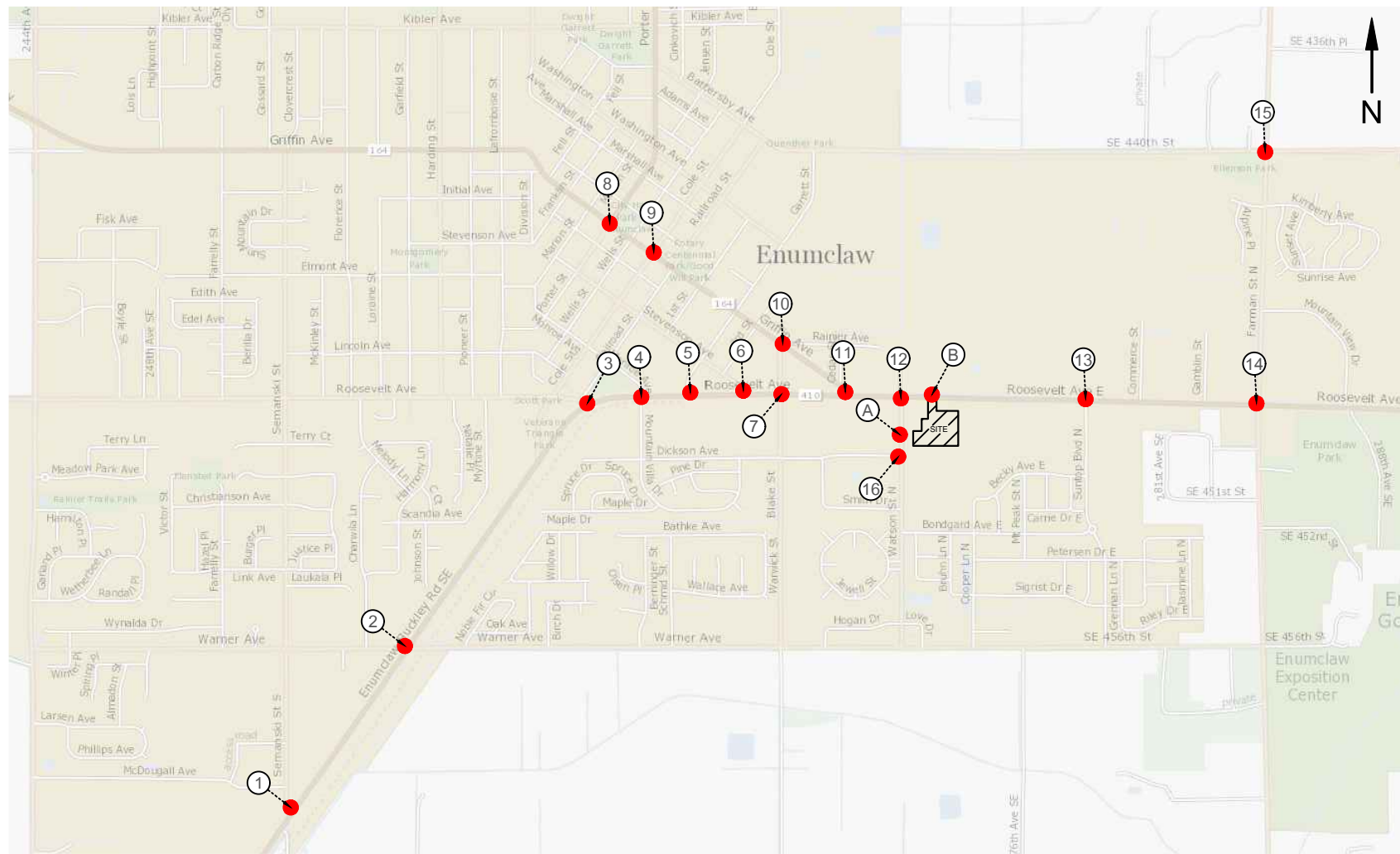
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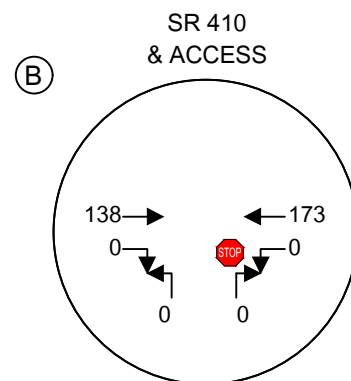
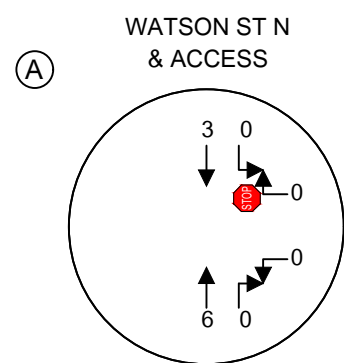
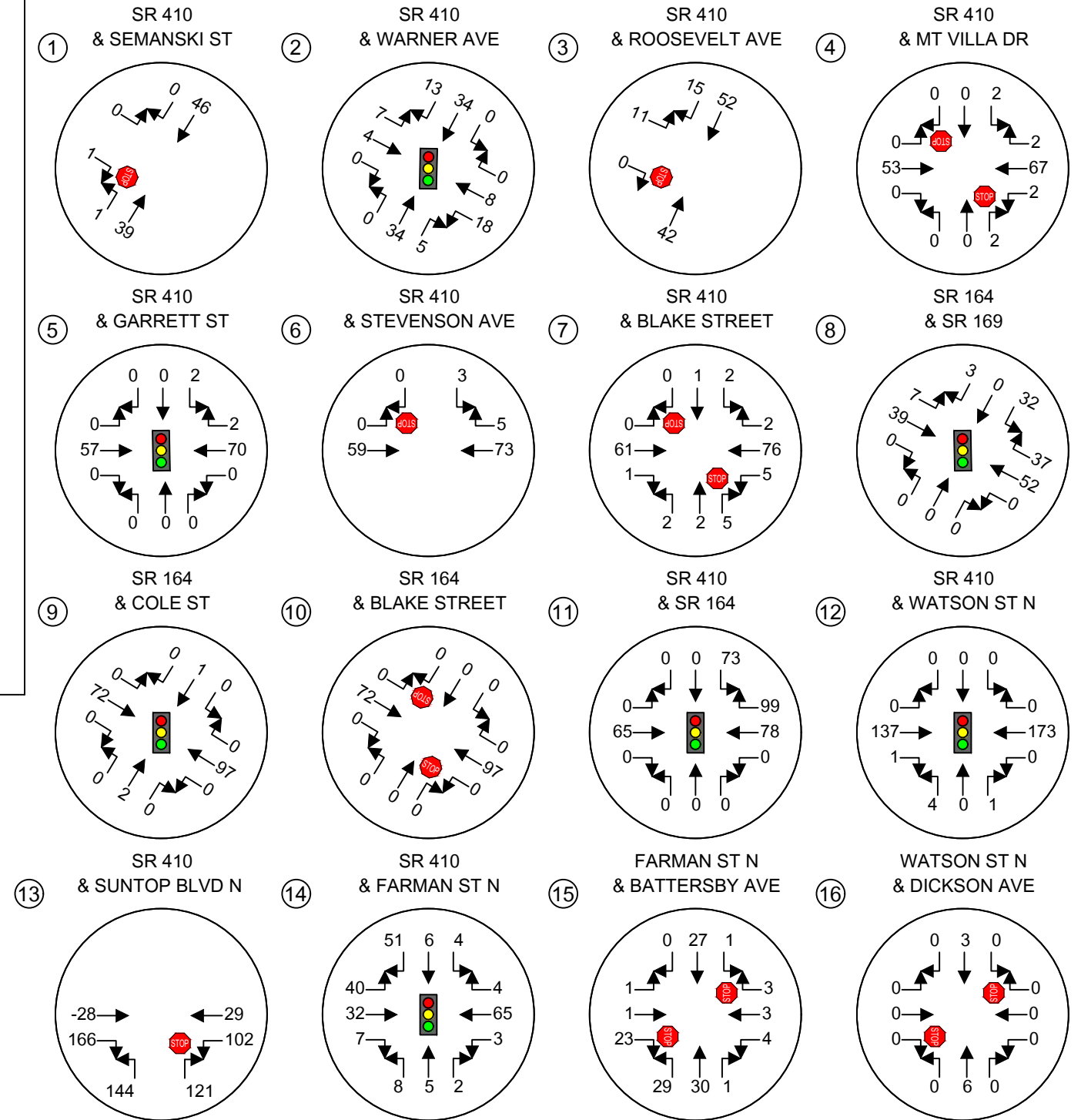


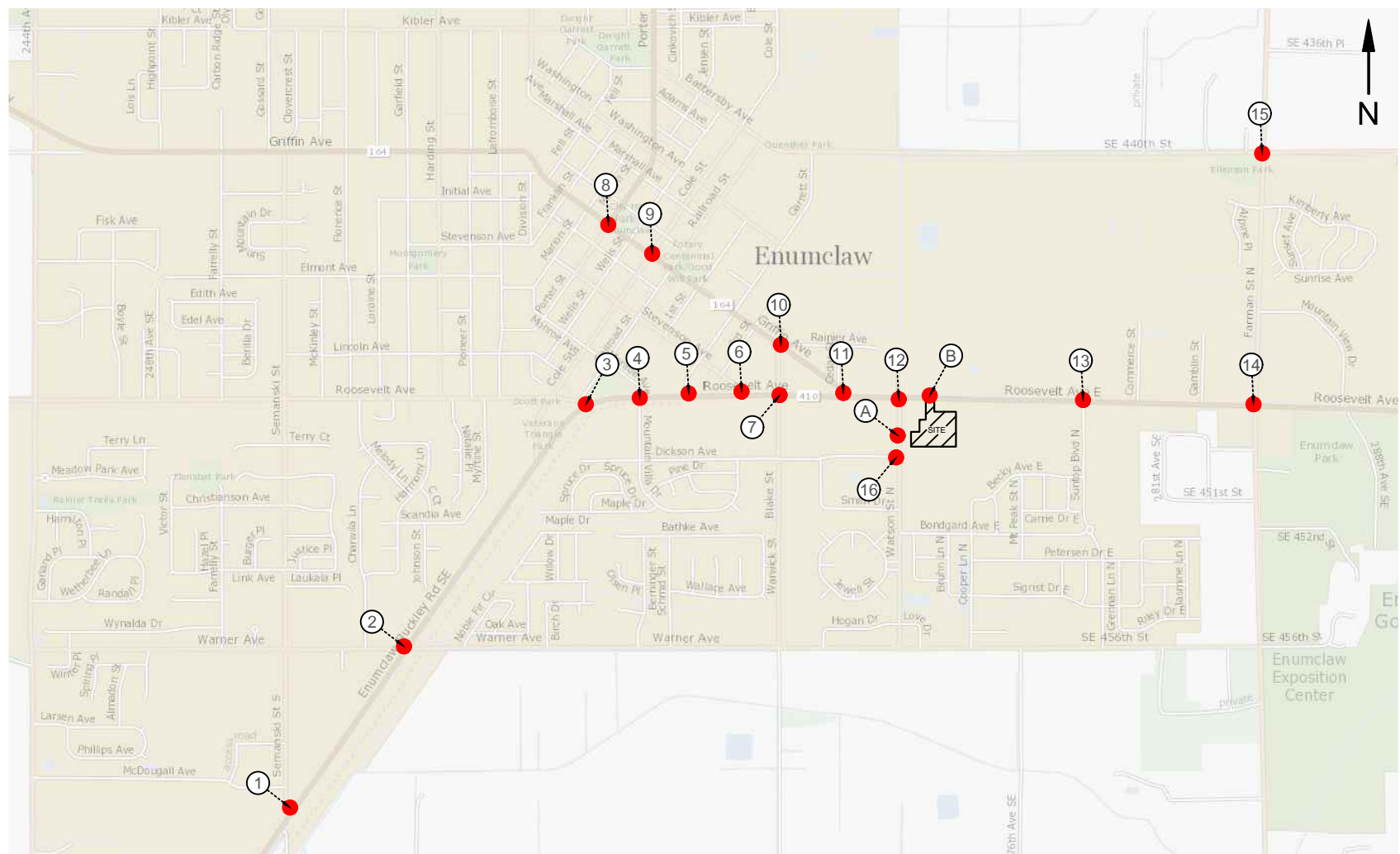
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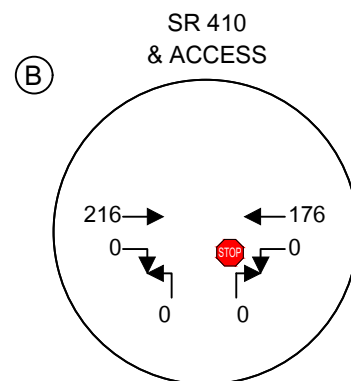
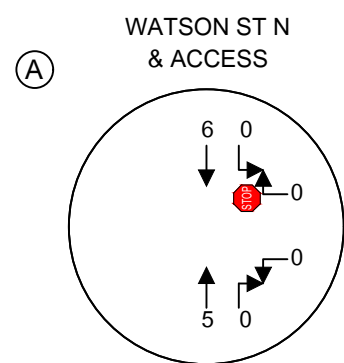
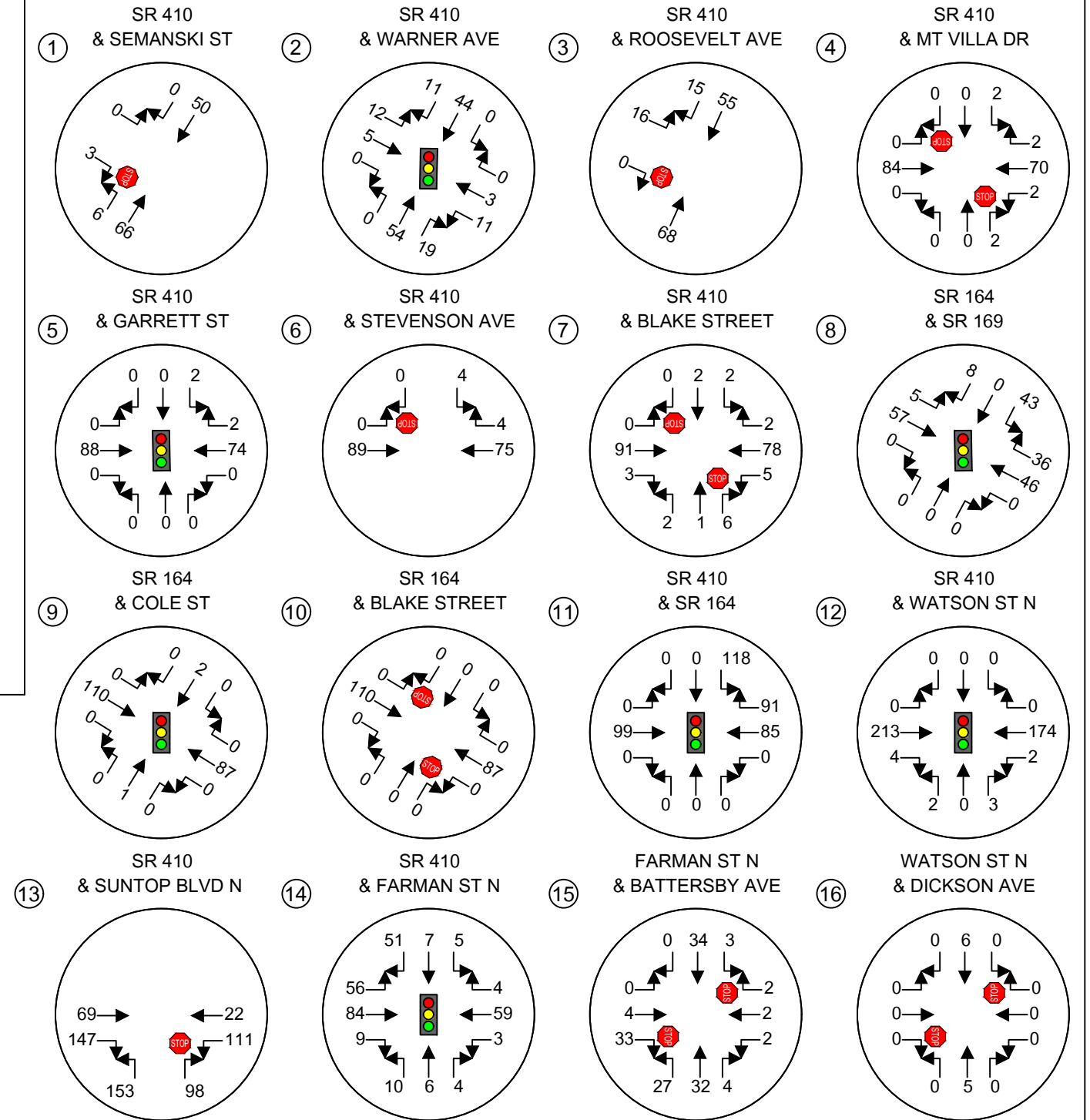


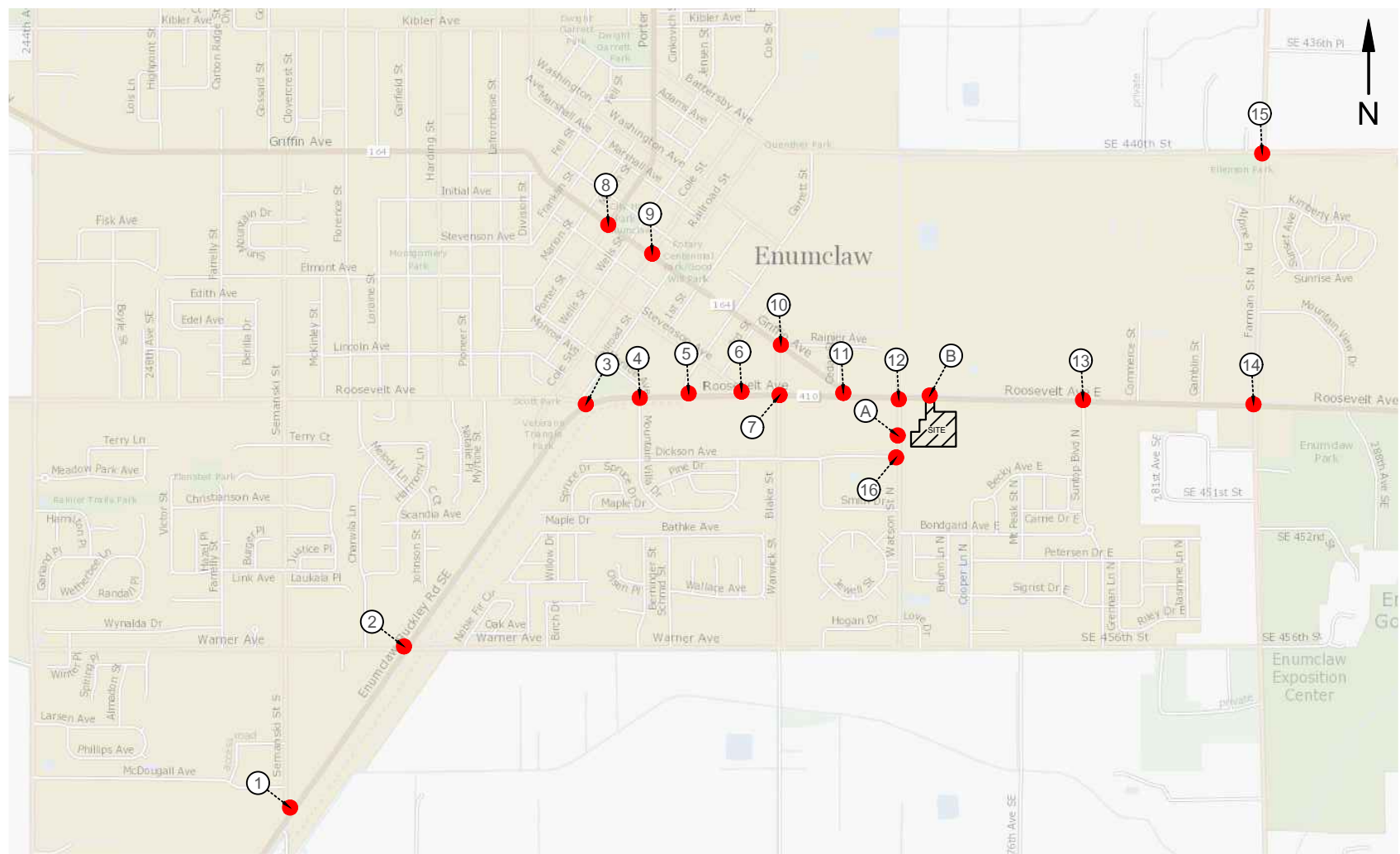
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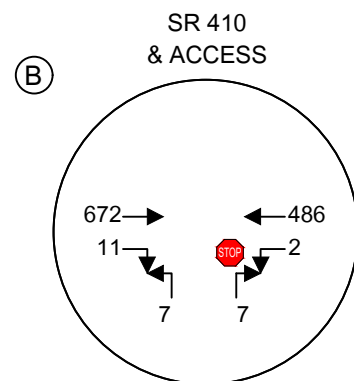
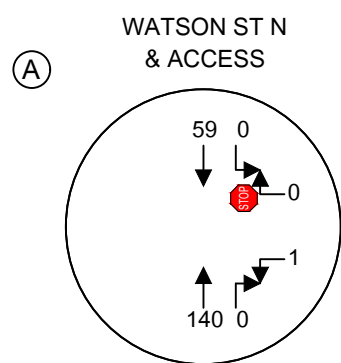
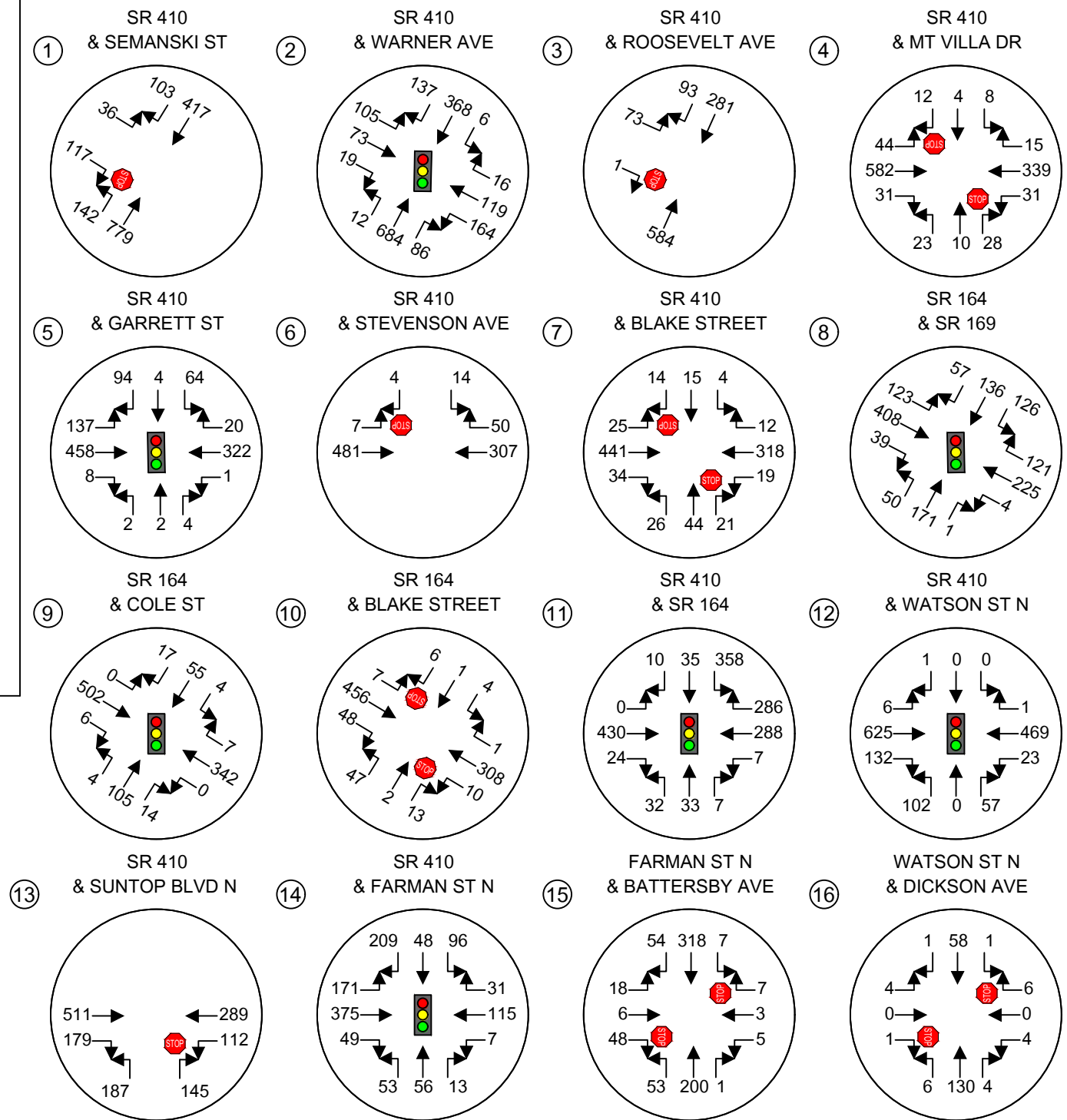


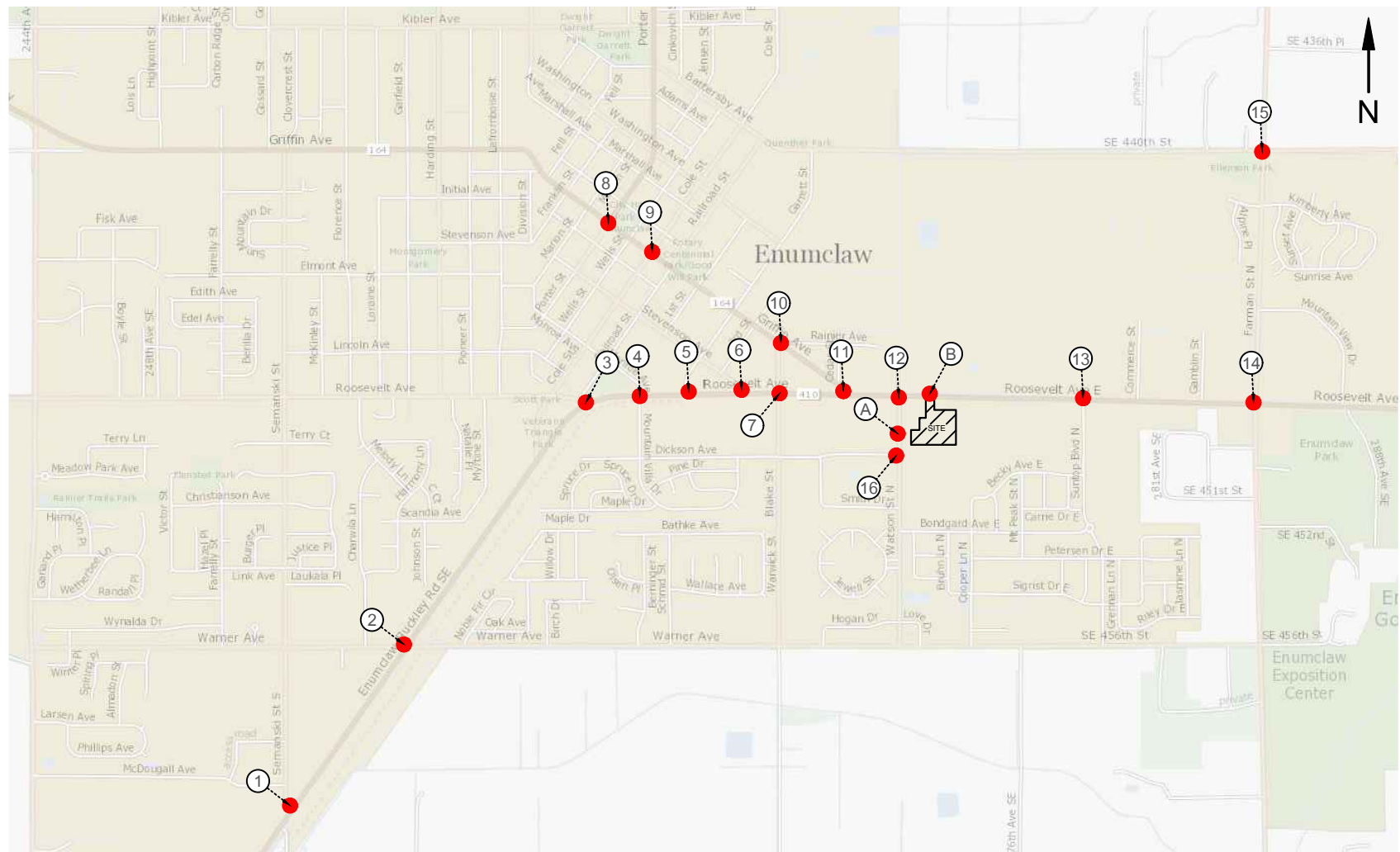
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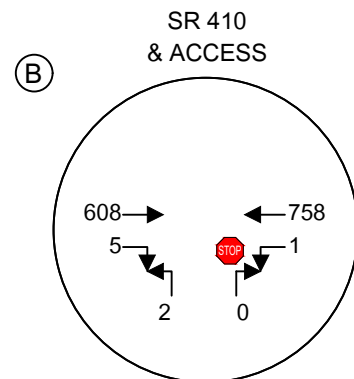
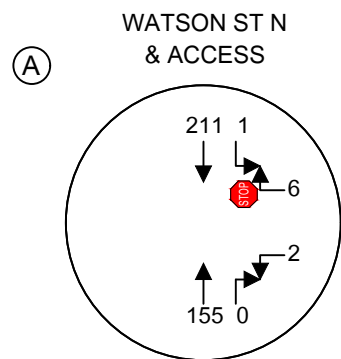
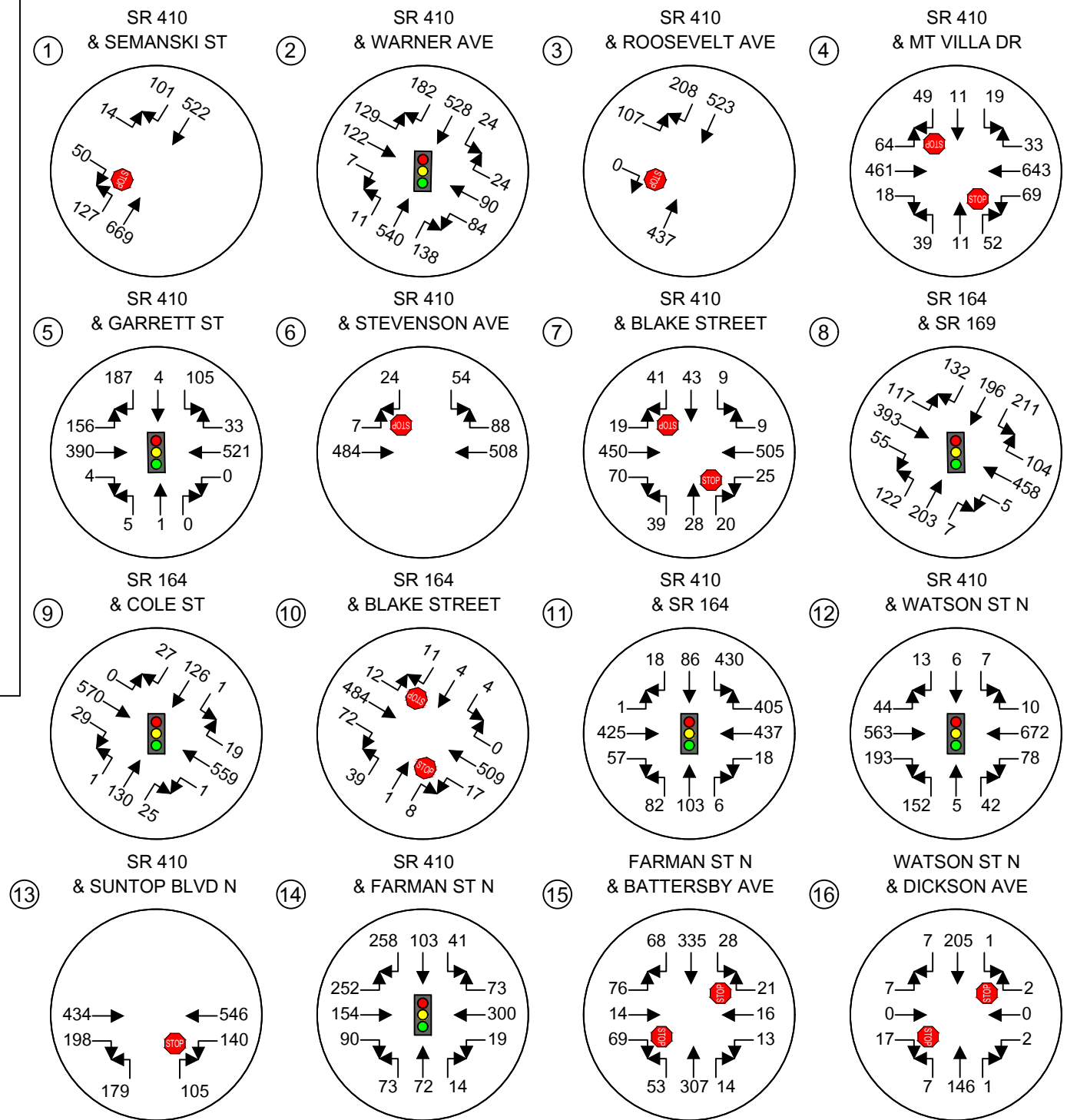


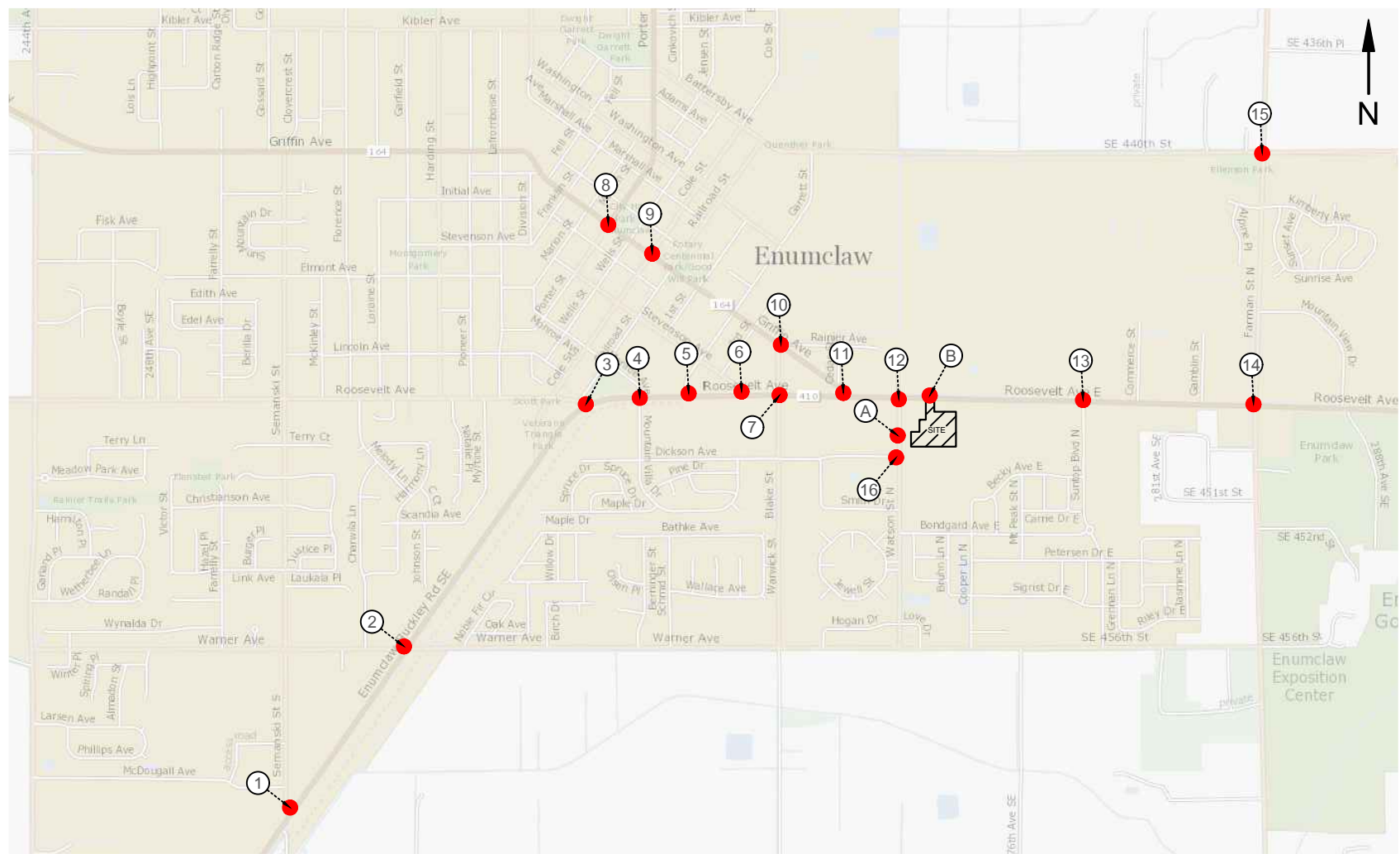
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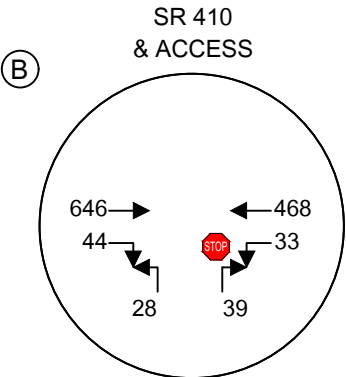
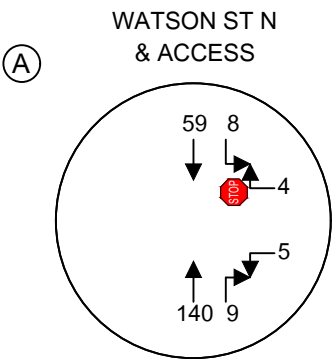
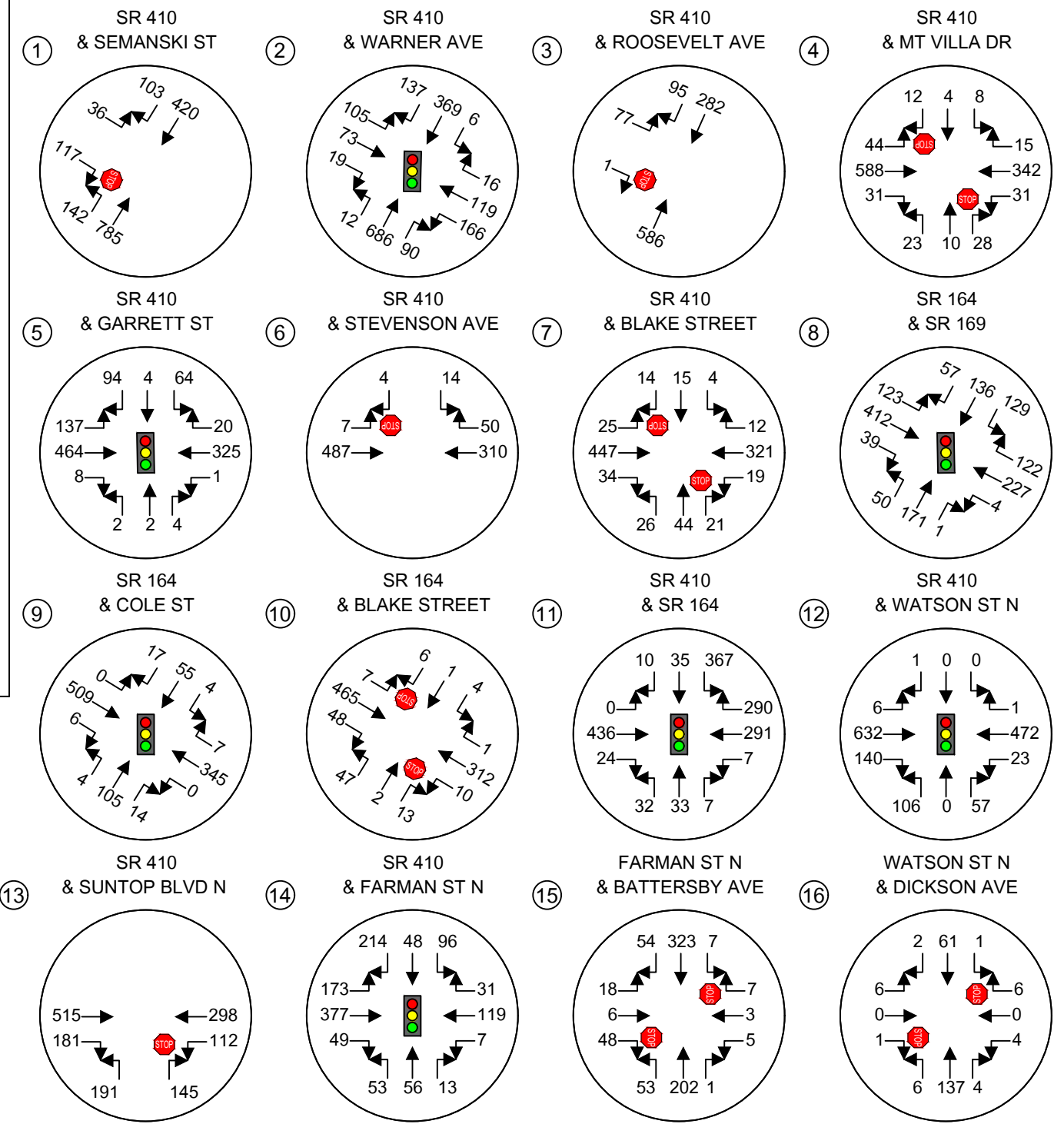


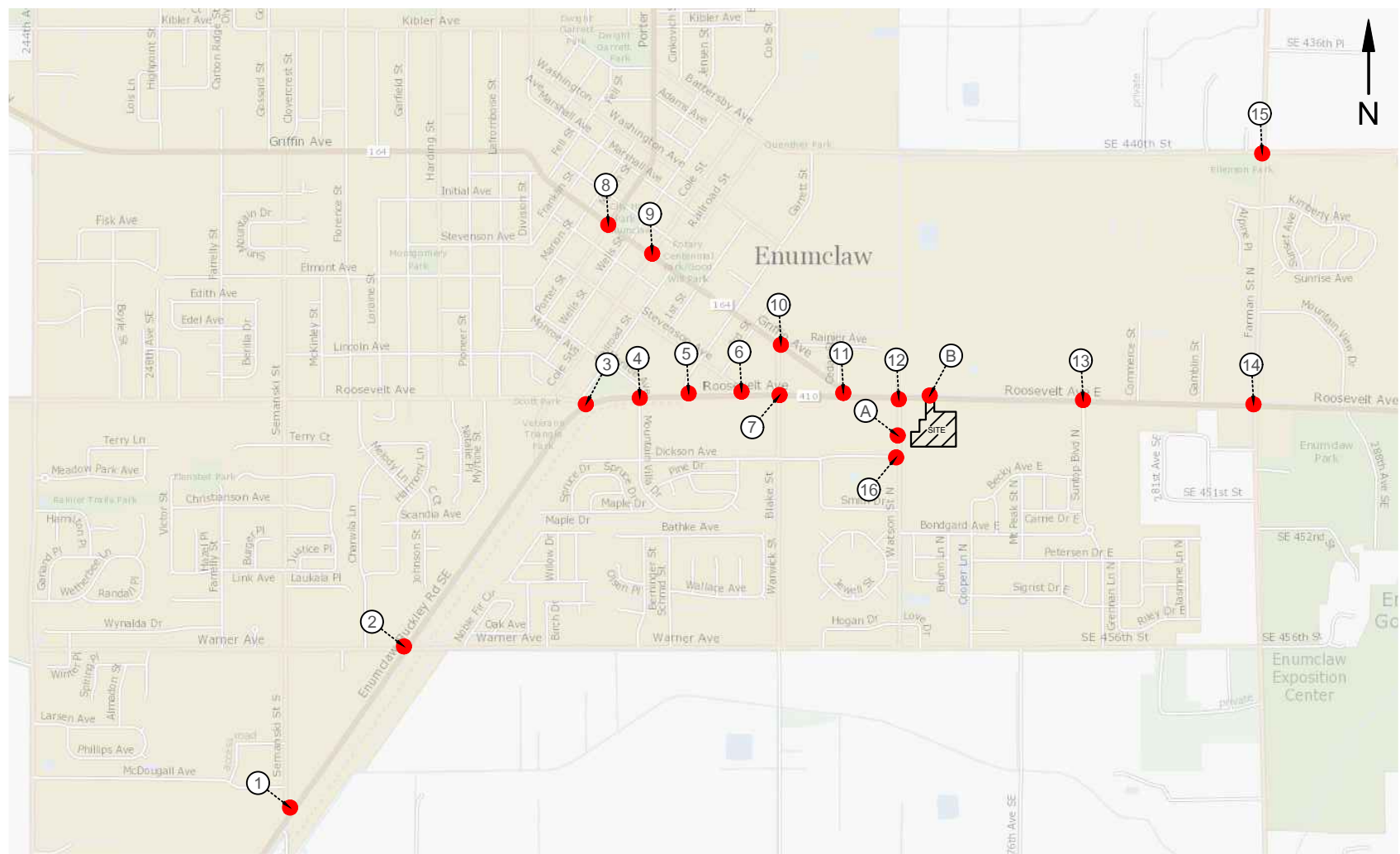
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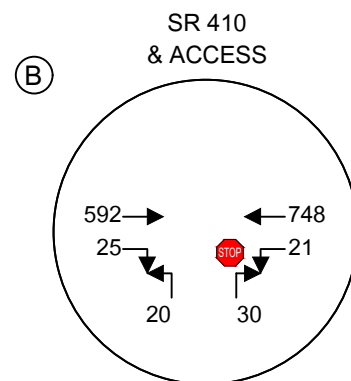
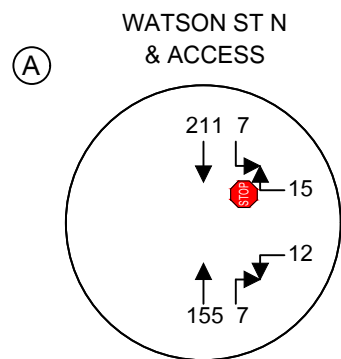
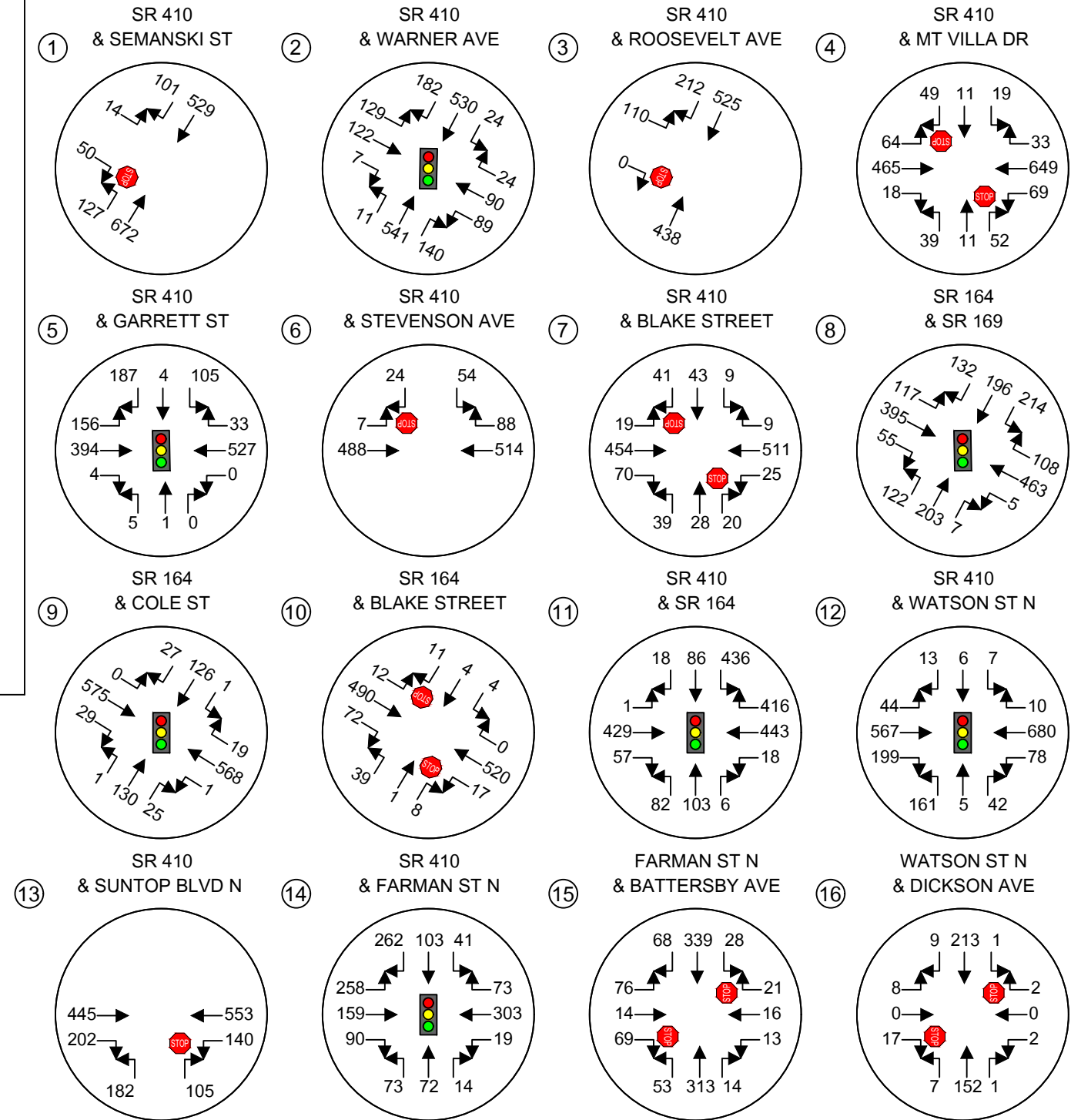


OUTLYING STUDY INTERSECTIONS





OUTLYING STUDY INTERSECTIONS



4.4 Future Level of Service

Level of service analyses were made of the future peak hour volumes without (background) and with project related trips added to the key roadways and intersections. This analysis once again involved the use of the *Synchro 12* analysis program. Delays for each study/access intersection under future 2031 conditions are shown on the following page in **Table 7**.

The intersection of SR 410 & Suntop Boulevard N is scheduled for the construction of a roundabout by way of the Gateway project. As such, the intersection includes a scenario with the aforementioned roundabout in place.



Table 7: Forecast 2031 Peak Hour Level of Service

Delays given in Seconds Per Vehicle

Ref #	Intersection	Peak-Hour	<u>Without Project</u>		<u>With Project</u>	
			LOS	Delay	LOS	Delay
1.	SR 410 & Semanski	AM	F	99.3	F	103.3
		PM	C	20.1	C	20.3
2.	SR 410 & Warner	AM	D	47.9	D	48.6
		PM	C	22.8	C	23.1
3.	SR 410 & Roosevelt	AM	C	16.1	C	16.3
		PM	C	20.1	C	20.4
4.	SR 410 & Mt. Villa	AM	C	24.9	D	25.2
		PM	E	40.3	E	41.2
5.	SR 410 & Garrett	AM	B	11.0	B	11.0
		PM	B	11.9	B	12.0
6.	SR 410 & Stevenson	AM	B	11.7	B	11.7
		PM	B	14.4	B	14.5
7.	SR 410 & Blake	AM	C	25.0	D	25.4
		PM	E	36.7	E	37.5
8.	SR 164 & SR 169	AM	C	21.9	C	22.2
		PM	C	34.6	D	35.5
9.	SR 164 & Cole	AM	A	8.3	A	8.3
		PM	B	12.4	B	12.5
10.	SR 164 & Blake	AM	C	23.9	C	24.5
		PM	E	46.0	E	48.1
11.	SR 410 & SR 164	AM	C	20.1	C	20.4
		PM	D	44.2	D	46.3
12.	SR 410 & Watson	AM	B	18.6	B	18.6
		PM	C	25.1	C	25.6
13.	SR 410 & Suntop	AM	F	84.8	F	92.5
		PM	F	78.8	F	86.6
	With Roundabout ⁷	AM	--	--	A	6.4
		PM	--	--	A	6.3
14.	SR 410 & Farman	AM	B	16.5	B	16.6
		PM	B	18.9	B	19.2
15.	Farman & Battersby	AM	C	16.7	C	16.9
		PM	E	36.5	E	37.7
16.	Watson & Dickson	AM	B	10.2	B	10.2
		PM	B	10.7	B	10.9
17.	Watson & Project Access	AM	B	11.0	B	10.4
		PM	A	9.8	B	10.4
18.	SR 410 & Project Access	AM	C	15.3	C	17.3
		PM	C	18.2	C	16.8

⁷ Level of Service outputs taken for the SR 410 & Suntop Boulevard ICE - 11-03-2023 (Heath & Associates).



The 2031 peak hour forecast analysis indicates that 14 of the 18 study intersections are projected to meet WSDOT and City Level of Service (LOS) standards. SR 410 & Suntop Boulevard is not included in this list as it is assumed to have a roundabout in the forecast horizon. Additional details regarding intersections that do not meet LOS standards are provided below.

Note, at each access point, minor reductions in delay are reported with the addition of project traffic. This result is due to the low traffic volumes currently recorded on the minor approaches. The introduction of project-generated trips, particularly right-turn movements, increases the overall flow through the intersections without significantly impacting capacity. These additional right turns—which typically experience shorter delays at stop-controlled intersections—lower the average delay for the minor legs, resulting in a slight improvement in overall LOS.

SR 410 & Semanski Street: is projected to operate at Level of Service (LOS) F during the AM peak hour and LOS C during the PM peak hour in the forecast analysis year. The LOS F performance in the morning is primarily due to school-related traffic. The presence of the middle and high schools causes high concentrated arrivals and departures in the morning. This combined with an assumed three percent compound annual growth rate along SR 410 reduces the gap availability for drivers intending to enter the highway. However, this condition is unrelated to the project which is estimated to have a minor impact to operations and accounts for **0.6%** of the forecast traffic at this intersection. No project specific mitigation is identified.

SR 410 & Mountain Villa Drive: is projected to operate at LOS E during the PM peak hour, both with and without the project. The side streets—Mountain Villa Drive and Monroe Avenue—carry relatively low traffic volumes during this time. With a 95th percentile queue of just two vehicles and volume-to-capacity (v/c) ratios of 0.42 or lower, delays, while notable, would affect only a small number of vehicles. As such, significant queuing or operational concerns are not anticipated. Moreover, since this intersection is within city limits, the LOS E standard may apply in which the LOS would be acceptable.

SR 410 & Blake Street: is projected to operate at LOS E during the PM peak hour, both with and without the project for the northbound approach. The 95th percentile queue is up to three vehicles with a v/c ratio of 0.46. As with Mountain Villa Drive, the LOS E standard may apply at this stop-controlled intersection.

SR 164 & Blake Street: is projected to operate at LOS E during the PM peak hour, both with and without the project for the northbound approach. The 95th percentile queue is up to two vehicles with a v/c ratio of 0.40. As with the other stop-controlled intersections above, the LOS E standard may apply.



4.5 Left Turn Guidelines

Left turn lanes are a means of providing necessary storage space for left turning vehicles at intersections. Left turn needs were evaluated using WSDOT's Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized.⁸ SR 410 already comprises a center two-way left-turn lane and was thus not considered. For the access intersection on Watson Street N, based on forecast 2031 AM and PM peak hour volumes with project traffic, a left turn lane *is not warranted*. Refer to the appendix for the left turn warrant nomographs.

4.6 Project Access

SR 410 Access Sight Distance:

WSDOT Driveway Sight Distance Standards⁹ (Under 1,500 daily trips) indicate that sight lines should measure 305 feet based on the 40-mph posted speed limit across the project frontage. Based on preliminary examinations of the proposed access points, sight lines are shown to exceed 350 feet in either direction. Refer to **Figure 17** for the sight distance exhibit.

SR 410 Access Spacing:

Based on the WSDOT Design Manual and the Managed Access Class 4 designation of SR 410, intersections should be spaced a minimum of 250 feet. The subject property currently has two driveways—the westernmost of which will be removed. The remaining access is placed on the east end of the parcel and is approximately 390-feet away from the signalized intersection of Watson Street. The next nearest intersection is the driveway serving McDonald's which is ~125-feet to the west. Both that driveway and the one serving the subject property are existing without a feasible way in providing additional separation. Immediately east of the site, there is no formal driveway approach serving the commercial properties.

Watson Street N Access Sight Distance:

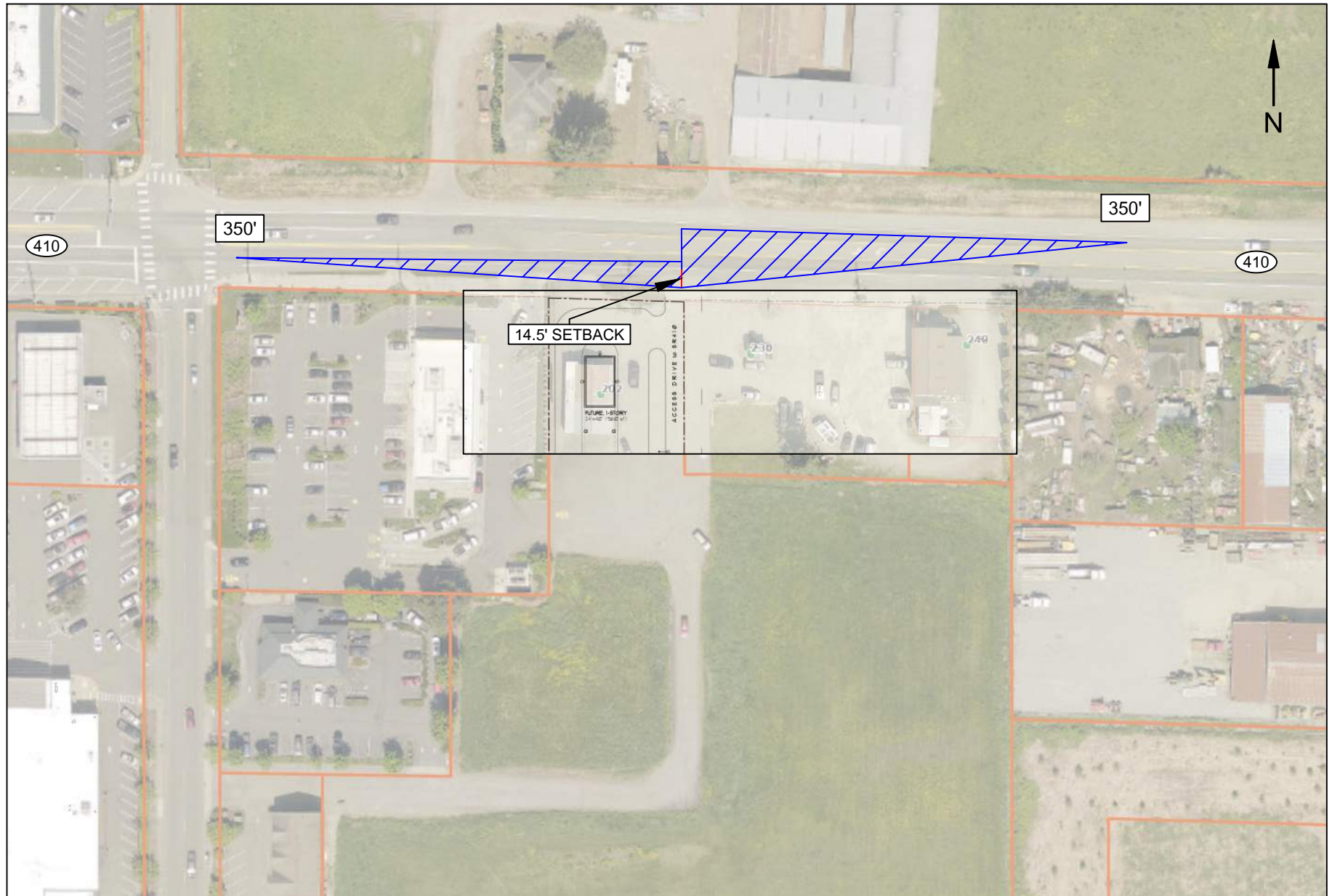
Based on AASHTO standards¹⁰ and the 25-mph speed limit along Watson Street N, sight lines 280-foot sight lines are recommended. Preliminary measurements indicate sight lines are met at this existing driveway. Watson Street is straight and flat in grade resulting in clear sight lines. Note that some vegetations and street trees appear to be partially within the sight distance triangle. However, there is no pattern or incident history at this location. Refer to **Figure 18** for the sight distance triangles.

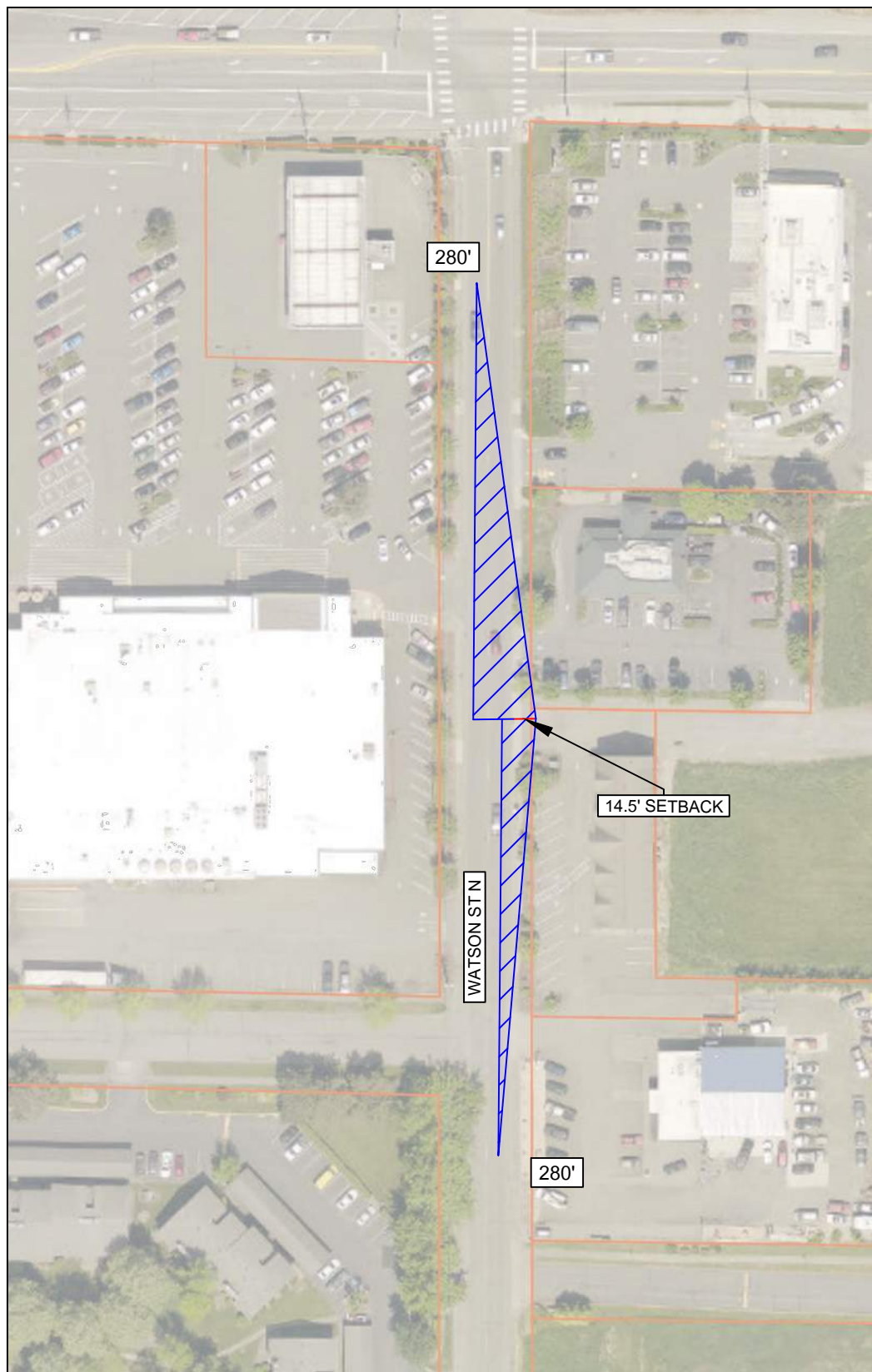
⁸ WSDOT Design Manual M 22.01.23 – Chapter 1310.

⁹ WSDOT Design Manual M 22.01.23 – Chapter 1340.03(3) Sight Distance.

¹⁰ AASHTO. "A Policy on Geometric Design of Highway and Streets" 7th Edition. (2018).







5. CONCLUSIONS & MITIGATION

Project Overview

The proposed development at 202 Roosevelt is a mixed-use commercial project consisting of four buildings totaling approximately 21,000 square feet. Site access will be provided via an existing driveway on SR 410 and a shared access on Watson Street. Upon full buildout, the project is projected to generate 1,070 average weekday daily trips, including 142 AM peak hour and 120 PM peak hour trips. Due to the commercial nature of the uses, a notable portion of these trips are considered pass-by rather than new trips to the City's roadway network (see Table 6 for trip generation details).

Traffic Analysis Summary

As required by the City of Enumclaw, intersections projected to receive 10 or more project-generated trips were evaluated. A total of 18 intersections—all arterial-to-arterial or arterial-to-collector—were included in the study. LOS standards range from LOS D for WSDOT and City signalized intersections to LOS E for unsignalized City-controlled intersections.

Existing conditions indicate all study intersections operate at LOS C or better, with the exception of SR 410 & Semanski Street, which operates at LOS D in the AM peak hour due to school-related traffic. Over the past five years, 203 incidents were reported across the study area (see Section 3.7 for collision summary).

The analysis assessed 2031 buildout conditions, accounting for general background growth and 17 pipeline developments. Four intersections are projected to operate at LOS E during peak hours:

- SR 410 & Semanski Street
- SR 410 & Mountain Villa Drive
- SR 410 & Blake Street
- SR 164 & Blake Street

However, all four intersections exhibit limited queuing and acceptable volume-to-capacity (v/c) ratios for side-street movements. As unsignalized intersections, LOS E is within the City's adopted thresholds and considered acceptable.

Access points to the site are expected to operate at LOS B and LOS C with adequate sight distance in both directions. Overall, the project is not anticipated to result in significant adverse impacts to the surrounding transportation network.



Transportation Impact Fees (TIF)

Per Enumclaw Municipal Code Chapter 19.24, the project will be subject to Transportation Impact Fees based on gross floor area:

- Industrial: $8,000 \text{ sf} \times \$4.58/\text{sf} = \$36,640.00$
- Commercial: $12,960 \text{ sf} \times \$7.03/\text{sf} = \$91,108.80$

Total Estimated TIF: \$127,748.80

Final fees are subject to City assessment with rates in effect at such time.

Please feel free to contact me should you have any questions.

Aaron Van Aken, P.E., PTOE

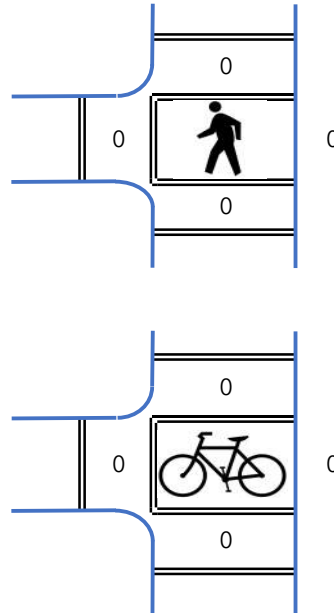
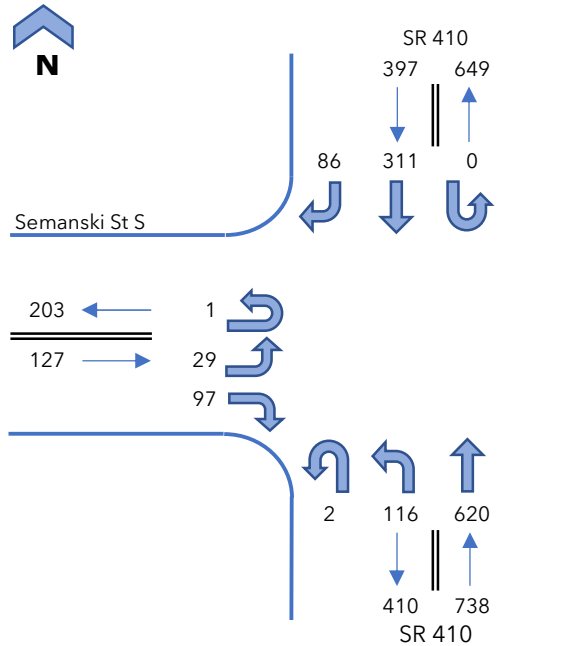


202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX *AM Peak Hour Counts*



Semanski Street S & SR 410



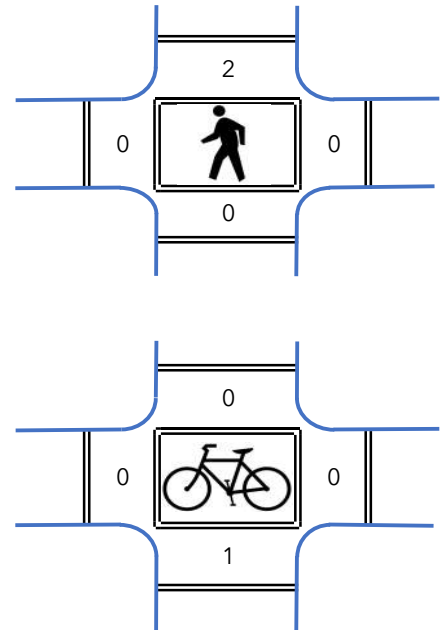
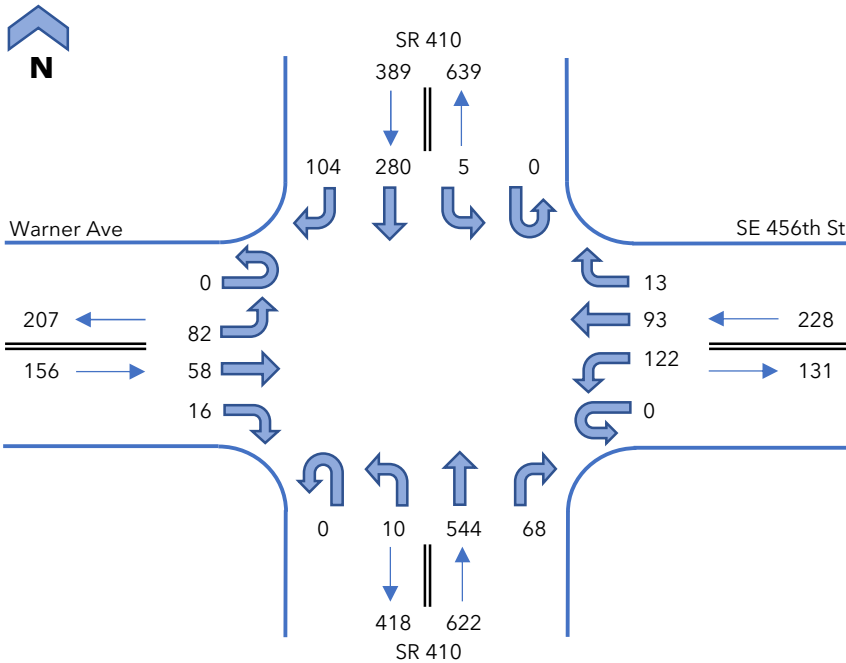
Interval Start Time	Semanski St S								SR 410				SR 410				15 Minute Totals	Hourly Totals
	Eastbound								Northbound				Southbound					
	UT	LT	T	RT					UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	0	--	12	--	--	--	--	0	14	118	--	0	--	62	7	213	
7:15 AM	0	1	--	6	--	--	--	--	0	22	129	--	0	--	90	13	261	
7:30 AM	0	7	--	22	--	--	--	--	0	32	159	--	0	--	77	40	337	
7:45 AM	1	20	--	42	--	--	--	--	0	46	165	--	0	--	83	38	395	1206
8:00 AM	0	2	--	16	--	--	--	--	1	23	150	--	0	--	69	4	265	1258
8:15 AM	0	0	--	17	--	--	--	--	1	15	146	--	0	--	82	4	265	1262
8:30 AM	0	0	--	12	--	--	--	--	0	19	169	--	0	--	106	28	334	1259
8:45 AM	0	0	--	28	--	--	--	--	1	21	149	--	0	--	90	57	346	1210
Count Total	1	30	--	155	--	--	--	--	3	192	1185	--	0	--	659	191	2416	--
Peak Hour Total	1	29	--	97	--	--	--	--	2	116	620	--	0	--	311	86	1262	--
PHF	0.50				--				0.87				0.82				0.80	--
Heavy Vehicles	0	1	--	3	--	--	--	--	2	2	13	--	0	--	11	7	39	--
HV %	0.0%	3.4%	--	3.1%	--	--	--	--	100.0%	1.7%	2.1%	--	0.0%	--	3.5%	8.1%	3.1%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	1	--	6	4	11
7:15 AM	1	--	4	5	10
7:30 AM	0	--	2	8	10
7:45 AM	0	--	3	4	7
8:00 AM	3	--	7	4	14
8:15 AM	1	--	5	2	8
8:30 AM	1	--	5	7	13
8:45 AM	1	--	6	9	16
Count Total	8	--	38	43	89
Peak Hour Total	4	--	17	18	39
Peak Hour HV%	3.1%	--	2.3%	4.5%	3.1%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Warner Avenue & SR 410



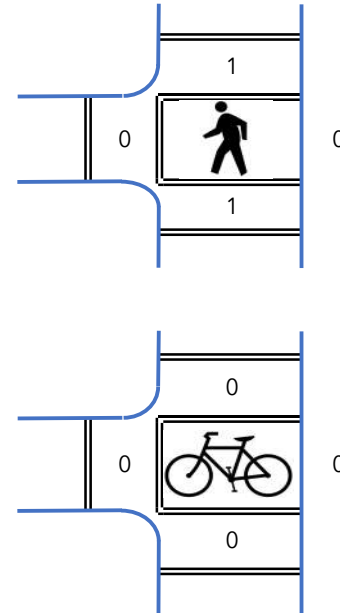
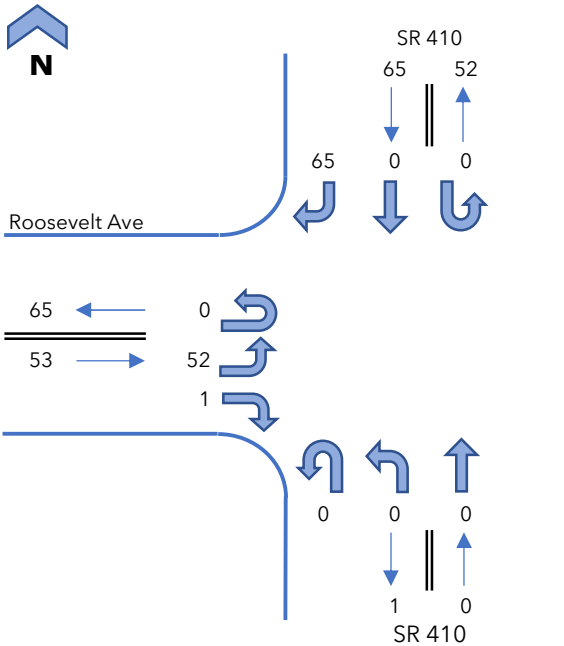
Interval Start Time	Warner Ave				SE 456th St				SR 410				SR 410				15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	15	6	4	0	14	16	9	0	5	113	3	0	0	57	4	246	1310 1395 1384 1366 1358
7:15 AM	0	7	7	1	0	27	10	2	0	3	112	14	0	2	71	15	271	
7:30 AM	0	14	8	2	0	45	30	4	0	3	133	19	0	2	80	35	375	
7:45 AM	0	36	23	9	0	35	39	6	0	3	140	15	0	1	68	43	418	
8:00 AM	0	25	20	4	0	15	14	1	0	1	159	20	0	0	61	11	331	
8:15 AM	0	11	5	5	0	27	7	3	0	3	133	10	0	1	51	4	260	
8:30 AM	0	16	8	6	0	36	16	7	0	1	149	14	0	3	90	11	357	
8:45 AM	0	32	38	3	0	65	13	7	0	1	137	19	0	2	79	14	410	
Count Total	0	156	115	34	0	264	145	39	0	20	1076	114	0	11	557	137	2668	--
Peak Hour Total	0	82	58	16	0	122	93	13	0	10	544	68	0	5	280	104	1395	--
PHF	0.57				0.71				0.86				0.83				0.83	--
Heavy Vehicles	0	3	2	1	0	3	1	0	0	0	13	1	0	0	16	3	43	--
HV %	0.0%	3.7%	3.4%	6.3%	0.0%	2.5%	1.1%	0.0%	0.0%	0.0%	2.4%	1.5%	0.0%	0.0%	5.7%	2.9%	3.1%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	4	0	6	4	14
7:15 AM	1	0	4	4	9
7:30 AM	1	4	1	8	14
7:45 AM	2	0	2	2	6
8:00 AM	2	0	7	5	14
8:15 AM	0	0	4	3	7
8:30 AM	0	4	4	5	13
8:45 AM	1	2	4	7	14
Count Total	11	10	32	38	91
Peak Hour Total	6	4	14	19	43
Peak Hour HV%	3.8%	1.8%	2.3%	4.9%	3.1%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	1	0	1
0	0	1	0	1
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
1	0	2	2	5
0	0	2	1	3
1	0	7	3	11
0	0	2	0	2

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	1	1
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	2	2
0	0	0	1	1

Roosevelt Avenue & SR 410™



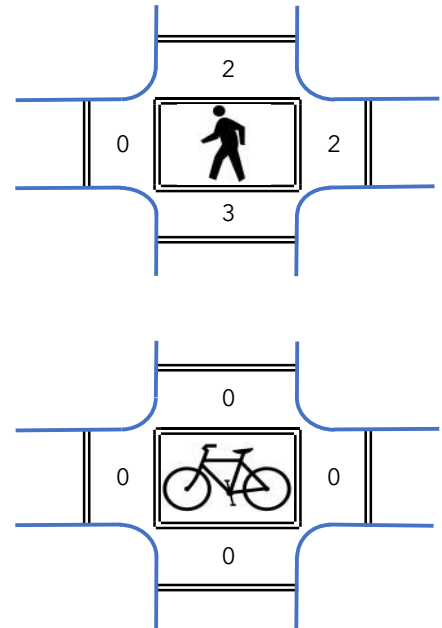
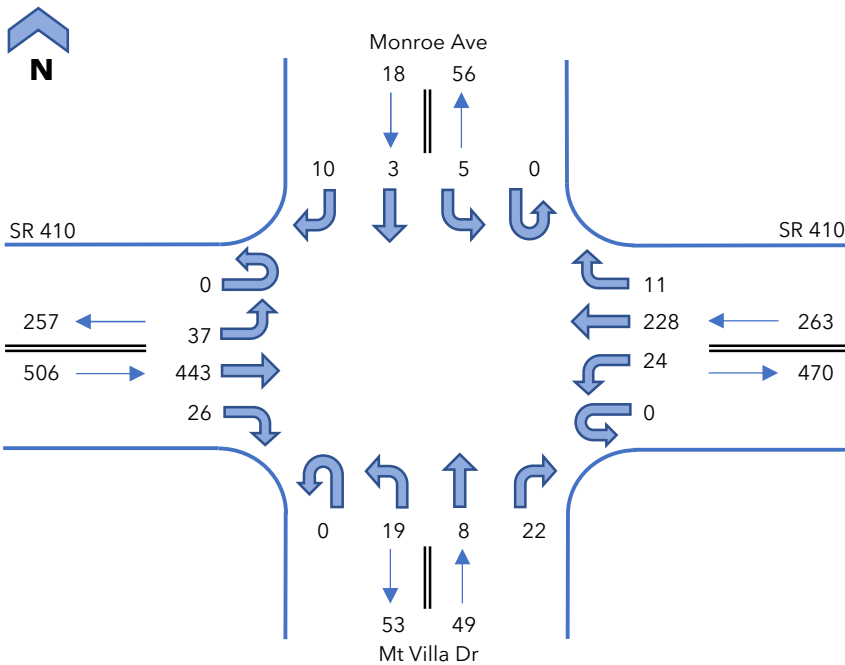
Interval Start Time	Roosevelt Ave								SR 410				SR 410				15 Minute Totals	Hourly Totals
	Eastbound								Northbound				Southbound					
	UT	LT	T	RT					UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	10	--	0	--	--	--	--	0	0	0	--	0	--	0	6	16	74
7:15 AM	0	10	--	0	--	--	--	--	0	0	0	--	0	--	0	7	17	
7:30 AM	0	9	--	0	--	--	--	--	0	0	0	--	0	--	0	12	21	
7:45 AM	0	13	--	0	--	--	--	--	0	0	0	--	0	--	0	7	20	
8:00 AM	0	6	--	0	--	--	--	--	0	0	0	--	0	--	0	15	21	
8:15 AM	0	10	--	0	--	--	--	--	0	0	0	--	0	--	0	14	24	
8:30 AM	0	13	--	1	--	--	--	--	0	0	0	--	0	--	0	12	26	
8:45 AM	0	23	--	0	--	--	--	--	0	0	0	--	0	--	0	24	47	
Count Total	0	94	--	1	--	--	--	--	0	0	0	--	0	--	0	97	192	--
Peak Hour Total	0	52	--	1	--	--	--	--	0	0	0	--	0	--	0	65	118	--
PHF	0.58				--				#DIV/0!				0.68				0.63	--
Heavy Vehicles	0	3	--	0	--	--	--	--	0	0	0	--	0	--	0	3	6	--
HV %	0.0%	5.8%	--	0.0%	--	--	--	--	0.0%	0.0%	0.0%	--	0.0%	--	0.0%	4.6%	5.1%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	0	--	0	0	0
7:15 AM	0	--	0	0	0
7:30 AM	0	--	0	1	1
7:45 AM	2	--	0	0	2
8:00 AM	0	--	0	1	1
8:15 AM	0	--	0	2	2
8:30 AM	1	--	0	0	1
8:45 AM	2	--	0	0	2
Count Total	5	--	0	4	9
Peak Hour Total	3	--	0	3	6
Peak Hour HV%	5.7%	--	0.0%	4.6%	5.1%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	0	0	0
0	0	1	1	2
0	0	1	1	2

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 410 & Mountain Villa Drive



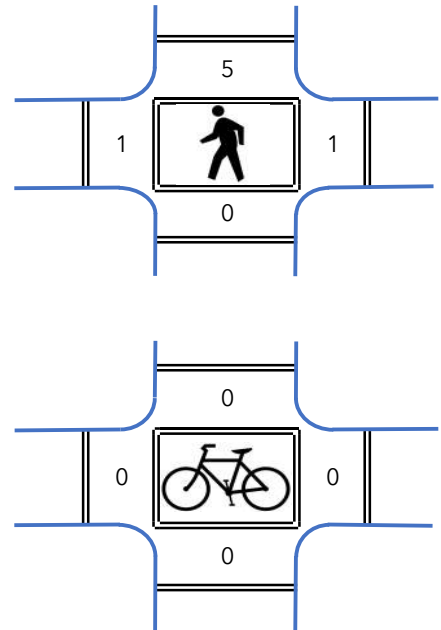
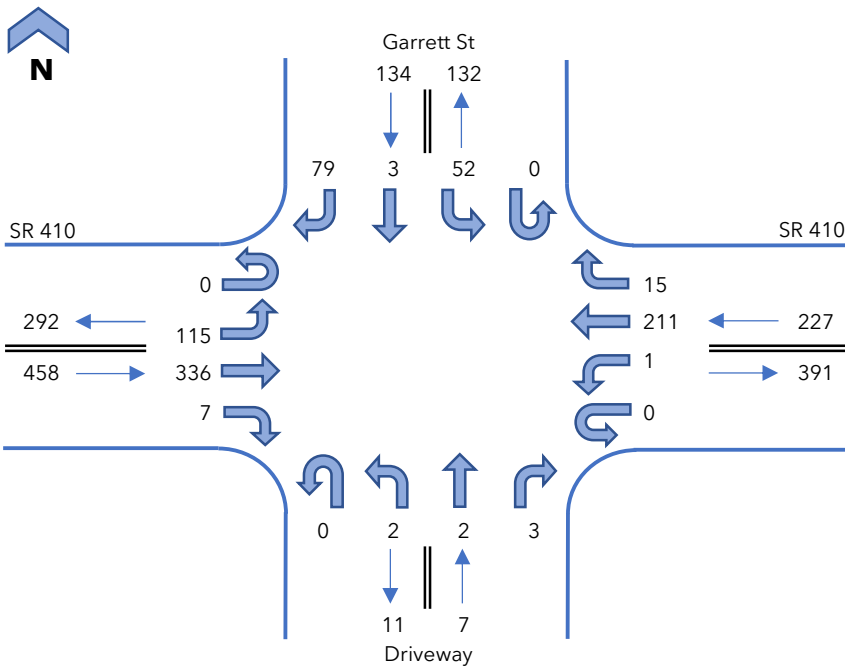
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Mt Villa Dr Northbound				Monroe Ave Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	7	91	7	0	1	45	1	0	2	0	4	0	0	0	1	159	734
7:15 AM	0	9	79	3	0	7	53	1	0	3	1	3	0	1	0	1	161	
7:30 AM	0	10	99	1	0	2	81	2	0	1	2	4	0	0	0	4	206	
7:45 AM	0	10	114	4	0	4	57	3	0	7	1	3	0	0	2	3	208	
8:00 AM	0	10	121	3	0	5	56	2	0	2	3	5	0	0	1	2	210	
8:15 AM	0	11	90	3	0	8	41	3	0	5	2	4	0	2	1	2	172	
8:30 AM	0	8	113	7	0	6	56	5	0	6	2	7	0	2	1	4	217	
8:45 AM	0	8	119	13	0	5	75	1	0	6	1	6	0	1	0	2	237	
Count Total	0	73	826	41	0	38	464	18	0	32	12	36	0	6	5	19	1570	--
Peak Hour Total	0	37	443	26	0	24	228	11	0	19	8	22	0	5	3	10	836	--
PHF	0.90				0.81				0.82				0.64				0.88	--
Heavy Vehicles	0	1	22	0	0	1	22	1	0	2	1	1	0	0	0	0	51	--
HV %	0.0%	2.7%	5.0%	0.0%	0.0%	4.2%	9.6%	9.1%	0.0%	10.5%	12.5%	4.5%	0.0%	0.0%	0.0%	0.0%	6.1%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	11	9	0	0	20
7:15 AM	7	8	1	0	16
7:30 AM	6	10	0	1	17
7:45 AM	13	3	0	0	16
8:00 AM	8	5	0	0	13
8:15 AM	6	7	4	0	17
8:30 AM	6	3	0	0	9
8:45 AM	3	9	0	0	12
Count Total	60	54	5	1	120
Peak Hour Total	23	24	4	0	51
Peak Hour HV%	4.5%	9.1%	8.2%	0.0%	6.1%

Pedestrians (Leg)				
E	W	N	S	Total
0	1	0	0	1
0	0	0	0	0
1	2	0	0	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	2	0	2
2	0	0	3	5
3	3	2	3	11
2	0	2	3	7

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0

SR 410 & Garrett Street



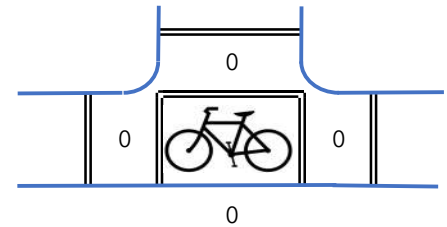
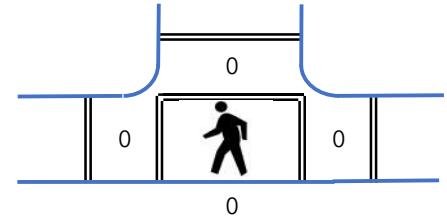
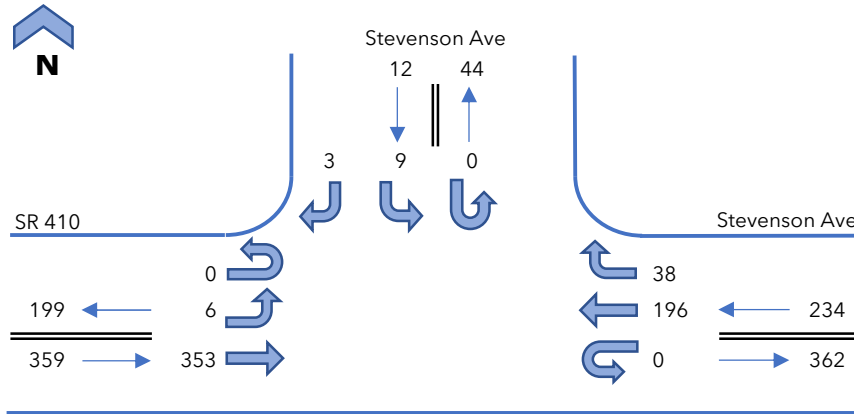
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Driveway Northbound				Garrett St Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	29	56	0	0	0	47	0	0	0	0	0	0	5	0	11	148	741
7:15 AM	0	23	69	1	0	0	47	1	0	0	0	0	0	7	1	12	161	
7:30 AM	0	30	71	1	0	0	59	4	0	0	1	0	0	5	1	24	196	
7:45 AM	0	37	86	1	0	0	71	3	0	0	0	1	0	10	1	26	236	
8:00 AM	0	28	93	4	0	1	45	5	0	0	1	2	0	11	0	18	208	
8:15 AM	0	25	79	1	0	0	38	4	0	0	0	1	0	16	1	14	179	
8:30 AM	0	23	71	2	0	0	53	4	0	2	1	0	0	12	0	17	185	
8:45 AM	0	39	93	0	0	0	75	2	0	0	0	0	0	13	2	30	254	
Count Total	0	234	618	10	0	1	435	23	0	2	3	4	0	79	6	152	1567	--
Peak Hour Total	0	115	336	7	0	1	211	15	0	2	2	3	0	52	3	79	826	--
PHF	0.87				0.74				0.58				0.74				0.81	--
Heavy Vehicles	0	5	32	0	0	0	19	1	0	0	0	0	0	2	0	12	71	--
HV %	0.0%	4.3%	9.5%	0.0%	0.0%	0.0%	9.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	0.0%	15.2%	8.6%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	11	4	0	1	16
7:15 AM	10	6	0	0	16
7:30 AM	3	7	0	1	11
7:45 AM	3	4	0	3	10
8:00 AM	12	4	0	1	17
8:15 AM	11	5	0	1	17
8:30 AM	10	2	0	6	18
8:45 AM	4	9	0	6	19
Count Total	64	41	0	19	124
Peak Hour Total	37	20	0	14	71
Peak Hour HV%	8.1%	8.8%	0.0%	10.4%	8.6%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	2	0	1	3
0	1	0	1	2
0	0	0	0	0
1	0	1	0	2
0	1	2	0	3
0	0	2	0	2
1	4	5	2	12
1	1	5	0	7

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
1	0	0	1	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	1	2
0	0	0	0	0

SR 410 & Stevenson Avenue



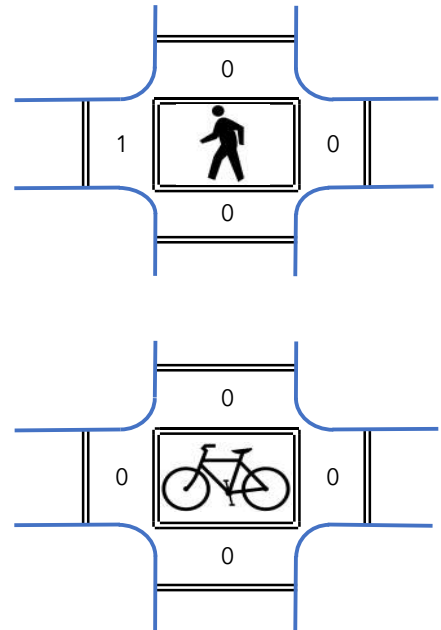
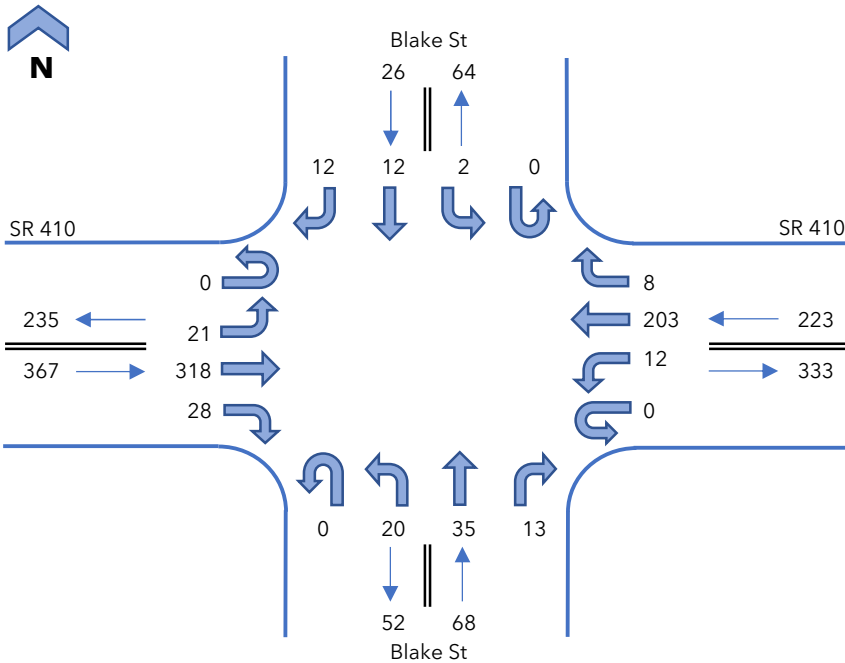
Interval Start Time	SR 410				Stevenson Ave								Stevenson Ave				15 Minute Totals	Hourly Totals
	Eastbound				Westbound								Southbound					
	UT	LT	T	RT	UT	LT	T	RT					UT	LT	T	RT		
7:00 AM	0	1	68	--	0	--	36	6	--	--	--	--	0	2	--	1	114	
7:15 AM	0	1	64	--	0	--	43	10	--	--	--	--	0	1	--	2	121	
7:30 AM	0	1	79	--	0	--	67	12	--	--	--	--	0	4	--	0	163	
7:45 AM	0	1	84	--	0	--	48	11	--	--	--	--	0	2	--	3	149	547
8:00 AM	0	3	103	--	0	--	49	7	--	--	--	--	0	1	--	0	163	596
8:15 AM	0	1	87	--	0	--	32	8	--	--	--	--	0	2	--	0	130	605
8:30 AM	0	2	89	--	0	--	42	8	--	--	--	--	0	3	--	1	145	587
8:45 AM	0	2	94	--	0	--	52	11	--	--	--	--	0	4	--	0	163	601
Count Total	0	12	668	--	0	--	369	73	--	--	--	--	0	19	--	7	1148	--
Peak Hour Total	0	6	353	--	0	--	196	38	--	--	--	--	0	9	--	3	605	--
PHF	0.85				0.74				--				0.60				0.93	--
Heavy Vehicles	0	0	28	--	0	--	19	2	--	--	--	--	0	0	--	0	49	--
HV %	0.0%	0.0%	7.9%	--	0.0%	--	9.7%	5.3%	--	--	--	--	0.0%	0.0%	--	0.0%	8.1%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	7	6	--	1	14
7:15 AM	5	6	--	0	11
7:30 AM	3	8	--	0	11
7:45 AM	7	1	--	0	8
8:00 AM	10	6	--	0	16
8:15 AM	8	6	--	0	14
8:30 AM	8	2	--	1	11
8:45 AM	1	4	--	0	5
Count Total	49	39	--	2	90
Peak Hour Total	28	21	--	0	49
Peak Hour HV%	7.8%	9.0%	--	0.0%	8.1%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 410 & Blake Street



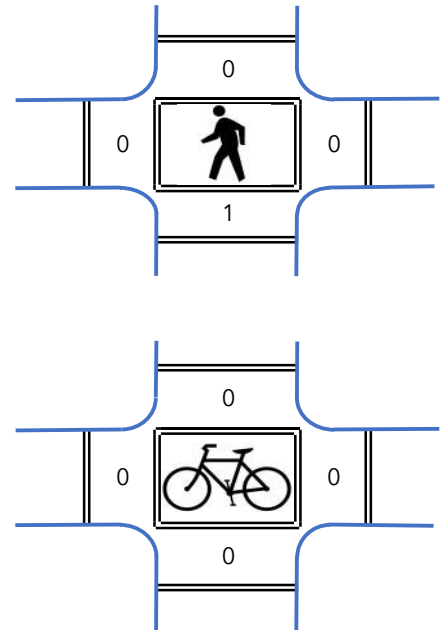
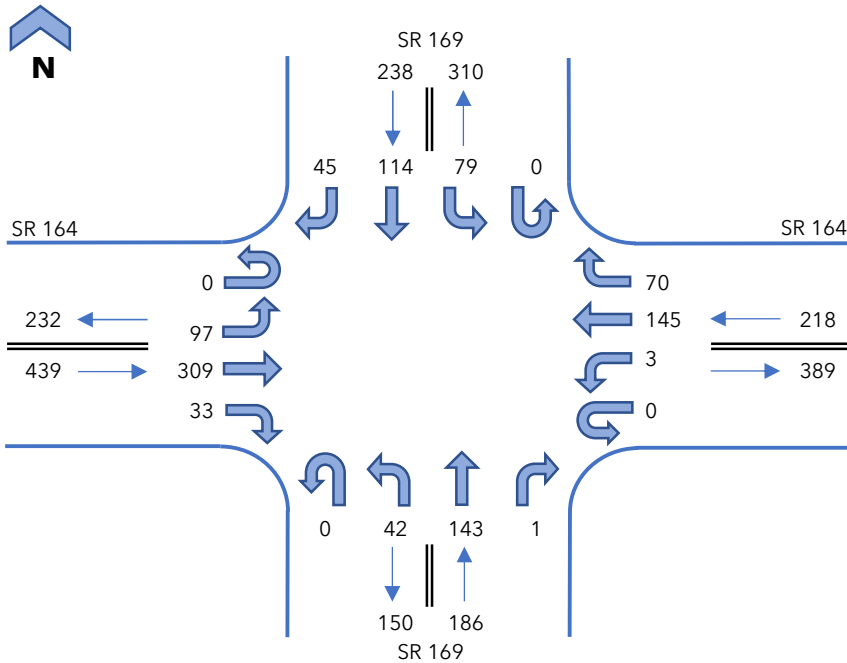
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Blake St Northbound				Blake St Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	4	63	5	0	0	36	0	0	5	8	1	0	1	4	3	130	
7:15 AM	0	5	61	2	0	0	43	3	0	2	2	1	0	1	2	6	128	
7:30 AM	0	2	74	7	0	3	75	2	0	5	5	4	0	1	2	4	184	
7:45 AM	0	8	71	9	0	3	49	3	0	6	15	3	0	0	1	2	170	612
8:00 AM	0	3	93	4	0	1	47	0	0	4	6	3	0	1	7	4	173	655
8:15 AM	0	8	80	8	0	5	32	3	0	5	9	3	0	0	2	2	157	684
8:30 AM	0	5	80	5	0	2	49	3	0	2	6	2	0	3	2	1	160	660
8:45 AM	0	5	83	7	0	1	56	1	0	6	14	5	0	3	4	4	189	679
Count Total	0	40	605	47	0	15	387	15	0	35	65	22	0	10	24	26	1291	--
Peak Hour Total	0	21	318	28	0	12	203	8	0	20	35	13	0	2	12	12	684	--
PHF	0.92				0.70				0.71				0.54				0.93	--
Heavy Vehicles	0	5	21	3	0	2	14	5	0	2	5	2	0	0	0	5	64	--
HV %	0.0%	23.8%	6.6%	10.7%	0.0%	16.7%	6.9%	62.5%	0.0%	10.0%	14.3%	15.4%	0.0%	0.0%	0.0%	41.7%	9.4%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	8	4	2	1	15
7:15 AM	5	5	1	2	13
7:30 AM	5	9	1	1	16
7:45 AM	8	3	3	0	14
8:00 AM	10	3	3	3	19
8:15 AM	6	6	2	1	15
8:30 AM	8	3	0	0	11
8:45 AM	2	3	1	1	7
Count Total	52	36	13	9	110
Peak Hour Total	29	21	9	5	64
Peak Hour HV%	7.9%	9.4%	13.2%	19.2%	9.4%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
1	0	0	0	1
0	0	0	0	0
1	1	0	0	2
0	1	0	0	1

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 164 & SR 169



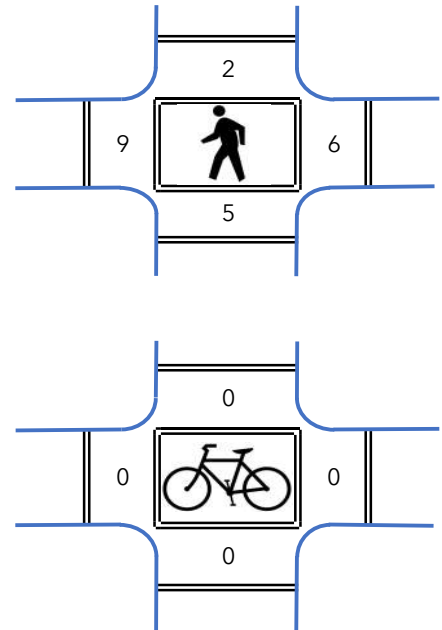
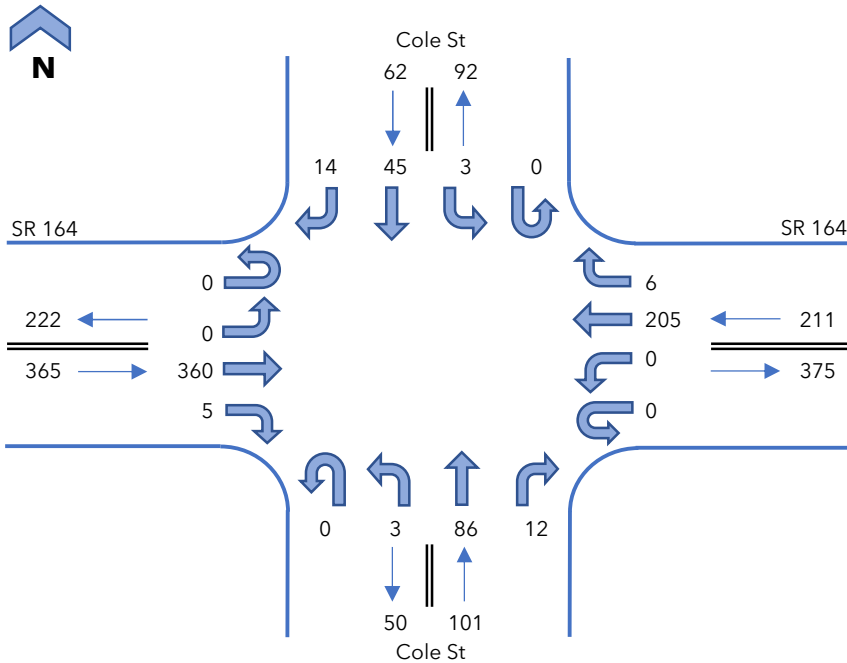
Interval Start Time	SR 164 Eastbound				SR 164 Westbound				SR 169 Northbound				SR 169 Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	16	39	2	0	1	36	17	0	8	35	0	0	7	22	8	191	
7:15 AM	0	18	59	14	0	0	44	6	0	8	29	0	0	16	22	13	229	
7:30 AM	0	16	62	6	0	1	36	10	0	7	26	0	0	15	35	16	230	
7:45 AM	0	23	68	4	0	1	42	21	0	9	41	0	0	23	33	16	281	931
8:00 AM	0	21	78	4	0	0	39	21	0	7	36	1	0	20	25	9	261	1001
8:15 AM	0	19	53	9	0	0	36	17	0	16	39	0	0	16	26	11	242	1014
8:30 AM	0	15	78	11	0	1	41	20	0	8	32	0	0	23	22	16	267	1051
8:45 AM	0	42	100	9	0	2	29	12	0	11	36	0	0	20	41	9	311	1081
Count Total	0	170	537	59	0	6	303	124	0	74	274	1	0	140	226	98	2012	--
Peak Hour Total	0	97	309	33	0	3	145	70	0	42	143	1	0	79	114	45	1081	--
PHF	0.73				0.88				0.85				0.85				0.87	--
Heavy Vehicles	0	4	13	0	0	0	2	2	0	1	10	0	0	1	0	1	34	--
HV %	0.0%	4.1%	4.2%	0.0%	0.0%	0.0%	1.4%	2.9%	0.0%	2.4%	7.0%	0.0%	0.0%	1.3%	0.0%	2.2%	3.1%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	5	5	0	0	10
7:15 AM	3	4	2	1	10
7:30 AM	7	0	0	2	9
7:45 AM	3	5	1	0	9
8:00 AM	1	2	2	0	5
8:15 AM	4	1	4	1	10
8:30 AM	2	1	2	1	6
8:45 AM	10	0	3	0	13
Count Total	35	18	14	5	72
Peak Hour Total	17	4	11	2	34
Peak Hour HV%	3.9%	1.8%	5.9%	0.8%	3.1%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	1	1

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 164 & Cole Street



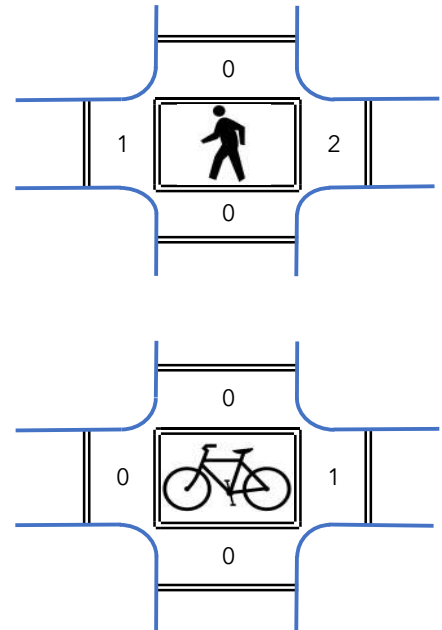
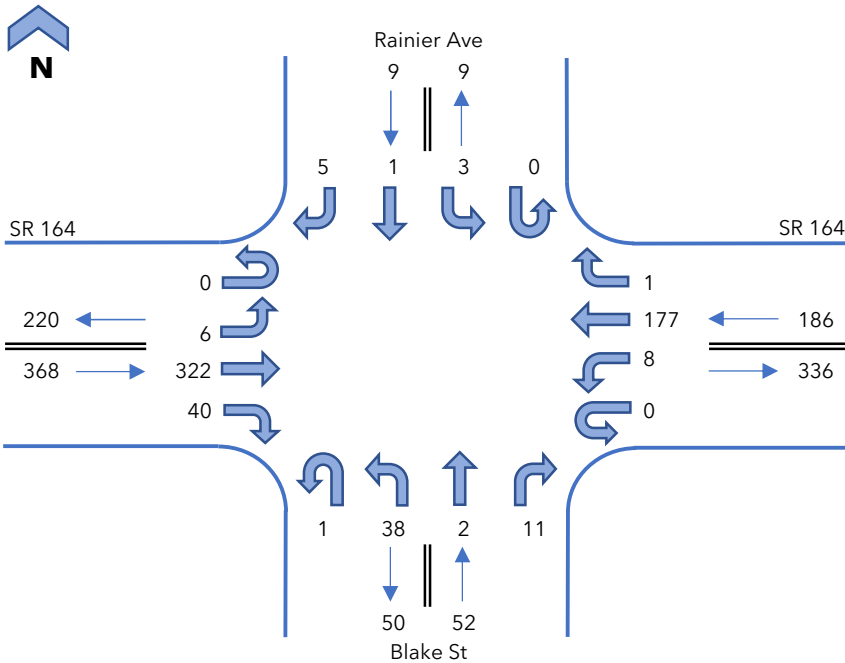
Interval Start Time	SR 164 Eastbound				SR 164 Westbound				Cole St Northbound				Cole St Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	1	43	4	0	0	50	2	0	0	14	2	0	1	7	1	125	630
7:15 AM	0	1	69	3	0	0	46	1	0	0	12	2	0	1	13	2	150	
7:30 AM	0	0	82	3	0	0	48	2	0	0	12	3	0	0	16	3	169	
7:45 AM	0	0	83	4	0	0	58	2	0	0	18	2	0	0	12	7	186	
8:00 AM	0	0	89	1	0	0	54	2	0	1	26	5	0	1	11	6	196	
8:15 AM	0	0	70	2	0	0	53	2	0	0	21	0	0	0	10	1	159	
8:30 AM	0	0	92	1	0	0	60	0	0	1	21	2	0	2	14	1	194	
8:45 AM	0	0	109	1	0	0	38	2	0	1	18	5	0	0	10	6	190	
Count Total	0	2	637	19	0	0	407	13	0	3	142	21	0	5	93	27	1369	--
Peak Hour Total	0	0	360	5	0	0	205	6	0	3	86	12	0	3	45	14	739	--
PHF	0.83				0.88				0.79				0.86				0.94	--
Heavy Vehicles	0	0	15	0	0	0	4	0	0	0	3	0	0	0	1	0	23	--
HV %	0.0%	0.0%	4.2%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	3.5%	0.0%	0.0%	0.0%	2.2%	0.0%	3.1%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	5	5	3	1	14
7:15 AM	3	3	0	0	6
7:30 AM	6	3	1	0	10
7:45 AM	3	2	0	0	5
8:00 AM	0	2	0	0	2
8:15 AM	6	1	1	0	8
8:30 AM	1	0	1	0	2
8:45 AM	8	1	1	1	11
Count Total	32	17	7	2	58
Peak Hour Total	15	4	3	1	23
Peak Hour HV%	4.1%	1.9%	3.0%	1.6%	3.1%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
1	1	0	0	2
1	1	0	0	2
2	2	0	2	6
0	4	0	3	7
3	3	2	0	8
2	1	0	1	4
1	1	0	1	3
10	13	2	7	32
6	9	2	5	22

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 164 & Blake Street



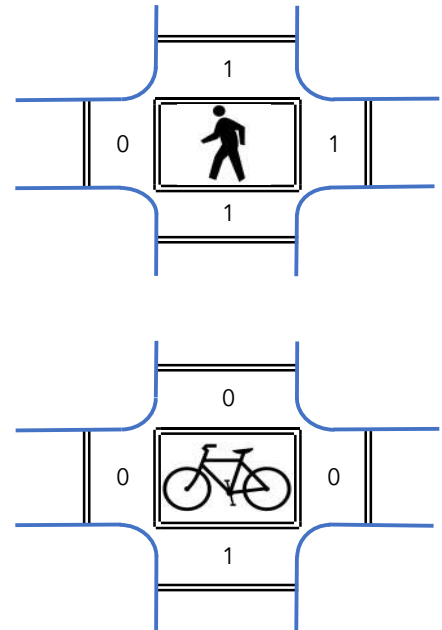
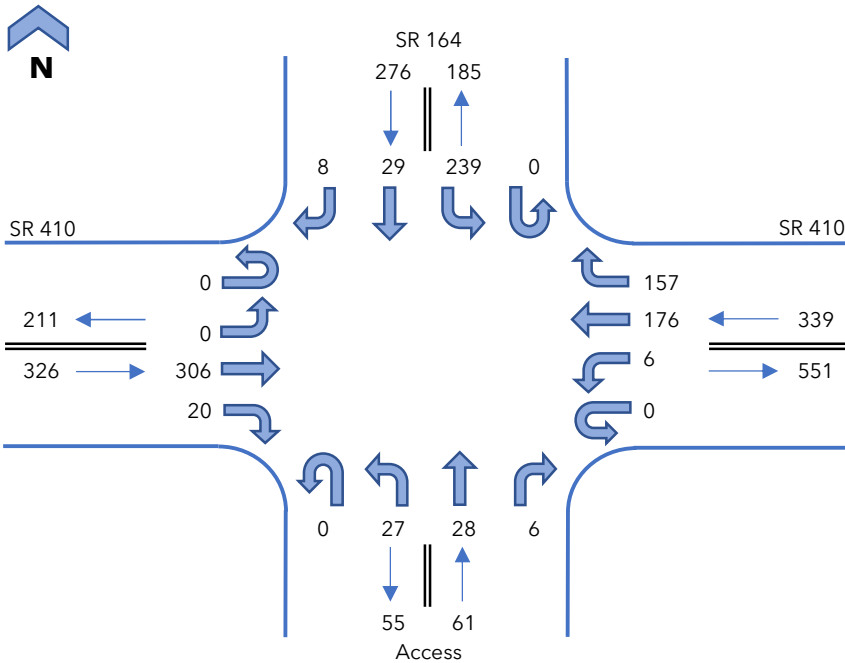
Interval Start Time	SR 164 Eastbound				SR 164 Westbound				Blake St Northbound				Rainier Ave Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	2	43	6	0	2	40	0	0	8	2	0	0	0	0	1	104	501
7:15 AM	0	2	53	7	0	5	39	0	0	6	1	1	0	0	0	2	116	
7:30 AM	0	0	67	12	0	3	32	0	0	8	0	4	0	0	0	1	127	
7:45 AM	0	1	74	5	0	0	51	0	0	16	2	3	0	0	0	2	154	
8:00 AM	0	1	72	15	0	2	40	0	0	6	0	3	0	3	0	0	142	
8:15 AM	0	1	74	7	0	3	43	0	0	11	0	4	0	0	0	0	143	
8:30 AM	0	1	88	6	0	0	50	1	0	5	0	4	0	0	0	3	158	
8:45 AM	0	3	88	12	0	3	44	0	1	16	2	0	0	0	1	2	172	
Count Total	0	11	559	70	0	18	339	1	1	76	7	19	0	3	1	11	1116	--
Peak Hour Total	0	6	322	40	0	8	177	1	1	38	2	11	0	3	1	5	615	--
PHF	0.89				0.91				0.68				0.75				0.89	--
Heavy Vehicles	0	2	20	3	0	1	4	0	0	4	0	1	0	1	0	1	37	--
HV %	0.0%	33.3%	6.2%	7.5%	0.0%	12.5%	2.3%	0.0%	0.0%	10.5%	0.0%	9.1%	0.0%	33.3%	0.0%	20.0%	6.0%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	10	4	1	0	15
7:15 AM	6	3	3	0	12
7:30 AM	9	2	3	0	14
7:45 AM	4	3	3	0	10
8:00 AM	5	0	2	1	8
8:15 AM	10	2	1	0	13
8:30 AM	2	0	0	0	2
8:45 AM	8	3	2	1	14
Count Total	54	17	15	2	88
Peak Hour Total	25	5	5	2	37
Peak Hour HV%	6.8%	2.7%	9.6%	22.2%	6.0%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
1	0	0	0	1
0	1	0	0	1
2	1	0	0	3
2	1	0	0	3

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
1	1	0	0	2
1	0	0	0	1

SR 410 & SR 164



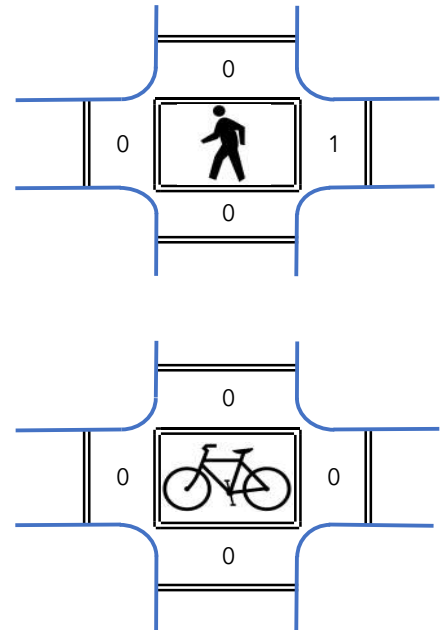
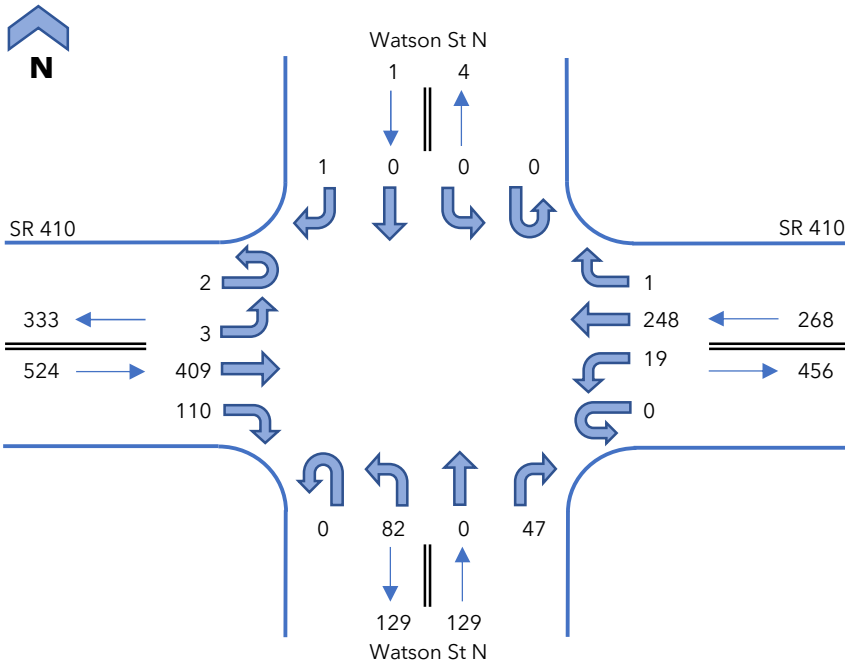
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Access Northbound				SR 164 Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	0	48	7	0	2	36	35	0	9	3	0	0	29	4	1	174	
7:15 AM	0	0	63	4	0	0	40	30	0	2	5	0	0	40	7	0	191	
7:30 AM	0	0	63	4	0	1	60	31	0	4	7	0	0	48	10	0	228	
7:45 AM	0	0	76	3	0	0	56	53	0	5	8	2	0	61	11	2	277	870
8:00 AM	0	0	77	8	0	0	38	36	0	8	7	3	0	66	8	4	255	951
8:15 AM	0	0	78	7	0	2	31	32	0	5	5	1	0	58	3	0	222	982
8:30 AM	0	0	75	2	0	4	51	36	0	9	8	0	0	54	7	2	248	1002
8:45 AM	0	0	79	5	0	1	67	46	0	9	5	2	0	39	12	3	268	993
Count Total	0	0	559	40	0	10	379	299	0	51	48	8	0	395	62	12	1863	--
Peak Hour Total	0	0	306	20	0	6	176	157	0	27	28	6	0	239	29	8	1002	--
PHF	0.96				0.78				0.85				0.88				0.90	--
Heavy Vehicles	0	0	27	3	0	0	11	5	0	2	4	1	0	11	2	1	67	--
HV %	0.0%	0.0%	8.8%	15.0%	0.0%	0.0%	6.3%	3.2%	0.0%	7.4%	14.3%	16.7%	0.0%	4.6%	6.9%	12.5%	6.7%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	5	4	0	7	16
7:15 AM	8	5	0	10	23
7:30 AM	3	7	1	1	12
7:45 AM	4	7	0	2	13
8:00 AM	7	4	1	5	17
8:15 AM	9	3	1	5	18
8:30 AM	10	2	5	2	19
8:45 AM	2	9	0	2	13
Count Total	48	41	8	34	131
Peak Hour Total	30	16	7	14	67
Peak Hour HV%	9.2%	4.7%	11.5%	5.1%	6.7%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	0	0
0	0	0	1	1
1	0	0	0	1
0	0	1	0	1
1	0	0	1	2
2	0	1	4	7
1	0	1	1	3

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1

SR 410 & Watson Street N



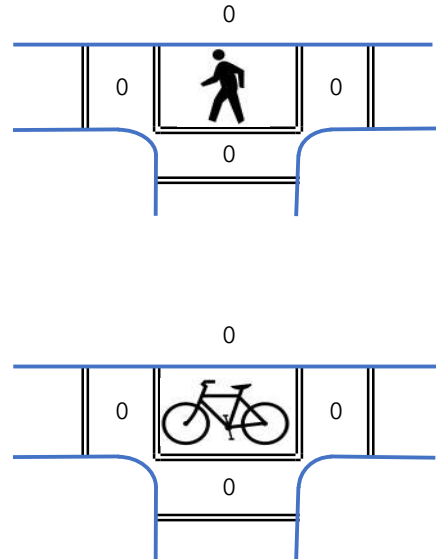
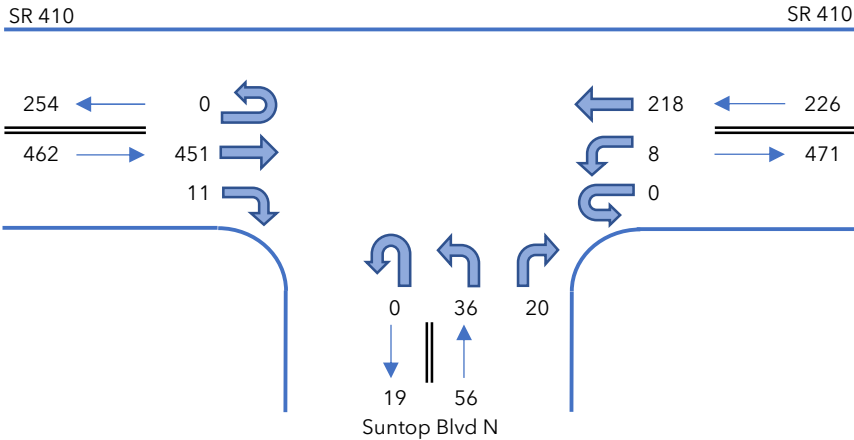
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Watson St N Northbound				Watson St N Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	0	52	17	0	3	46	0	0	26	0	7	0	0	0	0	151	
7:15 AM	1	0	80	16	0	4	51	0	0	17	0	7	0	0	0	0	176	
7:30 AM	0	0	84	22	0	5	72	0	0	22	0	9	0	0	0	0	214	
7:45 AM	0	0	106	30	0	9	84	0	0	26	0	18	0	0	0	0	273	814
8:00 AM	0	0	104	32	0	1	52	0	0	20	0	12	0	0	0	0	221	884
8:15 AM	1	3	110	22	0	2	48	0	0	13	0	11	0	0	0	0	210	918
8:30 AM	1	0	89	26	0	7	64	1	0	23	0	6	0	0	0	1	218	922
8:45 AM	0	3	98	24	0	9	90	0	0	24	0	8	0	0	0	0	256	905
Count Total	3	6	723	189	0	40	507	1	0	171	0	78	0	0	0	1	1719	--
Peak Hour Total	2	3	409	110	0	19	248	1	0	82	0	47	0	0	0	1	922	--
PHF	0.96				0.72				0.73				0.25				0.84	--
Heavy Vehicles	0	0	38	3	0	0	18	0	0	2	0	2	0	0	0	0	63	--
HV %	0.0%	0.0%	9.3%	2.7%	0.0%	0.0%	7.3%	0.0%	0.0%	2.4%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	6.8%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	11	4	1	0	16
7:15 AM	22	7	0	0	29
7:30 AM	4	8	0	0	12
7:45 AM	4	8	1	0	13
8:00 AM	10	3	1	0	14
8:15 AM	16	4	2	0	22
8:30 AM	11	3	0	0	14
8:45 AM	3	10	0	0	13
Count Total	81	47	5	0	133
Peak Hour Total	41	18	4	0	63
Peak Hour HV%	7.8%	6.7%	3.1%	0.0%	6.8%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
1	0	0	0	1
2	0	0	0	2
1	0	0	0	1

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 410 & Suntop Boulevard N



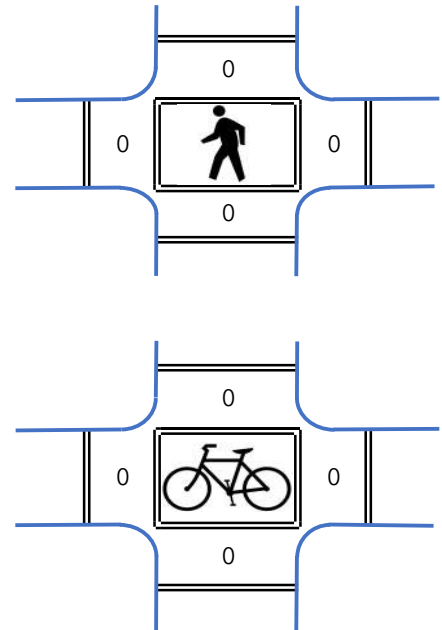
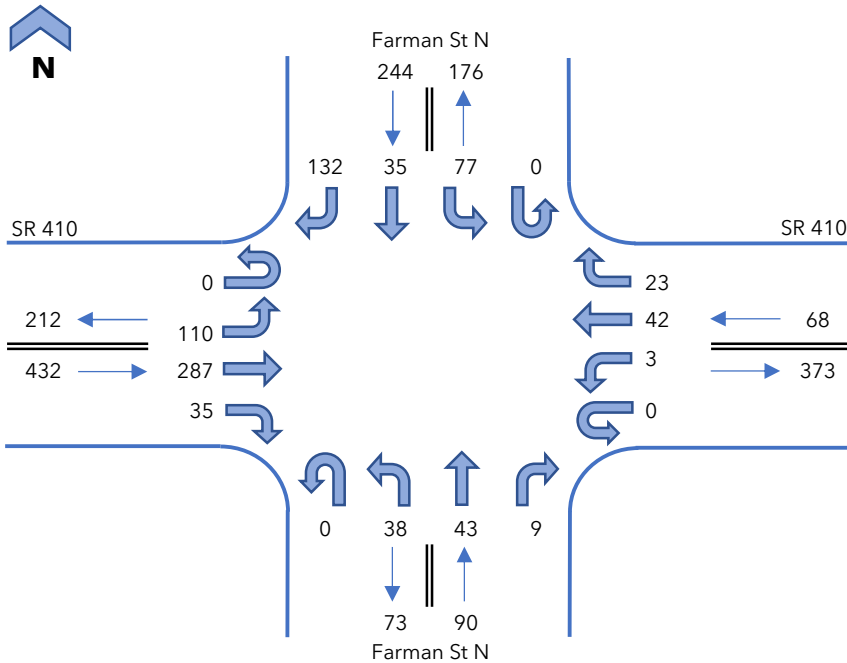
Interval Start Time	SR 410				SR 410				Suntop Blvd N								15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound									
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT						
7:00 AM	0	--	64	0	0	0	37	--	0	3	--	3	--	--	--	--	107	638 710 744 741 713
7:15 AM	0	--	85	3	0	1	32	--	0	10	--	3	--	--	--	--	134	
7:30 AM	0	--	97	3	0	0	69	--	0	8	--	5	--	--	--	--	182	
7:45 AM	0	--	124	1	0	2	72	--	0	10	--	6	--	--	--	--	215	
8:00 AM	0	--	116	5	0	2	42	--	0	8	--	6	--	--	--	--	179	
8:15 AM	0	--	114	2	0	4	35	--	0	10	--	3	--	--	--	--	168	
8:30 AM	0	--	103	7	0	1	59	--	0	6	--	3	--	--	--	--	179	
8:45 AM	0	--	95	3	0	2	80	--	0	4	--	3	--	--	--	--	187	
Count Total	0	--	798	24	0	12	426	--	0	59	--	32	--	--	--	--	1351	--
Peak Hour Total	0	--	451	11	0	8	218	--	0	36	--	20	--	--	--	--	744	--
PHF	0.92				0.76				0.88				--				0.87	--
Heavy Vehicles	0	--	28	1	0	1	19	--	0	0	--	0	--	--	--	--	49	--
HV %	0.0%	--	6.2%	9.1%	0.0%	12.5%	8.7%	--	0.0%	0.0%	--	0.0%	--	--	--	--	6.6%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	9	2	0	--	11
7:15 AM	11	3	1	--	15
7:30 AM	5	8	0	--	13
7:45 AM	3	6	0	--	9
8:00 AM	9	4	0	--	13
8:15 AM	12	2	0	--	14
8:30 AM	12	2	0	--	14
8:45 AM	0	8	0	--	8
Count Total	61	35	1	--	97
Peak Hour Total	29	20	0	--	49
Peak Hour HV%	6.3%	8.8%	0.0%	--	6.6%

Pedestrians (Leg)					
E	W	N	S	Total	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	

Bicycles (Leg)					
E	W	N	S	Total	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	

SR 410 & Farman Street N

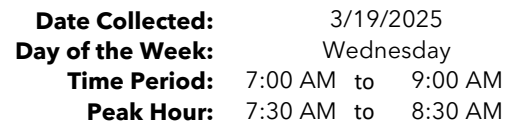


Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Farman St N Northbound				Farman St N Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	16	37	3	0	1	10	11	0	10	7	2	0	10	6	19	132	
7:15 AM	0	15	56	9	0	0	4	9	0	8	5	2	0	21	9	20	158	
7:30 AM	0	17	62	7	0	2	4	5	0	12	6	3	0	12	12	53	195	
7:45 AM	0	26	65	15	0	1	9	7	0	11	10	3	0	25	14	52	238	723
8:00 AM	0	30	69	12	0	1	12	5	0	9	11	5	0	19	5	21	199	790
8:15 AM	0	24	81	4	0	1	4	4	0	8	10	1	0	18	10	25	190	822
8:30 AM	0	30	72	4	0	0	17	7	0	10	12	0	0	15	6	34	207	834
8:45 AM	0	21	54	10	0	1	17	5	0	11	7	0	0	15	11	48	200	796
Count Total	0	179	496	64	0	7	77	53	0	79	68	16	0	135	73	272	1519	--
Peak Hour Total	0	110	287	35	0	3	42	23	0	38	43	9	0	77	35	132	834	--
PHF	0.97				0.71				0.90				0.67				0.88	--
Heavy Vehicles	0	8	16	1	0	2	7	13	0	0	1	1	0	7	1	3	60	--
HV %	0.0%	7.3%	5.6%	2.9%	0.0%	66.7%	16.7%	56.5%	0.0%	0.0%	2.3%	11.1%	0.0%	9.1%	2.9%	2.3%	7.2%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	9	8	0	1	18
7:15 AM	11	9	0	2	22
7:30 AM	5	6	2	3	16
7:45 AM	4	10	1	3	18
8:00 AM	4	5	0	5	14
8:15 AM	10	2	0	2	14
8:30 AM	7	5	1	1	14
8:45 AM	0	9	0	4	13
Count Total	50	54	4	21	129
Peak Hour Total	25	22	2	11	60
Peak Hour HV%	5.8%	32.4%	2.2%	4.5%	7.2%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

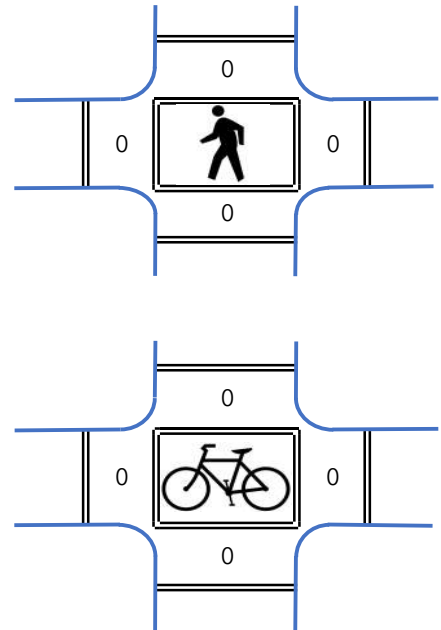


North Arrow

Streets: Battersby Ave, Farman St N, SE 440th St

Traffic Counts (Week Ending 10/26/2019):

Approach	Movement	Count
Farman St N (Northbound)	Left	294
	Thru	244
	Right	5
	U-turn	0
Farman St N (Southbound)	Left	266
	Thru	20
	Right	142
	U-turn	0
Battersby Ave (Eastbound)	Left	65
	Thru	39
	Right	4
	U-turn	21
Battersby Ave (Westbound)	Left	0
	Thru	14
	Right	4
	U-turn	0
SE 440th St (Northbound)	Left	3
	Thru	0
	Right	1
	U-turn	0
SE 440th St (Southbound)	Left	4
	Thru	9
	Right	0
	U-turn	0



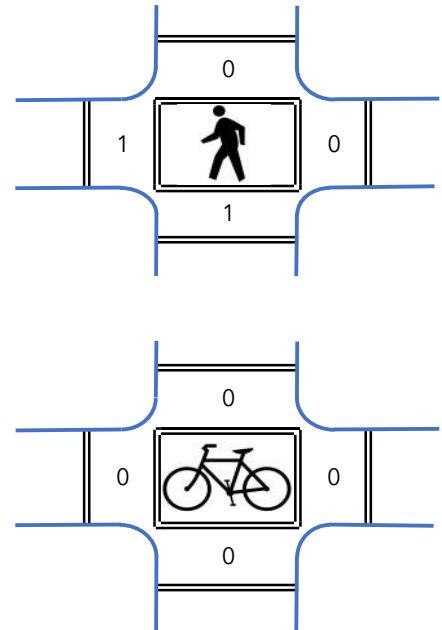
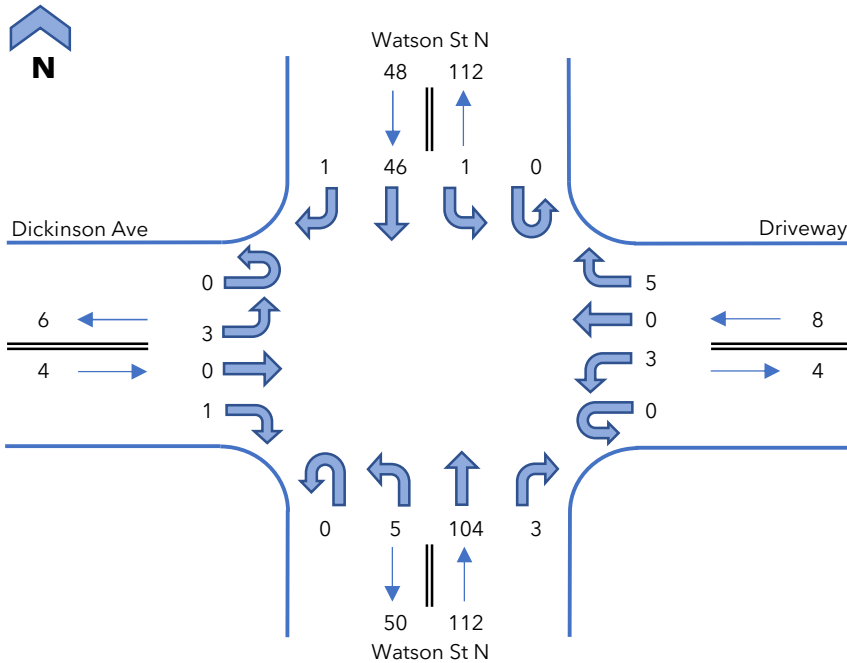
Interval Start Time	Battersby Ave				SE 440th St				Farman St N				Farman St N				15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	3	0	3	0	1	0	0	0	4	24	0	0	1	33	5	74	443 480 499 495 459
7:15 AM	0	1	0	2	0	0	0	0	0	1	27	0	0	3	49	10	93	
7:30 AM	0	3	0	6	0	1	0	0	0	2	25	0	0	1	69	9	116	
7:45 AM	0	3	0	5	0	0	0	0	0	11	40	0	0	1	87	13	160	
8:00 AM	0	4	2	6	0	0	0	1	0	2	47	0	0	1	39	9	111	
8:15 AM	0	4	2	4	0	0	0	2	0	5	30	0	0	2	49	14	112	
8:30 AM	0	4	0	2	0	0	0	0	0	2	42	0	0	0	51	11	112	
8:45 AM	0	7	1	1	0	0	1	0	0	6	33	0	0	2	60	13	124	
Count Total	0	29	5	29	0	2	1	3	0	33	268	0	0	11	437	84	902	--
Peak Hour Total	0	14	4	21	0	1	0	3	0	20	142	0	0	5	244	45	499	--
PHF	0.81				0.50				0.79				0.73				0.78	--
Heavy Vehicles	0	1	2	2	0	0	0	1	0	0	28	0	0	2	15	1	52	--
HV %	0.0%	7.1%	50.0%	9.5%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	19.7%	0.0%	0.0%	40.0%	6.1%	2.2%	10.4%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	1	0	8	2	11
7:15 AM	0	0	10	4	14
7:30 AM	0	0	5	2	7
7:45 AM	0	0	8	3	11
8:00 AM	3	0	9	10	22
8:15 AM	2	1	6	3	12
8:30 AM	0	0	8	4	12
8:45 AM	0	0	3	9	12
Count Total	6	1	57	37	101
Peak Hour Total	5	1	28	18	52
Peak Hour HV%	12.8%	25.0%	17.3%	6.1%	10.4%

[illegible]

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0

Dickinson Avenue & Watson Street N



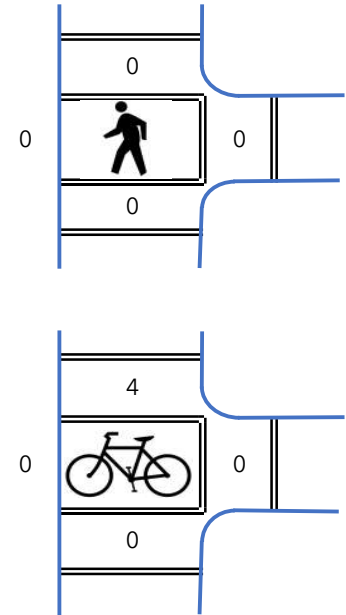
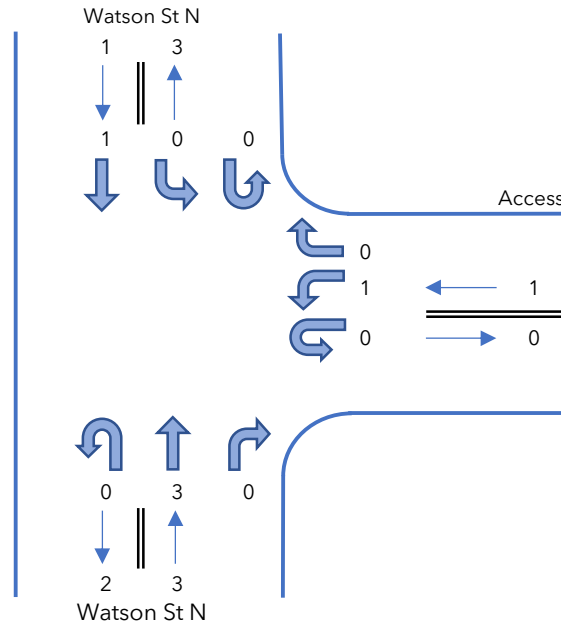
Interval Start Time	Dickinson Ave				Driveway				Watson St N				Watson St N				15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	2	25	0	0	0	4	0	31	155 171 172 167 160
7:15 AM	0	0	0	1	0	0	0	0	0	1	22	0	0	0	7	0	31	
7:30 AM	0	0	0	0	0	0	0	0	0	2	30	2	0	0	7	0	41	
7:45 AM	0	1	0	1	0	1	0	3	0	0	33	0	0	1	11	1	52	
8:00 AM	0	1	0	0	0	0	0	0	0	2	26	0	0	0	18	0	47	
8:15 AM	0	1	0	0	0	2	0	2	0	1	15	1	0	0	10	0	32	
8:30 AM	0	1	0	0	0	0	0	1	0	1	26	0	0	0	7	0	36	
8:45 AM	0	1	0	1	0	0	0	1	0	1	27	0	0	0	13	1	45	
Count Total	0	5	0	3	0	3	0	7	0	10	204	3	0	1	77	2	315	--
Peak Hour Total	0	3	0	1	0	3	0	5	0	5	104	3	0	1	46	1	172	--
PHF	0.50				0.50				0.82				0.67				0.83	--
Heavy Vehicles	0	0	0	0	0	2	0	1	0	2	3	2	0	0	2	0	12	--
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	0.0%	20.0%	0.0%	40.0%	2.9%	66.7%	0.0%	0.0%	4.3%	0.0%	7.0%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	0	0	2	0	2
7:15 AM	1	0	0	1	2
7:30 AM	0	0	3	0	3
7:45 AM	0	0	1	0	1
8:00 AM	0	0	1	0	1
8:15 AM	0	3	2	2	7
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
Count Total	1	3	9	3	16
Peak Hour Total	0	3	7	2	12
Peak Hour HV%	0.0%	37.5%	6.3%	4.2%	7.0%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
1	0	0	0	1
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
1	1	0	1	3
0	1	0	1	2

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Proposed Access & Watson Street N TM



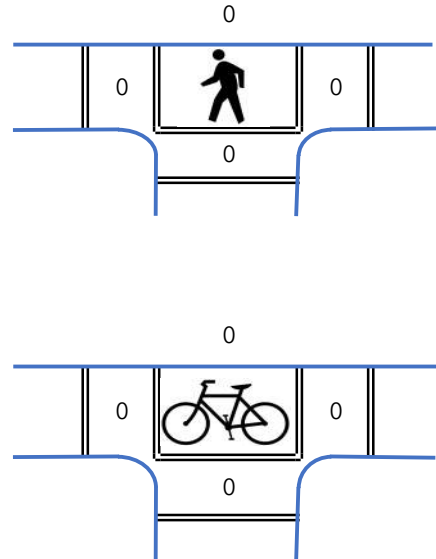
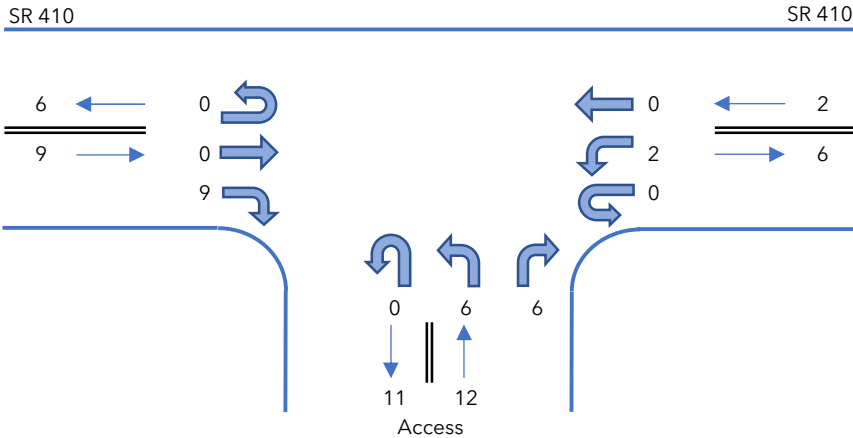
Interval Start Time					Access				Watson St N				Watson St N				15 Minute Totals	Hourly Totals		
					Westbound				Northbound				Southbound							
					UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT				
7:00 AM	--	--	--	--	0	0	--	0	0	--	0	0	0	--	0	0	0	--	0	
7:15 AM	--	--	--	--	0	0	--	0	0	--	1	0	0	0	0	0	0	--	1	
7:30 AM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	0	1	--	1	
7:45 AM	--	--	--	--	0	0	--	0	0	--	2	0	0	0	0	0	0	--	2	4
8:00 AM	--	--	--	--	0	1	--	0	0	--	0	0	0	0	0	0	0	--	1	5
8:15 AM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	0	0	--	0	4
8:30 AM	--	--	--	--	0	1	--	0	0	--	1	0	0	0	0	0	0	--	2	5
8:45 AM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	0	1	--	1	4
Count Total	--	--	--	--	0	2	--	0	0	--	4	0	0	0	2	--	--	--	8	--
Peak Hour Total	--	--	--	--	0	1	--	0	0	--	3	0	0	0	1	--	--	--	5	--
PHF	--				0.25				0.38				0.25				0.63	--		
Heavy Vehicles	--	--	--	--	0	1	--	0	0	--	3	0	0	0	1	--	--	--	5	--
HV %	--	--	--	--	0.0%	100.0%	--	0.0%	0.0%	--	100.0%	0.0%	0.0%	0.0%	100.0%	--	--	--	100.0%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	--	4	0	0	4
7:15 AM	--	4	1	1	6
7:30 AM	--	1	0	2	3
7:45 AM	--	0	2	0	2
8:00 AM	--	2	0	0	2
8:15 AM	--	2	0	0	2
8:30 AM	--	2	1	0	3
8:45 AM	--	3	1	1	5
Count Total	--	18	5	4	27
Peak Hour Total	--	1	3	1	5
Peak Hour HV%	--	100.0%	100.0%	100.0%	100.0%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	3	0	3
0	0	1	0	1
0	0	0	0	0
0	0	3	0	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	7	0	7
0	0	4	0	4

SR 410 & Proposed Access TM



Interval Start Time	SR 410				SR 410				Access								15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound									
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT						
7:00 AM	0	--	0	1	0	1	0	--	0	1	--	0	--	--	--	3	21	
7:15 AM	0	--	0	2	0	0	0	--	0	1	--	1	--	--	--	4		
7:30 AM	0	--	0	3	0	2	0	--	0	1	--	2	--	--	--	8		
7:45 AM	0	--	0	2	0	0	0	--	0	2	--	2	--	--	--	6		
8:00 AM	0	--	0	1	0	0	0	--	0	1	--	1	--	--	--	3		
8:15 AM	0	--	0	3	0	0	0	--	0	2	--	1	--	--	--	6		
8:30 AM	0	--	0	1	0	1	0	--	0	0	--	0	--	--	--	2		
8:45 AM	0	--	0	3	0	1	0	--	0	3	--	0	--	--	--	7		
Count Total	0	--	0	16	0	5	0	--	0	11	--	7	--	--	--	39	--	
Peak Hour Total	0	--	0	9	0	2	0	--	0	6	--	6	--	--	--	23	--	
PHF	0.75				0.25				0.75				--				0.72	--
Heavy Vehicles	0	--	0	1	0	1	0	--	0	0	--	0	--	--	--	2	--	
HV %	0.0%	--	0.0%	11.1%	0.0%	50.0%	0.0%	--	0.0%	0.0%	--	0.0%	--	--	--	8.7%	--	

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	0	0	1	--	1
7:15 AM	0	0	0	--	0
7:30 AM	1	1	0	--	2
7:45 AM	0	0	0	--	0
8:00 AM	0	0	0	--	0
8:15 AM	0	0	0	--	0
8:30 AM	0	0	0	--	0
8:45 AM	1	0	0	--	1
Count Total	2	1	1	--	4
Peak Hour Total	1	1	0	--	2
Peak Hour HV%	11.1%	50.0%	0.0%	--	8.7%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

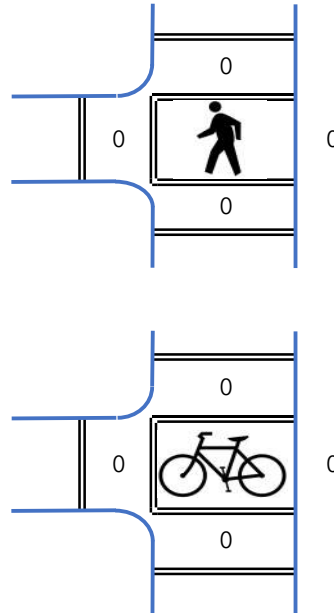
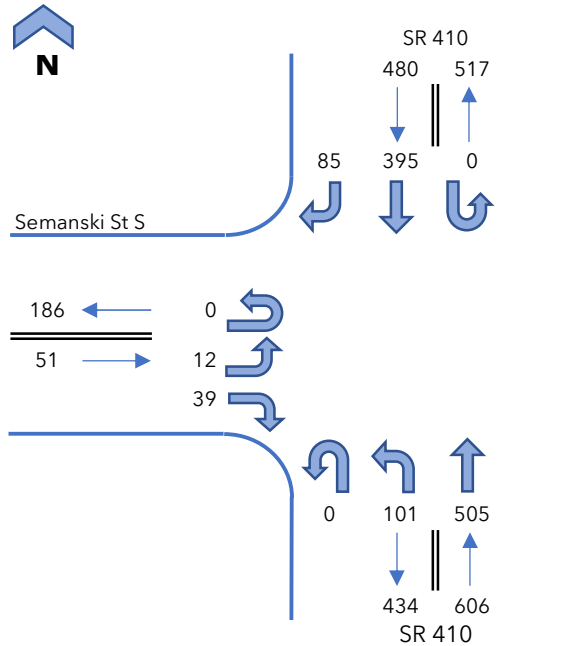
202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

PM Peak Hour Counts



Semanski Street S & SR 410



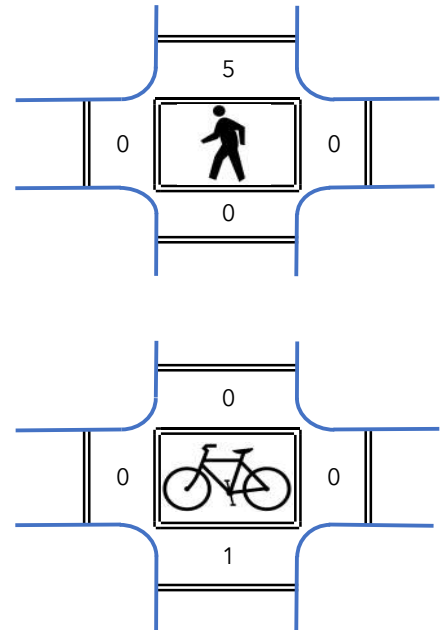
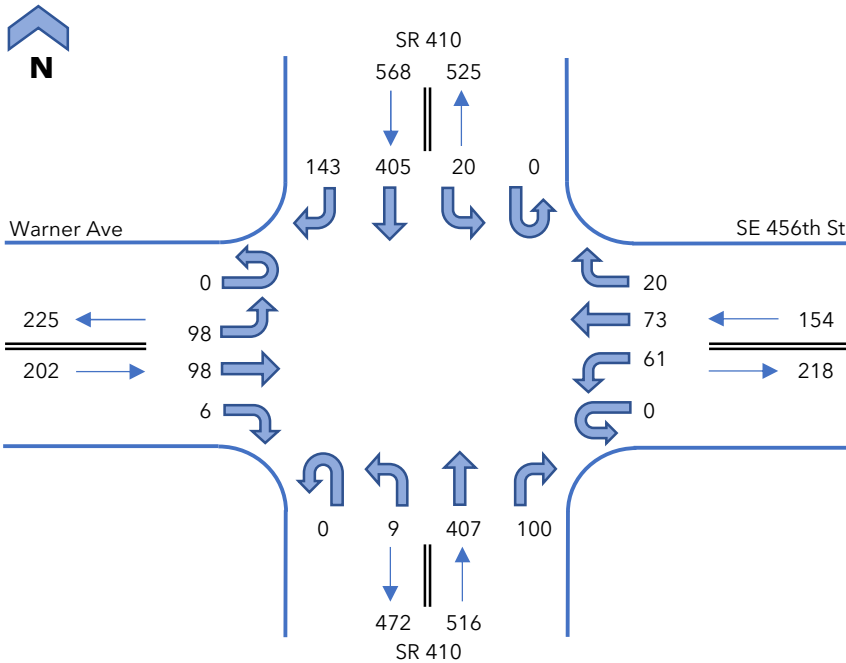
Interval Start Time	Semanski St S								SR 410				SR 410				15 Minute Totals	Hourly Totals
	Eastbound								Northbound				Southbound					
	UT	LT	T	RT					UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	0	--	7	--	--	--	--	0	16	116	--	0	--	117	18	274	1104
4:15 PM	0	3	--	13	--	--	--	--	0	14	114	--	0	--	88	19	251	
4:30 PM	0	4	--	9	--	--	--	--	0	31	123	--	0	--	103	22	292	
4:45 PM	0	2	--	12	--	--	--	--	0	38	131	--	0	--	88	16	287	
5:00 PM	0	3	--	13	--	--	--	--	0	16	123	--	0	--	105	21	281	
5:15 PM	0	3	--	5	--	--	--	--	0	16	128	--	0	--	99	26	277	
5:30 PM	0	2	--	13	--	--	--	--	0	21	107	--	0	--	72	20	235	
5:45 PM	0	1	--	11	--	--	--	--	0	28	104	--	0	--	70	11	225	
Count Total	0	18	--	83	--	--	--	--	0	180	946	--	0	--	742	153	2122	--
Peak Hour Total	0	12	--	39	--	--	--	--	0	101	505	--	0	--	395	85	1137	--
PHF	0.80				--				0.90				0.95				0.97	--
Heavy Vehicles	0	0	--	0	--	--	--	--	0	1	7	--	0	--	0	12	20	--
HV %	0.0%	0.0%	--	0.0%	--	--	--	--	0.0%	1.0%	1.4%	--	0.0%	--	0.0%	14.1%	1.8%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	0	--	2	6	8
4:15 PM	0	--	1	4	5
4:30 PM	0	--	3	7	10
4:45 PM	0	--	0	3	3
5:00 PM	0	--	2	1	3
5:15 PM	0	--	3	1	4
5:30 PM	0	--	1	0	1
5:45 PM	0	--	2	0	2
Count Total	0	--	14	22	36
Peak Hour Total	0	--	8	12	20
Peak Hour HV%	0.0%	--	1.3%	2.5%	1.8%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Warner Avenue & SR 410



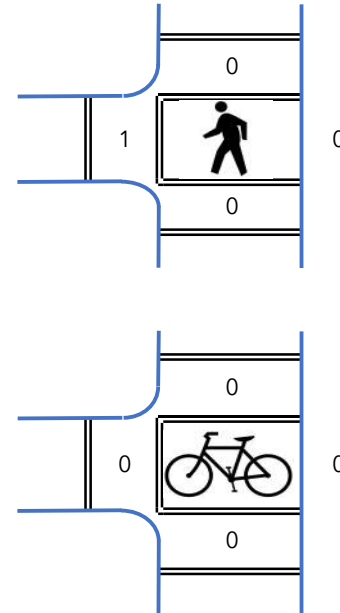
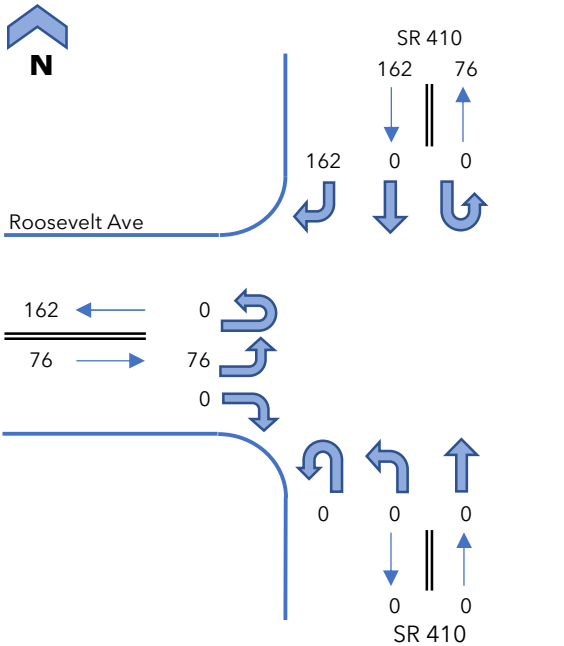
Interval Start Time	Warner Ave				SE 456th St				SR 410				SR 410				15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	24	21	1	0	19	12	6	0	5	92	20	0	8	122	29	359	1388 1409 1440 1394 1286
4:15 PM	0	21	20	3	0	18	15	7	0	4	85	26	0	3	87	31	320	
4:30 PM	0	26	27	0	0	22	17	3	0	1	78	32	0	3	94	39	342	
4:45 PM	0	23	26	1	0	15	16	6	0	3	123	23	0	3	93	35	367	
5:00 PM	0	29	27	1	0	7	23	4	0	3	97	22	0	11	118	38	380	
5:15 PM	0	20	18	4	0	17	17	7	0	2	109	23	0	3	100	31	351	
5:30 PM	0	16	16	1	0	12	14	6	0	4	95	11	0	8	88	25	296	
5:45 PM	0	15	16	3	0	12	20	7	0	1	81	19	0	4	61	20	259	
Count Total	0	174	171	14	0	122	134	46	0	23	760	176	0	43	763	248	2674	--
Peak Hour Total	0	98	98	6	0	61	73	20	0	9	407	100	0	20	405	143	1440	--
PHF	0.89				0.92				0.87				0.85				0.95	--
Heavy Vehicles	0	0	0	0	0	4	0	0	0	0	7	0	0	0	7	2	20	--
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	6.6%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	1.7%	1.4%	1.4%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	1	0	1	8	10
4:15 PM	0	1	0	2	3
4:30 PM	0	2	1	4	7
4:45 PM	0	1	1	4	6
5:00 PM	0	0	2	0	2
5:15 PM	0	1	3	1	5
5:30 PM	0	0	1	0	1
5:45 PM	0	0	2	0	2
Count Total	1	5	11	19	36
Peak Hour Total	0	4	7	9	20
Peak Hour HV%	0.0%	2.6%	1.4%	1.6%	1.4%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	11	11
0	0	3	1	4
0	0	0	0	0
0	0	0	0	0
0	0	2	0	2
0	0	3	0	3
0	0	3	0	3
0	0	1	0	1
0	0	12	12	24
0	0	5	0	5

Bicycles (Leg)				
E	W	N	S	Total
0	0	1	0	1
0	0	1	1	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	2	2	4
0	0	0	1	1

Roosevelt Avenue & SR 410™



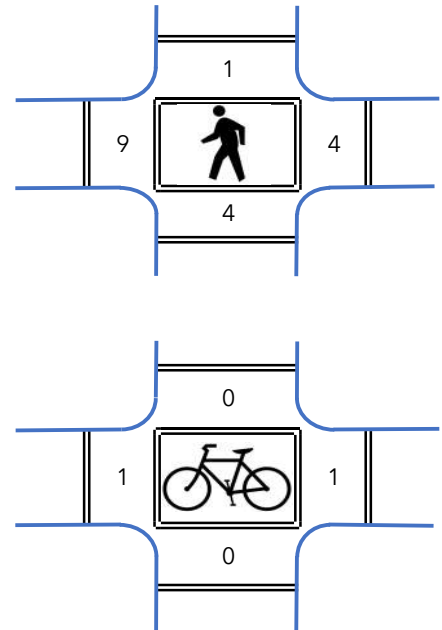
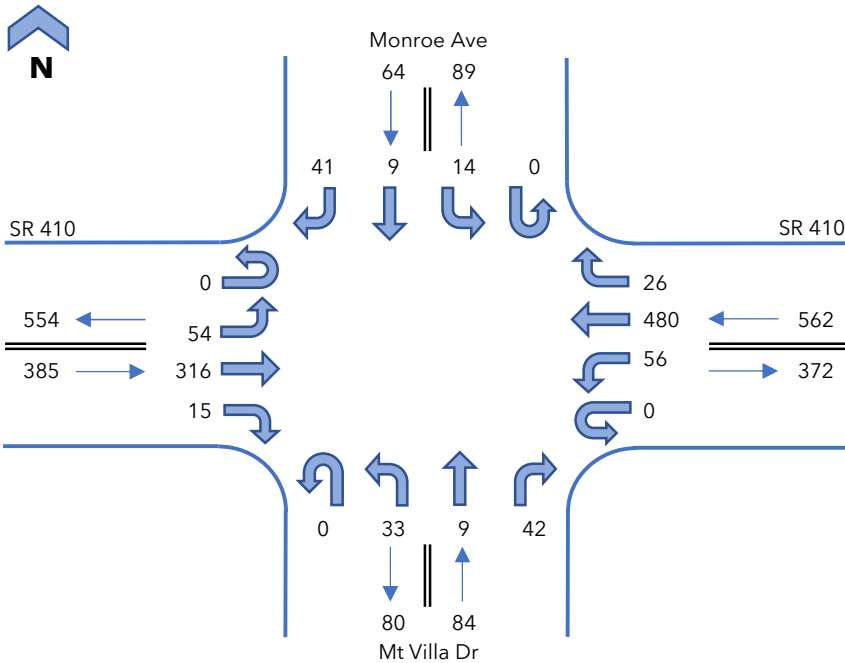
Interval Start Time	Roosevelt Ave								SR 410				SR 410				15 Minute Totals	Hourly Totals
	Eastbound								Northbound				Southbound					
	UT	LT	T	RT					UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	19	--	0	--	--	--	--	0	0	0	--	0	--	0	39	58	238
4:15 PM	0	15	--	0	--	--	--	--	0	0	0	--	0	--	0	37	52	
4:30 PM	0	27	--	0	--	--	--	--	0	0	0	--	0	--	0	43	70	
4:45 PM	0	15	--	0	--	--	--	--	0	0	0	--	0	--	0	43	58	
5:00 PM	0	12	--	1	--	--	--	--	0	0	0	--	0	--	0	36	49	
5:15 PM	0	22	--	0	--	--	--	--	0	0	0	--	0	--	0	30	52	
5:30 PM	0	11	--	0	--	--	--	--	0	0	0	--	0	--	0	32	43	
5:45 PM	0	11	--	0	--	--	--	--	0	0	0	--	0	--	0	27	38	
Count Total	0	132	--	1	--	--	--	--	0	0	0	--	0	--	0	287	420	--
Peak Hour Total	0	76	--	0	--	--	--	--	0	0	0	--	0	--	0	162	238	--
PHF	0.70				--				#DIV/0!				0.94				0.85	--
Heavy Vehicles	0	0	--	0	--	--	--	--	0	0	0	--	0	--	0	2	2	--
HV %	0.0%	0.0%	--	0.0%	--	--	--	--	0.0%	0.0%	0.0%	--	0.0%	--	0.0%	1.2%	0.8%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	0	--	0	1	1
4:15 PM	0	--	0	0	0
4:30 PM	0	--	0	1	1
4:45 PM	0	--	0	0	0
5:00 PM	0	--	0	1	1
5:15 PM	1	--	0	0	1
5:30 PM	0	--	0	0	0
5:45 PM	0	--	0	0	0
Count Total	1	--	0	3	4
Peak Hour Total	0	--	0	2	2
Peak Hour HV%	0.0%	--	0.0%	1.2%	0.8%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	1	2
0	2	0	1	3
0	1	0	0	1

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 410 & Mountain Villa Drive



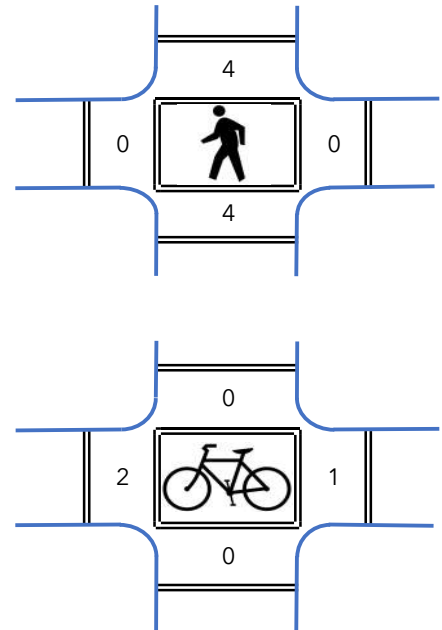
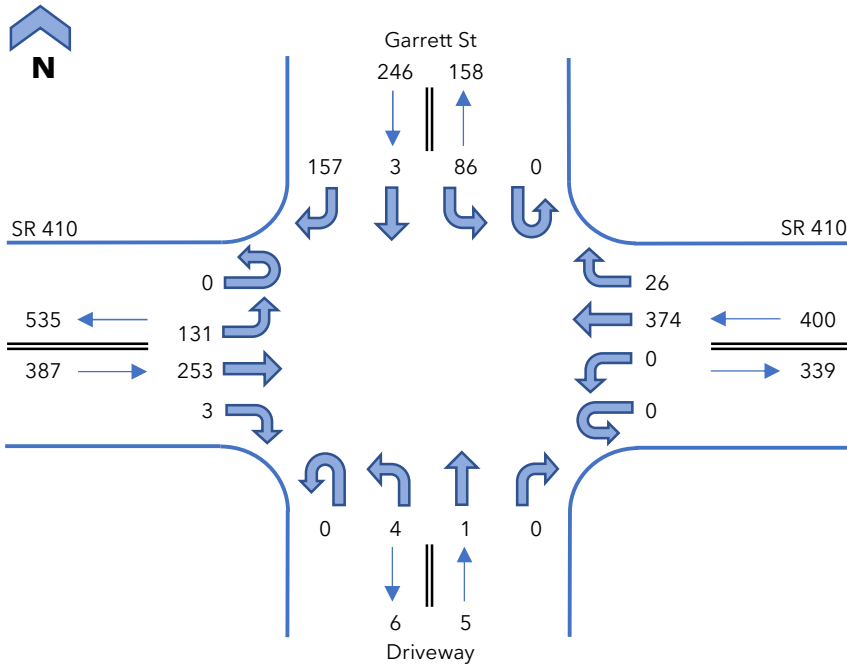
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Mt Villa Dr Northbound				Monroe Ave Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	13	80	2	0	17	141	6	0	8	0	12	0	4	1	13	297	1095
4:15 PM	0	16	72	3	0	10	114	7	0	10	1	10	0	4	5	9	261	
4:30 PM	0	15	77	4	0	15	109	9	0	5	3	14	0	4	1	12	268	
4:45 PM	0	10	87	6	0	14	116	4	0	10	5	6	0	2	2	7	269	
5:00 PM	0	21	67	1	0	7	120	1	0	11	4	16	0	5	1	12	266	
5:15 PM	0	10	87	5	1	12	107	6	0	4	3	9	0	7	2	9	262	
5:30 PM	0	8	71	4	0	15	100	3	0	6	2	7	0	5	4	10	235	
5:45 PM	0	12	60	4	0	14	73	4	0	6	2	9	0	4	3	10	201	
Count Total	0	105	601	29	1	104	880	40	0	60	20	83	0	35	19	82	2059	--
Peak Hour Total	0	54	316	15	0	56	480	26	0	33	9	42	0	14	9	41	1095	--
PHF	0.93				0.86				0.95				0.89				0.92	--
Heavy Vehicles	0	0	16	0	0	2	35	2	0	0	0	0	0	0	0	0	55	--
HV %	0.0%	0.0%	5.1%	0.0%	0.0%	3.6%	7.3%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	5	15	0	0	20
4:15 PM	3	5	0	0	8
4:30 PM	3	6	0	0	9
4:45 PM	5	13	0	0	18
5:00 PM	1	2	1	0	4
5:15 PM	4	3	0	0	7
5:30 PM	1	0	1	0	2
5:45 PM	3	1	0	1	5
Count Total	25	45	2	1	73
Peak Hour Total	16	39	0	0	55
Peak Hour HV%	4.2%	6.9%	0.0%	0.0%	5.0%

Pedestrians (Leg)				
E	W	N	S	Total
0	6	1	0	7
0	1	0	2	3
1	0	0	0	1
3	2	0	2	7
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
4	9	1	5	19
4	9	1	4	18

Bicycles (Leg)				
E	W	N	S	Total
0	1	0	0	1
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
1	2	0	0	3
1	1	0	0	2

SR 410 & Garrett Street



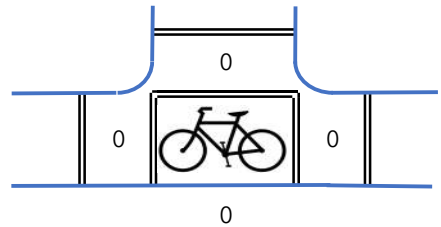
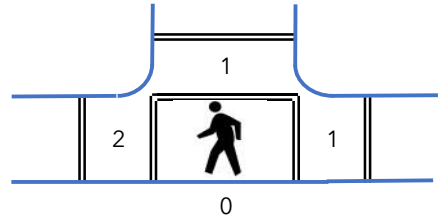
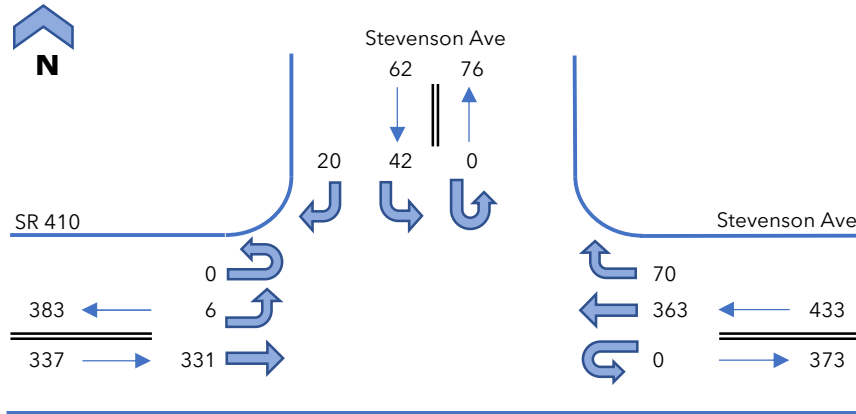
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Driveway Northbound				Garrett St Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	37	50	1	0	2	99	13	0	0	2	1	0	19	0	27	251	
4:15 PM	0	34	56	0	0	1	76	11	0	3	0	2	0	23	2	34	242	
4:30 PM	0	46	56	1	0	0	97	7	0	2	0	0	0	28	1	47	285	
4:45 PM	0	37	70	1	0	0	80	5	0	2	1	0	0	19	2	32	249	1027
5:00 PM	0	26	66	0	0	0	92	6	0	0	0	0	0	24	0	44	258	1034
5:15 PM	0	22	61	1	0	0	105	8	0	0	0	0	0	15	0	34	246	1038
5:30 PM	0	31	45	0	0	1	65	6	0	2	5	0	0	16	3	34	208	961
5:45 PM	0	27	58	0	0	0	81	6	0	0	0	0	0	9	0	32	213	925
Count Total	0	260	462	4	0	4	695	62	0	9	8	3	0	153	8	284	1952	--
Peak Hour Total	0	131	253	3	0	0	374	26	0	4	1	0	0	86	3	157	1038	--
PHF	0.90				0.88				0.42				0.81				0.91	--
Heavy Vehicles	0	6	11	0	0	0	18	1	0	0	1	0	0	0	0	3	40	--
HV %	0.0%	4.6%	4.3%	0.0%	0.0%	0.0%	4.8%	3.8%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	1.9%	3.9%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	4	3	0	4	11
4:15 PM	2	8	0	2	12
4:30 PM	4	6	0	1	11
4:45 PM	6	4	1	1	12
5:00 PM	1	4	0	0	5
5:15 PM	6	5	0	1	12
5:30 PM	2	1	0	1	4
5:45 PM	0	3	0	0	3
Count Total	25	34	1	10	70
Peak Hour Total	17	19	1	3	40
Peak Hour HV%	4.4%	4.8%	20.0%	1.2%	3.9%

Pedestrians (Leg)				
E	W	N	S	Total
1	1	0	2	4
0	2	1	4	7
0	0	0	1	1
0	0	2	0	2
0	0	0	2	2
0	0	2	1	3
0	1	3	0	4
1	1	0	0	2
2	5	8	10	25
0	0	4	4	8

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	0	0	1	1
1	2	0	1	4
1	2	0	0	3

SR 410 & Stevenson Avenue



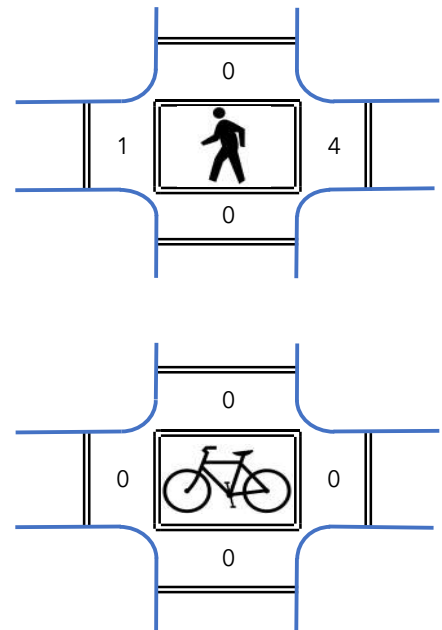
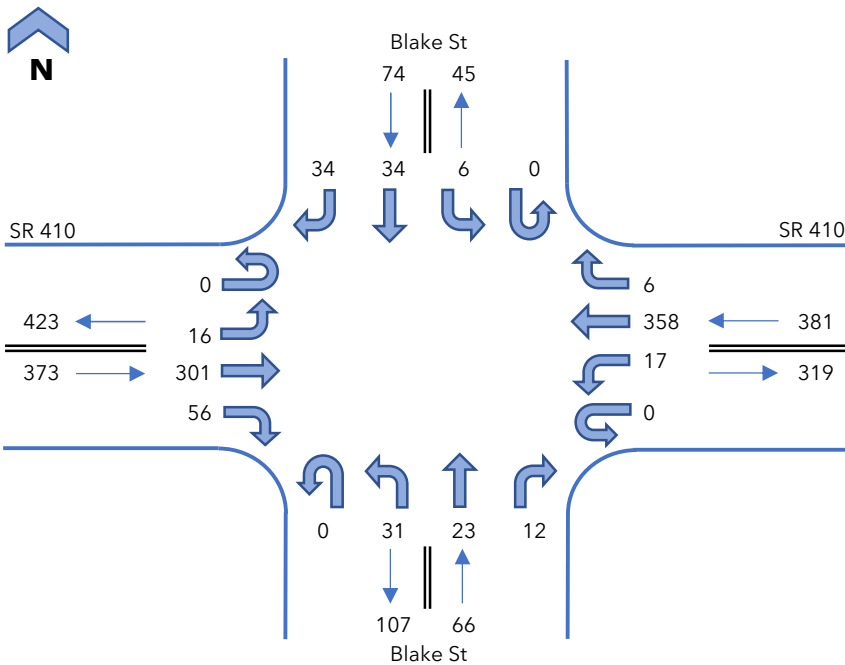
Interval Start Time	SR 410				Stevenson Ave								Stevenson Ave				15 Minute Totals	Hourly Totals
	Eastbound				Westbound								Southbound					
	UT	LT	T	RT	UT	LT	T	RT					UT	LT	T	RT		
4:00 PM	0	0	86	--	0	--	97	9	--	--	--	--	0	17	--	3	212	
4:15 PM	0	1	78	--	0	--	83	22	--	--	--	--	0	8	--	3	195	
4:30 PM	0	2	85	--	0	--	95	10	--	--	--	--	0	12	--	3	207	
4:45 PM	0	2	76	--	0	--	105	20	--	--	--	--	0	10	--	4	217	831
5:00 PM	0	0	81	--	0	--	83	22	--	--	--	--	0	11	--	6	203	822
5:15 PM	0	2	89	--	0	--	80	18	--	--	--	--	0	9	--	7	205	832
5:30 PM	0	0	76	--	0	--	66	12	--	--	--	--	0	6	--	6	166	791
5:45 PM	0	0	56	--	0	--	59	10	--	--	--	--	0	10	--	1	136	710
Count Total	0	7	627	--	0	--	668	123	--	--	--	--	0	83	--	33	1541	--
Peak Hour Total	0	6	331	--	0	--	363	70	--	--	--	--	0	42	--	20	832	--
PHF	0.93				0.87				--				0.91				0.96	--
Heavy Vehicles	0	0	15	--	0	--	20	0	--	--	--	--	0	0	--	0	35	--
HV %	0.0%	0.0%	4.5%	--	0.0%	--	5.5%	0.0%	--	--	--	--	0.0%	0.0%	--	0.0%	4.2%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	4	6	--	0	10
4:15 PM	3	3	--	0	6
4:30 PM	3	6	--	0	9
4:45 PM	5	9	--	0	14
5:00 PM	2	2	--	0	4
5:15 PM	5	3	--	0	8
5:30 PM	1	1	--	0	2
5:45 PM	2	1	--	0	3
Count Total	25	31	--	0	56
Peak Hour Total	15	20	--	0	35
Peak Hour HV%	4.5%	4.6%	--	0.0%	4.2%

Pedestrians (Leg)				
E	W	N	S	Total
0	1	0	0	1
0	0	0	0	0
1	2	1	0	4
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	3	1	0	5
1	2	1	0	4

Bicycles (Leg)				
E	W	N	S	Total
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0

SR 410 & Blake Street



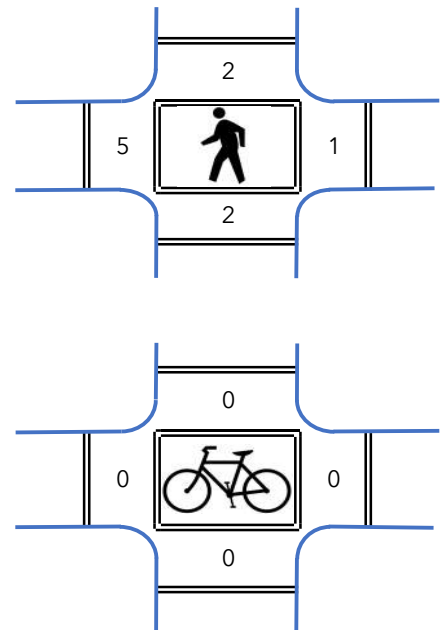
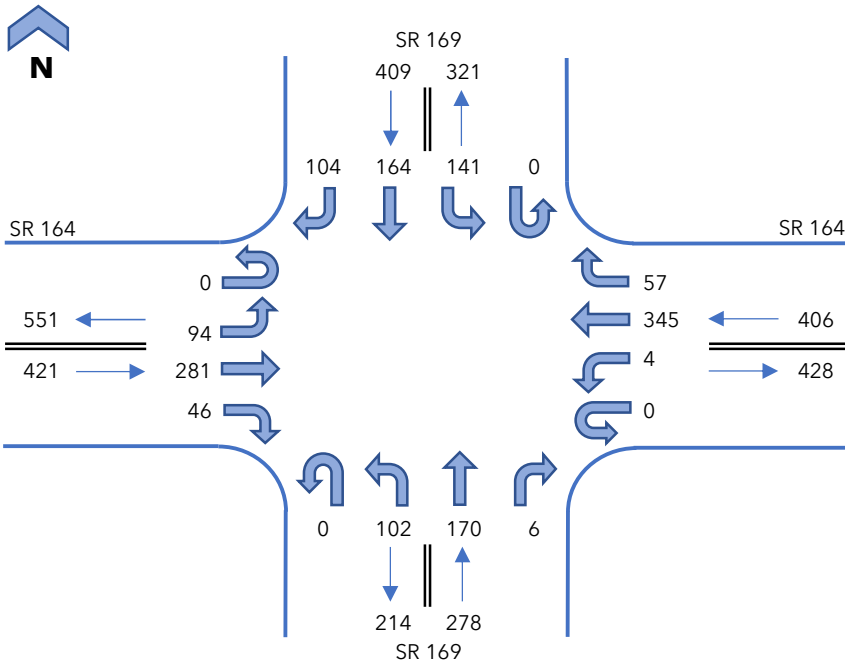
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Blake St Northbound				Blake St Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	7	76	15	0	6	95	3	0	6	6	6	0	2	10	2	234	
4:15 PM	0	0	70	12	0	5	90	2	0	5	9	1	0	2	11	3	210	
4:30 PM	0	2	79	14	0	2	89	1	0	5	2	4	0	2	11	6	217	
4:45 PM	0	2	69	14	0	5	99	3	0	15	11	3	0	1	4	6	232	893
5:00 PM	0	7	72	15	0	5	93	1	0	5	3	1	0	3	7	10	222	881
5:15 PM	0	5	81	13	0	5	77	1	0	6	7	4	0	0	12	12	223	894
5:30 PM	0	3	65	11	0	2	68	0	0	5	7	1	0	1	9	3	175	852
5:45 PM	0	1	60	7	0	4	64	2	0	3	6	3	0	1	7	2	160	780
Count Total	0	27	572	101	0	34	675	13	0	50	51	23	0	12	71	44	1673	--
Peak Hour Total	0	16	301	56	0	17	358	6	0	31	23	12	0	6	34	34	894	--
PHF	0.94				0.89				0.57				0.77				0.96	--
Heavy Vehicles	0	1	13	1	0	0	15	0	0	0	3	0	0	0	0	1	34	--
HV %	0.0%	6.3%	4.3%	1.8%	0.0%	0.0%	4.2%	0.0%	0.0%	0.0%	13.0%	0.0%	0.0%	0.0%	0.0%	2.9%	3.8%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	6	8	0	1	15
4:15 PM	3	2	2	2	9
4:30 PM	2	3	1	0	6
4:45 PM	5	7	1	0	13
5:00 PM	3	2	0	1	6
5:15 PM	5	3	1	0	9
5:30 PM	1	1	0	1	3
5:45 PM	3	2	0	0	5
Count Total	28	28	5	5	66
Peak Hour Total	15	15	3	1	34
Peak Hour HV%	4.0%	3.9%	4.5%	1.4%	3.8%

Pedestrians (Leg)				
E	W	N	S	Total
3	5	0	0	8
2	2	0	0	4
0	1	0	0	1
3	0	0	0	3
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
10	8	0	0	18
4	1	0	0	5

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 164 & SR 169

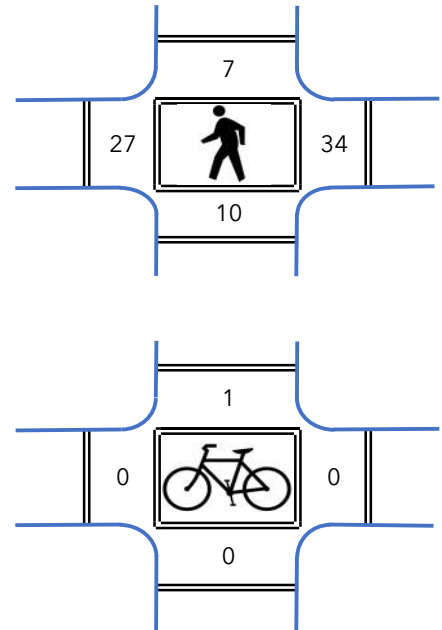
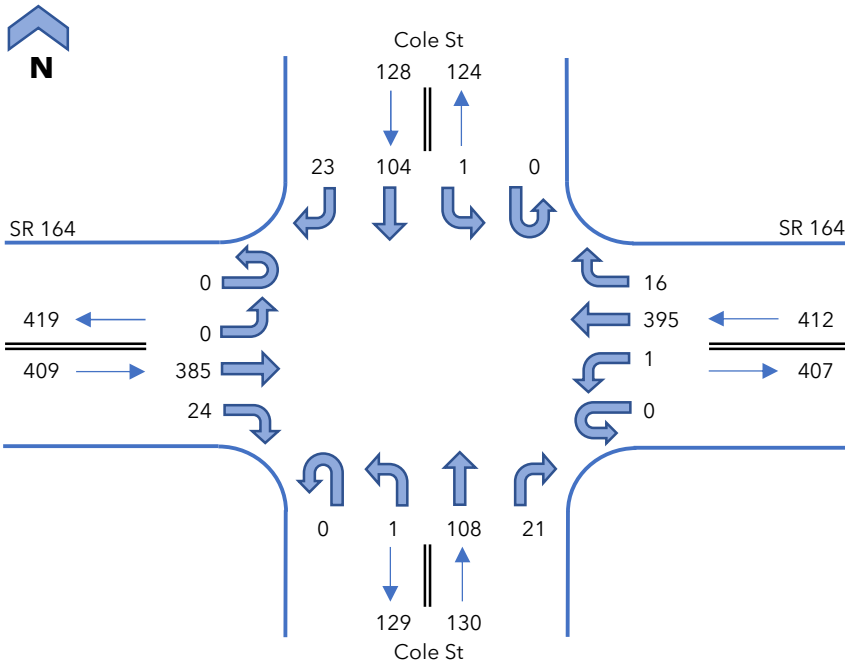


Interval Start Time	SR 164 Eastbound				SR 164 Westbound				SR 169 Northbound				SR 169 Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	18	93	11	0	1	91	13	0	16	38	0	0	23	39	25	368	
4:15 PM	0	21	74	10	0	3	85	19	0	22	40	0	0	18	32	24	348	
4:30 PM	0	21	66	8	0	0	92	18	0	22	36	0	0	25	46	25	359	
4:45 PM	0	31	77	11	0	1	70	12	0	20	41	3	0	46	53	24	389	1464
5:00 PM	0	17	73	19	0	3	97	12	0	29	51	1	0	32	37	35	406	1502
5:15 PM	0	25	65	8	0	0	86	15	0	31	42	2	0	38	28	20	360	1514
5:30 PM	0	27	65	7	0	1	71	14	0	27	38	2	0	37	38	17	344	1499
5:45 PM	0	21	62	5	0	1	63	19	0	21	27	1	0	25	35	18	298	1408
Count Total	0	181	575	79	0	10	655	122	0	188	313	9	0	244	308	188	2872	--
Peak Hour Total	0	94	281	46	0	4	345	57	0	102	170	6	0	141	164	104	1514	--
PHF		0.88				0.91				0.86				0.83			0.93	--
Heavy Vehicles	0	0	3	0	0	0	5	0	0	0	1	0	0	1	0	1	11	--
HV %	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.7%	0.0%	1.0%	0.7%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	2	2	0	2	6
4:15 PM	0	0	0	1	1
4:30 PM	0	2	0	1	3
4:45 PM	2	2	1	0	5
5:00 PM	0	0	0	1	1
5:15 PM	1	1	0	0	2
5:30 PM	0	2	0	1	3
5:45 PM	1	2	1	0	4
Count Total	6	11	2	6	25
Peak Hour Total	3	5	1	2	11
Peak Hour HV%	0.7%	1.2%	0.4%	0.5%	0.7%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	1	1
0	2	0	1	3
0	0	1	0	1
0	0	1	0	1
1	3	0	1	5
0	4	4	0	8
0	0	2	0	2
1	9	8	3	21
1	5	2	2	10

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0

SR 164 & Cole Street


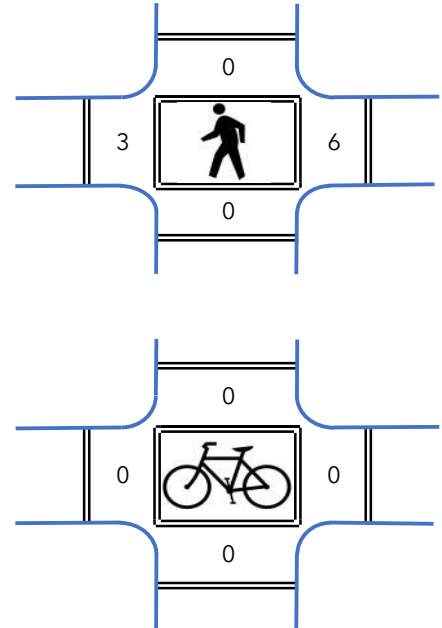
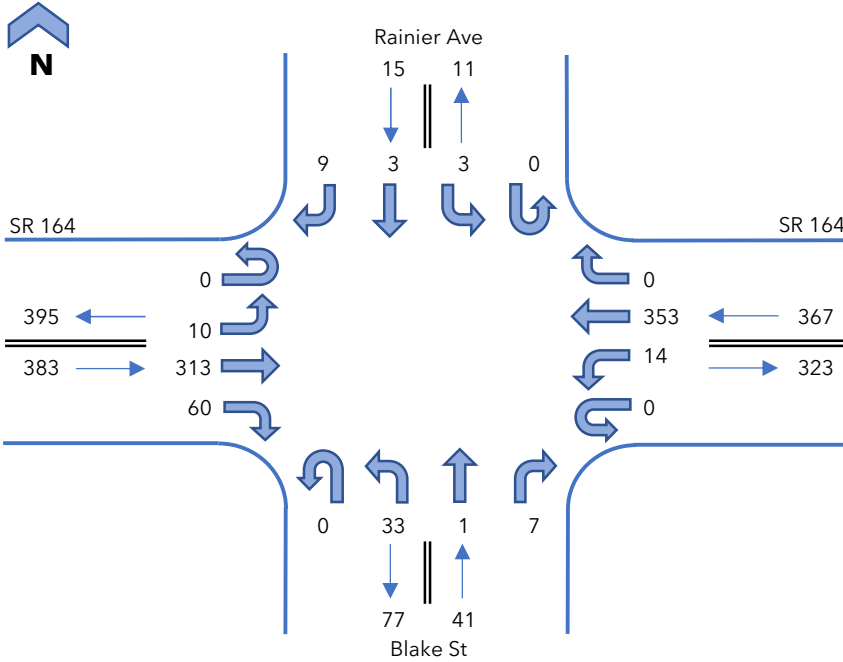
Interval Start Time	SR 164 Eastbound				SR 164 Westbound				Cole St Northbound				Cole St Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	0	109	8	0	0	110	1	0	0	20	3	0	0	30	7	288	1079
4:15 PM	0	0	82	5	0	0	99	5	0	0	34	3	0	1	23	6	258	
4:30 PM	0	0	83	5	0	1	90	6	0	1	26	4	0	0	22	6	244	
4:45 PM	0	0	111	6	0	0	96	4	0	0	28	11	0	0	29	4	289	
5:00 PM	0	0	100	6	0	1	95	4	0	0	26	12	0	2	25	6	277	
5:15 PM	0	1	89	9	0	0	98	7	0	0	16	4	0	0	20	2	246	
5:30 PM	0	2	95	5	0	0	79	4	0	1	23	4	0	0	11	8	232	
5:45 PM	0	0	80	3	0	1	82	0	0	1	25	4	0	0	13	5	214	
Count Total	0	3	749	47	0	3	749	31	0	3	198	45	0	3	173	44	2048	--
Peak Hour Total	0	0	385	24	0	1	395	16	0	1	108	21	0	1	104	23	1079	--
PHF	0.87				0.93				0.83				0.86				0.93	--
Heavy Vehicles	0	0	6	0	0	0	5	0	0	0	2	0	0	0	1	0	14	--
HV %	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	1.0%	0.0%	1.3%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	2	2	1	1	6
4:15 PM	2	1	1	0	4
4:30 PM	0	0	0	0	0
4:45 PM	2	2	0	0	4
5:00 PM	0	0	0	0	0
5:15 PM	1	0	0	0	1
5:30 PM	1	3	0	0	4
5:45 PM	1	0	1	0	2
Count Total	9	8	3	1	21
Peak Hour Total	6	5	2	1	14
Peak Hour HV%	1.5%	1.2%	1.5%	0.8%	1.3%

Pedestrians (Leg)				
E	W	N	S	Total
8	5	1	1	15
8	8	4	4	24
11	11	1	1	24
7	3	1	4	15
7	11	3	11	32
5	11	2	3	21
6	10	1	0	17
1	9	1	1	12
53	68	14	25	160
34	27	7	10	78

Bicycles (Leg)				
E	W	N	S	Total
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	2	1	0	3
0	0	1	0	1

SR 164 & Blake Street



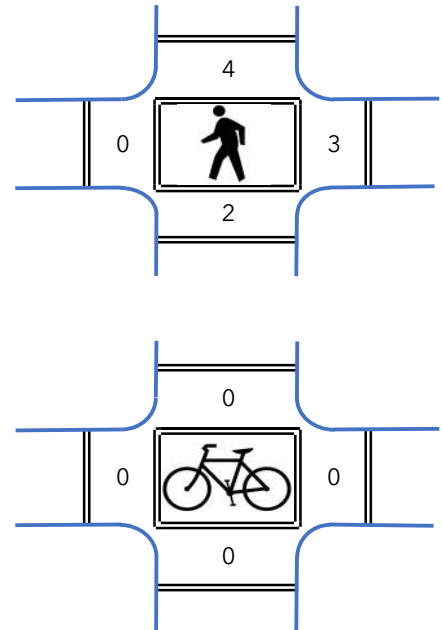
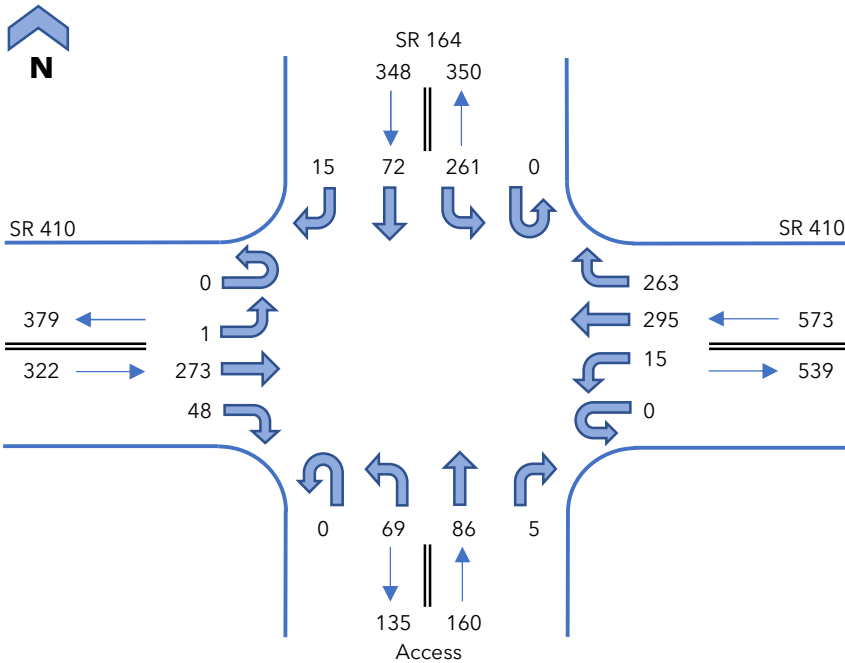
Interval Start Time	SR 164 Eastbound				SR 164 Westbound				Blake St Northbound				Rainier Ave Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	1	66	21	0	2	84	0	0	9	2	3	0	3	1	2	194	
4:15 PM	0	1	78	16	0	7	85	0	0	11	0	1	0	2	1	2	204	
4:30 PM	0	5	76	14	0	4	96	0	0	8	0	3	0	1	0	0	207	
4:45 PM	0	3	64	11	0	0	76	0	0	7	1	1	0	0	0	2	165	770
5:00 PM	0	1	95	19	0	3	96	0	0	7	0	2	0	0	2	5	230	806
5:15 PM	0	1	74	15	0	3	88	0	0	8	2	2	0	0	3	3	199	801
5:30 PM	0	1	86	12	0	0	94	0	0	6	0	1	0	1	0	1	202	796
5:45 PM	0	0	67	8	0	2	74	0	0	9	0	0	0	1	0	1	162	793
Count Total	0	13	606	116	0	21	693	0	0	65	5	13	0	8	7	16	1563	--
Peak Hour Total	0	10	313	60	0	14	353	0	0	33	1	7	0	3	3	9	806	--
PHF	0.83				0.92				0.85				0.54				0.88	--
Heavy Vehicles	0	2	2	3	0	0	7	0	0	5	0	0	0	0	1	0	20	--
HV %	0.0%	20.0%	0.6%	5.0%	0.0%	0.0%	2.0%	0.0%	0.0%	15.2%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	2.5%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	4	2	1	1	8
4:15 PM	5	0	4	0	9
4:30 PM	2	2	0	0	4
4:45 PM	0	3	1	0	4
5:00 PM	0	2	0	1	3
5:15 PM	3	2	0	0	5
5:30 PM	1	3	1	0	5
5:45 PM	0	1	0	0	1
Count Total	15	15	7	2	39
Peak Hour Total	7	7	5	1	20
Peak Hour HV%	1.8%	1.9%	12.2%	6.7%	2.5%

Pedestrians (Leg)				
E	W	N	S	Total
0	3	0	0	3
3	0	0	0	3
2	2	0	0	4
0	1	0	0	1
1	0	0	0	1
1	0	0	0	1
0	0	0	0	0
0	1	0	0	1
7	7	0	0	14
6	3	0	0	9

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 410 & SR 164



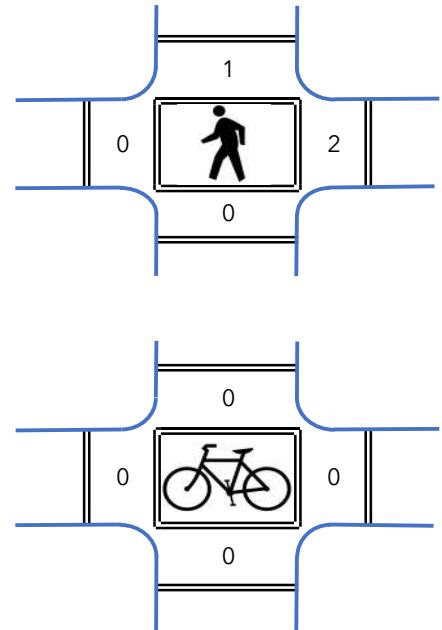
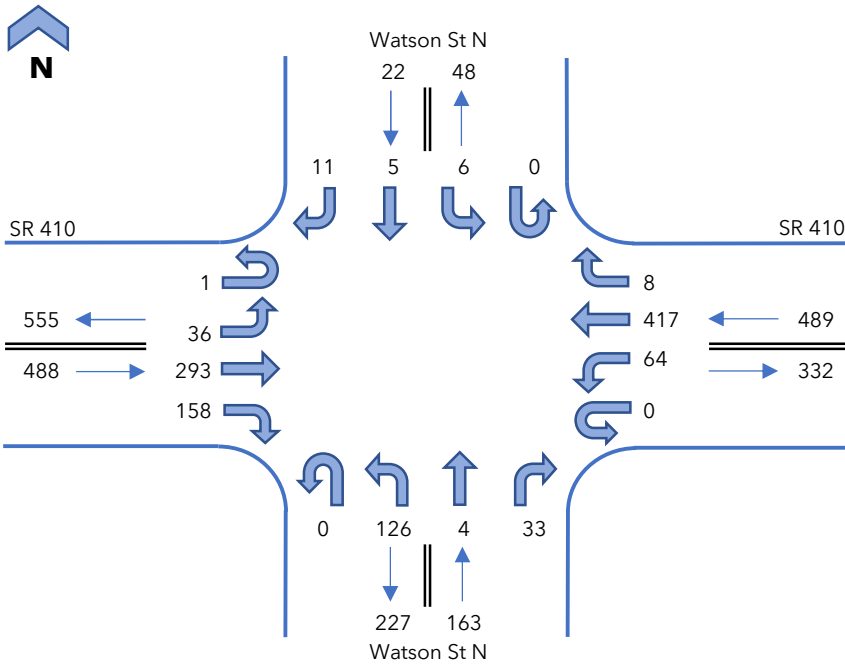
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Access Northbound				SR 164 Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	0	48	10	0	3	85	49	0	15	12	1	0	54	11	5	293	
4:15 PM	0	0	46	16	0	4	73	64	0	14	13	3	0	58	22	7	320	
4:30 PM	0	0	56	14	0	7	58	60	0	18	24	2	0	60	21	5	325	
4:45 PM	0	1	77	10	0	1	71	64	0	17	14	1	0	64	18	4	342	1280
5:00 PM	0	0	70	17	0	1	68	74	0	14	19	0	0	81	26	2	372	1359
5:15 PM	0	0	70	7	0	6	98	65	0	20	29	2	0	56	7	4	364	1403
5:30 PM	0	0	48	8	0	3	54	51	0	14	19	2	0	51	14	3	267	1345
5:45 PM	0	0	47	20	0	6	64	56	0	13	16	0	0	45	24	1	292	1295
Count Total	0	1	462	102	0	31	571	483	0	125	146	11	0	469	143	31	2575	--
Peak Hour Total	0	1	273	48	0	15	295	263	0	69	86	5	0	261	72	15	1403	--
PHF	0.91				0.85				0.78				0.80				0.94	--
Heavy Vehicles	0	0	12	0	0	1	15	8	0	0	3	0	0	4	1	1	45	--
HV %	0.0%	0.0%	4.4%	0.0%	0.0%	6.7%	5.1%	3.0%	0.0%	0.0%	3.5%	0.0%	0.0%	1.5%	1.4%	6.7%	3.2%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	2	3	0	2	7
4:15 PM	0	5	1	2	8
4:30 PM	2	7	2	4	15
4:45 PM	6	7	0	0	13
5:00 PM	0	4	1	1	6
5:15 PM	4	6	0	1	11
5:30 PM	2	0	0	3	5
5:45 PM	0	4	1	5	10
Count Total	16	36	5	18	75
Peak Hour Total	12	24	3	6	45
Peak Hour HV%	3.7%	4.2%	1.9%	1.7%	3.2%

Pedestrians (Leg)				
E	W	N	S	Total
1	0	0	1	2
3	0	0	3	6
0	0	0	0	0
1	0	1	0	2
0	0	3	0	3
2	0	0	2	4
0	1	2	0	3
0	0	0	0	0
7	1	6	6	20
3	0	4	2	9

Bicycles (Leg)				
E	W	N	S	Total
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0

SR 410 & Watson Street N



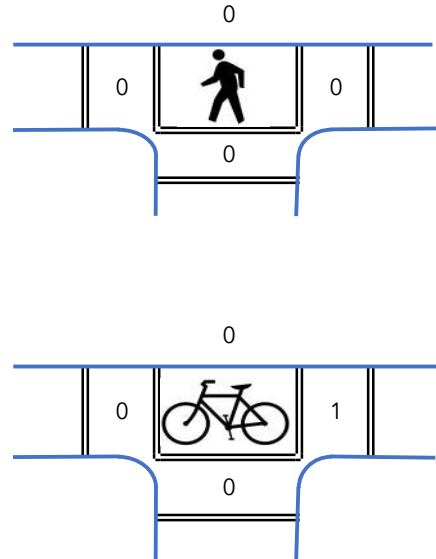
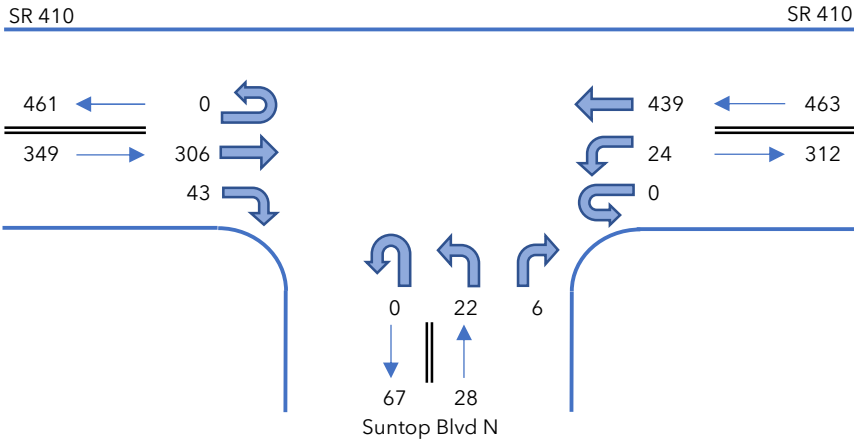
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Watson St N Northbound				Watson St N Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	4	59	31	0	22	101	0	0	28	1	11	0	1	0	0	258	
4:15 PM	0	5	69	34	0	16	107	0	0	24	0	5	0	1	1	1	263	
4:30 PM	0	8	59	40	0	13	93	2	0	25	0	7	0	2	1	3	253	
4:45 PM	1	8	89	30	0	17	100	1	0	30	2	11	0	1	0	0	290	1064
5:00 PM	0	10	71	44	0	19	101	2	0	36	2	8	0	1	2	4	300	1106
5:15 PM	0	10	74	44	0	15	123	3	0	35	0	7	0	2	2	4	319	1162
5:30 PM	0	4	54	34	0	10	83	1	0	25	2	8	0	0	0	4	225	1134
5:45 PM	0	7	50	32	0	14	81	1	0	34	2	8	0	1	0	2	232	1076
Count Total	1	56	525	289	0	126	789	10	0	237	9	65	0	9	6	18	2140	--
Peak Hour Total	1	36	293	158	0	64	417	8	0	126	4	33	0	6	5	11	1162	--
PHF	0.95				0.87				0.89				0.69				0.91	--
Heavy Vehicles	0	0	17	1	0	3	17	1	0	2	0	0	0	0	0	0	41	--
HV %	0.0%	0.0%	5.8%	0.6%	0.0%	4.7%	4.1%	12.5%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	1	2	0	0	3
4:15 PM	4	5	0	0	9
4:30 PM	5	4	0	0	9
4:45 PM	7	7	0	0	14
5:00 PM	1	7	0	0	8
5:15 PM	5	3	2	0	10
5:30 PM	4	0	0	0	4
5:45 PM	2	4	0	0	6
Count Total	29	32	2	0	63
Peak Hour Total	18	21	2	0	41
Peak Hour HV%	3.7%	4.3%	1.2%	0.0%	3.5%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	1	1
0	0	0	0	0
0	0	1	0	1
1	0	0	0	1
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	1	1	0	2
2	1	2	1	6
2	0	1	0	3

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	1	2
1	0	0	1	2
0	0	0	0	0

SR 410 & Suntop Boulevard N



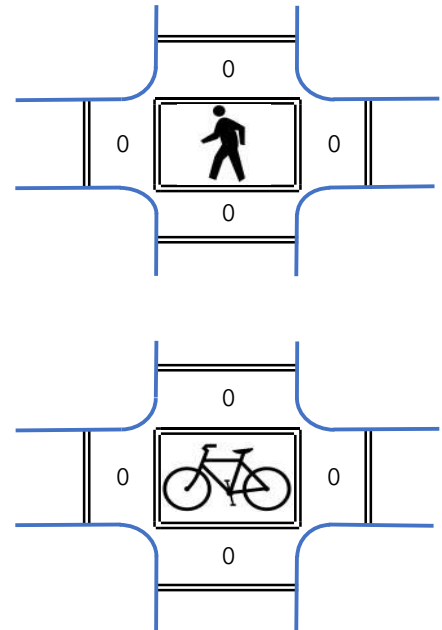
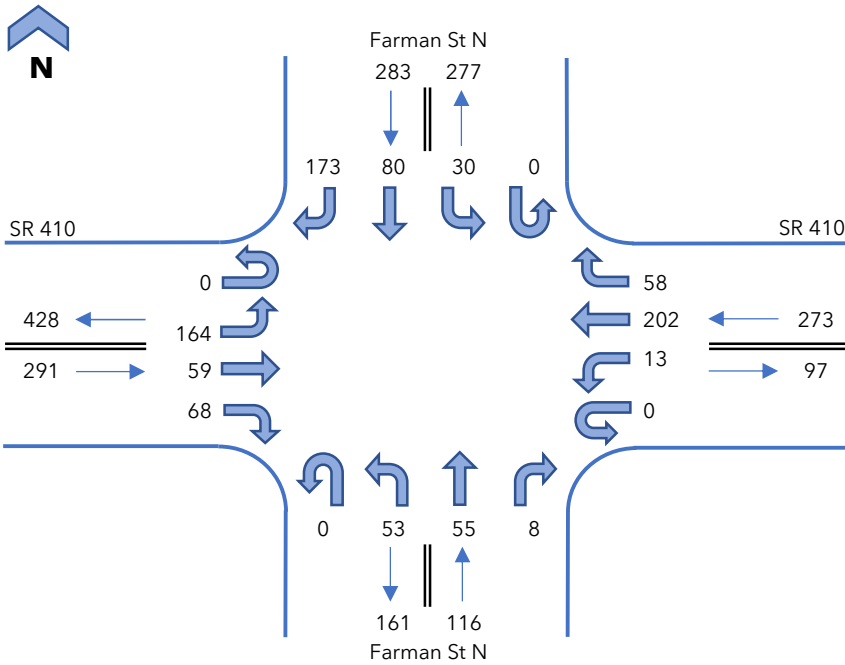
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Suntop Blvd N Northbound								15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT						
4:00 PM	0	--	71	7	0	5	124	--	0	3	--	2	--	--	--	--	212	
4:15 PM	0	--	66	7	0	4	108	--	0	4	--	1	--	--	--	--	190	
4:30 PM	0	--	61	8	0	6	96	--	0	4	--	2	--	--	--	--	177	
4:45 PM	0	--	87	9	0	9	107	--	0	4	--	3	--	--	--	--	219	798
5:00 PM	0	--	83	15	0	6	118	--	0	6	--	0	--	--	--	--	228	814
5:15 PM	0	--	75	11	0	3	118	--	0	8	--	1	--	--	--	--	216	840
5:30 PM	0	--	51	13	0	5	81	--	0	6	--	2	--	--	--	--	158	821
5:45 PM	0	--	52	9	0	1	79	--	0	3	--	1	--	--	--	--	145	747
Count Total	0	--	546	79	0	39	831	--	0	38	--	12	--	--	--	--	1545	--
Peak Hour Total	0	--	306	43	0	24	439	--	0	22	--	6	--	--	--	--	840	--
PHF	0.89				0.93				0.78				--				0.92	--
Heavy Vehicles	0	--	13	0	0	1	22	--	0	0	--	0	--	--	--	--	36	--
HV %	0.0%	--	4.2%	0.0%	0.0%	4.2%	5.0%	--	0.0%	0.0%	--	0.0%	--	--	--	--	4.3%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	2	2	0	--	4
4:15 PM	3	5	0	--	8
4:30 PM	3	9	0	--	12
4:45 PM	6	5	0	--	11
5:00 PM	2	7	0	--	9
5:15 PM	2	2	0	--	4
5:30 PM	3	3	0	--	6
5:45 PM	2	2	0	--	4
Count Total	23	35	0	--	58
Peak Hour Total	13	23	0	--	36
Peak Hour HV%	3.7%	5.0%	0.0%	--	4.3%

Pedestrians (Leg)					
E	W	N	S	Total	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	

Bicycles (Leg)					
E	W	N	S	Total	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
1	0	0	0	1	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
1	0	0	0	1	

SR 410 & Farman Street N



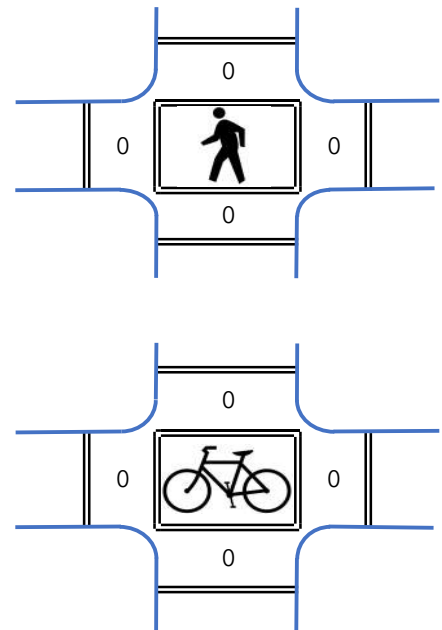
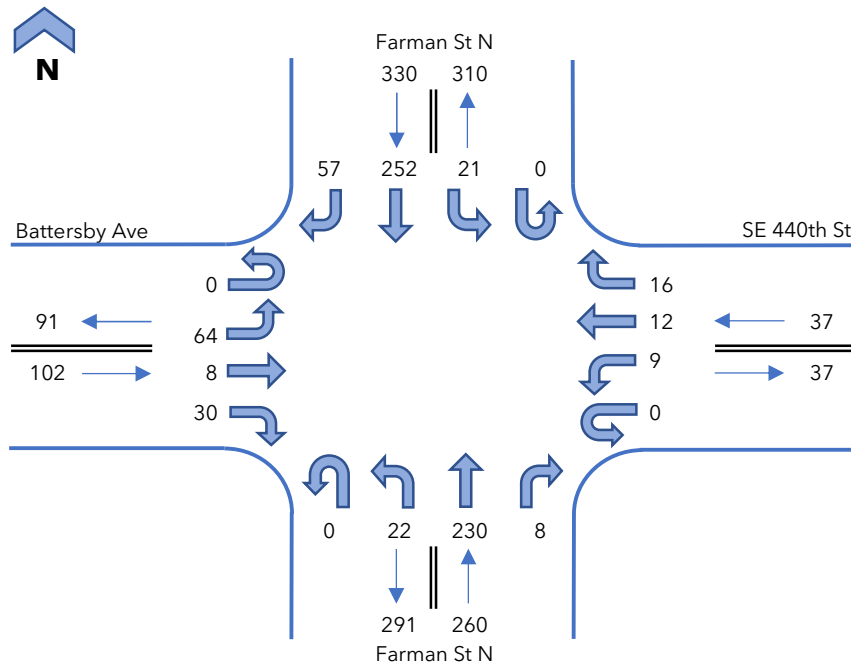
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Farman St N Northbound				Farman St N Southbound				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	35	14	17	0	4	51	15	0	13	9	2	0	4	22	44	230	
4:15 PM	0	33	13	17	0	1	51	20	0	12	13	0	0	6	16	47	229	
4:30 PM	0	35	9	21	0	3	40	12	0	14	13	3	0	4	19	46	219	
4:45 PM	0	48	21	18	0	1	49	13	0	13	15	2	0	6	27	40	253	931
5:00 PM	0	43	11	18	0	4	58	17	0	12	16	2	0	10	14	44	249	950
5:15 PM	0	38	18	11	0	5	55	16	0	14	11	1	0	10	20	43	242	963
5:30 PM	0	23	9	13	0	5	29	9	0	15	9	1	0	5	16	32	166	910
5:45 PM	0	31	12	8	0	2	30	5	0	19	9	0	0	0	14	26	156	813
Count Total	0	286	107	123	0	25	363	107	0	112	95	11	0	45	148	322	1744	--
Peak Hour Total	0	164	59	68	0	13	202	58	0	53	55	8	0	30	80	173	963	--
PHF	0.84				0.86				0.97				0.97				0.95	--
Heavy Vehicles	0	1	3	0	0	0	4	0	0	0	1	0	0	1	0	5	15	--
HV %	0.0%	0.6%	5.1%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	3.3%	0.0%	2.9%	1.6%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	0	1	1	1	3
4:15 PM	1	1	0	3	5
4:30 PM	0	1	0	4	5
4:45 PM	3	2	0	2	7
5:00 PM	0	1	1	0	2
5:15 PM	1	0	0	0	1
5:30 PM	3	2	0	1	6
5:45 PM	1	1	0	0	2
Count Total	9	9	2	11	31
Peak Hour Total	4	4	1	6	15
Peak Hour HV%	1.4%	1.5%	0.9%	2.1%	1.6%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Battersby Avenue (SE 440th Street) & Farman Street N



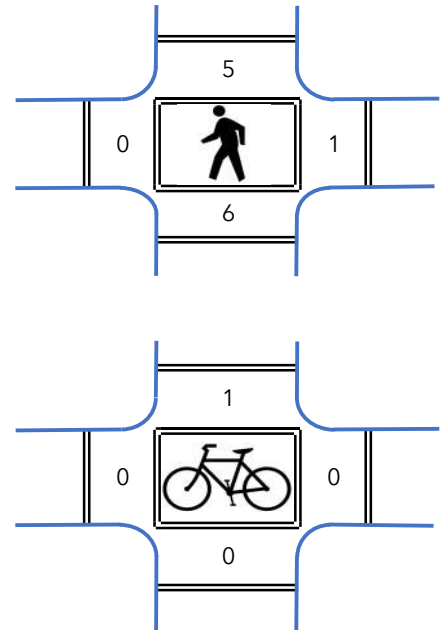
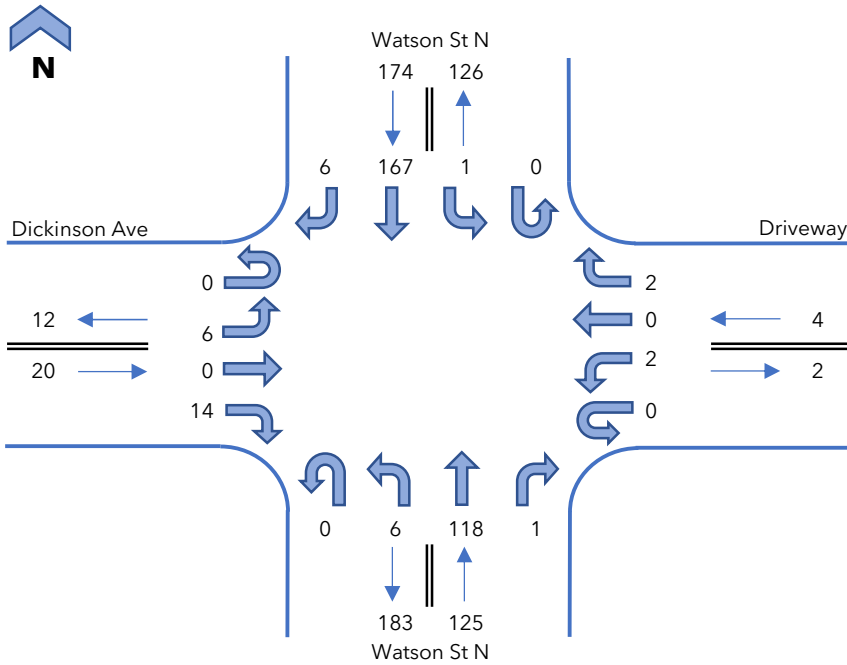
Interval Start Time	Battersby Ave				SE 440th St				Farman St N				Farman St N				15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	17	5	5	0	1	2	3	0	4	54	2	0	7	62	15	177	729
4:15 PM	0	14	1	5	0	3	2	4	0	4	59	2	0	7	58	17	176	
4:30 PM	0	18	1	11	0	4	6	8	0	10	48	2	0	5	54	7	174	
4:45 PM	0	15	1	9	0	1	2	1	0	4	69	2	0	2	78	18	202	
5:00 PM	0	14	0	5	0	5	2	2	0	5	58	2	0	1	68	8	170	
5:15 PM	0	17	0	8	0	1	1	3	0	11	61	0	0	0	51	6	159	
5:30 PM	0	6	1	5	0	0	0	1	0	3	42	0	0	0	50	13	121	
5:45 PM	0	4	0	3	0	0	2	1	0	11	36	1	0	0	38	11	107	
Count Total	0	105	9	51	0	15	17	23	0	52	427	11	0	22	459	95	1286	--
Peak Hour Total	0	64	8	30	0	9	12	16	0	22	230	8	0	21	252	57	729	--
PHF	0.85				0.51				0.87				0.84				0.90	--
Heavy Vehicles	0	3	0	1	0	0	1	2	0	1	1	0	0	3	9	1	22	--
HV %	0.0%	4.7%	0.0%	3.3%	0.0%	0.0%	8.3%	12.5%	0.0%	4.5%	0.4%	0.0%	0.0%	14.3%	3.6%	1.8%	3.0%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	1	1	1	2	5
4:15 PM	1	2	0	5	8
4:30 PM	1	0	1	3	5
4:45 PM	1	0	0	3	4
5:00 PM	0	0	1	0	1
5:15 PM	0	0	1	1	2
5:30 PM	0	0	0	2	2
5:45 PM	0	0	0	0	0
Count Total	4	3	4	16	27
Peak Hour Total	4	3	2	13	22
Peak Hour HV%	3.9%	8.1%	0.8%	3.9%	3.0%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Dickinson Avenue & Watson Street N



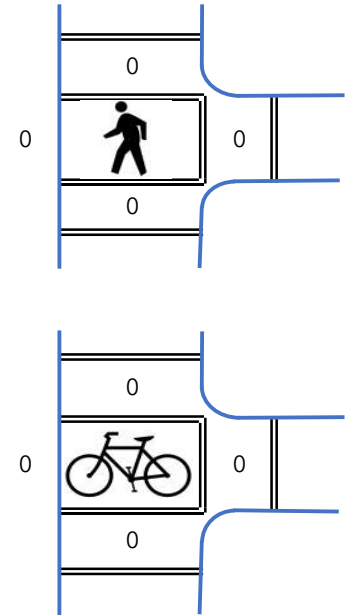
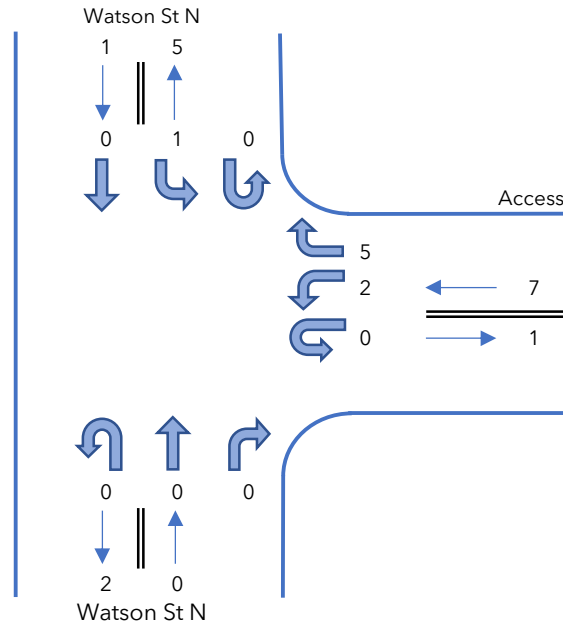
Interval Start Time	Dickinson Ave				Driveway				Watson St N				Watson St N				15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	0	1	0	0	0	0	0	2	0	4	29	0	0	0	35	3	74	288 304 321 323 318
4:15 PM	0	1	0	4	0	0	0	0	0	4	22	0	0	0	36	3	70	
4:30 PM	0	2	0	4	0	0	0	1	0	3	21	0	0	1	36	4	72	
4:45 PM	0	2	0	3	0	0	0	0	0	2	32	0	0	0	31	2	72	
5:00 PM	0	4	0	5	0	2	0	2	0	2	31	1	0	1	42	0	90	
5:15 PM	0	0	0	3	0	0	0	0	0	1	25	0	0	0	56	2	87	
5:30 PM	0	0	0	3	0	0	0	0	0	1	30	0	0	0	38	2	74	
5:45 PM	0	1	0	6	0	1	0	0	0	0	29	0	0	0	26	4	67	
Count Total	0	11	0	28	0	3	0	5	0	17	219	1	0	2	300	20	606	--
Peak Hour Total	0	6	0	14	0	2	0	2	0	6	118	1	0	1	167	6	323	--
PHF	0.56				0.25				0.92				0.75				0.90	--
Heavy Vehicles	0	1	0	0	0	0	0	0	0	0	2	0	0	0	3	0	6	--
HV %	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	1.8%	0.0%	1.9%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1
4:30 PM	0	0	2	1	3
4:45 PM	0	0	0	1	1
5:00 PM	1	0	0	0	1
5:15 PM	0	0	2	2	4
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
Count Total	1	0	5	4	10
Peak Hour Total	1	0	2	3	6
Peak Hour HV%	5.0%	0.0%	1.6%	1.7%	1.9%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	4	4
0	0	1	0	1
0	0	0	1	1
0	0	1	1	2
1	0	1	1	3
0	0	3	2	5
0	0	0	2	2
0	0	0	2	2
1	0	6	13	20
1	0	5	6	12

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	1	1
0	0	0	0	0
0	0	1	0	1
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	2	1	3
0	0	1	0	1

Proposed Access & Watson Street N TM



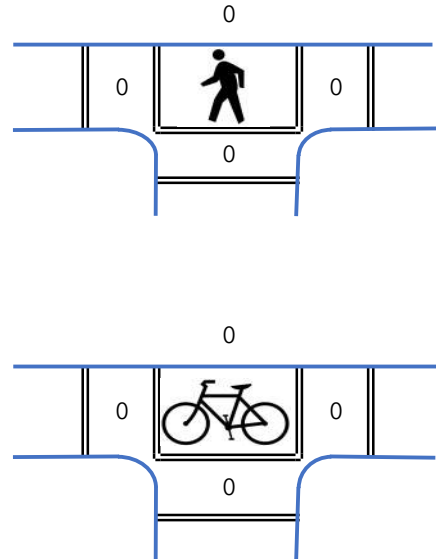
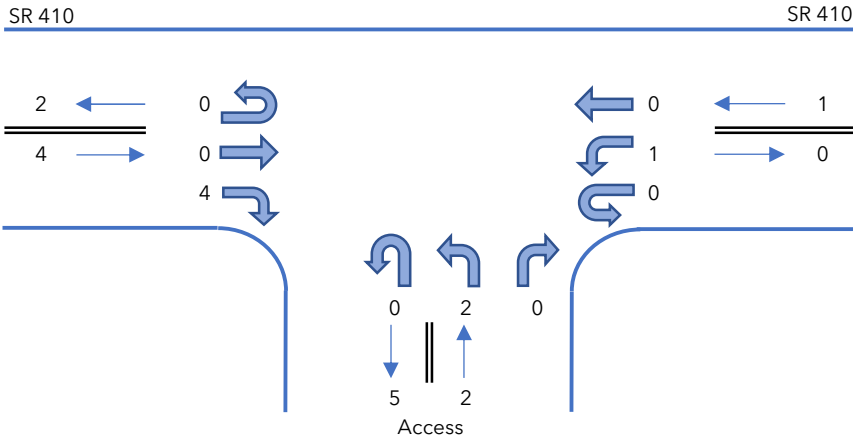
Interval Start Time					Access				Watson St N				Watson St N				15 Minute Totals	Hourly Totals	
					Westbound				Northbound				Southbound						
					UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT			
4:00 PM	--	--	--	--	0	0	--	1	0	--	0	0	0	0	0	0	--	1	
4:15 PM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	0	--	0	
4:30 PM	--	--	--	--	0	0	--	1	0	--	0	0	0	0	1	0	--	2	
4:45 PM	--	--	--	--	0	0	--	2	0	--	0	0	0	0	0	0	--	2	5
5:00 PM	--	--	--	--	0	1	--	2	0	--	0	0	0	0	0	0	--	3	7
5:15 PM	--	--	--	--	0	1	--	0	0	--	0	0	0	0	0	0	--	1	8
5:30 PM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	0	--	0	6
5:45 PM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	2	0	--	2	6
Count Total	--	--	--	--	0	2	--	6	0	--	0	0	0	0	3	0	--	11	--
Peak Hour Total	--	--	--	--	0	2	--	5	0	--	0	0	0	0	1	0	--	8	--
PHF	--				0.58				#DIV/0!				0.25				0.67	--	
Heavy Vehicles	--	--	--	--	0	0	--	1	0	--	0	0	0	0	0	0	--	1	--
HV %	--	--	--	--	0.0%	0.0%	--	20.0%	0.0%	--	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	--	12.5%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	--	0	0	0	0
4:15 PM	--	0	0	0	0
4:30 PM	--	0	0	0	0
4:45 PM	--	1	0	0	1
5:00 PM	--	0	0	0	0
5:15 PM	--	0	0	0	0
5:30 PM	--	0	0	0	0
5:45 PM	--	0	0	0	0
Count Total	--	1	0	0	1
Peak Hour Total	--	1	0	0	1
Peak Hour HV%	--	14.3%	0.0%	0.0%	12.5%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

SR 410 & Proposed Access TM



Interval Start Time	SR 410				SR 410				Access								15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound									
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT						
4:00 PM	0	--	0	0	0	1	0	--	0	1	--	0	--	--	--	--	2	7
4:15 PM	0	--	0	1	0	0	0	--	0	1	--	0	--	--	--	--	2	
4:30 PM	0	--	0	2	0	0	0	--	0	0	--	0	--	--	--	--	2	
4:45 PM	0	--	0	1	0	0	0	--	0	0	--	0	--	--	--	--	1	
5:00 PM	0	--	0	0	0	0	0	--	0	0	--	0	--	--	--	--	0	
5:15 PM	0	--	0	0	0	0	0	--	0	0	--	0	--	--	--	--	0	
5:30 PM	0	--	0	0	0	0	0	--	0	0	--	0	--	--	--	--	0	
5:45 PM	0	--	0	0	0	0	0	--	0	1	--	0	--	--	--	--	1	
Count Total	0	--	0	4	0	1	0	--	0	3	--	0	--	--	--	--	8	--
Peak Hour Total	0	--	0	4	0	1	0	--	0	2	--	0	--	--	--	--	7	--
PHF	0.50				0.25				0.50				--				0.88	--
Heavy Vehicles	0	--	0	0	0	0	0	--	0	0	--	0	--	--	--	--	0	--
HV %	0.0%	--	0.0%	0.0%	0.0%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%	--	--	--	--	0.0%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	0	0	0	--	0
4:15 PM	0	0	0	--	0
4:30 PM	0	0	0	--	0
4:45 PM	0	0	0	--	0
5:00 PM	0	0	0	--	0
5:15 PM	0	0	0	--	0
5:30 PM	0	0	0	--	0
5:45 PM	0	0	0	--	0
Count Total	0	0	0	--	0
Peak Hour Total	0	0	0	--	0
Peak Hour HV%	0.0%	0.0%	0.0%	--	0.0%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	0	2
0	2	0	0	2
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX *ITE Sheets*



Specialty Trade Contractor

(180)

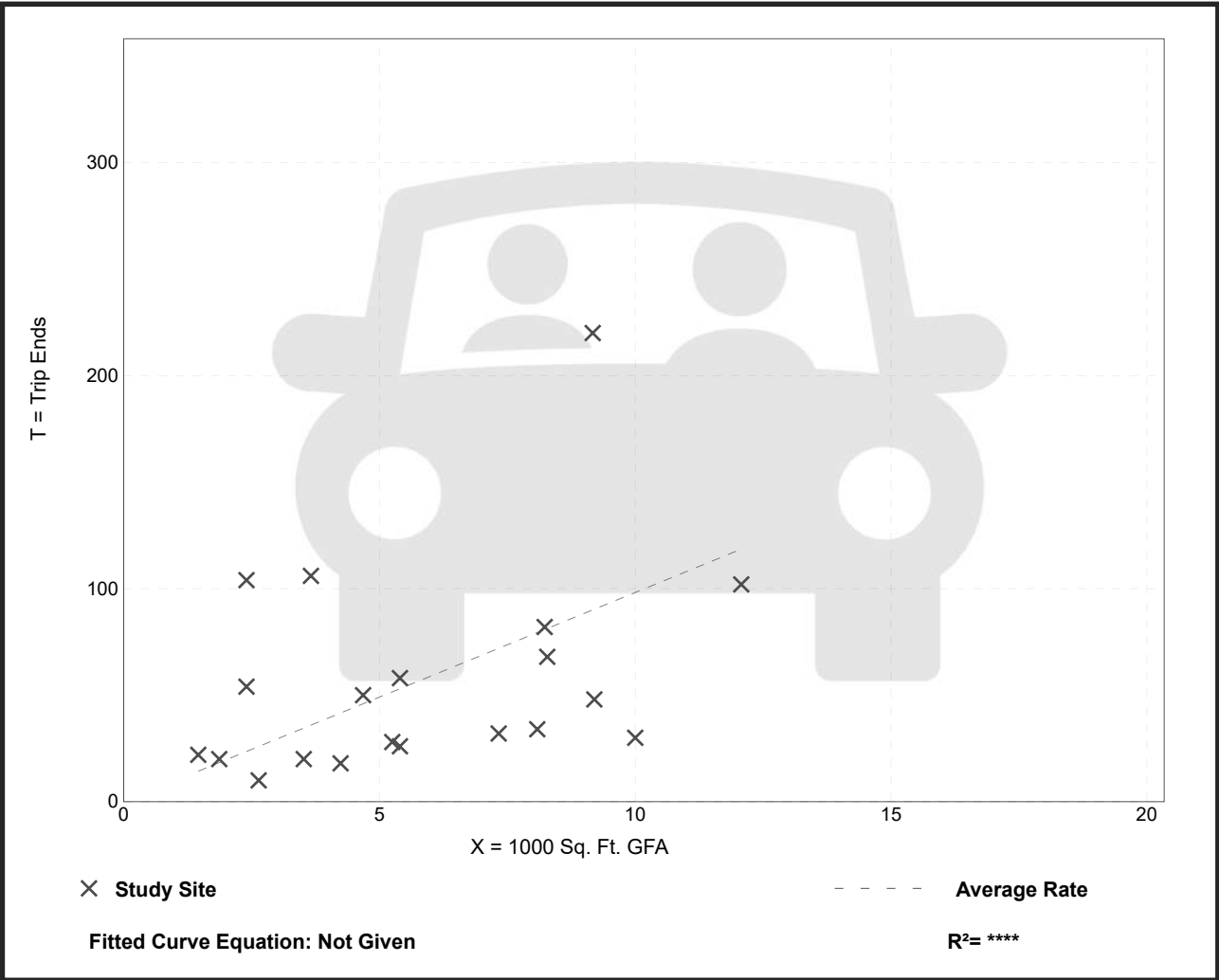
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 20
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.82	3.00 - 43.33	8.56

Data Plot and Equation



Specialty Trade Contractor

(180)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 20

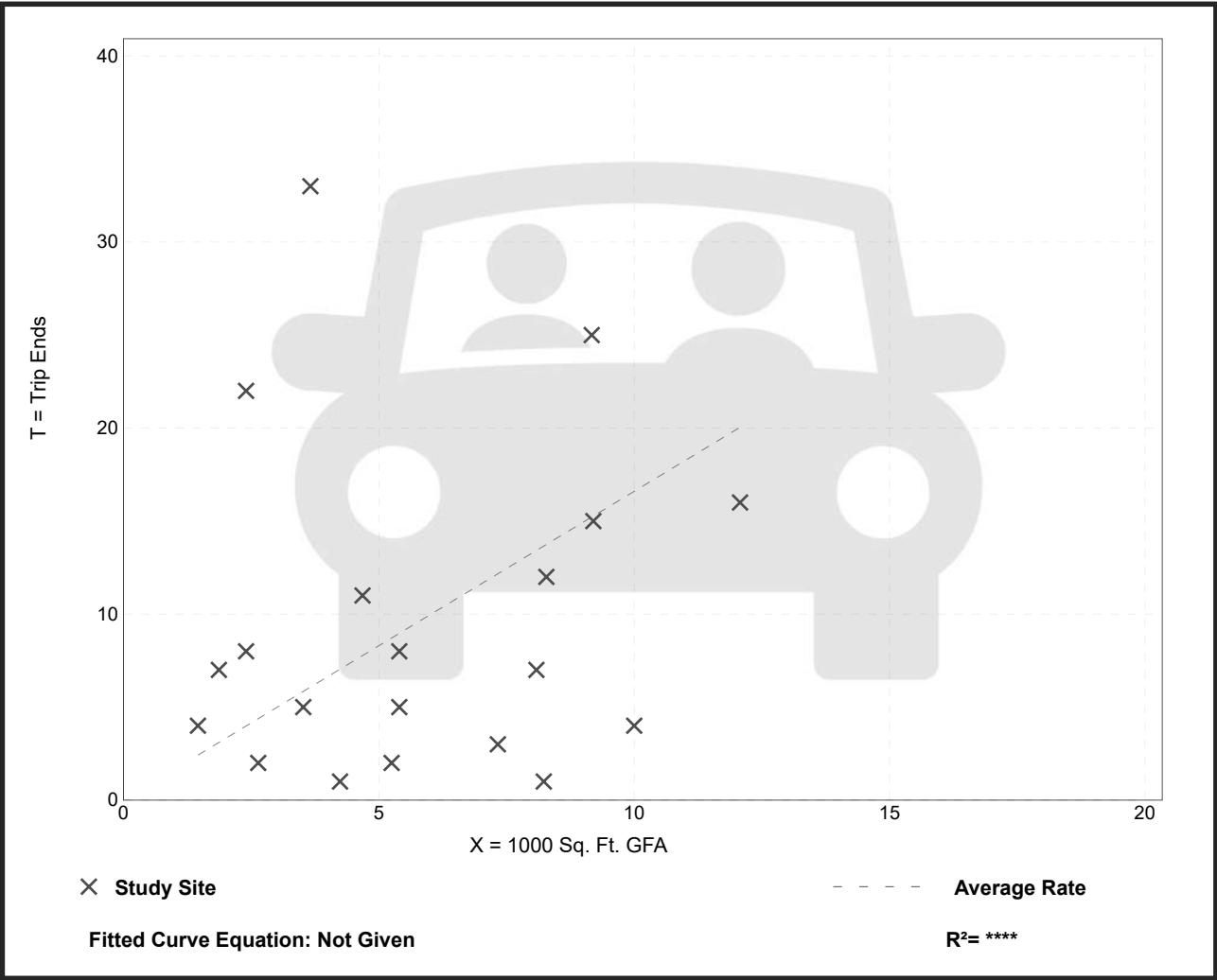
Avg. 1000 Sq. Ft. GFA: 6

Directional Distribution: 74% entering, 26% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.66	0.12 - 9.17	2.00

Data Plot and Equation



Specialty Trade Contractor

(180)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 19

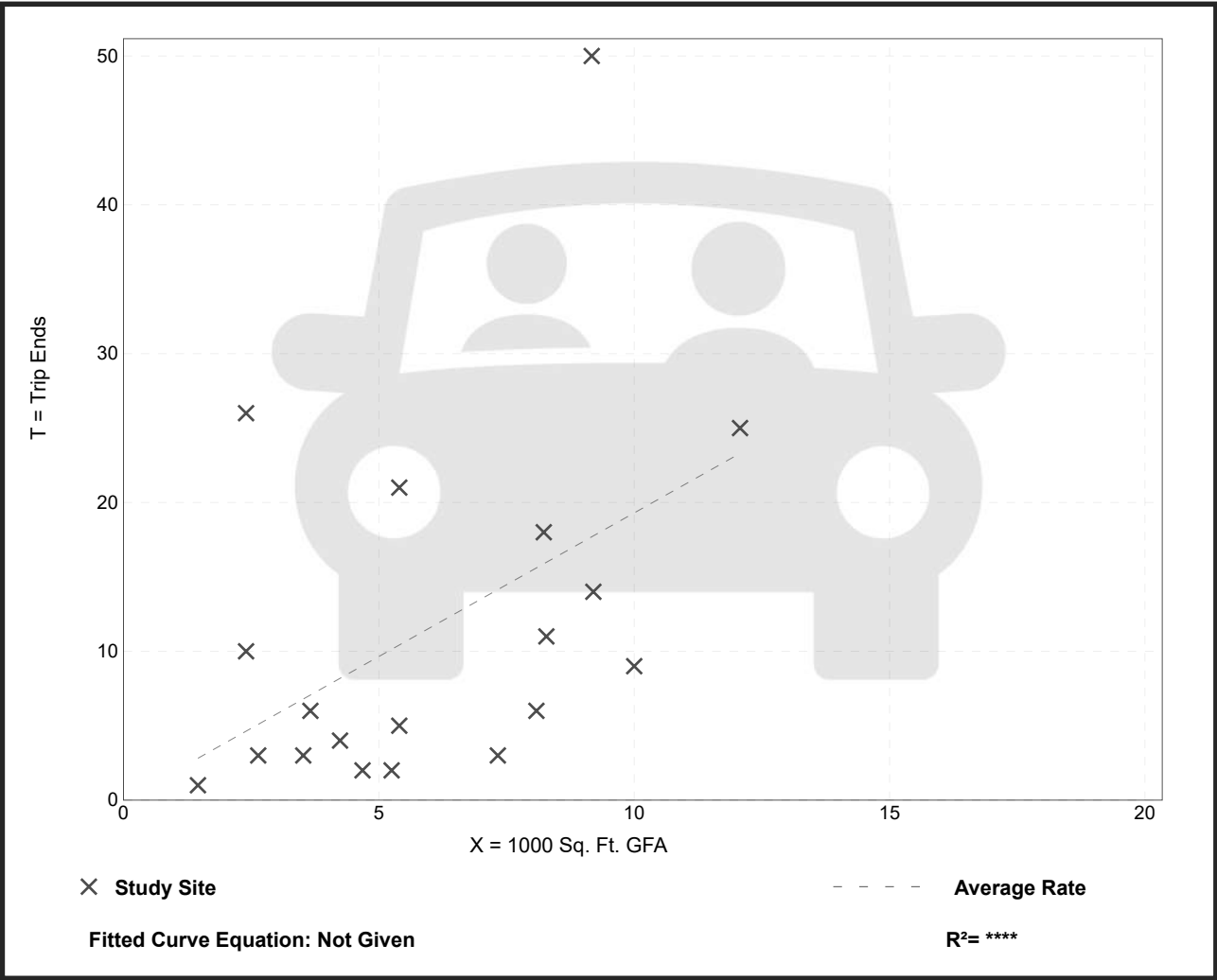
Avg. 1000 Sq. Ft. GFA: 6

Directional Distribution: 32% entering, 68% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.93	0.38 - 10.83	1.98

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

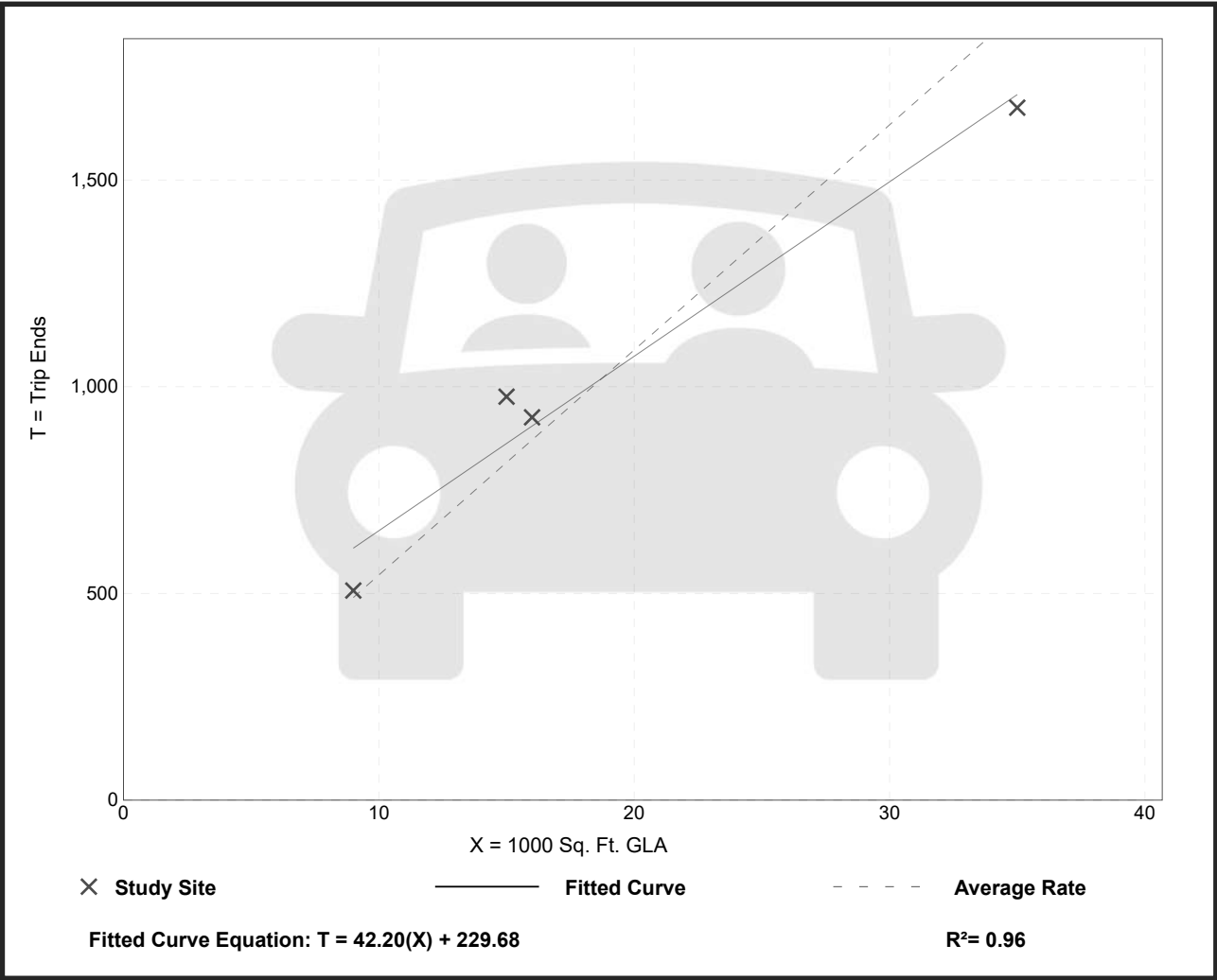
Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. 1000 Sq. Ft. GLA: 19
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

Data Plot and Equation

Caution – Small Sample Size



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Strip Retail Plaza (<40k) (822)

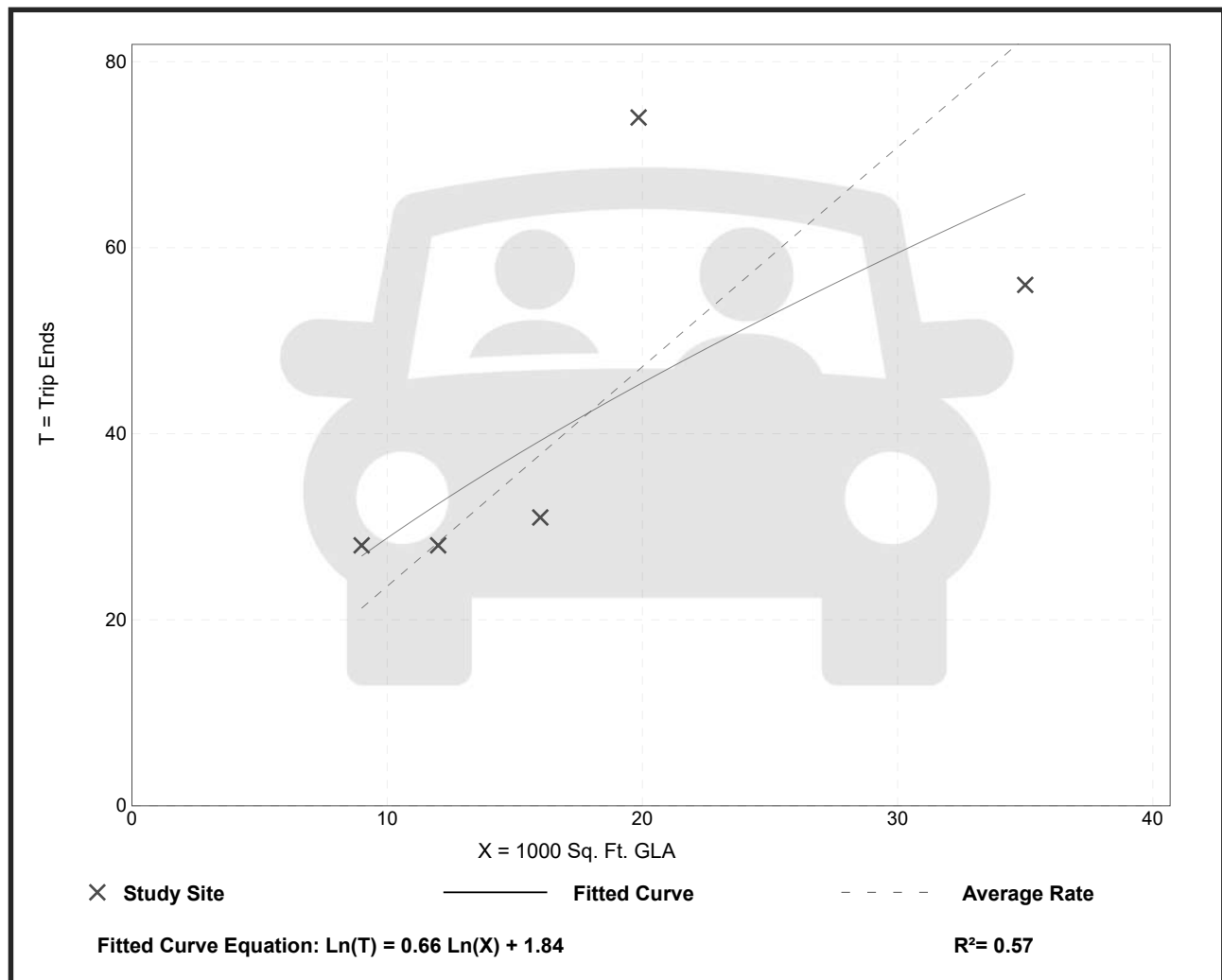
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 5
 Avg. 1000 Sq. Ft. GLA: 18
 Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation

Caution – Small Sample Size



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Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 25

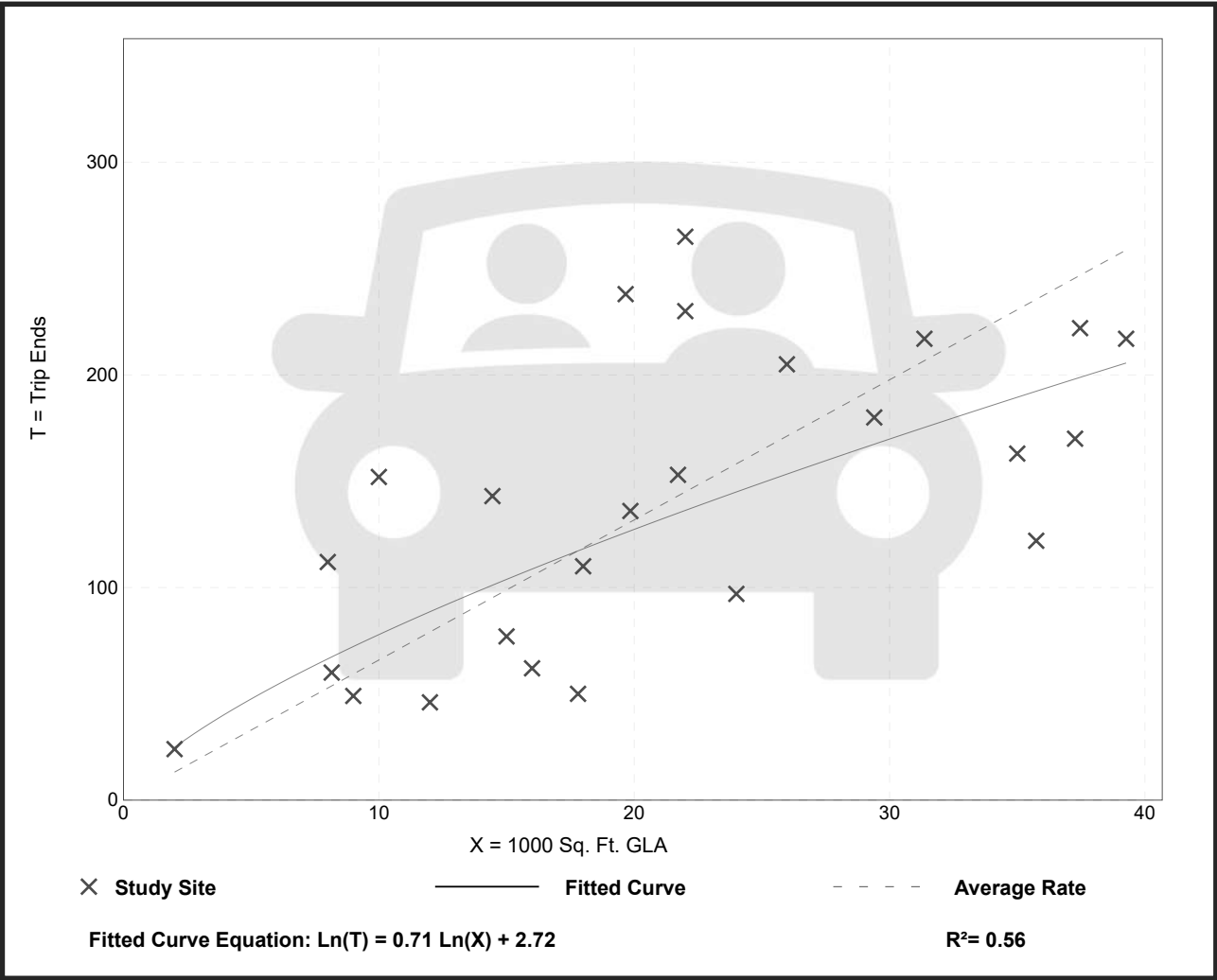
Avg. 1000 Sq. Ft. GLA: 21

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Medical-Dental Office Building - Stand-Alone (720)

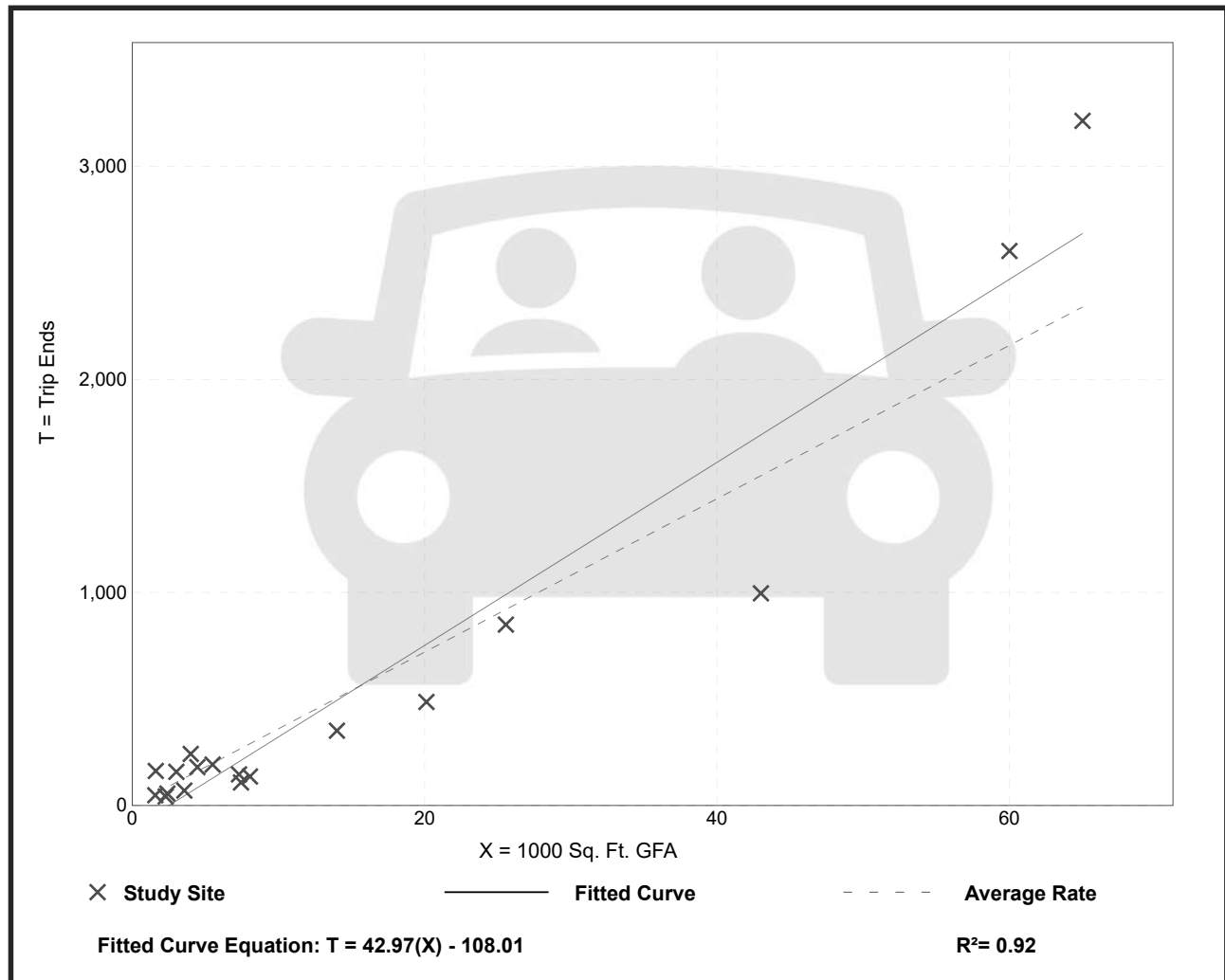
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 18
Avg. 1000 Sq. Ft. GFA: 15
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
36.00	14.52 - 100.75	13.38

Data Plot and Equation



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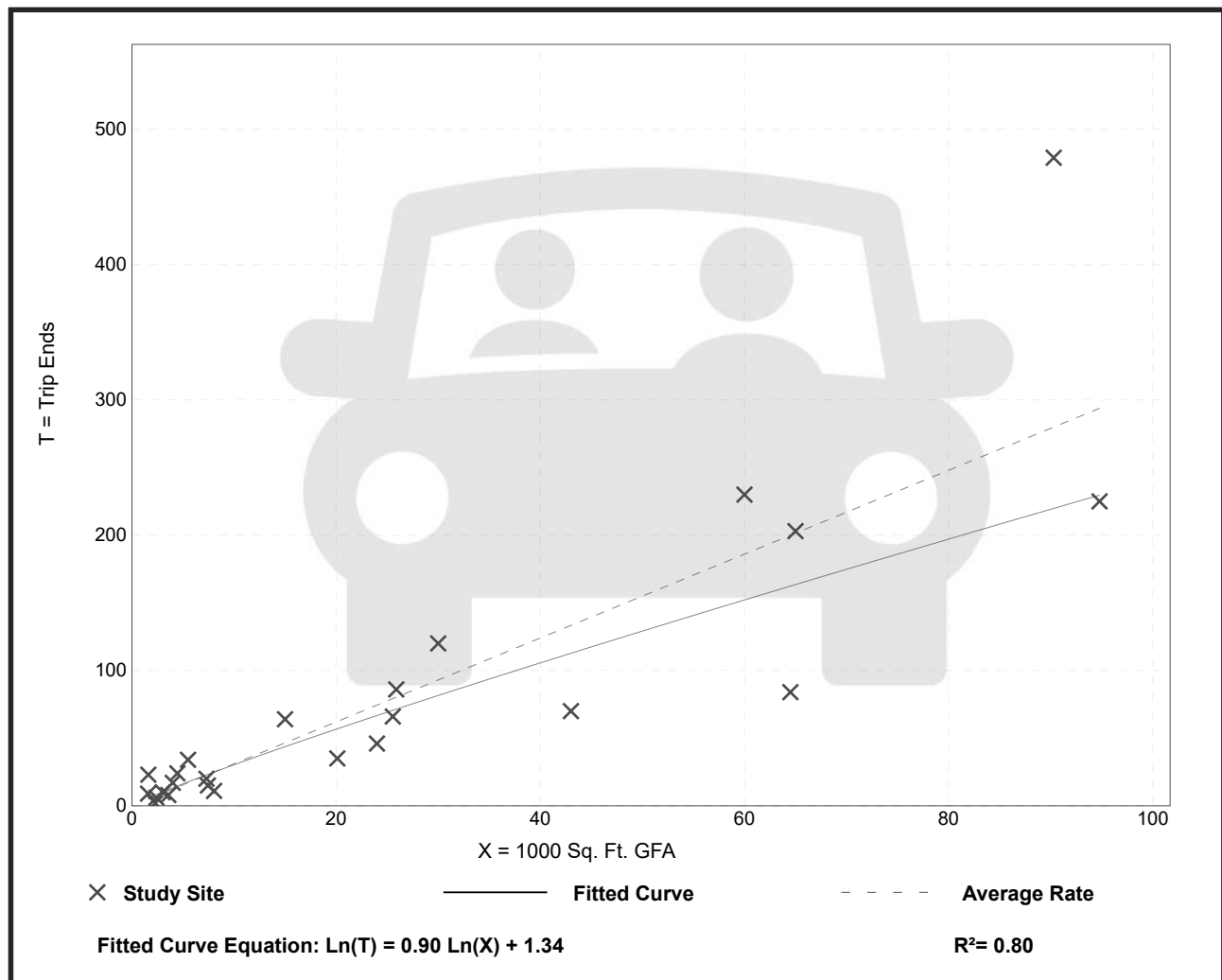
Medical-Dental Office Building - Stand-Alone (720)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 24
 Avg. 1000 Sq. Ft. GFA: 25
 Directional Distribution: 79% entering, 21% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.10	0.87 - 14.30	1.49

Data Plot and Equation



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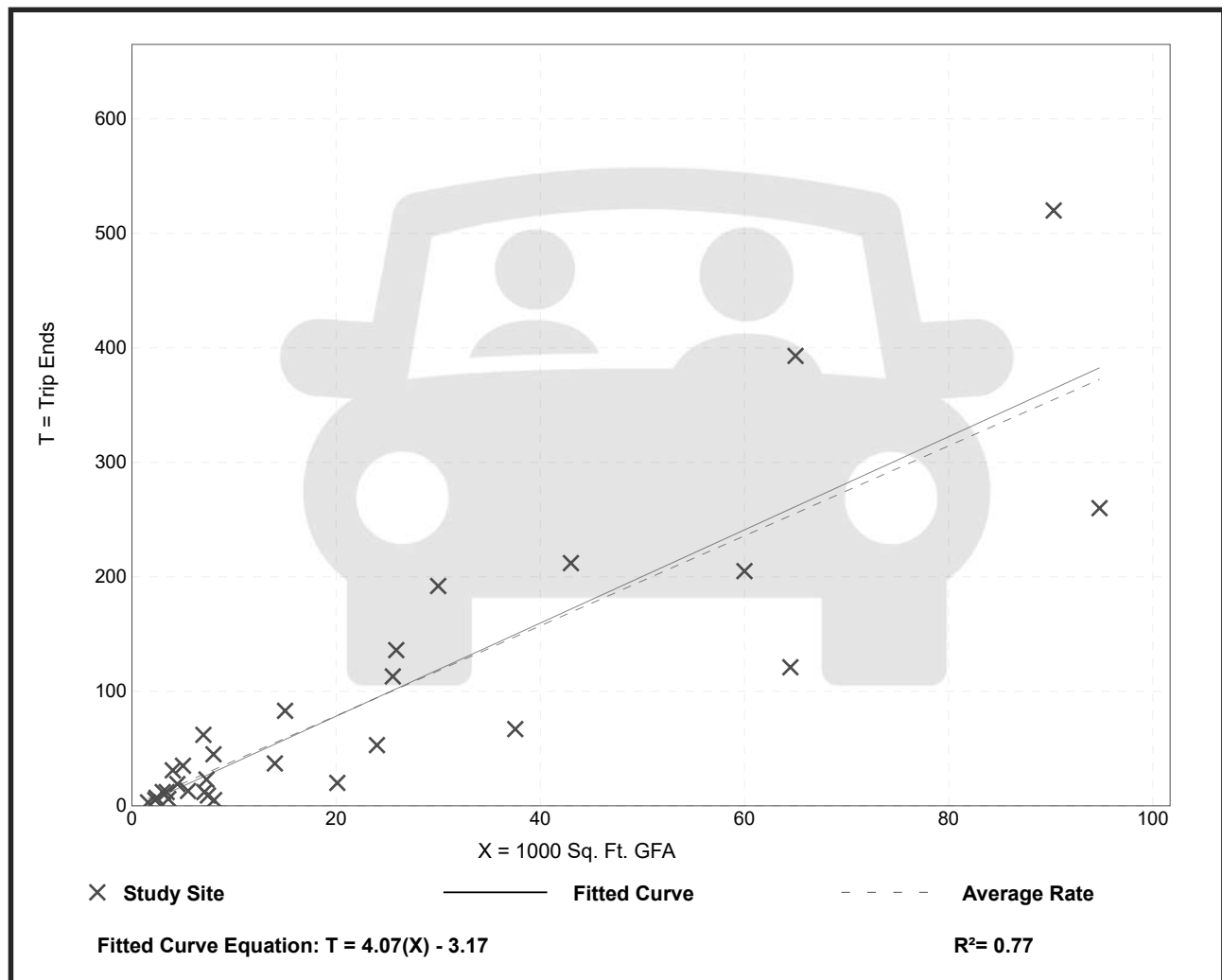
Medical-Dental Office Building - Stand-Alone (720)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 30
 Avg. 1000 Sq. Ft. GFA: 23
 Directional Distribution: 30% entering, 70% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.93	0.62 - 8.86	1.86

Data Plot and Equation



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Coffee/Donut Shop with Drive-Through Window and No Indoor Seating (938)

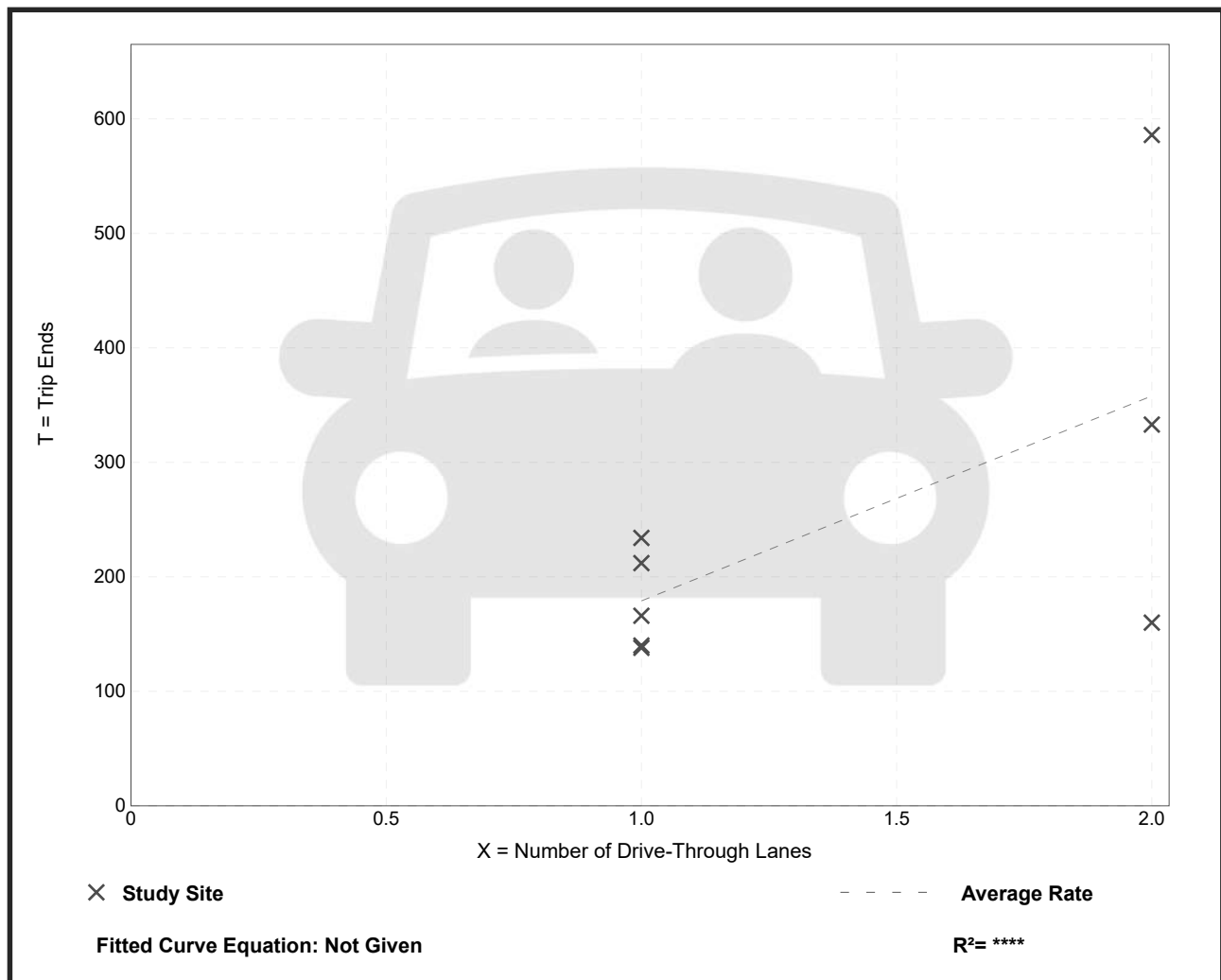
Vehicle Trip Ends vs: Drive-Through Lanes
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. Num. of Drive-Through Lanes: 1
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Drive-Through Lane

Average Rate	Range of Rates	Standard Deviation
179.00	80.00 - 293.00	74.48

Data Plot and Equation



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Coffee/Donut Shop with Drive-Through Window and No Indoor Seating (938)

Vehicle Trip Ends vs: Drive-Through Lanes

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 20

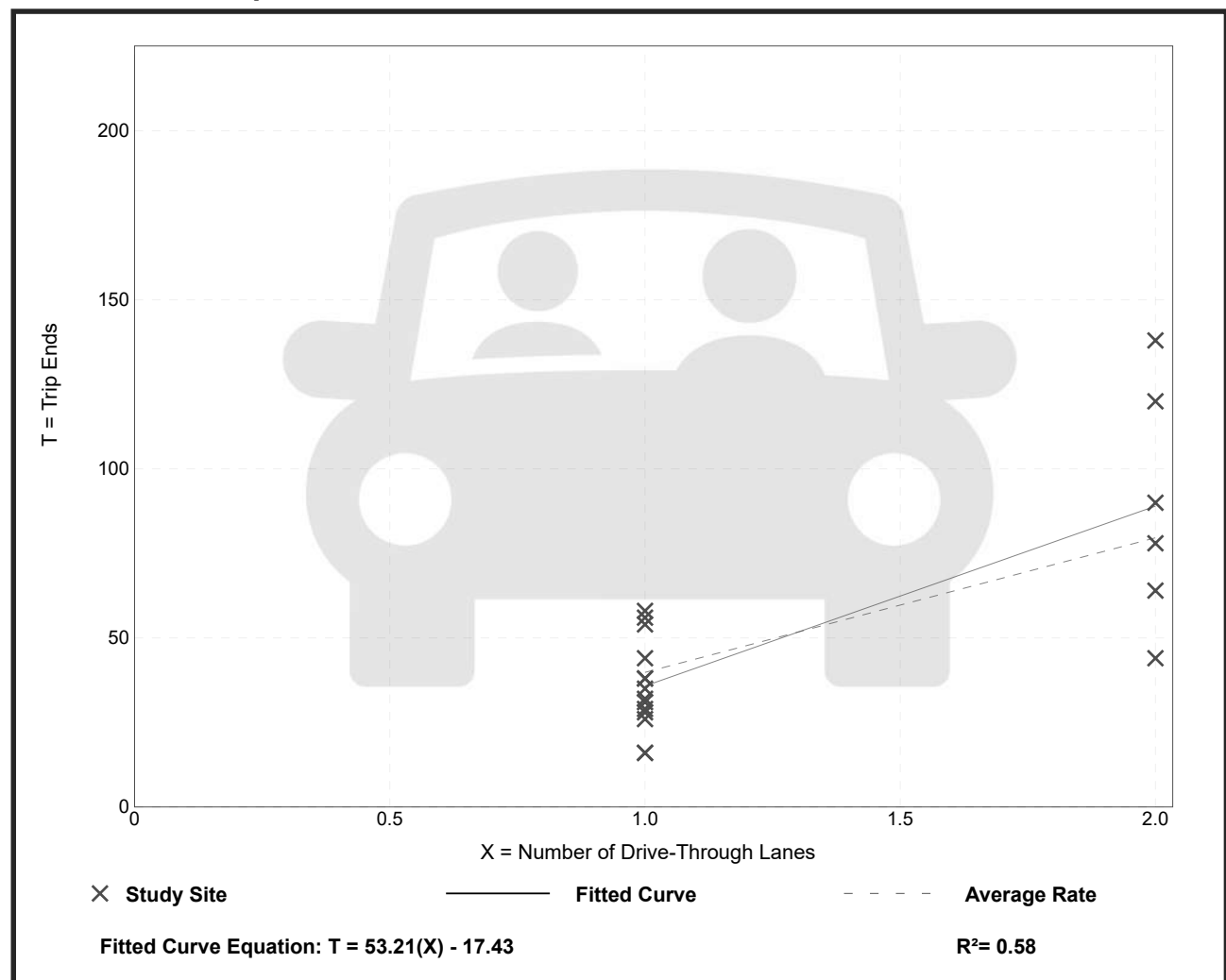
Avg. Num. of Drive-Through Lanes: 1

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Drive-Through Lane

Average Rate	Range of Rates	Standard Deviation
39.81	16.00 - 69.00	15.44

Data Plot and Equation



Trip Gen Manual, 11th Edition

• Institute of Transportation Engineers

Coffee/Donut Shop with Drive-Through Window and No Indoor Seating (938)

Vehicle Trip Ends vs: Drive-Through Lanes

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 8

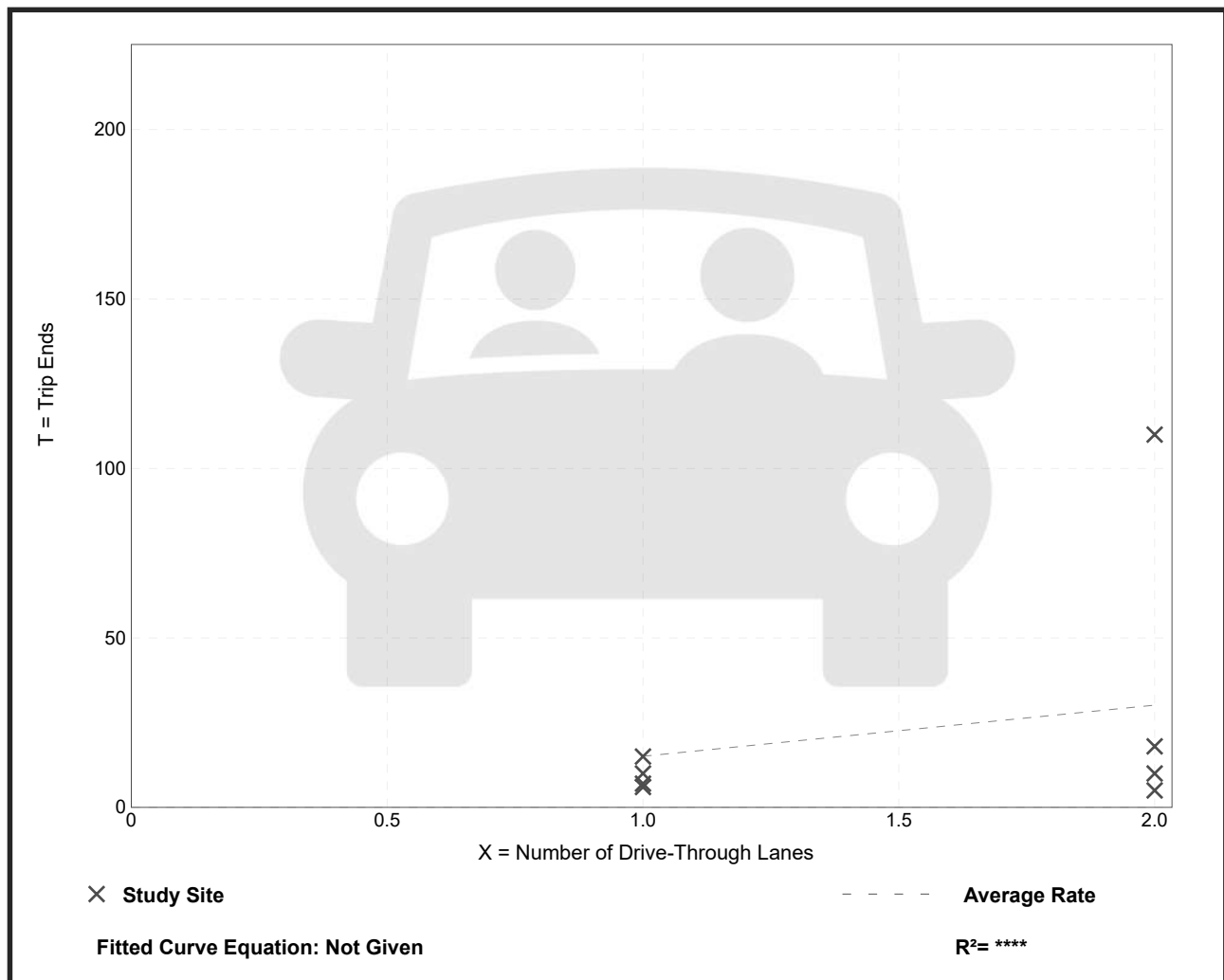
Avg. Num. of Drive-Through Lanes: 2

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Drive-Through Lane

Average Rate	Range of Rates	Standard Deviation
15.08	2.50 - 55.00	19.41

Data Plot and Equation



Trip Gen Manual, 11th Edition

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202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX
Pipeline Excel



SR 410 & SR 164

AM Peak Hour

Pipeline Volume Summations

	↙	↓	↘	↖	←	↗	↑	↘	→	↙
1. Gracepoint NW			5	3	4				5	
2. Watson St Apartments				2	2				1	
3. Battersby Plat					2				1	
4. Work MPH (Crystal Mountain MHC)			7	15	5				2	
5. The Enumclaw Aquatic Center										
6. Mazatlan Enumclaw										
7. Mountain View Multi			1	3	2					
8. Grainery II			1	3	2				1	
9. Holdener Phase I			3	11	5				2	
10. Cole Street Storage										
11. Pickle Farm			4	1	1				1	
12. Holdener Phase II/Sunrise Meadows			2	7	3					
13. Fiske 410			5	15	12				3	
14. Gateway Commercial			43	35	35				43	
15. Stevenson/Gambrel Meadows					1				2	
16. Gateway Plat									1	
17. Rainier Lodging			2	4	4				2	
Totals	↙	↓	↘	↖	←	↗	↑	↘	→	↙
	0	0	73	99	78	0	0	0	65	0

SR 410 & Watson St N

AM Peak Hour

Pipeline Volume Summations

	↙	↓	↘	↖	←	↗	↑	↘	→	↙
1. Gracepoint NW				7					10	
2. Watson St Apartments						1		4	1	
3. Battersby Plat					2				1	
4. Work MPH (Crystal Mountain MHC)					20				9	
5. The Enumclaw Aquatic Center										
6. Mazatlan Enumclaw										
7. Mountain View Multi				5					1	
8. Grainery II				5					2	
9. Holdener Phase I				16					5	
10. Cole Street Storage										
11. Pickle Farm				2					5	
12. Holdener Phase II/Sunrise Meadows					10				3	
13. Fiske 410					27				8	
14. Gateway Commercial					70				86	
15. Stevenson/Gambrel Meadows					1				2	
16. Gateway Plat									1	
17. Rainier Lodging					8				4	
Totals	↙	↓	↘	↖	←	↗	↑	↘	→	↙
	0	0	0	0	173	0	1	0	4	137

SR 410 & Suntut Blvd N

AM Peak Hour

Pipeline Volume Summations

	↙	↓	↘	↖	←	↗	↑	↘	→	↙
1. Gracepoint NW				7					10	
2. Watson St Apartments									1	
3. Battersby Plat					2				1	
4. Work MPH (Crystal Mountain MHC)					20				9	
5. The Enumclaw Aquatic Center										
6. Mazatlan Enumclaw										
7. Mountain View Multi				5					1	
8. Grainery II				5					2	
9. Holdener Phase I					2	5		16	5	
10. Cole Street Storage										
11. Pickle Farm									5	
12. Holdener Phase II/Sunrise Meadows					2	1	2	10	3	
13. Fiske 410					27				8	
14. Gateway Commercial					-48	99	114	118	158	-72
15. Stevenson/Gambrel Meadows					1				2	
16. Gateway Plat									1	
17. Rainier Lodging					8				4	
Totals	↙	↓	↘	↖	←	↗	↑	↘	→	↙
	0	0	0	0	29	102	121	0	144	166

SR 410 & Farman St N

AM Peak Hour

Pipeline Volume Summations

	↙	↓	↘	↖	←	↗	↑	↘	→	↙
1. Gracepoint NW				1	1	1			1	
2. Watson St Apartments										
3. Battersby Plat				2	1	1				1
4. Work MPH (Crystal Mountain MHC)					1	3	20	1	1	9
5. The Enumclaw Aquatic Center										
6. Mazatlan Enumclaw										
7. Mountain View Multi						5			1	
8. Grainery II						5				
9. Holdener Phase I						1			2	3
10. Cole Street Storage										
11. Pickle Farm					1					
12. Holdener Phase II/Sunrise Meadows										
13. Fiske 410						27	2	1		8
14. Gateway Commercial						9			8	7
15. Stevenson/Gambrel Meadows						1				2
16. Gateway Plat										1
17. Rainier Lodging						8	2	1		1
Totals	↙	↓	↘	↖	←	↗	↑	↘	→	↙
	51	6	4	4	65	3	2	5	8	7

SR 410 & SR 164

PM Peak Hour

Pipeline Volume Summations

	↙	↓	↘	↖	←	↗	↑	↘	→	↙
1. Gracepoint NW			3	3	4				3	
2. Watson St Apartments			2	1	1				2	
3. Battersby Plat					1				3	
4. Work MPH (Crystal Mountain MHC)			24	13	6				8	
5. The Enumclaw Aquatic Center					3				2	
6. Mazatlan Enumclaw			2	1	3				5	
7. Mountain View Multi			3	1	2				2	
8. Grainery II			3	2	1				3	
9. Holdener Phase I			12	7	3				5	
10. Cole Street Storage										
11. Pickle Farm			1	4	1				1	
12. Holdener Phase II/Sunrise Meadows			7	4	2				3	
13. Fiske 410			16	9	7				13	
14. Gateway Commercial			41	43	43				41	
15. Stevenson/Gambrel Meadows					3				2	
16. Gateway Plat					1				1	
17. Rainier Lodging			4	3	4				5	
Totals	↙	↓	↘	↖	←	↗	↑	↘	→	↙
	0	0	118	91	85	0	0	0	99	0

SR 410 & Watson St N

PM Peak Hour

Pipeline Volume Summations

	↙	↓	↘	↖	←	↗	↑	↘	→	↙
1. Gracepoint NW				7					6	
2. Watson St Apartments						1	1		2	4
3. Battersby Plat					19				32	
4. Work MPH (Crystal Mountain MHC)					1				3	
5. The Enumclaw Aquatic Center					3				2	
6. Mazatlan Enumclaw					4	1	2		7	
7. Mountain View Multi					3				5	
8. Grainery II					3				6	
9. Holdener Phase I					10				17	
10. Cole Street Storage										
11. Pickle Farm					5				2	
12. Holdener Phase II/Sunrise Meadows					6				10	
13. Fiske 410					16				29	
14. Gateway Commercial					86				82	
15. Stevenson/Gambrel Meadows					3				2	
16. Gateway Plat					1				1	
17. Rainier Lodging					7				9	
Totals	↙	↓	↘	↖	←	↗	↑	↘	→	↙
	0	0	0	0	174	2	3	0	2	4

SR 410 & Suntut Blvd N

PM Peak Hour

Pipeline Volume Summations

	↙	↓	↘	↖	←	↗	↑	↘	→	↙
1. Gracepoint NW				7					6	
2. Watson St Apartments									1	
3. Battersby Plat									3	
4. Work MPH (Crystal Mountain MHC)					19				32	
5. The Enumclaw Aquatic Center					3				2	
6. Mazatlan Enumclaw					5	2	4		9	
7. Mountain View Multi					3				5	
8. Grainery II					3				6	
9. Holdener Phase I						5	3		10	17
10. Cole Street Storage										
11. Pickle Farm						5				2
12. Holdener Phase II/Sunrise Meadows						3	2		6	10
13. Fiske 410						16				29
14. Gateway Commercial						-52	101	89	137	120
15. Stevenson/Gambrel Meadows						3				-38
16. Gateway Plat						1				1
17. Rainier Lodging						7				9
Totals	↙	↓	↘	↖	←	↗	↑	↘	→	↙
	0	0	0	0	22	111	98	0	153	147

SR 410 & Farman St N

PM Peak Hour

Pipeline Volume Summations

	↙	↓	↘	↖	←	↗	↑	↘	→	↙
1. Gracepoint NW				1	1				1	
2. Watson St Apartments										
3. Battersby Plat				1	1				1	
4. Work MPH (Crystal Mountain MHC)					4	3	19	1	2	3
5. The Enumclaw Aquatic Center							3			2
6. Mazatlan Enumclaw							1		2	1
7. Mountain View Multi							3			5
8. Grainery II							3		1	6
9. Holdener Phase I							2			1
10. Cole Street Storage										2
11. Pickle Farm										
12. Holdener Phase II/Sunrise Meadows										
13. Fiske 410							16	2	2	29
14. Gateway Commercial							8		8	9
15. Stevenson/Gambrel Meadows							3			34
16. Gateway Plat							1			2
17. Rainier Lodging							7	1	1	9
Totals	↙	↓	↘	↖	←	↗	↑	↘	→	↙
	51	7	5	4	59	3	4	6	10	9

Farman St N & Battersby Ave**AM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
1. Gracepoint NW		1						1	1	1		
2. Watson St Apartments												
3. Battersby Plat			1	3	3	4	1				1	
4.Work MPH (Crystal Mountain MHC)		1						3				
5. The Enumclaw Aquatic Center												
6. Mazatlan Enumclaw		1						1	1			
7. Mountain View Multi		1						1	1			
8. Grainery II		1						1	2			
9. Holdener Phase I		1						1	2			
10. Cole Street Storage											1	
11. Pickle Farm		1								1		
12. Holdener Phase II/Sunrise Meadows		1						1				
13. Fiske 410		1						4	6	2		
14. Gateway Commercial		17						15	14	17		
15. Stevenson/Gambrel Meadows												
16. Gateway Plat												
17. Rainier Lodging		2						3	4	2		
Totals	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
	0	27	1	3	3	4	1	30	29	23	1	1

SR 410 & Semanski**AM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
1. Gracepoint NW		1						2				
2. Watson St Apartments		2						1				
3. Battersby Plat		2										
4.Work MPH (Crystal Mountain MHC)		6						3				
5. The Enumclaw Aquatic Center								1	1			
6. Mazatlan Enumclaw		1						1				
7. Mountain View Multi		1										
8. Grainery II		2						1				
9. Holdener Phase I		1						1				
10. Cole Street Storage		1						2				
11. Pickle Farm		1										
12. Holdener Phase II/Sunrise Meadows		5						1				
13. Fiske 410		1						1				
14. Gateway Commercial		13						21				
15. Stevenson/Gambrel Meadows												
16. Gateway Plat		5						1				
17. Rainier Lodging		4						2				
Totals	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
	0	46	0	0	0	0	0	39	1	1	0	0

SR 410 & Warner**AM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
1. Gracepoint NW		2	1					2				2
2. Watson St Apartments		2						1				
3. Battersby Plat		2										
4.Work MPH (Crystal Mountain MHC)		5			1	1	2					
5. The Enumclaw Aquatic Center												
6. Mazatlan Enumclaw		1	1					1				
7. Mountain View Multi		1	1									
8. Grainery II		2						1				
9. Holdener Phase I		1	1		2	8	2	1		1		
10. Cole Street Storage		1						2				
11. Pickle Farm		1						1				
12. Holdener Phase II/Sunrise Meadows		1			2	4	1			1		
13. Fiske 410		3	3					1				
14. Gateway Commercial		5	13					21				5
15. Stevenson/Gambrel Meadows												
16. Gateway Plat								5	1			
17. Rainier Lodging						4					2	
Totals	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
	13	34	0	0	8	18	5	34	0	0	4	7

SR 410 & Roosevelt**AM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
1. Gracepoint NW		1	3					4				1
2. Watson St Apartments		2						1				
3. Battersby Plat		2						1				
4.Work MPH (Crystal Mountain MHC)		5						2				
5. The Enumclaw Aquatic Center												
6. Mazatlan Enumclaw		2						1				
7. Mountain View Multi		2										
8. Grainery II		2						1				
9. Holdener Phase I		3	2					1			1	
10. Cole Street Storage												
11. Pickle Farm		1						1				
12. Holdener Phase II/Sunrise Meadows		2	1								1	
13. Fiske 410		3	6					1			1	
14. Gateway Commercial		5	18					26			5	
15. Stevenson/Gambrel Meadows		1									2	
16. Gateway Plat		2						1				
17. Rainier Lodging		4						2				
Totals	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
	15	52	0	0	0	0	0	42	0	0	0	11

Farman St N & Battersby Ave**PM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
1. Gracepoint NW								1	1	1		
2. Watson St Apartments												
3. Battersby Plat			3	2	2	2	4				4	
4.Work MPH (Crystal Mountain MHC)		4						3				
5. The Enumclaw Aquatic Center		1						1		1		
6. Mazatlan Enumclaw		1										
7. Mountain View Multi		1						1		1		
8. Grainery II		1						1		1		
9. Holdener Phase I		2						1	1	1		
10. Cole Street Storage												
11. Pickle Farm								1	1			
12. Holdener Phase II/Sunrise Meadows		1						1		1		
13. Fiske 410		4						2	4	7		
14. Gateway Commercial		17						17	17	16		
15. Stevenson/Gambrel Meadows												
16. Gateway Plat												
17. Rainier Lodging		3						3	3	4		
Totals	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
	0	34	3	2	2	2	4	32	27	33	4	0

SR 410 & Semanski**PM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
1. Gracepoint NW		1						1				
2. Watson St Apartments		1						2				
3. Battersby Plat		1										
4.Work MPH (Crystal Mountain MHC)		7						10				
5. The Enumclaw Aquatic Center										6	3	
6. Mazatlan Enumclaw		1						1				
7. Mountain View Multi		1						1				
8. Grainery II		1						3				
9. Holdener Phase I		1						2				
10. Cole Street Storage		2						1				
11. Pickle Farm		1						1				
12. Holdener Phase II/Sunrise Meadows		3						5				
13. Fiske 410		2						6				
14. Gateway Commercial		21						19				
15. Stevenson/Gambrel Meadows												
16. Gateway Plat		3						6				
17. Rainier Lodging		4						5				
Totals	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
	0	50	0	0	0	0	0	66	6	3	0	0

SR 410 & Warner**PM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
1. Gracepoint NW		1						1				
2. Watson St Apartments		1						2				
3. Battersby Plat		1						3				
4.Work MPH (Crystal Mountain MHC)		6				1	2	8				
5. The Enumclaw Aquatic Center		3									2	
6. Mazatlan Enumclaw		1						1			1	
7. Mountain View Multi		1	1					1			1	
8. Grainery II		1						3				
9. Holdener Phase I		1			2	5	7	2		3		
10. Cole Street Storage		2						1				
11. Pickle Farm		1						1				
12. Holdener Phase II/Sunrise Meadows		1			1	2	4	1		2		
13. Fiske 410		1	2					6			3	
14. Gateway Commercial		5	21					19			5	
15. Stevenson/Gambrel Meadows												
16. Gateway Plat							3	6				
17. Rainier Lodging		4						5				
Totals	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
	11	44	0	0	3	11	19	54	0	0	5	12

SR 410 & Roosevelt**PM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	→	↗	↑	↖	↗	↘	↙
1. Gracepoint NW		2	2					1			2	
2. Watson St Apartments		1						2				
3. Battersby Plat		1						3				
4.Work MPH (Crystal Mountain MHC)		6						8				
5. The Enumclaw Aquatic Center		3						2				
6. Mazatlan Enumclaw		1						2				
7. Mountain View Multi		2						2				
8. Grainery II		1						3				
9. Holdener Phase I		2	1					2			3	
10. Cole Street Storage												
11. Pickle Farm		1						1				
12. Holdener Phase II/Sunrise Meadows		1	1					1			2	
13. Fiske 410		2	3					9			2	
14. Gateway Commercial		5	26					24			5	
15. Stevenson/Gambrel Meadows		3									2	
16. Gateway Plat		2						3				

SR 410 & Mt Villa**AM Peak Hour****Pipeline Volume Summations**

	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
1. Gracepoint NW					4					5	
2. Watson St Apartments					2					1	
3. Battersby Plat					2					1	
4. Work MPH (Crystal Mountain MHC)					5					2	
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					2					1	
7. Mountain View Multi					2					1	
8. Grainery II					2					1	
9. Holdener Phase I					5					2	
10. Cole Street Storage											
11. Pickle Farm					1					1	
12. Holdener Phase II/Sunrise Meadows					3					1	
13. Fiske 410					9					2	
14. Gateway Commercial			2	2	23	2	2			31	
15. Stevenson/Gambrel Meadows					1					2	
16. Gateway Plat					2					1	
17. Rainier Lodging					4					2	
Totals	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
	0	0	2	2	67	2	2	0	0	53	0

SR 410 & Garrett**AM Peak Hour****Pipeline Volume Summations**

	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
1. Gracepoint NW					4					5	
2. Watson St Apartments					2					1	
3. Battersby Plat					2					1	
4. Work MPH (Crystal Mountain MHC)					5					2	
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					1					1	
7. Mountain View Multi					2					1	
8. Grainery II					2					1	
9. Holdener Phase I					5					2	
10. Cole Street Storage											
11. Pickle Farm					1					1	
12. Holdener Phase II/Sunrise Meadows					3					1	
13. Fiske 410					9					2	
14. Gateway Commercial			2	2	27					35	
15. Stevenson/Gambrel Meadows					1					2	
16. Gateway Plat					2					1	
17. Rainier Lodging					4					2	
Totals	↖ <th>↓</th> <th>↘</th> <th>↙</th> <th>←</th> <th>↗</th> <th>↑</th> <th>↖</th> <th>→</th> <th>↘</th>	↓	↘	↙	←	↗	↑	↖	→	↘	
	0	0	2	2	70	0	0	0	0	57	0

SR 410 & Stevenson**AM Peak Hour****Pipeline Volume Summations**

	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
1. Gracepoint NW					4					5	
2. Watson St Apartments					2					1	
3. Battersby Plat					2					1	
4. Work MPH (Crystal Mountain MHC)					5					2	
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					2					1	
7. Mountain View Multi					2					1	
8. Grainery II					2					1	
9. Holdener Phase I					5					2	
10. Cole Street Storage											
11. Pickle Farm					1					1	
12. Holdener Phase II/Sunrise Meadows					3					1	
13. Fiske 410				1	3	9				2	
14. Gateway Commercial				2	2	29				37	
15. Stevenson/Gambrel Meadows						1				2	
16. Gateway Plat					2					1	
17. Rainier Lodging					4					2	
Totals	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
	0	0	3	5	73	0	0	0	0	59	0

SR 410 & Blake**AM Peak Hour****Pipeline Volume Summations**

	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
1. Gracepoint NW					4					5	
2. Watson St Apartments					2					1	
3. Battersby Plat					2					1	
4. Work MPH (Crystal Mountain MHC)					5					2	
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					2	3	2			1	
7. Mountain View Multi					2						
8. Grainery II					2						
9. Holdener Phase I					5					2	
10. Cole Street Storage											
11. Pickle Farm					1					1	
12. Holdener Phase II/Sunrise Meadows					3					1	
13. Fiske 410					12					3	
14. Gateway Commercial				2	2	31	2	2		39	
15. Stevenson/Gambrel Meadows										2	
16. Gateway Plat		1					1	2	2	1	
17. Rainier Lodging					4						
Totals	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
	0	1	2	2	76	5	5	2	2	61	0

SR 410 & Mt Villa**PM Peak Hour****Pipeline Volume Summations**

	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
1. Gracepoint NW					4					3	
2. Watson St Apartments					1					2	
3. Battersby Plat					1					3	
4. Work MPH (Crstal Mountain MHC)					6					8	
5. The Enumclaw Aquatic Center					3					2	
6. Mazatlan Enumclaw					1					2	
7. Mountain View Multi					2					2	
8. Grainery II					1					3	
9. Holdener Phase I					3					5	
10. Cole Street Storage											
11. Pickle Farm					1					1	
12. Holdener Phase II/Sunrise Meadows					2					3	
13. Fiske 410					5					11	
14. Gateway Commercial			2	2	31	2	2			29	
15. Stevenson/Gambrel Meadows					3					2	
16. Gateway Plat					2					3	
17. Rainier Lodging					4					5	
Totals	↖	↓	↘	↙	←	↗	↑	↖	→	↘	
	0	0	2	2	70	2	2	0	0	84	0

SR 410 & Garrett**PM Peak Hour****Pipeline Volume Summations**

	↖	↓	↘	↙	←	↖	↑	↗	→	↘	
1. Gracepoint NW					4					3	
2. Watson St Apartments					1					2	
3. Battersby Plat					1					3	
4. Work MPH (Crystal Mountain MHC)					6					8	
5. The Enumclaw Aquatic Center					3					2	
6. Mazatlan Enumclaw					1					2	
7. Mountain View Multi					2					2	
8. Grainery II					1					3	
9. Holdener Phase I					3					5	
10. Cole Street Storage											
11. Pickle Farm					1					1	
12. Holdener Phase II/Sunrise Meadows					2					3	
13. Fiske 410					5					11	
14. Gateway Commercial			2	2	35					33	
15. Stevenson/Gambrel Meadows					3					2	
16. Gateway Plat					2					3	
17. Rainier Lodging					4					5	
Totals	0	0	2	2	74	0	0	0	0	88	0

SR 410 & Stevenson**PM Peak Hour****Pipeline Volume Summations**

	↖	↓	↘	↙	←	↖	↑	↗	→	↘	
1. Gracepoint NW					4					3	
2. Watson St Apartments					1					2	
3. Battersby Plat					1					3	
4. Work MPH (Crystal Mountain MHC)					6					8	
5. The Enumclaw Aquatic Center					3					2	
6. Mazatlan Enumclaw					1					2	
7. Mountain View Multi					2					2	
8. Grainery II					1					3	
9. Holdener Phase I					3					5	
10. Cole Street Storage											
11. Pickle Farm					1					1	
12. Holdener Phase II/Sunrise Meadows					2					3	
13. Fiske 410			2	2	5					11	
14. Gateway Commercial			2	2	37					35	
15. Stevenson/Gambrel Meadows					2					1	
16. Gateway Plat					2					3	
17. Rainier Lodging					4					5	
Totals	0	0	4	4	75	0	0	0	0	89	0

SR 410 & Blake**PM Peak Hour****Pipeline Volume Summations**

	↖	↓	↘	↙	←	↖	↑	↗	→	↘	
1. Gracepoint NW					4					3	
2. Watson St Apartments					1					2	
3. Battersby Plat					1					3	
4. Work MPH (Crystal Mountain MHC)					6					8	
5. The Enumclaw Aquatic Center					3					2	
6. Mazatlan Enumclaw					1	2	3			2	
7. Mountain View Multi					2					2	
8. Grainery II					1					3	
9. Holdener Phase I					3					5	
10. Cole Street Storage											
11. Pickle Farm					1					1	
12. Holdener Phase II/Sunrise Meadows					2					3	
13. Fiske 410					7					13	
14. Gateway Commercial			2	2	39	2	2			37	
15. Stevenson/Gambrel Meadows					3					2	
16. Gateway Plat		2				1	1	1	2	3	
17. Rainier Lodging					4					5	
Totals	0	2	2	2	78	5	6	1	2	91	0

SR 164 & SR 169**AM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
1. Gracepoint NW					2	1	2				3
2. Watson St Apartments					1	1					
3. Battersby Plat											
4. Work MPH (Crystal Mountain MHC)					2	4	5				2
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					1	1					1
7. Mountain View Multi					1	2					1
8. Grainery II					1	2					
9. Holdener Phase I					2	5	5				2
10. Cole Street Storage											
11. Pickle Farm					2		1				2
12. Holdener Phase II/Sunrise Meadows					1	3	3				1
13. Fiske 410							9				3
14. Gateway Commercial					22	18	17				21
15. Stevenson/Gambrel Meadows	3										7
16. Gateway Plat							2				1
17. Rainier Lodging					1	2	2				1
Totals	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
	3	0	32	37	52	0	0	0	0	39	7

SR 164 & Cole**AM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
1. Gracepoint NW					3						5
2. Watson St Apartments					2						
3. Battersby Plat											
4. Work MPH (Crystal Mountain MHC)					9						4
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					2						1
7. Mountain View Multi					3						1
8. Grainery II					3						1
9. Holdener Phase I					11						3
10. Cole Street Storage							2				
11. Pickle Farm					1						4
12. Holdener Phase II/Sunrise Meadows					7						2
13. Fiske 410					15						5
14. Gateway Commercial											
15. Stevenson/Gambrel Meadows					35						43
16. Gateway Plat					2						1
17. Rainier Lodging					4						2
Totals	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
	0	1	0	0	97	0	0	2	0	0	72

Watson & Dickson**AM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
1. Gracepoint NW											
2. Watson St Apartments					1						5
3. Battersby Plat											
4. Work MPH (Crystal Mountain MHC)											
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					2						1
7. Mountain View Multi											
8. Grainery II											
9. Holdener Phase I											
10. Cole Street Storage											
11. Pickle Farm											
12. Holdener Phase II/Sunrise Meadows											
13. Fiske 410											
14. Gateway Commercial											
15. Stevenson/Gambrel Meadows											
16. Gateway Plat											
17. Rainier Lodging											
Totals	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
	0	3	0	0	0	0	0	6	0	0	0

SR 164 & SR 169**PM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
1. Gracepoint NW					2	2	1				1
2. Watson St Apartments					1	1					1
3. Battersby Plat											
4. Work MPH (Crystal Mountain MHC)					6	3	5				8
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					1	1					1
7. Mountain View Multi					1	1	1				2
8. Grainery II					1	1	1				2
9. Holdener Phase I					5	3	3				5
10. Cole Street Storage											
11. Pickle Farm					2	2					1
12. Holdener Phase II/Sunrise Meadows					3	2	2				3
13. Fiske 410							5				9
14. Gateway Commercial					21	21	22				20
15. Stevenson/Gambrel Meadows	8										5
16. Gateway Plat							1				2
17. Rainier Lodging					2	2	1				2
Totals	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
	8	0	43	36	46	0	0	0	0	0	57

SR 164 & Cole**PM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
1. Gracepoint NW					3						3
2. Watson St Apartments					1						2
3. Battersby Plat											
4. Work MPH (Crystal Mountain MHC)					8						14
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					1						2
7. Mountain View Multi					1						3
8. Grainery II					2						3
9. Holdener Phase I					7						12
10. Cole Street Storage					2				1		1
11. Pickle Farm						4					7
12. Holdener Phase II/Sunrise Meadows						4					16
13. Fiske 410						9					41
14. Gateway Commercial						43					
15. Stevenson/Gambrel Meadows											
16. Gateway Plat						1					2
17. Rainier Lodging						3					4
Totals	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
	0	2	0	0	87	0	0	1	0	0	110

Watson & Dickson**PM Peak Hour****Pipeline Volume Summations**

	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
1. Gracepoint NW											
2. Watson St Apartments					5					3	
3. Battersby Plat											
4. Work MPH (Crystal Mountain MHC)											
5. The Enumclaw Aquatic Center											
6. Mazatlan Enumclaw					1					2	
7. Mountain View Multi											
8. Grainery II											
9. Holdener Phase I											
10. Cole Street Storage											
11. Pickle Farm											
12. Holdener Phase II/Sunrise Meadows											
13. Fiske 410											
14. Gateway Commercial											
15. Stevenson/Gambrel Meadows											
16. Gateway Plat											
17. Rainier Lodging											
Totals	↙	↓	↘	↖	←	↗	↑	↖	↗	→	↘
	0	6	0	0	0	0	0	5	0	0	0

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Forecast 2031 Excel



Peak Hour Forecast Intersection Volumes

Annual Growth Rate: 3 %
of Years to Horizon: 6

2031

AM PEAK HOUR

1. SR 410 & Semanski

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	86	311	0	0	0	0	0	620	118	97	0	30
Project Trips	0	3	0	0	0	0	0	6	0	0	0	0
Pipeline	0	46	0	0	0	0	0	39	1	1	0	0
Without	103	417	0	0	0	0	0	779	142	117	0	36
With	103	420	0	0	0	0	0	785	142	117	0	36

2. SR 410 & Warner

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	104	280	5	13	93	122	68	544	10	16	58	82
Project Trips	0	1	0	0	0	2	4	2	0	0	0	0
Pipeline	13	34	0	0	8	18	5	34	0	0	4	7
Without	137	368	6	16	119	164	86	684	12	19	73	105
With	137	369	6	16	119	166	90	686	12	19	73	105

3. SR 410 & Roosevelt

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	65	192	0	0	0	0	0	454	0	1	0	52
Project Trips	2	1	0	0	0	0	0	2	0	0	0	4
Pipeline	15	52	0	0	0	0	0	42	0	0	0	11
Without	93	281	0	0	0	0	0	584	0	1	0	73
With	95	282	0	0	0	0	0	586	0	1	0	77

4. SR 410 & Mt Villa

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	10	3	5	11	228	24	22	8	19	26	443	37
Project Trips	0	0	0	0	3	0	0	0	0	0	6	0
Pipeline	0	0	2	2	67	2	2	0	0	0	53	0
Without	12	4	8	15	339	31	28	10	23	31	582	44
With	12	4	8	15	342	31	28	10	23	31	588	44

PM PEAK HOUR

1. SR 410 & Semanski

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	85	395	0	0	0	0	0	505	101	39	0	12
Project Trips	0	7	0	0	0	0	0	3	0	0	0	0
Pipeline	0	50	0	0	0	0	0	66	6	3	0	0
Without	101	522	0	0	0	0	0	669	127	50	0	14
With	101	529	0	0	0	0	0	672	127	50	0	14

2. SR 410 & Warner

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	143	405	20	20	73	61	100	407	9	6	98	98
Project Trips	0	2	0	0	0	5	2	1	0	0	0	0
Pipeline	11	44	0	0	3	11	19	54	0	0	5	12
Without	182	528	24	24	90	84	138	540	11	7	122	129
With	182	530	24	24	90	89	140	541	11	7	122	129

3. SR 410 & Roosevelt

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	162	392	0	0	0	0	0	309	0	0	0	76
Project Trips	4	2	0	0	0	0	0	1	0	0	0	3
Pipeline	15	55	0	0	0	0	0	68	0	0	0	16
Without	208	523	0	0	0	0	0	437	0	0	0	107
With	212	525	0	0	0	0	0	438	0	0	0	110

4. SR 410 & Mt Villa

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	41	9	14	26	480	56	42	9	33	15	316	54
Project Trips	0	0	0	0	6	0	0	0	0	0	4	0
Pipeline	0	0	2	2	70	2	2	0	0	0	84	0
Without	49	11	19	33	643	69	52	11	39	18	461	64
With	49	11	19	33	649	69	52	11	39	18	465	64

5. SR 410 & Garrett

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	79	3	52	15	211	1	3	2	2	7	336	115
Project Trips	0	0	0	0	3	0	0	0	0	0	6	0
Pipeline	0	0	2	2	70	0	0	0	0	0	57	0
Without	94	4	64	20	322	1	4	2	2	8	458	137
With	94	4	64	20	325	1	4	2	2	8	464	137

6. SR 410 & Stevenson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	3	0	9	38	196	0	0	0	0	0	353	6
Project Trips	0	0	0	0	3	0	0	0	0	0	6	0
Pipeline	0	0	3	5	73	0	0	0	0	0	59	0
Without	4	0	14	50	307	0	0	0	0	0	481	7
With	4	0	14	50	310	0	0	0	0	0	487	7

7. SR 410 & Blake

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	12	12	2	8	203	12	13	35	20	28	318	21
Project Trips	0	0	0	0	3	0	0	0	0	0	6	0
Pipeline	0	1	2	2	76	5	5	2	2	1	61	0
Without	14	15	4	12	318	19	21	44	26	34	441	25
With	14	15	4	12	321	19	21	44	26	34	447	25

8. SR 164 & SR 169

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	45	114	79	70	145	3	1	143	42	33	309	97
Project Trips	0	0	3	1	2	0	0	0	0	0	4	0
Pipeline	3	0	32	37	52	0	0	0	0	0	39	7
Without	57	136	126	121	225	4	1	171	50	39	408	123
With	57	136	129	122	227	4	1	171	50	39	412	123

5. SR 410 & Garrett

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	157	3	86	26	374	0	0	1	4	3	253	131
Project Trips	0	0	0	0	6	0	0	0	0	0	4	0
Pipeline	0	0	2	2	74	0	0	0	0	0	88	0
Without	187	4	105	33	521	0	0	1	5	4	390	156
With	187	4	105	33	527	0	0	1	5	4	394	156

6. SR 410 & Stevenson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	20	0	42	70	363	0	0	0	0	0	331	6
Project Trips	0	0	0	0	6	0	0	0	0	0	4	0
Pipeline	0	0	4	4	75	0	0	0	0	0	89	0
Without	24	0	54	88	508	0	0	0	0	0	484	7
With	24	0	54	88	514	0	0	0	0	0	488	7

7. SR 410 & Blake

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	34	34	6	6	358	17	12	23	31	56	301	16
Project Trips	0	0	0	0	6	0	0	0	0	0	4	0
Pipeline	0	2	2	2	78	5	6	1	2	3	91	0
Without	41	43	9	9	505	25	20	28	39	70	450	19
With	41	43	9	9	511	25	20	28	39	70	454	19

8. SR 164 & SR 169

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	104	164	141	57	345	4	6	170	102	46	281	94
Project Trips	0	0	3	4	5	0	0	0	0	0	2	0
Pipeline	8	0	43	36	46	0	0	0	0	0	57	5
Without	132	196	211	104	458	5	7	203	122	55	393	117
With	132	196	214	108	463	5	7	203	122	55	395	117

9. SR 164 & Cole

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	14	45	3	6	205	0	12	86	3	5	360	0
Project Trips	0	0	0	0	3	0	0	0	0	0	7	0
Pipeline	0	1	0	0	97	0	0	2	0	0	72	0
Without	17	55	4	7	342	0	14	105	4	6	502	0
With	17	55	4	7	345	0	14	105	4	6	509	0

10. SR 164 & Blake

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	5	1	3	1	177	8	11	2	39	40	322	6
Project Trips	0	0	0	0	4	0	0	0	0	0	9	0
Pipeline	0	0	0	0	97	0	0	0	0	0	72	0
Without	6	1	4	1	308	10	13	2	47	48	456	7
With	6	1	4	1	312	10	13	2	47	48	465	7

11. SR 410 & SR 164

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	8	29	239	157	176	6	6	28	27	20	306	0
Project Trips	0	0	9	4	3	0	0	0	0	0	6	0
Pipeline	0	0	73	99	78	0	0	0	0	0	65	0
Without	10	35	358	286	288	7	7	33	32	24	430	0
With	10	35	367	290	291	7	7	33	32	24	436	0

12. SR 410 & Watson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	1	0	0	1	248	19	47	0	82	110	409	5
Project Trips	0	0	0	0	3	0	0	0	4	8	7	0
Pipeline	0	0	0	0	173	0	1	0	4	1	137	0
Without	1	0	0	1	469	23	57	0	102	132	625	6
With	1	0	0	1	472	23	57	0	106	140	632	6

9. SR 164 & Cole

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	23	104	1	16	395	1	21	108	1	24	385	0
Project Trips	0	0	0	0	9	0	0	0	0	0	5	0
Pipeline	0	2	0	0	87	0	0	1	0	0	110	0
Without	27	126	1	19	559	1	25	130	1	29	570	0
With	27	126	1	19	568	1	25	130	1	29	575	0

10. SR 164 & Blake

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	9	3	3	0	353	14	7	1	33	60	313	10
Project Trips	0	0	0	0	11	0	0	0	0	0	6	0
Pipeline	0	0	0	0	87	0	0	0	0	0	110	0
Without	11	4	4	0	509	17	8	1	39	72	484	12
With	11	4	4	0	520	17	8	1	39	72	490	12

11. SR 410 & SR 164

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	15	72	261	263	295	15	5	86	69	48	273	1
Project Trips	0	0	6	11	6	0	0	0	0	0	4	0
Pipeline	0	0	118	91	85	0	0	0	0	0	99	0
Without	18	86	430	405	437	18	6	103	82	57	425	1
With	18	86	436	416	443	18	6	103	82	57	429	1

12. SR 410 & Watson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	11	5	6	8	417	64	33	4	126	158	293	37
Project Trips	0	0	0	0	8	0	0	0	9	6	4	0
Pipeline	0	0	0	0	174	2	3	0	2	4	213	0
Without	13	6	7	10	672	78	42	5	152	193	563	44
With	13	6	7	10	680	78	42	5	161	199	567	44

13. SR 410 & Suntop

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	218	8	20	0	36	11	451	0
Project Trips	0	0	0	0	9	0	0	0	4	2	4	0
Pipeline	0	0	0	0	29	102	121	0	144	166	-28	0
Without	0	0	0	0	289	112	145	0	187	179	511	0
With	0	0	0	0	298	112	145	0	191	181	515	0

14. SR 410 & Farman

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	132	35	77	23	42	3	9	43	38	35	287	110
Project Trips	5	0	0	0	4	0	0	0	0	0	2	2
Pipeline	51	6	4	4	65	3	2	5	8	7	32	40
Without	209	48	96	31	115	7	13	56	53	49	375	171
With	214	48	96	31	119	7	13	56	53	49	377	173

15. Farman & Battersby

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	45	244	5	3	0	1	0	142	20	21	4	14
Project Trips	0	5	0	0	0	0	0	2	0	0	0	0
Pipeline	0	27	1	3	3	4	1	30	29	23	1	1
Without	54	318	7	7	3	5	1	200	53	48	6	18
With	54	323	7	7	3	5	1	202	53	48	6	18

16. Watson & Dickson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	1	46	1	5	0	3	3	104	5	1	0	3
Project Trips	1	3	0	0	0	0	0	7	0	0	0	2
Pipeline	0	3	0	0	0	0	0	6	0	0	0	0
Without	1	58	1	6	0	4	4	130	6	1	0	4
With	2	61	1	6	0	4	4	137	6	1	0	6

13. SR 410 & Suntop

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	439	24	6	0	22	43	306	0
Project Trips	0	0	0	0	7	0	0	0	3	4	11	0
Pipeline	0	0	0	0	22	111	98	0	153	147	69	0
Without	0	0	0	0	546	140	105	0	179	198	434	0
With	0	0	0	0	553	140	105	0	182	202	445	0

14. SR 410 & Farman

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	173	80	30	58	202	13	8	55	53	68	59	164
Project Trips	4	0	0	0	3	0	0	0	0	0	5	6
Pipeline	51	7	5	4	59	3	4	6	10	9	84	56
Without	258	103	41	73	300	19	14	72	73	90	154	252
With	262	103	41	73	303	19	14	72	73	90	159	258

15. Farman & Battersby

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	57	252	21	16	12	9	8	230	22	30	8	64
Project Trips	0	4	0	0	0	0	0	6	0	0	0	0
Pipeline	0	34	3	2	2	2	4	32	27	33	4	0
Without	68	335	28	21	16	13	14	307	53	69	14	76
With	68	339	28	21	16	13	14	313	53	69	14	76

16. Watson & Dickson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	6	167	1	2	0	2	1	118	6	14	0	6
Project Trips	2	8	0	0	0	0	0	6	0	0	0	1
Pipeline	0	6	0	0	0	0	0	5	0	0	0	0
Without	7	205	1	2	0	2	1	146	7	17	0	7
With	9	213	1	2	0	2	1	152	7	17	0	8

17. Watson & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	47	0	0	0	1	0	112	0	0	0	0
Project Trips	0	0	8	4	0	4	9	0	0	0	0	0
Pipeline	0	3	0	0	0	0	0	6	0	0	0	0
Without	0	59	0	0	0	1	0	140	0	0	0	0
With	0	59	8	4	0	5	9	140	0	0	0	0

18. SR 410 & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	262	2	6	0	6	9	447	0
Project Trips	0	0	0	0	-18	31	32	0	21	33	-26	0
Pipeline	0	0	0	0	173	0	0	0	0	0	138	0
Without	0	0	0	0	486	2	7	0	7	11	672	0
With	0	0	0	0	468	33	39	0	28	44	646	0

17. Watson & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	172	1	5	0	2	0	126	0	0	0	0
Project Trips	0	0	6	9	0	10	7	0	0	0	0	0
Pipeline	0	6	0	0	0	0	0	5	0	0	0	0
Without	0	211	1	6	0	2	0	155	0	0	0	0
With	0	211	7	15	0	12	7	155	0	0	0	0

18. SR 410 & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	487	1	0	0	2	4	328	0
Project Trips	0	0	0	0	-10	20	30	0	18	20	-16	0
Pipeline	0	0	0	0	176	0	0	0	0	0	216	0
Without	0	0	0	0	758	1	0	0	2	5	608	0
With	0	0	0	0	748	21	30	0	20	25	592	0

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Forecast 2045 Excel



Peak Hour Forecast Intersection Volumes

Annual Growth Rate: 3 %
of Years to Horizon: 20

2045

AM PEAK HOUR

1. SR 410 & Semanski

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	86	311	0	0	0	0	0	620	118	97	0	30
Project Trips	0	3	0	0	0	0	0	6	0	0	0	0
Pipeline	0	46	0	0	0	0	0	39	1	1	0	0
Without	155	608	0	0	0	0	0	1,159	214	176	0	54
With	155	611	0	0	0	0	0	1,165	214	176	0	54

2. SR 410 & Warner

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	104	280	5	13	93	122	68	544	10	16	58	82
Project Trips	0	1	0	0	0	2	4	2	0	0	0	0
Pipeline	13	34	0	0	8	18	5	34	0	0	4	7
Without	201	540	9	23	176	238	128	1,017	18	29	109	155
With	201	541	9	23	176	240	132	1,019	18	29	109	155

3. SR 410 & Roosevelt

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	65	192	0	0	0	0	0	454	0	1	0	52
Project Trips	2	1	0	0	0	0	0	2	0	0	0	4
Pipeline	15	52	0	0	0	0	0	42	0	0	0	11
Without	132	399	0	0	0	0	0	862	0	2	0	105
With	134	400	0	0	0	0	0	864	0	2	0	109

4. SR 410 & Mt Villa

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	10	3	5	11	228	24	22	8	19	26	443	37
Project Trips	0	0	0	0	3	0	0	0	0	0	6	0
Pipeline	0	0	2	2	67	2	2	0	0	0	53	0
Without	18	5	11	22	479	45	42	14	34	47	853	67
With	18	5	11	22	482	45	42	14	34	47	859	67

PM PEAK HOUR

1. SR 410 & Semanski

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	85	395	0	0	0	0	0	505	101	39	0	12
Project Trips	0	7	0	0	0	0	0	3	0	0	0	0
Pipeline	0	50	0	0	0	0	0	66	6	3	0	0
Without	154	763	0	0	0	0	0	978	188	73	0	22
With	154	770	0	0	0	0	0	981	188	73	0	22

2. SR 410 & Warner

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	143	405	20	20	73	61	100	407	9	6	98	98
Project Trips	0	2	0	0	0	5	2	1	0	0	0	0
Pipeline	11	44	0	0	3	11	19	54	0	0	5	12
Without	269	775	36	36	135	121	200	789	16	11	182	189
With	269	777	36	36	135	126	202	790	16	11	182	189

3. SR 410 & Roosevelt

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	162	392	0	0	0	0	0	309	0	0	0	76
Project Trips	4	2	0	0	0	0	0	1	0	0	0	3
Pipeline	15	55	0	0	0	0	0	68	0	0	0	16
Without	308	763	0	0	0	0	0	626	0	0	0	153
With	312	765	0	0	0	0	0	627	0	0	0	156

4. SR 410 & Mt Villa

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	41	9	14	26	480	56	42	9	33	15	316	54
Project Trips	0	0	0	0	6	0	0	0	0	0	4	0
Pipeline	0	0	2	2	70	2	2	0	0	0	84	0
Without	74	16	27	49	937	103	78	16	60	27	655	98
With	74	16	27	49	943	103	78	16	60	27	659	98

5. SR 410 & Garrett

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	79	3	52	15	211	1	3	2	2	7	336	115
Project Trips	0	0	0	0	3	0	0	0	0	0	6	0
Pipeline	0	0	2	2	70	0	0	0	0	0	57	0
Without	143	5	96	29	451	2	5	4	4	13	664	208
With	143	5	96	29	454	2	5	4	4	13	670	208

6. SR 410 & Stevenson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	3	0	9	38	196	0	0	0	0	0	353	6
Project Trips	0	0	0	0	3	0	0	0	0	0	6	0
Pipeline	0	0	3	5	73	0	0	0	0	0	59	0
Without	5	0	19	74	427	0	0	0	0	0	697	11
With	5	0	19	74	430	0	0	0	0	0	703	11

7. SR 410 & Blake

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	12	12	2	8	203	12	13	35	20	28	318	21
Project Trips	0	0	0	0	3	0	0	0	0	0	6	0
Pipeline	0	1	2	2	76	5	5	2	2	1	61	0
Without	22	23	6	16	443	27	28	65	38	52	635	38
With	22	23	6	16	446	27	28	65	38	52	641	38

8. SR 164 & SR 169

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	45	114	79	70	145	3	1	143	42	33	309	97
Project Trips	0	0	3	1	2	0	0	0	0	0	4	0
Pipeline	3	0	32	37	52	0	0	0	0	0	39	7
Without	84	206	175	163	314	5	2	258	76	60	597	182
With	84	206	178	164	316	5	2	258	76	60	601	182

5. SR 410 & Garrett

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	157	3	86	26	374	0	0	1	4	3	253	131
Project Trips	0	0	0	0	6	0	0	0	0	0	4	0
Pipeline	0	0	2	2	74	0	0	0	0	0	88	0
Without	284	5	157	49	749	0	0	2	7	5	545	237
With	284	5	157	49	755	0	0	2	7	5	549	237

6. SR 410 & Stevenson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	20	0	42	70	363	0	0	0	0	0	331	6
Project Trips	0	0	0	0	6	0	0	0	0	0	4	0
Pipeline	0	0	4	4	75	0	0	0	0	0	89	0
Without	36	0	80	130	731	0	0	0	0	0	687	11
With	36	0	80	130	737	0	0	0	0	0	691	11

7. SR 410 & Blake

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	34	34	6	6	358	17	12	23	31	56	301	16
Project Trips	0	0	0	0	6	0	0	0	0	0	4	0
Pipeline	0	2	2	2	78	5	6	1	2	3	91	0
Without	61	63	13	13	725	36	28	43	58	104	635	29
With	61	63	13	13	731	36	28	43	58	104	639	29

8. SR 164 & SR 169

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	104	164	141	57	345	4	6	170	102	46	281	94
Project Trips	0	0	3	4	5	0	0	0	0	0	2	0
Pipeline	8	0	43	36	46	0	0	0	0	0	57	5
Without	196	296	298	139	669	7	11	307	184	83	565	175
With	196	296	301	143	674	7	11	307	184	83	567	175

9. SR 164 & Cole

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	14	45	3	6	205	0	12	86	3	5	360	0
Project Trips	0	0	0	0	3	0	0	0	0	0	7	0
Pipeline	0	1	0	0	97	0	0	2	0	0	72	0
Without	25	82	5	11	467	0	22	157	5	9	722	0
With	25	82	5	11	470	0	22	157	5	9	729	0

10. SR 164 & Blake

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	5	1	3	1	177	8	11	2	39	40	322	6
Project Trips	0	0	0	0	4	0	0	0	0	0	9	0
Pipeline	0	0	0	0	97	0	0	0	0	0	72	0
Without	9	2	5	2	417	14	20	4	70	72	654	11
With	9	2	5	2	421	14	20	4	70	72	663	11

11. SR 410 & SR 164

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	8	29	239	157	176	6	6	28	27	20	306	0
Project Trips	0	0	9	4	3	0	0	0	0	0	6	0
Pipeline	0	0	73	99	78	0	0	0	0	0	65	0
Without	14	52	505	383	396	11	11	51	49	36	618	0
With	14	52	514	387	399	11	11	51	49	36	624	0

12. SR 410 & Watson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	1	0	0	1	248	19	47	0	82	110	409	5
Project Trips	0	0	0	0	3	0	0	0	4	8	7	0
Pipeline	0	0	0	0	173	0	1	0	4	1	137	0
Without	2	0	0	2	621	34	86	0	152	200	876	9
With	2	0	0	2	624	34	86	0	156	208	883	9

9. SR 164 & Cole

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	23	104	1	16	395	1	21	108	1	24	385	0
Project Trips	0	0	0	0	9	0	0	0	0	0	5	0
Pipeline	0	2	0	0	87	0	0	1	0	0	110	0
Without	42	190	2	29	800	2	38	196	2	43	805	0
With	42	190	2	29	809	2	38	196	2	43	810	0

10. SR 164 & Blake

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	9	3	3	0	353	14	7	1	33	60	313	10
Project Trips	0	0	0	0	11	0	0	0	0	0	6	0
Pipeline	0	0	0	0	87	0	0	0	0	0	110	0
Without	16	5	5	0	725	25	13	2	60	108	675	18
With	16	5	5	0	736	25	13	2	60	108	681	18

11. SR 410 & SR 164

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	15	72	261	263	295	15	5	86	69	48	273	1
Project Trips	0	0	6	11	6	0	0	0	0	0	4	0
Pipeline	0	0	118	91	85	0	0	0	0	0	99	0
Without	27	130	589	566	618	27	9	155	125	87	592	2
With	27	130	595	577	624	27	9	155	125	87	596	2

12. SR 410 & Watson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	11	5	6	8	417	64	33	4	126	158	293	37
Project Trips	0	0	0	0	8	0	0	0	9	6	4	0
Pipeline	0	0	0	0	174	2	3	0	2	4	213	0
Without	20	9	11	14	927	118	63	7	230	289	742	67
With	20	9	11	14	935	118	63	7	239	295	746	67

13. SR 410 & Suntop

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	218	8	20	0	36	11	451	0
Project Trips	0	0	0	0	9	0	0	0	4	2	4	0
Pipeline	0	0	0	0	29	102	121	0	144	166	-28	0
Without	0	0	0	0	423	116	157	0	209	186	787	0
With	0	0	0	0	432	116	157	0	213	188	791	0

14. SR 410 & Farman

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	132	35	77	23	42	3	9	43	38	35	287	110
Project Trips	5	0	0	0	4	0	0	0	0	0	2	2
Pipeline	51	6	4	4	65	3	2	5	8	7	32	40
Without	289	69	143	46	141	8	18	83	77	70	550	239
With	294	69	143	46	145	8	18	83	77	70	552	241

15. Farman & Battersby

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	45	244	5	3	0	1	0	142	20	21	4	14
Project Trips	0	5	0	0	0	0	0	2	0	0	0	0
Pipeline	0	27	1	3	3	4	1	30	29	23	1	1
Without	81	468	10	8	3	6	1	286	65	61	8	26
With	81	473	10	8	3	6	1	288	65	61	8	26

16. Watson & Dickson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	1	46	1	5	0	3	3	104	5	1	0	3
Project Trips	1	3	0	0	0	0	0	7	0	0	0	2
Pipeline	0	3	0	0	0	0	0	6	0	0	0	0
Without	2	86	2	9	0	5	5	194	9	2	0	5
With	3	89	2	9	0	5	5	201	9	2	0	7

13. SR 410 & Suntop

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	439	24	6	0	22	43	306	0
Project Trips	0	0	0	0	7	0	0	0	3	4	11	0
Pipeline	0	0	0	0	22	111	98	0	153	147	69	0
Without	0	0	0	0	815	154	109	0	193	225	622	0
With	0	0	0	0	822	154	109	0	196	229	633	0

14. SR 410 & Farman

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	173	80	30	58	202	13	8	55	53	68	59	164
Project Trips	4	0	0	0	3	0	0	0	0	0	5	6
Pipeline	51	7	5	4	59	3	4	6	10	9	84	56
Without	363	151	59	109	424	26	18	105	106	132	191	352
With	367	151	59	109	427	26	18	105	106	132	196	358

15. Farman & Battersby

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	57	252	21	16	12	9	8	230	22	30	8	64
Project Trips	0	4	0	0	0	0	0	6	0	0	0	0
Pipeline	0	34	3	2	2	2	4	32	27	33	4	0
Without	103	489	41	31	24	18	18	447	67	87	18	116
With	103	493	41	31	24	18	18	453	67	87	18	116

16. Watson & Dickson

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	6	167	1	2	0	2	1	118	6	14	0	6
Project Trips	2	8	0	0	0	0	0	6	0	0	0	1
Pipeline	0	6	0	0	0	0	0	5	0	0	0	0
Without	11	308	2	4	0	4	2	218	11	25	0	11
With	13	316	2	4	0	4	2	224	11	25	0	12

17. Watson & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	47	0	0	0	1	0	112	0	0	0	0
Project Trips	0	0	8	4	0	4	9	0	0	0	0	0
Pipeline	0	3	0	0	0	0	0	6	0	0	0	0
Without	0	88	0	0	0	2	0	208	0	0	0	0
With	0	88	8	4	0	6	9	208	0	0	0	0

18. SR 410 & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	262	2	6	0	6	9	447	0
Project Trips	0	0	0	0	-18	31	32	0	21	33	-26	0
Pipeline	0	0	0	0	173	0	0	0	0	0	138	0
Without	0	0	0	0	646	4	11	0	11	16	945	0
With	0	0	0	0	628	35	43	0	32	49	919	0

17. Watson & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	172	1	5	0	2	0	126	0	0	0	0
Project Trips	0	0	6	9	0	10	7	0	0	0	0	0
Pipeline	0	6	0	0	0	0	0	5	0	0	0	0
Without	0	317	2	9	0	4	0	233	0	0	0	0
With	0	317	8	18	0	14	7	233	0	0	0	0

18. SR 410 & Access

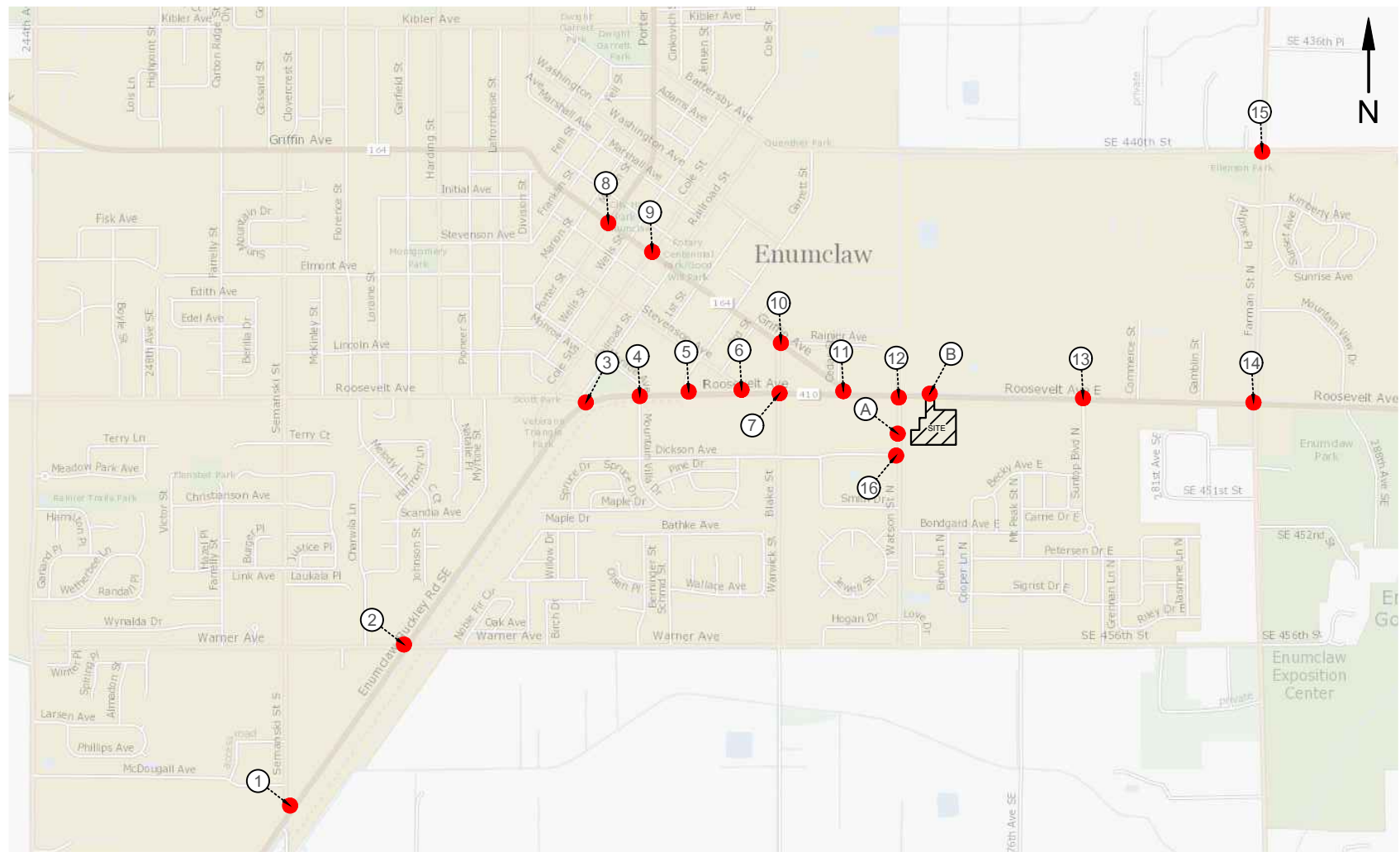
	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	487	1	0	0	2	4	328	0
Project Trips	0	0	0	0	-10	20	30	0	18	20	-16	0
Pipeline	0	0	0	0	176	0	0	0	0	0	216	0
Without	0	0	0	0	1,056	2	0	0	4	7	808	0
With	0	0	0	0	1,046	22	30	0	22	27	792	0

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

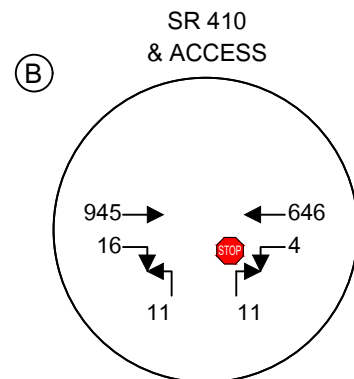
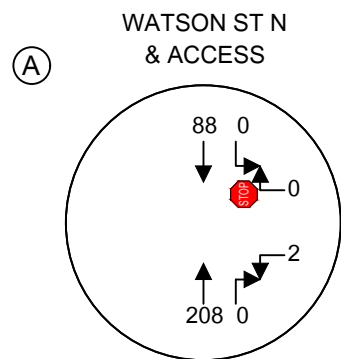
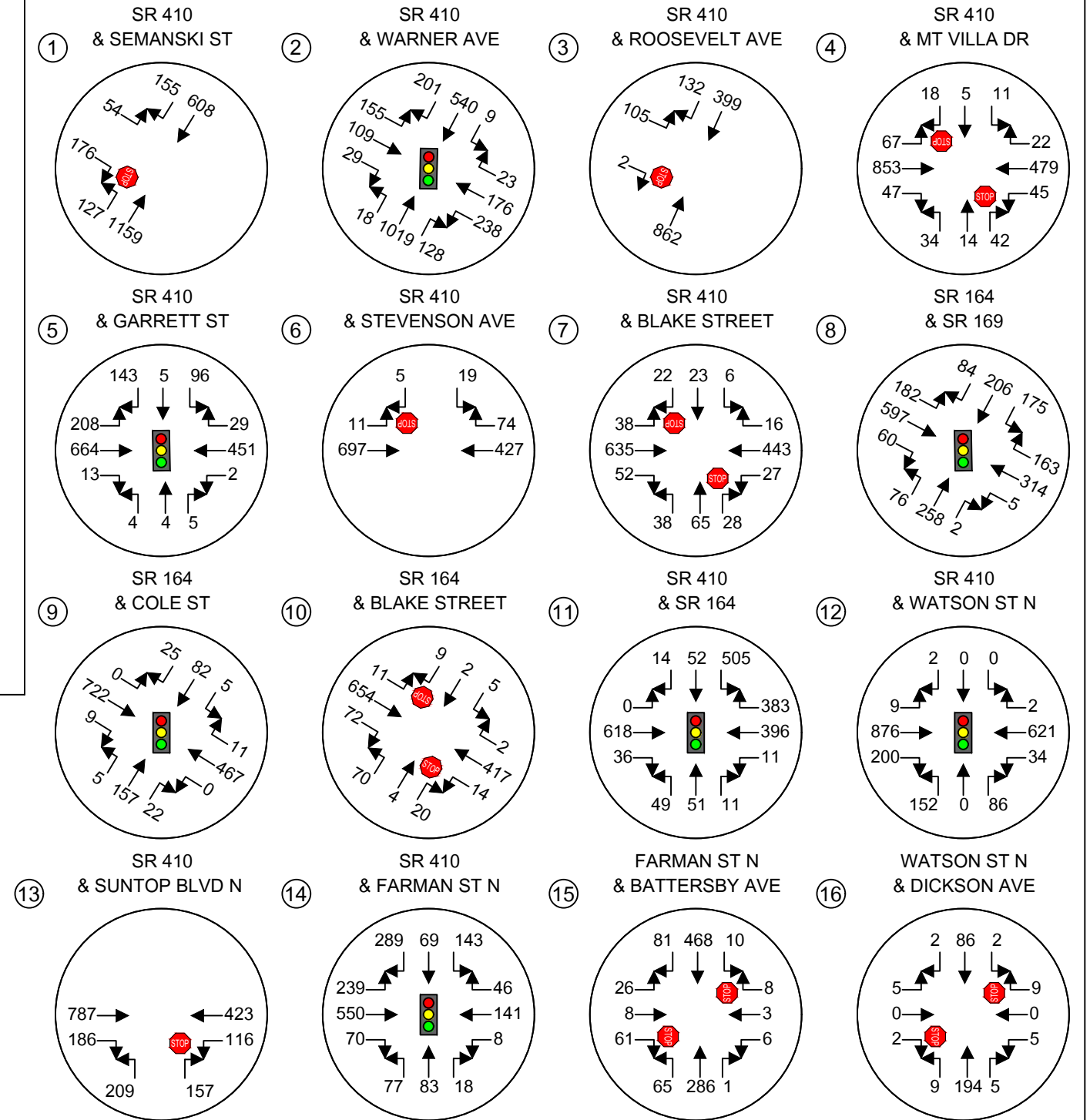
APPENDIX

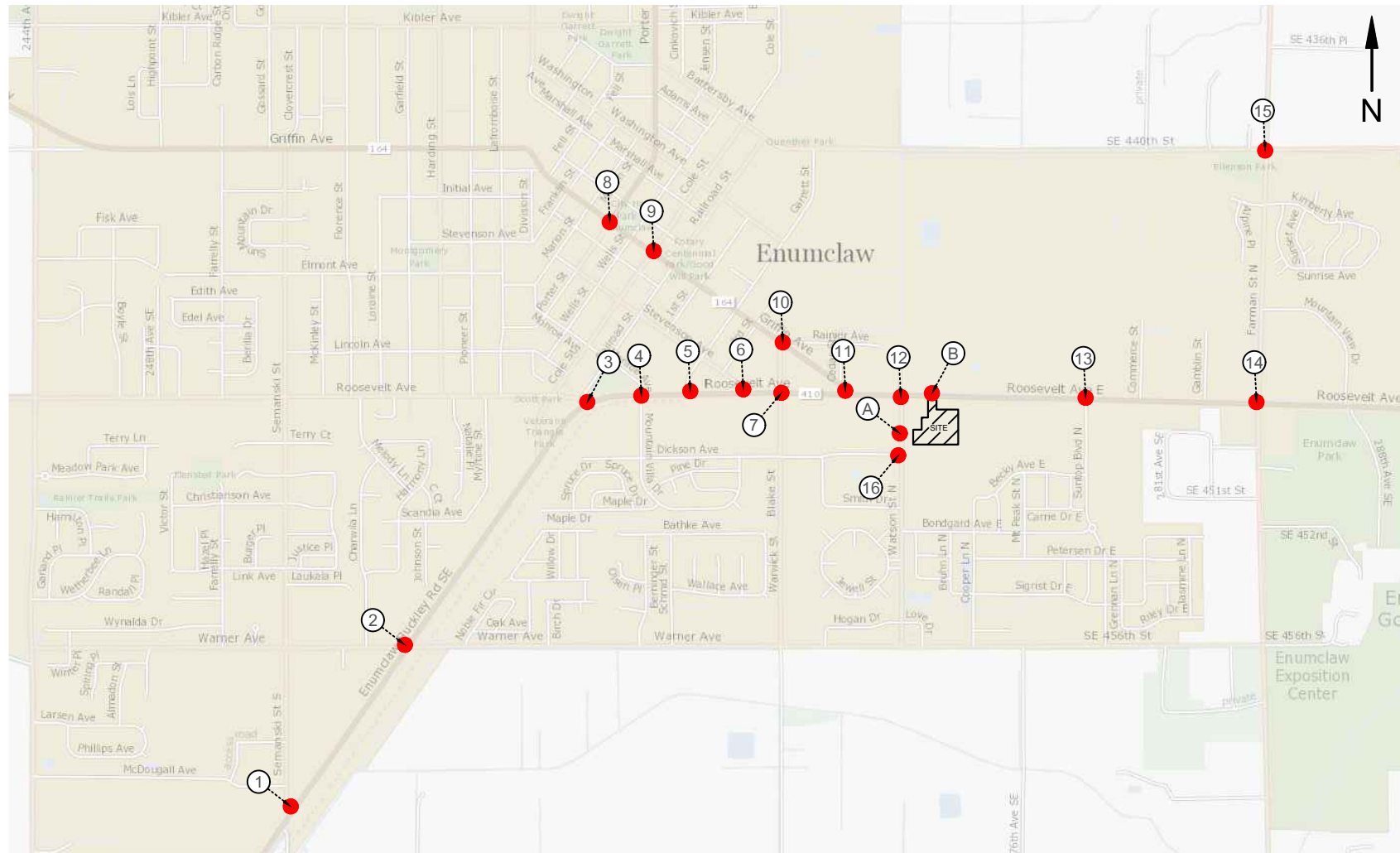
Forecast 2045 Figures



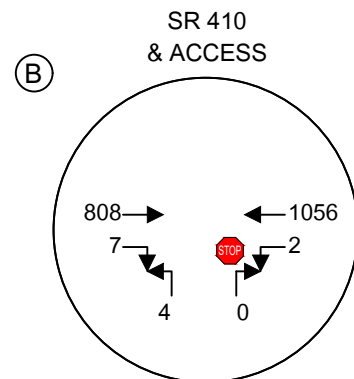
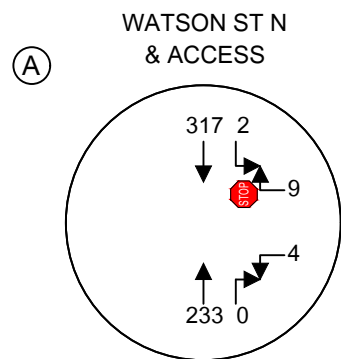
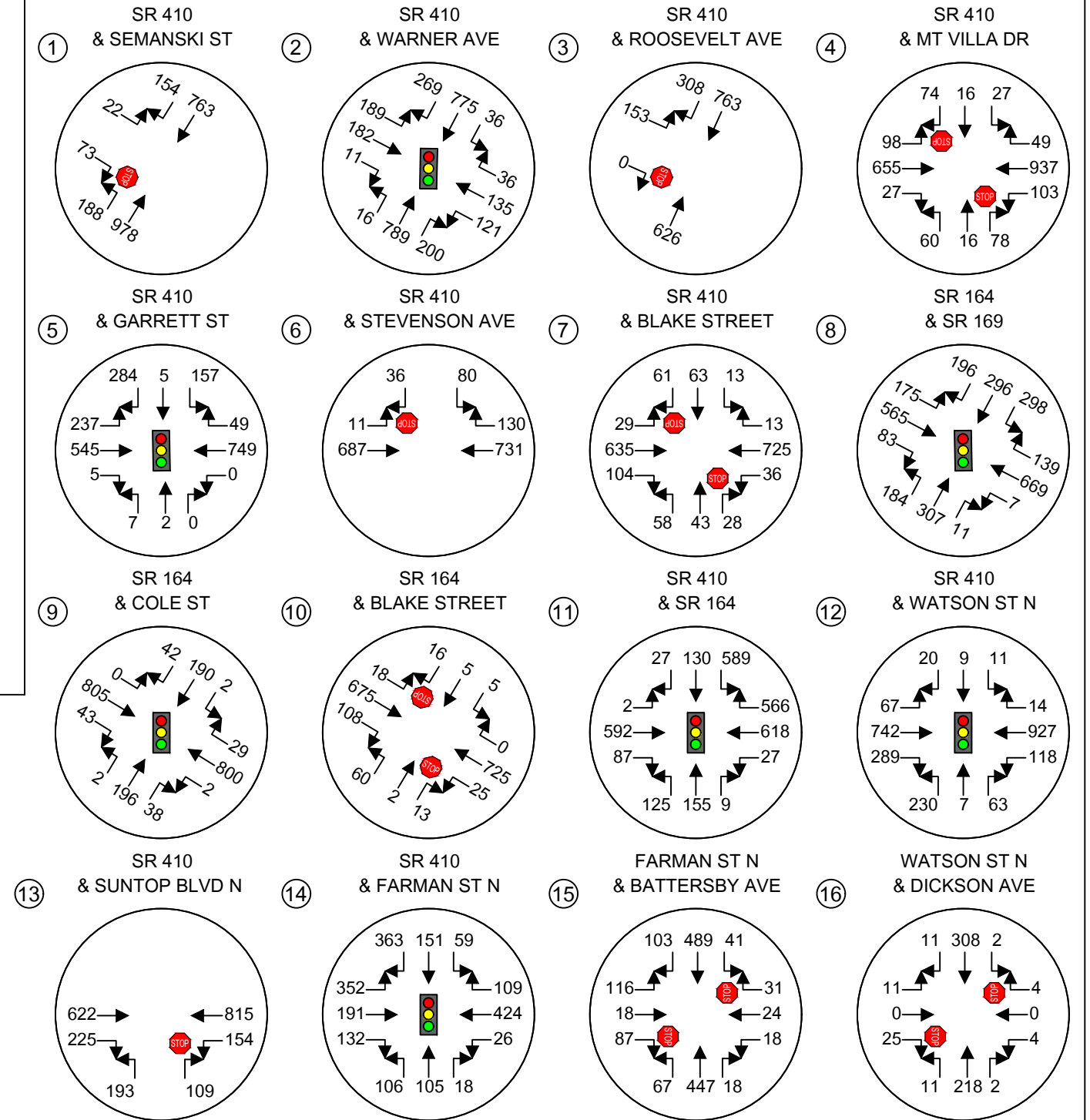


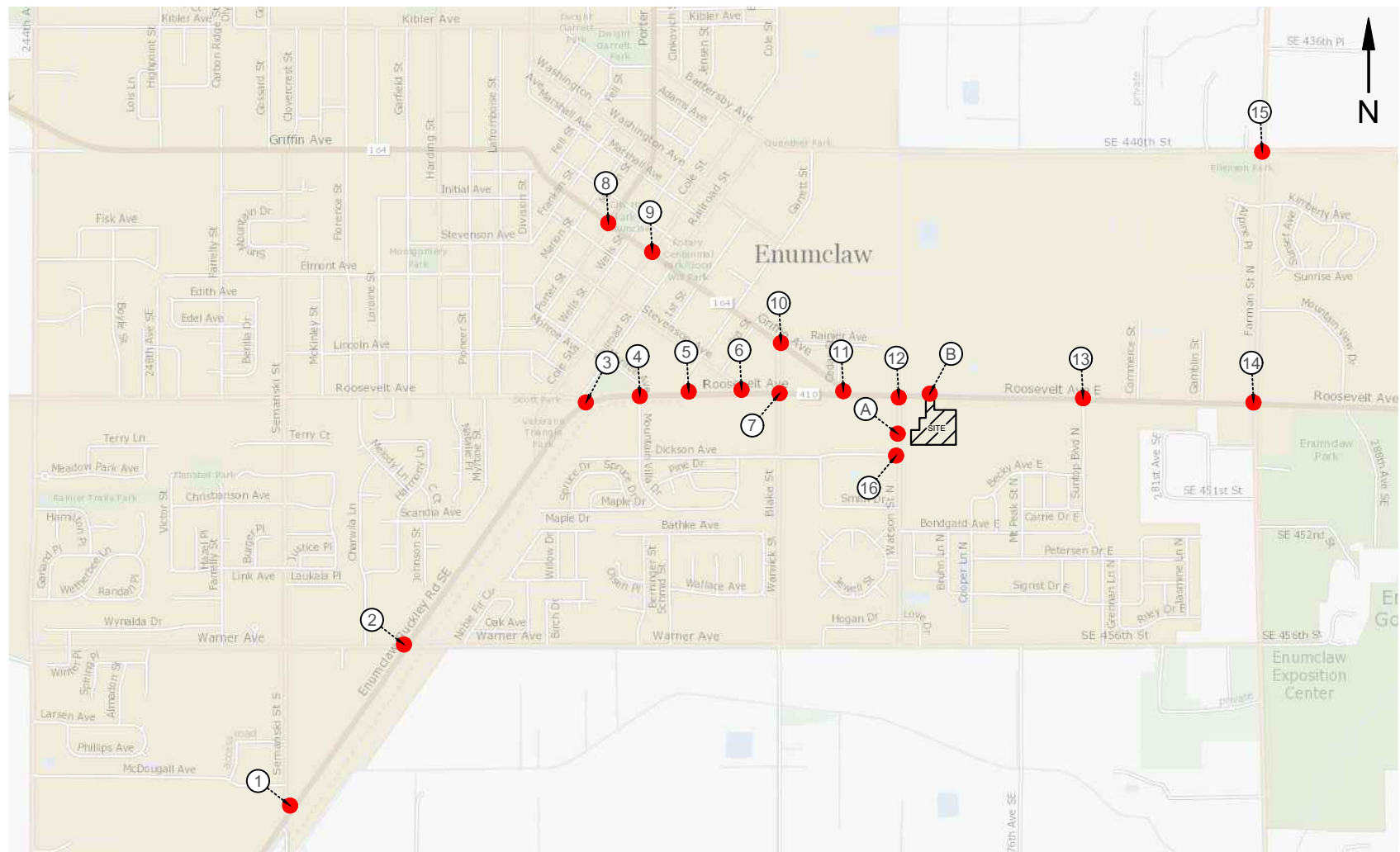
OUTLYING STUDY INTERSECTIONS



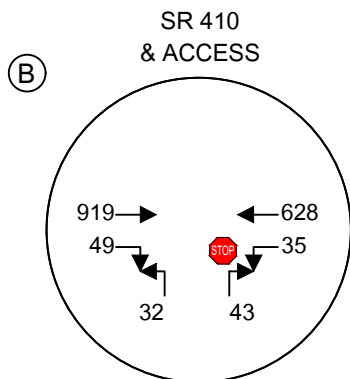
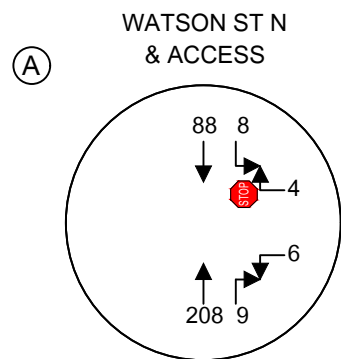
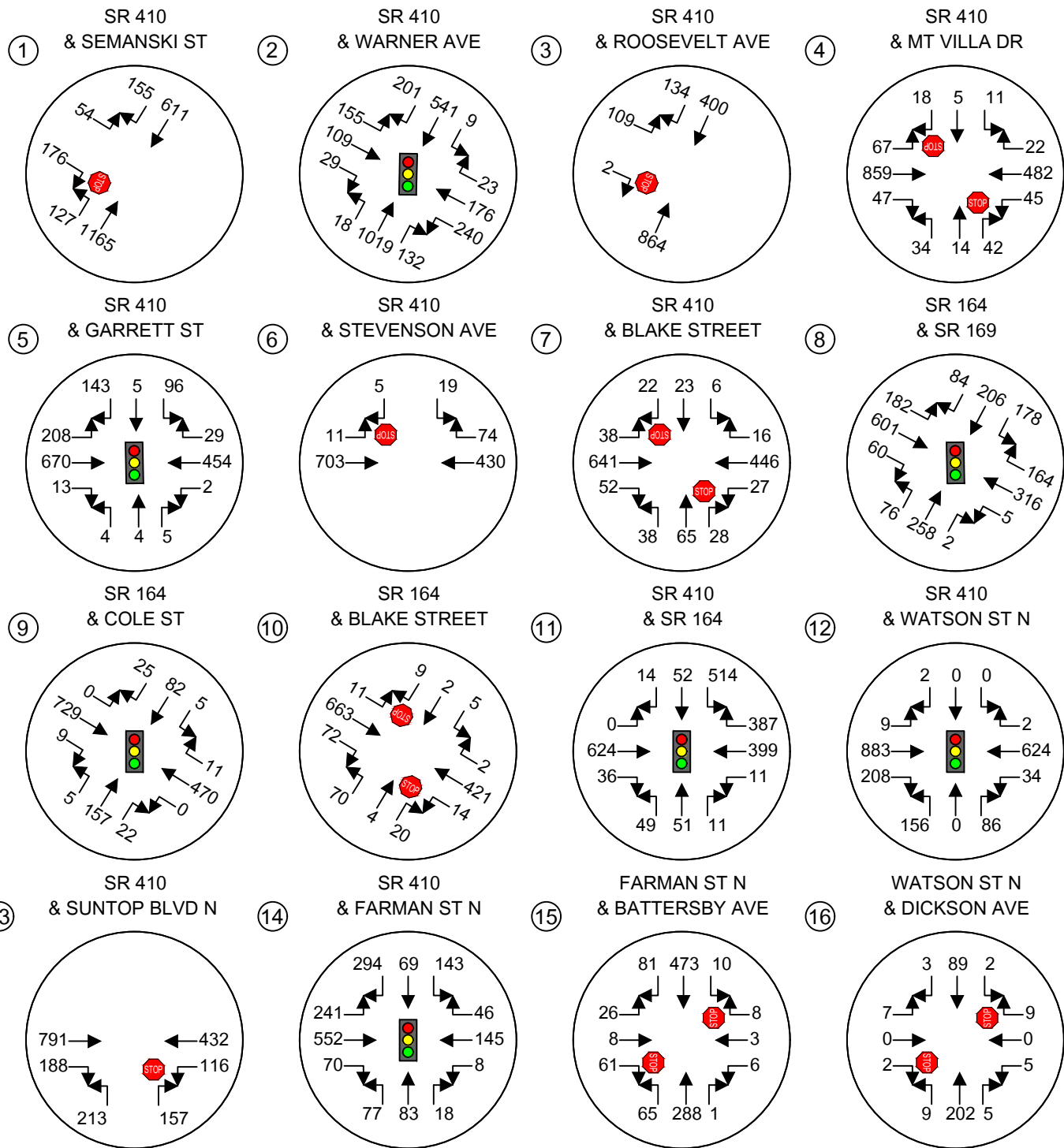


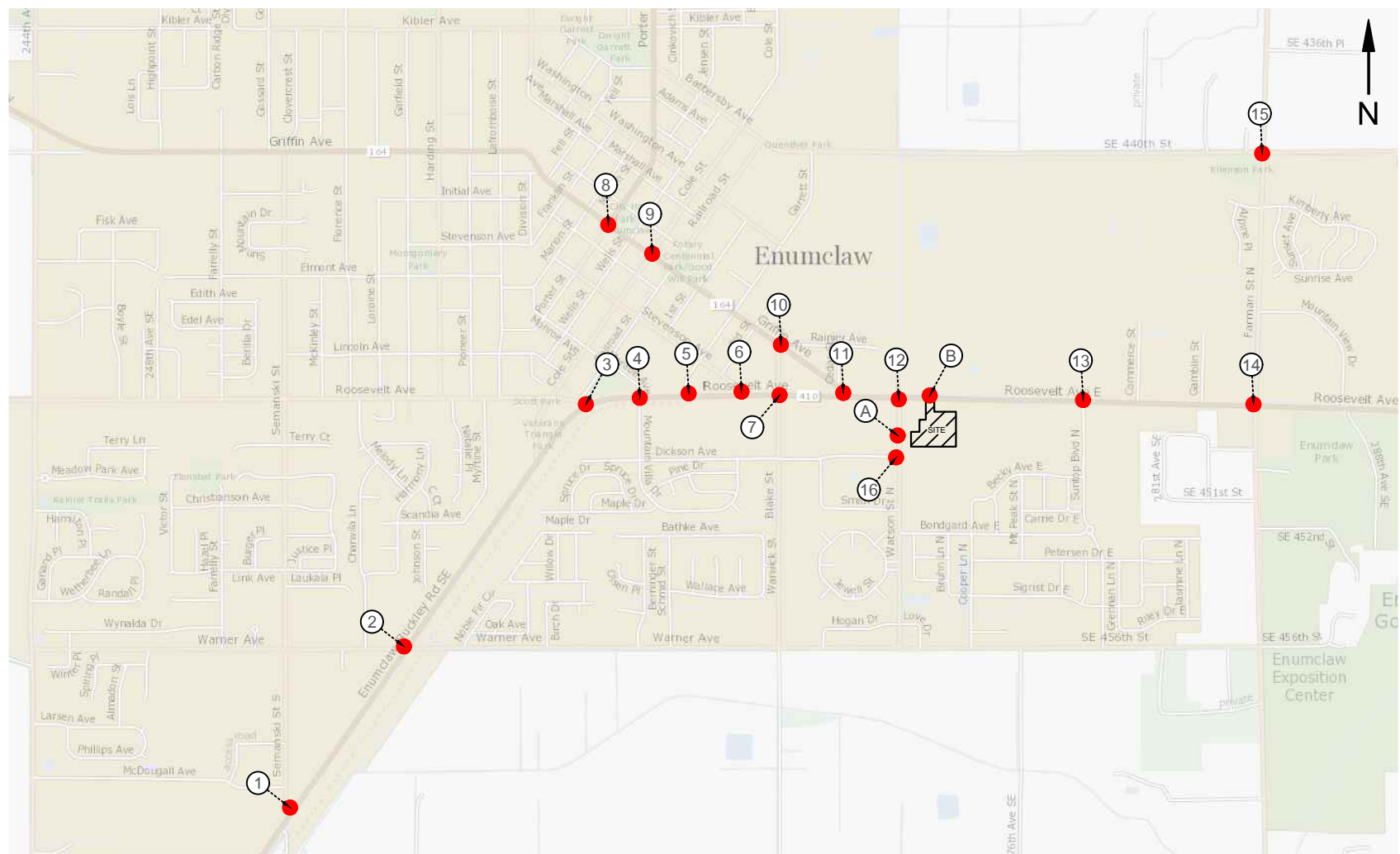
OUTLYING STUDY INTERSECTIONS



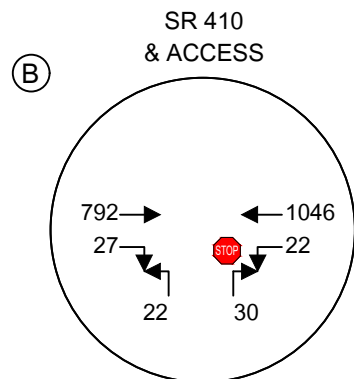
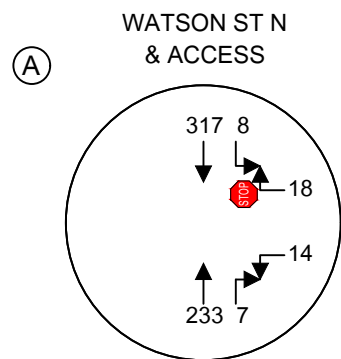
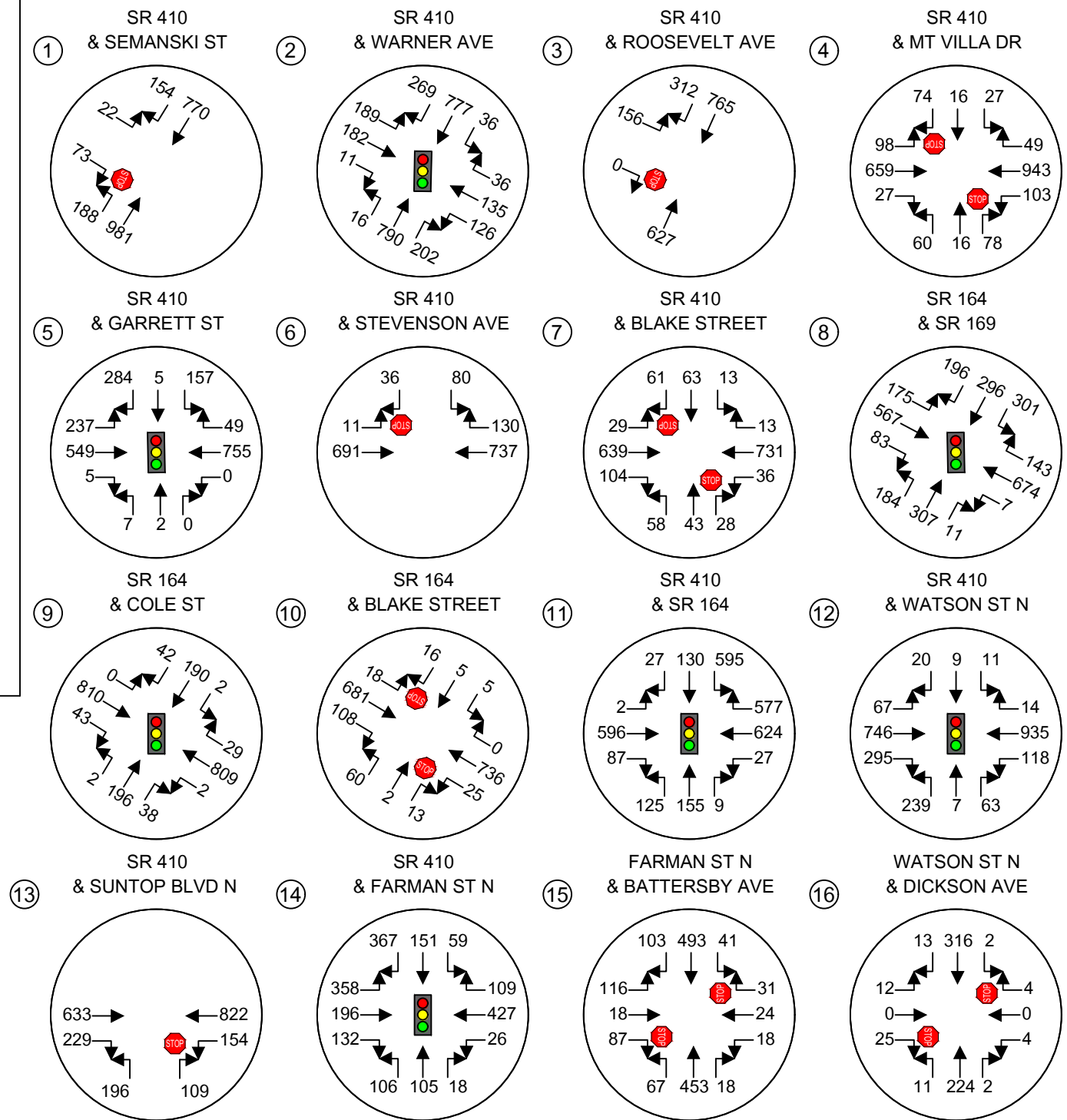


OUTLYING STUDY INTERSECTIONS





OUTLYING STUDY INTERSECTIONS



202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Existing AM Peak Hour LOS



Intersection

Int Delay, s/veh 3.5

Movement SEL SER NEL NET SWT SWR

Lane Configurations 

Traffic Vol, veh/h 30 97 118 620 311 86

Future Vol, veh/h 30 97 118 620 311 86

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 - 170 - - 185

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 80 80 80 80 80 80

Heavy Vehicles, % 3 3 2 2 4 8

Mvmt Flow 38 121 148 775 389 108

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1459 389 496 0 - 0

Stage 1 389 - - - - -

Stage 2 1070 - - - - -

Critical Hdwy 6.43 6.23 4.12 - - -

Critical Hdwy Stg 1 5.43 - - - - -

Critical Hdwy Stg 2 5.43 - - - - -

Follow-up Hdwy 3.527 3.327 2.218 - - -

Pot Cap-1 Maneuver 142 657 1068 - - -

Stage 1 683 - - - - -

Stage 2 328 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 122 657 1068 - - -

Mov Cap-2 Maneuver 122 - - - - -

Stage 1 589 - - - - -

Stage 2 328 - - - - -

Approach SE NE SW

HCM Ctrl Dly, s/v 26.46 1.42 0

HCM LOS D

Minor Lane/Major Mvmt NEL NET SELn1 SWT SWR

Capacity (veh/h) 1068 - 323 - -

HCM Lane V/C Ratio 0.138 - 0.492 - -

HCM Ctrl Dly (s/v) 8.9 - 26.5 - -

HCM Lane LOS A - D - -

HCM 95th %tile Q(veh) 0.5 - 2.6 - -

HCM 7th Signalized Intersection Summary 2: SR 410 & Warner Ave

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	82	58	16	122	93	13	10	544	68	5	380	104
Future Volume (veh/h)	82	58	16	122	93	13	10	544	68	5	380	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1744	1758	1716	1758	1786	1786	1786	1772	1772	1786	1716	1758
Adj Flow Rate, veh/h	99	70	19	147	112	16	12	655	82	6	458	125
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	4	3	6	3	1	1	1	2	2	1	6	3
Cap, veh/h	133	94	26	190	144	283	269	756	626	158	732	621
Arrive On Green	0.15	0.15	0.15	0.19	0.19	0.19	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	883	625	170	986	751	1473	794	1772	1467	688	1716	1455
Grp Volume(v), veh/h	188	0	0	259	0	16	12	655	82	6	458	125
Grp Sat Flow(s),veh/h/ln	1677	0	0	1737	0	1473	794	1772	1467	688	1716	1455
Q Serve(g_s), s	8.1	0.0	0.0	10.7	0.0	0.7	0.9	25.3	2.6	0.6	15.7	4.1
Cycle Q Clear(g_c), s	8.1	0.0	0.0	10.7	0.0	0.7	16.6	25.3	2.6	25.9	15.7	4.1
Prop In Lane	0.53		0.10	0.57		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	0	0	334	0	283	269	756	626	158	732	621
V/C Ratio(X)	0.74	0.00	0.00	0.78	0.00	0.06	0.04	0.87	0.13	0.04	0.63	0.20
Avail Cap(c_a), veh/h	777	0	0	786	0	667	496	1263	1046	355	1223	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	0.0	0.0	28.9	0.0	24.8	23.4	19.6	13.1	31.4	16.9	13.5
Incr Delay (d2), s/veh	4.3	0.0	0.0	3.9	0.0	0.1	0.1	3.6	0.1	0.1	0.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	0.0	4.6	0.0	0.2	0.2	9.7	0.8	0.1	5.6	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.8	0.0	0.0	32.7	0.0	24.9	23.4	23.2	13.2	31.5	17.8	13.7
LnGrp LOS	C			C		C	C	C	B	C	B	B
Approach Vol, veh/h	188			275			749			589		
Approach Delay, s/veh	34.8			32.3			22.1			17.0		
Approach LOS	C			C			C			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	38.5			16.5			38.5			20.4		
Change Period (Y+Rc), s	6.3			5.1			6.3			5.9		
Max Green Setting (Gmax), s	53.7			34.9			53.7			34.1		
Max Q Clear Time (g_c+I1), s	27.3			10.1			27.9			12.7		
Green Ext Time (p_c), s	4.8			1.0			3.3			1.5		
Intersection Summary												
HCM 7th Control Delay, s/veh	23.3											
HCM 7th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↗	↘	
Traffic Vol, veh/h	0	454	192	65	52	1
Future Vol, veh/h	0	454	192	65	52	1
Conflicting Peds, #/hr	2	0	0	2	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	5	6	1
Mvmt Flow	0	493	209	71	57	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	706	213
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	495	-
Critical Hdwy	-	-	-	-	6.46	6.21
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	-	-	-	-	3.554	3.309
Pot Cap-1 Maneuver	0	-	-	-	396	830
Stage 1	0	-	-	-	815	-
Stage 2	0	-	-	-	604	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	395	827
Mov Cap-2 Maneuver	-	-	-	-	487	-
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	603	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		13.3		
HCM LOS				B		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	491		
HCM Lane V/C Ratio	-	-	-	0.117		
HCM Ctrl Dly (s/v)	-	-	-	13.3		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.4		

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	443	26	24	228	11	19	8	22	5	3	10
Future Vol, veh/h	37	443	26	24	228	11	19	8	22	5	3	10
Conflicting Peds, #/hr	7	0	7	7	0	7	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	70	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	5	1	4	10	9	11	13	5	1	1	1
Mvmt Flow	42	503	30	27	259	13	22	9	25	6	3	11
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	279	0	0	540	0	0	802	942	532	926	951	150
Stage 1	-	-	-	-	-	-	609	609	-	327	327	-
Stage 2	-	-	-	-	-	-	193	333	-	599	624	-
Critical Hdwy	4.145	-	-	4.16	-	-	7.465	6.695	6.275	7.315	6.515	6.915
Critical Hdwy Stg 1	-	-	-	-	-	-	6.265	5.695	-	6.515	5.515	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.665	5.695	-	6.115	5.515	-
Follow-up Hdwy	2.2285	-	-	2.238	-	-	3.6045	4.1235	3.3475	3.5095	4.0095	3.3095
Pot Cap-1 Maneuver	1276	-	-	1015	-	-	275	247	539	237	260	873
Stage 1	-	-	-	-	-	-	462	463	-	663	649	-
Stage 2	-	-	-	-	-	-	769	620	-	490	479	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1268	-	-	1008	-	-	249	230	532	202	242	862
Mov Cap-2 Maneuver	-	-	-	-	-	-	249	230	-	202	242	-
Stage 1	-	-	-	-	-	-	444	444	-	641	627	-
Stage 2	-	-	-	-	-	-	729	599	-	439	460	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.58			0.79			17.27			15.03		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	249		394	1268	-	-	1008	-	-	202	541	
HCM Lane V/C Ratio	0.087		0.087	0.033	-	-	0.027	-	-	0.028	0.027	
HCM Ctrl Dly (s/v)	20.8		15	7.9	-	-	8.7	-	-	23.3	11.8	
HCM Lane LOS	C		C	A	-	-	A	-	-	C	B	
HCM 95th %tile Q(veh)	0.3		0.3	0.1	-	-	0.1	-	-	0.1	0.1	

HCM 7th Signalized Intersection Summary 5: Driveway/Garrett St & SR 410

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	336	7	1	211	15	2	2	3	52	3	79
Future Volume (veh/h)	115	336	7	1	211	15	2	2	3	52	3	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1744	1660	1786	1786	1674	1702	1786	1786	1786	1744	1786	1589
Adj Flow Rate, veh/h	142	415	9	1	260	19	2	2	4	64	4	98
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	4	10	1	1	9	7	1	1	1	4	1	15
Cap, veh/h	574	1214	26	463	893	65	146	102	127	390	19	217
Arrive On Green	0.09	0.38	0.38	0.00	0.30	0.30	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1661	3155	68	1701	3003	218	157	624	781	1246	114	1330
Grp Volume(v), veh/h	142	207	217	1	137	142	8	0	0	68	0	98
Grp Sat Flow(s),veh/h/ln	1661	1577	1647	1701	1590	1631	1561	0	0	1360	0	1330
Q Serve(g_s), s	2.2	3.5	3.5	0.0	2.5	2.5	0.0	0.0	0.0	1.5	0.0	2.5
Cycle Q Clear(g_c), s	2.2	3.5	3.5	0.0	2.5	2.5	0.2	0.0	0.0	1.6	0.0	2.5
Prop In Lane	1.00		0.04	1.00		0.13	0.25		0.50	0.94		1.00
Lane Grp Cap(c), veh/h	574	607	634	463	473	485	375	0	0	409	0	217
V/C Ratio(X)	0.25	0.34	0.34	0.00	0.29	0.29	0.02	0.00	0.00	0.17	0.00	0.45
Avail Cap(c_a), veh/h	847	1418	1480	890	1430	1467	916	0	0	905	0	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.8	8.2	8.2	9.2	10.1	10.1	13.2	0.0	0.0	13.8	0.0	14.2
Incr Delay (d2), s/veh	0.2	0.3	0.3	0.0	0.3	0.3	0.0	0.0	0.0	0.2	0.0	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.8	0.8	0.0	0.6	0.7	0.1	0.0	0.0	0.5	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.1	8.5	8.5	9.2	10.5	10.5	13.2	0.0	0.0	14.0	0.0	15.6
LnGrp LOS	A	A	A	A	B	B	B			B		B
Approach Vol, veh/h	566			280			8			166		
Approach Delay, s/veh	8.4			10.5			13.2			14.9		
Approach LOS	A			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	20.7		11.2	8.8	17.4		11.2				
Change Period (Y+Rc), s	5.5	6.3		5.1	5.5	6.3		5.1				
Max Green Setting (Gmax), s	9.5	33.7		19.9	9.5	33.7		19.9				
Max Q Clear Time (g_c+I1), s	2.0	5.5		4.5	4.2	4.5		2.2				
Green Ext Time (p_c), s	0.0	2.4		0.6	0.1	1.5		0.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	10.1											
HCM 7th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	353	196	38	9	3
Future Vol, veh/h	6	353	196	38	9	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	8	10	5	1	1
Mvmt Flow	6	380	211	41	10	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	252	0	0 434 126
Stage 1	-	-	- - 231 -
Stage 2	-	-	- - 203 -
Critical Hdwy	4.12	-	- - 6.82 6.92
Critical Hdwy Stg 1	-	-	- - 5.82 -
Critical Hdwy Stg 2	-	-	- - 5.82 -
Follow-up Hdwy	2.21	-	- - 3.51 3.31
Pot Cap-1 Maneuver	1318	-	- - 553 904
Stage 1	-	-	- - 788 -
Stage 2	-	-	- - 815 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1318	-	- - 550 904
Mov Cap-2 Maneuver	-	-	- - 616 -
Stage 1	-	-	- - 784 -
Stage 2	-	-	- - 815 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.13	0	10.49
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1318	-	-	-	669
HCM Lane V/C Ratio	0.005	-	-	-	0.019
HCM Ctrl Dly (s/v)	7.7	-	-	-	10.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	318	28	12	203	8	20	35	13	2	12	12
Future Vol, veh/h	21	318	28	12	203	8	20	35	13	2	12	12
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	24	7	11	17	7	63	10	14	15	1	1	42
Mvmt Flow	23	342	30	13	218	9	22	38	14	2	13	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	373	0	0	546	657	188	485	668	115
Stage 1	-	-	-	-	-	-	403	403	-	249	249	-
Stage 2	-	-	-	-	-	-	142	254	-	236	418	-
Critical Hdwy	4.58	-	-	4.44	-	-	7.7	6.78	7.2	7.52	6.52	7.74
Critical Hdwy Stg 1	-	-	-	-	-	-	6.7	5.78	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.78	-	6.52	5.52	-
Follow-up Hdwy	2.44	-	-	2.37	-	-	3.6	4.14	3.45	3.51	4.01	3.72
Pot Cap-1 Maneuver	1192	-	-	1081	-	-	404	360	783	467	380	801
Stage 1	-	-	-	-	-	-	574	569	-	735	701	-
Stage 2	-	-	-	-	-	-	823	667	-	749	591	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1190	-	-	1080	-	-	371	348	781	397	367	799
Mov Cap-2 Maneuver	-	-	-	-	-	-	371	348	-	397	367	-
Stage 1	-	-	-	-	-	-	562	558	-	726	692	-
Stage 2	-	-	-	-	-	-	784	659	-	672	580	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.46			0.45			16.09			12.74		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	397	1190	-	-	1080	-	-	493
HCM Lane V/C Ratio	0.184	0.019	-	-	0.012	-	-	0.057
HCM Ctrl Dly (s/v)	16.1	8.1	-	-	8.4	-	-	12.7
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	0.2

HCM 7th Signalized Intersection Summary 8: Porter St/SR 169 & SR 164

Existing AM Peak Hour

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	42	143	1	79	114	45	97	309	33	3	145	70
Future Volume (veh/h)	42	143	1	79	114	45	97	309	33	3	145	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.89	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	1744	1744	1786	1786	1786	1758	1772	1702	1786	1786	1786	1772
Adj Flow Rate, veh/h	48	164	1	91	131	52	111	355	38	3	167	80
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	1	1	1	3	2	7	1	1	1	2
Cap, veh/h	326	258	2	346	239	95	400	466	50	258	273	131
Arrive On Green	0.03	0.17	0.17	0.06	0.20	0.20	0.07	0.31	0.31	0.00	0.24	0.24
Sat Flow, veh/h	1661	1550	9	1701	1215	482	1688	1511	162	1701	1140	546
Grp Volume(v), veh/h	48	0	165	91	0	183	111	0	393	3	0	247
Grp Sat Flow(s),veh/h/ln	1661	0	1559	1701	0	1698	1688	0	1672	1701	0	1686
Q Serve(g_s), s	1.1	0.0	4.4	1.9	0.0	4.3	2.1	0.0	9.4	0.1	0.0	5.8
Cycle Q Clear(g_c), s	1.1	0.0	4.4	1.9	0.0	4.3	2.1	0.0	9.4	0.1	0.0	5.8
Prop In Lane	1.00		0.01	1.00		0.28	1.00		0.10	1.00		0.32
Lane Grp Cap(c), veh/h	326	0	260	346	0	334	400	0	516	258	0	403
V/C Ratio(X)	0.15	0.00	0.64	0.26	0.00	0.55	0.28	0.00	0.76	0.01	0.00	0.61
Avail Cap(c_a), veh/h	646	0	878	623	0	956	657	0	942	635	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	17.2	14.2	0.0	16.0	11.7	0.0	13.8	13.2	0.0	15.0
Incr Delay (d2), s/veh	0.2	0.0	2.6	0.4	0.0	1.4	0.4	0.0	2.4	0.0	0.0	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.6	0.7	0.0	1.6	0.7	0.0	3.3	0.0	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.0	0.0	19.7	14.6	0.0	17.4	12.0	0.0	16.2	13.2	0.0	16.5
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h	213					274		504		250		
Approach Delay, s/veh	18.7					16.5		15.3		16.5		
Approach LOS	B					B		B		B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	18.7	6.5	13.8	8.3	15.7	7.8	12.5				
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1				
Max Green Setting (Gmax), s	9.9	24.9	9.9	24.9	9.9	24.9	9.9	24.9				
Max Q Clear Time (g_c+l1), s	2.1	11.4	3.1	6.3	4.1	7.8	3.9	6.4				
Green Ext Time (p_c), s	0.0	2.1	0.0	1.0	0.1	1.4	0.1	0.8				
Intersection Summary												
HCM 7th Control Delay, s/veh	16.4											
HCM 7th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 7th Signalized Intersection Summary 9: Cole St & SR 164

Existing AM Peak Hour

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	3	86	12	3	45	14	0	360	5	0	205	6
Future Volume (veh/h)	3	86	12	3	45	14	0	360	5	0	205	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.96		0.95	0.96		0.95	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1744	1786	1786	1772	1786	1786	1744	1786	1786	1772	1786
Adj Flow Rate, veh/h	3	91	13	3	48	15	0	383	5	0	218	6
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	4	1	1	2	1	1	4	1	1	2	1
Cap, veh/h	133	292	41	137	251	75	0	648	8	0	647	18
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.42	0.42	0.00	0.42	0.42
Sat Flow, veh/h	16	1309	183	26	1126	339	0	1536	20	0	1535	42
Grp Volume(v), veh/h	107	0	0	66	0	0	0	0	388	0	0	224
Grp Sat Flow(s),veh/h/ln	1509	0	0	1491	0	0	0	0	1556	0	0	1577
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	2.7
Cycle Q Clear(g_c), s	1.7	0.0	0.0	1.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	2.7
Prop In Lane	0.03		0.12	0.05		0.23	0.00		0.01	0.00		0.03
Lane Grp Cap(c), veh/h	465	0	0	463	0	0	0	0	656	0	0	665
V/C Ratio(X)	0.23	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.34
Avail Cap(c_a), veh/h	1171	0	0	1157	0	0	0	0	2709	0	0	2745
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	9.3	0.0	0.0	9.1	0.0	0.0	0.0	0.0	6.4	0.0	0.0	5.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.6	0.0	0.0	9.2	0.0	0.0	0.0	0.0	7.2	0.0	0.0	5.9
LnGrp LOS	A			A					A			A
Approach Vol, veh/h	107			66			388			224		
Approach Delay, s/veh	9.6			9.2			7.2			5.9		
Approach LOS	A			A			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	17.2			11.5			17.2			11.5		
Change Period (Y+Rc), s	5.1			5.1			5.1			5.1		
Max Green Setting (Gmax), s	49.9			19.9			49.9			19.9		
Max Q Clear Time (g_c+I1), s	7.5			3.0			4.7			3.7		
Green Ext Time (p_c), s	2.8			0.2			1.5			0.4		
Intersection Summary												
HCM 7th Control Delay, s/veh				7.3								
HCM 7th LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	322	40	8	177	1	39	2	11	3	1	5
Future Vol, veh/h	6	322	40	8	177	1	39	2	11	3	1	5
Conflicting Peds, #/hr	3	0	3	3	0	3	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	33	6	8	13	2	1	11	1	9	33	1	20
Mvmt Flow	7	362	45	9	199	1	44	2	12	3	1	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	410	0	0	621	622	390	600	644	205
Stage 1	-	-	-	-	-	-	401	401	-	220	220	-
Stage 2	-	-	-	-	-	-	220	221	-	379	423	-
Critical Hdwy	4.43	-	-	4.23	-	-	7.21	6.51	6.29	7.43	6.51	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.21	5.51	-	6.43	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.21	5.51	-	6.43	5.51	-
Follow-up Hdwy	2.497	-	-	2.317	-	-	3.599	4.009	3.381	3.797	4.009	3.48
Pot Cap-1 Maneuver	1204	-	-	1092	-	-	387	404	643	371	393	792
Stage 1	-	-	-	-	-	-	608	603	-	717	723	-
Stage 2	-	-	-	-	-	-	762	722	-	584	589	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1201	-	-	1089	-	-	375	395	639	354	384	787
Mov Cap-2 Maneuver	-	-	-	-	-	-	375	395	-	354	384	-
Stage 1	-	-	-	-	-	-	602	597	-	708	714	-
Stage 2	-	-	-	-	-	-	746	714	-	565	583	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.13			0.36			15.19			12.11		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	412	29	-	-	77	-	-	516
HCM Lane V/C Ratio	0.142	0.006	-	-	0.008	-	-	0.02
HCM Ctrl Dly (s/v)	15.2	8	0	-	8.3	0	-	12.1
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.1

HCM 7th Signalized Intersection Summary 11: Driveway/SR 164 & SR 410

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	306	20	6	176	157	27	28	6	239	29	8
Future Volume (veh/h)	0	306	20	6	176	157	27	28	6	239	29	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1674	1589	1786	1716	1758	1702	1603	1561	1730	1702	1617
Adj Flow Rate, veh/h	0	340	22	7	196	174	30	31	7	266	32	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	9	15	1	6	3	7	14	17	5	7	13
Cap, veh/h	0	782	50	332	443	374	52	54	12	379	46	13
Arrive On Green	0.00	0.26	0.26	0.26	0.26	0.26	0.08	0.08	0.08	0.27	0.27	0.27
Sat Flow, veh/h	0	3111	195	971	1716	1449	678	701	158	1405	169	48
Grp Volume(v), veh/h	0	178	184	7	196	174	68	0	0	307	0	0
Grp Sat Flow(s),veh/h/ln	0	1590	1632	971	1716	1449	1537	0	0	1622	0	0
Q Serve(g_s), s	0.0	3.9	3.9	0.3	4.0	4.2	1.8	0.0	0.0	7.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.9	3.9	4.2	4.0	4.2	1.8	0.0	0.0	7.1	0.0	0.0
Prop In Lane	0.00		0.12	1.00		1.00	0.44		0.10	0.87		0.03
Lane Grp Cap(c), veh/h	0	411	422	332	443	374	117	0	0	437	0	0
V/C Ratio(X)	0.00	0.43	0.44	0.02	0.44	0.46	0.58	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	0	1285	1319	866	1387	1172	1287	0	0	1358	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)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.9	12.9	14.7	12.9	13.0	18.6	0.0	0.0	13.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.7	0.9	4.4	0.0	0.0	2.1	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	1.1	1.2	0.0	1.2	1.1	0.7	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	13.6	13.6	14.7	13.6	13.9	23.0	0.0	0.0	15.8	0.0	0.0
LnGrp LOS		B	B	B	B	B	C			B		
Approach Vol, veh/h		362			377			68			307	
Approach Delay, s/veh		13.6			13.8			23.0			15.8	
Approach LOS		B			B			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.1		8.3		17.1		16.3				
Change Period (Y+Rc), s		6.3		5.1		6.3		5.1				
Max Green Setting (Gmax), s		33.7		34.9		33.7		34.9				
Max Q Clear Time (g_c+I1), s		5.9		3.8		6.2		9.1				
Green Ext Time (p_c), s		2.0		0.4		1.7		2.1				
Intersection Summary												
HCM 7th Control Delay, s/veh				14.9								
HCM 7th LOS				B								

Lanes, Volumes, Timings
12: Watson St N & SR 410

Existing AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	409	110	19	248	1	82	0	47	0	0	1
Future Volume (vph)	5	409	110	19	248	1	82	0	47	0	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	130		0	125		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	105			130			25			25		
Lane Util. 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
Ped Bike Factor	1.00		0.98	1.00	1.00			0.99			0.98	
Frt			0.850		0.999			0.951			0.865	
Flt Protected	0.950			0.950				0.969				
Satd. Flow (prot)	1693	1651	1485	1693	1681	0	0	1602	0	0	1509	0
Flt Permitted	0.579			0.412				0.969				
Satd. Flow (perm)	1030	1651	1453	734	1681	0	0	1601	0	0	1509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			131					108			488	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		649			501			400			353	
Travel Time (s)		11.1			8.5			10.9			9.6	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	1%	9%	3%	1%	7%	1%	2%	1%	4%	1%	1%	1%
Adj. Flow (vph)	6	487	131	23	295	1	98	0	56	0	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	487	131	23	296	0	0	154	0	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Synchro 12 Report
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Lanes, Volumes, Timings
12: Watson St N & SR 410

Existing AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA			NA	
Protected Phases		2			6		3	3			4	
Permitted Phases	2		2	6						4		
Detector Phase	2	2	2	6	6		3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.3	26.3	26.3	24.3	24.3		32.1	32.1		40.1	40.1	
Total Split (s)	45.0	45.0	45.0	45.0	45.0		20.0	20.0		20.0	20.0	
Total Split (%)	52.9%	52.9%	52.9%	52.9%	52.9%		23.5%	23.5%		23.5%	23.5%	
Maximum Green (s)	38.7	38.7	38.7	38.7	38.7		14.9	14.9		14.9	14.9	
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3		3.1	3.1		3.1	3.1	
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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			5.1			5.1	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	13.0	13.0	13.0	10.0	10.0		20.0	20.0		28.0	28.0	
Pedestrian Calls (#/hr)	1	1	1	1	1		1	1		1	1	
Act Effect Green (s)	28.4	28.4	28.4	28.4	28.4			10.1			9.6	
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56			0.20			0.19	
v/c Ratio	0.01	0.53	0.15	0.06	0.32			0.38			0.00	
Control Delay (s/veh)	15.8	18.3	4.6	15.9	15.1			12.7			0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay (s/veh)	15.8	18.3	4.6	15.9	15.1			12.7			0.0	
LOS	B	B	A	B	B			B			A	
Approach Delay (s/veh)		15.4			15.2			12.7				
Approach LOS		B			B			B				

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 51

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay (s/veh): 14.9

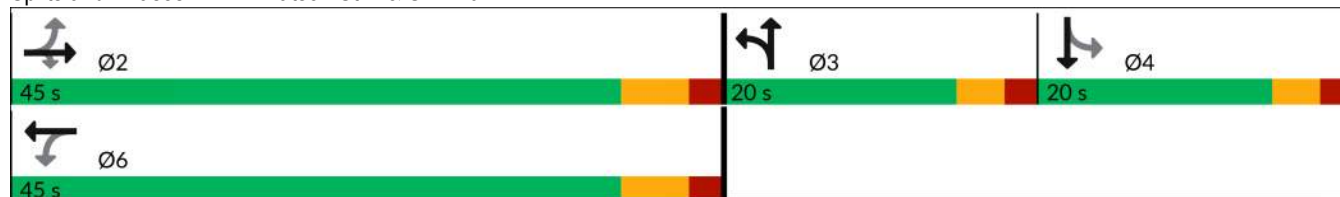
Intersection LOS: B

Intersection Capacity Utilization 47.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 12: Watson St N & SR 410



Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘↗	
Traffic Vol, veh/h	451	11	8	218	36	20
Future Vol, veh/h	451	11	8	218	36	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	90	120	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	6	9	13	9	1	1
Mvmt Flow	518	13	9	251	41	23
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	531	0	787	518
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	269	-
Critical Hdwy	-	-	4.23	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.317	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	983	-	362	559
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	779	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	983	-	358	559
Mov Cap-2 Maneuver	-	-	-	-	466	-
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	771	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.31		13.35	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	496	-	-	983	-	
HCM Lane V/C Ratio	0.13	-	-	0.009	-	
HCM Ctrl Dly (s/v)	13.3	-	-	8.7	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.4	-	-	0	-	

HCM 7th Signalized Intersection Summary
14: 284th Ave SE/Farman St N & SR 410

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	287	35	3	42	23	38	43	9	77	35	132
Future Volume (veh/h)	110	287	35	3	42	23	38	43	9	77	35	132
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1702	1716	1758	859	1561	1000	1786	1772	1646	1674	1758	1772
Adj Flow Rate, veh/h	125	326	40	3	48	26	43	49	10	88	40	150
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	7	6	3	67	17	57	1	2	11	9	3	2
Cap, veh/h	568	551	478	250	373	203	246	239	39	202	83	202
Arrive On Green	0.08	0.32	0.32	0.00	0.24	0.24	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1621	1716	1490	818	1561	847	489	941	155	351	329	797
Grp Volume(v), veh/h	125	326	40	3	48	26	102	0	0	278	0	0
Grp Sat Flow(s),veh/h/ln	1621	1716	1490	818	1561	847	1586	0	0	1477	0	0
Q Serve(g_s), s	2.4	6.7	0.8	0.1	1.0	1.0	0.0	0.0	0.0	4.7	0.0	0.0
Cycle Q Clear(g_c), s	2.4	6.7	0.8	0.1	1.0	1.0	1.9	0.0	0.0	7.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.42		0.10	0.32		0.54
Lane Grp Cap(c), veh/h	568	551	478	250	373	203	524	0	0	487	0	0
V/C Ratio(X)	0.22	0.59	0.08	0.01	0.13	0.13	0.19	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1187	2203	1912	531	2004	1088	1148	0	0	1124	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	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.4	11.9	9.9	12.5	12.5	12.5	12.4	0.0	0.0	14.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.0	0.1	0.0	0.2	0.3	0.2	0.0	0.0	1.1	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	0.6	2.0	0.2	0.0	0.3	0.2	0.6	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.6	12.9	10.0	12.5	12.6	12.8	12.6	0.0	0.0	15.3	0.0	0.0
LnGrp LOS	B	B	A	B	B	B	B			B		
Approach Vol, veh/h	491			77			102			278		
Approach Delay, s/veh	12.1			12.7			12.6			15.3		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	19.7		16.5	9.0	16.3		16.5				
Change Period (Y+Rc), s	5.5	6.3		5.9	5.5	6.3		5.9				
Max Green Setting (Gmax), s	14.5	53.7		29.1	19.5	53.7		29.1				
Max Q Clear Time (g_c+I1), s	2.1	8.7		9.1	4.4	3.0		3.9				
Green Ext Time (p_c), s	0.0	2.1		1.6	0.2	0.3		0.5				
Intersection Summary												
HCM 7th Control Delay, s/veh				13.1								
HCM 7th LOS				B								

HCM 7th TWSC
15: Farman St N & Battersby Ave

Existing AM Peak Hour

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	14	4	21	1	0	3	20	142	0	5	244	45
Future Vol, veh/h	14	4	21	1	0	3	20	142	0	5	244	45
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	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	7	50	10	1	1	33	1	20	1	40	6	2
Mvmt Flow	18	5	27	1	0	4	26	182	0	6	313	58

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	588	588	342	562	617	182	371	0	0	182	0	0
Stage 1	354	354	-	233	233	-	-	-	-	-	-	-
Stage 2	233	233	-	328	383	-	-	-	-	-	-	-
Critical Hdwy	7.17	7	6.3	7.11	6.51	6.53	4.11	-	-	4.5	-	-
Critical Hdwy Stg 1	6.17	6	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	6	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.45	3.39	3.509	4.009	3.597	2.209	-	-	2.56	-	-
Pot Cap-1 Maneuver	413	363	683	439	407	787	1194	-	-	1194	-	-
Stage 1	653	553	-	772	713	-	-	-	-	-	-	-
Stage 2	759	631	-	687	614	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	399	352	683	403	395	787	1194	-	-	1194	-	-
Mov Cap-2 Maneuver	399	352	-	403	395	-	-	-	-	-	-	-
Stage 1	648	550	-	753	696	-	-	-	-	-	-	-
Stage 2	737	616	-	649	609	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	12.91		10.71		1		0.14	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	222	-	-	505	636	30	-
HCM Lane V/C Ratio	0.021	-	-	0.099	0.008	0.005	-
HCM Ctrl Dly (s/v)	8.1	0	-	12.9	10.7	8	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-

HCM 7th TWSC
16: Watson St N & Dickson Ave/Driveway

Existing AM Peak Hour

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	1	3	0	5	5	104	3	1	46	1
Future Vol, veh/h	3	0	1	3	0	5	5	104	3	1	46	1
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	1	1	1	67	1	20	40	3	67	1	4	1
Mvmt Flow	4	0	1	4	0	6	6	125	4	1	55	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	200	203	60	201	202	131	59	0	0	131	0	0
Stage 1	60	60	-	141	141	-	-	-	-	-	-	-
Stage 2	139	143	-	60	61	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.77	6.51	6.4	4.5	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.77	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.77	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	4.103	4.009	3.48	2.56	-	-	2.209	-	-
Pot Cap-1 Maneuver	761	695	1008	636	696	872	1334	-	-	1461	-	-
Stage 1	953	847	-	728	782	-	-	-	-	-	-	-
Stage 2	866	780	-	811	846	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	748	688	1004	629	689	869	1332	-	-	1458	-	-
Mov Cap-2 Maneuver	748	688	-	629	689	-	-	-	-	-	-	-
Stage 1	951	844	-	723	777	-	-	-	-	-	-	-
Stage 2	854	775	-	808	844	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	9.53		9.79		0.34		0.16					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	80	-	-	799	760	37	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.006	0.013	0.001	-	-				
HCM Ctrl Dly (s/v)	7.7	0	-	9.5	9.8	7.5	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-				

HCM 7th TWSC
17: Watson St N & Project Access

Existing AM Peak Hour

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	0	112	0	0	47
Future Vol, veh/h	1	0	112	0	0	47
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	92	92	92	92	92	92
Heavy Vehicles, %	100	2	2	2	2	2
Mvmt Flow	1	0	122	0	0	51

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	173	122	0
Stage 1	122	-	-
Stage 2	51	-	-
Critical Hdwy	7.4	6.22	-
Critical Hdwy Stg 1	6.4	-	-
Critical Hdwy Stg 2	6.4	-	-
Follow-up Hdwy	4.4	3.318	-
Pot Cap-1 Maneuver	636	929	-
Stage 1	709	-	-
Stage 2	771	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	636	929	-
Mov Cap-2 Maneuver	636	-	-
Stage 1	709	-	-
Stage 2	771	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.67	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	636	1466
HCM Lane V/C Ratio	-	-	0.002	-
HCM Ctrl Dly (s/v)	-	-	10.7	0
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection

Int Delay, s/veh 0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	447	9	2	262	2	2
Future Vol, veh/h	447	9	2	262	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	50	2	2	2
Mvmt Flow	486	10	2	285	2	2

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	496
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.6
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.65
Pot Cap-1 Maneuver	-	-	861
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	861
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.07	11.99
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	519	-	-	861	-
HCM Lane V/C Ratio	0.008	-	-	0.003	-
HCM Ctrl Dly (s/v)	12	-	-	9.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Existing PM Peak Hour LOS



Intersection

Int Delay, s/veh 1.4

Movement SEL SER NEL NET SWT SWR

Lane Configurations 

Traffic Vol, veh/h 12 39 101 505 395 85

Future Vol, veh/h 12 39 101 505 395 85

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 - 170 - - 185

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 97 97 97 97 97 97

Heavy Vehicles, % 1 1 1 1 1 14

Mvmt Flow 12 40 104 521 407 88

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1136 407 495 0 - 0

Stage 1 407 - - - - -

Stage 2 729 - - - - -

Critical Hdwy 6.41 6.21 4.11 - - -

Critical Hdwy Stg 1 5.41 - - - - -

Critical Hdwy Stg 2 5.41 - - - - -

Follow-up Hdwy 3.509 3.309 2.209 - - -

Pot Cap-1 Maneuver 224 646 1074 - - -

Stage 1 674 - - - - -

Stage 2 479 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 203 646 1074 - - -

Mov Cap-2 Maneuver 203 - - - - -

Stage 1 609 - - - - -

Stage 2 479 - - - - -

Approach SE NE SW

HCM Ctrl Dly, s/v 14.62 1.45 0

HCM LOS B

Minor Lane/Major Mvmt NEL NET SELn1 SWT SWR

Capacity (veh/h) 1074 - 427 - -

HCM Lane V/C Ratio 0.097 - 0.123 - -

HCM Ctrl Dly (s/v) 8.7 - 14.6 - -

HCM Lane LOS A - B - -

HCM 95th %tile Q(veh) 0.3 - 0.4 - -

HCM 7th Signalized Intersection Summary 2: SR 410 & Warner Ave

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	98	98	6	61	73	20	9	407	100	20	405	143
Future Volume (veh/h)	98	98	6	61	73	20	9	407	100	20	405	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.97
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	1786	1786	1786	1702	1786	1786	1786	1772	1786	1786	1772	1786
Adj Flow Rate, veh/h	103	103	6	64	77	21	9	428	105	21	426	151
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
Percent Heavy Veh, %	1	1	1	7	1	1	1	2	1	1	2	1
Cap, veh/h	155	155	9	108	130	198	251	617	512	254	617	512
Arrive On Green	0.18	0.18	0.18	0.14	0.14	0.14	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	842	842	49	793	954	1452	797	1772	1471	830	1772	1471
Grp Volume(v), veh/h	212	0	0	141	0	21	9	428	105	21	426	151
Grp Sat Flow(s),veh/h/ln	1733	0	0	1746	0	1452	797	1772	1471	830	1772	1471
Q Serve(g_s), s	5.9	0.0	0.0	4.0	0.0	0.7	0.5	10.9	2.6	1.2	10.8	3.9
Cycle Q Clear(g_c), s	5.9	0.0	0.0	4.0	0.0	0.7	11.3	10.9	2.6	12.0	10.8	3.9
Prop In Lane	0.49		0.03	0.45		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	320	0	0	239	0	198	251	617	512	254	617	512
V/C Ratio(X)	0.66	0.00	0.00	0.59	0.00	0.11	0.04	0.69	0.21	0.08	0.69	0.29
Avail Cap(c_a), veh/h	1156	0	0	1138	0	946	791	1818	1510	817	1818	1510
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	0.0	0.0	21.2	0.0	19.8	19.5	14.7	12.0	19.8	14.6	12.4
Incr Delay (d2), s/veh	2.4	0.0	0.0	2.3	0.0	0.2	0.1	1.4	0.2	0.1	1.4	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	1.6	0.0	0.2	0.1	3.7	0.7	0.2	3.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.2	0.0	0.0	23.5	0.0	20.0	19.5	16.1	12.2	20.0	16.0	12.7
LnGrp LOS	C			C		C	B	B	B	B	B	B
Approach Vol, veh/h	212			162			542			598		
Approach Delay, s/veh	22.2			23.1			15.4			15.3		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	24.5			14.8			24.5			13.0		
Change Period (Y+Rc), s	6.3			5.1			6.3			5.9		
Max Green Setting (Gmax), s	53.7			34.9			53.7			34.1		
Max Q Clear Time (g_c+l1), s	13.3			7.9			14.0			6.0		
Green Ext Time (p_c), s	3.1			1.2			3.4			0.8		
Intersection Summary												
HCM 7th Control Delay, s/veh	17.1											
HCM 7th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↗	↘	
Traffic Vol, veh/h	0	309	392	162	76	0
Future Vol, veh/h	0	309	392	162	76	0
Conflicting Peds, #/hr	1	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	364	461	191	89	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	827	463
Stage 1	-	-	-	-	462	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	0	-	-	-	343	601
Stage 1	0	-	-	-	636	-
Stage 2	0	-	-	-	705	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	342	600
Mov Cap-2 Maneuver	-	-	-	-	460	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	704	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		14.7		
HCM LOS				B		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	460		
HCM Lane V/C Ratio	-	-	-	0.194		
HCM Ctrl Dly (s/v)	-	-	-	14.7		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.7		

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	316	15	56	480	26	33	9	42	14	9	41
Future Vol, veh/h	54	316	15	56	480	26	33	9	42	14	9	41
Conflicting Peds, #/hr	16	0	16	16	0	16	16	0	16	16	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	70	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	5	1	4	7	8	1	1	1	1	1	1
Mvmt Flow	59	343	16	61	522	28	36	10	46	15	10	45
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	566	0	0	376	0	0	889	1173	384	1155	1167	307
Stage 1	-	-	-	-	-	-	485	485	-	674	674	-
Stage 2	-	-	-	-	-	-	404	688	-	482	493	-
Critical Hdwy	4.115	-	-	4.16	-	-	7.315	6.515	6.215	7.315	6.515	6.915
Critical Hdwy Stg 1	-	-	-	-	-	-	6.115	5.515	-	6.515	5.515	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.515	5.515	-	6.115	5.515	-
Follow-up Hdwy	2.2095	-	-	2.238	-	-	3.5095	4.0095	3.3095	3.5095	4.0095	3.3095
Pot Cap-1 Maneuver	1010	-	-	1168	-	-	252	193	666	163	194	692
Stage 1	-	-	-	-	-	-	565	553	-	413	455	-
Stage 2	-	-	-	-	-	-	598	448	-	567	548	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	995	-	-	1151	-	-	193	166	646	124	168	671
Mov Cap-2 Maneuver	-	-	-	-	-	-	193	166	-	124	168	-
Stage 1	-	-	-	-	-	-	523	512	-	386	424	-
Stage 2	-	-	-	-	-	-	509	418	-	479	508	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	1.24			0.83			19.86			19.58		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	193	428	995	-	-	1151	-	-	124	436		
HCM Lane V/C Ratio	0.186	0.129	0.059	-	-	0.053	-	-	0.122	0.125		
HCM Ctrl Dly (s/v)	27.9	14.7	8.8	-	-	8.3	-	-	37.9	14.4		
HCM Lane LOS	D	B	A	-	-	A	-	-	E	B		
HCM 95th %tile Q(veh)	0.7	0.4	0.2	-	-	0.2	-	-	0.4	0.4		

HCM 7th Signalized Intersection Summary 5: Driveway/Garrett St & SR 410

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	253	3	0	374	26	4	1	0	86	3	157
Future Volume (veh/h)	131	253	3	0	374	26	4	1	0	86	3	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.99		1.00	0.99		0.97
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	1730	1744	1786	1786	1730	1744	1786	396	1786	1786	1786	1772
Adj Flow Rate, veh/h	144	278	3	0	411	29	4	1	0	95	3	173
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	4	1	1	5	4	1	100	1	1	1	2
Cap, veh/h	479	1718	19	486	890	62	196	13	0	455	12	294
Arrive On Green	0.09	0.51	0.51	0.00	0.29	0.29	0.20	0.20	0.00	0.20	0.20	0.20
Sat Flow, veh/h	1647	3356	36	1701	3106	218	165	66	0	1376	58	1461
Grp Volume(v), veh/h	144	137	144	0	217	223	5	0	0	98	0	173
Grp Sat Flow(s),veh/h/ln	1647	1657	1736	1701	1643	1681	231	0	0	1433	0	1461
Q Serve(g_s), s	2.2	1.7	1.8	0.0	4.3	4.3	0.0	0.0	0.0	0.0	0.0	4.3
Cycle Q Clear(g_c), s	2.2	1.7	1.8	0.0	4.3	4.3	2.0	0.0	0.0	2.0	0.0	4.3
Prop In Lane	1.00		0.02	1.00		0.13	0.80		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	479	848	889	486	471	481	210	0	0	467	0	294
V/C Ratio(X)	0.30	0.16	0.16	0.00	0.46	0.46	0.02	0.00	0.00	0.21	0.00	0.59
Avail Cap(c_a), veh/h	730	1406	1473	889	1394	1426	292	0	0	871	0	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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.8	5.2	5.2	0.0	11.6	11.7	12.9	0.0	0.0	13.5	0.0	14.4
Incr Delay (d2), s/veh	0.3	0.1	0.1	0.0	0.7	0.7	0.0	0.0	0.0	0.2	0.0	1.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.3	0.3	0.0	1.2	1.3	0.0	0.0	0.0	0.7	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.2	5.2	5.2	0.0	12.3	12.4	12.9	0.0	0.0	13.7	0.0	16.3
LnGrp LOS	A	A	A		B	B	B			B		B
Approach Vol, veh/h	425			440			5			271		
Approach Delay, s/veh	6.2			12.4			12.9			15.3		
Approach LOS	A			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	26.6		13.1	9.0	17.7		13.1				
Change Period (Y+Rc), s	5.5	6.3		5.1	5.5	6.3		5.1				
Max Green Setting (Gmax), s	9.5	33.7		19.9	9.5	33.7		19.9				
Max Q Clear Time (g_c+I1), s	0.0	3.8		6.3	4.2	6.3		4.0				
Green Ext Time (p_c), s	0.0	1.5		0.9	0.1	2.5		0.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	10.8											
HCM 7th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection

Int Delay, s/veh 1

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 6 331 363 70 42 20

Future Vol, veh/h 6 331 363 70 42 20

Conflicting Peds, #/hr 4 0 0 4 4 4

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length 100 - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 96 96 96 96 96 96

Heavy Vehicles, % 1 5 6 1 1 1

Mvmt Flow 6 345 378 73 44 21

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 455 0 - 0 607 234

Stage 1 - - - - 419 -

Stage 2 - - - - 189 -

Critical Hdwy 4.12 - - - 6.82 6.92

Critical Hdwy Stg 1 - - - - 5.82 -

Critical Hdwy Stg 2 - - - - 5.82 -

Follow-up Hdwy 2.21 - - - 3.51 3.31

Pot Cap-1 Maneuver 1109 - - - 430 771

Stage 1 - - - - 635 -

Stage 2 - - - - 827 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1105 - - - 424 766

Mov Cap-2 Maneuver - - - - 511 -

Stage 1 - - - - 629 -

Stage 2 - - - - 824 -

Approach EB WB SB

HCM Ctrl Dly, s/v 0.15 0 12.09

HCM LOS B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1105 - - - 572

HCM Lane V/C Ratio 0.006 - - - 0.113

HCM Ctrl Dly (s/v) 8.3 - - - 12.1

HCM Lane LOS A - - - B

HCM 95th %tile Q(veh) 0 - - - 0.4

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	301	56	17	358	6	31	23	12	6	34	34
Future Vol, veh/h	16	301	56	17	358	6	31	23	12	6	34	34
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	6	4	2	1	4	1	1	13	1	1	1	3
Mvmt Flow	17	314	58	18	373	6	32	24	13	6	35	35
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	384	0	0	377	0	0	626	801	196	624	827	200
Stage 1	-	-	-	-	-	-	381	381	-	416	416	-
Stage 2	-	-	-	-	-	-	245	420	-	207	410	-
Critical Hdwy	4.22	-	-	4.12	-	-	7.52	6.76	6.92	7.52	6.52	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.76	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.76	-	6.52	5.52	-
Follow-up Hdwy	2.26	-	-	2.21	-	-	3.51	4.13	3.31	3.51	4.01	3.33
Pot Cap-1 Maneuver	1143	-	-	1185	-	-	371	296	816	372	307	805
Stage 1	-	-	-	-	-	-	616	585	-	587	592	-
Stage 2	-	-	-	-	-	-	740	561	-	778	596	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1137	-	-	1180	-	-	301	285	808	323	295	797
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	285	-	323	295	-
Stage 1	-	-	-	-	-	-	604	574	-	575	581	-
Stage 2	-	-	-	-	-	-	651	550	-	720	585	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.35			0.36			18.64			15.49		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	332	1137	-	-	1180	-	-	420				
HCM Lane V/C Ratio	0.207	0.015	-	-	0.015	-	-	0.184				
HCM Ctrl Dly (s/v)	18.6	8.2	-	-	8.1	-	-	15.5				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.7				

HCM 7th Signalized Intersection Summary 8: Porter St/SR 169 & SR 164

Existing PM Peak Hour

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	102	170	6	141	164	104	94	281	46	4	345	57
Future Volume (veh/h)	102	170	6	141	164	104	94	281	46	4	345	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	0.99		0.99	0.99		0.98
Parking Bus, Adj	1.00	1.00	0.89	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	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	110	183	6	152	176	112	101	302	49	4	371	61
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	320	336	11	402	245	156	285	543	88	315	456	75
Arrive On Green	0.07	0.22	0.22	0.10	0.24	0.24	0.06	0.36	0.36	0.00	0.31	0.31
Sat Flow, veh/h	1701	1538	50	1701	1011	643	1701	1496	243	1701	1492	245
Grp Volume(v), veh/h	110	0	189	152	0	288	101	0	351	4	0	432
Grp Sat Flow(s),veh/h/ln	1701	0	1588	1701	0	1654	1701	0	1738	1701	0	1737
Q Serve(g_s), s	3.1	0.0	6.7	4.3	0.0	10.2	2.5	0.0	10.3	0.1	0.0	14.7
Cycle Q Clear(g_c), s	3.1	0.0	6.7	4.3	0.0	10.2	2.5	0.0	10.3	0.1	0.0	14.7
Prop In Lane	1.00		0.03	1.00		0.39	1.00		0.14	1.00		0.14
Lane Grp Cap(c), veh/h	320	0	347	402	0	402	285	0	631	315	0	531
V/C Ratio(X)	0.34	0.00	0.54	0.38	0.00	0.72	0.35	0.00	0.56	0.01	0.00	0.81
Avail Cap(c_a), veh/h	595	0	619	637	0	645	578	0	950	707	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	22.1	16.9	0.0	22.2	15.3	0.0	16.2	15.6	0.0	20.5
Incr Delay (d2), s/veh	0.6	0.0	1.3	0.6	0.0	2.4	0.7	0.0	0.8	0.0	0.0	3.1
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	1.2	0.0	2.5	1.6	0.0	4.0	1.0	0.0	3.9	0.0	0.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.5	0.0	23.5	17.5	0.0	24.6	16.0	0.0	17.0	15.6	0.0	23.6
LnGrp LOS	B		C	B		C	B		B	B		C
Approach Vol, veh/h	299				440				452		436	
Approach Delay, s/veh	21.6				22.1				16.8		23.5	
Approach LOS	C				C				B		C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	28.3	9.6	20.6	9.0	24.6	11.2	19.0				
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1				
Max Green Setting (Gmax), s	14.9	34.9	14.9	24.9	14.9	34.9	14.9	24.9				
Max Q Clear Time (g_c+I1), s	2.1	12.3	5.1	12.2	4.5	16.7	6.3	8.7				
Green Ext Time (p_c), s	0.0	2.3	0.2	1.4	0.2	2.7	0.2	0.9				
Intersection Summary												
HCM 7th Control Delay, s/veh			20.9									
HCM 7th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 7th Signalized Intersection Summary 9: Cole St & SR 164

Existing PM Peak Hour

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	1	108	21	1	104	23	0	385	24	1	395	16
Future Volume (veh/h)	1	108	21	1	104	23	0	385	24	1	395	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.91		0.86	0.91		0.86	1.00		0.89	0.96		0.89
Parking Bus, Adj	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1772	1786	1786	1786	1786	1786	1772	1786	1786	1786	1786
Adj Flow Rate, veh/h	1	116	23	1	112	25	0	414	26	1	425	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	2	1	1	1	1	1	2	1	1	1	1
Cap, veh/h	93	400	79	93	392	87	0	614	39	92	636	25
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	2	1246	245	2	1223	271	0	1464	92	1	1517	61
Grp Volume(v), veh/h	140	0	0	138	0	0	0	0	440	443	0	0
Grp Sat Flow(s),veh/h/ln	1493	0	0	1496	0	0	0	0	1556	1578	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.0	2.7	0.0	0.0	0.0	0.0	9.0	8.9	0.0	0.0
Prop In Lane	0.01		0.16	0.01		0.18	0.00		0.06	0.00		0.04
Lane Grp Cap(c), veh/h	571	0	0	572	0	0	0	0	652	753	0	0
V/C Ratio(X)	0.24	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.67	0.59	0.00	0.00
Avail Cap(c_a), veh/h	849	0	0	850	0	0	0	0	1978	2096	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	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	9.2	9.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	1.2	0.7	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	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	2.5	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.2	0.0	0.0	10.2	0.0	0.0	0.0	0.0	10.5	9.9	0.0	0.0
LnGrp LOS	B			B			B			A		
Approach Vol, veh/h	140			138			440			443		
Approach Delay, s/veh	10.2			10.2			10.5			9.9		
Approach LOS	B			B			B			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	21.5			17.7			21.5			17.7		
Change Period (Y+Rc), s	5.1			5.1			5.1			5.1		
Max Green Setting (Gmax), s	49.9			19.9			49.9			19.9		
Max Q Clear Time (g_c+I1), s	11.0			4.7			10.9			4.8		
Green Ext Time (p_c), s	3.3			0.6			3.3			0.6		
Intersection Summary												
HCM 7th Control Delay, s/veh	10.2											
HCM 7th LOS	B											

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	10	313	60	14	353	0	33	1	7	3	3	9
Future Vol, veh/h	10	313	60	14	353	0	33	1	7	3	3	9
Conflicting Peds, #/hr	9	0	9	9	0	9	9	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	20	1	5	1	2	1	15	1	1	1	33	1
Mvmt Flow	11	356	68	16	401	0	38	1	8	3	3	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	410	0	0	433	0	0	865	863	408	830	898	419
Stage 1	-	-	-	-	-	-	422	422	-	442	442	-
Stage 2	-	-	-	-	-	-	444	442	-	388	456	-
Critical Hdwy	4.3	-	-	4.11	-	-	7.25	6.51	6.21	7.11	6.83	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	5.51	-	6.11	5.83	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	5.51	-	6.11	5.83	-
Follow-up Hdwy	2.38	-	-	2.209	-	-	3.635	4.009	3.309	3.509	4.297	3.309
Pot Cap-1 Maneuver	1058	-	-	1132	-	-	260	293	646	290	249	636
Stage 1	-	-	-	-	-	-	585	590	-	596	527	-
Stage 2	-	-	-	-	-	-	569	578	-	638	519	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1049	-	-	1122	-	-	240	279	635	272	237	625
Mov Cap-2 Maneuver	-	-	-	-	-	-	240	279	-	272	237	-
Stage 1	-	-	-	-	-	-	572	577	-	581	513	-
Stage 2	-	-	-	-	-	-	541	563	-	614	508	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.22			0.31			21.13			14.56		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	269	46	-	-	69	-	-	394
HCM Lane V/C Ratio	0.173	0.011	-	-	0.014	-	-	0.043
HCM Ctrl Dly (s/v)	21.1	8.5	0	-	8.3	0	-	14.6
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

HCM 7th Signalized Intersection Summary
11: Driveway/SR 164 & SR 410

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	273	48	15	295	263	69	86	5	261	72	15
Future Volume (veh/h)	0	273	48	15	295	263	69	86	5	261	72	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	1.00		0.98	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	0	1744	1786	1702	1730	1758	1786	1744	1786	1772	1786	1702
Adj Flow Rate, veh/h	0	290	51	16	314	280	73	91	5	278	77	16
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	1	7	5	3	1	4	1	2	1	7
Cap, veh/h	0	804	139	306	494	419	117	146	8	369	102	21
Arrive On Green	0.00	0.29	0.29	0.29	0.29	0.29	0.16	0.16	0.16	0.29	0.29	0.29
Sat Flow, veh/h	0	2902	488	938	1730	1466	733	914	50	1280	354	74
Grp Volume(v), veh/h	0	169	172	16	314	280	169	0	0	371	0	0
Grp Sat Flow(s),veh/h/ln	0	1657	1647	938	1730	1466	1697	0	0	1708	0	0
Q Serve(g_s), s	0.0	5.0	5.2	0.9	9.8	10.4	5.7	0.0	0.0	12.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	5.0	5.2	6.0	9.8	10.4	5.7	0.0	0.0	12.2	0.0	0.0
Prop In Lane	0.00		0.30	1.00		1.00	0.43		0.03	0.75		0.04
Lane Grp Cap(c), veh/h	0	473	470	306	494	419	270	0	0	492	0	0
V/C Ratio(X)	0.00	0.36	0.37	0.05	0.64	0.67	0.63	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	0	903	898	550	943	800	958	0	0	965	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)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.6	17.6	20.0	19.3	19.5	24.3	0.0	0.0	20.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.5	0.1	1.4	1.9	2.4	0.0	0.0	2.4	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	1.7	1.8	0.2	3.6	3.3	2.4	0.0	0.0	4.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	18.0	18.1	20.1	20.6	21.4	26.6	0.0	0.0	22.4	0.0	0.0
LnGrp LOS		B	B	C	C	C	C			C		
Approach Vol, veh/h	341		610				169		371			
Approach Delay, s/veh	18.1		21.0				26.6		22.4			
Approach LOS	B		C				C		C			
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	23.9		14.9		23.9		22.9					
Change Period (Y+Rc), s	6.3		5.1		6.3		5.1					
Max Green Setting (Gmax), s	33.7		34.9		33.7		34.9					
Max Q Clear Time (g_c+I1), s	7.2		7.7		12.4		14.2					
Green Ext Time (p_c), s	1.9		1.0		2.8		2.4					
Intersection Summary												
HCM 7th Control Delay, s/veh	21.3											
HCM 7th LOS	C											

Lanes, Volumes, Timings
12: Watson St N & SR 410

Existing PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	293	158	64	417	8	126	4	33	6	5	11
Future Volume (vph)	37	293	158	64	417	8	126	4	33	6	5	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	130		0	125		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	105			130			25			25		
Lane Util. 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
Ped Bike Factor	1.00		0.97	1.00	1.00			0.99			0.99	
Frt			0.850		0.997			0.973			0.932	
Flt Protected	0.950			0.950				0.963			0.986	
Satd. Flow (prot)	1693	1698	1515	1629	1722	0	0	1649	0	0	1618	0
Flt Permitted	0.383			0.539				0.963			0.986	
Satd. Flow (perm)	681	1698	1475	921	1722	0	0	1644	0	0	1617	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			174		2			13			12	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		649			501			400			353	
Travel Time (s)		11.1			8.5			10.9			9.6	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	6%	1%	5%	4%	13%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	41	322	174	70	458	9	138	4	36	7	5	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	322	174	70	467	0	0	178	0	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Synchro 12 Report
Page 1

Lanes, Volumes, Timings
12: Watson St N & SR 410

Existing PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2		2	6								
Detector Phase	2	2	2	6	6		3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.3	26.3	26.3	24.3	24.3		32.1	32.1		40.1	40.1	
Total Split (s)	45.0	45.0	45.0	45.0	45.0		20.0	20.0		20.0	20.0	
Total Split (%)	52.9%	52.9%	52.9%	52.9%	52.9%		23.5%	23.5%		23.5%	23.5%	
Maximum Green (s)	38.7	38.7	38.7	38.7	38.7		14.9	14.9		14.9	14.9	
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3		3.1	3.1		3.1	3.1	
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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			5.1			5.1	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	13.0	13.0	13.0	10.0	10.0		20.0	20.0		28.0	28.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effect Green (s)	25.2	25.2	25.2	25.2	25.2			13.1			10.0	
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.43			0.22			0.17	
v/c Ratio	0.14	0.44	0.24	0.18	0.63			0.47			0.08	
Control Delay (s/veh)	19.2	19.2	4.9	18.6	22.8			26.8			19.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay (s/veh)	19.2	19.2	4.9	18.6	22.8			26.8			19.1	
LOS	B	B	A	B	C			C			B	
Approach Delay (s/veh)		14.5			22.2			26.8			19.1	
Approach LOS		B			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 58.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay (s/veh): 19.6

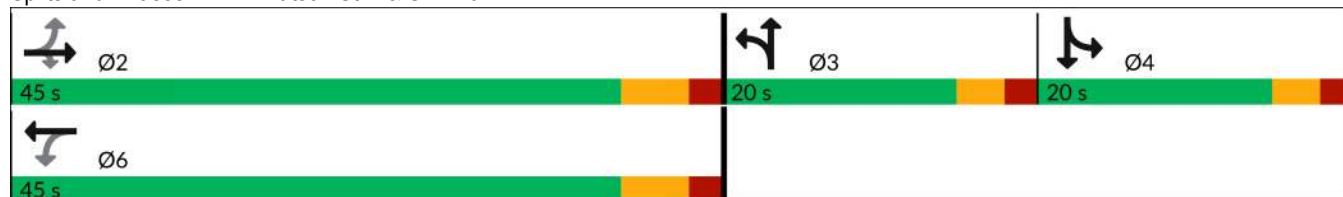
Intersection LOS: B

Intersection Capacity Utilization 63.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: Watson St N & SR 410



Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘↗	
Traffic Vol, veh/h	306	43	24	439	22	6
Future Vol, veh/h	306	43	24	439	22	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	90	120	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	1	4	5	1	1
Mvmt Flow	333	47	26	477	24	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	379	0	862	333
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	529	-
Critical Hdwy	-	-	4.14	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.236	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1168	-	327	711
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1168	-	320	711
Mov Cap-2 Maneuver	-	-	-	-	437	-
Stage 1	-	-	-	-	729	-
Stage 2	-	-	-	-	580	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.42		13.08	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	476	-	-	1168	-	
HCM Lane V/C Ratio	0.064	-	-	0.022	-	
HCM Ctrl Dly (s/v)	13.1	-	-	8.2	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

HCM 7th Signalized Intersection Summary
14: 284th Ave SE/Farman St N & SR 410

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	59	68	13	202	58	53	55	8	30	80	173
Future Volume (veh/h)	164	59	68	13	202	58	53	55	8	30	80	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1730	1786	1786	1772	1786	1786	1772	1786	1758	1786	1758
Adj Flow Rate, veh/h	173	62	72	14	213	61	56	58	8	32	84	182
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
Percent Heavy Veh, %	1	5	1	1	2	1	1	2	1	3	1	3
Cap, veh/h	459	503	440	435	341	291	267	235	26	120	138	254
Arrive On Green	0.12	0.29	0.29	0.02	0.19	0.19	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1701	1730	1514	1701	1772	1514	531	890	100	92	522	963
Grp Volume(v), veh/h	173	62	72	14	213	61	122	0	0	298	0	0
Grp Sat Flow(s),veh/h/ln	1701	1730	1514	1701	1772	1514	1521	0	0	1576	0	0
Q Serve(g_s), s	3.2	1.1	1.5	0.3	4.6	1.4	0.0	0.0	0.0	2.1	0.0	0.0
Cycle Q Clear(g_c), s	3.2	1.1	1.5	0.3	4.6	1.4	2.3	0.0	0.0	7.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.46		0.07	0.11		0.61
Lane Grp Cap(c), veh/h	459	503	440	435	341	291	528	0	0	512	0	0
V/C Ratio(X)	0.38	0.12	0.16	0.03	0.62	0.21	0.23	0.00	0.00	0.58	0.00	0.00
Avail Cap(c_a), veh/h	1267	2243	1962	1000	2298	1962	1600	0	0	1753	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	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.0	10.8	10.9	13.0	15.4	14.1	12.1	0.0	0.0	13.8	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.1	0.2	0.0	1.9	0.4	0.2	0.0	0.0	1.1	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	0.9	0.3	0.4	0.1	1.6	0.4	0.7	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.5	10.9	11.1	13.0	17.2	14.4	12.3	0.0	0.0	14.8	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B			B		
Approach Vol, veh/h	307			288			122			298		
Approach Delay, s/veh	11.3			16.4			12.3			14.8		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	18.3		16.8	10.3	14.3		16.8				
Change Period (Y+Rc), s	5.5	6.3		5.9	5.5	6.3		5.9				
Max Green Setting (Gmax), s	14.5	53.7		44.1	24.5	53.7		44.1				
Max Q Clear Time (g_c+I1), s	2.3	3.5		9.0	5.2	6.6		4.3				
Green Ext Time (p_c), s	0.0	0.6		2.0	0.4	1.4		0.8				
Intersection Summary												
HCM 7th Control Delay, s/veh				13.9								
HCM 7th LOS				B								

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	8	30	9	12	16	22	230	8	21	252	57
Future Vol, veh/h	64	8	30	9	12	16	22	230	8	21	252	57
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	1	3	1	8	13	5	1	1	14	4	2
Mvmt Flow	71	9	33	10	13	18	24	256	9	23	280	63
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	669	672	312	640	699	260	343	0	0	264	0	0
Stage 1	358	358	-	309	309	-	-	-	-	-	-	-
Stage 2	311	313	-	331	390	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.51	6.23	7.11	6.58	6.33	4.15	-	-	4.24	-	-
Critical Hdwy Stg 1	6.15	5.51	-	6.11	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.51	-	6.11	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.009	3.327	3.509	4.072	3.417	2.245	-	-	2.326	-	-
Pot Cap-1 Maneuver	367	379	726	390	357	753	1199	-	-	1233	-	-
Stage 1	653	629	-	703	649	-	-	-	-	-	-	-
Stage 2	693	659	-	684	597	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	329	361	726	346	340	753	1199	-	-	1233	-	-
Mov Cap-2 Maneuver	329	361	-	346	340	-	-	-	-	-	-	-
Stage 1	638	614	-	687	633	-	-	-	-	-	-	-
Stage 2	646	643	-	628	583	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	17.74		13.85		0.68		0.51					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	151	-	-	395	448	110	-	-				
HCM Lane V/C Ratio	0.02	-	-	0.287	0.092	0.019	-	-				
HCM Ctrl Dly (s/v)	8.1	0	-	17.7	13.8	8	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.3	0.1	-	-				

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	14	2	0	2	6	118	1	1	167	6
Future Vol, veh/h	6	0	14	2	0	2	6	118	1	1	167	6
Conflicting Peds, #/hr	12	0	12	12	0	12	12	0	12	12	0	12
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	17	1	1	1	1	1	1	2	1	1	2	1
Mvmt Flow	7	0	16	2	0	2	7	131	1	1	186	7
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	360	361	213	357	363	156	204	0	0	144	0	0
Stage 1	203	203	-	157	157	-	-	-	-	-	-	-
Stage 2	156	158	-	200	206	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.27	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	569	568	830	600	566	893	1373	-	-	1444	-	-
Stage 1	766	735	-	848	770	-	-	-	-	-	-	-
Stage 2	812	769	-	804	733	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	551	552	811	572	550	872	1358	-	-	1428	-	-
Mov Cap-2 Maneuver	551	552	-	572	550	-	-	-	-	-	-	-
Stage 1	756	726	-	833	757	-	-	-	-	-	-	-
Stage 2	796	756	-	779	724	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	10.23		10.24		0.37		0.04					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	86	-	-	710	691	10	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.031	0.006	0.001	-	-				
HCM Ctrl Dly (s/v)	7.7	0	-	10.2	10.2	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	5	126	0	1	172
Future Vol, veh/h	2	5	126	0	1	172
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	92	92	92	92	92	92
Heavy Vehicles, %	1	20	2	1	1	2
Mvmt Flow	2	5	137	0	1	187
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	326	137	0	0	137	0
Stage 1	137	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Critical Hdwy	6.41	6.4	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.48	-	-	2.209	-
Pot Cap-1 Maneuver	670	866	-	-	1453	-
Stage 1	892	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	670	866	-	-	1453	-
Mov Cap-2 Maneuver	670	-	-	-	-	-
Stage 1	892	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	9.55	0		0.04		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	799	10	-	
HCM Lane V/C Ratio	-	-	0.01	0.001	-	
HCM Ctrl Dly (s/v)	-	-	9.5	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	328	4	1	487	2	0
Future Vol, veh/h	328	4	1	487	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	1	1
Mvmt Flow	357	4	1	529	2	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	361	0	890	359
Stage 1	-	-	-	-	359	-
Stage 2	-	-	-	-	532	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1203	-	314	688
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1203	-	314	688
Mov Cap-2 Maneuver	-	-	-	-	435	-
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	591	-
Approach	EB	WB		NB		
HCM Ctrl Dly, s/v	0	0.02		13.31		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	435	-	-	1203	-	
HCM Lane V/C Ratio	0.005	-	-	0.001	-	
HCM Ctrl Dly (s/v)	13.3	-	-	8	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Forecast 2031 AM Without Project



Intersection

Int Delay, s/veh 10.4

Movement SEL SER NEL NET SWT SWR

Lane Configurations 

Traffic Vol, veh/h 36 117 142 779 417 103

Future Vol, veh/h 36 117 142 779 417 103

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 - 170 - - 185

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 80 80 80 80 80 80

Heavy Vehicles, % 3 3 2 2 4 8

Mvmt Flow 45 146 178 974 521 129

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1850 521 650 0 - 0

Stage 1 521 - - - - -

Stage 2 1329 - - - - -

Critical Hdwy 6.43 6.23 4.12 - - -

Critical Hdwy Stg 1 5.43 - - - - -

Critical Hdwy Stg 2 5.43 - - - - -

Follow-up Hdwy 3.527 3.327 2.218 - - -

Pot Cap-1 Maneuver 81 553 936 - - -

Stage 1 594 - - - - -

Stage 2 246 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 66 553 936 - - -

Mov Cap-2 Maneuver 66 - - - - -

Stage 1 481 - - - - -

Stage 2 246 - - - - -

Approach SE NE SW

HCM Ctrl Dly, s/v 99.25 1.5 0

HCM LOS F

Minor Lane/Major Mvmt NEL NET SELn1 SWT SWR

Capacity (veh/h) 936 - 202 - -

HCM Lane V/C Ratio 0.19 - 0.948 - -

HCM Ctrl Dly (s/v) 9.7 - 99.3 - -

HCM Lane LOS A - F - -

HCM 95th %tile Q(veh) 0.7 - 7.8 - -

HCM 7th Signalized Intersection Summary

2: SR 410 & Warner Ave

Forecast 2031 AM Peak Hour
Without Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	105	73	19	164	119	16	12	684	86	6	368	137
Future Volume (veh/h)	105	73	19	164	119	16	12	684	86	6	368	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1744	1758	1716	1758	1786	1786	1786	1772	1772	1786	1716	1758
Adj Flow Rate, veh/h	127	88	23	198	143	19	14	824	104	7	443	165
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	4	3	6	3	1	1	1	2	2	1	6	3
Cap, veh/h	151	105	27	224	162	327	274	816	676	62	791	671
Arrive On Green	0.17	0.17	0.17	0.22	0.22	0.22	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	896	621	162	1008	728	1474	776	1772	1467	576	1716	1456
Grp Volume(v), veh/h	238	0	0	341	0	19	14	824	104	7	443	165
Grp Sat Flow(s),veh/h/ln	1678	0	0	1736	0	1474	776	1772	1467	576	1716	1456
Q Serve(g_s), s	16.0	0.0	0.0	22.2	0.0	1.2	1.6	53.7	4.8	0.0	21.9	8.0
Cycle Q Clear(g_c), s	16.0	0.0	0.0	22.2	0.0	1.2	23.4	53.7	4.8	53.7	21.9	8.0
Prop In Lane	0.53		0.10	0.58		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	283	0	0	385	0	327	274	816	676	62	791	671
V/C Ratio(X)	0.84	0.00	0.00	0.89	0.00	0.06	0.05	1.01	0.15	0.11	0.56	0.25
Avail Cap(c_a), veh/h	503	0	0	508	0	431	274	816	676	62	791	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	0.0	0.0	43.9	0.0	35.7	31.4	31.4	18.2	58.3	22.8	19.1
Incr Delay (d2), s/veh	6.6	0.0	0.0	13.8	0.0	0.1	0.1	33.8	0.1	0.8	0.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.0	0.0	10.8	0.0	0.4	0.3	29.0	1.6	0.2	8.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	53.5	0.0	0.0	57.7	0.0	35.8	31.4	65.2	18.3	59.1	23.7	19.3
LnGrp LOS	D			E		D	C	F	B	E	C	B
Approach Vol, veh/h	238				360				942			
Approach Delay, s/veh	53.5				56.5				59.5		23.0	
Approach LOS	D				E				E		C	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	60.0		24.8		60.0		31.8					
Change Period (Y+Rc), s	6.3		5.1		6.3		5.9					
Max Green Setting (Gmax), s	53.7		34.9		53.7		34.1					
Max Q Clear Time (g_c+I1), s	55.7		18.0		55.7		24.2					
Green Ext Time (p_c), s	0.0		1.2		0.0		1.4					
Intersection Summary												
HCM 7th Control Delay, s/veh	47.9											
HCM 7th LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↗	↘	
Traffic Vol, veh/h	0	584	281	93	73	1
Future Vol, veh/h	0	584	281	93	73	1
Conflicting Peds, #/hr	2	0	0	2	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	5	6	1
Mvmt Flow	0	635	305	101	79	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	944	309
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	637	-
Critical Hdwy	-	-	-	-	6.46	6.21
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	-	-	-	-	3.554	3.309
Pot Cap-1 Maneuver	0	-	-	-	286	733
Stage 1	0	-	-	-	737	-
Stage 2	0	-	-	-	519	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	285	730
Mov Cap-2 Maneuver	-	-	-	-	400	-
Stage 1	-	-	-	-	735	-
Stage 2	-	-	-	-	518	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		16.15		
HCM LOS				C		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	403		
HCM Lane V/C Ratio	-	-	-	0.2		
HCM Ctrl Dly (s/v)	-	-	-	16.1		
HCM Lane LOS	-	-	-	C		
HCM 95th %tile Q(veh)	-	-	-	0.7		

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	582	31	31	339	15	23	10	28	8	4	12
Future Vol, veh/h	44	582	31	31	339	15	23	10	28	8	4	12
Conflicting Peds, #/hr	7	0	7	7	0	7	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	70	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	5	1	4	10	9	11	13	5	1	1	1
Mvmt Flow	50	661	35	35	385	17	26	11	32	9	5	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	409	0	0	704	0	0	1058	1266	693	1245	1275	215
Stage 1	-	-	-	-	-	-	786	786	-	471	471	-
Stage 2	-	-	-	-	-	-	272	480	-	774	804	-
Critical Hdwy	4.145	-	-	4.16	-	-	7.465	6.695	6.275	7.315	6.515	6.915
Critical Hdwy Stg 1	-	-	-	-	-	-	6.265	5.695	-	6.515	5.515	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.665	5.695	-	6.115	5.515	-
Follow-up Hdwy	2.2285	-	-	2.238	-	-	3.6045	4.1235	3.3475	3.5095	4.0095	3.3095
Pot Cap-1 Maneuver	1142	-	-	881	-	-	180	157	436	141	167	793
Stage 1	-	-	-	-	-	-	367	382	-	545	561	-
Stage 2	-	-	-	-	-	-	689	531	-	392	397	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1134	-	-	875	-	-	156	142	430	110	152	783
Mov Cap-2 Maneuver	-	-	-	-	-	-	156	142	-	110	152	-
Stage 1	-	-	-	-	-	-	349	363	-	520	534	-
Stage 2	-	-	-	-	-	-	640	506	-	334	377	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.56			0.75			24.86			23.51		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	156	281	1134	-	-	875	-	-	110	383		
HCM Lane V/C Ratio	0.167	0.154	0.044	-	-	0.04	-	-	0.083	0.047		
HCM Ctrl Dly (s/v)	32.7	20.1	8.3	-	-	9.3	-	-	40.8	14.9		
HCM Lane LOS	D	C	A	-	-	A	-	-	E	B		
HCM 95th %tile Q(veh)	0.6	0.5	0.1	-	-	0.1	-	-	0.3	0.1		

HCM 7th Signalized Intersection Summary 5: Driveway/Garrett St & SR 410

Forecast 2031 AM Peak Hour
Without Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	458	8	1	322	20	2	2	4	64	4	94
Future Volume (veh/h)	137	458	8	1	322	20	2	2	4	64	4	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1744	1660	1786	1786	1674	1702	1786	1786	1786	1744	1786	1589
Adj Flow Rate, veh/h	169	565	10	1	398	25	2	2	5	79	5	116
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	4	10	1	1	9	7	1	1	1	4	1	15
Cap, veh/h	517	1236	22	394	872	55	136	98	151	398	20	233
Arrive On Green	0.10	0.39	0.39	0.00	0.29	0.29	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1661	3169	56	1701	3037	190	134	557	863	1248	112	1331
Grp Volume(v), veh/h	169	281	294	1	208	215	9	0	0	84	0	116
Grp Sat Flow(s),veh/h/ln	1661	1577	1649	1701	1590	1637	1553	0	0	1361	0	1331
Q Serve(g_s), s	2.6	5.1	5.2	0.0	4.2	4.2	0.0	0.0	0.0	1.9	0.0	3.1
Cycle Q Clear(g_c), s	2.6	5.1	5.2	0.0	4.2	4.2	0.2	0.0	0.0	2.1	0.0	3.1
Prop In Lane	1.00		0.03	1.00		0.12	0.22		0.56	0.94		1.00
Lane Grp Cap(c), veh/h	517	615	643	394	457	470	385	0	0	418	0	233
V/C Ratio(X)	0.33	0.46	0.46	0.00	0.45	0.46	0.02	0.00	0.00	0.20	0.00	0.50
Avail Cap(c_a), veh/h	750	1364	1427	805	1376	1416	878	0	0	871	0	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.1	8.8	8.8	9.9	11.4	11.4	13.3	0.0	0.0	14.1	0.0	14.5
Incr Delay (d2), s/veh	0.4	0.5	0.5	0.0	0.7	0.7	0.0	0.0	0.0	0.2	0.0	1.6
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	0.6	1.2	1.3	0.0	1.1	1.2	0.1	0.0	0.0	0.6	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.4	9.3	9.3	9.9	12.1	12.1	13.3	0.0	0.0	14.3	0.0	16.2
LnGrp LOS	A	A	A	A	B	B	B			B		B
Approach Vol, veh/h	744				424		9				200	
Approach Delay, s/veh	9.1				12.1		13.3				15.4	
Approach LOS	A				B		B				B	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	5.5	21.5	11.9		9.5	17.5	11.9					
Change Period (Y+Rc), s	5.5	6.3	5.1		5.5	6.3	5.1					
Max Green Setting (Gmax), s	9.5	33.7	19.9		9.5	33.7	19.9					
Max Q Clear Time (g_c+I1), s	2.0	7.2	5.1		4.6	6.2	2.2					
Green Ext Time (p_c), s	0.0	3.4	0.7		0.2	2.4	0.0					
Intersection Summary												
HCM 7th Control Delay, s/veh	11.0											
HCM 7th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	481	307	50	14	4
Future Vol, veh/h	7	481	307	50	14	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	8	10	5	1	1
Mvmt Flow	8	517	330	54	15	4
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	384	0	-	0	631	192
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1178	-	-	-	416	820
Stage 1	-	-	-	-	682	-
Stage 2	-	-	-	-	751	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1178	-	-	-	413	820
Mov Cap-2 Maneuver	-	-	-	-	512	-
Stage 1	-	-	-	-	678	-
Stage 2	-	-	-	-	751	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.12	0		11.67		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1178	-	-	-	559	
HCM Lane V/C Ratio	0.006	-	-	-	0.035	
HCM Ctrl Dly (s/v)	8.1	-	-	-	11.7	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	441	34	19	318	12	26	44	21	4	15	14
Future Vol, veh/h	25	441	34	19	318	12	26	44	21	4	15	14
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	24	7	11	17	7	63	10	14	15	1	1	42
Mvmt Flow	27	474	37	20	342	13	28	47	23	4	16	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	356	0	0	512	0	0	768	944	257	706	956	179
Stage 1	-	-	-	-	-	-	547	547	-	390	390	-
Stage 2	-	-	-	-	-	-	221	397	-	316	566	-
Critical Hdwy	4.58	-	-	4.44	-	-	7.7	6.78	7.2	7.52	6.52	7.74
Critical Hdwy Stg 1	-	-	-	-	-	-	6.7	5.78	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.78	-	6.52	5.52	-
Follow-up Hdwy	2.44	-	-	2.37	-	-	3.6	4.14	3.45	3.51	4.01	3.72
Pot Cap-1 Maneuver	1056	-	-	952	-	-	277	241	704	325	258	721
Stage 1	-	-	-	-	-	-	469	487	-	608	609	-
Stage 2	-	-	-	-	-	-	739	573	-	673	508	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1055	-	-	951	-	-	242	229	702	240	246	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	242	229	-	240	246	-
Stage 1	-	-	-	-	-	-	457	474	-	595	595	-
Stage 2	-	-	-	-	-	-	688	560	-	571	495	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.43			0.48			24.99			16.83		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	276	1055	-	-	951	-	-	340				
HCM Lane V/C Ratio	0.354	0.025	-	-	0.021	-	-	0.104				
HCM Ctrl Dly (s/v)	25	8.5	-	-	8.9	-	-	16.8				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.5	0.1	-	-	0.1	-	-	0.3				

HCM 7th Signalized Intersection Summary 8: Porter St/SR 169 & SR 164

Forecast 2031 AM Peak Hour
Without Project

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	50	171	1	126	136	57	123	408	39	4	225	121
Future Volume (veh/h)	50	171	1	126	136	57	123	408	39	4	225	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.89	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	1744	1744	1786	1786	1786	1758	1772	1702	1786	1786	1786	1772
Adj Flow Rate, veh/h	57	197	1	145	156	66	141	469	45	5	259	139
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	1	1	1	3	2	7	1	1	1	2
Cap, veh/h	314	272	1	349	276	117	330	563	54	208	317	170
Arrive On Green	0.04	0.18	0.18	0.09	0.23	0.23	0.08	0.37	0.37	0.00	0.29	0.29
Sat Flow, veh/h	1661	1551	8	1701	1190	504	1688	1528	147	1701	1093	586
Grp Volume(v), veh/h	57	0	198	145	0	222	141	0	514	5	0	398
Grp Sat Flow(s),veh/h/ln	1661	0	1559	1701	0	1694	1688	0	1675	1701	0	1679
Q Serve(g_s), s	1.6	0.0	6.8	3.9	0.0	6.6	3.1	0.0	15.9	0.1	0.0	12.6
Cycle Q Clear(g_c), s	1.6	0.0	6.8	3.9	0.0	6.6	3.1	0.0	15.9	0.1	0.0	12.6
Prop In Lane	1.00		0.01	1.00		0.30	1.00		0.09	1.00		0.35
Lane Grp Cap(c), veh/h	314	0	273	349	0	393	330	0	617	208	0	487
V/C Ratio(X)	0.18	0.00	0.72	0.41	0.00	0.57	0.43	0.00	0.83	0.02	0.00	0.82
Avail Cap(c_a), veh/h	540	0	681	484	0	740	484	0	731	497	0	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	22.2	17.0	0.0	19.4	13.3	0.0	16.4	15.4	0.0	18.8
Incr Delay (d2), s/veh	0.3	0.0	3.6	0.8	0.0	1.3	0.9	0.0	7.1	0.0	0.0	4.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.6	1.5	0.0	2.6	1.1	0.0	6.7	0.0	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.7	0.0	25.9	17.8	0.0	20.6	14.2	0.0	23.5	15.5	0.0	23.3
LnGrp LOS	B		C	B		C	B		C	B		C
Approach Vol, veh/h	255				367				655		403	
Approach Delay, s/veh	24.3				19.5				21.5		23.2	
Approach LOS	C				B				C		C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	26.1	7.3	18.3	9.8	21.6	10.5	15.1				
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1				
Max Green Setting (Gmax), s	9.9	24.9	9.9	24.9	9.9	24.9	9.9	24.9				
Max Q Clear Time (g_c+I1), s	2.1	17.9	3.6	8.6	5.1	14.6	5.9	8.8				
Green Ext Time (p_c), s	0.0	2.0	0.0	1.2	0.1	1.9	0.1	1.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	21.9											
HCM 7th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 7th Signalized Intersection Summary
9: Cole St & SR 164

Forecast 2031 AM Peak Hour
Without Project

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	4	105	14	4	55	17	0	502	6	0	342	7
Future Volume (veh/h)	4	105	14	4	55	17	0	502	6	0	342	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.96		0.95	0.96		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1744	1786	1786	1772	1786	1786	1744	1786	1786	1772	1786
Adj Flow Rate, veh/h	4	112	15	4	59	18	0	534	6	0	364	7
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	4	1	1	2	1	1	4	1	1	2	1
Cap, veh/h	112	285	37	116	245	72	0	749	8	0	754	14
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.49	0.49	0.00	0.49	0.49
Sat Flow, veh/h	17	1320	173	27	1132	331	0	1540	17	0	1550	30
Grp Volume(v), veh/h	131	0	0	81	0	0	0	0	540	0	0	371
Grp Sat Flow(s),veh/h/ln	1511	0	0	1491	0	0	0	0	1557	0	0	1580
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	5.4
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	9.3	0.0	0.0	5.4
Prop In Lane	0.03		0.11	0.05		0.22	0.00		0.01	0.00		0.02
Lane Grp Cap(c), veh/h	435	0	0	432	0	0	0	0	757	0	0	768
V/C Ratio(X)	0.30	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.48
Avail Cap(c_a), veh/h	981	0	0	968	0	0	0	0	2268	0	0	2301
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	0.0	11.1	0.0	0.0	0.0	0.0	6.9	0.0	0.0	5.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.4	0.0	0.0	0.0	0.0	2.1	0.0	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.9	0.0	0.0	11.3	0.0	0.0	0.0	0.0	8.2	0.0	0.0	6.4
LnGrp LOS	B			B					A			A
Approach Vol, veh/h	131				81				540			
Approach Delay, s/veh	11.9				11.3				8.2		6.4	
Approach LOS	B				B				A		A	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	21.8		12.5		21.8		12.5					
Change Period (Y+Rc), s	5.1		5.1		5.1		5.1					
Max Green Setting (Gmax), s	49.9		19.9		49.9		19.9					
Max Q Clear Time (g_c+l1), s	11.3		3.5		7.4		4.5					
Green Ext Time (p_c), s	4.3		0.3		2.7		0.6					
Intersection Summary												
HCM 7th Control Delay, s/veh			8.3									
HCM 7th LOS			A									
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	456	48	10	308	1	47	2	13	4	1	6
Future Vol, veh/h	7	456	48	10	308	1	47	2	13	4	1	6
Conflicting Peds, #/hr	3	0	3	3	0	3	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	33	6	8	13	2	1	11	1	9	33	1	20
Mvmt Flow	8	512	54	11	346	1	53	2	15	4	1	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	350	0	0	569	0	0	930	931	545	904	957	353
Stage 1	-	-	-	-	-	-	558	558	-	372	372	-
Stage 2	-	-	-	-	-	-	372	373	-	532	585	-
Critical Hdwy	4.43	-	-	4.23	-	-	7.21	6.51	6.29	7.43	6.51	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.21	5.51	-	6.43	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.21	5.51	-	6.43	5.51	-
Follow-up Hdwy	2.497	-	-	2.317	-	-	3.599	4.009	3.381	3.797	4.009	3.48
Pot Cap-1 Maneuver	1055	-	-	951	-	-	238	268	525	228	259	652
Stage 1	-	-	-	-	-	-	498	513	-	590	621	-
Stage 2	-	-	-	-	-	-	630	620	-	479	499	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1052	-	-	948	-	-	228	260	522	212	251	648
Mov Cap-2 Maneuver	-	-	-	-	-	-	228	260	-	212	251	-
Stage 1	-	-	-	-	-	-	492	506	-	579	610	-
Stage 2	-	-	-	-	-	-	612	609	-	457	492	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.12			0.28			23.9			15.89		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	259	24	-	-	56	-	-	343				
HCM Lane V/C Ratio	0.269	0.007	-	-	0.012	-	-	0.036				
HCM Ctrl Dly (s/v)	23.9	8.4	0	-	8.8	0	-	15.9				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0.1				

HCM 7th Signalized Intersection Summary
11: Driveway/SR 164 & SR 410

Forecast 2031 AM Peak Hour
Without Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	430	24	7	288	286	32	33	7	358	35	10
Future Volume (veh/h)	0	430	24	7	288	286	32	33	7	358	35	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1674	1589	1786	1716	1758	1702	1603	1561	1730	1702	1617
Adj Flow Rate, veh/h	0	478	27	8	320	318	36	37	8	398	39	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	9	15	1	6	3	7	14	17	5	7	13
Cap, veh/h	0	902	51	264	507	428	54	55	12	492	48	14
Arrive On Green	0.00	0.30	0.30	0.30	0.30	0.30	0.08	0.08	0.08	0.34	0.34	0.34
Sat Flow, veh/h	0	3139	172	852	1716	1451	683	702	152	1441	141	40
Grp Volume(v), veh/h	0	248	257	8	320	318	81	0	0	448	0	0
Grp Sat Flow(s),veh/h/ln	0	1590	1637	852	1716	1451	1537	0	0	1622	0	0
Q Serve(g_s), s	0.0	7.6	7.6	0.5	9.4	11.5	3.0	0.0	0.0	14.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.6	7.6	8.1	9.4	11.5	3.0	0.0	0.0	14.6	0.0	0.0
Prop In Lane	0.00		0.11	1.00		1.00	0.44		0.10	0.89		0.02
Lane Grp Cap(c), veh/h	0	470	484	264	507	428	121	0	0	554	0	0
V/C Ratio(X)	0.00	0.53	0.53	0.03	0.63	0.74	0.67	0.00	0.00	0.81	0.00	0.00
Avail Cap(c_a), veh/h	0	924	951	508	997	843	925	0	0	976	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)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.1	17.1	20.4	17.7	18.4	26.0	0.0	0.0	17.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.9	0.0	1.3	2.6	6.3	0.0	0.0	2.9	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	2.6	0.1	3.3	3.6	1.3	0.0	0.0	5.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	18.0	18.0	20.5	19.0	21.0	32.3	0.0	0.0	20.2	0.0	0.0
LnGrp LOS		B	B	C	B	C	C			C		
Approach Vol, veh/h		505			646			81			448	
Approach Delay, s/veh		18.0			20.0			32.3			20.2	
Approach LOS		B			C			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.4		9.6		23.4		24.9				
Change Period (Y+Rc), s		6.3		5.1		6.3		5.1				
Max Green Setting (Gmax), s		33.7		34.9		33.7		34.9				
Max Q Clear Time (g_c+I1), s		9.6		5.0		13.5		16.6				
Green Ext Time (p_c), s		2.9		0.4		2.9		2.9				
Intersection Summary												
HCM 7th Control Delay, s/veh				20.1								
HCM 7th LOS				C								

Lanes, Volumes, Timings
12: Watson St N & SR 410

Forecast 2031 AM Peak Hour
Without Project

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	625	132	23	469	1	102	0	57	0	0	1
Future Volume (vph)	6	625	132	23	469	1	102	0	57	0	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	130		0	125		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	105			130			25			25		
Lane Util. 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
Ped Bike Factor	1.00		0.98		1.00			0.99			0.98	
Frt			0.850					0.951			0.865	
Flt Protected	0.950			0.950				0.969				
Satd. Flow (prot)	1693	1651	1485	1693	1682	0	0	1602	0	0	1509	0
Flt Permitted	0.370			0.238				0.969				
Satd. Flow (perm)	659	1651	1453	424	1682	0	0	1601	0	0	1509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157					108			282	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		649			501			400			353	
Travel Time (s)		11.1			8.5			10.9			9.6	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	1%	9%	3%	1%	7%	1%	2%	1%	4%	1%	1%	1%
Adj. Flow (vph)	7	744	157	27	558	1	121	0	68	0	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	744	157	27	559	0	0	189	0	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Synchro 12 Report
Page 1

Lanes, Volumes, Timings
12: Watson St N & SR 410

Forecast 2031 AM Peak Hour
Without Project

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA			NA	
Protected Phases		2			6		3	3			4	
Permitted Phases	2		2	6						4		
Detector Phase	2	2	2	6	6		3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.3	26.3	26.3	24.3	24.3		32.1	32.1		40.1	40.1	
Total Split (s)	45.0	45.0	45.0	45.0	45.0		20.0	20.0		20.0	20.0	
Total Split (%)	52.9%	52.9%	52.9%	52.9%	52.9%		23.5%	23.5%		23.5%	23.5%	
Maximum Green (s)	38.7	38.7	38.7	38.7	38.7		14.9	14.9		14.9	14.9	
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3		3.1	3.1		3.1	3.1	
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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			5.1			5.1	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	13.0	13.0	13.0	10.0	10.0		20.0	20.0		28.0	28.0	
Pedestrian Calls (#/hr)	1	1	1	1	1		1	1		1	1	
Act Effect Green (s)	41.9	41.9	41.9	41.9	41.9			10.7			9.5	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60			0.15			0.14	
v/c Ratio	0.02	0.75	0.17	0.11	0.55			0.56			0.00	
Control Delay (s/veh)	16.0	22.1	4.0	17.0	17.6			20.3			0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay (s/veh)	16.0	22.1	4.0	17.0	17.6			20.3			0.0	
LOS	B	C	A	B	B			C			A	
Approach Delay (s/veh)		18.9			17.6			20.3				
Approach LOS		B			B			C				

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 69.8

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 18.6

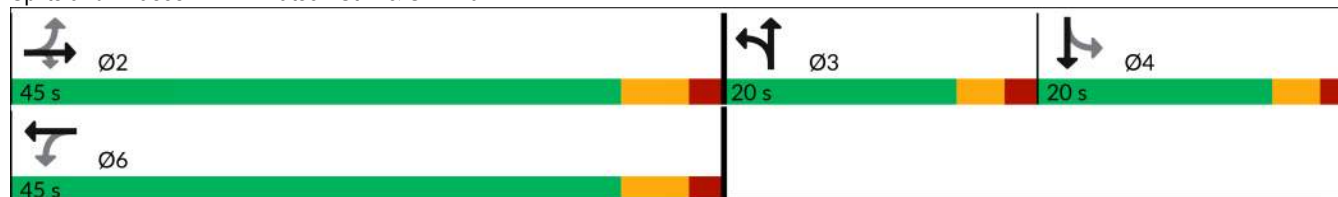
Intersection LOS: B

Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: Watson St N & SR 410



Intersection						
Int Delay, s/veh	20.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	511	179	112	289	187	145
Future Vol, veh/h	511	179	112	289	187	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	90	120	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	6	9	13	9	1	1
Mvmt Flow	587	206	129	332	215	167

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	793
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.23
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.317
Pot Cap-1 Maneuver	-	-	781
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	781
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2.94	84.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	375	-	-	781	-
HCM Lane V/C Ratio	1.017	-	-	0.165	-
HCM Ctrl Dly (s/v)	84.8	-	-	10.5	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	12.4	-	-	0.6	-

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

HCM 7th Signalized Intersection Summary
14: 284th Ave SE/Farman St N & SR 410

Forecast 2031 AM Peak Hour
Without Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	375	49	7	115	31	53	56	13	96	48	209
Future Volume (veh/h)	171	375	49	7	115	31	53	56	13	96	48	209
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1702	1716	1758	859	1561	1000	1786	1772	1646	1674	1758	1772
Adj Flow Rate, veh/h	194	426	56	8	131	35	60	64	15	109	55	238
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	7	6	3	67	17	57	1	2	11	9	3	2
Cap, veh/h	484	548	476	185	313	170	247	236	46	192	96	288
Arrive On Green	0.12	0.32	0.32	0.01	0.20	0.20	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1621	1716	1490	818	1561	847	445	713	140	311	289	871
Grp Volume(v), veh/h	194	426	56	8	131	35	139	0	0	402	0	0
Grp Sat Flow(s),veh/h/ln	1621	1716	1490	818	1561	847	1298	0	0	1471	0	0
Q Serve(g_s), s	4.5	11.6	1.4	0.3	3.8	1.8	0.0	0.0	0.0	9.4	0.0	0.0
Cycle Q Clear(g_c), s	4.5	11.6	1.4	0.3	3.8	1.8	3.2	0.0	0.0	12.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.43		0.11	0.27		0.59
Lane Grp Cap(c), veh/h	484	548	476	185	313	170	529	0	0	575	0	0
V/C Ratio(X)	0.40	0.78	0.12	0.04	0.42	0.21	0.26	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	895	1789	1553	410	1628	883	841	0	0	913	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	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.2	15.9	12.4	17.5	18.0	17.2	12.5	0.0	0.0	15.7	0.0	0.0
Incr Delay (d2), s/veh	0.5	2.4	0.1	0.1	0.9	0.6	0.3	0.0	0.0	1.5	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	1.3	4.0	0.4	0.1	1.2	0.3	1.0	0.0	0.0	3.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.7	18.3	12.5	17.6	18.8	17.8	12.8	0.0	0.0	17.3	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B			B		
Approach Vol, veh/h	676			174			139			402		
Approach Delay, s/veh	16.2			18.6			12.8			17.3		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	22.7		22.9	11.9	16.6		22.9				
Change Period (Y+Rc), s	5.5	6.3		5.9	5.5	6.3		5.9				
Max Green Setting (Gmax), s	14.5	53.7		29.1	19.5	53.7		29.1				
Max Q Clear Time (g_c+I1), s	2.3	13.6		14.8	6.5	5.8		5.2				
Green Ext Time (p_c), s	0.0	2.9		2.2	0.4	0.9		0.8				
Intersection Summary												
HCM 7th Control Delay, s/veh				16.5								
HCM 7th LOS				B								

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	18	6	48	5	3	7	53	200	1	7	318	54
Future Vol, veh/h	18	6	48	5	3	7	53	200	1	7	318	54
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	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	7	50	10	1	1	33	1	20	1	40	6	2
Mvmt Flow	23	8	62	6	4	9	68	256	1	9	408	69
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	854	854	442	822	888	257	477	0	0	258	0	0
Stage 1	460	460	-	393	393	-	-	-	-	-	-	-
Stage 2	394	394	-	429	495	-	-	-	-	-	-	-
Critical Hdwy	7.17	7	6.3	7.11	6.51	6.53	4.11	-	-	4.5	-	-
Critical Hdwy Stg 1	6.17	6	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	6	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.45	3.39	3.509	4.009	3.597	2.209	-	-	2.56	-	-
Pot Cap-1 Maneuver	273	249	599	294	284	712	1091	-	-	1115	-	-
Stage 1	572	493	-	634	608	-	-	-	-	-	-	-
Stage 2	621	530	-	606	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	244	228	599	234	260	712	1091	-	-	1115	-	-
Mov Cap-2 Maneuver	244	228	-	234	260	-	-	-	-	-	-	-
Stage 1	565	487	-	588	563	-	-	-	-	-	-	-
Stage 2	565	492	-	529	542	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	16.7		15.84		1.78		0.15					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	375	-	-	399	351	32	-	-				
HCM Lane V/C Ratio	0.062	-	-	0.231	0.055	0.008	-	-				
HCM Ctrl Dly (s/v)	8.5	0	-	16.7	15.8	8.3	0	-				
HCM Lane LOS	A	A	-	C	C	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.9	0.2	0	-	-				

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	1	4	0	6	6	130	4	1	58	1
Future Vol, veh/h	4	0	1	4	0	6	6	130	4	1	58	1
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	1	1	1	67	1	20	40	3	67	1	4	1
Mvmt Flow	5	0	1	5	0	7	7	157	5	1	70	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	248	253	74	250	251	163	73	0	0	163	0	0
Stage 1	75	75	-	175	175	-	-	-	-	-	-	-
Stage 2	173	178	-	74	75	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.77	6.51	6.4	4.5	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.77	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.77	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	4.103	4.009	3.48	2.56	-	-	2.209	-	-
Pot Cap-1 Maneuver	708	652	990	588	654	837	1317	-	-	1421	-	-
Stage 1	937	835	-	696	756	-	-	-	-	-	-	-
Stage 2	831	754	-	796	834	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	694	645	986	581	647	834	1315	-	-	1419	-	-
Mov Cap-2 Maneuver	694	645	-	581	647	-	-	-	-	-	-	-
Stage 1	934	832	-	690	750	-	-	-	-	-	-	-
Stage 2	817	748	-	793	832	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	9.92		10.16		0.33		0.13					
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	77	-	-	738	710	30	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.008	0.017	0.001	-	-				
HCM Ctrl Dly (s/v)	7.8	0	-	9.9	10.2	7.5	0	-				
HCM Lane LOS	A	A	-	A	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-				

HCM 7th TWSC
17: Watson St N & Project Access

Forecast 2031 AM Peak Hour
Without Project

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	1	0	140	0	0	59
Future Vol, veh/h	1	0	140	0	0	59
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	92	92	92	92	92	92
Heavy Vehicles, %	100	2	2	2	2	2
Mvmt Flow	1	0	152	0	0	64
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	216	152	0	0	152	0
Stage 1	152	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	7.4	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	597	894	-	-	1429	-
Stage 1	684	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	597	894	-	-	1429	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	684	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	11.04	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	597	1429	-	
HCM Lane V/C Ratio	-	-	0.002	-	-	
HCM Ctrl Dly (s/v)	-	-	11	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	672	11	2	486	7	7
Future Vol, veh/h	672	11	2	486	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	50	2	2	2
Mvmt Flow	730	12	2	528	8	8
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	742	0	1269	736
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	533	-
Critical Hdwy	-	-	4.6	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.65	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	683	-	186	419
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	589	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	683	-	185	419
Mov Cap-2 Maneuver	-	-	-	-	322	-
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	587	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.04		15.31	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	364	-	-	683	-	
HCM Lane V/C Ratio	0.042	-	-	0.003	-	
HCM Ctrl Dly (s/v)	15.3	-	-	10.3	-	
HCM Lane LOS	C	-	-	B	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Forecast 2031 PM Without Project



Intersection

Int Delay, s/veh 1.7

Movement SEL SER NEL NET SWT SWR

Lane Configurations 

Traffic Vol, veh/h 14 50 127 669 522 101

Future Vol, veh/h 14 50 127 669 522 101

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 - 170 - - 185

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 97 97 97 97 97 97

Heavy Vehicles, % 1 1 1 1 1 14

Mvmt Flow 14 52 131 690 538 104

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1490 538 642 0 - 0

Stage 1 538 - - - - -

Stage 2 952 - - - - -

Critical Hdwy 6.41 6.21 4.11 - - -

Critical Hdwy Stg 1 5.41 - - - - -

Critical Hdwy Stg 2 5.41 - - - - -

Follow-up Hdwy 3.509 3.309 2.209 - - -

Pot Cap-1 Maneuver 137 545 947 - - -

Stage 1 587 - - - - -

Stage 2 377 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 118 545 947 - - -

Mov Cap-2 Maneuver 118 - - - - -

Stage 1 506 - - - - -

Stage 2 377 - - - - -

Approach SE NE SW

HCM Ctrl Dly, s/v 20.07 1.5 0

HCM LOS C

Minor Lane/Major Mvmt NEL NET SELn1 SWT SWR

Capacity (veh/h) 947 - 304 - -

HCM Lane V/C Ratio 0.138 - 0.217 - -

HCM Ctrl Dly (s/v) 9.4 - 20.1 - -

HCM Lane LOS A - C - -

HCM 95th %tile Q(veh) 0.5 - 0.8 - -

HCM 7th Signalized Intersection Summary

2: SR 410 & Warner Ave

Forecast 2031 PM Peak Hour
Without Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	129	122	7	84	90	24	11	540	138	24	528	182
Future Volume (veh/h)	129	122	7	84	90	24	11	540	138	24	528	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
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	1786	1786	1786	1702	1786	1786	1786	1772	1786	1786	1772	1786
Adj Flow Rate, veh/h	136	128	7	88	95	25	12	568	145	25	556	192
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
Percent Heavy Veh, %	1	1	1	7	1	1	1	2	1	1	2	1
Cap, veh/h	181	170	9	130	140	225	186	714	594	183	714	594
Arrive On Green	0.21	0.21	0.21	0.15	0.15	0.15	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	869	818	45	839	905	1456	680	1772	1473	703	1772	1473
Grp Volume(v), veh/h	271	0	0	183	0	25	12	568	145	25	556	192
Grp Sat Flow(s),veh/h/ln	1733	0	0	1744	0	1456	680	1772	1473	703	1772	1473
Q Serve(g_s), s	10.8	0.0	0.0	7.3	0.0	1.1	1.2	20.8	4.8	2.4	20.1	6.6
Cycle Q Clear(g_c), s	10.8	0.0	0.0	7.3	0.0	1.1	21.3	20.8	4.8	23.2	20.1	6.6
Prop In Lane	0.50		0.03	0.48		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	360	0	0	270	0	225	186	714	594	183	714	594
V/C Ratio(X)	0.75	0.00	0.00	0.68	0.00	0.11	0.06	0.80	0.24	0.14	0.78	0.32
Avail Cap(c_a), veh/h	819	0	0	806	0	673	407	1289	1072	411	1289	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	0.0	0.0	29.4	0.0	26.8	28.4	19.4	14.6	29.5	19.2	15.1
Incr Delay (d2), s/veh	3.2	0.0	0.0	3.0	0.0	0.2	0.1	2.1	0.2	0.3	1.9	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	3.1	0.0	0.4	0.2	7.8	1.5	0.4	7.6	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.7	0.0	0.0	32.4	0.0	27.0	28.6	21.4	14.8	29.9	21.0	15.4
LnGrp LOS	C			C		C	C	C	B	C	C	B
Approach Vol, veh/h	271				208				725			
Approach Delay, s/veh	30.7				31.8				20.2			
Approach LOS	C				C				C			
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.0		20.4		36.0		17.3					
Change Period (Y+Rc), s	6.3		5.1		6.3		5.9					
Max Green Setting (Gmax), s	53.7		34.9		53.7		34.1					
Max Q Clear Time (g_c+I1), s	23.3		12.8		25.2		9.3					
Green Ext Time (p_c), s	4.4		1.5		4.6		1.1					
Intersection Summary												
HCM 7th Control Delay, s/veh	22.8											
HCM 7th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↗	↘	
Traffic Vol, veh/h	0	437	523	208	107	0
Future Vol, veh/h	0	437	523	208	107	0
Conflicting Peds, #/hr	1	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	514	615	245	126	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	1131	617
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	515	-
Critical Hdwy	-	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	0	-	-	-	226	492
Stage 1	0	-	-	-	541	-
Stage 2	0	-	-	-	602	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	225	491
Mov Cap-2 Maneuver	-	-	-	-	362	-
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	601	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		20.15		
HCM LOS	C					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	362		
HCM Lane V/C Ratio	-	-	-	0.348		
HCM Ctrl Dly (s/v)	-	-	-	20.1		
HCM Lane LOS	-	-	-	C		
HCM 95th %tile Q(veh)	-	-	-	1.5		

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	461	18	69	643	33	39	11	52	19	11	49
Future Vol, veh/h	64	461	18	69	643	33	39	11	52	19	11	49
Conflicting Peds, #/hr	16	0	16	16	0	16	16	0	16	16	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	70	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	5	1	4	7	8	1	1	1	1	1	1
Mvmt Flow	70	501	20	75	699	36	42	12	57	21	12	53
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	751	0	0	537	0	0	1187	1567	543	1545	1559	399
Stage 1	-	-	-	-	-	-	666	666	-	883	883	-
Stage 2	-	-	-	-	-	-	521	901	-	662	676	-
Critical Hdwy	4.115	-	-	4.16	-	-	7.315	6.515	6.215	7.315	6.515	6.915
Critical Hdwy Stg 1	-	-	-	-	-	-	6.115	5.515	-	6.515	5.515	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.515	5.515	-	6.115	5.515	-
Follow-up Hdwy	2.2095	-	-	2.238	-	-	3.5095	4.0095	3.3095	3.5095	4.0095	3.3095
Pot Cap-1 Maneuver	862	-	-	1018	-	-	155	111	541	86	113	603
Stage 1	-	-	-	-	-	-	450	458	-	310	365	-
Stage 2	-	-	-	-	-	-	509	358	-	452	454	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	849	-	-	1002	-	-	103	92	525	56	93	585
Mov Cap-2 Maneuver	-	-	-	-	-	-	103	92	-	56	93	-
Stage 1	-	-	-	-	-	-	407	414	-	282	332	-
Stage 2	-	-	-	-	-	-	407	326	-	354	410	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	1.13			0.82			37.04			40.29		
HCM LOS							E			E		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	103	288	849	-	-	1002	-	-	56	297		
HCM Lane V/C Ratio	0.411	0.238	0.082	-	-	0.075	-	-	0.368	0.22		
HCM Ctrl Dly (s/v)	62.3	21.4	9.6	-	-	8.9	-	-	102.7	20.5		
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C		
HCM 95th %tile Q(veh)	1.7	0.9	0.3	-	-	0.2	-	-	1.3	0.8		

HCM 7th Signalized Intersection Summary 5: Driveway/Garrett St & SR 410

Forecast 2031 PM Peak Hour
Without Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	390	4	0	521	33	5	1	0	105	4	187
Future Volume (veh/h)	156	390	4	0	521	33	5	1	0	105	4	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.99		1.00	0.99		0.97
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	1730	1744	1786	1786	1730	1744	1786	396	1786	1786	1786	1772
Adj Flow Rate, veh/h	171	429	4	0	573	36	5	1	0	115	4	205
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	4	1	1	5	4	1	100	1	1	1	2
Cap, veh/h	437	1778	17	445	964	60	182	10	0	460	13	318
Arrive On Green	0.10	0.53	0.53	0.00	0.31	0.31	0.22	0.22	0.00	0.22	0.22	0.22
Sat Flow, veh/h	1647	3362	31	1701	3133	196	160	48	0	1392	61	1463
Grp Volume(v), veh/h	171	211	222	0	300	309	6	0	0	119	0	205
Grp Sat Flow(s),veh/h/ln	1647	1657	1737	1701	1643	1686	208	0	0	1453	0	1463
Q Serve(g_s), s	2.9	3.1	3.1	0.0	7.0	7.0	0.3	0.0	0.0	0.0	0.0	5.7
Cycle Q Clear(g_c), s	2.9	3.1	3.1	0.0	7.0	7.0	2.9	0.0	0.0	2.7	0.0	5.7
Prop In Lane	1.00		0.02	1.00		0.12	0.83		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	437	876	919	445	506	519	192	0	0	474	0	318
V/C Ratio(X)	0.39	0.24	0.24	0.00	0.59	0.60	0.03	0.00	0.00	0.25	0.00	0.64
Avail Cap(c_a), veh/h	622	1242	1302	800	1232	1263	251	0	0	777	0	647
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	5.7	5.7	0.0	13.2	13.2	14.5	0.0	0.0	14.8	0.0	16.0
Incr Delay (d2), s/veh	0.6	0.1	0.1	0.0	1.1	1.1	0.1	0.0	0.0	0.3	0.0	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.6	0.7	0.0	2.1	2.2	0.0	0.0	0.0	0.9	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.3	5.9	5.9	0.0	14.3	14.3	14.6	0.0	0.0	15.1	0.0	18.2
LnGrp LOS	A	A	A		B	B	B			B		B
Approach Vol, veh/h	604				609				6		324	
Approach Delay, s/veh	6.8				14.3				14.6		17.0	
Approach LOS	A				B				B		B	
Timer - Assigned Phs	1	2			4	5	6			8		
Phs Duration (G+Y+Rc), s	0.0	30.1			14.9	9.9	20.1			14.9		
Change Period (Y+Rc), s	5.5	6.3			5.1	5.5	6.3			5.1		
Max Green Setting (Gmax), s	9.5	33.7			19.9	9.5	33.7			19.9		
Max Q Clear Time (g_c+l1), s	0.0	5.1			7.7	4.9	9.0			4.9		
Green Ext Time (p_c), s	0.0	2.4			1.1	0.2	3.6			0.0		
Intersection Summary												
HCM 7th Control Delay, s/veh	11.9											
HCM 7th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	484	508	88	54	24
Future Vol, veh/h	7	484	508	88	54	24
Conflicting Peds, #/hr	4	0	0	4	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	5	6	1	1	1
Mvmt Flow	7	504	529	92	56	25
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	625	0	-	0	850	318
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	271	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	959	-	-	-	302	680
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	753	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	956	-	-	-	297	675
Mov Cap-2 Maneuver	-	-	-	-	408	-
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	750	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.13	0		14.39		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	956	-	-	-	464	
HCM Lane V/C Ratio	0.008	-	-	-	0.175	
HCM Ctrl Dly (s/v)	8.8	-	-	-	14.4	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.6	

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	450	70	25	505	9	39	28	20	9	43	41
Future Vol, veh/h	19	450	70	25	505	9	39	28	20	9	43	41
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	6	4	2	1	4	1	1	13	1	1	1	3
Mvmt Flow	20	469	73	26	526	9	41	29	21	9	45	43
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	540	0	0	547	0	0	892	1142	281	881	1174	278
Stage 1	-	-	-	-	-	-	550	550	-	588	588	-
Stage 2	-	-	-	-	-	-	343	593	-	294	586	-
Critical Hdwy	4.22	-	-	4.12	-	-	7.52	6.76	6.92	7.52	6.52	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.76	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.76	-	6.52	5.52	-
Follow-up Hdwy	2.26	-	-	2.21	-	-	3.51	4.13	3.31	3.51	4.01	3.33
Pot Cap-1 Maneuver	997	-	-	1026	-	-	238	183	719	243	192	717
Stage 1	-	-	-	-	-	-	490	488	-	465	497	-
Stage 2	-	-	-	-	-	-	649	465	-	693	498	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	992	-	-	1021	-	-	161	173	712	187	182	710
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	173	-	187	182	-
Stage 1	-	-	-	-	-	-	477	476	-	451	482	-
Stage 2	-	-	-	-	-	-	536	451	-	616	485	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.31			0.4			36.67			25.46		
HCM LOS							E			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	202	992	-	-	1021	-	-	271				
HCM Lane V/C Ratio	0.45	0.02	-	-	0.026	-	-	0.357				
HCM Ctrl Dly (s/v)	36.7	8.7	-	-	8.6	-	-	25.5				
HCM Lane LOS	E	A	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	2.1	0.1	-	-	0.1	-	-	1.6				

HCM 7th Signalized Intersection Summary 8: Porter St/SR 169 & SR 164

Forecast 2031 PM Peak Hour
Without Project

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	122	203	7	211	196	132	117	393	55	5	458	104
Future Volume (veh/h)	122	203	7	211	196	132	117	393	55	5	458	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.89	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	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	131	218	8	227	211	142	126	423	59	5	492	112
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	262	310	11	373	245	165	221	667	93	279	526	120
Arrive On Green	0.08	0.20	0.20	0.13	0.25	0.25	0.06	0.44	0.44	0.00	0.37	0.37
Sat Flow, veh/h	1701	1530	56	1701	986	664	1701	1531	214	1701	1404	320
Grp Volume(v), veh/h	131	0	226	227	0	353	126	0	482	5	0	604
Grp Sat Flow(s),veh/h/ln	1701	0	1587	1701	0	1650	1701	0	1745	1701	0	1723
Q Serve(g_s), s	5.3	0.0	11.7	9.0	0.0	18.0	3.8	0.0	19.0	0.2	0.0	29.7
Cycle Q Clear(g_c), s	5.3	0.0	11.7	9.0	0.0	18.0	3.8	0.0	19.0	0.2	0.0	29.7
Prop In Lane	1.00		0.04	1.00		0.40	1.00		0.12	1.00		0.19
Lane Grp Cap(c), veh/h	262	0	321	373	0	409	221	0	760	279	0	645
V/C Ratio(X)	0.50	0.00	0.70	0.61	0.00	0.86	0.57	0.00	0.63	0.02	0.00	0.94
Avail Cap(c_a), veh/h	412	0	448	446	0	466	398	0	760	560	0	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.8	0.0	32.7	23.3	0.0	31.7	20.4	0.0	19.4	18.1	0.0	26.5
Incr Delay (d2), s/veh	1.5	0.0	2.9	1.7	0.0	13.9	2.3	0.0	1.7	0.0	0.0	19.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	4.7	3.7	0.0	8.7	1.6	0.0	7.8	0.1	0.0	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.3	0.0	35.6	25.0	0.0	45.6	22.7	0.0	21.1	18.2	0.0	46.3
LnGrp LOS	C		D	C		D	C		C	B		D
Approach Vol, veh/h	357				580				608		609	
Approach Delay, s/veh	32.5				37.6				21.5		46.1	
Approach LOS	C				D				C		D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.4	43.5	12.2	27.0	10.8	38.1	16.3	22.9				
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1				
Max Green Setting (Gmax), s	14.9	34.9	14.9	24.9	14.9	34.9	14.9	24.9				
Max Q Clear Time (g_c+I1), s	2.2	21.0	7.3	20.0	5.8	31.7	11.0	13.7				
Green Ext Time (p_c), s	0.0	2.8	0.2	1.0	0.2	1.3	0.2	0.9				
Intersection Summary												
HCM 7th Control Delay, s/veh			34.6									
HCM 7th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 7th Signalized Intersection Summary
9: Cole St & SR 164

Forecast 2031 PM Peak Hour
Without Project

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	1	130	25	1	126	27	0	570	29	1	559	19
Future Volume (veh/h)	1	130	25	1	126	27	0	570	29	1	559	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.91		0.85	0.91		0.85	1.00		0.90	1.00		0.90
Parking Bus, Adj	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1772	1786	1786	1786	1786	1786	1772	1786	1786	1786	1786
Adj Flow Rate, veh/h	1	140	27	1	135	29	0	613	31	1	601	20
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	2	1	1	1	1	1	2	1	1	1	1
Cap, veh/h	74	365	70	74	359	77	0	744	38	74	765	25
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.00	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	2	1250	240	2	1230	263	0	1488	75	0	1531	51
Grp Volume(v), veh/h	168	0	0	165	0	0	0	0	644	622	0	0
Grp Sat Flow(s),veh/h/ln	1491	0	0	1494	0	0	0	0	1563	1582	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0	4.3	0.0	0.0	0.0	0.0	17.2	15.9	0.0	0.0
Prop In Lane	0.01		0.16	0.01		0.18	0.00		0.05	0.00		0.03
Lane Grp Cap(c), veh/h	509	0	0	510	0	0	0	0	781	865	0	0
V/C Ratio(X)	0.33	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.82	0.72	0.00	0.00
Avail Cap(c_a), veh/h	679	0	0	680	0	0	0	0	1592	1684	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	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	13.8	0.0	0.0	0.0	0.0	10.4	10.1	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	2.3	1.1	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	1.4	0.0	0.0	1.3	0.0	0.0	0.0	0.0	5.0	4.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.2	0.0	0.0	14.2	0.0	0.0	0.0	0.0	12.7	11.2	0.0	0.0
LnGrp LOS	B			B			B			B		
Approach Vol, veh/h	168			165			644			622		
Approach Delay, s/veh	14.2			14.2			12.7			11.2		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	29.6			19.4			29.6			19.4		
Change Period (Y+Rc), s	5.1			5.1			5.1			5.1		
Max Green Setting (Gmax), s	49.9			19.9			49.9			19.9		
Max Q Clear Time (g_c+l1), s	19.2			6.3			17.9			6.4		
Green Ext Time (p_c), s	5.3			0.7			5.1			0.7		
Intersection Summary												
HCM 7th Control Delay, s/veh	12.4											
HCM 7th LOS	B											

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	484	72	17	509	0	39	1	8	4	4	11
Future Vol, veh/h	12	484	72	17	509	0	39	1	8	4	4	11
Conflicting Peds, #/hr	9	0	9	9	0	9	9	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	20	1	5	1	2	1	15	1	1	1	33	1
Mvmt Flow	14	550	82	19	578	0	44	1	9	5	5	13
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	587	0	0	641	0	0	1256	1253	609	1213	1294	596
Stage 1	-	-	-	-	-	-	627	627	-	626	626	-
Stage 2	-	-	-	-	-	-	628	626	-	587	668	-
Critical Hdwy	4.3	-	-	4.11	-	-	7.25	6.51	6.21	7.11	6.83	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	5.51	-	6.11	5.83	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	5.51	-	6.11	5.83	-
Follow-up Hdwy	2.38	-	-	2.209	-	-	3.635	4.009	3.309	3.509	4.297	3.309
Pot Cap-1 Maneuver	905	-	-	948	-	-	139	173	497	159	141	505
Stage 1	-	-	-	-	-	-	450	478	-	474	432	-
Stage 2	-	-	-	-	-	-	449	478	-	498	412	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	897	-	-	940	-	-	122	161	488	145	131	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	122	161	-	145	131	-
Stage 1	-	-	-	-	-	-	436	462	-	455	415	-
Stage 2	-	-	-	-	-	-	416	460	-	471	399	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.19			0.29			45.99			21.73		
HCM LOS							E			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	141	37	-	-	58	-	-	237				
HCM Lane V/C Ratio	0.388	0.015	-	-	0.021	-	-	0.091				
HCM Ctrl Dly (s/v)	46	9.1	0	-	8.9	0	-	21.7				
HCM Lane LOS	E	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.6	0	-	-	0.1	-	-	0.3				

HCM 7th Signalized Intersection Summary 11: Driveway/SR 164 & SR 410

Forecast 2031 PM Peak Hour
Without Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	425	57	18	437	405	82	103	6	430	86	18
Future Volume (veh/h)	0	425	57	18	437	405	82	103	6	430	86	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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	0	1744	1786	1702	1730	1758	1786	1744	1786	1772	1786	1702
Adj Flow Rate, veh/h	0	452	61	19	465	431	87	110	6	457	91	19
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	1	7	5	3	1	4	1	2	1	7
Cap, veh/h	0	940	126	231	555	471	118	150	8	479	95	20
Arrive On Green	0.00	0.32	0.32	0.32	0.32	0.32	0.16	0.16	0.16	0.35	0.35	0.35
Sat Flow, veh/h	0	3017	393	804	1730	1469	727	920	50	1375	274	57
Grp Volume(v), veh/h	0	254	259	19	465	431	203	0	0	567	0	0
Grp Sat Flow(s),veh/h/ln	0	1657	1666	804	1730	1469	1697	0	0	1706	0	0
Q Serve(g_s), s	0.0	12.1	12.3	1.9	24.6	27.8	11.2	0.0	0.0	31.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	12.1	12.3	14.2	24.6	27.8	11.2	0.0	0.0	31.9	0.0	0.0
Prop In Lane	0.00		0.24	1.00		1.00	0.43		0.03	0.81		0.03
Lane Grp Cap(c), veh/h	0	532	535	231	555	471	276	0	0	595	0	0
V/C Ratio(X)	0.00	0.48	0.48	0.08	0.84	0.91	0.73	0.00	0.00	0.95	0.00	0.00
Avail Cap(c_a), veh/h	0	567	570	248	592	503	602	0	0	605	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)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	26.8	26.9	32.6	31.0	32.1	39.2	0.0	0.0	31.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.2	9.8	20.6	3.8	0.0	0.0	25.3	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	4.7	4.8	0.4	11.2	12.0	5.0	0.0	0.0	17.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	27.5	27.5	32.7	40.8	52.7	43.0	0.0	0.0	56.6	0.0	0.0
LnGrp LOS		C	C	C	D	D	D			E		
Approach Vol, veh/h		513			915			203			567	
Approach Delay, s/veh		27.5			46.3			43.0			56.6	
Approach LOS		C			D			D			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.9		21.1		37.9		39.4				
Change Period (Y+Rc), s		6.3		5.1		6.3		5.1				
Max Green Setting (Gmax), s		33.7		34.9		33.7		34.9				
Max Q Clear Time (g_c+I1), s		14.3		13.2		29.8		33.9				
Green Ext Time (p_c), s		2.7		1.2		1.7		0.4				
Intersection Summary												
HCM 7th Control Delay, s/veh				44.2								
HCM 7th LOS				D								

Lanes, Volumes, Timings
12: Watson St N & SR 410

Forecast 2031 PM Peak Hour
Without Project

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	563	193	78	672	10	152	5	42	7	6	13
Future Volume (vph)	44	563	193	78	672	10	152	5	42	7	6	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	130		0	125		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	105			130			25			25		
Lane Util. 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
Ped Bike Factor			0.97	1.00	1.00			0.99			0.99	
Frt			0.850		0.998			0.972			0.935	
Flt Protected	0.950			0.950				0.963			0.986	
Satd. Flow (prot)	1693	1698	1515	1629	1724	0	0	1647	0	0	1624	0
Flt Permitted	0.180			0.282				0.963			0.986	
Satd. Flow (perm)	321	1698	1475	483	1724	0	0	1643	0	0	1623	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			212		1			14			14	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		649			501			400			353	
Travel Time (s)		11.1			8.5			10.9			9.6	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	6%	1%	5%	4%	13%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	48	619	212	86	738	11	167	5	46	8	7	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	619	212	86	749	0	0	218	0	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
12: Watson St N & SR 410

Forecast 2031 PM Peak Hour
Without Project

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2		2	6								
Detector Phase	2	2	2	6	6		3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.3	26.3	26.3	24.3	24.3		32.1	32.1		40.1	40.1	
Total Split (s)	45.0	45.0	45.0	45.0	45.0		20.0	20.0		20.0	20.0	
Total Split (%)	52.9%	52.9%	52.9%	52.9%	52.9%		23.5%	23.5%		23.5%	23.5%	
Maximum Green (s)	38.7	38.7	38.7	38.7	38.7		14.9	14.9		14.9	14.9	
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3		3.1	3.1		3.1	3.1	
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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			5.1			5.1	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	13.0	13.0	13.0	10.0	10.0		20.0	20.0		28.0	28.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effect Green (s)	38.2	38.2	38.2	38.2	38.2			14.9			10.1	
Actuated g/C Ratio	0.52	0.52	0.52	0.52	0.52			0.20			0.14	
v/c Ratio	0.29	0.69	0.24	0.34	0.83			0.63			0.12	
Control Delay (s/veh)	25.1	23.8	4.1	23.7	29.1			36.2			21.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay (s/veh)	25.1	23.8	4.1	23.7	29.1			36.2			21.5	
LOS	C	C	A	C	C			D			C	
Approach Delay (s/veh)		19.1			28.6			36.2			21.5	
Approach LOS		B			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 72.8

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 25.1

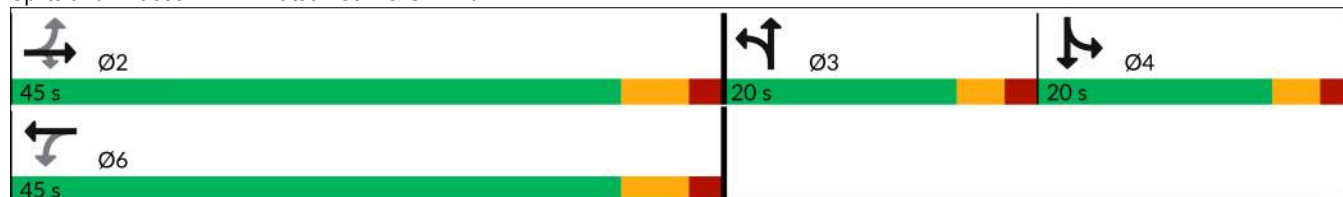
Intersection LOS: C

Intersection Capacity Utilization 80.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 12: Watson St N & SR 410



Intersection						
Int Delay, s/veh	14.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	434	198	140	546	179	105
Future Vol, veh/h	434	198	140	546	179	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	90	120	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	1	4	5	1	1
Mvmt Flow	472	215	152	593	195	114

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	687	0	1370
Stage 1	-	-	-	-	472
Stage 2	-	-	-	-	898
Critical Hdwy	-	-	4.14	-	6.41
Critical Hdwy Stg 1	-	-	-	-	5.41
Critical Hdwy Stg 2	-	-	-	-	5.41
Follow-up Hdwy	-	-	2.236	-	3.509
Pot Cap-1 Maneuver	-	-	898	-	~ 162
Stage 1	-	-	-	-	630
Stage 2	-	-	-	-	399
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	898	-	~ 135
Mov Cap-2 Maneuver	-	-	-	-	252
Stage 1	-	-	-	-	630
Stage 2	-	-	-	-	332

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2.01	78.83
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	320	-	-	898	-
HCM Lane V/C Ratio	0.965	-	-	0.17	-
HCM Ctrl Dly (s/v)	78.8	-	-	9.8	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	10.1	-	-	0.6	-

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

HCM 7th Signalized Intersection Summary
14: 284th Ave SE/Farman St N & SR 410

Forecast 2031 PM Peak Hour
Without Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	154	90	19	300	73	73	72	14	41	103	258
Future Volume (veh/h)	252	154	90	19	300	73	73	72	14	41	103	258
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1730	1786	1786	1772	1786	1786	1772	1786	1758	1786	1758
Adj Flow Rate, veh/h	265	162	95	20	316	77	77	76	15	43	108	272
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
Percent Heavy Veh, %	1	5	1	1	2	1	1	2	1	3	1	3
Cap, veh/h	436	622	544	408	414	354	218	192	32	96	152	330
Arrive On Green	0.15	0.36	0.36	0.02	0.23	0.23	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1701	1730	1514	1701	1772	1514	404	585	97	95	463	1006
Grp Volume(v), veh/h	265	162	95	20	316	77	168	0	0	423	0	0
Grp Sat Flow(s),veh/h/ln	1701	1730	1514	1701	1772	1514	1086	0	0	1564	0	0
Q Serve(g_s), s	6.6	4.1	2.6	0.5	10.2	2.5	0.0	0.0	0.0	7.3	0.0	0.0
Cycle Q Clear(g_c), s	6.6	4.1	2.6	0.5	10.2	2.5	6.7	0.0	0.0	15.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.46		0.09	0.10		0.64
Lane Grp Cap(c), veh/h	436	622	544	408	414	354	442	0	0	577	0	0
V/C Ratio(X)	0.61	0.26	0.17	0.05	0.76	0.22	0.38	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	862	1518	1328	771	1555	1328	934	0	0	1182	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	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.0	13.8	13.4	17.1	21.9	18.9	15.7	0.0	0.0	18.9	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.2	0.2	0.0	2.9	0.3	0.5	0.0	0.0	1.8	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	2.2	1.4	0.8	0.2	4.1	0.8	1.7	0.0	0.0	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.4	14.1	13.5	17.1	24.8	19.2	16.2	0.0	0.0	20.7	0.0	0.0
LnGrp LOS	B	B	B	B	C	B	B			C		
Approach Vol, veh/h	522			413			168			423		
Approach Delay, s/veh	14.7			23.4			16.2			20.7		
Approach LOS	B			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	28.3		26.0	14.6	20.6		26.0				
Change Period (Y+Rc), s	5.5	6.3		5.9	5.5	6.3		5.9				
Max Green Setting (Gmax), s	14.5	53.7		44.1	24.5	53.7		44.1				
Max Q Clear Time (g_c+l1), s	2.5	6.1		17.2	8.6	12.2		8.7				
Green Ext Time (p_c), s	0.0	1.2		2.9	0.7	2.1		1.1				
Intersection Summary												
HCM 7th Control Delay, s/veh	18.9											
HCM 7th LOS	B											

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	76	14	69	13	16	21	53	307	14	28	335	68
Future Vol, veh/h	76	14	69	13	16	21	53	307	14	28	335	68
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	1	3	1	8	13	5	1	1	14	4	2
Mvmt Flow	84	16	77	14	18	23	59	341	16	31	372	76
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	940	947	410	909	977	349	448	0	0	357	0	0
Stage 1	472	472	-	467	467	-	-	-	-	-	-	-
Stage 2	468	474	-	442	510	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.51	6.23	7.11	6.58	6.33	4.15	-	-	4.24	-	-
Critical Hdwy Stg 1	6.15	5.51	-	6.11	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.51	-	6.11	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.009	3.327	3.509	4.072	3.417	2.245	-	-	2.326	-	-
Pot Cap-1 Maneuver	241	262	639	257	245	670	1097	-	-	1139	-	-
Stage 1	567	560	-	578	552	-	-	-	-	-	-	-
Stage 2	570	559	-	596	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	193	236	639	191	220	670	1097	-	-	1139	-	-
Mov Cap-2 Maneuver	193	236	-	191	220	-	-	-	-	-	-	-
Stage 1	546	540	-	540	515	-	-	-	-	-	-	-
Stage 2	495	522	-	491	508	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	36.49		20.29		1.2		0.54					
HCM LOS	E		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	253	-	-	284	291	113	-					
HCM Lane V/C Ratio	0.054	-	-	0.622	0.191	0.027	-					
HCM Ctrl Dly (s/v)	8.5	0	-	36.5	20.3	8.3	0					
HCM Lane LOS	A	A	-	E	C	A	A					
HCM 95th %tile Q(veh)	0.2	-	-	3.8	0.7	0.1	-					

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	17	2	0	2	7	146	1	1	205	7
Future Vol, veh/h	7	0	17	2	0	2	7	146	1	1	205	7
Conflicting Peds, #/hr	12	0	12	12	0	12	12	0	12	12	0	12
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	17	1	1	1	1	1	1	2	1	1	2	1
Mvmt Flow	8	0	19	2	0	2	8	162	1	1	228	8
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	436	437	256	432	440	187	248	0	0	175	0	0
Stage 1	246	246	-	190	190	-	-	-	-	-	-	-
Stage 2	190	191	-	242	250	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.27	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	506	515	785	535	513	858	1324	-	-	1407	-	-
Stage 1	726	705	-	814	745	-	-	-	-	-	-	-
Stage 2	778	744	-	764	702	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	489	499	768	506	497	838	1309	-	-	1391	-	-
Mov Cap-2 Maneuver	489	499	-	506	497	-	-	-	-	-	-	-
Stage 1	717	696	-	799	731	-	-	-	-	-	-	-
Stage 2	763	731	-	736	693	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	10.7		10.74		0.35		0.04					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	82	-	-	658	631	8	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.041	0.007	0.001	-	-				
HCM Ctrl Dly (s/v)	7.8	0	-	10.7	10.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	2	6	155	0	1	211
Future Vol, veh/h	2	6	155	0	1	211
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	92	92	92	92	92	92
Heavy Vehicles, %	1	20	2	1	1	2
Mvmt Flow	2	7	168	0	1	229
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	400	168	0	0	168	0
Stage 1	168	-	-	-	-	-
Stage 2	232	-	-	-	-	-
Critical Hdwy	6.41	6.4	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.48	-	-	2.209	-
Pot Cap-1 Maneuver	608	831	-	-	1415	-
Stage 1	864	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	607	831	-	-	1415	-
Mov Cap-2 Maneuver	607	-	-	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	9.79	0	0.04			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	761	8	-	
HCM Lane V/C Ratio	-	-	0.011	0.001	-	
HCM Ctrl Dly (s/v)	-	-	9.8	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	608	5	1	758	2	0
Future Vol, veh/h	608	5	1	758	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	1	1
Mvmt Flow	661	5	1	824	2	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	666	0	1490	664
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	826	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	928	-	137	463
Stage 1	-	-	-	-	514	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	928	-	137	463
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	514	-
Stage 2	-	-	-	-	431	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.01		18.15	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	276	-	-	928	-	
HCM Lane V/C Ratio	0.008	-	-	0.001	-	
HCM Ctrl Dly (s/v)	18.2	-	-	8.9	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Forecast 2031 AM With Project



Intersection						
Int Delay, s/veh	10.7					
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	36	117	142	785	420	103
Future Vol, veh/h	36	117	142	785	420	103
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	-	170	-	-	185
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	3	3	2	2	4	8
Mvmt Flow	45	146	178	981	525	129
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1861	525	654	0	-	0
Stage 1	525	-	-	-	-	-
Stage 2	1336	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.12	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.218	-	-	-
Pot Cap-1 Maneuver	80	551	933	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	244	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	65	551	933	-	-	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	479	-	-	-	-	-
Stage 2	244	-	-	-	-	-
Approach	SE	NE	SW			
HCM Ctrl Dly, s/v	103.26	1.5	0			
HCM LOS	F					
Minor Lane/Major Mvmt	NEL	NET SELn1	SWT	SWR		
Capacity (veh/h)	933	- 199	-	-		
HCM Lane V/C Ratio	0.19	- 0.961	-	-		
HCM Ctrl Dly (s/v)	9.8	- 103.3	-	-		
HCM Lane LOS	A	- F	-	-		
HCM 95th %tile Q(veh)	0.7	- 8	-	-		

HCM 7th Signalized Intersection Summary 2: SR 410 & Warner Ave

Forecast 2031 AM Peak Hour
With Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	105	73	19	166	119	16	12	686	90	6	369	137
Future Volume (veh/h)	105	73	19	166	119	16	12	686	90	6	369	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1744	1758	1716	1758	1786	1786	1786	1772	1772	1786	1716	1758
Adj Flow Rate, veh/h	127	88	23	200	143	19	14	827	108	7	445	165
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	4	3	6	3	1	1	1	2	2	1	6	3
Cap, veh/h	151	105	27	226	161	329	271	815	675	62	789	670
Arrive On Green	0.17	0.17	0.17	0.22	0.22	0.22	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	896	621	162	1012	723	1474	774	1772	1467	572	1716	1456
Grp Volume(v), veh/h	238	0	0	343	0	19	14	827	108	7	445	165
Grp Sat Flow(s),veh/h/ln	1678	0	0	1735	0	1474	774	1772	1467	572	1716	1456
Q Serve(g_s), s	16.0	0.0	0.0	22.3	0.0	1.2	1.6	53.7	5.0	0.0	22.1	8.1
Cycle Q Clear(g_c), s	16.0	0.0	0.0	22.3	0.0	1.2	23.6	53.7	5.0	53.7	22.1	8.1
Prop In Lane	0.53		0.10	0.58		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	283	0	0	387	0	329	271	815	675	62	789	670
V/C Ratio(X)	0.84	0.00	0.00	0.89	0.00	0.06	0.05	1.01	0.16	0.11	0.56	0.25
Avail Cap(c_a), veh/h	502	0	0	507	0	431	271	815	675	62	789	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	0.0	0.0	43.9	0.0	35.7	31.6	31.5	18.4	58.4	23.0	19.2
Incr Delay (d2), s/veh	6.6	0.0	0.0	14.0	0.0	0.1	0.1	35.2	0.1	0.8	0.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.0	0.0	11.0	0.0	0.4	0.3	29.4	1.7	0.2	8.7	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	53.6	0.0	0.0	57.9	0.0	35.8	31.7	66.7	18.5	59.2	23.9	19.4
LnGrp LOS	D			E		D	C	F	B	E	C	B
Approach Vol, veh/h	238				362				949			
Approach Delay, s/veh	53.6				56.8				60.7		23.1	
Approach LOS	D				E				E		C	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	60.0		24.8		60.0		31.9					
Change Period (Y+Rc), s	6.3		5.1		6.3		5.9					
Max Green Setting (Gmax), s	53.7		34.9		53.7		34.1					
Max Q Clear Time (g_c+I1), s	55.7		18.0		55.7		24.3					
Green Ext Time (p_c), s	0.0		1.2		0.0		1.4					
Intersection Summary												
HCM 7th Control Delay, s/veh	48.6											
HCM 7th LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↗	↘	
Traffic Vol, veh/h	0	586	282	95	77	1
Future Vol, veh/h	0	586	282	95	77	1
Conflicting Peds, #/hr	2	0	0	2	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	2	2	5	6	1
Mvmt Flow	0	637	307	103	84	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	947	311
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	-	-	-	-	6.46	6.21
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	-	-	-	-	3.554	3.309
Pot Cap-1 Maneuver	0	-	-	-	285	732
Stage 1	0	-	-	-	736	-
Stage 2	0	-	-	-	518	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	284	729
Mov Cap-2 Maneuver	-	-	-	-	399	-
Stage 1	-	-	-	-	735	-
Stage 2	-	-	-	-	517	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		16.34		
HCM LOS				C		
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	402		
HCM Lane V/C Ratio	-	-	-	0.211		
HCM Ctrl Dly (s/v)	-	-	-	16.3		
HCM Lane LOS	-	-	-	C		
HCM 95th %tile Q(veh)	-	-	-	0.8		

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	588	31	31	342	15	23	10	28	8	4	12
Future Vol, veh/h	44	588	31	31	342	15	23	10	28	8	4	12
Conflicting Peds, #/hr	7	0	7	7	0	7	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	70	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	3	5	1	4	10	9	11	13	5	1	1	1
Mvmt Flow	50	668	35	35	389	17	26	11	32	9	5	14
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	413	0	0	710	0	0	1067	1276	700	1255	1285	217
Stage 1	-	-	-	-	-	-	793	793	-	475	475	-
Stage 2	-	-	-	-	-	-	274	483	-	781	810	-
Critical Hdwy	4.145	-	-	4.16	-	-	7.465	6.695	6.275	7.315	6.515	6.915
Critical Hdwy Stg 1	-	-	-	-	-	-	6.265	5.695	-	6.515	5.515	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.665	5.695	-	6.115	5.515	-
Follow-up Hdwy	2.2285	-	-	2.238	-	-	3.6045	4.1235	3.3475	3.5095	4.0095	3.3095
Pot Cap-1 Maneuver	1138	-	-	876	-	-	178	155	432	139	165	791
Stage 1	-	-	-	-	-	-	364	379	-	543	559	-
Stage 2	-	-	-	-	-	-	688	529	-	389	394	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1131	-	-	870	-	-	154	140	426	107	149	781
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	140	-	107	149	-
Stage 1	-	-	-	-	-	-	346	360	-	517	533	-
Stage 2	-	-	-	-	-	-	638	505	-	331	374	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.55			0.74			25.19			23.83		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	154	277	1131	-	-	870	-	-	107	380		
HCM Lane V/C Ratio	0.17	0.156	0.044	-	-	0.041	-	-	0.085	0.048		
HCM Ctrl Dly (s/v)	33.2	20.4	8.3	-	-	9.3	-	-	41.6	15		
HCM Lane LOS	D	C	A	-	-	A	-	-	E	B		
HCM 95th %tile Q(veh)	0.6	0.5	0.1	-	-	0.1	-	-	0.3	0.2		

HCM 7th Signalized Intersection Summary 5: Driveway/Garrett St & SR 410

Forecast 2031 AM Peak Hour
With Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	464	8	1	325	20	2	2	4	64	4	94
Future Volume (veh/h)	137	464	8	1	325	20	2	2	4	64	4	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1744	1660	1786	1786	1674	1702	1786	1786	1786	1744	1786	1589
Adj Flow Rate, veh/h	169	573	10	1	401	25	2	2	5	79	5	116
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	4	10	1	1	9	7	1	1	1	4	1	15
Cap, veh/h	516	1237	22	391	873	54	136	98	151	398	20	233
Arrive On Green	0.10	0.39	0.39	0.00	0.29	0.29	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1661	3170	55	1701	3038	189	134	557	863	1248	112	1331
Grp Volume(v), veh/h	169	285	298	1	209	217	9	0	0	84	0	116
Grp Sat Flow(s),veh/h/ln	1661	1577	1649	1701	1590	1637	1553	0	0	1361	0	1331
Q Serve(g_s), s	2.6	5.2	5.2	0.0	4.2	4.2	0.0	0.0	0.0	1.9	0.0	3.1
Cycle Q Clear(g_c), s	2.6	5.2	5.2	0.0	4.2	4.2	0.2	0.0	0.0	2.1	0.0	3.1
Prop In Lane	1.00		0.03	1.00		0.12	0.22		0.56	0.94		1.00
Lane Grp Cap(c), veh/h	516	615	643	391	457	470	385	0	0	418	0	233
V/C Ratio(X)	0.33	0.46	0.46	0.00	0.46	0.46	0.02	0.00	0.00	0.20	0.00	0.50
Avail Cap(c_a), veh/h	749	1364	1427	802	1376	1417	878	0	0	871	0	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.1	8.8	8.8	9.9	11.4	11.4	13.3	0.0	0.0	14.1	0.0	14.5
Incr Delay (d2), s/veh	0.4	0.5	0.5	0.0	0.7	0.7	0.0	0.0	0.0	0.2	0.0	1.6
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	0.6	1.2	1.3	0.0	1.1	1.2	0.1	0.0	0.0	0.6	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.4	9.4	9.4	9.9	12.1	12.1	13.3	0.0	0.0	14.3	0.0	16.2
LnGrp LOS	A	A	A	A	B	B	B			B		B
Approach Vol, veh/h	752				427		9				200	
Approach Delay, s/veh	9.2				12.1		13.3				15.4	
Approach LOS	A				B		B				B	
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	5.5	21.5	11.9		9.5	17.5	11.9					
Change Period (Y+Rc), s	5.5	6.3	5.1		5.5	6.3	5.1					
Max Green Setting (Gmax), s	9.5	33.7	19.9		9.5	33.7	19.9					
Max Q Clear Time (g_c+I1), s	2.0	7.2	5.1		4.6	6.2	2.2					
Green Ext Time (p_c), s	0.0	3.4	0.7		0.2	2.4	0.0					
Intersection Summary												
HCM 7th Control Delay, s/veh	11.0											
HCM 7th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	487	310	50	14	4
Future Vol, veh/h	7	487	310	50	14	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	8	10	5	1	1
Mvmt Flow	8	524	333	54	15	4
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	387	0	-	0	637	194
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	277	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1175	-	-	-	412	818
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	748	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1175	-	-	-	409	818
Mov Cap-2 Maneuver	-	-	-	-	509	-
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	748	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.11	0		11.71		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1175	-	-	-	556	
HCM Lane V/C Ratio	0.006	-	-	-	0.035	
HCM Ctrl Dly (s/v)	8.1	-	-	-	11.7	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	447	34	19	321	12	26	44	21	4	15	14
Future Vol, veh/h	25	447	34	19	321	12	26	44	21	4	15	14
Conflicting Peds, #/hr	1	0	1	1	0	1	1	0	1	1	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	24	7	11	17	7	63	10	14	15	1	1	42
Mvmt Flow	27	481	37	20	345	13	28	47	23	4	16	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	518	0	0	776	954	261	712	965	181
Stage 1	-	-	-	-	-	-	554	554	-	393	393	-
Stage 2	-	-	-	-	-	-	223	400	-	319	572	-
Critical Hdwy	4.58	-	-	4.44	-	-	7.7	6.78	7.2	7.52	6.52	7.74
Critical Hdwy Stg 1	-	-	-	-	-	-	6.7	5.78	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.78	-	6.52	5.52	-
Follow-up Hdwy	2.44	-	-	2.37	-	-	3.6	4.14	3.45	3.51	4.01	3.72
Pot Cap-1 Maneuver	1053	-	-	946	-	-	273	238	700	321	255	719
Stage 1	-	-	-	-	-	-	465	483	-	606	607	-
Stage 2	-	-	-	-	-	-	737	571	-	670	505	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1052	-	-	945	-	-	238	226	699	236	243	718
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	226	-	236	243	-
Stage 1	-	-	-	-	-	-	452	470	-	592	593	-
Stage 2	-	-	-	-	-	-	686	558	-	568	492	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.42			0.48			25.41			16.98		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	273	1052	-	-	945	-	-	336				
HCM Lane V/C Ratio	0.359	0.026	-	-	0.022	-	-	0.106				
HCM Ctrl Dly (s/v)	25.4	8.5	-	-	8.9	-	-	17				
HCM Lane LOS	D	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.6	0.1	-	-	0.1	-	-	0.4				

HCM 7th Signalized Intersection Summary 8: Porter St/SR 169 & SR 164

Forecast 2031 AM Peak Hour
With Project

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	50	171	1	129	136	57	123	412	39	4	227	122
Future Volume (veh/h)	50	171	1	129	136	57	123	412	39	4	227	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	0.89	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	1744	1744	1786	1786	1786	1758	1772	1702	1786	1786	1786	1772
Adj Flow Rate, veh/h	57	197	1	148	156	66	141	474	45	5	261	140
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	4	4	1	1	1	3	2	7	1	1	1	2
Cap, veh/h	315	271	1	351	277	117	329	566	54	205	318	171
Arrive On Green	0.04	0.17	0.17	0.10	0.23	0.23	0.08	0.37	0.37	0.00	0.29	0.29
Sat Flow, veh/h	1661	1551	8	1701	1190	504	1688	1530	145	1701	1093	586
Grp Volume(v), veh/h	57	0	198	148	0	222	141	0	519	5	0	401
Grp Sat Flow(s),veh/h/ln	1661	0	1559	1701	0	1694	1688	0	1675	1701	0	1679
Q Serve(g_s), s	1.6	0.0	6.9	4.0	0.0	6.6	3.2	0.0	16.2	0.1	0.0	12.8
Cycle Q Clear(g_c), s	1.6	0.0	6.9	4.0	0.0	6.6	3.2	0.0	16.2	0.1	0.0	12.8
Prop In Lane	1.00		0.01	1.00		0.30	1.00		0.09	1.00		0.35
Lane Grp Cap(c), veh/h	315	0	273	351	0	395	329	0	619	205	0	489
V/C Ratio(X)	0.18	0.00	0.73	0.42	0.00	0.56	0.43	0.00	0.84	0.02	0.00	0.82
Avail Cap(c_a), veh/h	538	0	676	481	0	735	481	0	727	492	0	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	22.4	17.0	0.0	19.4	13.4	0.0	16.5	15.5	0.0	18.9
Incr Delay (d2), s/veh	0.3	0.0	3.7	0.8	0.0	1.3	0.9	0.0	7.5	0.0	0.0	4.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.7	1.5	0.0	2.6	1.1	0.0	6.8	0.0	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.8	0.0	26.1	17.8	0.0	20.7	14.3	0.0	24.1	15.6	0.0	23.6
LnGrp LOS	B		C	B		C	B		C	B		C
Approach Vol, veh/h	255				370				660		406	
Approach Delay, s/veh	24.4				19.5				22.0		23.5	
Approach LOS	C				B				C		C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	26.3	7.3	18.5	9.8	21.8	10.6	15.1				
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1				
Max Green Setting (Gmax), s	9.9	24.9	9.9	24.9	9.9	24.9	9.9	24.9				
Max Q Clear Time (g_c+I1), s	2.1	18.2	3.6	8.6	5.2	14.8	6.0	8.9				
Green Ext Time (p_c), s	0.0	1.9	0.0	1.2	0.1	1.9	0.1	1.0				
Intersection Summary												
HCM 7th Control Delay, s/veh			22.2									
HCM 7th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 7th Signalized Intersection Summary

9: Cole St & SR 164

Forecast 2031 AM Peak Hour
With Project

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	4	105	14	4	55	17	0	509	6	0	345	7
Future Volume (veh/h)	4	105	14	4	55	17	0	509	6	0	345	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.96		0.95	0.96		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1744	1786	1786	1772	1786	1786	1744	1786	1786	1772	1786
Adj Flow Rate, veh/h	4	112	15	4	59	18	0	541	6	0	367	7
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	4	1	1	2	1	1	4	1	1	2	1
Cap, veh/h	111	285	37	115	244	71	0	753	8	0	758	14
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.49	0.49	0.00	0.49	0.49
Sat Flow, veh/h	17	1320	173	27	1132	331	0	1540	17	0	1550	30
Grp Volume(v), veh/h	131	0	0	81	0	0	0	0	547	0	0	374
Grp Sat Flow(s),veh/h/ln	1511	0	0	1491	0	0	0	0	1557	0	0	1580
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	5.5
Cycle Q Clear(g_c), s	2.6	0.0	0.0	1.5	0.0	0.0	0.0	0.0	9.6	0.0	0.0	5.5
Prop In Lane	0.03		0.11	0.05		0.22	0.00		0.01	0.00		0.02
Lane Grp Cap(c), veh/h	433	0	0	431	0	0	0	0	762	0	0	773
V/C Ratio(X)	0.30	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.48
Avail Cap(c_a), veh/h	973	0	0	960	0	0	0	0	2249	0	0	2282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	0.0	11.2	0.0	0.0	0.0	0.0	6.9	0.0	0.0	5.9
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.4	0.0	0.0	0.0	0.0	2.2	0.0	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.0	0.0	0.0	11.4	0.0	0.0	0.0	0.0	8.2	0.0	0.0	6.4
LnGrp LOS	B		B						A		A	
Approach Vol, veh/h	131				81				547		374	
Approach Delay, s/veh	12.0				11.4				8.2		6.4	
Approach LOS	B				B				A		A	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	22.0		12.5		22.0		12.5					
Change Period (Y+Rc), s	5.1		5.1		5.1		5.1					
Max Green Setting (Gmax), s	49.9		19.9		49.9		19.9					
Max Q Clear Time (g_c+I1), s	11.6		3.5		7.5		4.6					
Green Ext Time (p_c), s	4.4		0.3		2.7		0.6					
Intersection Summary												
HCM 7th Control Delay, s/veh			8.3									
HCM 7th LOS			A									
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	465	48	10	312	1	47	2	13	4	1	6
Future Vol, veh/h	7	465	48	10	312	1	47	2	13	4	1	6
Conflicting Peds, #/hr	3	0	3	3	0	3	3	0	3	3	0	3
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	33	6	8	13	2	1	11	1	9	33	1	20
Mvmt Flow	8	522	54	11	351	1	53	2	15	4	1	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	355	0	0	579	0	0	945	945	555	919	972	357
Stage 1	-	-	-	-	-	-	568	568	-	377	377	-
Stage 2	-	-	-	-	-	-	377	377	-	542	595	-
Critical Hdwy	4.43	-	-	4.23	-	-	7.21	6.51	6.29	7.43	6.51	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.21	5.51	-	6.43	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.21	5.51	-	6.43	5.51	-
Follow-up Hdwy	2.497	-	-	2.317	-	-	3.599	4.009	3.381	3.797	4.009	3.48
Pot Cap-1 Maneuver	1051	-	-	942	-	-	233	263	518	222	254	648
Stage 1	-	-	-	-	-	-	492	508	-	586	618	-
Stage 2	-	-	-	-	-	-	627	617	-	473	494	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1048	-	-	940	-	-	222	255	515	207	246	645
Mov Cap-2 Maneuver	-	-	-	-	-	-	222	255	-	207	246	-
Stage 1	-	-	-	-	-	-	485	501	-	576	607	-
Stage 2	-	-	-	-	-	-	608	607	-	451	487	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.11			0.27			24.48			16.1		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	254	24	-	-	56	-	-	337				
HCM Lane V/C Ratio	0.275	0.008	-	-	0.012	-	-	0.037				
HCM Ctrl Dly (s/v)	24.5	8.5	0	-	8.9	0	-	16.1				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0.1				

HCM 7th Signalized Intersection Summary
11: Driveway/SR 164 & SR 410

Forecast 2031 AM Peak Hour
With Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	436	24	7	291	290	32	33	7	367	35	10
Future Volume (veh/h)	0	436	24	7	291	290	32	33	7	367	35	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1674	1589	1786	1716	1758	1702	1603	1561	1730	1702	1617
Adj Flow Rate, veh/h	0	484	27	8	323	322	36	37	8	408	39	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	9	15	1	6	3	7	14	17	5	7	13
Cap, veh/h	0	907	50	260	509	430	54	55	12	500	48	13
Arrive On Green	0.00	0.30	0.30	0.30	0.30	0.30	0.08	0.08	0.08	0.35	0.35	0.35
Sat Flow, veh/h	0	3141	170	847	1716	1451	683	702	152	1445	138	39
Grp Volume(v), veh/h	0	251	260	8	323	322	81	0	0	458	0	0
Grp Sat Flow(s),veh/h/ln	0	1590	1638	847	1716	1451	1537	0	0	1622	0	0
Q Serve(g_s), s	0.0	7.8	7.9	0.5	9.7	11.9	3.0	0.0	0.0	15.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	7.8	7.9	8.3	9.7	11.9	3.0	0.0	0.0	15.2	0.0	0.0
Prop In Lane	0.00		0.10	1.00		1.00	0.44		0.10	0.89		0.02
Lane Grp Cap(c), veh/h	0	471	486	260	509	430	121	0	0	562	0	0
V/C Ratio(X)	0.00	0.53	0.54	0.03	0.63	0.75	0.67	0.00	0.00	0.82	0.00	0.00
Avail Cap(c_a), veh/h	0	905	932	491	977	826	906	0	0	956	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)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.4	17.4	20.9	18.0	18.8	26.5	0.0	0.0	17.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.9	0.0	1.3	2.6	6.3	0.0	0.0	3.0	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	2.7	0.1	3.5	3.7	1.3	0.0	0.0	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	18.3	18.3	20.9	19.4	21.5	32.9	0.0	0.0	20.6	0.0	0.0
LnGrp LOS		B	B	C	B	C	C			C		
Approach Vol, veh/h		511			653			81			458	
Approach Delay, s/veh		18.3			20.4			32.9			20.6	
Approach LOS		B			C			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.9		9.7		23.9		25.6				
Change Period (Y+Rc), s		6.3		5.1		6.3		5.1				
Max Green Setting (Gmax), s		33.7		34.9		33.7		34.9				
Max Q Clear Time (g_c+I1), s		9.9		5.0		13.9		17.2				
Green Ext Time (p_c), s		2.9		0.4		2.9		3.0				
Intersection Summary												
HCM 7th Control Delay, s/veh				20.4								
HCM 7th LOS				C								

Lanes, Volumes, Timings
12: Watson St N & SR 410

Forecast 2031 AM Peak Hour
With Project

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	632	140	23	472	1	106	0	57	0	0	1
Future Volume (vph)	6	632	140	23	472	1	106	0	57	0	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	130		0	125		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	105			130			25			25		
Lane Util. 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
Ped Bike Factor	1.00		0.98		1.00			0.99			0.98	
Frt			0.850					0.953			0.865	
Flt Protected	0.950			0.950				0.969				
Satd. Flow (prot)	1693	1651	1485	1693	1682	0	0	1606	0	0	1509	0
Flt Permitted	0.367			0.235				0.969				
Satd. Flow (perm)	654	1651	1453	419	1682	0	0	1605	0	0	1509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167					108			276	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		649			501			400			353	
Travel Time (s)		11.1			8.5			10.9			9.6	
Confl. Peds. (#/hr)	1		1	1		1	1		1	1		1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	1%	9%	3%	1%	7%	1%	2%	1%	4%	1%	1%	1%
Adj. Flow (vph)	7	752	167	27	562	1	126	0	68	0	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	752	167	27	563	0	0	194	0	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Synchro 12 Report
Page 1

Lanes, Volumes, Timings
12: Watson St N & SR 410

Forecast 2031 AM Peak Hour
With Project

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA			NA	
Protected Phases		2			6		3	3			4	
Permitted Phases	2		2	6						4		
Detector Phase	2	2	2	6	6		3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.3	26.3	26.3	24.3	24.3		32.1	32.1		40.1	40.1	
Total Split (s)	45.0	45.0	45.0	45.0	45.0		20.0	20.0		20.0	20.0	
Total Split (%)	52.9%	52.9%	52.9%	52.9%	52.9%		23.5%	23.5%		23.5%	23.5%	
Maximum Green (s)	38.7	38.7	38.7	38.7	38.7		14.9	14.9		14.9	14.9	
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3		3.1	3.1		3.1	3.1	
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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			5.1			5.1	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	13.0	13.0	13.0	10.0	10.0		20.0	20.0		28.0	28.0	
Pedestrian Calls (#/hr)	1	1	1	1	1		1	1		1	1	
Act Effect Green (s)	42.8	42.8	42.8	42.8	42.8			10.8			9.5	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60			0.15			0.13	
v/c Ratio	0.02	0.75	0.18	0.11	0.55			0.58			0.00	
Control Delay (s/veh)	16.0	22.1	3.9	16.9	17.6			21.0			0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay (s/veh)	16.0	22.1	3.9	16.9	17.6			21.0			0.0	
LOS	B	C	A	B	B			C			A	
Approach Delay (s/veh)		18.8			17.6			21.0				
Approach LOS		B			B			C				

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 70.8

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 18.6

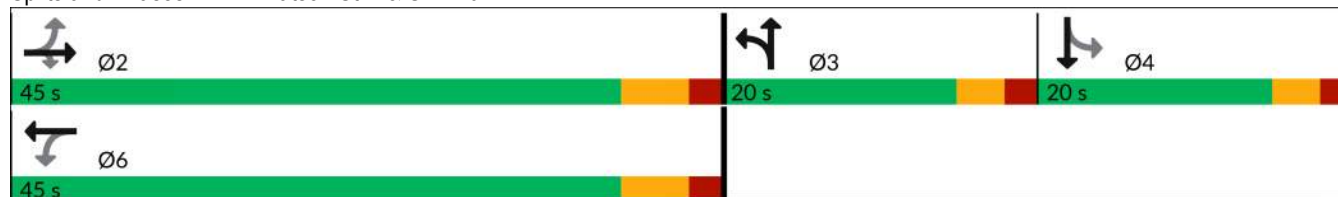
Intersection LOS: B

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: Watson St N & SR 410



Intersection						
Int Delay, s/veh	22.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	515	181	112	298	191	145
Future Vol, veh/h	515	181	112	298	191	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	90	120	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	6	9	13	9	1	1
Mvmt Flow	592	208	129	343	220	167

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	800
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.23
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.317
Pot Cap-1 Maneuver	-	-	777
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	777
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2.88	92.51
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	370	-	-	777	-
HCM Lane V/C Ratio	1.043	-	-	0.166	-
HCM Ctrl Dly (s/v)	92.5	-	-	10.6	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	13.1	-	-	0.6	-

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

HCM 7th Signalized Intersection Summary
14: 284th Ave SE/Farman St N & SR 410

Forecast 2031 AM Peak Hour
With Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	377	49	7	119	31	53	56	13	96	48	214
Future Volume (veh/h)	173	377	49	7	119	31	53	56	13	96	48	214
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1702	1716	1758	859	1561	1000	1786	1772	1646	1674	1758	1772
Adj Flow Rate, veh/h	197	428	56	8	135	35	60	64	15	109	55	243
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	7	6	3	67	17	57	1	2	11	9	3	2
Cap, veh/h	481	549	477	183	312	169	246	235	46	190	95	293
Arrive On Green	0.13	0.32	0.32	0.01	0.20	0.20	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1621	1716	1490	818	1561	847	442	705	139	308	285	878
Grp Volume(v), veh/h	197	428	56	8	135	35	139	0	0	407	0	0
Grp Sat Flow(s),veh/h/ln	1621	1716	1490	818	1561	847	1286	0	0	1471	0	0
Q Serve(g_s), s	4.6	11.8	1.4	0.3	3.9	1.8	0.0	0.0	0.0	9.6	0.0	0.0
Cycle Q Clear(g_c), s	4.6	11.8	1.4	0.3	3.9	1.8	3.2	0.0	0.0	13.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.43		0.11	0.27		0.60
Lane Grp Cap(c), veh/h	481	549	477	183	312	169	528	0	0	578	0	0
V/C Ratio(X)	0.41	0.78	0.12	0.04	0.43	0.21	0.26	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	883	1772	1538	406	1612	875	828	0	0	904	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	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.4	16.0	12.5	17.7	18.2	17.4	12.6	0.0	0.0	15.8	0.0	0.0
Incr Delay (d2), s/veh	0.6	2.4	0.1	0.1	1.0	0.6	0.3	0.0	0.0	1.6	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	1.4	4.1	0.4	0.1	1.3	0.3	1.0	0.0	0.0	3.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.9	18.5	12.6	17.8	19.2	18.0	12.8	0.0	0.0	17.4	0.0	0.0
LnGrp LOS	B	B	B	B	B	B	B			B		
Approach Vol, veh/h	681			178			139			407		
Approach Delay, s/veh	16.4			18.9			12.8			17.4		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	22.9		23.2	12.1	16.7		23.2				
Change Period (Y+Rc), s	5.5	6.3		5.9	5.5	6.3		5.9				
Max Green Setting (Gmax), s	14.5	53.7		29.1	19.5	53.7		29.1				
Max Q Clear Time (g_c+I1), s	2.3	13.8		15.1	6.6	5.9		5.2				
Green Ext Time (p_c), s	0.0	2.9		2.2	0.4	0.9		0.8				
Intersection Summary												
HCM 7th Control Delay, s/veh				16.6								
HCM 7th LOS				B								

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	6	48	5	3	7	53	202	1	7	323	54
Future Vol, veh/h	18	6	48	5	3	7	53	202	1	7	323	54
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	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	7	50	10	1	1	33	1	20	1	40	6	2
Mvmt Flow	23	8	62	6	4	9	68	259	1	9	414	69
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	863	863	449	831	897	260	483	0	0	260	0	0
Stage 1	467	467	-	396	396	-	-	-	-	-	-	-
Stage 2	397	396	-	436	501	-	-	-	-	-	-	-
Critical Hdwy	7.17	7	6.3	7.11	6.51	6.53	4.11	-	-	4.5	-	-
Critical Hdwy Stg 1	6.17	6	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	6	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.45	3.39	3.509	4.009	3.597	2.209	-	-	2.56	-	-
Pot Cap-1 Maneuver	269	246	594	290	280	710	1085	-	-	1113	-	-
Stage 1	567	489	-	632	606	-	-	-	-	-	-	-
Stage 2	619	529	-	601	544	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	240	225	594	231	257	710	1085	-	-	1113	-	-
Mov Cap-2 Maneuver	240	225	-	231	257	-	-	-	-	-	-	-
Stage 1	561	484	-	586	562	-	-	-	-	-	-	-
Stage 2	562	490	-	524	538	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	16.88		15.98		1.77		0.15					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	372	-	-	395	347	32	-	-				
HCM Lane V/C Ratio	0.063	-	-	0.234	0.055	0.008	-	-				
HCM Ctrl Dly (s/v)	8.5	0	-	16.9	16	8.3	0	-				
HCM Lane LOS	A	A	-	C	C	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.9	0.2	0	-	-				

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	1	4	0	6	6	137	4	1	61	2
Future Vol, veh/h	6	0	1	4	0	6	6	137	4	1	61	2
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	1	1	1	67	1	20	40	3	67	1	4	1
Mvmt Flow	7	0	1	5	0	7	7	165	5	1	73	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	261	265	79	262	264	171	78	0	0	172	0	0
Stage 1	79	79	-	184	184	-	-	-	-	-	-	-
Stage 2	182	186	-	78	80	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.77	6.51	6.4	4.5	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.77	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.77	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	4.103	4.009	3.48	2.56	-	-	2.209	-	-
Pot Cap-1 Maneuver	694	642	985	577	643	828	1311	-	-	1411	-	-
Stage 1	932	831	-	688	749	-	-	-	-	-	-	-
Stage 2	823	748	-	792	830	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	681	635	981	570	636	824	1309	-	-	1409	-	-
Mov Cap-2 Maneuver	681	635	-	570	636	-	-	-	-	-	-	-
Stage 1	929	829	-	683	743	-	-	-	-	-	-	-
Stage 2	809	742	-	789	828	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	10.12		10.24		0.32		0.12					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	73	-	-	712	699	28	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.012	0.017	0.001	-	-				
HCM Ctrl Dly (s/v)	7.8	0	-	10.1	10.2	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-				

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	5	4	140	9	8	59
Future Vol, veh/h	5	4	140	9	8	59
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	92	92	92	92	92	92
Heavy Vehicles, %	100	2	2	2	2	2
Mvmt Flow	5	4	152	10	9	64
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	239	157	0	0	162	0
Stage 1	157	-	-	-	-	-
Stage 2	82	-	-	-	-	-
Critical Hdwy	7.4	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	578	888	-	-	1417	-
Stage 1	680	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	574	888	-	-	1417	-
Mov Cap-2 Maneuver	574	-	-	-	-	-
Stage 1	680	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	10.36	0	0.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	681	215	-	
HCM Lane V/C Ratio	-	-	0.014	0.006	-	
HCM Ctrl Dly (s/v)	-	-	10.4	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	646	44	33	468	28	39
Future Vol, veh/h	646	44	33	468	28	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	50	2	2	2
Mvmt Flow	702	48	36	509	30	42
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	750	0	1307	726
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	580	-
Critical Hdwy	-	-	4.6	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.65	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	678	-	176	424
Stage 1	-	-	-	-	479	-
Stage 2	-	-	-	-	560	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	678	-	167	424
Mov Cap-2 Maneuver	-	-	-	-	306	-
Stage 1	-	-	-	-	479	-
Stage 2	-	-	-	-	530	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.7		17.3	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	365	-	-	678	-	
HCM Lane V/C Ratio	0.199	-	-	0.053	-	
HCM Ctrl Dly (s/v)	17.3	-	-	10.6	-	
HCM Lane LOS	C	-	-	B	-	
HCM 95th %tile Q(veh)	0.7	-	-	0.2	-	

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Forecast 2031 PM With Project



Intersection

Int Delay, s/veh 1.7

Movement SEL SER NEL NET SWT SWR

Lane Configurations 

Traffic Vol, veh/h 14 50 127 672 529 101

Future Vol, veh/h 14 50 127 672 529 101

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 - 170 - - 185

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 97 97 97 97 97 97

Heavy Vehicles, % 1 1 1 1 1 14

Mvmt Flow 14 52 131 693 545 104

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1500 545 649 0 - 0

Stage 1 545 - - - - -

Stage 2 955 - - - - -

Critical Hdwy 6.41 6.21 4.11 - - -

Critical Hdwy Stg 1 5.41 - - - - -

Critical Hdwy Stg 2 5.41 - - - - -

Follow-up Hdwy 3.509 3.309 2.209 - - -

Pot Cap-1 Maneuver 135 540 941 - - -

Stage 1 583 - - - - -

Stage 2 375 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 116 540 941 - - -

Mov Cap-2 Maneuver 116 - - - - -

Stage 1 502 - - - - -

Stage 2 375 - - - - -

Approach SE NE SW

HCM Ctrl Dly, s/v 20.32 1.5 0

HCM LOS C

Minor Lane/Major Mvmt NEL NET SELn1 SWT SWR

Capacity (veh/h) 941 - 301 - -

HCM Lane V/C Ratio 0.139 - 0.22 - -

HCM Ctrl Dly (s/v) 9.4 - 20.3 - -

HCM Lane LOS A - C - -

HCM 95th %tile Q(veh) 0.5 - 0.8 - -

HCM 7th Signalized Intersection Summary

2: SR 410 & Warner Ave

Forecast 2031 PM Peak Hour
With Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	129	122	7	89	90	24	11	541	140	24	530	182
Future Volume (veh/h)	129	122	7	89	90	24	11	541	140	24	530	182
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
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	1786	1786	1786	1702	1786	1786	1786	1772	1786	1786	1772	1786
Adj Flow Rate, veh/h	136	128	7	94	95	25	12	569	147	25	558	192
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
Percent Heavy Veh, %	1	1	1	7	1	1	1	2	1	1	2	1
Cap, veh/h	180	170	9	137	139	230	184	714	593	181	714	593
Arrive On Green	0.21	0.21	0.21	0.16	0.16	0.16	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	869	818	45	867	876	1456	679	1772	1473	701	1772	1473
Grp Volume(v), veh/h	271	0	0	189	0	25	12	569	147	25	558	192
Grp Sat Flow(s),veh/h/ln	1733	0	0	1743	0	1456	679	1772	1473	701	1772	1473
Q Serve(g_s), s	11.0	0.0	0.0	7.6	0.0	1.1	1.2	21.1	4.9	2.4	20.5	6.7
Cycle Q Clear(g_c), s	11.0	0.0	0.0	7.6	0.0	1.1	21.7	21.1	4.9	23.5	20.5	6.7
Prop In Lane	0.50		0.03	0.50		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	359	0	0	276	0	230	184	714	593	181	714	593
V/C Ratio(X)	0.75	0.00	0.00	0.69	0.00	0.11	0.07	0.80	0.25	0.14	0.78	0.32
Avail Cap(c_a), veh/h	810	0	0	796	0	665	398	1274	1059	403	1274	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	0.0	29.7	0.0	26.9	28.9	19.6	14.8	29.9	19.4	15.3
Incr Delay (d2), s/veh	3.2	0.0	0.0	3.0	0.0	0.2	0.1	2.1	0.2	0.3	1.9	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	0.0	3.3	0.0	0.4	0.2	8.0	1.5	0.4	7.7	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	31.1	0.0	0.0	32.7	0.0	27.1	29.0	21.7	15.0	30.3	21.3	15.6
LnGrp LOS	C			C		C	C	C	B	C	C	B
Approach Vol, veh/h	271		214				728		775			
Approach Delay, s/veh	31.1		32.0				20.5		20.2			
Approach LOS	C		C				C		C			
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.4		20.6		36.4		17.7					
Change Period (Y+Rc), s	6.3		5.1		6.3		5.9					
Max Green Setting (Gmax), s	53.7		34.9		53.7		34.1					
Max Q Clear Time (g_c+l1), s	23.7		13.0		25.5		9.6					
Green Ext Time (p_c), s	4.4		1.5		4.6		1.1					
Intersection Summary												
HCM 7th Control Delay, s/veh	23.1											
HCM 7th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↗	↘	
Traffic Vol, veh/h	0	438	525	212	110	0
Future Vol, veh/h	0	438	525	212	110	0
Conflicting Peds, #/hr	1	0	0	1	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	1	2	2	1	1	1
Mvmt Flow	0	515	618	249	129	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	1135	620
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	516	-
Critical Hdwy	-	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	0	-	-	-	225	490
Stage 1	0	-	-	-	539	-
Stage 2	0	-	-	-	601	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	224	489
Mov Cap-2 Maneuver	-	-	-	-	361	-
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	600	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		20.44		
HCM LOS	C					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	361		
HCM Lane V/C Ratio	-	-	-	0.358		
HCM Ctrl Dly (s/v)	-	-	-	20.4		
HCM Lane LOS	-	-	-	C		
HCM 95th %tile Q(veh)	-	-	-	1.6		

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	64	465	18	69	649	33	39	11	52	19	11	49
Future Vol, veh/h	64	465	18	69	649	33	39	11	52	19	11	49
Conflicting Peds, #/hr	16	0	16	16	0	16	16	0	16	16	0	16
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	70	-	-	105	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	5	1	4	7	8	1	1	1	1	1	1
Mvmt Flow	70	505	20	75	705	36	42	12	57	21	12	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	757	0	0	541	0	0	1195	1578	547	1556	1570	403
Stage 1	-	-	-	-	-	-	670	670	-	889	889	-
Stage 2	-	-	-	-	-	-	525	907	-	667	680	-
Critical Hdwy	4.115	-	-	4.16	-	-	7.315	6.515	6.215	7.315	6.515	6.915
Critical Hdwy Stg 1	-	-	-	-	-	-	6.115	5.515	-	6.515	5.515	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.515	5.515	-	6.115	5.515	-
Follow-up Hdwy	2.2095	-	-	2.238	-	-	3.5095	4.0095	3.3095	3.5095	4.0095	3.3095
Pot Cap-1 Maneuver	857	-	-	1014	-	-	153	110	538	84	111	601
Stage 1	-	-	-	-	-	-	447	456	-	307	362	-
Stage 2	-	-	-	-	-	-	507	355	-	450	452	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	844	-	-	998	-	-	102	90	522	55	91	582
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	90	-	55	91	-
Stage 1	-	-	-	-	-	-	404	412	-	279	330	-
Stage 2	-	-	-	-	-	-	404	324	-	352	408	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	1.13			0.82			37.74			41.21		
HCM LOS							E			E		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	102	284	844	-	-	998	-	-	55	293
HCM Lane V/C Ratio	0.417	0.241	0.082	-	-	0.075	-	-	0.376	0.222
HCM Ctrl Dly (s/v)	63.8	21.6	9.6	-	-	8.9	-	-	105.8	20.7
HCM Lane LOS	F	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1.7	0.9	0.3	-	-	0.2	-	-	1.4	0.8

HCM 7th Signalized Intersection Summary

5: Driveway/Garrett St & SR 410

Forecast 2031 PM Peak Hour
With Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	394	4	0	527	33	5	1	0	105	4	187
Future Volume (veh/h)	156	394	4	0	527	33	5	1	0	105	4	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.99		1.00	0.99		0.97
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	1730	1744	1786	1786	1730	1744	1786	396	1786	1786	1786	1772
Adj Flow Rate, veh/h	171	433	4	0	579	36	5	1	0	115	4	205
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	4	1	1	5	4	1	100	1	1	1	2
Cap, veh/h	435	1782	16	445	970	60	181	10	0	460	13	318
Arrive On Green	0.10	0.53	0.53	0.00	0.31	0.31	0.22	0.22	0.00	0.22	0.22	0.22
Sat Flow, veh/h	1647	3363	31	1701	3135	195	159	48	0	1392	61	1463
Grp Volume(v), veh/h	171	213	224	0	303	312	6	0	0	119	0	205
Grp Sat Flow(s),veh/h/ln	1647	1657	1737	1701	1643	1686	208	0	0	1453	0	1463
Q Serve(g_s), s	2.9	3.1	3.1	0.0	7.0	7.1	0.3	0.0	0.0	0.0	0.0	5.8
Cycle Q Clear(g_c), s	2.9	3.1	3.1	0.0	7.0	7.1	2.9	0.0	0.0	2.7	0.0	5.8
Prop In Lane	1.00		0.02	1.00		0.12	0.83		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	435	878	920	445	509	522	191	0	0	473	0	318
V/C Ratio(X)	0.39	0.24	0.24	0.00	0.60	0.60	0.03	0.00	0.00	0.25	0.00	0.64
Avail Cap(c_a), veh/h	620	1237	1298	799	1227	1259	250	0	0	775	0	645
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	5.7	5.7	0.0	13.2	13.2	14.6	0.0	0.0	14.9	0.0	16.1
Incr Delay (d2), s/veh	0.6	0.1	0.1	0.0	1.1	1.1	0.1	0.0	0.0	0.3	0.0	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.7	0.7	0.0	2.1	2.2	0.0	0.0	0.0	1.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.3	5.9	5.9	0.0	14.3	14.3	14.6	0.0	0.0	15.1	0.0	18.3
LnGrp LOS	A	A	A		B	B	B			B		B
Approach Vol, veh/h	608			615			6			324		
Approach Delay, s/veh	6.8			14.3			14.6			17.1		
Approach LOS	A			B			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	30.2		14.9	9.9	20.3		14.9				
Change Period (Y+Rc), s	5.5	6.3		5.1	5.5	6.3		5.1				
Max Green Setting (Gmax), s	9.5	33.7		19.9	9.5	33.7		19.9				
Max Q Clear Time (g_c+I1), s	0.0	5.1		7.8	4.9	9.1		4.9				
Green Ext Time (p_c), s	0.0	2.5		1.1	0.2	3.6		0.0				
Intersection Summary												
HCM 7th Control Delay, s/veh	12.0											
HCM 7th LOS	B											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	488	514	88	54	24
Future Vol, veh/h	7	488	514	88	54	24
Conflicting Peds, #/hr	4	0	0	4	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	5	6	1	1	1
Mvmt Flow	7	508	535	92	56	25
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	631	0	-	0	858	322
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	273	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	954	-	-	-	298	677
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	951	-	-	-	293	672
Mov Cap-2 Maneuver	-	-	-	-	405	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	749	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.12	0		14.47		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	951	-	-	-	461	
HCM Lane V/C Ratio	0.008	-	-	-	0.176	
HCM Ctrl Dly (s/v)	8.8	-	-	-	14.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.6	

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	454	70	25	511	9	39	28	20	9	43	41
Future Vol, veh/h	19	454	70	25	511	9	39	28	20	9	43	41
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5	5	0	5
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	6	4	2	1	4	1	1	13	1	1	1	3
Mvmt Flow	20	473	73	26	532	9	41	29	21	9	45	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	547	0	0	551	0	0	900	1153	283	890	1184	281
Stage 1	-	-	-	-	-	-	554	554	-	594	594	-
Stage 2	-	-	-	-	-	-	346	599	-	296	590	-
Critical Hdwy	4.22	-	-	4.12	-	-	7.52	6.76	6.92	7.52	6.52	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.76	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.76	-	6.52	5.52	-
Follow-up Hdwy	2.26	-	-	2.21	-	-	3.51	4.13	3.31	3.51	4.01	3.33
Pot Cap-1 Maneuver	991	-	-	1022	-	-	235	180	717	239	189	713
Stage 1	-	-	-	-	-	-	487	485	-	461	494	-
Stage 2	-	-	-	-	-	-	646	462	-	691	495	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	987	-	-	1017	-	-	159	171	710	183	179	706
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	171	-	183	179	-
Stage 1	-	-	-	-	-	-	475	473	-	447	479	-
Stage 2	-	-	-	-	-	-	534	448	-	614	483	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.31			0.4			37.53			25.88		
HCM LOS							E			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	198	987	-	-	1017	-	-	268
HCM Lane V/C Ratio	0.457	0.02	-	-	0.026	-	-	0.362
HCM Ctrl Dly (s/v)	37.5	8.7	-	-	8.6	-	-	25.9
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0.1	-	-	1.6

HCM 7th Signalized Intersection Summary 8: Porter St/SR 169 & SR 164

Forecast 2031 PM Peak Hour
With Project

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	122	203	7	214	196	132	117	395	55	5	463	108
Future Volume (veh/h)	122	203	7	214	196	132	117	395	55	5	463	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	0.89	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	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786	1786
Adj Flow Rate, veh/h	131	218	8	230	211	142	126	425	59	5	498	116
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	260	307	11	372	244	164	216	672	93	281	528	123
Arrive On Green	0.08	0.20	0.20	0.13	0.25	0.25	0.06	0.44	0.44	0.00	0.38	0.38
Sat Flow, veh/h	1701	1530	56	1701	986	664	1701	1532	213	1701	1397	325
Grp Volume(v), veh/h	131	0	226	230	0	353	126	0	484	5	0	614
Grp Sat Flow(s),veh/h/ln	1701	0	1587	1701	0	1650	1701	0	1745	1701	0	1722
Q Serve(g_s), s	5.3	0.0	11.8	9.2	0.0	18.2	3.8	0.0	19.2	0.2	0.0	30.7
Cycle Q Clear(g_c), s	5.3	0.0	11.8	9.2	0.0	18.2	3.8	0.0	19.2	0.2	0.0	30.7
Prop In Lane	1.00		0.04	1.00		0.40	1.00		0.12	1.00		0.19
Lane Grp Cap(c), veh/h	260	0	318	372	0	408	216	0	765	281	0	651
V/C Ratio(X)	0.50	0.00	0.71	0.62	0.00	0.87	0.58	0.00	0.63	0.02	0.00	0.94
Avail Cap(c_a), veh/h	407	0	444	440	0	462	391	0	765	559	0	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	33.2	23.6	0.0	32.1	20.6	0.0	19.4	18.1	0.0	26.8
Incr Delay (d2), s/veh	1.5	0.0	3.1	2.0	0.0	14.4	2.5	0.0	1.7	0.0	0.0	21.5
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	2.2	0.0	4.8	3.8	0.0	8.8	1.6	0.0	7.9	0.1	0.0	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.7	0.0	36.3	25.5	0.0	46.5	23.1	0.0	21.1	18.2	0.0	48.2
LnGrp LOS	C		D	C		D	C		C	B		D
Approach Vol, veh/h	357				583				610		619	
Approach Delay, s/veh	33.1				38.2				21.5		48.0	
Approach LOS	C				D				C		D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.4	44.1	12.3	27.1	10.8	38.7	16.5	22.9				
Change Period (Y+Rc), s	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1				
Max Green Setting (Gmax), s	14.9	34.9	14.9	24.9	14.9	34.9	14.9	24.9				
Max Q Clear Time (g_c+I1), s	2.2	21.2	7.3	20.2	5.8	32.7	11.2	13.8				
Green Ext Time (p_c), s	0.0	2.8	0.2	0.9	0.2	0.9	0.2	0.9				
Intersection Summary												
HCM 7th Control Delay, s/veh	35.5											
HCM 7th LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 7th Signalized Intersection Summary
9: Cole St & SR 164

Forecast 2031 PM Peak Hour
With Project

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	1	130	25	1	126	27	0	575	29	1	568	19
Future Volume (veh/h)	1	130	25	1	126	27	0	575	29	1	568	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	0.91		0.85	0.91		0.85	1.00		0.90	1.00		0.90
Parking Bus, Adj	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89	1.00	1.00	0.89
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1772	1786	1786	1786	1786	1786	1772	1786	1786	1786	1786
Adj Flow Rate, veh/h	1	140	27	1	135	29	0	618	31	1	611	20
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	2	1	1	1	1	1	2	1	1	1	1
Cap, veh/h	74	363	70	74	357	76	0	748	38	73	770	25
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.00	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	2	1249	240	2	1230	263	0	1488	75	0	1532	50
Grp Volume(v), veh/h	168	0	0	165	0	0	0	0	649	632	0	0
Grp Sat Flow(s),veh/h/ln	1491	0	0	1494	0	0	0	0	1563	1583	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0	4.3	0.0	0.0	0.0	0.0	17.4	16.3	0.0	0.0
Prop In Lane	0.01		0.16	0.01		0.18	0.00		0.05	0.00		0.03
Lane Grp Cap(c), veh/h	507	0	0	508	0	0	0	0	786	868	0	0
V/C Ratio(X)	0.33	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.83	0.73	0.00	0.00
Avail Cap(c_a), veh/h	674	0	0	676	0	0	0	0	1581	1672	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	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.0	0.0	0.0	14.0	0.0	0.0	0.0	0.0	10.4	10.2	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	2.3	1.2	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	1.4	0.0	0.0	1.4	0.0	0.0	0.0	0.0	5.1	4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.4	0.0	0.0	14.3	0.0	0.0	0.0	0.0	12.7	11.3	0.0	0.0
LnGrp LOS	B			B					B	B		
Approach Vol, veh/h	168			165			649			632		
Approach Delay, s/veh	14.4			14.3			12.7			11.3		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	29.9			19.4			29.9			19.4		
Change Period (Y+Rc), s	5.1			5.1			5.1			5.1		
Max Green Setting (Gmax), s	49.9			19.9			49.9			19.9		
Max Q Clear Time (g_c+I1), s	19.4			6.3			18.3			6.4		
Green Ext Time (p_c), s	5.4			0.7			5.2			0.7		
Intersection Summary												
HCM 7th Control Delay, s/veh	12.5											
HCM 7th LOS	B											

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	12	490	72	17	520	0	39	1	8	4	4	11
Future Vol, veh/h	12	490	72	17	520	0	39	1	8	4	4	11
Conflicting Peds, #/hr	9	0	9	9	0	9	9	0	9	9	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	20	1	5	1	2	1	15	1	1	1	33	1
Mvmt Flow	14	557	82	19	591	0	44	1	9	5	5	13
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	600	0	0	648	0	0	1275	1273	616	1232	1313	609
Stage 1	-	-	-	-	-	-	634	634	-	639	639	-
Stage 2	-	-	-	-	-	-	641	639	-	594	675	-
Critical Hdwy	4.3	-	-	4.11	-	-	7.25	6.51	6.21	7.11	6.83	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.25	5.51	-	6.11	5.83	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.25	5.51	-	6.11	5.83	-
Follow-up Hdwy	2.38	-	-	2.209	-	-	3.635	4.009	3.309	3.509	4.297	3.309
Pot Cap-1 Maneuver	895	-	-	943	-	-	135	168	493	155	137	497
Stage 1	-	-	-	-	-	-	446	474	-	466	426	-
Stage 2	-	-	-	-	-	-	442	472	-	493	409	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	887	-	-	935	-	-	118	156	484	140	128	488
Mov Cap-2 Maneuver	-	-	-	-	-	-	118	156	-	140	128	-
Stage 1	-	-	-	-	-	-	432	459	-	448	409	-
Stage 2	-	-	-	-	-	-	409	454	-	467	396	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.19			0.28			48.1			22.22		
HCM LOS							E			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	136	37	-	-	57	-	-	231				
HCM Lane V/C Ratio	0.401	0.015	-	-	0.021	-	-	0.094				
HCM Ctrl Dly (s/v)	48.1	9.1	0	-	8.9	0	-	22.2				
HCM Lane LOS	E	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	0.3				

HCM 7th Signalized Intersection Summary 11: Driveway/SR 164 & SR 410

Forecast 2031 PM Peak Hour
With Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	429	57	18	443	416	82	103	6	436	86	18
Future Volume (veh/h)	0	429	57	18	443	416	82	103	6	436	86	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	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	0	1744	1786	1702	1730	1758	1786	1744	1786	1772	1786	1702
Adj Flow Rate, veh/h	0	456	61	19	471	443	87	110	6	464	91	19
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	1	7	5	3	1	4	1	2	1	7
Cap, veh/h	0	950	126	231	560	476	118	149	8	481	94	20
Arrive On Green	0.00	0.32	0.32	0.32	0.32	0.32	0.16	0.16	0.16	0.35	0.35	0.35
Sat Flow, veh/h	0	3021	390	802	1730	1469	727	920	50	1379	271	56
Grp Volume(v), veh/h	0	256	261	19	471	443	203	0	0	574	0	0
Grp Sat Flow(s),veh/h/ln	0	1657	1667	802	1730	1469	1697	0	0	1706	0	0
Q Serve(g_s), s	0.0	12.4	12.5	1.9	25.3	29.2	11.4	0.0	0.0	33.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	12.4	12.5	14.5	25.3	29.2	11.4	0.0	0.0	33.0	0.0	0.0
Prop In Lane	0.00		0.23	1.00		1.00	0.43		0.03	0.81		0.03
Lane Grp Cap(c), veh/h	0	537	540	231	560	476	275	0	0	595	0	0
V/C Ratio(X)	0.00	0.48	0.48	0.08	0.84	0.93	0.74	0.00	0.00	0.96	0.00	0.00
Avail Cap(c_a), veh/h	0	558	562	242	583	495	592	0	0	595	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)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	27.0	27.1	32.9	31.4	32.7	39.9	0.0	0.0	31.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.2	10.4	24.1	3.8	0.0	0.0	28.0	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	4.8	4.9	0.4	11.6	13.0	5.0	0.0	0.0	18.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	27.7	27.8	33.0	41.8	56.8	43.7	0.0	0.0	60.0	0.0	0.0
LnGrp LOS		C	C	C	D	E	D			E		
Approach Vol, veh/h	517			933			203			574		
Approach Delay, s/veh	27.7			48.7			43.7			60.0		
Approach LOS	C			D			D			E		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	38.7			21.3			38.7			40.0		
Change Period (Y+Rc), s	6.3			5.1			6.3			5.1		
Max Green Setting (Gmax), s	33.7			34.9			33.7			34.9		
Max Q Clear Time (g_c+I1), s	14.5			13.4			31.2			35.0		
Green Ext Time (p_c), s	2.8			1.2			1.2			0.0		
Intersection Summary												
HCM 7th Control Delay, s/veh	46.3											
HCM 7th LOS	D											

Lanes, Volumes, Timings
12: Watson St N & SR 410

Forecast 2031 PM Peak Hour
With Project

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	567	199	78	680	10	161	5	42	7	6	13
Future Volume (vph)	44	567	199	78	680	10	161	5	42	7	6	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	130		0	125		0	0		0	0		0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (ft)	105			130			25			25		
Lane Util. 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
Ped Bike Factor			0.97	1.00	1.00			0.99			0.99	
Frt			0.850		0.998			0.973			0.935	
Flt Protected	0.950			0.950				0.963			0.986	
Satd. Flow (prot)	1693	1698	1515	1629	1724	0	0	1649	0	0	1624	0
Flt Permitted	0.173			0.278				0.963			0.986	
Satd. Flow (perm)	308	1698	1475	476	1724	0	0	1644	0	0	1623	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			219		1			13			14	
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		649			501			400			353	
Travel Time (s)		11.1			8.5			10.9			9.6	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	6%	1%	5%	4%	13%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	48	623	219	86	747	11	177	5	46	8	7	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	623	219	86	758	0	0	228	0	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
12: Watson St N & SR 410

Forecast 2031 PM Peak Hour
With Project

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2		2	6								
Detector Phase	2	2	2	6	6		3	3		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	26.3	26.3	26.3	24.3	24.3		32.1	32.1		40.1	40.1	
Total Split (s)	45.0	45.0	45.0	45.0	45.0		20.0	20.0		20.0	20.0	
Total Split (%)	52.9%	52.9%	52.9%	52.9%	52.9%		23.5%	23.5%		23.5%	23.5%	
Maximum Green (s)	38.7	38.7	38.7	38.7	38.7		14.9	14.9		14.9	14.9	
Yellow Time (s)	4.3	4.3	4.3	4.3	4.3		3.1	3.1		3.1	3.1	
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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3			5.1			5.1	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	13.0	13.0	13.0	10.0	10.0		20.0	20.0		28.0	28.0	
Pedestrian Calls (#/hr)	3	3	3	3	3		3	3		3	3	
Act Effect Green (s)	38.7	38.7	38.7	38.7	38.7			15.3			10.1	
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53			0.21			0.14	
v/c Ratio	0.30	0.70	0.25	0.34	0.84			0.65			0.12	
Control Delay (s/veh)	25.9	24.0	4.1	24.0	29.8			37.4			21.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay (s/veh)	25.9	24.0	4.1	24.0	29.8			37.4			21.5	
LOS	C	C	A	C	C			D			C	
Approach Delay (s/veh)		19.2			29.2			37.4			21.5	
Approach LOS		B			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 73.7

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 25.6

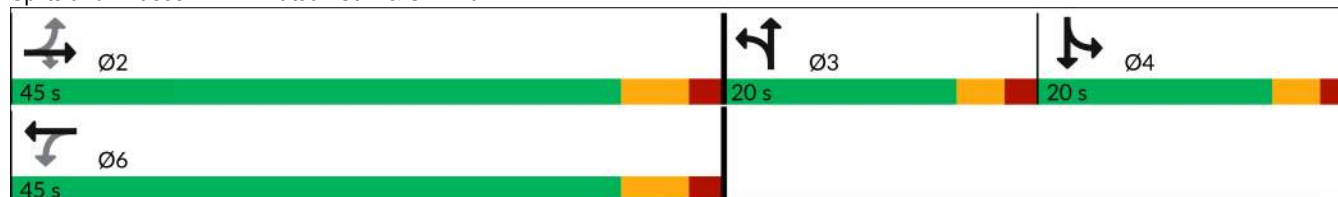
Intersection LOS: C

Intersection Capacity Utilization 81.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 12: Watson St N & SR 410



Intersection						
Int Delay, s/veh	16.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	445	202	140	553	182	105
Future Vol, veh/h	445	202	140	553	182	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	90	120	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	1	4	5	1	1
Mvmt Flow	484	220	152	601	198	114

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	703	0	1389
Stage 1	-	-	-	-	484
Stage 2	-	-	-	-	905
Critical Hdwy	-	-	4.14	-	6.41
Critical Hdwy Stg 1	-	-	-	-	5.41
Critical Hdwy Stg 2	-	-	-	-	5.41
Follow-up Hdwy	-	-	2.236	-	3.509
Pot Cap-1 Maneuver	-	-	885	-	~ 158
Stage 1	-	-	-	-	622
Stage 2	-	-	-	-	396
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	885	-	~ 131
Mov Cap-2 Maneuver	-	-	-	-	248
Stage 1	-	-	-	-	622
Stage 2	-	-	-	-	328

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	2	86.57
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	314	-	-	885	-
HCM Lane V/C Ratio	0.993	-	-	0.172	-
HCM Ctrl Dly (s/v)	86.6	-	-	9.9	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	10.7	-	-	0.6	-

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

HCM 7th Signalized Intersection Summary
14: 284th Ave SE/Farman St N & SR 410

Forecast 2031 PM Peak Hour
With Project

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	159	90	19	303	73	73	72	14	41	103	262
Future Volume (veh/h)	258	159	90	19	303	73	73	72	14	41	103	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width 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
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1786	1730	1786	1786	1772	1786	1786	1772	1786	1758	1786	1758
Adj Flow Rate, veh/h	272	167	95	20	319	77	77	76	15	43	108	276
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
Percent Heavy Veh, %	1	5	1	1	2	1	1	2	1	3	1	3
Cap, veh/h	437	628	550	406	415	355	215	190	31	95	151	333
Arrive On Green	0.15	0.36	0.36	0.02	0.23	0.23	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1701	1730	1514	1701	1772	1514	398	575	95	94	459	1010
Grp Volume(v), veh/h	272	167	95	20	319	77	168	0	0	427	0	0
Grp Sat Flow(s),veh/h/ln	1701	1730	1514	1701	1772	1514	1069	0	0	1563	0	0
Q Serve(g_s), s	6.9	4.2	2.7	0.6	10.5	2.6	0.0	0.0	0.0	7.6	0.0	0.0
Cycle Q Clear(g_c), s	6.9	4.2	2.7	0.6	10.5	2.6	7.0	0.0	0.0	15.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.46		0.09	0.10		0.65
Lane Grp Cap(c), veh/h	437	628	550	406	415	355	436	0	0	579	0	0
V/C Ratio(X)	0.62	0.27	0.17	0.05	0.77	0.22	0.39	0.00	0.00	0.74	0.00	0.00
Avail Cap(c_a), veh/h	847	1491	1304	761	1527	1304	910	0	0	1161	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	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.3	14.0	13.5	17.4	22.3	19.2	15.9	0.0	0.0	19.2	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.2	0.1	0.0	3.0	0.3	0.6	0.0	0.0	1.9	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	2.3	1.5	0.8	0.2	4.2	0.8	1.7	0.0	0.0	5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	15.7	14.2	13.6	17.4	25.3	19.5	16.5	0.0	0.0	21.0	0.0	0.0
LnGrp LOS	B	B	B	B	C	B	B			C		
Approach Vol, veh/h	534			416			168			427		
Approach Delay, s/veh	14.9			23.8			16.5			21.0		
Approach LOS	B			C			B			C		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	28.9		26.4	15.0	20.9		26.4				
Change Period (Y+Rc), s	5.5	6.3		5.9	5.5	6.3		5.9				
Max Green Setting (Gmax), s	14.5	53.7		44.1	24.5	53.7		44.1				
Max Q Clear Time (g_c+I1), s	2.6	6.2		17.6	8.9	12.5		9.0				
Green Ext Time (p_c), s	0.0	1.2		2.9	0.7	2.1		1.1				
Intersection Summary												
HCM 7th Control Delay, s/veh	19.2											
HCM 7th LOS	B											

Intersection												
Int Delay, s/veh	7.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	76	14	69	13	16	21	53	313	14	28	339	68
Future Vol, veh/h	76	14	69	13	16	21	53	313	14	28	339	68
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	5	1	3	1	8	13	5	1	1	14	4	2
Mvmt Flow	84	16	77	14	18	23	59	348	16	31	377	76
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	951	958	414	920	988	356	452	0	0	363	0	0
Stage 1	477	477	-	473	473	-	-	-	-	-	-	-
Stage 2	474	481	-	447	514	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.51	6.23	7.11	6.58	6.33	4.15	-	-	4.24	-	-
Critical Hdwy Stg 1	6.15	5.51	-	6.11	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.51	-	6.11	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4.009	3.327	3.509	4.072	3.417	2.245	-	-	2.326	-	-
Pot Cap-1 Maneuver	237	258	636	253	241	664	1093	-	-	1132	-	-
Stage 1	564	558	-	574	548	-	-	-	-	-	-	-
Stage 2	565	555	-	593	525	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	190	232	636	187	217	664	1093	-	-	1132	-	-
Mov Cap-2 Maneuver	190	232	-	187	217	-	-	-	-	-	-	-
Stage 1	543	537	-	535	511	-	-	-	-	-	-	-
Stage 2	491	518	-	488	506	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Ctrl Dly, s/v	37.74		20.6			1.18			0.53			
HCM LOS	E		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	249	-	-	279	286	112	-	-				
HCM Lane V/C Ratio	0.054	-	-	0.633	0.194	0.027	-	-				
HCM Ctrl Dly (s/v)	8.5	0	-	37.7	20.6	8.3	0	-				
HCM Lane LOS	A	A	-	E	C	A	A	-				
HCM 95th %tile Q(veh)	0.2	-	-	4	0.7	0.1	-	-				

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	8	0	17	2	0	2	7	152	1	1	213	9
Future Vol, veh/h	8	0	17	2	0	2	7	152	1	1	213	9
Conflicting Peds, #/hr	12	0	12	12	0	12	12	0	12	12	0	12
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	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	17	1	1	1	1	1	1	2	1	1	2	1
Mvmt Flow	9	0	19	2	0	2	8	169	1	1	237	10
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	452	453	266	448	458	193	259	0	0	182	0	0
Stage 1	256	256	-	197	197	-	-	-	-	-	-	-
Stage 2	196	198	-	251	261	-	-	-	-	-	-	-
Critical Hdwy	7.27	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.27	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.27	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.653	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	493	504	775	523	501	851	1312	-	-	1399	-	-
Stage 1	717	698	-	807	740	-	-	-	-	-	-	-
Stage 2	772	739	-	755	694	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	477	489	758	494	486	831	1297	-	-	1383	-	-
Mov Cap-2 Maneuver	477	489	-	494	486	-	-	-	-	-	-	-
Stage 1	708	689	-	793	726	-	-	-	-	-	-	-
Stage 2	756	726	-	728	686	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	10.9		10.85		0.34		0.03					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	79	-	-	638	620	8	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.044	0.007	0.001	-	-				
HCM Ctrl Dly (s/v)	7.8	0	-	10.9	10.8	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	12	15	155	7	7	211
Future Vol, veh/h	12	15	155	7	7	211
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	92	92	92	92	92	92
Heavy Vehicles, %	1	20	2	1	1	2
Mvmt Flow	13	16	168	8	8	229
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	417	172	0	0	176	0
Stage 1	172	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Critical Hdwy	6.41	6.4	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.48	-	-	2.209	-
Pot Cap-1 Maneuver	594	827	-	-	1406	-
Stage 1	860	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	591	827	-	-	1406	-
Mov Cap-2 Maneuver	591	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	10.35	0	0.24			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	702	58	-	
HCM Lane V/C Ratio	-	-	0.042	0.005	-	
HCM Ctrl Dly (s/v)	-	-	10.4	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	592	25	21	748	20	30
Future Vol, veh/h	592	25	21	748	20	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	1	1
Mvmt Flow	643	27	23	813	22	33
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	671	0	1516	657
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	859	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	924	-	132	467
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	417	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	924	-	129	467
Mov Cap-2 Maneuver	-	-	-	-	265	-
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	406	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.25		16.85	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	358	-	-	924	-	
HCM Lane V/C Ratio	0.152	-	-	0.025	-	
HCM Ctrl Dly (s/v)	16.8	-	-	9	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-	

202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX

Left Turn Lane Warrants



Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized

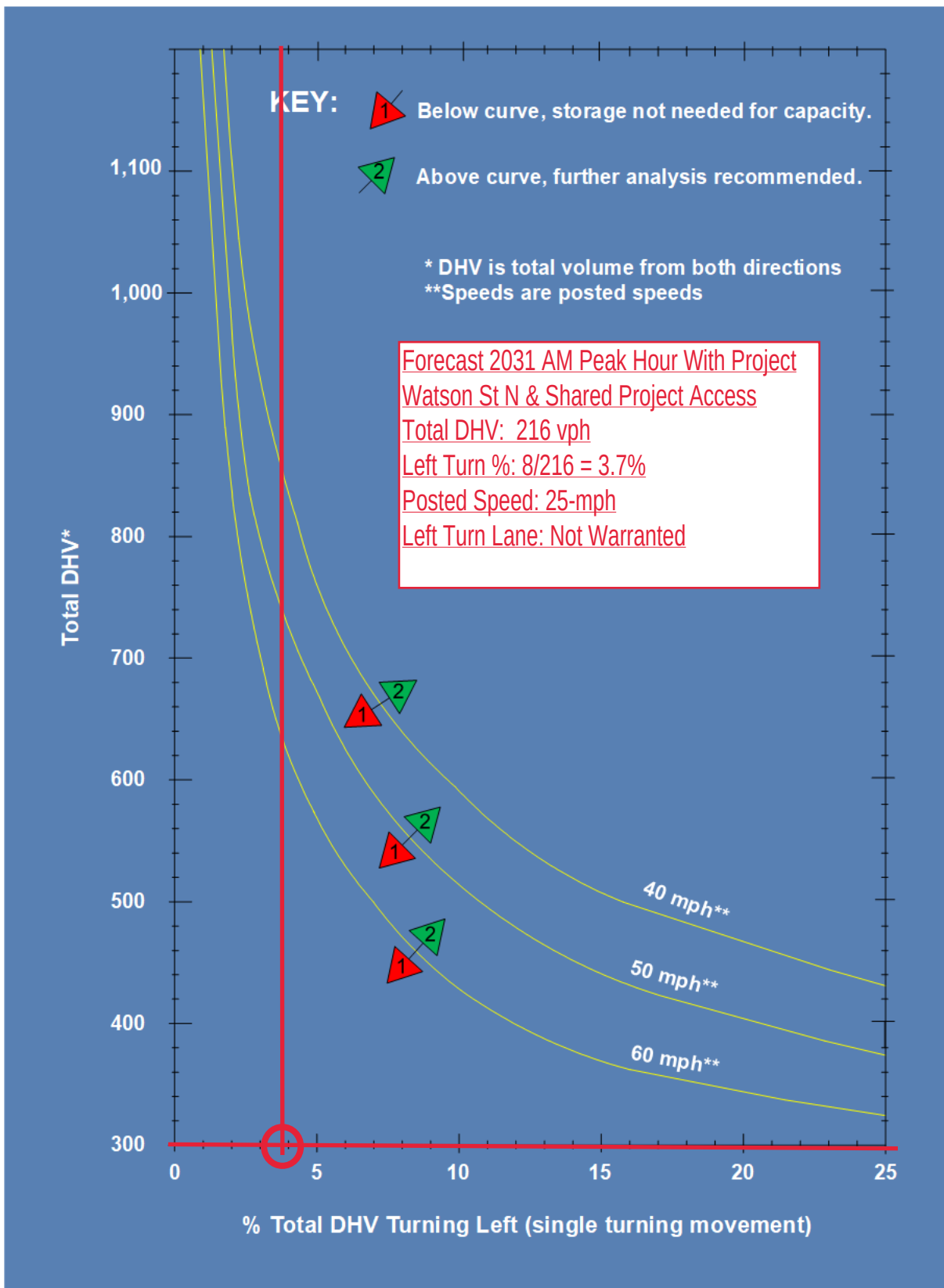
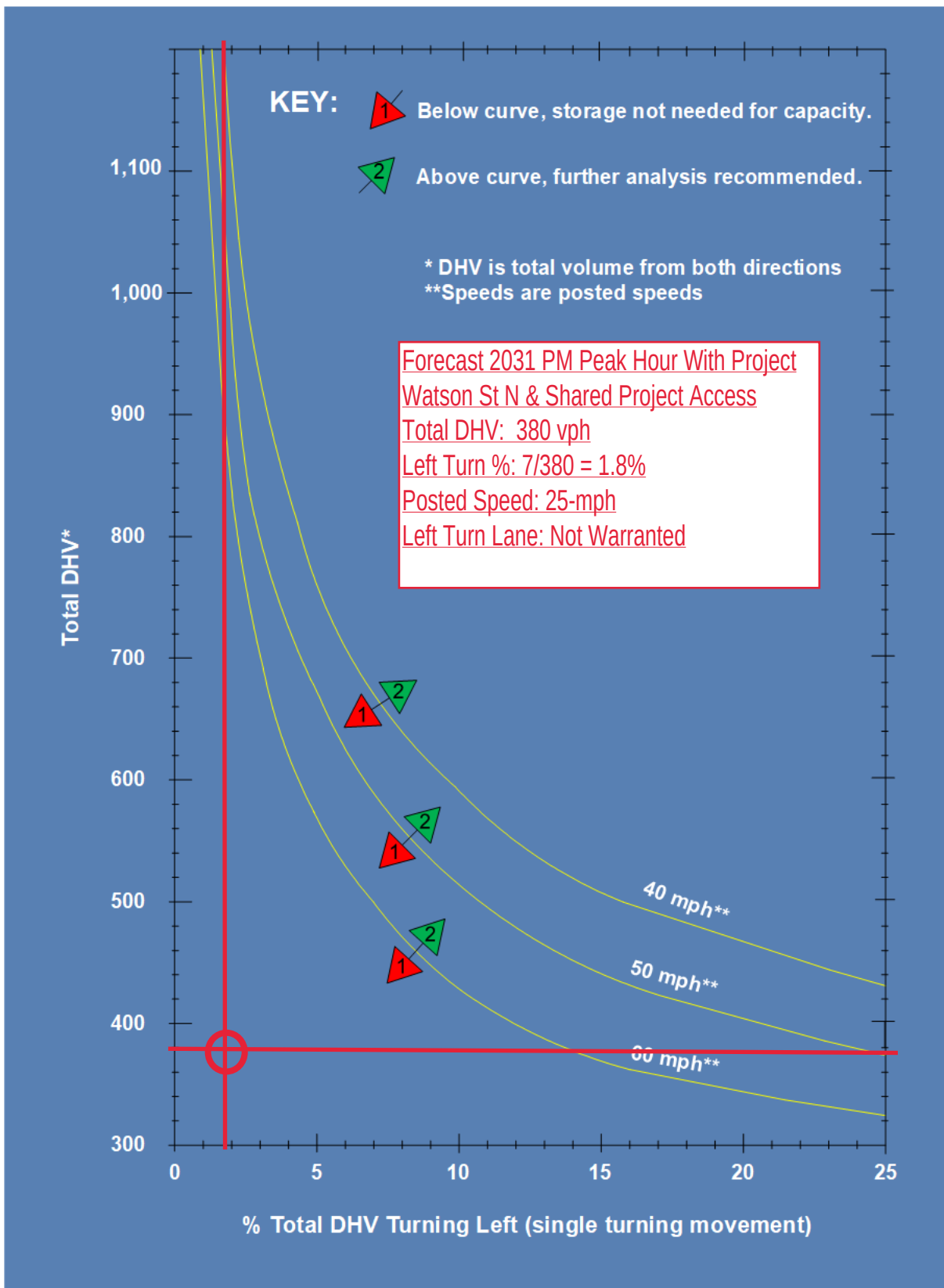


Exhibit 1310-9 Left-Turn Storage Guidelines: Two-Lane, Unsignalized



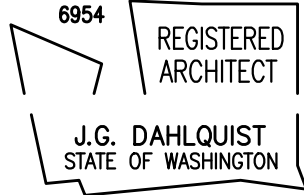
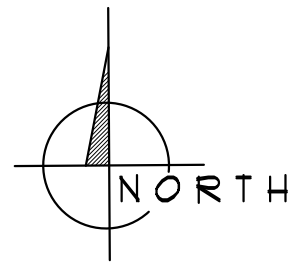
202 RROSEVELT TRAFFIC IMPACT ANALYSIS

APPENDIX *Site Plan*





1 CONCEPTUAL SITE PLAN
1" = 30'-0"



DECEMBER 06, 2024

DATE & REVISIONS	
04/13/23	CONCEPTUAL
01/01/23	SCHEMATIC
01/01/23	PERMITS
...	...

SHEET CONTENTS
SITE PLAN ANALYSIS

PROJECT / LOCATION
KOLKAY - 202 ROOSEVELT
ENUMCLAW, WASHINGTON - KING COUNTY

SHEET NUMBER
Cx.01
Concept

JD Architecture & Design
(253) 709-1875
jeffdahlquist@comcast.net



TIA ADDENDUM

202 Roosevelt

Enumclaw, Washington

February 2026

1011 E Main Ave, Suite 453 | Puyallup, WA | 98372
(253) 770-1401 | HeathTraffic.com

202 RROSEVELT TIA ADDENDUM

Prepared for:

KolKay Electric
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202 ROOSEVELT TIA ADDENDUM

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APPENDIX



202 ROOSEVELT TIA ADDENDUM

1. INTRODUCTION

This Traffic Impact Analysis (TIA) Addendum uses information and builds from 202 Roosevelt TIA (Heath & Associates, October 2025). At this time, the development proposes to proceed with Phase I only, consisting of Building A. This Addendum focuses on the analysis of Phase I with the study area reflecting intersections impacted by ten or more project-related trips. Any future phases or additional buildings will be evaluated separately at the time they are formally proposed. Refer below for the project description.

2. PROJECT DESCRIPTION

Phase I of the 202 Roosevelt includes an 8,000 square foot industrial building.

Location: The subject property (Tax Parcel No: 2520069116) spans roughly 4.37 acres and is bordered to the north via Roosevelt Avenue (SR 410) and is just east of Watson Street N.

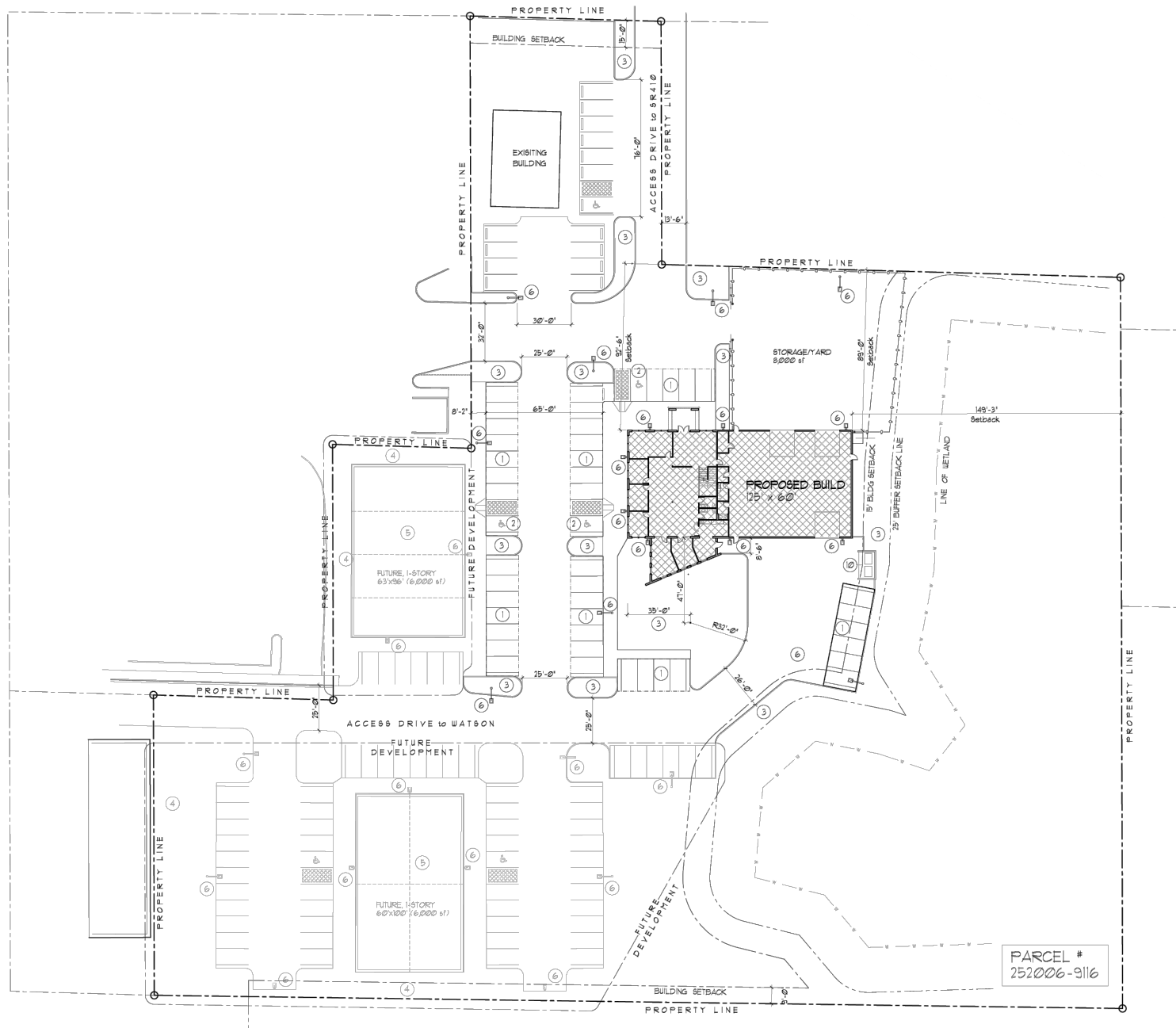
Access: The site currently has two curb cuts along SR 410. As part of the proposed development, the western access will be closed, with continued use of the eastern driveway. In addition, access will be provided to the adjacent properties to the west (Tax Parcel Nos. 252006-9108 and 252006-9123), allowing for internal circulation and connectivity to Watson Street N.

Figure 1 illustrates a vicinity map with nearby roadway network with the subject site highlighted in blue. **Figure 2** depicts the conceptual site plan, including the proposed access locations and potential future phases of development.



Figure 1: Vicinity Map





3. FUTURE TRANSPORTATION CONDITIONS

3.1 Project Trip Generation

Trip generation is defined as the number of vehicle movements that enter or exit the respective project site during a designated time period, such as a specific peak hour (AM or PM) or an entire day. Trip estimates for the project were derived from the Institute of Transportation Engineers (ITE) publication, *Trip Generation*, 12th Edition. The utilized Land Use Code (LUC) is listed below.

Building A: is an 8,000 square foot building that will be occupied by KolKay Electrical, an electrical contractor. Per the ITE description, LUC 180 - Specialty Trade Contractor was shown to be most representative of the proposed use. See ITE's Land Use Description below.

"A specialty trade contractor is a business primarily involved in providing contract repairs and services to meet industrial or residential needs. This land use includes businesses that provide the following services: plumbing, heating and cooling, machine repair, electrical and mechanical repair, industrial supply, roofing, locksmith, weed and pest control, and cleaning."

Refer to **Table 1** below for the estimated trip generation.

Table 1: Project Trip Generation

Bld.	Land Use	Sq. Ft.	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips		
				In	Out	Total	In	Out	Total
A	LUC 180 Specialty Trade Contractor	8,000	79	10	3	13	5	10	15

AWDT: Average Weekday Daily Trips

Based on ITE data, the project is estimated to generate 79 average weekday daily trips with 13 AM peak hour trips (10 inbound / 3 outbound) and 15 PM peak hour trips (5 inbound / 10 outbound).



3.2 Project Trip Distribution and Assignment

Trip distribution identifies the anticipated travel routes for inbound and outbound project traffic during the peak hour study periods. The distribution is based on expected travel patterns to and from the site and is consistent with the methodology used in the October 2025 TIA. Due to the reduced level of trip generation associated with Phase I, no off-site intersections would be impacted by 10 or more project-related trips. Therefore, only the access points have been included in forecast analysis.

Figures 3 and 4 illustrate the AM and PM peak hour trip distribution and assignment, respectively.

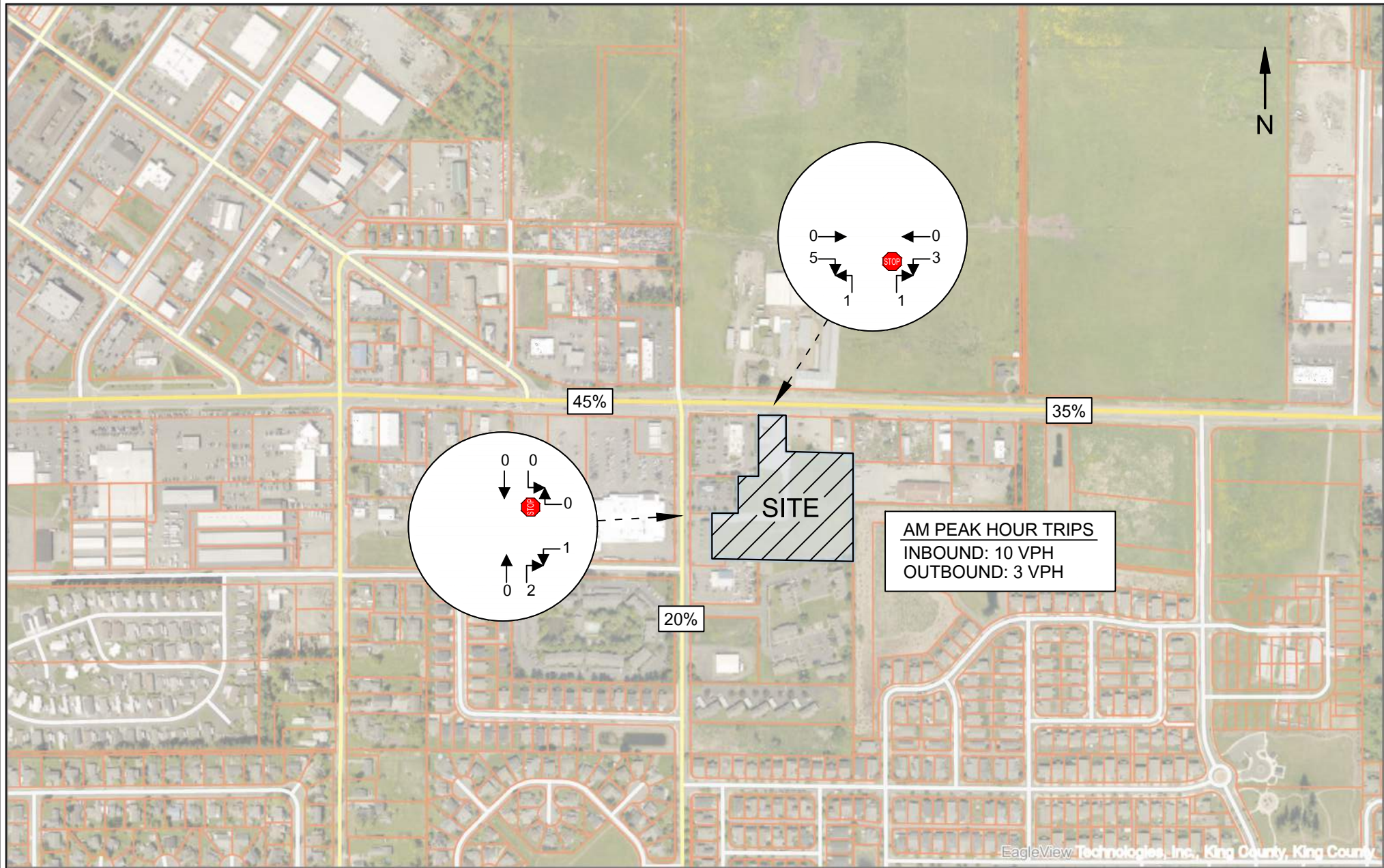
3.3 Future Peak Hour Volumes

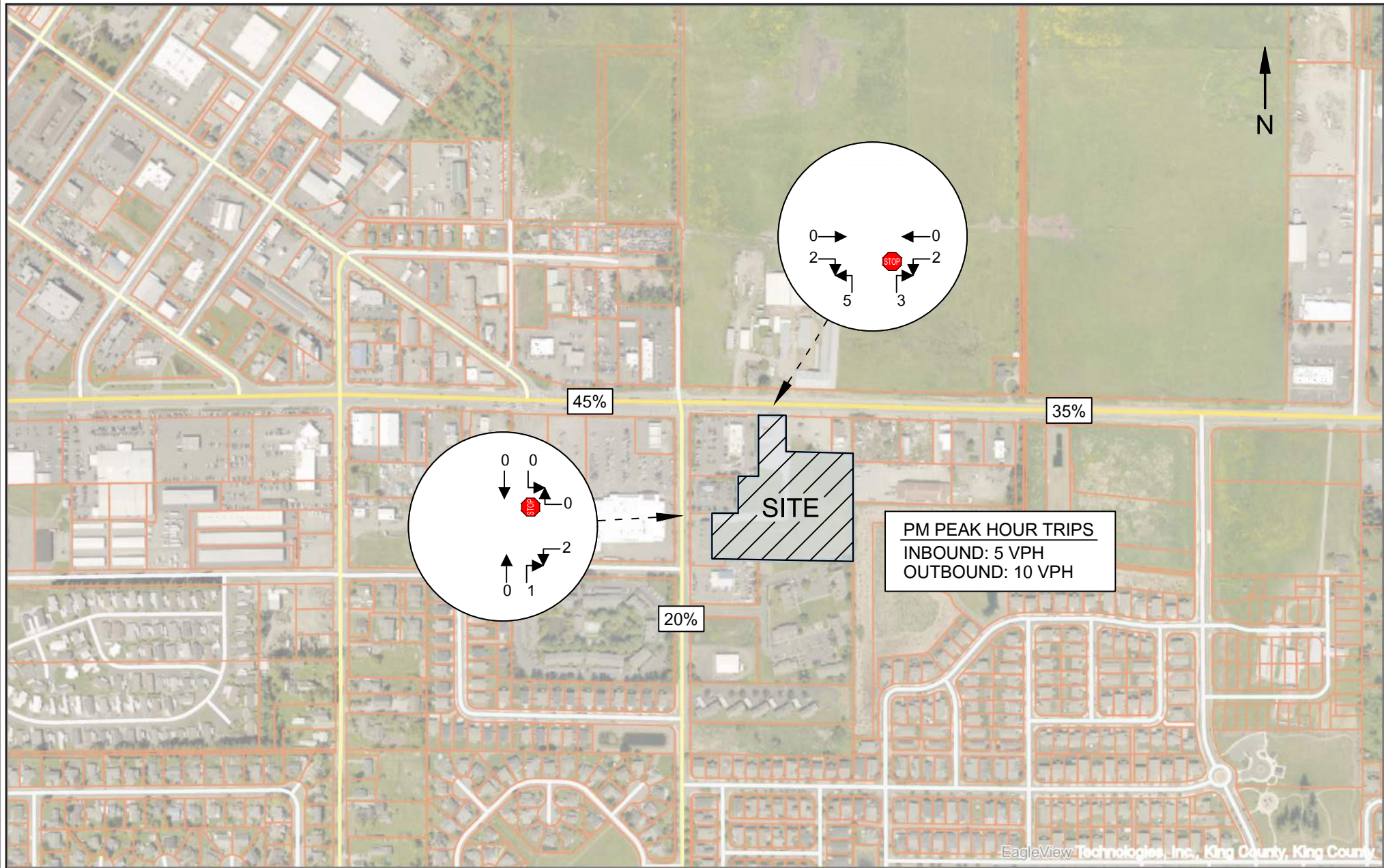
A six-year horizon of 2032 was used for future traffic delay analysis assuming full buildout and occupancy of Phase I (Building A) only. Forecast 2032 background traffic volumes were derived by applying a three percent compound annual growth rate¹ to the existing AM and PM peak hour volumes.

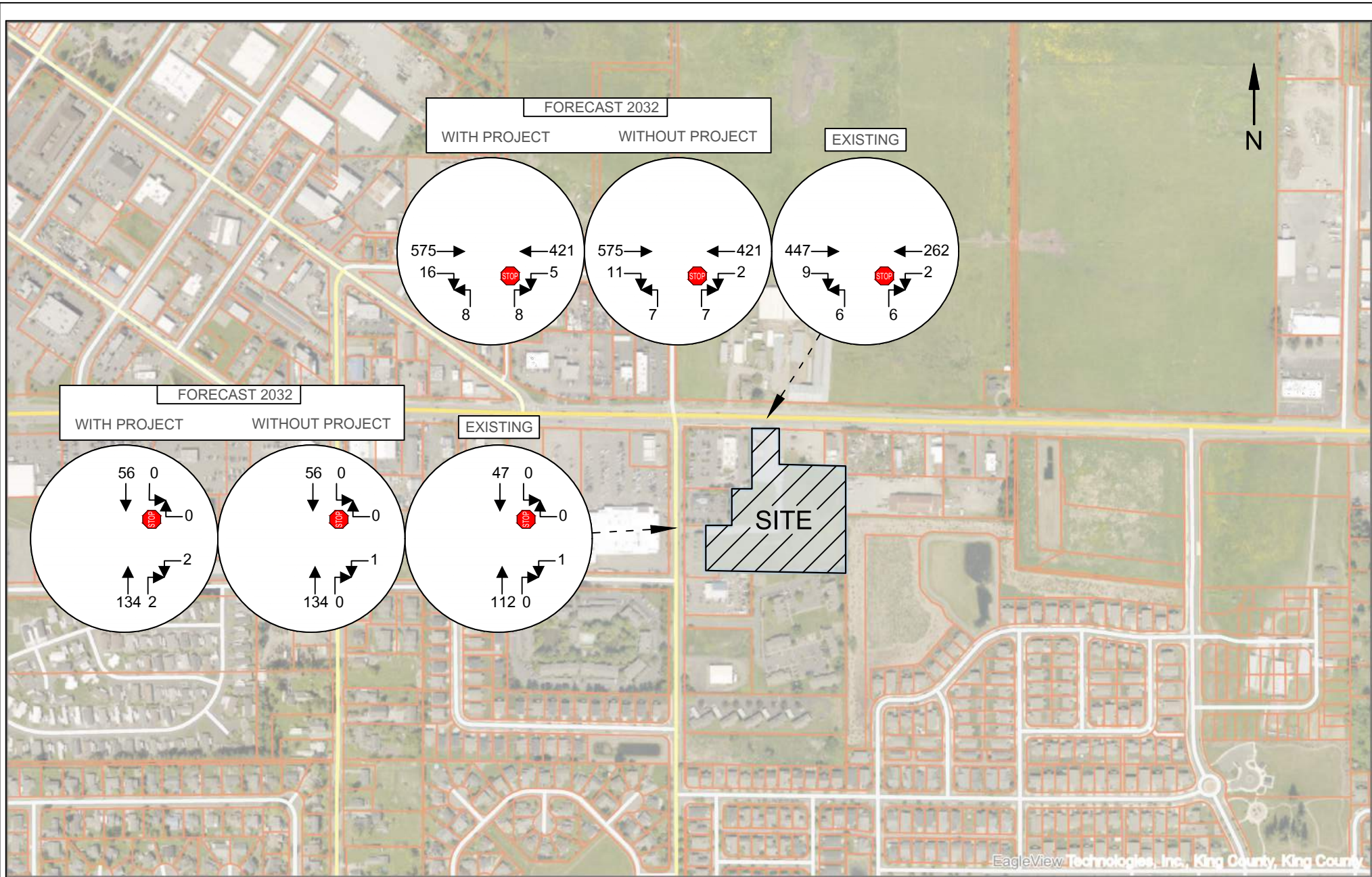
In addition to the background growth rate, the following pipeline projects were included in forecast analysis: Battersby Plat, Work MPH (Crystal Mountain MHC), Mazatlan Enumclaw, Mountain View Multi (Rainier Lodging 1), Grainery II, Holdener Phase I, Cole Street Storage, Sunrise Meadows/Holdener Phase II, Stevenson/Gambrel Meadows, Rainier Lodging II, Quarterra, and the Grainery 1.

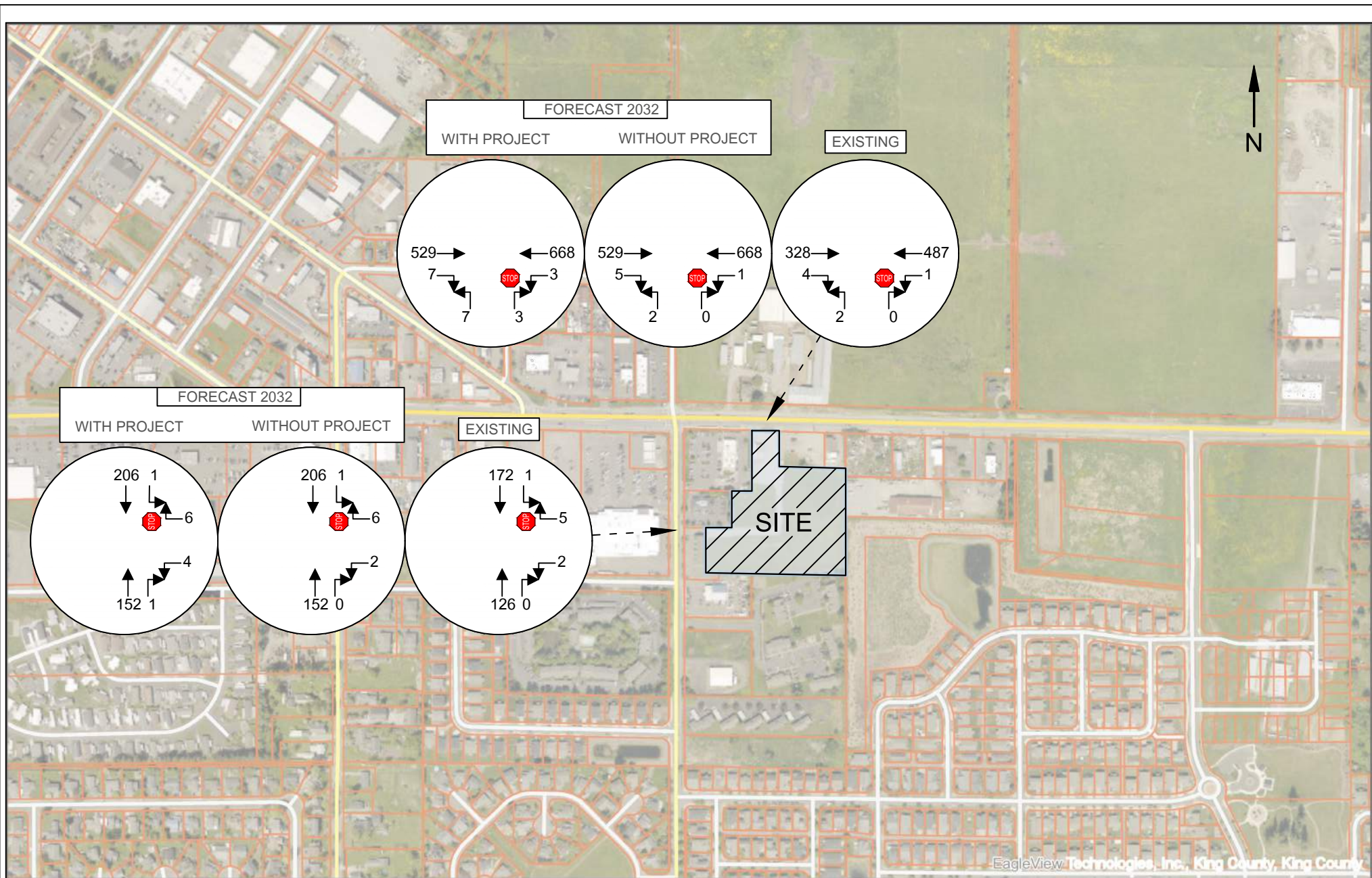
Figures 5 and 6 present existing and forecast 2032 peak hour volumes both with and without project generated traffic.

¹ Per Scoping Comments (12/4/2024).









3.4 Levels of Service

Existing and future (2032) AM and PM peak hour intersection operations were analyzed before and after project buildout and are summarized in **Table 2**.

Table 2: Existing & Forecast 2032 Intersection Levels of Service

Delays given in Seconds Per Vehicle

Intersection	Control	Peak-Hour	Crt. Mvmt.	<u>Existing</u>		<u>Without Project</u>		<u>With Project</u>	
				LOS	Delay	LOS	Delay	LOS	Delay
SR 410 & Access	Stop	AM	NB	B	12.1	B	13.9	B	14.0
		PM		B	13.3	C	16.5	C	15.4
Watson St N & Access	Stop	AM	WB	B	10.7	B	11.0	B	11.0
		PM		A	9.5	A	9.8	B	10.0

Both access intersections are anticipated to operate at LOS C conditions or better through 2032, meeting both the City (LOS E for unsignalized) and State (LOS D) Level of Service standards.

4. CONCLUSIONS AND MITIGATION

This study evaluates Phase I of the 202 Roosevelt commercial development, consisting of an 8,000 square foot industrial building proposed for use by an electrical contractor. The subject site is located on a single 4.37-acre tax parcel and is bordered to the north by SR 410. Vehicular access is proposed via connections to SR 410 and Watson Street.

Based on Phase I development, the project is estimated to generate 79 average weekday daily trips with 13 AM peak hour trips (10 inbound / 3 outbound) and 15 PM peak hour trips (5 inbound / 10 outbound).

The site access intersections are projected to operate at LOS C or better under 2032 AM and PM peak hour conditions. No other City intersections expected to be impacted by ten or more project related peak hour trips.

Overall, Phase 1 of the project meets the City of Enumclaw's transportation concurrency requirements per EMC Chapter 19.25. Any future development would be subject to additional analysis. Traffic Impact Fee (TIF) would be required for Phase 1 prior to the building permit issuance.

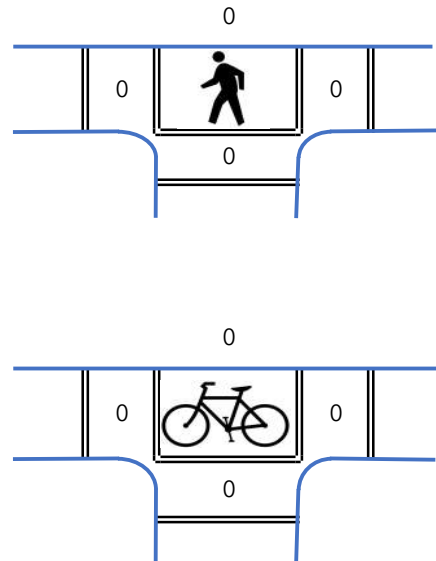
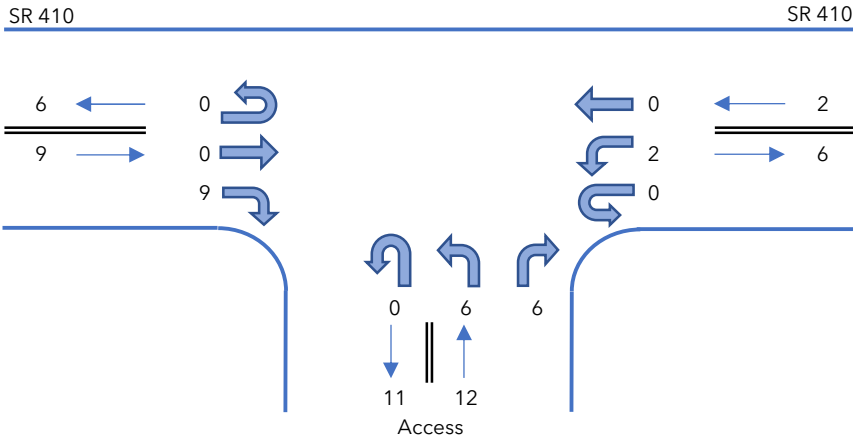


202 ROOSEVELT TIA ADDENDUM

APPENDIX
Count Sheets



SR 410 & Proposed Access TM



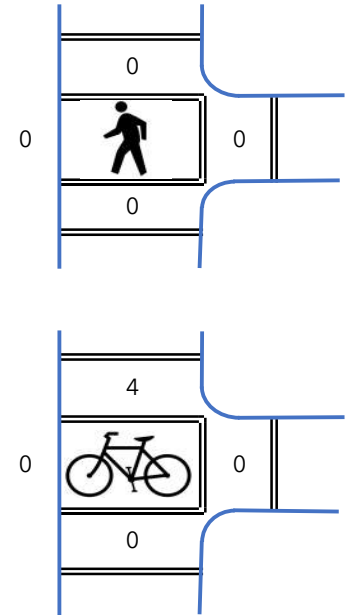
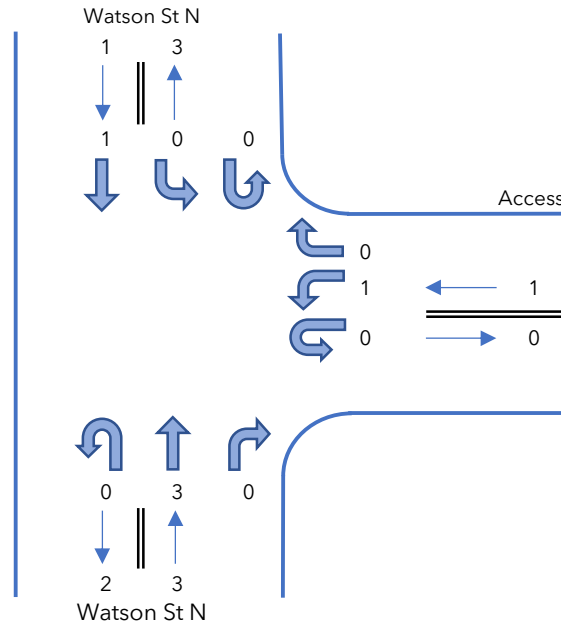
Interval Start Time	SR 410 Eastbound				SR 410 Westbound				Access Northbound								15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT						
7:00 AM	0	--	0	1	0	1	0	--	0	1	--	0	--	--	--	--	3	
7:15 AM	0	--	0	2	0	0	0	--	0	1	--	1	--	--	--	--	4	
7:30 AM	0	--	0	3	0	2	0	--	0	1	--	2	--	--	--	--	8	
7:45 AM	0	--	0	2	0	0	0	--	0	2	--	2	--	--	--	--	6	21
8:00 AM	0	--	0	1	0	0	0	--	0	1	--	1	--	--	--	--	3	21
8:15 AM	0	--	0	3	0	0	0	--	0	2	--	1	--	--	--	--	6	23
8:30 AM	0	--	0	1	0	1	0	--	0	0	--	0	--	--	--	--	2	17
8:45 AM	0	--	0	3	0	1	0	--	0	3	--	0	--	--	--	--	7	18
Count Total	0	--	0	16	0	5	0	--	0	11	--	7	--	--	--	--	39	--
Peak Hour Total	0	--	0	9	0	2	0	--	0	6	--	6	--	--	--	--	23	--
PHF	0.75				0.25				0.75				--				0.72	--
Heavy Vehicles	0	--	0	1	0	1	0	--	0	0	--	0	--	--	--	--	2	--
HV %	0.0%	--	0.0%	11.1%	0.0%	50.0%	0.0%	--	0.0%	0.0%	--	0.0%	--	--	--	--	8.7%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	0	0	1	--	1
7:15 AM	0	0	0	--	0
7:30 AM	1	1	0	--	2
7:45 AM	0	0	0	--	0
8:00 AM	0	0	0	--	0
8:15 AM	0	0	0	--	0
8:30 AM	0	0	0	--	0
8:45 AM	1	0	0	--	1
Count Total	2	1	1	--	4
Peak Hour Total	1	1	0	--	2
Peak Hour HV%	11.1%	50.0%	0.0%	--	8.7%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Proposed Access & Watson Street N TM



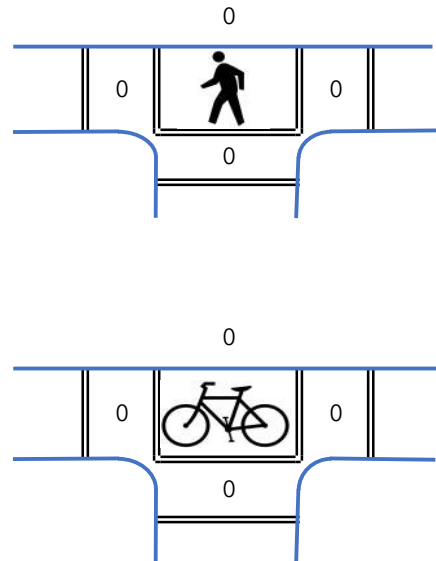
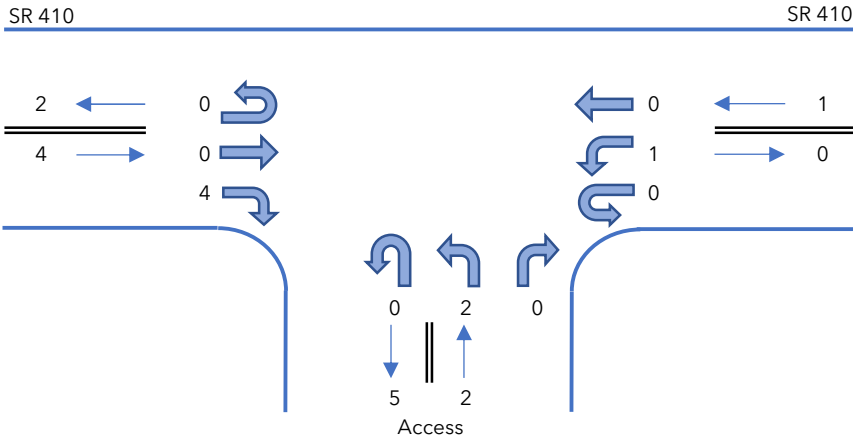
Interval Start Time					Access				Watson St N				Watson St N				15 Minute Totals	Hourly Totals	
					Westbound				Northbound				Southbound						
					UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT			
7:00 AM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	0	--	0	
7:15 AM	--	--	--	--	0	0	--	0	0	--	1	0	0	0	0	0	--	1	
7:30 AM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	1	--	1	
7:45 AM	--	--	--	--	0	0	--	0	0	--	2	0	0	0	0	0	--	2	4
8:00 AM	--	--	--	--	0	1	--	0	0	--	0	0	0	0	0	0	--	1	5
8:15 AM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	0	--	0	4
8:30 AM	--	--	--	--	0	1	--	0	0	--	1	0	0	0	0	0	--	2	5
8:45 AM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	1	--	1	4
Count Total	--	--	--	--	0	2	--	0	0	--	4	0	0	0	0	2	--	8	--
Peak Hour Total	--	--	--	--	0	1	--	0	0	--	3	0	0	0	0	1	--	5	--
PHF	--				0.25				0.38				0.25				0.63	--	
Heavy Vehicles	--	--	--	--	0	1	--	0	0	--	3	0	0	0	0	1	--	5	--
HV %	--	--	--	--	0.0%	100.0%	--	0.0%	0.0%	--	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	--	100.0%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
7:00 AM	--	4	0	0	4
7:15 AM	--	4	1	1	6
7:30 AM	--	1	0	2	3
7:45 AM	--	0	2	0	2
8:00 AM	--	2	0	0	2
8:15 AM	--	2	0	0	2
8:30 AM	--	2	1	0	3
8:45 AM	--	3	1	1	5
Count Total	--	18	5	4	27
Peak Hour Total	--	1	3	1	5
Peak Hour HV%	--	100.0%	100.0%	100.0%	100.0%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	3	0	3
0	0	1	0	1
0	0	0	0	0
0	0	3	0	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	7	0	7
0	0	4	0	4

SR 410 & Proposed Access TM



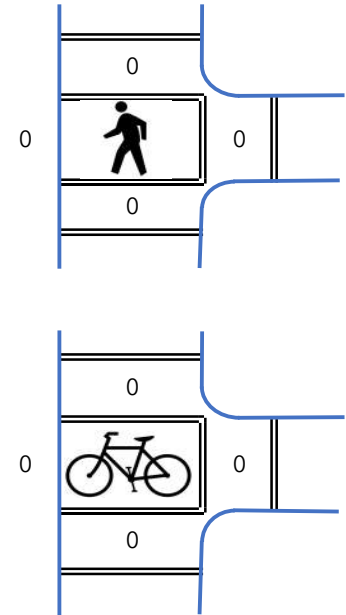
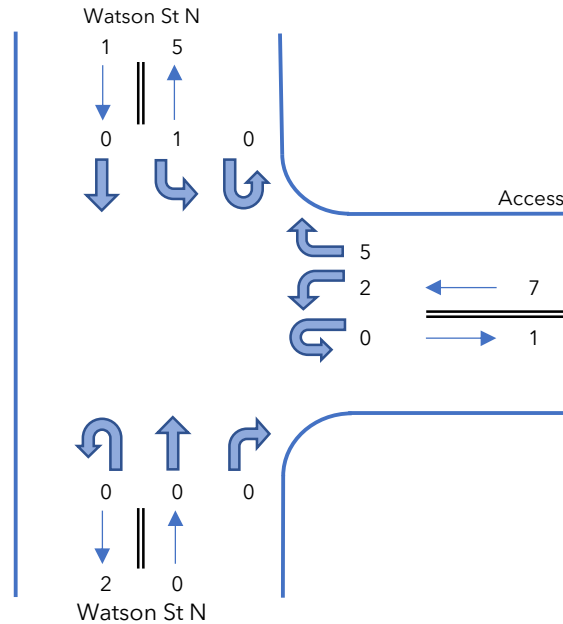
Interval Start Time	SR 410				SR 410				Access								15 Minute Totals	Hourly Totals
	Eastbound				Westbound				Northbound									
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT						
4:00 PM	0	--	0	0	0	1	0	--	0	1	--	0	--	--	--	--	2	7
4:15 PM	0	--	0	1	0	0	0	--	0	1	--	0	--	--	--	--	2	
4:30 PM	0	--	0	2	0	0	0	--	0	0	--	0	--	--	--	--	2	
4:45 PM	0	--	0	1	0	0	0	--	0	0	--	0	--	--	--	--	1	
5:00 PM	0	--	0	0	0	0	0	--	0	0	--	0	--	--	--	--	0	
5:15 PM	0	--	0	0	0	0	0	--	0	0	--	0	--	--	--	--	0	
5:30 PM	0	--	0	0	0	0	0	--	0	0	--	0	--	--	--	--	0	
5:45 PM	0	--	0	0	0	0	0	--	0	1	--	0	--	--	--	--	1	
Count Total	0	--	0	4	0	1	0	--	0	3	--	0	--	--	--	--	8	--
Peak Hour Total	0	--	0	4	0	1	0	--	0	2	--	0	--	--	--	--	7	--
PHF	0.50				0.25				0.50				--				0.88	--
Heavy Vehicles	0	--	0	0	0	0	0	--	0	0	--	0	--	--	--	--	0	--
HV %	0.0%	--	0.0%	0.0%	0.0%	0.0%	0.0%	--	0.0%	0.0%	--	0.0%	--	--	--	--	0.0%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	0	0	0	--	0
4:15 PM	0	0	0	--	0
4:30 PM	0	0	0	--	0
4:45 PM	0	0	0	--	0
5:00 PM	0	0	0	--	0
5:15 PM	0	0	0	--	0
5:30 PM	0	0	0	--	0
5:45 PM	0	0	0	--	0
Count Total	0	0	0	--	0
Peak Hour Total	0	0	0	--	0
Peak Hour HV%	0.0%	0.0%	0.0%	--	0.0%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	0	2
0	2	0	0	2
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Proposed Access & Watson Street N TM



Interval Start Time					Access				Watson St N				Watson St N				15 Minute Totals	Hourly Totals
	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT	UT	LT	T	RT		
4:00 PM	--	--	--	--	0	0	--	1	0	--	0	0	0	0	0	--	1	
4:15 PM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	--	0	
4:30 PM	--	--	--	--	0	0	--	1	0	--	0	0	0	1	0	--	2	
4:45 PM	--	--	--	--	0	0	--	2	0	--	0	0	0	0	0	--	2	5
5:00 PM	--	--	--	--	0	1	--	2	0	--	0	0	0	0	0	--	3	7
5:15 PM	--	--	--	--	0	1	--	0	0	--	0	0	0	0	0	--	1	8
5:30 PM	--	--	--	--	0	0	--	0	0	--	0	0	0	0	0	--	0	6
5:45 PM	--	--	--	--	0	0	--	0	0	--	0	0	2	0	--	--	2	6
Count Total	--	--	--	--	0	2	--	6	0	--	0	0	0	3	0	--	11	--
Peak Hour Total	--	--	--	--	0	2	--	5	0	--	0	0	0	1	0	--	8	--
PHF	--				0.58				#DIV/0!				0.25				0.67	--
Heavy Vehicles	--	--	--	--	0	0	--	1	0	--	0	0	0	0	0	--	1	--
HV %	--	--	--	--	0.0%	0.0%	--	20.0%	0.0%	--	0.0%	0.0%	0.0%	0.0%	0.0%	--	12.5%	--

Interval Start Time	Heavy Vehicles				
	EB	WB	NB	SB	Total
4:00 PM	--	0	0	0	0
4:15 PM	--	0	0	0	0
4:30 PM	--	0	0	0	0
4:45 PM	--	1	0	0	1
5:00 PM	--	0	0	0	0
5:15 PM	--	0	0	0	0
5:30 PM	--	0	0	0	0
5:45 PM	--	0	0	0	0
Count Total	--	1	0	0	1
Peak Hour Total	--	1	0	0	1
Peak Hour HV%	--	14.3%	0.0%	0.0%	12.5%

Pedestrians (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Bicycles (Leg)				
E	W	N	S	Total
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

202 ROOSEVELT TIA ADDENDUM

APPENDIX
ITE Sheets



Specialty Trade Contractor (180)

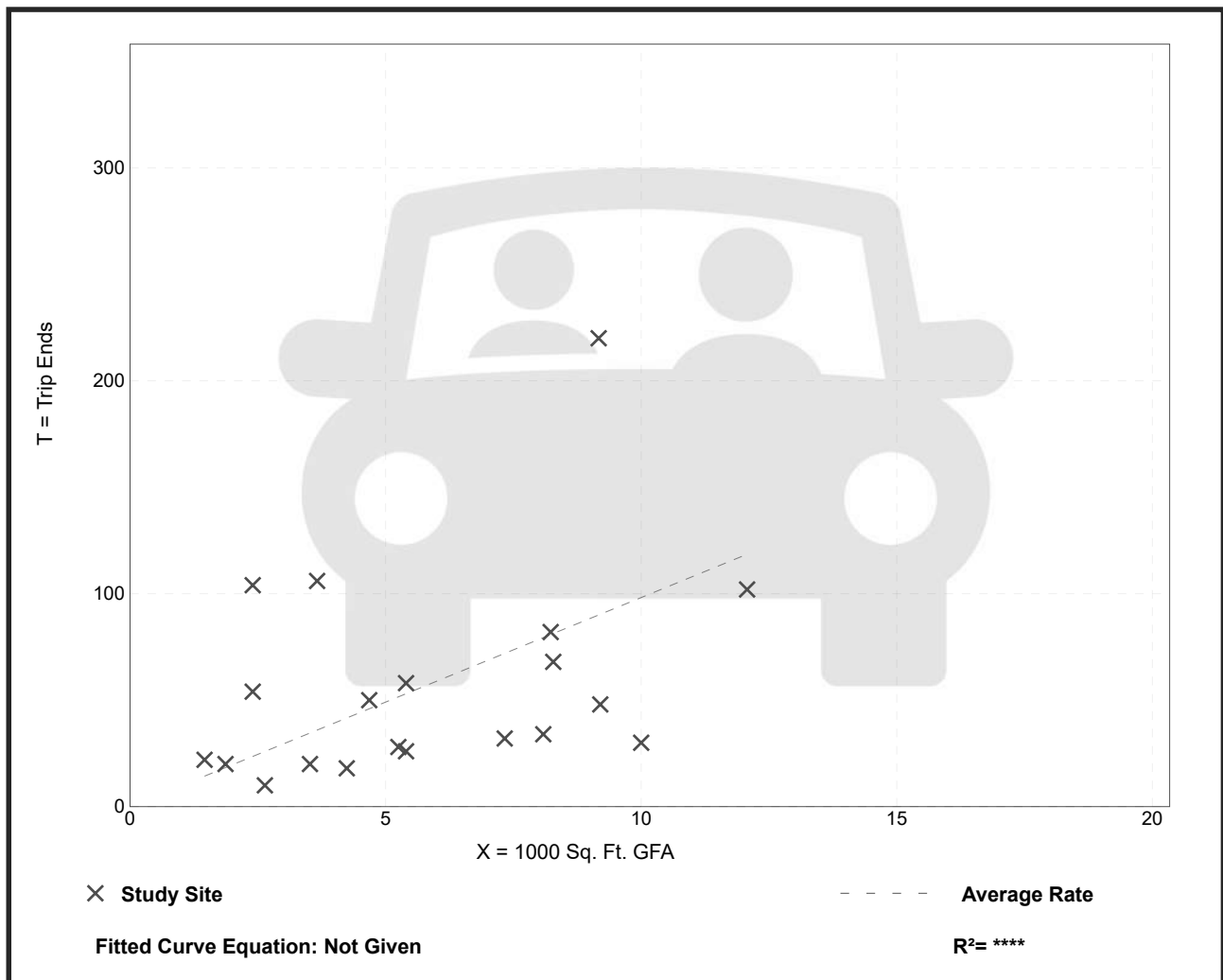
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 20
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.82	3.00 - 43.33	8.56

Data Plot and Equation



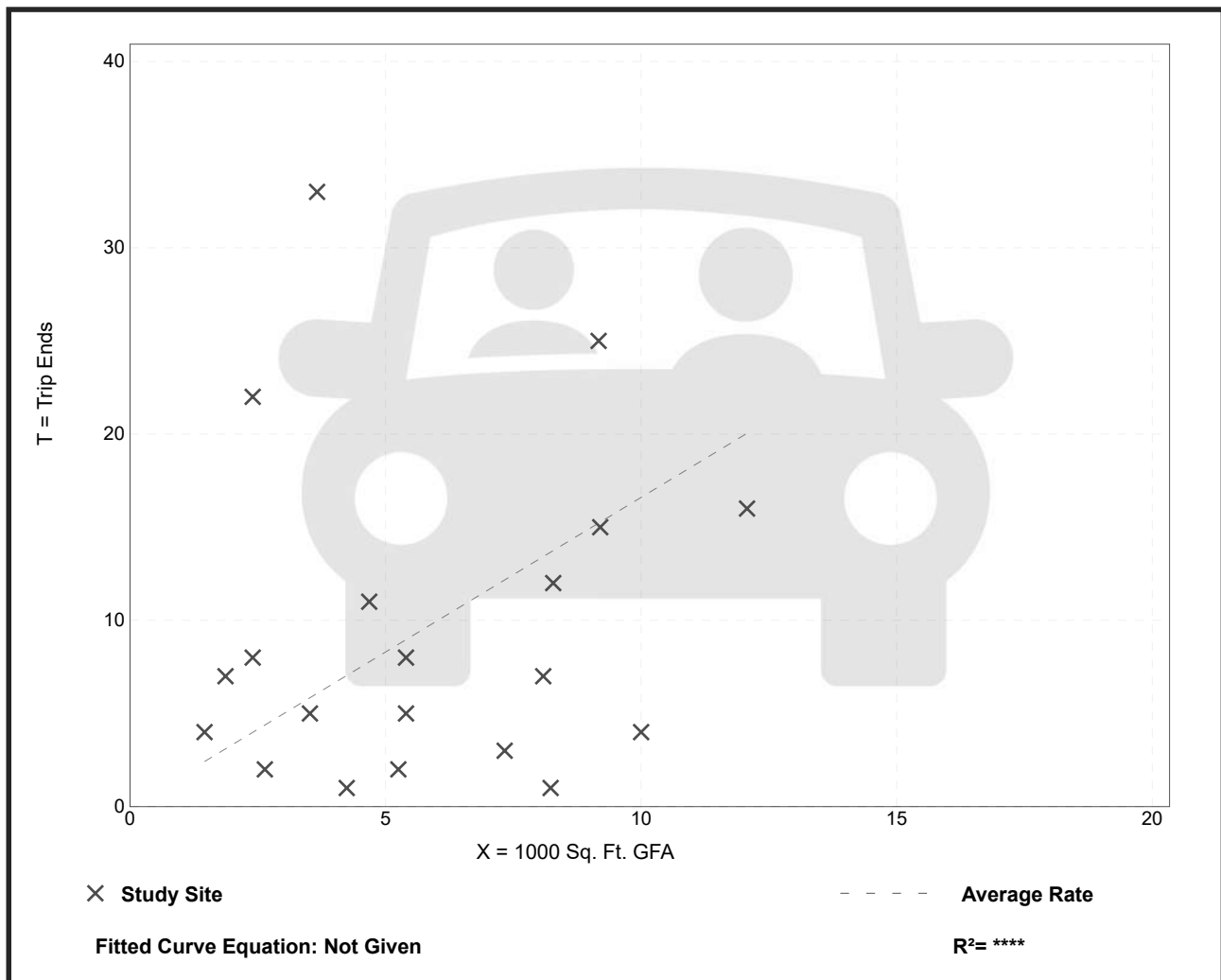
Specialty Trade Contractor (180)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 7 and 9 a.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 20
 Avg. 1000 Sq. Ft. GFA: 6
 Directional Distribution: 74% entering, 26% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.66	0.12 - 9.17	2.00

Data Plot and Equation



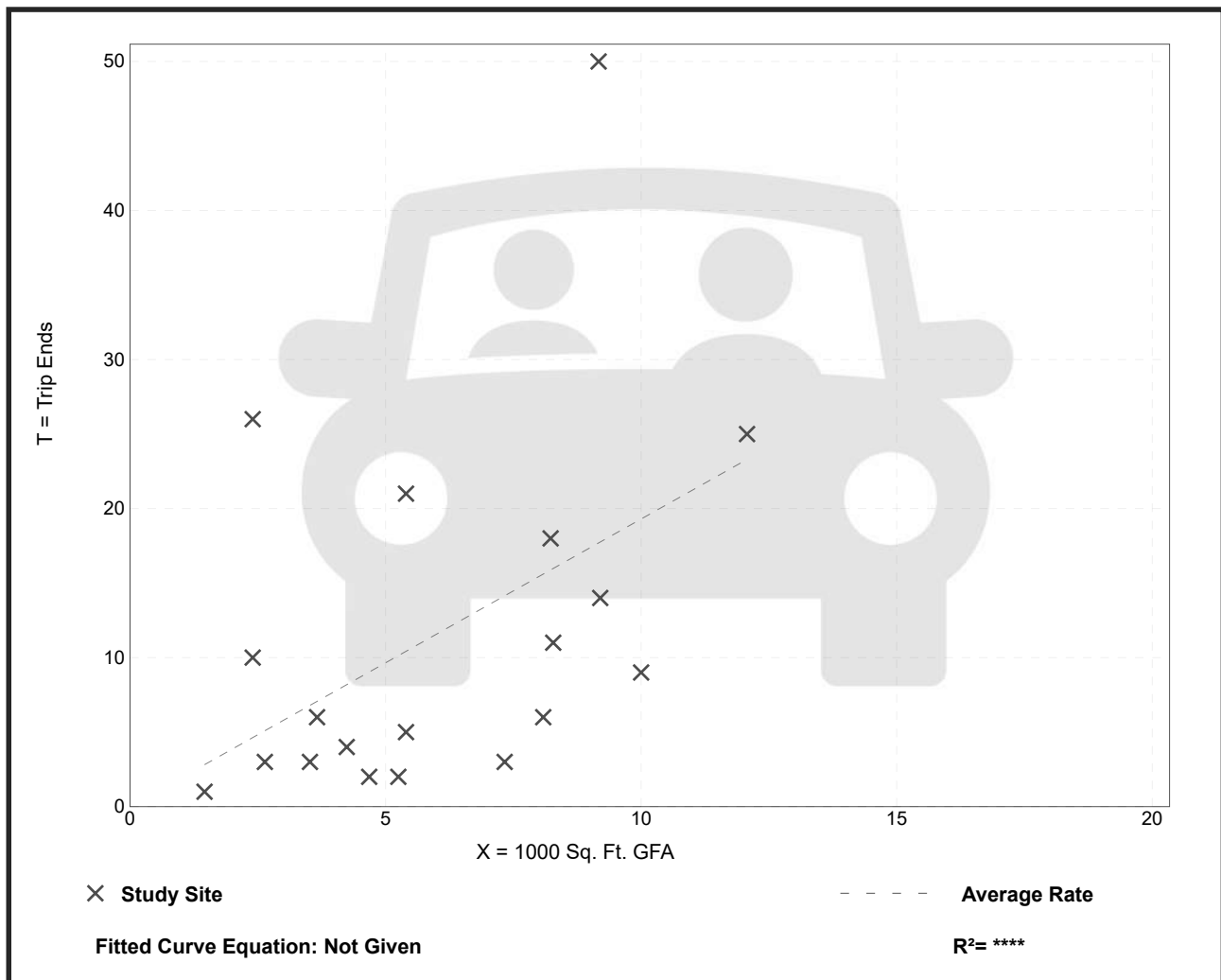
Specialty Trade Contractor (180)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
 On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
 Setting/Location: General Urban/Suburban
 Number of Studies: 19
 Avg. 1000 Sq. Ft. GFA: 6
 Directional Distribution: 32% entering, 68% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.93	0.38 - 10.83	1.98

Data Plot and Equation



202 ROOSEVELT TIA ADDENDUM

APPENDIX
Forecast
Excel



Peak Hour Forecast Intersection Volumes

Annual Growth Rate: 3 % 2031
of Years to Horizon: 6

AM PEAK HOUR

17. Watson & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	47	0	0	0	1	0	112	0	0	0	0
Project Trips	0	0	0	0	0	1	2	0	0	0	0	0
Pipeline	0	0	0	0	0	0	0	0	0	0	0	0
Without	0	56	0	0	0	1	0	134	0	0	0	0
With	0	56	0	0	0	2	2	134	0	0	0	0

18. SR 410 & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	262	2	6	0	6	9	447	0
Project Trips	0	0	0	0	0	3	1	0	1	5	0	0
Pipeline	0	0	0	0	108	0	0	0	0	0	41	0
Without	0	0	0	0	421	2	7	0	7	11	575	0
With	0	0	0	0	421	5	8	0	8	16	575	0

PM PEAK HOUR

17. Watson & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	172	1	5	0	2	0	126	0	0	0	0
Project Trips	0	0	0	0	0	2	1	0	0	0	0	0
Pipeline	0	1	0	0	0	0	0	2	0	0	0	0
Without	0	206	1	6	0	2	0	152	0	0	0	0
With	0	206	1	6	0	4	1	152	0	0	0	0

18. SR 410 & Access

	SBR	SBT	SBL	WBR	WBT	WBL	NBR	NBT	NBL	EBR	EBT	EBL
Existing	0	0	0	0	487	1	0	0	2	4	328	0
Project Trips	0	0	0	0	0	2	3	0	5	2	0	0
Pipeline	0	0	0	0	86	0	0	0	0	0	137	0
Without	0	0	0	0	668	1	0	0	2	5	529	0
With	0	0	0	0	668	3	3	0	7	7	529	0

202 ROOSEVELT TIA ADDENDUM

APPENDIX
Level of
Service



Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	447	9	2	262	6	6
Future Vol, veh/h	447	9	2	262	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	50	2	2	2
Mvmt Flow	486	10	2	285	7	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	496	0	780	491
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	289	-
Critical Hdwy	-	-	4.6	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.65	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	861	-	364	578
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	760	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	861	-	363	578
Mov Cap-2 Maneuver	-	-	-	-	472	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	758	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.07		12.11	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	519	-	-	861	-	
HCM Lane V/C Ratio	0.025	-	-	0.003	-	
HCM Ctrl Dly (s/v)	12.1	-	-	9.2	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

HCM 7th TWSC
17: Watson St N & Project Access

Existing AM Peak Hour

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	1	0	112	0	0	47
Future Vol, veh/h	1	0	112	0	0	47
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	92	92	92	92	92	92
Heavy Vehicles, %	100	2	2	2	2	2
Mvmt Flow	1	0	122	0	0	51
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	173	122	0	0	122	0
Stage 1	122	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	7.4	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	636	929	-	-	1466	-
Stage 1	709	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	636	929	-	-	1466	-
Mov Cap-2 Maneuver	636	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	10.67	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	636	1466	-	
HCM Lane V/C Ratio	-	-	0.002	-	-	
HCM Ctrl Dly (s/v)	-	-	10.7	0	-	
HCM Lane LOS	-	-	B	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	328	4	1	487	2	0
Future Vol, veh/h	328	4	1	487	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	1	1
Mvmt Flow	357	4	1	529	2	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	361
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1203
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1203
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.02	13.31
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	435	-	-	1203	-
HCM Lane V/C Ratio	0.005	-	-	0.001	-
HCM Ctrl Dly (s/v)	13.3	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

HCM 7th TWSC
17: Watson St N & Project Access

Existing PM Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	2	5	126	0	1	172
Future Vol, veh/h	2	5	126	0	1	172
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	92	92	92	92	92	92
Heavy Vehicles, %	1	20	2	1	1	2
Mvmt Flow	2	5	137	0	1	187
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	326	137	0	0	137	0
Stage 1	137	-	-	-	-	-
Stage 2	189	-	-	-	-	-
Critical Hdwy	6.41	6.4	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.48	-	-	2.209	-
Pot Cap-1 Maneuver	670	866	-	-	1453	-
Stage 1	892	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	670	866	-	-	1453	-
Mov Cap-2 Maneuver	670	-	-	-	-	-
Stage 1	892	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	9.55	0	0.04			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	799	10	-	
HCM Lane V/C Ratio	-	-	0.01	0.001	-	
HCM Ctrl Dly (s/v)	-	-	9.5	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	575	11	2	421	7	7
Future Vol, veh/h	575	11	2	421	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	50	2	2	2
Mvmt Flow	625	12	2	458	8	8
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	637	0	1093	631
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	462	-
Critical Hdwy	-	-	4.6	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.65	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	754	-	237	481
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	634	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	754	-	236	481
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	632	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.05		13.93	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	418	-	-	754	-	
HCM Lane V/C Ratio	0.036	-	-	0.003	-	
HCM Ctrl Dly (s/v)	13.9	-	-	9.8	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	1	0	134	0	0	56
Future Vol, veh/h	1	0	134	0	0	56
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	92	92	92	92	92	92
Heavy Vehicles, %	100	2	2	2	2	2
Mvmt Flow	1	0	146	0	0	61
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	207	146	0	0	146	0
Stage 1	146	-	-	-	-	-
Stage 2	61	-	-	-	-	-
Critical Hdwy	7.4	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	606	901	-	-	1436	-
Stage 1	689	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	606	901	-	-	1436	-
Mov Cap-2 Maneuver	606	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	10.96	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	606		1436	-	
HCM Lane V/C Ratio	-	0.002		-	-	
HCM Ctrl Dly (s/v)	-	11		0	-	
HCM Lane LOS	-	B		A	-	
HCM 95th %tile Q(veh)	-	0		0	-	

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	529	5	1	668	2	0
Future Vol, veh/h	529	5	1	668	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	1	1
Mvmt Flow	575	5	1	726	2	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	580	0	1306	578
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	728	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	999	-	177	518
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	480	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	999	-	177	518
Mov Cap-2 Maneuver	-	-	-	-	316	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	479	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.01		16.46	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	316	-	-	999	-	
HCM Lane V/C Ratio	0.007	-	-	0.001	-	
HCM Ctrl Dly (s/v)	16.5	-	-	8.6	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	6	152	0	1	206
Future Vol, veh/h	2	6	152	0	1	206
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	92	92	92	92	92	92
Heavy Vehicles, %	1	20	2	1	1	2
Mvmt Flow	2	7	165	0	1	224
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	391	165	0	0	165	0
Stage 1	165	-	-	-	-	-
Stage 2	226	-	-	-	-	-
Critical Hdwy	6.41	6.4	-	-	4.11	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.48	-	-	2.209	-
Pot Cap-1 Maneuver	615	834	-	-	1419	-
Stage 1	867	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	614	834	-	-	1419	-
Mov Cap-2 Maneuver	614	-	-	-	-	-
Stage 1	867	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	9.76	0		0.04		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	766		9	-	
HCM Lane V/C Ratio	-	0.011		0.001	-	
HCM Ctrl Dly (s/v)	-	9.8		7.5	0	
HCM Lane LOS	-	A		A	A	
HCM 95th %tile Q(veh)	-	0		0	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	575	16	5	421	8	8
Future Vol, veh/h	575	16	5	421	8	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	11	50	2	2	2
Mvmt Flow	625	17	5	458	9	9
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	642	0	1102	634
Stage 1	-	-	-	-	634	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	-	-	4.6	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.65	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	750	-	234	479
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	750	-	232	479
Mov Cap-2 Maneuver	-	-	-	-	366	-
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	625	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.12		14.05	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	415	-	-	750	-	
HCM Lane V/C Ratio	0.042	-	-	0.007	-	
HCM Ctrl Dly (s/v)	14	-	-	9.8	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	2	0	134	2	0	56
Future Vol, veh/h	2	0	134	2	0	56
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	92	92	92	92	92	92
Heavy Vehicles, %	100	2	2	2	2	2
Mvmt Flow	2	0	146	2	0	61
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	208	147	0	0	148	0
Stage 1	147	-	-	-	-	-
Stage 2	61	-	-	-	-	-
Critical Hdwy	7.4	6.22	-	-	4.12	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	605	900	-	-	1434	-
Stage 1	689	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	605	900	-	-	1434	-
Mov Cap-2 Maneuver	605	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	10.98	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	605		1434	-	
HCM Lane V/C Ratio	-	0.004		-	-	
HCM Ctrl Dly (s/v)	-	11		0	-	
HCM Lane LOS	-	B		A	-	
HCM 95th %tile Q(veh)	-	0		0	-	

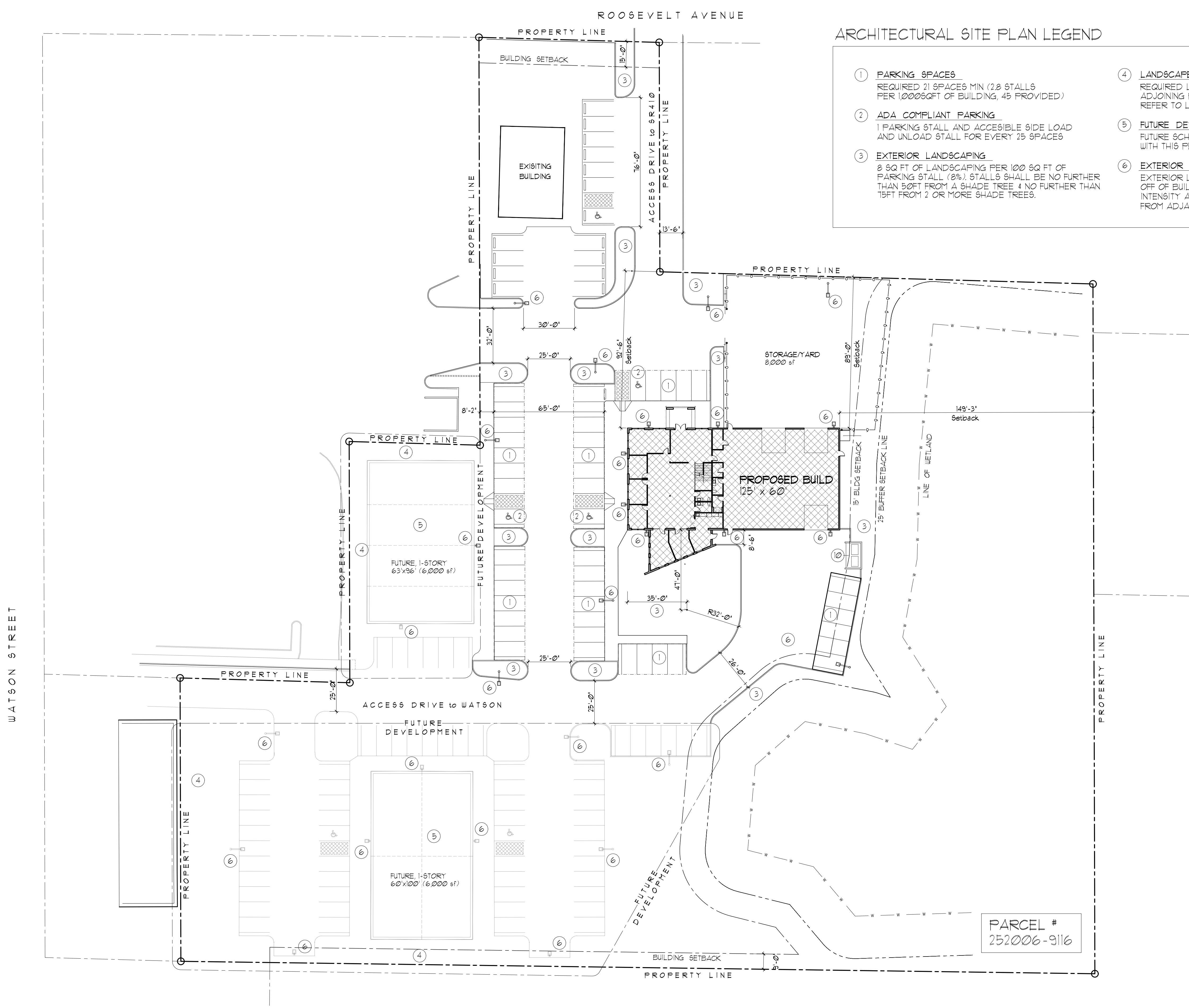
Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	529	7	3	668	7	3
Future Vol, veh/h	529	7	3	668	7	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	1	1	2	1	1
Mvmt Flow	575	8	3	726	8	3
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	583	0	1311	579
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	733	-
Critical Hdwy	-	-	4.11	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.209	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	997	-	176	517
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	997	-	175	517
Mov Cap-2 Maneuver	-	-	-	-	314	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	476	-
Approach	EB		WB		NB	
HCM Ctrl Dly, s/v	0		0.04		15.42	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	356	-	-	997	-	
HCM Lane V/C Ratio	0.031	-	-	0.003	-	
HCM Ctrl Dly (s/v)	15.4	-	-	8.6	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	4	6	152	1	1	206
Future Vol, veh/h	4	6	152	1	1	206
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	92	92	92	92	92	92
Heavy Vehicles, %	1	20	2	1	1	2
Mvmt Flow	4	7	165	1	1	224

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	392	166	0
Stage 1	166	-	-
Stage 2	226	-	-
Critical Hdwy	6.41	6.4	-
Critical Hdwy Stg 1	5.41	-	-
Critical Hdwy Stg 2	5.41	-	-
Follow-up Hdwy	3.509	3.48	-
Pot Cap-1 Maneuver	614	834	-
Stage 1	866	-	-
Stage 2	814	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	614	834	-
Mov Cap-2 Maneuver	614	-	-
Stage 1	866	-	-
Stage 2	813	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.01	0	0.04
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	729	9
HCM Lane V/C Ratio	-	-	0.015	0.001
HCM Ctrl Dly (s/v)	-	-	10	7.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0



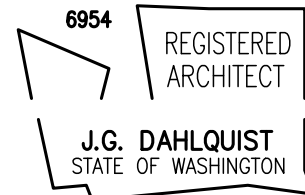
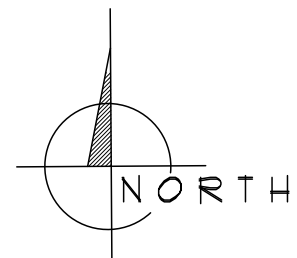
ARCHITECTURAL SITE PLAN LEGEND

- PARKING SPACES**
REQUIRED 21 SPACES MIN (28 STALLS PER 1000 SQ FT OF BUILDING, 45 PROVIDED)
- ADA COMPLIANT PARKING**
1 PARKING STALL AND ACCESSIBLE SIDE LOAD AND UNLOAD STALL FOR EVERY 25 SPACES
- EXTERIOR LANDSCAPING**
8 SQ FT OF LANDSCAPING PER 100 SQ FT OF PARKING STALL (8%). STALLS SHALL BE NO FURTHER THAN 50 FT FROM A SHADE TREE & NO FURTHER THAN 15 FT FROM 2 OR MORE SHADE TREES.
- LANDSCAPE BUFFERS**
REQUIRED LANDSCAPE BUFFERS FOR ADJOINING PROPERTY LINE USES, REFER TO LANDSCAPE PLANS.
- FUTURE DEVELOPEMENT**
FUTURE SCHEMATICS NOT INCLUDED WITH THIS PERMIT
- EXTERIOR LIGHTING**
EXTERIOR LIGHTING IN PARKING LOTS AND OFF OF BUILDING SHOULD BE OF UNIFORM INTENSITY AND POINTED DOWNWARDS AWAY FROM ADJACENT PROPERTIES.

1

ARCHITECTURAL SITE PLAN

1" = 30'-0"



DATE & REVISIONS
04/07/24 CONCEPTUAL
07/02/24 SCHEMATIC
07/18/25 PERMIT

SHEET CONTENTS

ARCHITECTURAL

SITE PLAN

SHEET NUMBER

A.05

Preliminary

PROJECT / LOCATION
KOLKAY ELECTRIC
ENUMCLAW, WA - KING COUNTY

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DATE: 12/05/2025