## **Updated Transportation Impact Analysis**

# **NEW PUYALLUP ELEMENTARY**

7911 144th Street East, Puyallup, WA 98373

Prepared for: Puyallup School District

November 2017

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## Table of Contents

	ntroduction1 scription
	De
Chanter 2 F	Existing Conditions4
	Network4
	ized Facilities4
Transit Sei	rvice4
	umes
	ety5
	Project Impacts6
	ation
	oution and Assignment
	h-Project Traffic Operations
	for 86th Avenue E / 144th Street E
	Spacing Requirements
	nalysis
	nded Frontage Improvements
Traffic Ope	erations with Frontage Improvements15
	ized Facilities
	ince
Cut-Throug	gh Traffic17
Chapter 4. F	indings and Recommendations18
	Appendix
Appendix A:	Traffic Counts
	LOS Definitions
	LOS Worksheets
Appendix D:	Sight Distance
	Figures
Figure 1.	Site Vicinity
Figure 2.	Site Plan
Figure 3.	Project Trip Distribution
Figure 4.	AM Peak Hour Traffic Volumes and Trip Assignment
Figure 5.	Afternoon Peak Hour Traffic Volumes and Trip Assignment
Figure 6. Figure 7.	PM Peak Hour Traffic Volumes and Trip Assignment
rigule 7.	TRR 211 Alialysis
	Tables
Table 1.	Three-Year Collision Summary (2014-2016)5
Table 2.	Future Weekday Peak Hour Trip Generation Summary
Table 3.	Future Weekday Peak Hour Intersection LOS Summary
Table 4.	Future Weekday Peak Hour 95th Percentile Queueing Summary
Table 5.	Future Weekday Peak Hour Intersection LOS Summary (Frontage Improvements)
Table 6.	Future Weekday Peak Hour 95th Percentile Queueing Summary (Frontage
. 35.0 0.	Improvements)

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## **Chapter 1. Introduction**

The following transportation impact analysis (TIA) update was completed to meet Pierce County standards for evaluating transportation impacts from the proposed Puyallup Elementary School. As necessary, mitigation measures are identified that would offset or reduce significant impacts.

### **Project Description**

The proposed project includes the construction of an elementary school (with a capacity up to 1,030 students) located north of 144th Street E and west of 86th Avenue E. The project site is currently undeveloped on one vacant parcel.

The proposed school would be accessed via two driveways via 144th Street E, one western driveway for staff & bus use and one eastern driveway for student drop-off/pick-up use. Frontage improvements along 144th Street are being coordinated with Pierce County and would include landscaping and improved pedestrian facilities. The new school is planned to open in September 2019 for the beginning of the 2019-2020 school year. Figure 1 shows the site location and vicinity and Figure 2 shows the preliminary site plan.

### **Study Scope**

The project study area and scope of analysis was coordinated with Pierce County staff and expanded based on public comments. This focused on evaluating six off-site intersections (listed below) and the two site access driveways for the proposed school site during the AM peak hour, school afternoon peak, and PM commute peak hour.

- 1. Woodland Ave E / 144th St E
- 2. Woodland Ave E / 147th St Ct E
- 3. Crown Dr E /144th St E
- 4. 76th Ave E / 144th St E
- 5. 80th Ave E / 144th St E
- 6. 86th Ave E / 144th St E



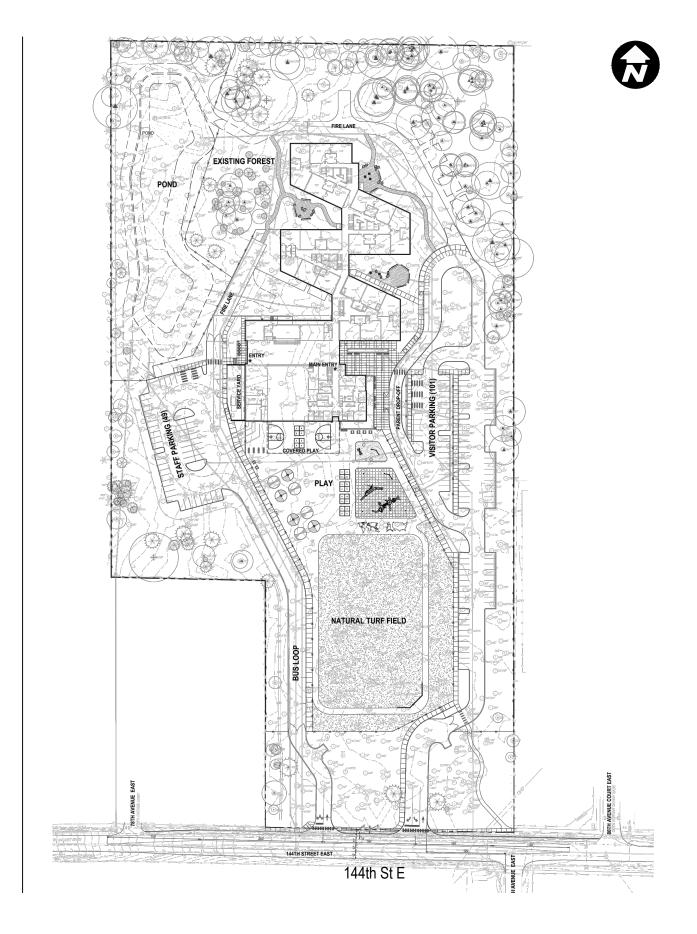




# Site Vicinity and Study Intersections

**FIGURE** 





# Preliminary Site Plan

## **Chapter 2. Existing Conditions**

This section describes existing conditions within the identified study area. Characteristics are provided for the roadway network, non-motorized facilities, transit service, existing traffic volumes, traffic operations, and traffic safety.

### **Roadway Network**

The project site is located in Puyallup, and is bounded by 78th Avenue E to the west, 144th Street E to the south, and the 80th Avenue E to the east. The major roadway within the study area include:

**144th Street East** is a two-lane roadway classified as a collector arterial. This roadway serves as a connection between 74th Avenue Court E to the west and 86th Avenue E to the east.

#### **Non-Motorized Facilities**

Within the site vicinity, there are no sidewalks or marked crosswalks provided on the nearby roadways for pedestrians. In terms of bicycle facilities, there are also no dedicated bicycle facilities provided on the nearby roadways.

#### **Transit Service**

Transit service is limited and the closest transit stop is located approximately 1.44 miles east of the site at the 144th Street / SR 161 intersection. This transit stop is served by route 402 (operated by Pierce Transit) and provides service between Frederickson and Federal Way seven days a week.

#### **Traffic Volumes**

This transportation analysis focuses on three peak hours: school AM peak hour, school afternoon peak hour and commute PM peak hour when traffic impacts from the school would be greatest. Existing traffic volumes at the study intersections were collected on a typical weekday in September 2017. Future (2022) without-project traffic volumes were forecast by growing the existing volumes by a three percent annual growth rate for five consecutive years per coordination with Pierce county staff.

The detailed intersection turning movement traffic volumes are provided in Appendix A.



### **Traffic Safety**

The Washington State Department of Transportation (WSDOT) provided the collision data for the most recent three-year period for intersections and roadway segments near the site. The data was summarized between January 1, 2014 and December 31, 2016. Table 1 provides a summary of collision history within the study area.

Table 1. Three-Year Collision Summary (2014-2016)

	Numb		Annual		
Location	2014	2015	2016	Total	Average
Intersections					
1. Woodland Ave E / 144th St E	0	1	0	1	0.33
2. Woodland Ave E / 147th St Ct E	0	0	0	0	0.00
3. Crown Dr E /144th St E	0	0	0	0	0.00
4. 76th Ave E / 144th St E	0	0	0	0	0.00
5. 80th Ave E / 144th St E	0	0	0	0	0.00
6. 86th Ave E / 144th St E	0	0	0	0	0.00
Roadway Segments					
144th St E between 80th Ave and 77th Ave Ct	1	0	0	1	0.33

Within the analysis time period, one collision was reported at the six study intersections. It involved a rear end during rainy conditions and caused one evident injury.

Along 144th Street E between 80th Avenue and 77th Avenue Court, there was one collision reported in 2014. This collision was rear-end related and caused no injuries.

Based on review of the collision data, there are a low number of collisions and no reoccurring incidents that would indicate a safety issue.



## **Chapter 3. Project Impacts**

This section of the analysis documents project-generated impacts at the study driveways and off-site intersections.

### **Trip Generation**

Estimated trip generation was derived by multiplying the proposed number of students by the average daily and peak hour trip generation rates for Land Use Code No. 520 ("Elementary School") published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual* (9th Edition, 2012). The following table illustrates the anticipated number of new daily, AM peak hour, PM peak hour of the proposed elementary school ("Generator") and PM peak hour of adjacent street traffic vehicle trips for the proposed development. Both PM peak hour trip generations are provided as it is anticipated that the final bell for the school would be prior to the PM peak hour of adjacent street traffic. The AM peak hour generator is anticipated to be the same as the AM peak hour of adjacent street traffic.

Table 2. Future Weekd			AM Peak-Hour Trips¹		PM Peak-Hour Generator Trips <sup>1</sup>			PM Peak-Hour of Adjacent Street Traffic Trips <sup>1</sup>			
Land Use	Student Populatior	Daily Trips	In	Out	Total	In	Out	Total	In	Out	Total
1,030 Students											
Elementary School (LU #520)	1,030	1,329	255	209	464	130	158	288	76	79	155
1. Trip generation based on	ITE Trip Generati	on (9th E	dition,	2012)							

As shown in Table 2, the proposed elementary school is estimated to generate 464 trips during the AM peak hour, 288 trips during the PM peak hour of the school, and 155 trips during the PM peak hour of adjacent street traffic.

### **Trip Distribution and Assignment**

Trip distribution patterns were estimated based on population density of the projected surrounding area in which the school would serve, as well as coordination with Pierce County Staff. In general, approximately 46 percent of trips would be to and from the west and 54 percent to and from the east on 144th Street East. For trip assignment for each driveway, it is expected that approximately:

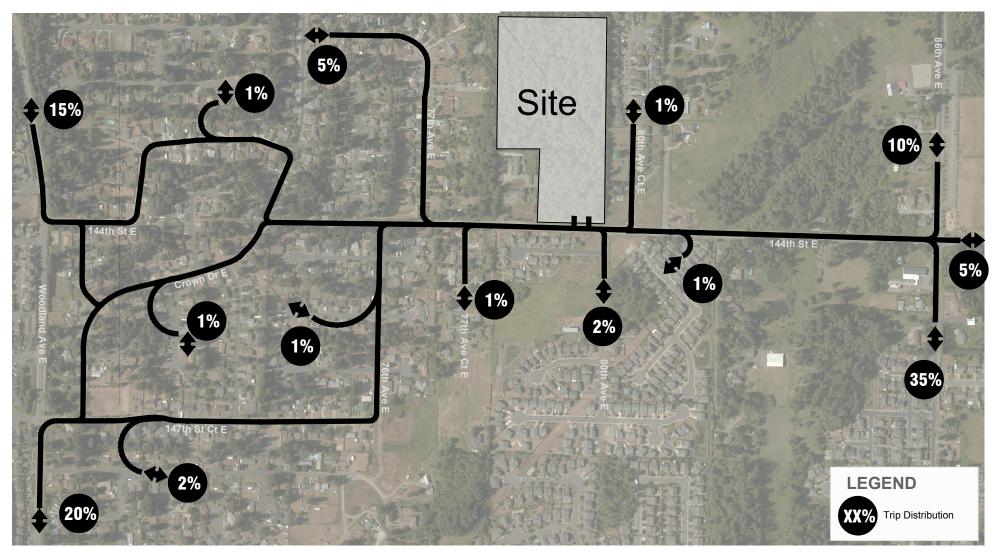
- During the school AM peak hour, 10 percent of school trips would utilize the west driveway and the remaining 90 percent would utilize the east driveway
- During the school Afternoon peak hour, 10 percent of school trips would utilize the west driveway and the remaining 90 percent would utilize the east driveway
- During the commute PM peak hour, 15 percent of school trips would utilize the west driveway and the remaining 85 percent would utilize the east driveway

These percentages were projected based on estimated school staff and school bus activity that would utilize the west driveway based on each respective peak hour. It is important to note that Pierce County requires all analysis performed through a single driveway.

Figure 3 illustrates the anticipated trip distribution within the study area and Figures 4 - 6 illustrates the existing peak hour traffic volumes, project trip assignment, and future (2022) traffic volumes for all three peak hours.







# Project Trip Distribution

**FIGURE** 



	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Existing	119 21 66	113 2   6 12 3 - 0 0 0 6	3 34 28	58 → ←55 1	10352 1 • 9	126 19 31 41 58 101 - 38 13 229	104 → ←56
Ш	323	0 18 273	24	2 31	4 28	12 35 214	
ut	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Future Without Project	138	131 2 7 14 3 — 14	339	67 → ←64	119 ->	146 22   36 48	121→ ←65
Future Pro	2 374	0 28 0 21 316	28 28	2 36	1 10 5 32	15 34 14 41 248	121 2 30
	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	7 Single Driveway 144th St E
Project Trips	38		15			26 21 J	96 113
rojec		42	50	77 <del>-</del> 63	109 133	10 13	111/9
L	O.W. II. IA. 5	51	62	26	5	89 89	0.01
	Woodland Ave E 144th St E 138	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	80th AVE E 144th St E	86th AVE E 144th St E 146	Single Driveway 144th St E
Future With Project	62	2 7 7	54	144 5 427	220 - 402	69 48 36 67	96 113 117 138 121 65
Futur Pro	2 374	70 72 316	90	144 — 127	228 — 193 5 10 10 32	127 — 57 88 103 41 248	121 - 65

## AM Peak Hour Volumes

**FIGURE** 

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	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Existing	268 42 39	299 1 14 12 0 - 1 13 6 38	2 30 45 45	60 → <b>-</b> 79 1 <b>-</b> 33	107113 9	344 69 65 41 69 74 86 29 42	116→ ←119
Ш	197	1 24 215	34 5	3 34	6 25	24 27 173	
] T	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Future Without Project	311 49 45	347	35 52	70 → ←92	124 ->131	399 80 75 80 80 80 100	134 → ←138
Future Pro	2228	1 28 249	45 39 6	38 39	7 29	28 31 201	134 - 2 130
	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5)80th AVE E 144th St E	6 86th AVE E 144th St E	7 Single Driveway 144th St E
Project Trips	20		8			13 16 J	73 85
Projec		26	38 31	39 <del>- 47</del> 16	82	8 — 7 55 ) 46	
	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Future With Project	311 69 69	347	2 43 61	100 5 420	200 - 400	93 75	73 85 60 70 134 138
Futur Pro	2228	76 1 54 249	70 6	109 — 139 54 54	206 — ——————————————————————————————————	94 — 107 89 74 31 201	134 → ←138

School Afternoon Peak Hour Volumes

**FIGURE** 

	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Existing	551 115 41	478 1   21 0 3 1 1   35	7 55 47	118 — — 103 6 — — 34	138 148 14 32	468 94 69 94 69 102 — 102 50 55	152→ ←151
	10 239	1 46 232	71 4	1 35	3 18	21   29 229	
۲۲ ا	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Future Without Project	639	554 1 24 0 10	8 64 54	137 → ←119	160 →	543 109 80 45 88 118 118	176 → ←175
Future Pro	1 <sub>12</sub> 277	1 53 269	82 5	7 39	16 37	58 64 24 34 265	110-2 4-110
10	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Project Trips	11		5 6 5	23 → ← 24	41→ → 39	8 8 4 4 4	36 43
Proje		15 16	18	8	2	28	
	Woodland Ave E 144th St E	Woodland Ave E 147th St CT E	Crown Dr E 144th St E	76th AVE E 144th St E	5 80th AVE E 144th St E	6 86th AVE E 144th St E	Single Driveway 144th St E
Future With Project	639	554	8 69 59	100 5 442	204 5 244	543 117 80 53 88	36 43 35 41 176 — 175
Futur Pro	12 277	57 1 68 269	100	160 — 143 7 47 1 49	201 - 211	122 — 122 86 — 64 51 34 265	1/0

PM Peak Hour Volumes

**FIGURE** 

### Future With-Project Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). For unsignalized stop-controlled intersections such as the proposed school driveways, LOS is measured in average delay per vehicle during the peak hour of traffic and is reported for the worst operating approach of the intersection. Traffic operations for an intersection can be described alphabetically with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix B contains a detailed explanation of LOS criteria and definitions.

The peak hour factors at the school driveways for future with-project conditions account for more concentrated peaking characteristics immediately before school start and immediately after school dismissal. In general, the majority of school trips in the morning tend to arrive during the 30 minutes before school starts and the majority of school trips in the afternoon tend to depart just after the school bell time.

Traffic operations for future with-project conditions were evaluated at the study intersections based on the procedures identified in the *Highway Capacity Manual (HCM)* (2010), and were evaluated using the *Synchro 9* software program. Table 3 summarizes the anticipated driveway operations during the future with-project AM peak hour, afternoon school peak hour, and PM commute peak hour. It is important to note that Pierce County requires the analysis be conducted as if all trips utilize just one driveway, rather than through two driveways as proposed. The operations below do not consider additional frontage or channelization upgrades from existing conditions. Detailed LOS worksheets are shown in Appendix C.



		2022 Future With-Proj		
Intersection	Traffic Control	LOS <sup>1</sup>	Delay <sup>2</sup>	WM <sup>3</sup>
AM Peak Hour				
1. Woodland Ave E / 144th St E	Stop Control	В	13	WB
2. Woodland Ave E / 147th St Ct E	Stop Control	С	16	WB
3. Crown Dr E / 144th St E	Stop Control	В	10	WB
4. 76th Ave E / 144th St E	Stop Control	Α	10	NB
5. 80th Ave E / 144th St E	Stop Control	В	11	NB
6. 86th Ave E /144th St E	All Way Stop	E	41	-
7. Single Driveway / 144th St E	Stop Control	F	75	SBL
Afternoon School Peak Hour				
1. Woodland Ave E / 144th St E	Stop Control	В	11	WB
2. Woodland Ave E / 147th St Ct E	Stop Control	С	18	WB
3. Crown Dr E / 144th St E	Stop Control	В	10	WB
4. 76th Ave E / 144th St E	Stop Control	Α	9	NB
5. 80th Ave E / 144th St E	Stop Control	В	11	NB
6. 86th Ave E /144th St E	All Way Stop	E	41	-
7. Single Driveway / 144th St E	Stop Control	D	30	SBL
PM Commute Peak Hour				
1. Woodland Ave E / 144th St E	Stop Control	В	13	WB
2. Woodland Ave E / 147th St Ct E	Stop Control	D	26	WB
3. Crown Dr E / 144th St E	Stop Control	В	10	WB
4. 76th Ave E / 144th St E	Stop Control	Α	10	NB
5. 80th Ave E / 144th St E	Stop Control	В	10	NB
6. 86th Ave E /144th St E	All Way Stop	F	101	-
7. Single Driveway / 144th St E	Stop Control	В	12	SBL

- 1. Level of Service (A F) as defined by the 2010 Highway Capacity Manual (HCM), Transportation Research Board.
- Average delay per vehicle in seconds.
- 3. Worst movement reported for two way stop controlled intersections.

As seen in Table 3, off-site study intersections 1 -5 would all operate at LOS C or better during all future peak hours. Intersection 6 would operate at LOS E during the future AM and afternoon peak hours and at LOS F during the future PM peak hour. The single driveway is anticipated to operate at LOS F during the future AM peak hour, the worst performing hour. The driveway would then improve to LOS D and LOS B during the future afternoon and PM peak hours, respectively.

## Mitigation for 86th Avenue E / 144th Street E

As shown in Table 3, the 86th Avenue / 144th Street E intersection would degrade to LOS F during the future PM commute peak hour. Mitigation for this intersection will be coordinated with Pierce County. One possible mitigation measure is the installation of a wire-span traffic signal that would replace the all-way stop control. It is anticipated that the intersection would perform at LOS A during all future peak hours, when modeled as a traffic signal.

### **Vehicle Queueing**

Vehicle queueing was analyzed at the access driveways. *Synchro 9.1* software by Trafficware was used to determine 95th percentile queues for each approach at the driveways. As mentioned previously, the analysis for queueing would also assume all school trips utilize one single driveway rather than assuming analysis of the two proposed driveways. It is important to note that these queues are estimated based on HCM



methodology using intersection parameters such as traffic volumes, peak hour factors (PHFs), pedestrian crossings, and channelization. The following analysis also assumes no road improvements to 144th Street E from existing conditions. Table 4 summarizes the 95th percentile queues per approach for each driveway during future peak hours. Detailed queueing worksheets are provided in Appendix C.

Table 4. Future Weekday Peak Hour 95th Percentile Queueing Summary

		Approach				
Intersection	Traffic Control	EB	WB	SB		
AM Peak Hour						
Single Driveway / 144th St E	Stop Control	15 ft	0 ft	135 ft		
Afternoon School Peak Hour						
Single Driveway / 144th St E	Stop Control	6 ft	0 ft	52 ft		
PM Commute Peak Hour						
Single Driveway / 144th St E	Stop Control	2 ft	0 ft	6 ft		

As summarized in Table 4, vehicle queues at the site access driveways are calculated to be longest in the morning when there is a higher combination of traffic on the adjacent street with traffic associated with the school arrival. Queues during this period are calculated to extend approximately 1-2 vehicles in the eastbound direction along 144th Street E for those trying to enter the site and 7-8 vehicles in the southbound direction exiting the driveway. Queues generally improve as the day goes on past the AM peak hour.

### **Driveway Spacing Requirements**

Per the Manual on Design Guidelines and Specifications for Road and Bridge Construction in Pierce County (February 2011)<sup>1</sup>, major driveway approaches shall be located a minimum 125 feet from an intersection, measured from the intersecting road right-of-way line to the nearest edge of access. Both of the west and east driveways would satisfy the minimum spacing requirement of 125 feet from other roadways and driveways.

### HR 211 Analysis

Pierce County utilizes Highway Research Record (HRR) 211² for evaluating potential left turn storage lane. This was utilized as a point of reference to evaluate 144th Street E at the school driveways to determine if any left-turn lanes were required. Based on guidance from Pierce County staff, it was assumed that all school related trips would use a single driveway for analysis purposes. Considering trip generation during the highest trip peak hour (AM) with a 1,030-student capacity, the advancing volume is estimated to be approximately 181 vehicles while the opposing volume is estimated to be approximately 260 vehicles. Based on Figure 2 of *HR* 211, no left-turn lane would be required or warranted for the mentioned volumes. Figure 7 illustrates the *HRR* 211 analysis with the described volumes.

<sup>&</sup>lt;sup>2</sup> HRR 211, 1968. Figure 2. Warrant for left-turn storage lanes on two-lane highways.



13

<sup>&</sup>lt;sup>1</sup> Page 41, Section 5-2.3 Major Driveway Approach

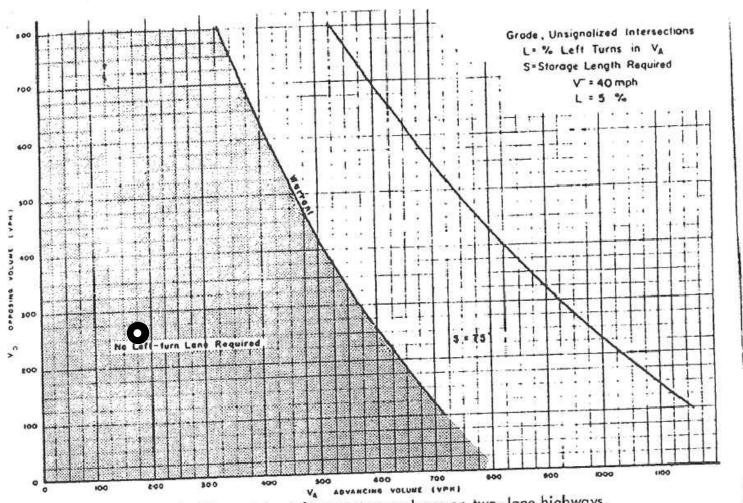


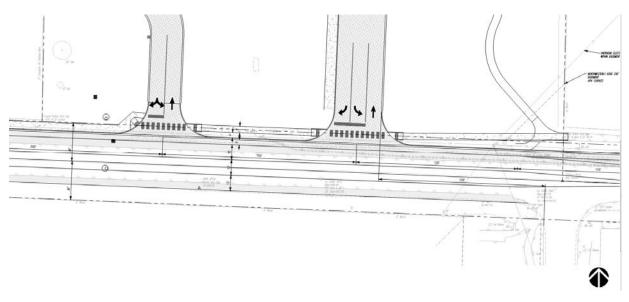
Figure 2. Warrant for left-turn storage lanes on two-lane highways.

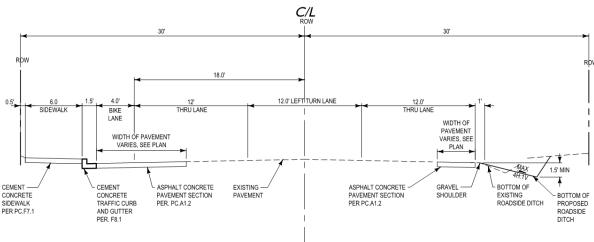
# HR 211 Analysis for Left-turn Storage Lanes

**FIGURE** 

### Recommended Frontage Improvements

It is recommended that a two-way center left turn lane along the frontage be provided along 144th Street East to improve operations and provide for dedicated queuing capacity for school traffic. The two-way center left turn lane would provide for eastbound left turn storage as well as for refuge for southbound left traffic exiting the school site. To provide a two-way center left turn lane on 144th Street East, the frontage would need to be modified to accommodate the additional right of way needed. The following figures below illustrate preliminary conceptual channelization and cross section on 144th Street East. The details for this design are currently being coordinated between the School District and the County.





### Traffic Operations with Frontage Improvements

This section provides an analysis of operations with the proposed frontage improvements that would include a two-way center left turn lane.

Table 5 summarizes the anticipated driveway operations considering an eastbound left turn lane and median refuge lane during the future with-project AM peak hour, afternoon school peak hour, and PM commute peak hour. The operations for the six off-site intersections would remain the same with or without the frontage improvements.



		2022 Future With-Project			
Intersection	Traffic Control	LOS1	Delay <sup>2</sup>	WM <sup>3</sup>	
AM Peak Hour					
Single Driveway / 144th St E	Stop Control	D	31	SBL	
Afternoon School Peak Hour					
Single Driveway / 144th St E	Stop Control	С	19	SBL	
PM Commute Peak Hour					
Single Driveway / 144th St E	Stop Control	В	11	SBL	

- 1. Level of Service (A F) as defined by the 2010 Highway Capacity Manual (HCM), Transportation Research Board.
- Average delay per vehicle in seconds.
- 3. Worst movement reported for unsignalized intersections.

As seen in Table 5, the driveway is anticipated to operate at LOS D or better during all future peak hours. The addition of a two-way center left turn lane would improve operations and provide for additional queuing capacity for left turning traffic.

Table 6 summarizes the 95th percentile queues per approach for each driveway during future peak hours when considering the 144th Street frontage improvements. Detailed queueing worksheets are provided in Appendix C.

Table 6. Future Weekday Peak Hour 95th Percentile Queueing Summary (Frontage Improvements)

			Approach	
Intersection	Traffic Control	EBL	WB	SB
AM Peak Hour				
Single Driveway / 144th St E	Stop Control	12 ft	0 ft	70 ft
Afternoon School Peak Hour				
Single Driveway / 144th St E	Stop Control	6 ft	0 ft	32 ft
PM Commute Peak Hour				
Single Driveway / 144th St E	Stop Control	2 ft	0 ft	4 ft

As seen in Table 6, queues on 144th Street would extend 1-2 vehicles on the eastbound approach and up to 4-5 vehicles along the driveway during the future AM peak hour, the worst performing peak hour.

#### Non-Motorized Facilities

As part of the frontage improvements additional improvements to extend safe walk routes to the surrounding neighborhood is being coordinated with Pierce County. This will include connecting to existing pedestrian facilities to the east that exist on the north side of 144th Street E as well as providing a cross walk at the 80th Avenue E private drive to connect to the neighborhood to the south. The school district will provide supervision of this crosswalk which will allow Pierce County to establish a school speed zone near the frontage of the new elementary site.

Pedestrian facilities to the west of the site are limited and improvements would be required to provide safe walk routes. The school district is working with Pierce County to see if there are feasible improvements that can be completed to better connect neighborhoods to the west. If improvements are not feasible, bus service would be provided for those students.



### Sight Distance

Based on sight distance requirements<sup>3</sup> for a 35-mph roadway, an entering sight distance of 415 feet, and exiting sight distance of 285 feet would be needed to satisfy all applicable sight distance requirements.

Entering and exiting sight distance analysis was performed<sup>4</sup> at the proposed driveways. It was found that both driveways would satisfy the entering and exiting sight distance requirements when looking east and west. The sight distance diagrams and figures are provided in Appendix D.

### **Cut-Through Traffic**

To address concerns of potential increased cut-through traffic on the capacity of the local roads between the project site and Woodland Avenue E, daily volume counts were collected along three of the most popular cut-through roads (listed below):

- 142nd Street Court E west of 74th Avenue Court E (900 daily vehicles)
- Crown Drive E west of 73rd Avenue Court E (1,100 daily vehicles)
- 147th Street Court East west of 73rd Avenue Court E (650 daily vehicles)

Based on roadway classification information found in the *Pierce County Road Classification Ordinance* and the *Manual on Design Guidelines and Specifications for Road and Bridge Construction in Pierce County*, all three roadways are classified as local road feeders which serves as primary access to developments from the adjacent street system. Typical Average Daily Traffic (ADT) range from 800 to 2,000 vehicles per day. Based on the average weekday daily traffic on these three roadways, all three roadways are well under the suggested roadway capacity of 2,000 ADT, ranging from 32 – 55 percent capacity.

As mentioned in the Trip Generation section, the school is anticipated to generate approximately 1,329 daily trips, with approximately 610 trips to/from the west towards the cutthrough study roadways. As a conservative estimate, if all 610 trips would use Crown Drive E (the road with the highest daily volumes), the roadway would experience approximately 1,700 daily vehicles and would continue to operate under capacity based on its roadway classification. Thus, it is expected that the studied cut-through roadways would be able to accommodate additional daily traffic associated with the new school. As mentioned previously, it is anticipated that there would be no operational issues in terms of level of service at the off-site intersections to the west with the addition of project trips.

<sup>&</sup>lt;sup>4</sup> Sight distance analysis performed by Coughlin, Porter, Lundeen Engineering firm on September 5, 2017 for all proposed driveways.



17

<sup>&</sup>lt;sup>3</sup> Manual on Design Guidelines and Specifications for Road and Bridge Construction in Pierce County (February 2011) Section 3-1.

## **Chapter 4. Findings and Recommendations**

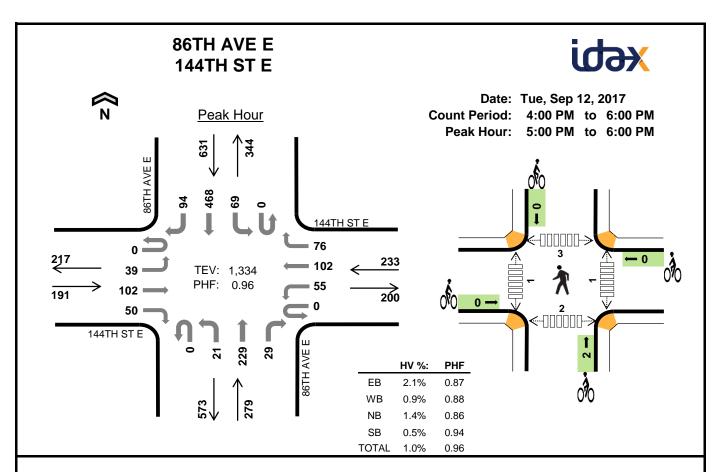
This transportation impact study summarizes the project traffic impacts of the proposed Elementary school in Puyallup. General findings and recommendations include:

- The proposed project includes the construction of an elementary school located north of 144th Street E and west of 86th Avenue E.
- The school would have a student population capacity of 1,030 students.
- The proposed elementary school would generate 464 project trips during the AM peak hour, 288 project trips during the PM peak hour of the school, and 155 project trips during the PM peak hour of adjacent street traffic.
- It is recommended that a two-way center left turn lane with illumination along the frontage be provided along 144th Street East to improve operations and provide for dedicated queuing capacity for school traffic.
- The 86th Avenue E / 144th Street E is anticipated to operate at poor operations during the future peak hours. All other off-site intersections would operate at acceptable levels of LOS.
- Mitigation for the 86th Avenue E / 144th Street E intersection would be coordinated with Pierce County.
- Operationally, the site access was evaluated as if all traffic were concentrated to one driveway based on Pierce County requirements. With the recommended frontage improvements, the access is projected to operate at an acceptable LOS D or better condition.
- Without a two-way center left turn lane, the access would operate at LOS F or better conditions when conservatively assuming all traffic would utilize one driveway.
- Without frontage improvements, southbound queues at the driveway may extend up to 135 feet. With frontage improvements, the queue is anticipated to drop down to 70 feet. There would be relatively minimal queueing during the future afternoon and PM peak hours for every approach.
- Both proposed driveways would meet spacing requirements.
- Both driveways would satisfy entering and exiting sight distance requirements.

7

# Appendix A:Traffic Counts



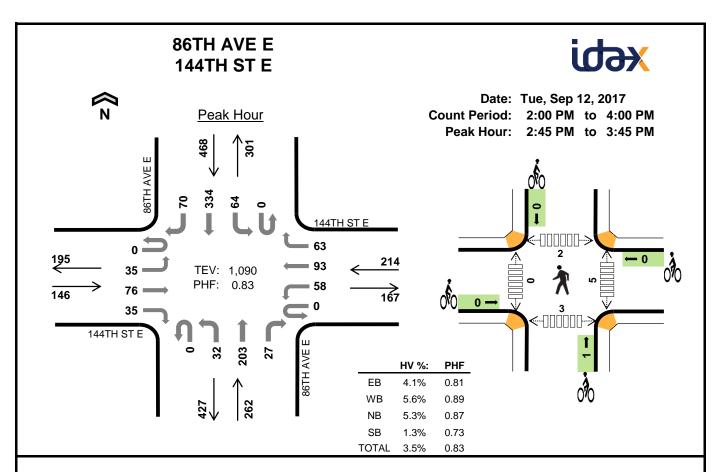


Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

Mark Skaggs: (425) 250-0777

				_														
Interval		144TH	1 ST E			144TH	1 ST E			86TH	AVE E			86TH	AVE E		45	Dalling
Interval Start		Eastl	bound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One nour
4:00 PM	0	4	18	10	0	16	28	16	0	2	45	2	0	17	103	13	274	0
4:15 PM	0	8	24	11	0	8	18	15	0	6	39	4	0	22	118	18	291	0
4:30 PM	0	9	14	10	0	15	16	11	0	9	41	10	0	28	93	22	278	0
4:45 PM	0	14	17	7	0	12	24	14	0	5	59	3	0	28	101	13	297	1,140
5:00 PM	0	9	21	11	0	17	23	24	0	6	49	4	0	15	117	28	324	1,190
5:15 PM	0	13	25	10	0	7	21	14	0	5	51	7	0	22	122	23	320	1,219
5:30 PM	0	10	30	15	0	18	23	20	0	8	63	10	0	13	112	26	348	1,289
5:45 PM	0	7	26	14	0	13	35	18	0	2	66	8	0	19	117	17	342	1,334
Count Total	0	74	175	88	0	106	188	132	0	43	413	48	0	164	883	160	2,474	0
Peak Hour	0	39	102	50	0	55	102	76	0	21	229	29	0	69	468	94	1.334	0

Interval		Heavy	Vehicle	Totals				Bicycles				Pedestria	ıns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	5	1	7	0	1	1	0	2	2	0	0	2	4
4:15 PM	1	1	1	1	4	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	2	1	1	5	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	2	0	2	0	0	1	0	1	1	0	2	0	3
5:15 PM	1	1	1	0	3	0	0	1	0	1	0	0	0	1	1
5:30 PM	2	0	0	3	5	0	0	0	0	0	0	1	0	0	1
5:45 PM	1	1	1	0	3	0	0	0	0	0	0	0	1	1	2
Count Total	6	6	12	6	30	0	1	3	0	4	3	1	3	4	11
Peak Hour	4	2	4	3	13	0	0	2	0	2	1	1	3	2	7

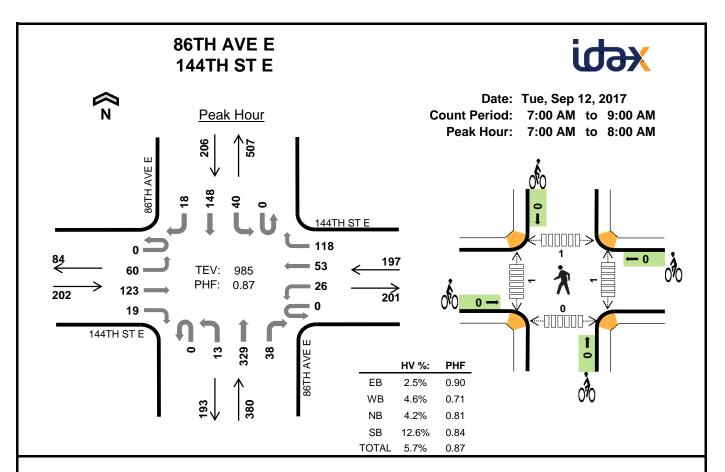


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Mark Skaggs: (425) 250-0777

Interval		144TH	STE			144TH	I ST E			86TH	AVE E			86TH	AVE E		45	Dalling
Interval Start		Eastb	ound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One riou
2:00 PM	0	4	22	6	0	5	16	12	0	1	49	5	0	10	50	12	192	0
2:15 PM	0	16	13	4	0	7	20	28	0	1	61	7	0	12	60	13	242	0
2:30 PM	0	11	20	8	0	5	21	15	0	7	29	4	0	17	117	22	276	0
2:45 PM	0	11	27	7	0	15	21	12	0	10	49	8	0	23	81	13	277	987
3:00 PM	0	3	14	10	0	15	24	14	0	6	34	8	0	13	86	21	248	1,043
3:15 PM	0	8	17	9	0	17	22	21	0	10	59	3	0	11	49	11	237	1,038
3:30 PM	0	13	18	9	0	11	26	16	0	6	61	8	0	17	118	25	328	1,090
3:45 PM	0	10	18	7	0	10	17	11	0	4	50	5	0	16	100	14	262	1,075
Count Total	0	76	149	60	0	85	167	129	0	45	392	48	0	119	661	131	2,062	0
Peak Hour	0	35	76	35	0	58	93	63	0	32	203	27	0	64	334	70	1,090	0

Interval		Heavy	Vehicle	Totals				Bicycles	i			Pedestria	ns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	0	3	6	9	0	0	0	0	0	0	0	0	0	0
2:15 PM	1	3	3	5	12	0	0	0	0	0	0	0	0	0	0
2:30 PM	1	0	0	10	11	0	0	0	0	0	1	1	1	1	4
2:45 PM	0	2	1	1	4	0	0	1	0	1	1	0	1	1	3
3:00 PM	2	2	1	2	7	0	0	0	0	0	0	0	0	0	0
3:15 PM	2	8	10	2	22	0	0	0	0	0	1	0	0	0	1
3:30 PM	2	0	2	1	5	0	0	0	0	0	3	0	1	2	6
3:45 PM	1	0	9	0	10	0	0	0	0	0	1	0	1	1	3
Count Total	9	15	29	27	80	0	0	1	0	1	7	1	4	5	17
Peak Hour	6	12	14	6	38	0	0	1	0	1	5	0	2	3	10



Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

Mark Skaggs: (425) 250-0777

				_														
Interval		144TI	H ST E			144TH	1 ST E			86TH	AVE E			86TH	AVE E		45 min	Dalling
Interval Start		East	bound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One nou
7:00 AM	0	9	32	6	0	4	10	13	0	2	63	12	0	10	28	3	192	0
7:15 AM	0	18	34	4	0	6	10	38	0	5	100	13	0	15	32	4	279	0
7:30 AM	0	24	27	3	0	5	18	46	0	2	101	3	0	4	41	8	282	0
7:45 AM	0	9	30	6	0	11	15	21	0	4	65	10	0	11	47	3	232	985
8:00 AM	0	13	28	2	0	5	11	9	0	2	51	9	0	6	22	9	167	960
8:15 AM	0	15	22	2	0	8	9	11	0	4	52	11	0	10	29	2	175	856
8:30 AM	0	4	21	3	0	5	3	17	0	2	46	5	0	4	28	5	143	717
8:45 AM	0	6	16	4	0	1	9	18	0	3	68	7	0	7	24	4	167	652
Count Total	0	98	210	30	0	45	85	173	0	24	546	70	0	67	251	38	1,637	0
Peak Hour	0	60	123	19	0	26	53	118	0	13	329	38	0	40	148	18	985	0

Interval		Heavy	Vehicle	Totals				Bicycles	i			Pedestria	ans (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	1	1	16	19	0	0	0	0	0	0	0	0	0	0
7:15 AM	2	1	3	3	9	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	4	8	4	18	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	3	4	3	10	0	0	0	0	0	1	1	1	0	3
8:00 AM	1	1	2	3	7	0	0	0	0	0	1	1	1	1	4
8:15 AM	2	6	3	2	13	0	1	0	0	1	0	0	0	0	0
8:30 AM	0	2	2	0	4	0	0	0	0	0	2	0	0	1	3
8:45 AM	0	4	12	1	17	0	0	0	0	0	0	0	0	0	0
Count Total	8	22	35	32	97	0	1	0	0	1	4	2	2	2	10
Peak Hour	5	9	16	26	56	0	0	0	0	0	1	1	1	0	3

### 80TH AVE E 144TH ST E



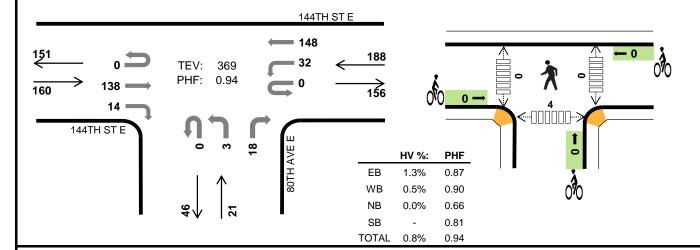
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Peak Hour

Date: Thu, Sep 14, 2017

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:30 PM to 5:30 PM



#### Two-Hour Count Summaries

Mark Skaggs: (425) 250-0777

lutamed.		144TI	H ST E			144TH	I ST E			80TH	AVE E				0		45	D - 11:
Interval Start		East	bound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One Hour
4:00 PM	0	0	25	0	0	3	41	3	0	0	0	3	0	1	0	1	77	0
4:15 PM	0	0	28	2	0	5	24	2	0	0	1	2	0	3	0	1	68	0
4:30 PM	0	1	44	1	0	6	43	2	0	0	0	1	0	1	1	1	101	0
4:45 PM	0	1	25	6	0	5	33	0	0	1	0	7	0	2	0	1	81	327
5:00 PM	0	3	34	4	0	9	37	1	0	1	0	6	0	2	0	1	98	348
5:15 PM	0	3	35	3	0	12	35	5	0	1	0	4	0	2	0	2	102	382
5:30 PM	0	0	38	3	0	9	33	0	0	2	0	4	0	1	0	0	90	371
5:45 PM	0	0	30	1	0	3	39	3	0	1	0	2	0	3	0	1	83	373
Count Total	0	8	259	20	0	52	285	16	0	6	1	29	0	0	0	0	676	0
Peak Hour	0	8	138	14	0	32	148	8	0	3	0	18	0	0	0	0	369	0

Interval		Heavy	Vehicle	Totals				Bicycles	i			Pedestria	ans (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	2	5	7
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
4:30 PM	2	1	0	0	3	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Count Total	4	1	0	0	5	0	0	0	0	0	0	0	5	11	16
Peak Hr	2	1	0	0	3	0	0	0	0	0	0	0	2	4	6

### 80TH AVE E 144TH ST E



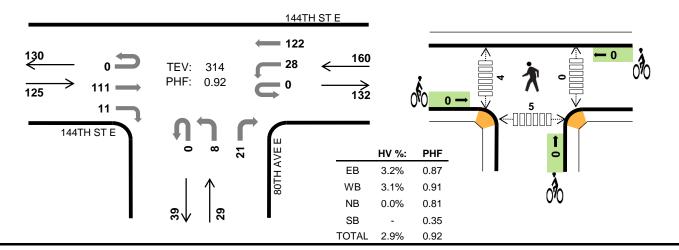
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Peak Hour

Date: Thu, Sep 14, 2017

Count Period: 2:00 PM to 4:00 PM

Peak Hour: 2:45 PM to 3:45 PM



#### Two-Hour Count Summaries

Mark Skaggs: (425) 250-0777

Interval		144TH	ISTE			144TH	I ST E			80TH	AVE E			(	0		4E min	Dalling
Interval Start		Eastb	ound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One rioui
2:00 PM	0	0	24	1	0	3	24	3	0	1	0	6	0	1	0	0	63	0
2:15 PM	0	0	23	2	0	3	24	0	0	1	0	8	0	1	0	1	63	0
2:30 PM	0	0	26	3	0	3	26	0	0	1	0	4	0	2	0	1	66	0
2:45 PM	0	0	30	1	0	10	31	3	0	1	0	8	0	1	0	0	85	277
3:00 PM	0	2	28	3	0	7	32	2	0	3	0	5	0	0	0	0	82	296
3:15 PM	0	0	32	4	0	6	33	1	0	2	0	4	0	3	0	2	87	320
3:30 PM	0	1	21	3	0	5	26	4	0	2	0	4	0	1	0	0	67	321
3:45 PM	0	1	31	3	0	12	23	2	0	1	0	7	0	1	0	0	81	317
Count Total	0	4	215	20	0	49	219	15	0	12	0	46	0	0	0	0	580	0
Peak Hour	0	3	111	11	0	28	122	10	0	8	0	21	0	0	0	0	314	0

Interval		Heavy	Vehicle	Totals				Bicycles	;			Pedestria	ans (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1
2:15 PM	2	3	1	0	6	0	0	0	0	0	0	0	4	0	4
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
2:45 PM	1	2	0	0	3	0	0	0	0	0	0	4	1	1	6
3:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1
3:15 PM	1	3	0	0	4	0	0	0	0	0	0	0	0	3	3
3:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
3:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1
Count Total	7	9	1	0	17	0	0	0	0	0	0	4	6	7	17
Peak Hr	4	5	0	0	9	0	0	0	0	0	0	4	1	5	10

### 80TH AVE E 144TH ST E



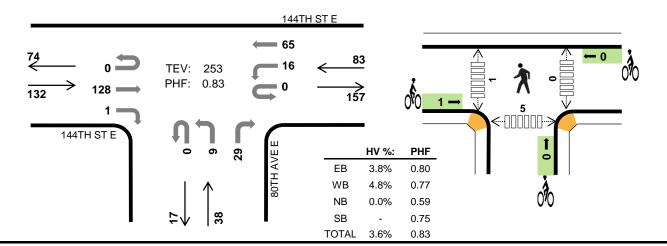


Peak Hour

Date: Thu, Sep 14, 2017

Count Period: 7:00 AM to 9:00 AM

Peak Hour: 7:00 AM to 8:00 AM

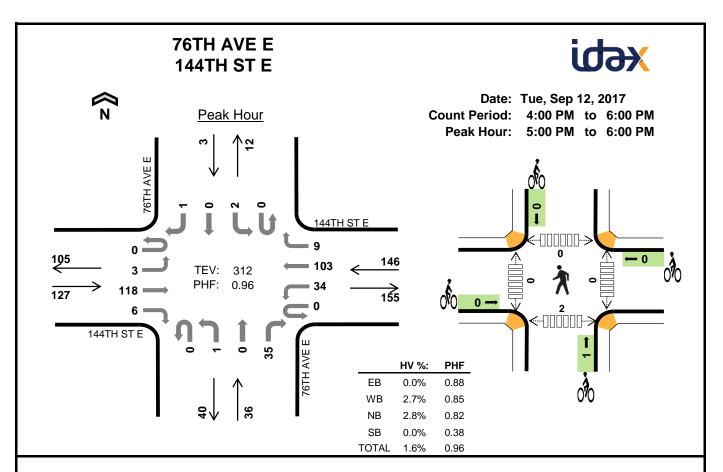


#### Two-Hour Count Summaries

Mark Skaggs: (425) 250-0777

Interval		144TH	1 ST E			144TH	I ST E			80TH	AVE E			(	0		4F min	Dalling
Interval Start		Eastl	oound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	iotai	Offe Flour
7:00 AM	0	1	30	1	0	3	11	0	0	2	0	5	0	4	0	0	57	0
7:15 AM	0	1	32	0	0	4	19	1	0	6	0	10	0	3	0	0	76	0
7:30 AM	0	1	40	0	0	4	23	0	0	1	0	7	0	4	0	2	82	0
7:45 AM	0	0	26	0	0	5	12	1	0	0	0	7	0	3	0	2	56	271
8:00 AM	0	1	23	0	0	2	7	2	0	1	0	8	0	3	0	1	48	262
8:15 AM	0	0	30	1	0	1	11	1	0	3	0	10	0	3	0	2	62	248
8:30 AM	1	0	24	0	0	1	22	1	0	0	0	3	0	2	0	1	55	221
8:45 AM	0	2	14	1	0	3	18	0	0	1	0	5	0	1	0	1	46	211
Count Total	1	6	219	3	0	23	123	6	0	14	0	55	0	0	0	0	450	0
Peak Hour	0	3	128	1	0	16	65	2	0	9	0	29	0	0	0	0	253	0

Interval		Heavy	Vehicle	Totals				Bicycles	i			Pedestria	ans (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	1	0	0	2	0	0	0	0	0	0	0	0	1	1
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	3	3
7:30 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	2	0	0	3	1	0	0	0	1	0	1	1	1	3
8:00 AM	1	2	0	0	3	0	0	0	0	0	0	0	0	1	1
8:15 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	9	6	1	0	16	1	0	0	0	1	0	1	1	7	9
Peak Hr	5	4	0	0	9	1	0	0	0	1	0	1	1	5	7

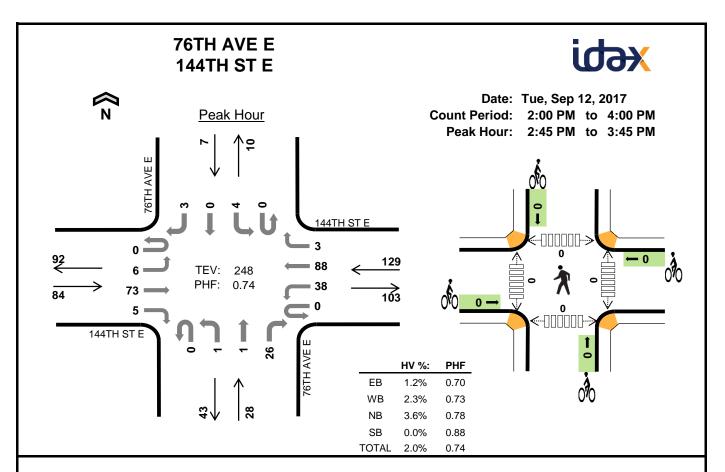


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II WO-IIOUI	Count Sun	ıı ı ıaı ı <del>c</del> ə

Mark Skaggs: (425) 250-0777

Interval		144TH	ISTE			144TH	I ST E			76TH	AVE E			76TH	AVE E		45	Dalling
Interval Start		Eastb	ound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One Hour
4:00 PM	0	0	27	0	0	5	25	0	0	0	0	8	0	0	0	1	66	0
4:15 PM	0	1	29	0	0	2	23	1	0	0	0	8	0	1	0	1	66	0
4:30 PM	0	0	25	1	0	6	27	1	0	0	0	3	0	0	0	1	64	0
4:45 PM	0	0	22	0	0	8	19	1	0	0	0	6	0	1	0	0	57	253
5:00 PM	0	0	28	1	0	13	25	5	0	0	0	8	0	0	0	1	81	268
5:15 PM	0	0	34	2	0	8	22	1	0	0	0	7	0	2	0	0	76	278
5:30 PM	0	3	29	0	0	7	28	1	0	1	0	10	0	0	0	0	79	293
5:45 PM	0	0	27	3	0	6	28	2	0	0	0	10	0	0	0	0	76	312
Count Total	0	4	221	7	0	55	197	12	0	1	0	60	0	4	0	4	565	0
Peak Hour	0	3	118	6	0	34	103	9	0	1	0	35	0	2	0	1	312	0

Interval		Heavy	Vehicle	Totals				Bicycles	;			Pedestria	ns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
4:15 PM	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
5:15 PM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	1	1
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1
Count Total	0	6	2	1	9	0	0	1	0	1	0	0	0	3	3
Peak Hour	0	4	1	0	5	0	0	1	0	1	0	0	0	2	2

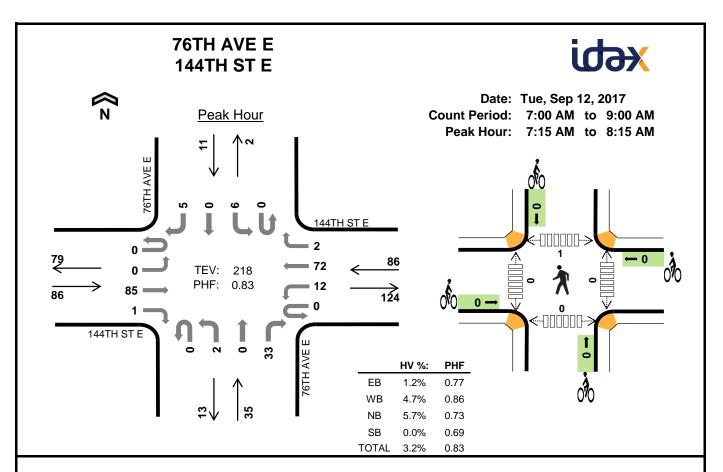


I WA-HALIR	<b>Count Sum</b>	mariae
II WO-IIOUI	Count Sun	ıı ı ıaı ı <del>c</del> ə

Mark Skaggs: (425) 250-0777

Interval		144TH	STE			144TH	I ST E			76TH	AVE E			76TH	AVE E		45 min	Dalling
Start		Eastb	ound			Westl	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One flour
2:00 PM	0	0	21	1	0	5	22	0	0	0	0	5	0	0	0	0	54	0
2:15 PM	0	1	15	0	1	8	15	1	0	2	0	5	0	0	0	0	48	0
2:30 PM	0	0	16	1	0	10	20	1	0	0	0	16	0	1	0	1	66	0
2:45 PM	0	1	19	0	0	6	24	0	0	1	0	8	0	0	0	1	60	228
3:00 PM	0	3	10	0	0	9	20	1	0	0	1	5	0	1	0	1	51	225
3:15 PM	0	2	18	1	0	9	15	1	0	0	0	5	0	1	0	1	53	230
3:30 PM	0	0	26	4	0	14	29	1	0	0	0	8	0	2	0	0	84	248
3:45 PM	0	0	21	0	0	9	15	0	0	1	0	8	0	0	0	0	54	242
Count Total	0	7	146	7	1	70	160	5	0	4	1	60	0	5	0	4	470	0
Peak Hour	0	6	73	5	0	38	88	3	0	1	1	26	0	4	0	3	248	0

Interval		Heavy	Vehicle	Totals				Bicycles	i			Pedestria	ns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1
2:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
2:30 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
3:15 PM	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Count Total	4	5	1	0	10	0	0	0	0	0	0	1	0	1	2
Peak Hour	1	3	1	0	5	0	0	0	0	0	0	0	0	0	0

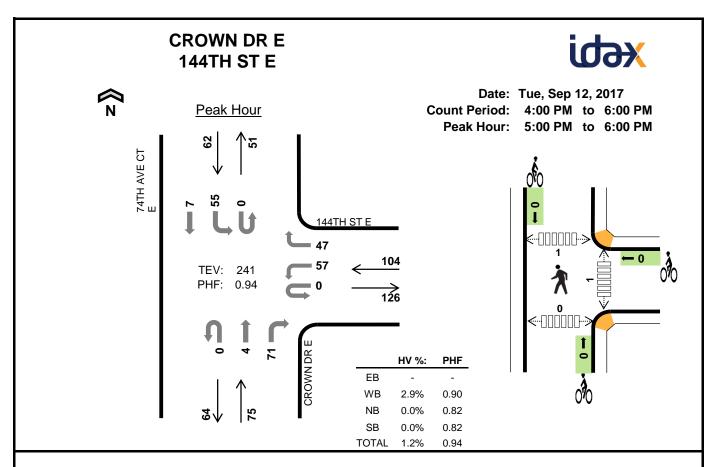


Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

Mark Skaggs: (425) 250-0777

Interval		144TH	STE			144TH	I ST E			76TH	AVE E			76TH	AVE E		45 min	Dalling
Interval Start		Eastb	ound			Westl	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One Hour
7:00 AM	0	0	11	0	0	2	9	0	0	1	0	12	0	0	0	2	37	0
7:15 AM	0	0	28	0	0	2	17	0	0	0	0	7	0	2	0	1	57	0
7:30 AM	0	0	26	1	0	5	19	1	0	1	0	11	0	1	0	1	66	0
7:45 AM	0	0	17	0	0	3	19	0	0	0	0	7	0	2	0	0	48	208
8:00 AM	0	0	14	0	0	2	17	1	0	1	0	8	0	1	0	3	47	218
8:15 AM	0	0	10	0	0	4	12	0	0	0	0	10	0	1	0	1	38	199
8:30 AM	0	1	17	1	0	2	7	0	0	1	0	6	0	2	0	0	37	170
8:45 AM	0	0	7	0	0	3	11	0	0	1	0	5	0	0	0	0	27	149
Count Total	0	1	130	2	0	23	111	2	0	5	0	66	0	9	0	8	357	0
Peak Hour	0	0	85	1	0	12	72	2	0	2	0	33	0	6	0	5	218	0

Interval		Heavy	Vehicle	Totals				Bicycles				Pedestria	ıns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	2	0	0	3	0	0	0	0	0	0	0	1	0	1
8:15 AM	1	1	1	0	3	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	1	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	3	5	4	0	12	0	0	0	0	0	3	0	1	1	5
Peak Hour	1	4	2	0	7	0	0	0	0	0	0	0	1	0	1

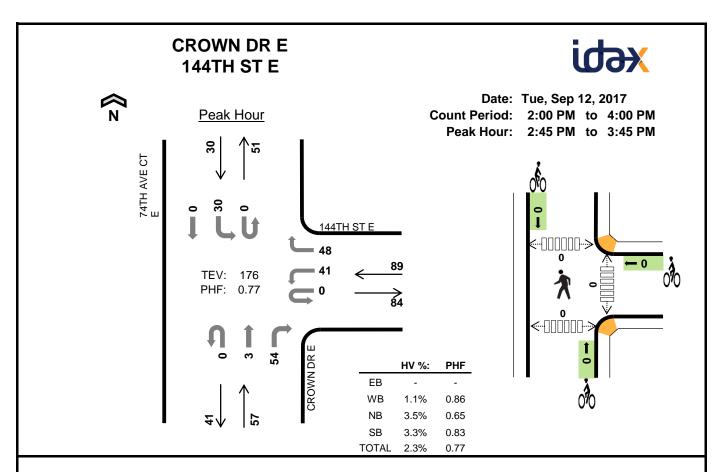


Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

Mark Skaggs: (425) 250-0777

Interval		(	)			144TH	I ST E			CROW	N DR E		7	4TH A	VE CT	Ε	45	Dalling
Interval Start		Eastb	ound			Westk	oound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One Hou
4:00 PM	0	0	0	0	0	18	0	7	0	0	3	13	0	13	2	0	56	0
4:15 PM	0	0	0	0	0	8	0	14	0	0	1	21	0	9	0	0	53	0
4:30 PM	0	0	0	0	0	17	0	12	0	0	0	16	0	9	1	0	55	0
4:45 PM	0	0	0	0	0	10	0	8	0	0	1	12	0	9	0	0	40	204
5:00 PM	0	0	0	0	0	14	0	12	0	0	0	16	0	12	3	0	57	205
5:15 PM	0	0	0	0	0	12	0	10	0	0	0	20	0	16	2	0	60	212
5:30 PM	0	0	0	0	0	14	0	15	0	0	1	15	0	17	2	0	64	221
5:45 PM	0	0	0	0	0	17	0	10	0	0	3	20	0	10	0	0	60	241
Count Total	0	0	0	0	0	110	0	88	0	0	9	133	0	95	10	0	445	0
Peak Hour	0	0	0	0	0	57	0	47	0	0	4	71	0	55	7	0	241	0

Interval		Heavy	Vehicle	Totals				Bicycles	;			Pedestria	ns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	0	2	0	0	0	0	0	1	0	1	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	5	0	0	5	0	0	0	0	0	1	0	1	0	2
Peak Hr	0	3	0	0	3	0	0	0	0	0	1	0	1	0	2

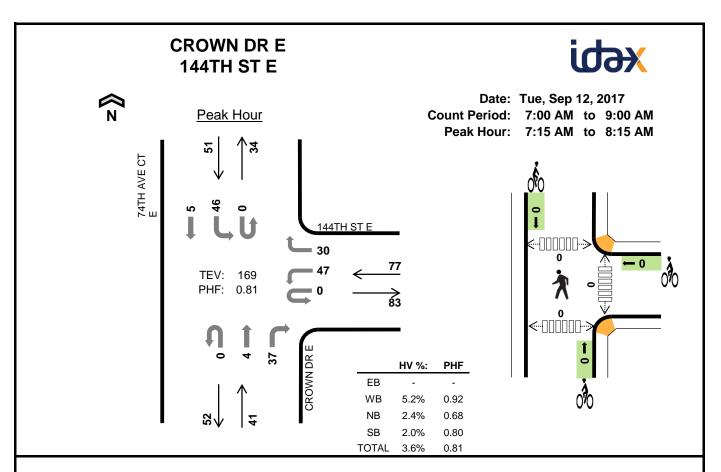


I WA-HALIR	<b>Count Sum</b>	mariae
II WO-IIOUI	Count Sun	ıı ı ıaı ı <del>c</del> ə

Mark Skaggs: (425) 250-0777

Interval		(	)			144TH	STE			CROW	N DR E		7	4TH A	VE CT	E	45	Dalling
Start		Eastb	ound			Westl	oound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One riou
2:00 PM	0	0	0	0	0	10	0	12	0	0	0	12	0	12	0	0	46	0
2:15 PM	0	0	0	0	1	9	0	8	0	0	1	5	0	8	1	0	33	0
2:30 PM	0	0	0	0	0	11	0	9	0	0	3	8	0	9	1	0	41	0
2:45 PM	0	0	0	0	0	12	0	14	0	0	1	11	0	9	0	0	47	167
3:00 PM	0	0	0	0	0	7	0	14	0	0	0	10	0	4	0	0	35	156
3:15 PM	0	0	0	0	0	5	0	11	0	0	1	12	0	8	0	0	37	160
3:30 PM	0	0	0	0	0	17	0	9	0	0	1	21	0	9	0	0	57	176
3:45 PM	0	0	0	0	0	8	0	11	0	0	0	12	0	9	1	0	41	170
Count Total	0	0	0	0	1	79	0	88	0	0	7	91	0	68	3	0	337	0
Peak Hour	0	0	0	0	0	41	0	48	0	0	3	54	0	30	0	0	176	0

Interval		Heavy	Vehicle	Totals				Bicycles				Pedestria	ns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1
Count Total	0	1	4	2	7	0	0	0	0	0	0	1	0	0	1
Peak Hr	0	1	2	1	4	0	0	0	0	0	0	0	0	0	0

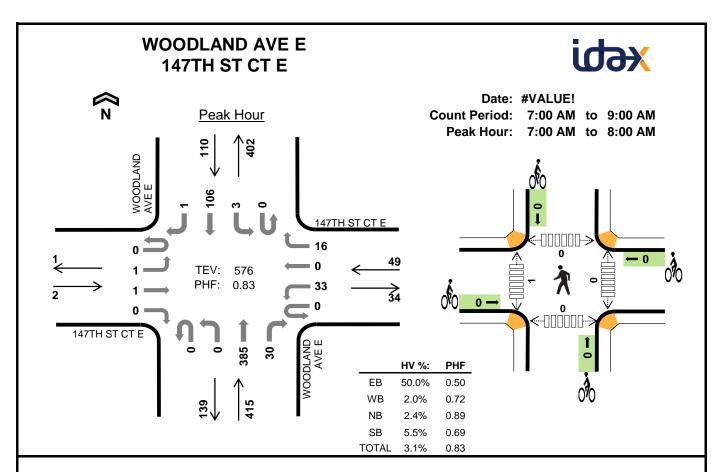


Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

Mark Skaggs: (425) 250-0777

Interval		(	)			144TH	I ST E			CROW	N DR E		7	4TH A	VE CT I	E	45 min	Dalling
Interval Start		Eastb	ound			Westl	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One Hour
7:00 AM	0	0	0	0	0	6	0	5	0	0	0	5	0	7	2	0	25	0
7:15 AM	0	0	0	0	0	13	0	5	0	0	2	12	0	14	1	0	47	0
7:30 AM	0	0	0	0	0	14	0	7	0	0	1	14	0	13	3	0	52	0
7:45 AM	0	0	0	0	0	12	0	7	0	0	1	5	0	11	1	0	37	161
8:00 AM	0	0	0	0	0	8	0	11	0	0	0	6	0	8	0	0	33	169
8:15 AM	0	0	0	0	0	8	0	7	0	0	0	4	0	6	2	0	27	149
8:30 AM	0	0	0	0	0	5	0	3	0	0	1	9	0	9	0	0	27	124
8:45 AM	0	0	0	0	0	4	0	8	0	0	1	3	0	4	0	0	20	107
Count Total	0	0	0	0	0	70	0	53	0	0	6	58	0	72	9	0	268	0
Peak Hour	0	0	0	0	0	47	0	30	0	0	4	37	0	46	5	0	169	0

Interval		Heavy	Vehicle	Totals				Bicycles	i			Pedestria	ns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	4	1	4	9	0	0	0	0	0	0	0	0	0	0
Peak Hr	0	4	1	1	6	0	0	0	0	0	0	0	0	0	0



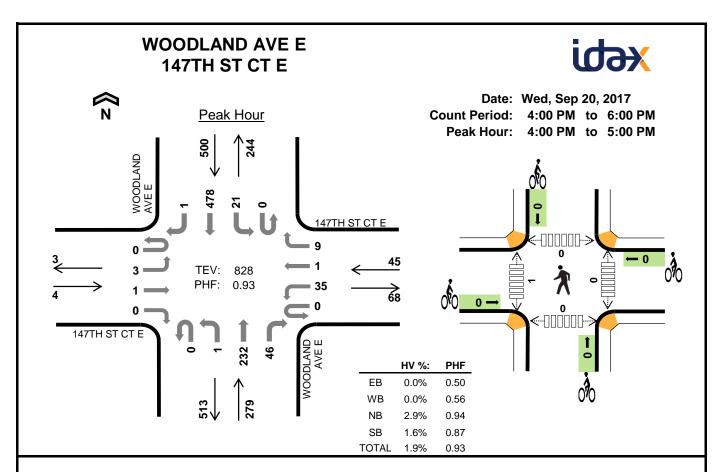
Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

Mark Skaggs: (425) 250-0777

Interval	1	147TH S	ST CT E		1	47TH :	ST CT I	E	WC	OODLA	ND AV	ΕE	W	OODLA	ND AV	ΕE	45	Dalling
Start		Eastb	ound			Westl	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Otart	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One riou
7:00 AM	0	1	0	0	0	3	0	4	0	0	95	5	0	1	16	0	125	0
7:15 AM	0	0	1	0	0	10	0	3	0	0	94	8	0	0	25	0	141	0
7:30 AM	0	0	0	0	0	11	0	6	0	0	107	9	0	2	38	0	173	0
7:45 AM	0	0	0	0	0	9	0	3	0	0	89	8	0	0	27	1	137	576
8:00 AM	0	0	1	0	0	6	0	4	0	0	62	3	0	3	29	1	109	560
8:15 AM	0	2	2	0	0	6	0	2	0	0	61	2	0	0	28	0	103	522
8:30 AM	0	0	0	0	0	3	0	3	0	0	61	5	0	3	29	0	104	453
8:45 AM	0	1	0	0	0	5	0	2	0	1	53	2	0	2	23	1	90	406
Count Total	0	4	4	0	0	53	0	27	0	1	622	42	0	11	215	3	982	0
Peak Hour	0	1	1	0	0	33	0	16	0	0	385	30	0	3	106	1	576	0

Interval		Heavy	Vehicle	Totals				Bicycles				Pedestria	ns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	0	1	1	3	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	2	1	4	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	2	1	4	7	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	1	2	1	5	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0
Count Total	2	4	16	13	35	0	0	0	0	0	0	1	0	0	1
Peak Hour	1	1	10	6	18	0	0	0	0	0	0	1	0	0	1

www.idaxdata.com 02 PM



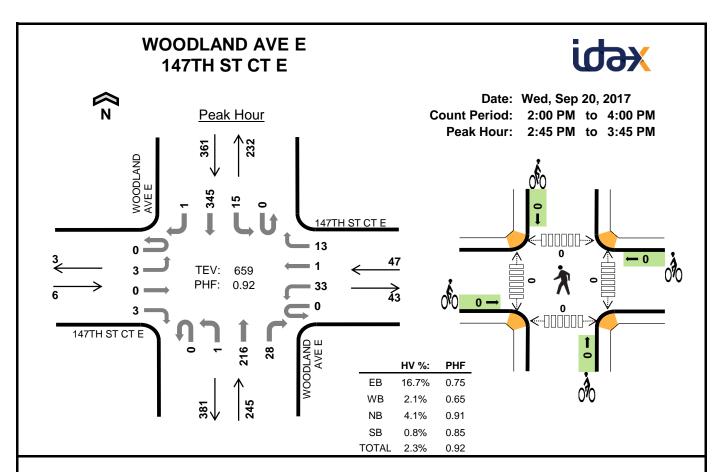
Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

Mark Skaggs: (425) 250-0777

Interval	1	147TH \$	ST CT I	Ē	1	47TH :	ST CT I	=	WC	OODLA	ND AV	ΕE	WC	OODLA	ND AV	45 min	Rolling	
Start	Eastbound					Westl	oound			North	bound			South	bound		15-min Total	One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	iotai	One Hou
4:00 PM	0	1	0	0	0	8	0	5	0	0	53	15	0	2	119	0	203	0
4:15 PM	0	0	0	0	0	7	0	1	0	0	57	13	0	9	135	0	222	0
4:30 PM	0	1	1	0	0	16	1	3	0	0	67	7	0	4	110	0	210	0
4:45 PM	0	1	0	0	0	4	0	0	0	1	55	11	0	6	114	1	193	828
5:00 PM	0	1	0	1	0	11	0	3	0	0	55	9	0	12	107	1	200	825
5:15 PM	0	1	1	0	0	9	0	2	0	0	45	11	0	9	121	0	199	802
5:30 PM	0	0	0	0	0	3	0	3	0	0	56	9	0	5	118	0	194	786
5:45 PM	0	1	0	0	0	9	0	1	0	0	57	4	0	7	110	0	189	782
Count Total	0	6	2	1	0	67	1	18	0	1	445	79	0	54	934	2	1,610	0
Peak Hour	0	3	1	0	0	35	1	9	0	1	232	46	0	21	478	1	828	0

Interval		Heavy	Vehicle	Totals				Bicycles							
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	4	5	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	10	10	20	0	0	0	0	0	0	1	0	0	1
Peak Hour	0	0	8	8	16	0	0	0	0	0	0	1	0	0	1

www.idaxdata.com 02 PM



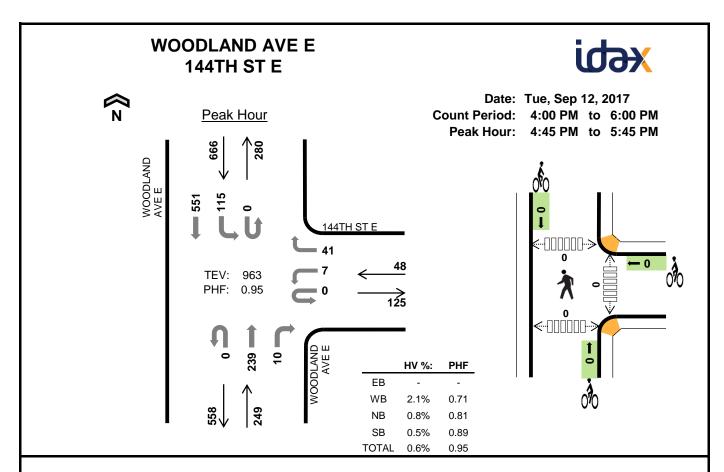
Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

Mark Skaggs: (425) 250-0777

Interval	1	147TH S	ST CT E	=	•	147TH S	ST CT I	E	W	OODLA	ND AV	ΕE	WC	WOODLAND AVE E				15-min Rolling	
Interval Start	Eastbound					Westl	bound			North	bound		Southbound				Total	One Hour	
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One Hour	
2:00 PM	0	0	0	0	0	6	2	0	0	0	45	6	0	1	38	1	99	0	
2:15 PM	0	0	0	0	0	10	0	3	0	0	61	6	0	1	58	0	139	0	
2:30 PM	0	0	0	0	0	13	0	4	0	1	48	2	0	3	89	1	161	0	
2:45 PM	0	1	0	0	0	8	1	5	0	0	59	7	0	3	77	0	161	560	
3:00 PM	0	1	0	1	0	7	0	0	0	0	47	9	0	7	75	0	147	608	
3:15 PM	0	0	0	2	0	11	0	7	0	1	59	7	0	2	90	1	180	649	
3:30 PM	0	1	0	0	0	7	0	1	0	0	51	5	0	3	103	0	171	659	
3:45 PM	0	0	0	1	0	2	1	1	0	0	52	8	0	3	92	0	160	658	
Count Total	0	3	0	4	0	64	4	21	0	2	422	50	0	23	622	3	1,218	0	
Peak Hour	0	3	0	3	0	33	1	13	0	1	216	28	0	15	345	1	659	0	

Interval		Heavy	Vehicle	Totals				Bicycles	;		Pedestrians (Crossing Leg)					
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total	
2:00 PM	0	0	4	2	6	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	
2:30 PM	0	0	1	4	5	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0	
3:00 PM	1	0	3	1	5	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	1	3	0	4	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	
Count Total	1	1	20	11	33	0	0	0	0	0	0	0	0	0	0	
Peak Hour	1	1	10	3	15	0	0	0	0	0	0	0	0	0	0	

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Two-Hour	Count Su	mmariae
I WO-I IOUI	Count Su	IIIIIIai ies

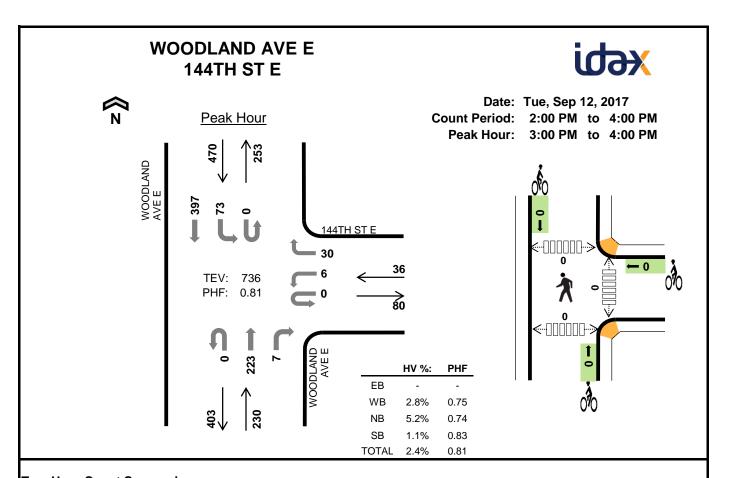
Mark Skaggs: (425) 250-0777

Interval		(	)			144TH	I ST E		W	OODLA	ND AV	ΕE	W	OODLA	ND AVE	ΕE	45	Dalling
Interval Start		Eastb	ound			Westl	bound			North	bound			South	nbound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One Hou
4:00 PM	0	0	0	0	0	2	0	10	0	0	55	0	0	23	113	0	203	0
4:15 PM	0	0	0	0	0	2	0	6	0	0	59	0	0	26	133	0	226	0
4:30 PM	0	0	0	0	0	1	0	10	0	0	49	5	0	25	139	0	229	0
4:45 PM	0	0	0	0	0	0	0	9	0	0	74	3	0	24	115	0	225	883
5:00 PM	0	0	0	0	0	1	0	16	0	0	48	1	0	28	147	0	241	921
5:15 PM	0	0	0	0	0	1	0	6	0	0	48	2	0	30	157	0	244	939
5:30 PM	0	0	0	0	0	5	0	10	0	0	69	4	0	33	132	0	253	963
5:45 PM	0	0	0	0	0	1	0	8	0	0	50	0	0	27	132	0	218	956
Count Total	0	0	0	0	0	13	0	75	0	0	452	15	0	216	1,068	0	1,839	0
Peak Hour	0	0	0	0	0	7	0	41	0	0	239	10	0	115	551	0	963	0

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

Interval		Heavy	Vehicle	Totals			•	Bicycles	·			Pedestria	ns (Cross	ing Leg)	•
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1
4:15 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	3	4	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0
Count Total	0	2	4	12	18	0	0	0	0	0	1	0	0	0	1
Peak Hr	0	1	2	3	6	0	0	0	0	0	0	0	0	0	0

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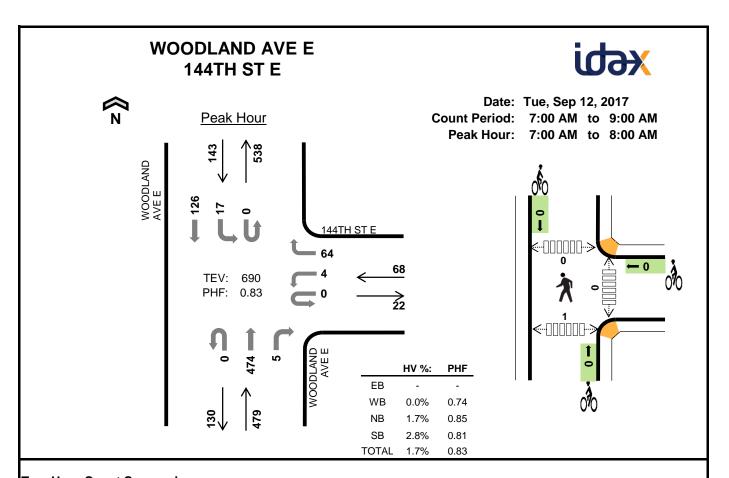
Two-Hour (	Count	Sum	marie	S														
Interval			0			144TH	I ST E		W	OODLA	ND AV	ΕE	W	OODLA	ND AV	ΕE	45	Dalling
Interval Start		Eastl	bound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One Hour
2:00 PM	0	0	0	0	0	1	0	15	0	0	64	1	0	10	63	0	154	0
2:15 PM	0	0	0	0	0	1	0	15	0	0	50	0	0	7	57	0	130	0
2:30 PM	0	0	0	0	0	2	0	9	0	0	45	1	0	12	86	0	155	0
2:45 PM	0	0	0	0	0	2	0	6	0	0	61	1	0	9	67	0	146	585
3:00 PM	0	0	0	0	0	2	0	9	0	0	41	0	0	14	58	0	124	555
3:15 PM	0	0	0	0	0	1	0	11	0	0	74	4	0	21	115	0	226	651
3:30 PM	0	0	0	0	0	3	0	2	0	0	46	3	0	20	101	0	175	671
3:45 PM	0	0	0	0	0	0	0	8	0	0	62	0	0	18	123	0	211	736
Count Total	0	0	0	0	0	12	0	75	0	0	443	10	0	111	670	0	1,321	0
	_		_		_								_					_

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

Mark Skaggs: (425) 250-0777

Interval		Heavy	Vehicle	Totals				Bicycles	;			Pedestria	ans (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	0	1	4	5	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	1	3	4	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	4	2	6	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	1	4	1	6	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	17	15	33	0	0	0	0	0	0	0	0	0	0
Peak Hr	0	1	12	5	18	0	0	0	0	0	0	0	0	0	0

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Two-Hour (	Count	Sum	marie	S														
Interval			0			144TI	I ST E		W	OODLA	ND AV	ΕE	W	OODLA	ND AV	ΕE	45	Dalling
Interval Start		Eastl	bound			West	bound			North	bound			South	bound		15-min Total	Rolling One Hour
Start	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	Total	One nou
7:00 AM	0	0	0	0	0	1	0	16	0	0	94	1	0	3	25	0	140	0
7:15 AM	0	0	0	0	0	1	0	16	0	0	127	1	0	8	29	0	182	0
7:30 AM	0	0	0	0	0	2	0	21	0	0	140	1	0	5	39	0	208	0
7:45 AM	0	0	0	0	0	0	0	11	0	0	113	2	0	1	33	0	160	690
8:00 AM	0	0	0	0	0	2	0	24	0	0	68	0	0	5	28	0	127	677
8:15 AM	0	0	0	0	0	0	0	21	0	0	74	0	0	6	22	0	123	618
8:30 AM	0	0	0	0	0	0	0	10	0	0	68	0	0	9	36	0	123	533
8:45 AM	0	0	0	0	0	0	0	7	0	0	59	2	0	4	35	0	107	480
Count Total	0	0	0	0	0	6	0	126	0	0	743	7	0	41	247	0	1,170	0
		-			_											-		-

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

Mark Skaggs: (425) 250-0777

Interval		Heavy	Vehicle	Totals				Bicycles	i			Pedestria	ns (Cross	ing Leg)	
Start	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	2	2	4	0	0	0	0	0	0	0	0	1	1
7:30 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	2	2	5	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	3	3	6	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	16	10	27	0	0	0	0	0	0	0	0	1	1
Peak Hr	0	0	8	4	12	0	0	0	0	0	0	0	0	1	1



Location: 142ND ST CT E W/O 74TH AVE CT E Date Range: 9/12/2017 - 9/18/2017

Site Code: 01

		Tuesda	y	W	/ednesd	lay	7	Thursda	ıy		Friday			Saturda	ıy		Sunday	/		Monday	у			
		/12/201	7	ç	9/13/201	7	ç	9/14/201	7	,	9/15/201	7	,	9/16/201	7	9	9/17/201	7	!	9/18/201	7	Mid-V	Veek Av	/erage
Time	ЕВ	WB	Total	ЕВ	WB	Total	ЕВ	WB	Total	EB	WB	Total	ЕВ	WB	Total									
12:00 AM	6	0	6	5	2	7	2	1	3	-	-	-	-	-	-	-	-	-	-	-	-	4	1	5
1:00 AM	1	2	3	2	0	2	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	2	1	3
2:00 AM	1	1	2	1	2	3	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
3:00 AM	1	3	4	1	1	2	0	4	4	-	-	-	-	-	-	-	-	-	-	-	-	1	3	3
4:00 AM	4	6	10	2	6	8	3	4	7	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8
5:00 AM	2	20	22	1	18	19	2	19	21	-	-	-	-	-	-	-	-	-	-	-	-	2	19	21
6:00 AM	7	32	39	7	32	39	4	40	44	-	-	-	-	-	-	-	-	-	-	-	-	6	35	41
7:00 AM	17	40	57	14	43	57	18	43	61	-	-	-	-	-	-	-	-	-	-	-	-	16	42	58
8:00 AM	14	36	50	28	29	57	21	37	58	-	-	-	-	-	-	-	-	-	-	-	-	21	34	55
9:00 AM	15	22	37	9	20	29	17	16	33	-	-	-	-	-	-	-	-	-	-	-	-	14	19	33
10:00 AM	18	20	38	15	12	27	12	20	32	-	-	-	-	-	-	-	-	-	-	-	-	15	17	32
11:00 AM	17	20	37	25	25	50	22	23	45	-	-	-	-	-	-	-	-	-	-	-	-	21	23	44
12:00 PM	21	22	43	21	25	46	17	20	37	-	-	-	-	-	-	-	-	-	-	-	-	20	22	42
1:00 PM	25	28	53	18	31	49	22	22	44	-	-	-	-	-	-	-	-	-	-	-	-	22	27	49
2:00 PM	24	34	58	28	25	53	28	25	53	-	-	-	-	-	-	-	-	-	-	-	-	27	28	55
3:00 PM	32	24	56	39	15	54	45	28	73	-	-	-	-	-	-	-	-	-	-	-	-	39	22	61
4:00 PM	55	22	77	47	17	64	64	20	84	_	_	_	_	_	-	-	-	-	_	_	-	55	20	75
5:00 PM	67	31	98	58	27	85	55	28	83	_	_	_	_	_	-	_	-	_	_	_	-	60	29	89
6:00 PM	41	29	70	52	21	73	52	23	75	_	_	_	_	_	-	-	-	-	_	_	-	48	24	73
7:00 PM	40	16	56	25	16	41	42	19	61	-	-	-	-	-	-	-	-	-	-	-	-	36	17	53
8:00 PM	23	9	32	24	17	41	26	13	39	_	-	_	_	-	_	_	_	_	_	_	_	24	13	37
9:00 PM	10	13	23	23	9	32	22	14	36	-	-	_	-	-	-	-	-	-	-	_	-	18	12	30
10:00 PM	6	3	9	14	8	22	12	6	18	_	-	_	_	_	_	_	-	-	_	_	_	11	6	16
11:00 PM	6	3	9	6	1	7	4	3	7	-	-	-	-	-	-	-	-	-	-	-	-	5	2	8
Total	453	436	889	465	402	867	494	428	922	-	-	-	-	-	-	-	-	-	-	-	-	471	422	893
Percent	51%	49%	-	54%	46%	-	54%	46%	-	-	-	-	-	-	-	-	-	-	-	-	-	53%	47%	-

<sup>1.</sup> Mid-week average includes data between Tuesday and Thursday.



 Location:
 CROWN DR E W/O 73RD AVE CT E

 Date Range:
 9/12/2017 - 9/18/2017

 Site Code:
 02

		Tuesda	у	w	ednesd	lay	7	Thursda	ıy		Friday		;	Saturda	у		Sunday	/		Monda	y			
	9	/12/201	7	9	9/13/201	7	9	9/14/201	7		9/15/201	7		9/16/201	7	9	9/17/201	7	!	9/18/201	7	Mid-W	/eek A	erage
Time	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	1	2	3	1	3	4	3	2	5	-	-	-	-	-	-	-	-	-	-	-	-	2	2	4
1:00 AM	4	1	5	2	1	3	2	1	3	-	-	-	-	-	-	-	-	-	-	-	-	3	1	4
2:00 AM	1	1	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0	1
3:00 AM	1	0	1	1	3	4	2	2	4	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3
4:00 AM	3	5	8	5	5	10	3	7	10	-	-	-	-	-	-	-	-	-	-	-	-	4	6	9
5:00 AM	7	16	23	6	15	21	4	18	22	-	-	-	-	-	-	-	-	-	-	-	-	6	16	22
6:00 AM	12	27	39	6	29	35	11	28	39	-	-	-	-	-	-	-	-	-	-	-	-	10	28	38
7:00 AM	35	53	88	43	51	94	42	47	89	-	-	-	-	-	-	-	-	-	-	-	-	40	50	90
8:00 AM	22	26	48	21	27	48	20	25	45	-	-	-	-	-	-	-	-	-	-	-	-	21	26	47
9:00 AM	15	18	33	9	22	31	17	23	40	-	-	-	-	-	-	-	-	-	-	-	-	14	21	35
10:00 AM	20	25	45	19	23	42	21	28	49	-	-	-	-	-	-	-	-	-	-	-	-	20	25	45
11:00 AM	14	19	33	34	31	65	16	26	42	-	-	-	-	-	-	-	-	-	-	-	-	21	25	47
12:00 PM	22	29	51	25	31	56	22	38	60	-	-	-	-	-	-	-	-	-	-	-	-	23	33	56
1:00 PM	25	35	60	29	29	58	19	22	41	-	-	-	-	-	-	-	-	-	-	-	-	24	29	53
2:00 PM	39	42	81	32	38	70	35	48	83	-	-	-	-	-	-	-	-	-	-	-	-	35	43	78
3:00 PM	55	36	91	33	56	89	44	42	86	-	_	-	_	_	-	-	-	-	_	_	-	44	45	89
4:00 PM	69	51	120	52	29	81	62	44	106	-	_	-	-	-	-	-	-	-	-	-	-	61	41	102
5:00 PM	76	61	137	50	44	94	79	60	139	-	_	-	_	_	-	-	-	-	_	_	-	68	55	123
6:00 PM	43	38	81	35	35	70	43	47	90	-	_	-	-	-	-	-	-	-	-	-	-	40	40	80
7:00 PM	22	22	44	25	26	51	19	25	44	-	-	-	-	-	-	-	-	-	-	-	-	22	24	46
8:00 PM	13	28	41	21	21	42	14	25	39	_	-	_	-	-	_	-	_	_	_	-	-	16	25	41
9:00 PM	13	14	27	15	22	37	16	26	42	-	-	-	-	-	-	-	-	-	-	-	-	15	21	35
10:00 PM	6	10	16	8	13	21	8	9	17	_	_	_	_	_	_	_	_	_	_	_	_	7	11	18
11:00 PM	5	7	12	4	10	14	0	5	5	-	-	-	-	-	-	-	-	-	-	-	-	3	7	10
Total	523	566	1,089	476	564	1,040	502	598	1,100	-	-	-	-	-	-	-	-	-	-	-	-	500	576	1,076
Percent	48%	52%	-	46%	54%	-	46%	54%	-	-	-	-	-	-	-	-	-	-	-	-	-	46%	54%	-

<sup>1.</sup> Mid-week average includes data between Tuesday and Thursday.



Location: 147TH ST CT E W/O 73RD AVE CT E Date Range: 9/12/2017 - 9/18/2017

Site Code: 03

		Tuesda	у	W	/ednesd	lay	7	Thursda	ıy		Friday			Saturda	у		Sunday	/		Monday	/			
		/12/201	7	,	9/13/201	7	ç	9/14/201	7	9	9/15/201	7	9	9/16/201	7	g	9/17/201	7	!	9/18/201	7	Mid-V	Veek Av	/erage
Time	ЕВ	WB	Total	ЕВ	WB	Total	ЕВ	WB	Total	EB	WB	Total	ЕВ	WB	Total									
12:00 AM	1	2	3	3	3	6	2	3	5	-	-	-	-	-	-	-	-	-	-	-	-	2	3	5
1:00 AM	1	0	1	2	2	4	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
2:00 AM	1	0	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
3:00 AM	3	1	4	0	1	1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	1	1	3
4:00 AM	0	8	8	1	6	7	0	6	6	-	-	-	-	-	-	-	-	-	-	-	-	0	7	7
5:00 AM	4	12	16	3	13	16	4	13	17	-	-	-	-	-	-	-	-	-	-	-	-	4	13	16
6:00 AM	9	22	31	7	20	27	9	26	35	-	-	-	-	-	-	-	-	-	-	-	-	8	23	31
7:00 AM	19	26	45	20	28	48	14	30	44	-	-	-	-	-	-	-	-	-	-	-	-	18	28	46
8:00 AM	15	14	29	14	16	30	11	11	22	-	-	-	-	-	-	-	-	-	-	-	-	13	14	27
9:00 AM	12	10	22	20	17	37	15	11	26	-	_	-	-	_	_	-	-	-	_	-	-	16	13	28
10:00 AM	4	4	8	9	9	18	15	8	23	-	_	-	-	-	-	-	-	-	_	-	-	9	7	16
11:00 AM	24	16	40	25	15	40	15	13	28	-	_	-	-	_	_	-	-	-	_	-	-	21	15	36
12:00 PM	14	13	27	23	18	41	17	12	29	-	_	-	-	-	-	-	-	-	_	-	-	18	14	32
1:00 PM	19	10	29	15	13	28	22	18	40	-	-	-	-	-	-	-	-	-	-	-	-	19	14	32
2:00 PM	29	26	55	23	16	39	26	14	40	_	_	_	_	_	-	_	_	-	-	_	_	26	19	45
3:00 PM	31	17	48	40	13	53	33	22	55	_	_	_	_	_	_	-	-	-	_	_	_	35	17	52
4:00 PM	35	20	55	40	15	55	35	27	62	-	_	-	-	-	-	-	-	-	_	-	-	37	21	57
5:00 PM	39	23	62	30	24	54	38	18	56	_	_	_	_	_	_	-	-	-	_	_	_	36	22	57
6:00 PM	29	17	46	30	13	43	31	19	50	-	_	-	-	-	-	-	-	-	_	-	-	30	16	46
7:00 PM	19	10	29	24	13	37	32	15	47	_	-	_	_	_	-	_	-	-	-	_	_	25	13	38
8:00 PM	14	8	22	11	9	20	18	13	31	_	_	_	_	_	_	_	_	-	_	_	_	14	10	24
9:00 PM	15	4	19	15	12	27	9	6	15	_	-	_	_	-	-	_	-	_	_	_	_	13	7	20
10:00 PM	4	5	9	5	1	6	5	3	8	-	_		-	-	_	-	_	-	_	_		5	3	8
11:00 PM	4	2	6	7	2	9	4	5	9	-	-	-	-	-	-	-	-	-	-	_	-	5	3	8
Total	345	270	615	367	279	646	357	295	652	-	-	-	-	-	-	-	-	-	-	-	-	356	281	638
Percent	56%	44%	-	57%	43%	-	55%	45%	-	-	-	-	-	-	-	-	-	-	-	-	-	56%	44%	-

<sup>1.</sup> Mid-week average includes data between Tuesday and Thursday.



Location: 144TH ST E W/O 77TH AVE E Date Range: 9/12/2017 - 9/18/2017

Site Code: 04

		Tuesda	у	W	/ednesd	lay	1	Thursda	ıy		Friday			Saturda	y		Sunday	1		Monday	,			
		9/12/201	7	,	9/13/201	7	9	9/14/201	7	9	9/15/201	7	9	9/16/201	7	9	/17/201	7	,	9/18/201	7	Mid-W	/eek Av	/erage
Time	ЕВ	WB	Total	ЕВ	WB	Total	ЕВ	WB	Total	EB	WB	Total	ЕВ	WB	Total	ЕВ	WB	Total	EB	WB	Total	ЕВ	WB	Total
12:00 AM	4	9	13	6	13	19	7	13	20	-	-	-	-	-	-	-	-	-	-	-	-	6	12	17
1:00 AM	6	5	11	2	1	3	6	6	12	-	-	-	-	-	-	-	-	-	-	-	-	5	4	9
2:00 AM	6	3	9	2	4	6	3	3	6	-	-	-	-	-	-	-	-	-	-	-	-	4	3	7
3:00 AM	6	3	9	7	4	11	11	5	16	-	-	-	-	-	-	-	-	-	-	-	-	8	4	12
4:00 AM	24	9	33	28	4	32	27	9	36	-	-	-	-	-	-	-	-	-	-	-	-	26	7	34
5:00 AM	31	18	49	37	17	54	20	18	38	-	-	-	-	-	-	-	-	-	-	-	-	29	18	47
6:00 AM	73	37	110	53	36	89	63	36	99	-	-	-	-	-	-	-	-	-	-	-	-	63	36	99
7:00 AM	127	76	203	134	80	214	121	75	196	-	-	-	-	-	-	-	-	-	-	-	-	127	77	204
8:00 AM	80	60	140	97	58	155	86	63	149	-	-	-	-	-	-	-	-	-	-	-	-	88	60	148
9:00 AM	56	37	93	60	53	113	67	42	109	-	-	-	-	-	-	-	-	-	-	-	-	61	44	105
10:00 AM	60	53	113	63	45	108	55	55	110	-	-	-	-	-	-	-	-	-	-	-	-	59	51	110
11:00 AM	48	57	105	92	86	178	58	59	117	-	-	-	-	-	-	-	-	-	-	-	-	66	67	133
12:00 PM	61	55	116	78	92	170	66	82	148	-	-	-	-	-	-	-	-	-	-	-	-	68	76	145
1:00 PM	64	82	146	73	72	145	55	54	109	-	-	-	-	-	-	-	-	-	-	-	-	64	69	133
2:00 PM	109	113	222	80	94	174	98	102	200	-	-	-	-	-	-	-	-	-	-	-	-	96	103	199
3:00 PM	103	121	224	108	117	225	118	111	229	-	-	-	-	-	-	-	-	-	-	-	-	110	116	226
4:00 PM	128	118	246	104	97	201	127	130	257	-	-	-	-	-	-	-	-	-	-	-	-	120	115	235
5:00 PM	154	148	302	129	125	254	152	138	290	-	-	-	-	_	_	-	-	-	-	-	-	145	137	282
6:00 PM	114	118	232	104	87	191	118	126	244	-	-	-	-	-	-	-	-	-	-	-	-	112	110	222
7:00 PM	75	92	167	63	91	154	80	84	164	-	-	-	-	-	-	-	-	-	-	-	-	73	89	162
8:00 PM	41	70	111	38	84	122	49	90	139	-	-	-	-	-	-	-	-	-	-	-	-	43	81	124
9:00 PM	22	52	74	39	50	89	26	60	86	-	-	-	-	-	-	-	-	-	-	-	-	29	54	83
10:00 PM	12	26	38	20	28	48	14	28	42	_	-	_	_	-	_	_	-	-	-	_	_	15	27	43
11:00 PM	16	16	32	14	20	34	9	23	32	-	-	-	-	-	-	-	-	-	-	-	-	13	20	33
Total	1,420	1,378	2,798	1,431	1,358	2,789	1,436	1,412	2,848	-	-	-	-	-	-	-	-	-	-	-	-	1,429	1,383	2,812
										-	-	-	-	-	-	-	-	-	-		-			- 1,429 1,383

<sup>1.</sup> Mid-week average includes data between Tuesday and Thursday.

## Appendix B: LOS Definitions



## **Highway Capacity Manual 2010**

**Signalized intersection** level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of	Service Criteria for Signa	lized Intersections
Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
В	>10 – 20	Stable Flow (slight delays)
С	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F <sup>1</sup>	>80	Forced flow (congested and queues fail to clear)

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

**Unsignalized intersection** LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for	r Unsignalized Intersections
Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
В	>10 – 15
С	>15 – 25
D	>25 – 35
E	>35 – 50
F <sup>1</sup>	>50

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

<sup>1.</sup> If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

## Appendix C: LOS Worksheets



-							
Intersection							
Int Delay, s/veh	2.8						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	¥			<b>f</b> >			4
Traffic Vol, veh/h	2	108		374	2	62	138
Future Vol, veh/h	2	108		374	2	62	138
Conflicting Peds, #/hr	1	0		0	1	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	83	83		83	83	83	83
Heavy Vehicles, %	2	2		3	3	4	4
Mvmt Flow	2	130		451	2	75	166
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	770	453		0	0	454	0
Stage 1	453	-		-	-	-	-
Stage 2	317	-		-	_	-	_
Critical Hdwy	7.12	6.22		-	-	4.14	-
Critical Hdwy Stg 1	6.12	-		-	_	-	_
Critical Hdwy Stg 2	6.12	-		-	-	-	-
Follow-up Hdwy	3.518	3.318		-	-	2.236	-
Pot Cap-1 Maneuver	318	607		-	-	1096	-
Stage 1	586	-		-	-	-	-
Stage 2	694	-		-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	299	606		-	-	1096	-
Mov Cap-2 Maneuver	299	-		-	-	-	-
Stage 1	586	-		-	-	-	-
Stage 2	641	-		-	-	-	-
Ü							
Approach	WB			NB		SB	
HCM Control Delay, s	12.8			0		2.6	
HCM LOS	В			Ū		2.0	
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	IVDI	- 595	1096				
HCM Lane V/C Ratio	-	- 0.223		-			
HCM Control Delay (s)	-	- 12.8	8.5	0			
HCM Lane LOS	-	- 12.0 - B	0.5 A	A			
HCM 95th %tile Q(veh)	-	- 0.8	0.2	- -			
HOW FOUT FOUTE Q(VEH)	-	- 0.0	0.2	-			

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WB	L WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	2	3	0	7	0 0	14	0	316	72	7	131	2
Future Vol, veh/h	2	3	0	7	0 0	14	0	316	72	7	131	2
Conflicting Peds, #/hr	1	0	1		0 0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Sto	p Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None			None	-	-	None	-	-	None
Storage Length	-	-	-			-	-	-	-	-	-	-
Veh in Median Storage, #	<del>!</del> _	0	-		- 0	-	-	0	-	-	0	-
Grade, %	-	0	-		- 0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	8	3 83	83	83	83	83	83	83	83
Heavy Vehicles, %	20	20	20		8 8	8	2	2	2	6	6	6
Mvmt Flow	2	4	0	8	4 0	17	0	381	87	8	158	2
Major/Minor	Minor2			Minor	1		Major1			Major2		
Conflicting Flow All	611	644	161	60		425	161	0	0	467	0	0
Stage 1	177	177	-	42		-	-	-	-	-	-	_
Stage 2	434	467	_	17		_	_	_	_	-	_	_
Critical Hdwy	7.3	6.7	6.4	7.1		6.28	4.12	-	_	4.16	-	_
Critical Hdwy Stg 1	6.3	5.7	-	6.1		-	-	_	_	-	_	_
Critical Hdwy Stg 2	6.3	5.7	-	6.1		-	-	-	_	-	-	-
Follow-up Hdwy	3.68	4.18	3.48	3.57		3.372	2.218	-	-	2.254	-	_
Pot Cap-1 Maneuver	381	369	839	40		617	1418	-	-	1074	-	-
Stage 1	785	720	-	59	6 577	-	-	-	-	-	-	-
Stage 2	567	533	-	80	9 741	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	368	366	837	39	6 402	616	1417	-	-	1073	-	-
Mov Cap-2 Maneuver	368	366	-	39	6 402	-	-	-	-	-	-	-
Stage 1	784	714	-	59	6 577	-	-	-	-	-	-	-
Stage 2	551	533	-	79	8 734	-	-	-	-	-	-	-
J												
Approach	EB			W	3		NB			SB		
HCM Control Delay, s	15			16.			0			0.4		
HCM LOS	C				2		· ·			0.1		
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn	1 SBL	SBT	SBR					
Capacity (veh/h)	1417		-	367 42								
HCM Lane V/C Ratio	-	_	_		4 0.008		_					
HCM Control Delay (s)	0			15 16.			-					
HCM Lane LOS	A	_	_		2 0.4 C A		_					
HCM 95th %tile Q(veh)	0			0.1 0.			-					
1101VI 73111 701116 Q(VEII)	U	_		0.1 0.	, 0	_	_					

Intersection							
Int Delay, s/veh	6.4						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	W			<del>(</del> Î			र्स
Traffic Vol, veh/h	88	45		2	90	54	3
Future Vol, veh/h	88	45		2	90	54	3
Conflicting Peds, #/hr	0	0		0	0	0	0
Sign Control	Stop	Stop		Free	Free	Free	Free
RT Channelized	-	None		-	None		None
Storage Length	0	-		-	-	-	-
Veh in Median Storage, #	0	_		0	_	_	0
Grade, %	0	-		0	_	-	0
Peak Hour Factor	84	84		84	84	84	84
Heavy Vehicles, %	5	5		0	0	8	8
Mvmt Flow	105	54		2	107	64	4
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	188	56		0	0	110	0
Stage 1	56	-		-	-	-	-
Stage 2	132	-		-		-	
Critical Hdwy	6.45	6.25		-	-	4.18	-
Critical Hdwy Stg 1	5.45	0.25		-		4.10	-
Critical Hdwy Stg 2	5.45	-		<u>-</u>	-	-	-
Follow-up Hdwy	3.545	3.345		•	-	2.272	-
Pot Cap-1 Maneuver	794	1002		-	-	1443	-
Stage 1	959	1002		-	-	1443	-
Stage 2	887	-		<u>-</u>	-	-	-
Platoon blocked, %	007	-		-	-	-	-
Mov Cap-1 Maneuver	759	1002		-	-	1443	-
Mov Cap-1 Maneuver	759 759	1002		-	-	1443	-
Stage 1	959	-		-	-	-	-
	959 848	-		-	-	-	-
Stage 2	040	-		-	-	-	-
Approach	WD			ND		CD	
Approach Delever	WB			NB		SB	
HCM Control Delay, s	10.4			0		7.2	
HCM LOS	В						
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-		1443	-			
HCM Lane V/C Ratio	-	- 0.191		-			
HCM Control Delay (s)	-	- 10.4	7.6	0			
HCM Lane LOS	-	- B	Α	Α			
HCM 95th %tile Q(veh)	-	- 0.7	0.1	-			

Intersection						
Int Delay, s/veh	2.3					
Movement	EB1	T EBR	WBL	WBT	NBL	NBR
Lane Configurations	1			4	¥	
Traffic Vol, veh/h	144		34	127	2	62
Future Vol, veh/h	144		34	127	2	62
Conflicting Peds, #/hr	(		0	0	0	0
Sign Control	Free		Free	Free	Stop	Stop
RT Channelized	1100	- None	-	None	Эюр -	None
Storage Length		- NONC	_	-	0	None -
Veh in Median Storage, #	‡ (	) -	_	0	0	_
Grade, %	(		-	0	0	
Peak Hour Factor	89		89	89	89	89
Heavy Vehicles, %	3		6	6	3	3
Mymt Flow	162		38	143	2	70
IVIVIIIL I IUVV	102	- 1	- 30	143	2	70
Major/Minor	N/o!		Malaga		Minera	
Major/Minor	Major 2		Major2		Minor1	4/0
Conflicting Flow All	(		163	0	381	162
Stage 1			-	-	162	-
Stage 2			-	-	219	-
Critical Hdwy			4.16	-	6.43	6.23
Critical Hdwy Stg 1			-	-	5.43	-
Critical Hdwy Stg 2			- 0.054	-	5.43	-
Follow-up Hdwy			2.254	-	3.527	3.327
Pot Cap-1 Maneuver			1392	-	619	880
Stage 1			-	-	865	-
Stage 2			-	-	815	-
Platoon blocked, %				-		
Mov Cap-1 Maneuver			1392	-	600	880
Mov Cap-2 Maneuver			-	-	600	-
Stage 1			-	-	865	-
Stage 2			-	-	791	-
Approach	EE	3	WB		NB	
HCM Control Delay, s	(	)	1.6		9.5	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1 EB1	T EBR	WBL WBT			
Capacity (veh/h)	867		1392 -			
HCM Lane V/C Ratio	0.083		0.027 -			
HCM Control Delay (s)	9.5		7.7 0			
HCM Lane LOS			A A			
HCM 95th %tile Q(veh)	0.3		0.1 -			
1101V1 70111 701110 Q(VOII)	0.0		0.1			

Intersection							
Int Delay, s/veh	1.1						
Movement	EE	T EBR		WBL	WBT	NBL	NBR
Lane Configurations		þ.			4	¥	
Traffic Vol, veh/h	22			10	193	10	32
Future Vol, veh/h	22			10	193	10	32
Conflicting Peds, #/hr		0 6		5	0	6	5
Sign Control	Fre			Free	Free	Stop	Stop
RT Channelized		- None		-	None	-	None
Storage Length		-		_	-	0	-
Veh in Median Storage, #		0 -		-	0	0	-
Grade, %		0		_	0	0	-
Peak Hour Factor		39 89	)	89	89	89	89
Heavy Vehicles, %		5 5		6	6	3	3
Mymt Flow	2!			11	217	11	36
		.5			217		
Major/Minor	Maia	·1		Majora		Minor1	
Major/Minor	Majo			Major2	0		270
Conflicting Flow All		0 (		268	0	510	270
Stage 1		-		-	-	265	-
Stage 2			·	11/	-	245	- / 22
Critical Hdwy		-		4.16	-	6.43	6.23
Critical Hdwy Stg 1		-		-	-	5.43	-
Critical Hdwy Stg 2		-		- 2.2E4	-	5.43	2 227
Follow-up Hdwy				2.254	-	3.527	3.327
Pot Cap-1 Maneuver		-		1273	-	522	766
Stage 1				-	-	777	-
Stage 2		-		-	-	793	-
Platoon blocked, %				101-	-	F	750
Mov Cap-1 Maneuver		-		1267	-	511	758
Mov Cap-2 Maneuver				-	-	511	-
Stage 1		-		-	-	773	-
Stage 2				-	-	781	-
Approach	E	В		WB		NB	
HCM Control Delay, s		0		0.4		10.7	
HCM LOS						В	
Minor Lane/Major Mvmt	NBLn1 EE	T EBR	. WBL	WBT			
Capacity (veh/h)	680			-			
HCM Lane V/C Ratio	0.069		0.009	_			
HCM Control Delay (s)	10.7			0			
HCM Lane LOS	В		_	A			
HCM 95th %tile Q(veh)	0.2			-			
How four four Q(veri)	0.2		U				

ntersection	
ntersection Delay, s/veh	41.3
ntersection LOS	Е

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			4				4				4	
Traffic Vol, veh/h	0	69	127	88	0	34	57	67	0	103	248	41
Future Vol, veh/h	0	69	127	88	0	34	57	67	0	103	248	41
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles, %	2	2	2	2	10	10	10	10	4	4	4	4
Mvmt Flow	0	90	165	114	0	44	74	87	0	134	322	53
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				2		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		2				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				2				1		
HCM Control Delay		30.8				18.1				71.6		
HCM LOS		D				С				F		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2	
Vol Left, %	26%	24%	22%	20%	0%	
Vol Thru, %	63%	45%	36%	80%	0%	
Vol Right, %	10%	31%	42%	0%	100%	
Sign Control	Stop	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	392	284	158	182	48	
LT Vol	103	69	34	36	0	
Through Vol	248	127	57	146	0	
RT Vol	41	88	67	0	48	
Lane Flow Rate	509	369	205	236	62	
Geometry Grp	5	2	2	7	7	
Degree of Util (X)	1.016	0.762	0.463	0.544	0.129	
Departure Headway (Hd)	7.186	7.438	8.229	8.288	7.461	
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	
Cap	504	483	441	433	478	
Service Time	5.265	5.524	6.229	6.082	5.255	
HCM Lane V/C Ratio	1.01	0.764	0.465	0.545	0.13	
HCM Control Delay	71.6	30.8	18.1	20.6	11.4	
HCM Lane LOS	F	D	С	С	В	
HCM 95th-tile Q	14.2	6.6	2.4	3.2	0.4	

Intersection				
Intersection Delay, s/veh				
Intersection LOS				
Movement	SBU	SBL	SBT	SBR
Lane Configurations			ર્ન	7
Traffic Vol, veh/h	0	36	146	48
Future Vol, veh/h	0	36	146	48
Peak Hour Factor	0.77	0.77	0.77	0.77
Heavy Vehicles, %	5	5	5	5
Mvmt Flow	0	47	190	62
Number of Lanes	0	0	1	1
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		18.7		
HCM LOS		С		

Intersection								
Int Delay, s/veh	16.4							
Movement	EBL	EBT			WBT	WBR	SBL	SBR
Lane Configurations		<b>†</b>			<b>f</b>		ሻ	7
Traffic Vol, veh/h	117	121			65	138	113	96
Future Vol, veh/h	117	121			65	138	113	96
Conflicting Peds, #/hr	50	0			0	50	50	50
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	60	60			60	60	60	60
Heavy Vehicles, %	5	5			6	6	2	2
Mvmt Flow	195	202			108	230	188	160
Major/Minor	Major1				Major2		Minor2	
Conflicting Flow All	388	0			-	0	915	323
Stage 1	-	-			-	-	273	-
Stage 2	-	_			-	_	642	-
Critical Hdwy	4.15	_			_	_	6.42	6.22
Critical Hdwy Stg 1	-	_			_	_	5.42	-
Critical Hdwy Stg 2	-	_			-	-	5.42	_
Follow-up Hdwy	2.245	_			-	_	3.518	3.318
Pot Cap-1 Maneuver	1154	_			-	_	303	718
Stage 1	-	_			_	_	773	- 7.10
Stage 2	-	_			_	_	524	-
Platoon blocked, %		_			_	_	ULT	
Mov Cap-1 Maneuver	1099	_			_	_	220	651
Mov Cap-1 Maneuver	- 1077	_			_	_	220	-
Stage 1	-	_			_	_	736	-
Stage 2		_			_	_	399	-
Stugo Z							377	
Approach	EB				WB		SB	
HCM Control Delay, s	4.4				0		46	
HCM LOS	7.7				0		40 E	
TOW LOS							L	
Minor Lane/Major Mvmt	EBL	EBT	WBT V	VBR SBL	n1 SBLn2			
Capacity (veh/h)	1099		-		20 651			
HCM Lane V/C Ratio	0.177	_	-		56 0.246			
HCM Control Delay (s)	9		<u>-</u>	- 74				
HCM Lane LOS	A	-	-	- /4	F B			
HCM 95th %tile Q(veh)	0.6	_	<u>-</u>	- 6	.7 1			
110W 73W 70WE Q(VEH)	0.0		-	- 0	1			

Intersection							
Int Delay, s/veh	2						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	¥			<b>f</b> a			4
Traffic Vol, veh/h	8	69		228	2	69	311
Future Vol, veh/h	8	69		228	2	69	311
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	90	90		90	90	90	90
Heavy Vehicles, %	0	0		3	3	2	2
Mvmt Flow	9	77		253	2	77	346
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	753	254		0	0	256	0
Stage 1	254	-		-	-	-	-
Stage 2	499	-		-	-	-	-
Critical Hdwy	6.4	6.2		-	-	4.12	-
Critical Hdwy Stg 1	5.4	-		-	-	-	-
Critical Hdwy Stg 2	5.4	-		-	-	-	-
Follow-up Hdwy	3.5	3.3		-	-	2.218	-
Pot Cap-1 Maneuver	380	790		-	-	1309	-
Stage 1	793	-		-	-	-	-
Stage 2	614	-		-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	352	790		-	-	1309	-
Mov Cap-2 Maneuver	352	-		-	-	-	-
Stage 1	793	-		-	-	-	-
Stage 2	569	-		-	-	-	-
Approach	WB			NB		SB	
HCM Control Delay, s	10.9			0		1.4	
HCM LOS	В						
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-	- 700	1309	-			
HCM Lane V/C Ratio	-	- 0.122		-			
HCM Control Delay (s)	-	- 10.9	7.9	0			
HCM Lane LOS	-	- B	Α	Α			
HCM 95th %tile Q(veh)	-	- 0.4	0.2	-			
, ,							

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	2	0	1	76		14	1	249	54	16	347	1
Future Vol, veh/h	2	0	1	76	1	14	1	249	54	16	347	1
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, #	<del>!</del> -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	33	33	33	0	0	0	4	4	4	3	3	3
Mvmt Flow	2	0	1	81	1	15	1	265	57	17	369	1
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	708	728	370	700	700	294	370	0	0	322	0	0
Stage 1	404	404	-	296			-	-	-	-	-	
Stage 2	304	324	-	404		_	-	-	_	-		-
Critical Hdwy	7.43	6.83	6.53	7.1	6.5	6.2	4.14	-	_	4.13	-	-
Critical Hdwy Stg 1	6.43	5.83	-	6.1	5.5	_	-	-	-	-	-	-
Critical Hdwy Stg 2	6.43	5.83	-	6.1	5.5	-	-	-	-	-	-	_
Follow-up Hdwy	3.797	4.297	3.597	3.5	4	3.3	2.236	-	-	2.227	-	-
Pot Cap-1 Maneuver	312	315	612	357	366	750	1178	-	-	1232	-	-
Stage 1	566	549	-	717	672	-	-	-	-	-	-	-
Stage 2	644	598	-	627	603	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	301	309	612	351	359	750	1178	-	-	1232	-	-
Mov Cap-2 Maneuver	301	309	-	351	359	-	-	-	-	-	-	-
Stage 1	565	540	-	716	671	-	-	-	-	-	-	-
Stage 2	630	597	-	615	593	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	15			17.6			0			0.4		
HCM LOS	С			С								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1178	-	-	362 382	1232	-	-					
HCM Lane V/C Ratio	0.001	_	_	0.009 0.253		-	-					
HCM Control Delay (s)	8.1	0	-	15 17.6		0	-					
HCM Lane LOS	Α	A	-	C C		A	-					
HCM 95th %tile Q(veh)	0	-	-	0 1		-	-					

Intersection							
Int Delay, s/veh	6.7						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	¥			<b>f</b>			र्स
Traffic Vol, veh/h	83	61		6	70	43	2
Future Vol, veh/h	83	61		6	70	43	2
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	83	83		83	83	83	83
Heavy Vehicles, %	0	0		3	3	3	3
Mvmt Flow	100	73		7	84	52	2
		. •					
Maiau/Minau	Min = -1			Malau1		Malaro	
Major/Minor	Minor1	4.5		Major1		Major2	
Conflicting Flow All	155	49		0	0	92	0
Stage 1	49	-		-	-	-	-
Stage 2	106	-		-	-	-	-
Critical Hdwy	6.4	6.2		-	-	4.13	-
Critical Hdwy Stg 1	5.4	-		-	-	-	-
Critical Hdwy Stg 2	5.4	-		-	-	-	-
Follow-up Hdwy	3.5	3.3		-	-	2.227	-
Pot Cap-1 Maneuver	841	1025		-	-	1496	-
Stage 1	979	-		-	-	-	-
Stage 2	923	-		-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	812	1025		-	-	1496	-
Mov Cap-2 Maneuver	812	-		-	-	-	-
Stage 1	979	-		-	-	-	-
Stage 2	891	-		-	-	-	-
Approach	WB			NB		SB	
HCM Control Delay, s	10			0		7.2	
HCM LOS	В					1.2	
TION LOS	D						
N. 41	NDT	NDDWD	001	CDT			
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-		1496	-			
HCM Lane V/C Ratio	-	- 0.195		-			
HCM Control Delay (s)	-	- 10	7.5	0			
HCM Lane LOS	-	- B	Α	A			
HCM 95th %tile Q(veh)	-	- 0.7	0.1	-			

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4			4	¥	
Traffic Vol, veh/h	109	1	54	139	3	52
Future Vol, veh/h	109	1	54	139	3	52
Conflicting Peds, #/hr	0	0	0		0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	3	3
Mvmt Flow	128	1	64	164	4	61
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	129	0	420	129
Stage 1	-	-	-	-	129	_
Stage 2	-	-	-	-	291	-
Critical Hdwy	-	-	4.12	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.218	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1457	-	588	918
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	756	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1457	-	560	918
Mov Cap-2 Maneuver	-	-	-	-	560	-
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	720	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.1		9.4	
HCM LOS					А	
Minor Lane/Major Mvmt	NBLn1 EBT	EBR	WBL WBT			
Capacity (veh/h)	887 -		1457 -			
HCM Lane V/C Ratio	0.073		0.044 -			
HCM Control Delay (s)	9.4 -	_	7.6 0			
HCM Lane LOS	A -	_	A A			
HCM 95th %tile Q(veh)	0.2 -	_	0.1 -			
110.VI 70.II 70.IIIC (VCII)	0.2		0.1			

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4			4	¥	
Traffic Vol, veh/h	206	13	27	198	10	29
Future Vol, veh/h	206	13	27	198	10	29
Conflicting Peds, #/hr	0	9	5	0	9	5
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None		None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	4	4	3	3
Mvmt Flow	229	14	30	220	11	32
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	252	0	534	250
Stage 1	-	-	-	-	245	-
Stage 2	-	-	-	-	289	-
Critical Hdwy	-	-	4.14	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.236	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1302	-	505	786
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1296	-	483	776
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	732	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.9		10.7	
HCM LOS					В	
Minor Lane/Major Mvmt	NBLn1 EBT	EBR	WBL WBT			
Capacity (veh/h)	672 -		1296 -			
HCM Lane V/C Ratio	0.064		0.023			
HCM Control Delay (s)	10.7 -	_	7.8 0			
HCM Lane LOS	B -	_	A A			
HCM 95th %tile Q(veh)	0.2 -	_	0.1 -			
1101VI 70111 701110 (2(VCII)	0.2		0.1			

Service Time

HCM Lane V/C Ratio

**HCM Control Delay** 

**HCM Lane LOS** 

HCM 95th-tile Q

tersection	
tersection Delay, s/veh	40.9
	40.9
tersection LOS	F

EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
	4				4				4	
64	94	89	0	49	107	80	0	74	201	31
64	94	89	0	49	107	80	0	74	201	31
0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
3	3	3	4	4	4	4	2	2	2	2
68	100	95	0	52	114	85	0	79	214	33
0	1	0	0	0	1	0	0	0	1	0
EB				WB				NB		
WB				EB				SB		
1				1				2		
SB				NB				EB		
2				1				1		
NB				SB				WB		
1				2				1		
20				19.5				24.4		
С				С				С		
BLn1	EBLn1	WBLn1	SBLn1	SBLn2						
BLn1 24%	EBLn1 26%	WBLn1 21%	SBLn1 16%	SBLn2						
24%	26%	21%	16%	0%						
24% 66%	26% 38%	21% 45%	16% 84%	0% 0% 100% Stop						
24% 66% 10%	26% 38% 36%	21% 45% 34% Stop 236	16% 84% 0% Stop 474	0% 0% 100%						
24% 66% 10% Stop 306 74	26% 38% 36% Stop	21% 45% 34% Stop 236 49	16% 84% 0% Stop 474 75	0% 0% 100% Stop						
24% 66% 10% Stop 306 74 201	26% 38% 36% Stop 247 64 94	21% 45% 34% Stop 236 49 107	16% 84% 0% Stop 474	0% 0% 100% Stop 93 0						
24% 66% 10% Stop 306 74 201 31	26% 38% 36% Stop 247 64 94	21% 45% 34% Stop 236 49 107 80	16% 84% 0% Stop 474 75 399	0% 0% 100% Stop 93 0						
24% 66% 10% Stop 306 74 201 31 326	26% 38% 36% Stop 247 64 94 89 263	21% 45% 34% Stop 236 49 107 80 251	16% 84% 0% Stop 474 75 399 0	0% 0% 100% Stop 93 0 0 93						
24% 66% 10% Stop 306 74 201 31 326 5	26% 38% 36% Stop 247 64 94 89 263	21% 45% 34% Stop 236 49 107 80 251	16% 84% 0% Stop 474 75 399 0 504	0% 0% 100% Stop 93 0 0 93 99						
24% 66% 10% Stop 306 74 201 31 326 5	26% 38% 36% Stop 247 64 94 89 263 2	21% 45% 34% Stop 236 49 107 80 251 2	16% 84% 0% Stop 474 75 399 0 504 7	0% 0% 100% Stop 93 0 0 93 99 7						
24% 66% 10% Stop 306 74 201 31 326 5 0.665 7.6	26% 38% 36% Stop 247 64 94 89 263 2 0.552 7.82	21% 45% 34% Stop 236 49 107 80 251 2 0.531 7.887	16% 84% 0% Stop 474 75 399 0 504 7 1.04 7.427	0% 0% 100% Stop 93 0 0 93 97 7 0.182 6.627						
24% 66% 10% Stop 306 74 201 31 326 5	26% 38% 36% Stop 247 64 94 89 263 2	21% 45% 34% Stop 236 49 107 80 251 2	16% 84% 0% Stop 474 75 399 0 504 7	0% 0% 100% Stop 93 0 0 93 99 7						
	64 64 0.94 3 68 0 EB WB 1 SB 2 NB	64 94 64 94 0.94 0.94 3 3 68 100 0 1  EB  WB 1 SB 2 NB 1 20	64 94 89 64 94 89 0.94 0.94 0.94 3 3 3 68 100 95 0 1 0 EB WB 1 SB 2 NB 1 20	64 94 89 0 64 94 89 0 0.94 0.94 0.94 0.94 3 3 3 3 4 68 100 95 0 0 1 0 0 EB WB 1 SB 2 NB 1 20	64 94 89 0 49 64 94 89 0 49 0.94 0.94 0.94 0.94 3 3 3 3 4 4 68 100 95 0 52 0 1 0 0 0  EB WB WB 1 1 1 SB NB 2 1 NB 2 1 NB 2 1 NB 2 1 1 22 19.5	64 94 89 0 49 107 64 94 89 0 49 107 0.94 0.94 0.94 0.94 0.94 3 3 3 3 4 4 4 68 100 95 0 52 114 0 1 0 0 0 1  EB WB WB SB 1 1 1 SB NB 2 1 NB SB 1 2 20 19.5	64 94 89 0 49 107 80 64 94 89 0 49 107 80 0.94 0.94 0.94 0.94 0.94 0.94 3 3 3 3 4 4 4 4 68 100 95 0 52 114 85 0 1 0 0 0 1 0  EB WB WB SB 1 1 1 SB 2 1 NB SB 1 2 20 19.5	64 94 89 0 49 107 80 0 64 94 89 0 49 107 80 0 0.94 0.94 0.94 0.94 0.94 0.94 0.94 3 3 3 4 4 4 4 4 2 68 100 95 0 52 114 85 0 0 1 0 0 0 1 0 0  EB WB  WB  BB  1 1 1 SB NB 2 1 NB SB 1 2 20 19.5	64 94 89 0 49 107 80 0 74 64 94 89 0 49 107 80 0 74 0.94 0.94 0.94 0.94 0.94 0.94 0.94 0.94 3 3 3 3 4 4 4 4 4 2 2 68 100 95 0 52 114 85 0 79 0 1 0 0 0 1 0 0 0  EB WB NB WB EB SB 1 1 1 2 2 SB NB EB 2 1 1 1 1 1 NB SB WB 1 2 1 1 20 19.5 24.4	64         94         89         0         49         107         80         0         74         201           64         94         89         0         49         107         80         0         74         201           0.94         0

Transpo Group Synchro 9 Report

5.6

0.681

24.4

C

4.8

5.82

0.566

20

С

3.3

5.887

0.547

19.5

С

3

5.203

1.031

79.1

14.9

F

4.402

0.184

10.9

В

0.7

Intersection					
Intersection Delay, s/veh		·			
Intersection LOS					
Movement	SBU	SBL	SBT	SBR	
Lane Configurations			ની	7	
Traffic Vol, veh/h	0	75	399	93	
Future Vol, veh/h	0	75	399	93	
Peak Hour Factor	0.94	0.94	0.94	0.94	
Heavy Vehicles, %	4	4	4	4	
Mvmt Flow	0	80	424	99	
Number of Lanes	0	0	1	1	
Approach		SB			
Opposing Approach		NB			
Opposing Lanes		1			
Conflicting Approach Left		WB			
Conflicting Lanes Left		1			
Conflicting Approach Right		EB			
Conflicting Lanes Right		1			
HCM Control Delay		67.9			
HCM LOS		F			

Int Delay, Stveh   7.1											
Movement   EBL   EBT   WBT   WBR   SBL   SBR	Intersection										
Lane Configurations	Int Delay, s/veh	7.1									
Traffic Vol, veh/h         60         134         138         70         85         73           Future Vol, veh/h         60         134         138         70         85         73           Conflicting Peds, #/hr         50         0         0         50         50         50           Sign Control         Free         Free         Free         Free         Stop         Stop           RT Channelized         -         None         -         0         0         0         0           Veh in Median Storage, #         0         0         0         0         -         0         -           Grade, %         -         0         0         0         -         0         -           Grade, %         -         0         0         0         -         0         -           Grade, %         3         3         4         4         2         2         2           Meavy Vehicles, %         3         3         4         4         2         2         2           Mymt Flow         100         223         230         117         142         122           Minor Lanelibour         10<	Movement	EBL	EBT				WBT	WBR		SBL	SBR
Traffic Vol, veh/h         60         134         138         70         85         73           Future Vol, veh/h         60         134         138         70         85         73           Conflicting Peds, #/hr         50         0         0         50         50         50           Sign Control         Free         Free         Free         Free         Stop         Stop         Stop           RT Channelized         -         None         -         0         0         0         0         -         None         None         Stop         -         0         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         1         0         2 <td< td=""><td>Lane Configurations</td><td></td><td><b>*</b></td><td></td><td></td><td></td><td>ĵ.</td><td></td><td></td><td>ሻ</td><td>7</td></td<>	Lane Configurations		<b>*</b>				ĵ.			ሻ	7
Conflicting Peds, #/hr         50         0         0         50         50         50           Sign Control         Free         Free         Free         Free         Stop         Stop           RT Channelized         - None         - None         - None         - O         0         0           Storage Length         - 0         0         0         - O         0         - C           Grade, %         - 0         0         0         - O         - O         - C           Peak Hour Factor         60         80         20         20         80         12         2         2         2         2		60						70		85	73
Sign Control         Free RTHE         Free Pree RTHE         Free RTHE         Free RTHE         Stop None         Stop None         Stop None         Stop RT Channelized         - None         - None         None <t< td=""><td>Future Vol, veh/h</td><td>60</td><td>134</td><td></td><td></td><td></td><td>138</td><td>70</td><td></td><td>85</td><td>73</td></t<>	Future Vol, veh/h	60	134				138	70		85	73
Sign Control         Free RT	Conflicting Peds, #/hr	50	0				0	50		50	50
RT Channelized         - None         - None         - None         None         None         None         None         None         Storage Length         0         0         0         0         0         0         0         0         0         - 0         0         - 0		Free	Free				Free	Free	(	Stop	Stop
Veh in Median Storage, #         -         0         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         -         0         6         60 <th< td=""><td>RT Channelized</td><td>-</td><td>None</td><td></td><td></td><td></td><td>-</td><td>None</td><td></td><td></td><td>None</td></th<>	RT Channelized	-	None				-	None			None
Grade, %         -         0         0         -         0         -         0         -         Peak Hour Factor         60	Storage Length	-	-				-	-		0	0
Grade, %         -         0         0         -         0         -         0         -         Peak Hour Factor         60		<del> </del> -	0				0	-		0	-
Heavy Vehicles, %   3   3   4   4   2   2   2   2   2   2   2   2		-	0				0	-		0	-
Myml Flow         100         223         230         117         142         122           Major/Minor         Major1         Major2         Minor2           Conflicting Flow All         397         0         -         0         811         388           Stage 1         -         -         -         -         338         -           Stage 2         -         -         -         473         -           Critical Hdwy         4.13         -         -         -         6.42         6.22           Critical Hdwy Stg 1         -         -         -         5.42         -         -         6.42         6.22           Critical Hdwy Stg 2         -         -         -         5.42         -         -         6.42         6.22           Critical Hdwy Stg 2         -         -         -         5.42         -         -         6.22         -         -         5.42         -	Peak Hour Factor	60	60				60	60		60	60
Major/Minor         Major1         Major2         Minor2           Conflicting Flow All         397         0         -         0         811         388           Stage 1         -         -         -         338         -           Stage 2         -         -         -         473         -           Critical Hdwy         4.13         -         -         6.42         6.22           Critical Hdwy Stg 1         -         -         -         5.42         -           Critical Hdwy Stg 2         -         -         -         5.42         -           Follow-up Hdwy         2.227         -         -         3.518         3.318           Pot Cap-1 Maneuver         1156         -         -         349         660           Stage 1         -         -         -         349         660           Stage 2         -         -         -         627         -           Platoon blocked, %         -         -         -         284         599           Mov Cap-1 Maneuver         1101         -         -         284         599           Mov Cap-2 Maneuver         -         - <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>											
Conflicting Flow All   397   0	Mvmt Flow	100	223				230	117		142	122
Conflicting Flow All   397   0											
Stage 1	Major/Minor	Major1				<u> </u>	Major2		niM	nor2	
Stage 1	Conflicting Flow All	397	0				-	0		811	388
Stage 2       -       -       473       -         Critical Hdwy       4.13       -       -       6.42       6.22         Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.227       -       -       3.518       3.318         Pot Cap-1 Maneuver       1156       -       -       349       660         Stage 1       -       -       -       722       -         Stage 2       -       -       -       627       -         Platoon blocked, %       -       -       -       -       -         Mov Cap-1 Maneuver       1101       -       -       284       599         Mov Cap-2 Maneuver       -       -       -       284       -         Stage 1       -       -       -       688       -         Stage 2       -       -       -       688       -         Stage 1       -       -       -       688       -         Stage 2       -       -       -       0       21.8 <tr< td=""><td></td><td>-</td><td>-</td><td></td><td></td><td></td><td>-</td><td>-</td><td></td><td>338</td><td>-</td></tr<>		-	-				-	-		338	-
Critical Hdwy       4.13       -       -       6.42       6.22         Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.227       -       -       3.518       3.318         Pot Cap-1 Maneuver       1156       -       -       349       660         Stage 1       -       -       -       627       -         Stage 2       -       -       -       627       -         Platoon blocked, %       -       -       -       627       -         Mov Cap-1 Maneuver       1101       -       -       284       599         Mov Cap-2 Maneuver       -       -       -       284       -         Stage 1       -       -       -       284       -         Stage 2       -       -       -       688       -         Stage 2       -       -       -       535       -         Approach       EB       WB       WB       SB         HCM Control Delay, s       2.7       0       21.8       -		-	-				-	-		473	-
Critical Hdwy Stg 1       -       -       -       5.42       -         Critical Hdwy Stg 2       -       -       -       5.42       -         Follow-up Hdwy       2.227       -       -       3.518       3.318         Pot Cap-1 Maneuver       1156       -       -       349       660         Stage 1       -       -       -       722       -         Stage 2       -       -       -       627       -         Platoon blocked, %       -       -       -       284       599         Mov Cap-1 Maneuver       1101       -       -       284       599         Mov Cap-2 Maneuver       -       -       -       284       -         Stage 1       -       -       -       284       -         Stage 2       -       -       -       688       -         Stage 2       -       -       -       535       -         Approach       EB       WB       SB         HCM Control Delay, s       2.7       0       21.8         HCM Control Delay, s       2.7       0       21.8         HCM Control Delay (s)		4.13	-				-	-	(	6.42	6.22
Follow-up Hdwy 2.227 3.518 3.318  Pot Cap-1 Maneuver 1156 349 660  Stage 1 722 722 722  Stage 2 627 627 722  Platoon blocked, % 284 599  Mov Cap-1 Maneuver 1101 284 599  Mov Cap-2 Maneuver 688 725 - 7284 - 7284  Stage 1 688 7284 - 7284  Stage 2 7284 - 7284  Approach EB WB SB  HCM Control Delay, s 2.7 0 21.8  HCM LOS C  Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1 SBLn2  Capacity (veh/h) 1101 284 599  HCM Lane V/C Ratio 0.091 0.499 0.203  HCM Control Delay (s) 8.6 - 29.7 12.5  HCM Lane LOS A D B	Critical Hdwy Stg 1	-	-				-	-	Į.	5.42	-
Pot Cap-1 Maneuver         1156         -         -         349         660           Stage 1         -         -         -         722         -           Stage 2         -         -         -         627         -           Plation blocked, %         -	Critical Hdwy Stg 2		-				-	-			
Stage 1       -       -       722       -         Stage 2       -       -       627       -         Platoon blocked, %       -       -       -       -         Mov Cap-1 Maneuver       1101       -       -       284       599         Mov Cap-2 Maneuver       -       -       -       284       -         Stage 1       -       -       -       688       -         Stage 2       -       -       -       535       -         Approach       EB       WB       SB         HCM Control Delay, s       2.7       0       21.8         HCM Los       C         Minor Lane/Major Mvmt       EBL       EBT       WBT       WBR SBLn1 SBLn2         Capacity (veh/h)       1101       -       -       284       599         HCM Lane V/C Ratio       0.091       -       -       0.499       0.203         HCM Control Delay (s)       8.6       -       -       29.7       12.5         HCM Lane LOS       A       -       -       D       B			-				-	-	3.	.518	3.318
Stage 2       -       -       -       627       -         Platoon blocked, %       -       -       -       -       -         Mov Cap-1 Maneuver       1101       -       -       284       599         Mov Cap-2 Maneuver       -       -       -       284       -         Stage 1       -       -       -       688       -         Stage 2       -       -       -       535       -         Approach       EB       WB       SB         HCM Control Delay, s       2.7       0       21.8         HCM LoS       C         Minor Lane/Major Mvmt       EBL       EBT       WBR SBLn1 SBLn2         Capacity (veh/h)       1101       -       -       284       599         HCM Lane V/C Ratio       0.091       -       -       0.499       0.203         HCM Control Delay (s)       8.6       -       -       29.7       12.5         HCM Lane LOS       A       -       -       D       B		1156	-				-	-			660
Platoon blocked, %       -		-	-				-	-			-
Mov Cap-1 Maneuver         1101         -         -         284         599           Mov Cap-2 Maneuver         -         -         -         284         -           Stage 1         -         -         -         688         -           Stage 2         -         -         -         535         -           Approach         EB         WB         SB           HCM Control Delay, s         2.7         0         21.8           HCM LOS         C         C    Minor Lane/Major Mvmt  EBL  EBT  WBT  WBR SBLn1 SBLn2  Capacity (veh/h)  1101  284  599  HCM Lane V/C Ratio  0.091  0.499  0.203  HCM Control Delay (s)  8.6  29.7  12.5  HCM Lane LOS  A - D B		-	-				-	-		627	-
Mov Cap-2 Maneuver         -         -         284         -           Stage 1         -         -         -         688         -           Stage 2         -         -         -         535         -           Approach         EB         WB         SB           HCM Control Delay, s         2.7         0         21.8           HCM LOS         C         C    Minor Lane/Major Mvmt  EBL  EBT  WBT  WBR SBLn1 SBLn2  Capacity (veh/h)  1101  284  599  HCM Lane V/C Ratio  0.091  0.499  0.203  HCM Control Delay (s)  8.6  29.7  12.5  HCM Lane LOS  A - D B			-				-	-			
Stage 1         -         -         688         -           Stage 2         -         -         -         535         -           Approach         EB         WB         SB           HCM Control Delay, s         2.7         0         21.8           HCM LOS         C           Minor Lane/Major Mvmt         EBL         EBT         WBR SBLn1 SBLn2           Capacity (veh/h)         1101         -         -         284         599           HCM Lane V/C Ratio         0.091         -         -         0.499         0.203           HCM Control Delay (s)         8.6         -         -         29.7         12.5           HCM Lane LOS         A         -         -         D         B		1101	-				-	-			599
Stage 2		-	-				-	-			-
Approach         EB         WB         SB           HCM Control Delay, s         2.7         0         21.8           HCM LOS         C           Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1 SBLn2           Capacity (veh/h)         1101         -         -         284         599           HCM Lane V/C Ratio         0.091         -         -         0.499         0.203           HCM Control Delay (s)         8.6         -         -         29.7         12.5           HCM Lane LOS         A         -         -         D         B	Ü	-	-				-	-			-
HCM Control Delay, s   2.7   0   21.8     HCM LOS   C     Minor Lane/Major Mvmt   EBL   EBT   WBT   WBR SBLn1 SBLn2     Capacity (veh/h)   1101   -   -   284   599     HCM Lane V/C Ratio   0.091   -   -   0.499   0.203     HCM Control Delay (s)   8.6   -   -   29.7   12.5     HCM Lane LOS   A   -   D   B	Stage 2	-	-				-	-		535	-
HCM Control Delay, s   2.7   0   21.8     HCM LOS											
Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1 SBLn2           Capacity (veh/h)         1101         -         -         284         599           HCM Lane V/C Ratio         0.091         -         -         0.499         0.203           HCM Control Delay (s)         8.6         -         -         29.7         12.5           HCM Lane LOS         A         -         -         D         B											
Minor Lane/Major Mvmt         EBL         EBT         WBT         WBR SBLn1 SBLn2           Capacity (veh/h)         1101         -         -         284         599           HCM Lane V/C Ratio         0.091         -         -         0.499         0.203           HCM Control Delay (s)         8.6         -         -         29.7         12.5           HCM Lane LOS         A         -         -         D         B	HCM Control Delay, s	2.7					0			21.8	
Capacity (veh/h) 1101 284 599  HCM Lane V/C Ratio 0.091 0.499 0.203  HCM Control Delay (s) 8.6 29.7 12.5  HCM Lane LOS A - D B											
Capacity (veh/h) 1101 284 599  HCM Lane V/C Ratio 0.091 0.499 0.203  HCM Control Delay (s) 8.6 29.7 12.5  HCM Lane LOS A - D B											
HCM Lane V/C Ratio       0.091       -       -       0.499       0.203         HCM Control Delay (s)       8.6       -       -       29.7       12.5         HCM Lane LOS       A       -       -       D       B	Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR SI	BLn1 S	SBLn2				
HCM Lane V/C Ratio       0.091       -       -       0.499       0.203         HCM Control Delay (s)       8.6       -       -       29.7       12.5         HCM Lane LOS       A       -       -       D       B	Capacity (veh/h)	1101	-	-	-	284	599				
HCM Lane LOS A D B			-	-	- (						
HCM Lane LOS A D B	HCM Control Delay (s)	8.6	-	-	-	29.7	12.5				
		A	-	-	-	D					
	HCM 95th %tile Q(veh)	0.3	-	-	-	2.6	0.8				

Intersection							
Int Delay, s/veh	1.8						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	¥			<b>f</b> >			4
Traffic Vol, veh/h	8	60		277	12	144	639
Future Vol, veh/h	8	60		277	12	144	639
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	95	95		95	95	95	95
Heavy Vehicles, %	2	2		1	1	1	1
Mvmt Flow	8	63		292	13	152	673
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	1274	298		0	0	304	0
Stage 1	298	270		-	-	-	-
Stage 2	976	_			_		_
Critical Hdwy	6.42	6.22				4.11	-
Critical Hdwy Stg 1	5.42	0.22			_	7.11	_
Critical Hdwy Stg 2	5.42	_		_	_	_	_
Follow-up Hdwy	3.518	3.318		_	_	2.209	_
Pot Cap-1 Maneuver	184	741		_	_	1263	-
Stage 1	753	-		_	_	1200	_
Stage 2	365	_		_	_	_	_
Platoon blocked, %	000			_	_		_
Mov Cap-1 Maneuver	149	741		_	-	1263	-
Mov Cap-2 Maneuver	149	-		_	-	-	_
Stage 1	753	-		_	-	-	-
Stage 2	295	-		_	-	_	_
	2,0						
Approach	WB			NB		SB	
HCM Control Delay, s	13.3			0		1.5	
HCM LOS	13.3 B			0		1.5	
TIGINI EGS	U						
Minor Long/Maior Mary	NDT	NIDDIA/DI :- 1	CDI	CDT			
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-	- 505	1263	-			
HCM Lane V/C Ratio	-	- 0.142	0.12	-			
HCM Control Delay (s)	-	- 13.3	8.2	0			
HCM Lane LOS	-	- B	Α	А			
HCM 95th %tile Q(veh)	-	- 0.5	0.4	-			

Intersection														
Int Delay, s/veh	2													
Movement	EBL	EBT	EBR		WBL	WBT	WBR		NBL	NBT	NBR	SB	L SBT	SBR
Lane Configurations		4				4				4			44	,
Traffic Vol, veh/h	0	3	1		57	1	10		1	269	68	2		
Future Vol, veh/h	0	3	1		57	1	10		1	269	68	2	4 554	1
Conflicting Peds, #/hr	1	0	1		0	0	0		1	0	0		0 0	1
Sign Control	Stop	Stop	Stop		Stop	Stop	Stop		Free	Free	Free	Fre	e 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	93	93	93		93	93	93		93	93	93	9		
Heavy Vehicles, %	0	0	0		0	0	0		3	3	3		2 2	
Mvmt Flow	0	3	1		61	1	11		1	289	73	2	6 596	1
Major/Minor	Minor2			ſ	Minor1			N	/lajor1			Major	2	
Conflicting Flow All	984	1014	598		979	977	327		598	0	0	36	2 0	0
Stage 1	649	649	-		328	328	-		-	-	-			-
Stage 2	335	365	-		651	649	-		-	-	-			-
Critical Hdwy	7.1	6.5	6.2		7.1	6.5	6.2		4.13	-	-	4.1	2 -	-
Critical Hdwy Stg 1	6.1	5.5	-		6.1	5.5	-		-	-	-			-
Critical Hdwy Stg 2	6.1	5.5	-		6.1	5.5	-		-	-	-			-
Follow-up Hdwy	3.5	4	3.3		3.5	4	3.3		2.227	-	-	2.21	8 -	-
Pot Cap-1 Maneuver	229	240	506		231	253	719		974	-	-	119	7 -	-
Stage 1	462	469	-		689	651	-		-	-	-			-
Stage 2	683	627	-		461	469	-		-	-	-			-
Platoon blocked, %										-	-		-	-
Mov Cap-1 Maneuver	219	232	505		222	244	718		973	-	-	119	6 -	-
Mov Cap-2 Maneuver	219	232	-		222	244	-		-	-	-			-
Stage 1	461	453	-		688	650	-		-	-	-			-
Stage 2	670	626	-		441	453	-		-	-	-			-
Approach	EB				WB				NB			S	В	
HCM Control Delay, s	18.7				25.6				0			0.	3	
HCM LOS	С				D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1V	VBLn1	SBL	SBT	SBR						
Capacity (veh/h)	973	-	-	268	247	1196	-	-						
HCM Lane V/C Ratio	0.001	-	_	0.016			_	-						
HCM Control Delay (s)	8.7	0	-	18.7	25.6	8.1	0	-						
HCM Lane LOS	A	A	_	С	D	A	A	-						
HCM 95th %tile Q(veh)	0		_	0	1.2	0.1	-	_						

Intersection	/ 2						
Int Delay, s/veh	6.2						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	W			<b>^</b>			र्स
Traffic Vol, veh/h	85	59		5	100	69	8
Future Vol, veh/h	85	59		5	100	69	8
Conflicting Peds, #/hr	1	2		0	1	2	0
Sign Control	Stop	Stop		Free	Free	Free	Free
RT Channelized	-	None		-	None	-	None
Storage Length	0	-		-	-	-	-
Veh in Median Storage, #	ŧ 0	-		0	-	-	0
Grade, %	0	-		0	-	-	0
Peak Hour Factor	94	94		94	94	94	94
Heavy Vehicles, %	0	0		0	0	0	0
Mvmt Flow	90	63		5	106	73	9
Major/Minor	Minor1			Major1		Major2	
	217	63		0	0	114	0
Conflicting Flow All							
Stage 1 Stage 2	61 156	-		•	-	-	-
	6.4	6.2				4.1	-
Critical Hdwy Critical Hdwy Stg 1	5.4	0.2		-	-	4.1	-
Critical Hdwy Stg 2	5.4	-		-	-	-	-
Follow-up Hdwy	3.5	3.3		-	-	2.2	-
Pot Cap-1 Maneuver	776	1007		-	-	1488	-
Stage 1	967	1007		-	-	1400	-
Stage 2	877	<u> </u>		-	-	-	-
Platoon blocked, %	011	_		_	_	_	
Mov Cap-1 Maneuver	736	1003				1485	
Mov Cap-2 Maneuver	736	1003		-	-	1400	_
Stage 1	965	<u> </u>		-	_	-	-
Stage 2	833	-				_	
Jiago Z	000			-	-	-	
Approach	WB			NB		SB	
HCM Control Delay, s	10.3			0		6.8	
HCM LOS	В						
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-	- 826	1485	-			
HCM Lane V/C Ratio	-	- 0.185		-			
HCM Control Delay (s)	-	- 10.3	7.5	0			
HCM Lane LOS	-	- B	Α	A			
HCM 95th %tile Q(veh)	-	- 0.7	0.2	-			
2(1311)							

Int Delay, s/veh   2.1								
Movement	Intersection	0.1						
Traffic Vol, veh/h	Int Delay, s/veh	2.1						
Lane Configurations	Movement	EBT	EBR	\	NBL	WBT	NBL	NBR
Traffic Vol, veh/h         160         7         47         143         1         49           Future Vol, veh/h         160         7         47         143         1         49           Conflicting Peds, #hr         0         2         2         0         2         2           Sign Control         Free         Free         Free         Free         Stop         Stop           RT Channelized         - None         - None         - None         - None         None           Storage Length         0         0         0         - Grade,         0         0         0         - Grade,         0         0         0         - Grade,         0         - 0         - 0         - 0         - 0         - 0         - 0         - 0         - 0         - 0	Lane Configurations	<u>\$</u>				4	W	
Conflicting Peds, #/hr         0         2         2         0         2         2           Sign Control         Free         Free         Free         Free         Stop         Stop           RT Channelized         - None         - None         - None         - None         - None           Storage Length         0         0         O         0         - O           Veh in Median Storage, #         0         0         0         0         - O           Grade, %         0         0         0         0         - O           Peak Hour Factor         96         96         96         96         96         96           Heavy Vehicles, %         0         0         3			7		47			49
Sign Control         Free Free         Free Free Free         Free Free Free Free Free Free Stop         Stop None           RT Channelized         - None         - None         - None           Storage Length         0         0         - O           Veh in Median Storage, #         0 0         0         0           Grade, %         0 0         0         0           Peak Hour Factor         96         96         96         96           Heavy Vehicles, %         0 0 0         3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Future Vol, veh/h	160	7		47	143	1	49
RT Channelized         None         None         None           Storage Length         0 0 0 -         0 0 0 -           Veh in Median Storage, # 0 0 0 0 -         0 0 0 0 -           Grade, % 0 0 0 0 0 0 -         0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Conflicting Peds, #/hr	0	2		2	0	2	2
RT Channelized         None         None         None           Storage Length         -         -         -         0         -           Veh in Median Storage, #         0         -         -         0         0         -           Grade, %         0         -         -         0         0         -         -         0         0         -         -         0         0         -         -         0         0         -         -         0         0         -         -         0         0         -         -         0         0         -         -         0         0         -         -         0         6         96	Sign Control	Free	Free	I	ree	Free	Stop	Stop
Veh in Median Storage, #         0         -         -         0         0         -           Grade, %         0         -         -         0         0         -           Peak Hour Factor         96         96         96         96         96         96           Heavy Vehicles, %         0         0         3         3         3         3         3           Mwnt Flow         167         7         49         149         1         51           Major/Minor         Major/Minor         Major/Minor         Minor1           Conflicting Flow All         0         0         176         0         421         174           Stage 1         -         -         -         -         172         -           Stage 2         -         -         -         -         249         -           Critical Hdwy         -         -         4.13         -         6.43         6.23           Critical Hdwy Stg 1         -         -         -         -         5.43         -           Critical Hdwy Stg 2         -         -         -         -         5.43         -	RT Channelized	-	None		-	None		None
Grade, %         0         -         -         0         0         -           Peak Hour Factor         96	Storage Length	-	-		-	-	0	-
Peak Hour Factor         96	Veh in Median Storage, #	0	-		-	0	0	-
Heavy Vehicles, %         0         0         3         3         3           Mvmt Flow         167         7         49         149         1         51           Major/Minor         Major1         Major2         Minor1           Conflicting Flow All         0         0         176         0         421         174           Stage 1         -         -         -         -         172         -           Stage 2         -         -         -         249         -           Critical Hdwy         -         -         4.13         -         6.43         6.23           Critical Hdwy Stg 1         -         -         -         -         5.43         -           Critical Hdwy Stg 2         -         -         -         5.43         -           Follow-up Hdwy         -         -         2.227         -         3.527         3.327           Pot Cap-1 Maneuver         -         -         1394         -         587         867           Stage 1         -         -         -         -         -         790         -           Platoon blocked, %         -         -         - <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Mymt Flow         167         7         49         149         1         51           Major/Minor         Major1         Major2         Minor1           Conflicting Flow All         0         0         176         0         421         174           Stage 1         -         -         -         -         172         -           Stage 2         -         -         -         249         -           Critical Hdwy         -         -         4.13         -         6.43         6.23           Critical Hdwy Stg 1         -         -         -         5.43         -         -           Critical Hdwy Stg 2         -         -         -         5.43         -         -           Critical Hdwy Stg 2         -         -         -         5.43         -         -           Critical Hdwy Stg 2         -         -         -         5.43         -         -           Follow-up Hdwy         -         -         2.227         -         3.527         3.327           Pot Cap-1 Maneuver         -         -         -         -         856         -           Stage 2         -         -<		96	96		96		96	
Major/Minor         Major1         Major2         Minor1           Conflicting Flow All         0         0         176         0         421         174           Stage 1         -         -         -         -         172         -           Stage 2         -         -         -         249         -           Critical Hdwy         -         -         4.13         -         6.43         6.23           Critical Hdwy Stg 1         -         -         -         -         5.43         -           Critical Hdwy Stg 2         -         -         -         -         5.43         -           Follow-up Hdwy         -         -         2.227         -         3.527         3.327           Pot Cap-1 Maneuver         -         -         1394         -         587         867           Stage 1         -         -         -         -         -         790         -           Platoon blocked, %         -         -         -         -         -         -           Mov Cap-1 Maneuver         -         -         -         -         -         -         -         -         - <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>								
Conflicting Flow All       0       0       176       0       421       174         Stage 1       -       -       -       -       172       -         Stage 2       -       -       -       -       249       -         Critical Hdwy       -       -       4.13       -       6.43       6.23         Critical Hdwy Stg 1       -       -       -       -       5.43       -         Critical Hdwy Stg 2       -       -       -       -       5.43       -         Follow-up Hdwy       -       -       2.227       -       3.527       3.327         Pot Cap-1 Maneuver       -       -       1394       -       587       867         Stage 1       -       -       -       -       856       -         Stage 2       -       -       -       -       -       -         Mov Cap-1 Maneuver       -       -       -       -       -       -         Mov Cap-2 Maneuver       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -	Mvmt Flow	167	7		49	149	1	51
Conflicting Flow All       0       0       176       0       421       174         Stage 1       -       -       -       -       172       -         Stage 2       -       -       -       -       249       -         Critical Hdwy       -       -       4.13       -       6.43       6.23         Critical Hdwy Stg 1       -       -       -       -       5.43       -         Critical Hdwy Stg 2       -       -       -       -       5.43       -         Follow-up Hdwy       -       -       2.227       -       3.527       3.327         Pot Cap-1 Maneuver       -       -       1394       -       587       867         Stage 1       -       -       -       -       856       -         Stage 2       -       -       -       -       -       -         Mov Cap-1 Maneuver       -       -       -       -       -       -         Mov Cap-2 Maneuver       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -								
Conflicting Flow All       0       0       176       0       421       174         Stage 1       -       -       -       -       172       -         Stage 2       -       -       -       -       249       -         Critical Hdwy       -       -       4.13       -       6.43       6.23         Critical Hdwy Stg 1       -       -       -       -       5.43       -         Critical Hdwy Stg 2       -       -       -       -       5.43       -         Follow-up Hdwy       -       -       2.227       -       3.527       3.327         Pot Cap-1 Maneuver       -       -       1394       -       587       867         Stage 1       -       -       -       -       856       -         Stage 2       -       -       -       -       -       -         Mov Cap-1 Maneuver       -       -       -       -       -       -         Mov Cap-2 Maneuver       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -	Maior/Minor	Maior1		Ma	ior2		Minor1	
Stage 1       -        -       -       -       -       -       -       -       -       -       -       -       -       -       -       -        -       -       -       -       -       -       -       -       -       -       -       -       -       -       -        -       -       -       -       -       -       -       -       -       -       -       -       -       -       -        -       -       -       -       -       -       -       -       -       -       - <th< td=""><td></td><td></td><td>0</td><td>.,,,,</td><td></td><td>0</td><td></td><td>174</td></th<>			0	.,,,,		0		174
Stage 2       -       -       -       -       249       -         Critical Hdwy       -       -       4.13       -       6.43       6.23         Critical Hdwy Stg 1       -       -       -       -       5.43       -         Critical Hdwy Stg 2       -       -       -       -       5.43       -         Follow-up Hdwy       -       -       2.227       3.527       3.327         Pot Cap-1 Maneuver       -       1394       -       587       867         Stage 1       -       -       -       856       -         Stage 2       -       -       -       -       790       -         Platoon blocked, %       -       -       -       -       -       -         Mov Cap-1 Maneuver       -       -       1391       -       563       864         Mov Cap-2 Maneuver       - <td< td=""><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		-						
Critical Hdwy       -       -       4.13       -       6.43       6.23         Critical Hdwy Stg 1       -       -       -       -       5.43       -         Critical Hdwy Stg 2       -       -       -       -       5.43       -         Follow-up Hdwy       -       -       -       2.227       -       3.527       3.327         Pot Cap-1 Maneuver       -       -       1394       -       587       867         Stage 1       -       -       -       -       856       -         Stage 2       -       -       -       -       -       -         Mov Cap-1 Maneuver       - <td></td> <td>-</td> <td>-</td> <td></td> <td>_</td> <td></td> <td></td> <td>-</td>		-	-		_			-
Critical Hdwy Stg 1       -       -       -       -       5.43       -         Critical Hdwy Stg 2       -       -       -       5.43       -         Follow-up Hdwy       -       -       2.227       -       3.527       3.327         Pot Cap-1 Maneuver       -       -       1394       -       587       867         Stage 1       -       -       -       -       856       -         Stage 2       -       -       -       -       790       -         Platoon blocked, %       -       -       -       -       -         Mov Cap-1 Maneuver       -       -       1391       -       563       864         Mov Cap-2 Maneuver       -       -       -       -       854       -         Stage 1       -       -       -       -       759       -         Approach       EB       WB       NB         HCM Control Delay, s       0       1.9       9.5		_	-		4.13	-		6.23
Critical Hdwy Stg 2       -       -       -       5.43       -         Follow-up Hdwy       -       -       2.227       -       3.527       3.327         Pot Cap-1 Maneuver       -       -       1394       -       587       867         Stage 1       -       -       -       -       790       -         Platoon blocked, %       -       -       -       -         Mov Cap-1 Maneuver       -       -       1391       -       563       864         Mov Cap-2 Maneuver       -       -       -       -       854       -         Stage 1       -       -       -       -       759       -         Approach       EB       WB       NB         HCM Control Delay, s       0       1.9       9.5		-	-			-		- 0.20
Follow-up Hdwy 2.227 - 3.527 3.327  Pot Cap-1 Maneuver - 1394 - 587 867  Stage 1 856 - Stage 2 790  Platoon blocked, %		_	_		-	-		-
Pot Cap-1 Maneuver       -       -       1394       -       587       867         Stage 1       -       -       -       -       856       -         Stage 2       -       -       -       -       790       -         Platoon blocked, %       -       -       -       -       -         Mov Cap-1 Maneuver       -       -       1391       -       563       864         Mov Cap-2 Maneuver       -       -       -       -       563       -         Stage 1       -       -       -       -       854       -         Stage 2       -       -       -       -       759       -     Approach  EB  WB  NB  HCM Control Delay, s  0  1.9  9.5		-	-	2	.227	-		3.327
Stage 1       - </td <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td>		_	-					
Stage 2       -       -       -       -       790       -         Platoon blocked, %       -       -       -       -       -         Mov Cap-1 Maneuver       -       -       1391       -       563       864         Mov Cap-2 Maneuver       -       -       -       -       563       -         Stage 1       -       -       -       -       854       -         Stage 2       -       -       -       -       759       -         Approach       EB       WB       NB         HCM Control Delay, s       0       1.9       9.5		-	-			-		-
Platoon blocked, %       -       -       -         Mov Cap-1 Maneuver       -       -       1391       -       563       864         Mov Cap-2 Maneuver       -       -       -       -       563       -         Stage 1       -       -       -       -       854       -         Stage 2       -       -       -       -       759       -            Approach       EB       WB       NB         HCM Control Delay, s       0       1.9       9.5		_	-		-			_
Mov Cap-1 Maneuver       -       -       1391       -       563       864         Mov Cap-2 Maneuver       -       -       -       -       563       -         Stage 1       -       -       -       -       854       -         Stage 2       -       -       -       -       759       -            Approach       EB       WB       NB         HCM Control Delay, s       0       1.9       9.5		-	-			-		
Mov Cap-2 Maneuver       -       -       -       -       563       -         Stage 1       -       -       -       -       854       -         Stage 2       -       -       -       -       759       -             Approach       EB       WB       NB         HCM Control Delay, s       0       1.9       9.5		-	-	1	391	-	563	864
Stage 1         -         -         -         -         854         -           Stage 2         -         -         -         -         759         -           Approach         EB         WB         NB           HCM Control Delay, s         0         1.9         9.5		-	-		-	-		-
Stage 2         -         -         -         -         759         -           Approach         EB         WB         NB           HCM Control Delay, s         0         1.9         9.5		-	-		-	-		-
Approach EB WB NB HCM Control Delay, s 0 1.9 9.5		-	-		-	-		-
HCM Control Delay, s 0 1.9 9.5	Ü							
HCM Control Delay, s 0 1.9 9.5	Approach	EB			WB		NB	
	HCM LOS	U			,		Α.	
							, , , , , , , , , , , , , , , , , , ,	
Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT	Minor Lane/Maior Mymt	NRI n1 FRT	FRR	WBI V	VBT			
Capacity (veh/h) 855 - 1391 -								
HCM Lane V/C Ratio 0.061 0.035 -								
HCM Control Delay (s) 9.5 - 7.7 0								
HCM Lane LOS A A A								
HCM 95th %tile Q(veh) 0.2 - 0.1 -								

Intersection   Int Delay, s/veh
Movement
Traffic Vol, veh/h   201   18   37   211   5   21
Traffic Vol, veh/h   201   18   37   211   5   21
Traffic Vol, veh/h         201         18         37         211         5         21           Future Vol, veh/h         201         18         37         211         5         21           Conflicting Peds, #/hr         0         4         4         0         4         4           Sign Control         Free         Free         Free         Free         Stop         Stop           RT Channelized         - None         - None         - None         - None         - None           Storage Length         0         0         O         0         - O           Veh in Median Storage, #         0 0         0         0         - O         - O           Grade, %         0 0         0         0         - O
Future Vol, veh/h         201         18         37         211         5         21           Conflicting Peds, #/hr         0         4         4         0         4         4           Sign Control         Free         Free         Free         Free         Stop         Stop           RT Channelized         - None         - None         - None         - None         - None           Storage Length         0         0         O         0         O           Veh in Median Storage, #         0         0         0         O         0         O           Grade, %         0         0         0         0         O         0         O           Peak Hour Factor         94
Conflicting Peds, #/hr         0         4         4         0         4         4           Sign Control         Free         Free         Free         Free         Free         Free         Stop         Stop           RT Channelized         - None         - None         None         - None         - None
Sign Control         Free         Free         Free         Free         Free         Stop         Stop           RT Channelized         - None         - Storage Length         O         0         O         0         O         0         O         0         O         0         O         0         O         0         O         0         O         0         O         0         O         0         O         - O
RT Channelized         - None         - None         - None           Storage Length         0         0         -           Veh in Median Storage, #         0 0         0         -           Grade, %         0 0         0         -           Peak Hour Factor         94 94 94 94 94 94         94 94 94         94 94 94           Heavy Vehicles, %         1 1 1 1 1 0 0 0         0         0           Mvmt Flow         214 19 39 224 5 22         22              Major/Minor         Major1         Major2         Minor1           Conflicting Flow All         0 0 237 0 534 231         231           Stage 1 227 - 227 - 3307 - 227         - 3307 - 3307 - 3307         - 3307 - 3307 - 3307           Critical Hdwy         4.11 - 6.4 6.2         6.2         6.2           Critical Hdwy Stg 1 5.4 - 5.4 - 5.4         - 5.4 - 5.4         - 5.4           Follow-up Hdwy         2.209 - 3.5         3.3
Storage Length         -         -         -         -         0         -           Veh in Median Storage, #         0         -         -         0         0         -           Grade, %         0         -         -         0         0         -           Peak Hour Factor         94         94         94         94         94         94           Heavy Vehicles, %         1         1         1         1         0         0           Mvmt Flow         214         19         39         224         5         22           Major/Minor         Major1         Major2         Minor1         Minor1           Conflicting Flow All         0         0         237         0         534         231           Stage 1         -         -         -         -         227         -           Stage 2         -         -         -         -         307         -           Critical Hdwy         -         -         4.11         -         6.4         6.2           Critical Hdwy Stg 1         -         -         -         -         5.4         -           Critical Hdwy         -
Veh in Median Storage, #         0         -         -         0         0         -           Grade, %         0         -         -         0         0         -           Peak Hour Factor         94         94         94         94         94         94           Heavy Vehicles, %         1         1         1         1         0         0         0           Mvmt Flow         214         19         39         224         5         22           Major/Minor         Major1         Major2         Minor1           Conflicting Flow All         0         0         237         0         534         231           Stage 1         -         -         -         -         227         -           Stage 2         -         -         -         -         307         -           Critical Hdwy         -         -         4.11         -         6.4         6.2           Critical Hdwy Stg 1         -         -         -         -         5.4         -           Critical Hdwy Stg 2         -         -         -         5.4         -           Follow-up Hdwy         - <t< td=""></t<>
Grade, %         0         -         -         0         0         -           Peak Hour Factor         94         94         94         94         94         94           Heavy Vehicles, %         1         1         1         1         0         0         0           Mvmt Flow         214         19         39         224         5         22           Major/Minor         Major1         Major2         Minor1
Peak Hour Factor         94
Moment Flow         214         19         39         224         5         22           Major/Minor         Major1         Major2         Minor1           Conflicting Flow All         0         0         237         0         534         231           Stage 1         -         -         -         -         227         -           Stage 2         -         -         -         -         307         -           Critical Hdwy         -         -         4.11         -         6.4         6.2           Critical Hdwy Stg 1         -         -         -         -         5.4         -           Critical Hdwy Stg 2         -         -         -         5.4         -           Follow-up Hdwy         -         -         2.209         -         3.5         3.3
Moment Flow         214         19         39         224         5         22           Major/Minor         Major1         Major2         Minor1           Conflicting Flow All         0         0         237         0         534         231           Stage 1         -         -         -         -         227         -           Stage 2         -         -         -         -         307         -           Critical Hdwy         -         -         4.11         -         6.4         6.2           Critical Hdwy Stg 1         -         -         -         -         5.4         -           Critical Hdwy Stg 2         -         -         -         5.4         -           Follow-up Hdwy         -         -         2.209         -         3.5         3.3
Conflicting Flow All         0         0         237         0         534         231           Stage 1         -         -         -         -         227         -           Stage 2         -         -         -         -         307         -           Critical Hdwy         -         -         4.11         -         6.4         6.2           Critical Hdwy Stg 1         -         -         -         -         5.4         -           Critical Hdwy Stg 2         -         -         -         -         5.4         -           Follow-up Hdwy         -         -         2.209         -         3.5         3.3
Conflicting Flow All         0         0         237         0         534         231           Stage 1         -         -         -         -         227         -           Stage 2         -         -         -         -         307         -           Critical Hdwy         -         -         4.11         -         6.4         6.2           Critical Hdwy Stg 1         -         -         -         -         5.4         -           Critical Hdwy Stg 2         -         -         -         -         5.4         -           Follow-up Hdwy         -         -         2.209         -         3.5         3.3
Conflicting Flow All         0         0         237         0         534         231           Stage 1         -         -         -         -         227         -           Stage 2         -         -         -         -         307         -           Critical Hdwy         -         -         4.11         -         6.4         6.2           Critical Hdwy Stg 1         -         -         -         -         5.4         -           Critical Hdwy Stg 2         -         -         -         -         5.4         -           Follow-up Hdwy         -         -         2.209         -         3.5         3.3
Stage 1       -       -       -       -       -       -       -       307       -         Stage 2       -
Stage 2       - </td
Critical Hdwy       -       -       4.11       -       6.4       6.2         Critical Hdwy Stg 1       -       -       -       -       5.4       -         Critical Hdwy Stg 2       -       -       -       -       5.4       -         Follow-up Hdwy       -       -       2.209       -       3.5       3.3
Critical Hdwy Stg 1       -       -       -       -       5.4       -         Critical Hdwy Stg 2       -       -       -       -       5.4       -         Follow-up Hdwy       -       -       2.209       -       3.5       3.3
Critical Hdwy Stg 2       -       -       -       5.4       -         Follow-up Hdwy       -       -       2.209       -       3.5       3.3
Follow-up Hdwy 2.209 - 3.5 3.3
Pot Cap-1 Maneuver 1336 - 510 813
Stage 1 815 -
Stage 2 751 -
Platoon blocked, %
Mov Cap-1 Maneuver 1331 - 489 807
Mov Cap-2 Maneuver 489 -
Stage 1 812 -
Stage 2 723 -
Approach EB WB NB
HCM Control Delay, s 0 1.2 10.2
HCM LOS B
Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT
Capacity (veh/h) 717 1331 -
HCM Lane V/C Ratio 0.039 0.03 -
HCM Control Delay (s) 10.2 7.8 0
HCM Lane LOS B A A
HCM 95th %tile Q(veh) 0.1 0.1 -

HCM Lane LOS

HCM 95th-tile Q

ntersection	
ntersection Delay, s/veh	100.7
ntersection LOS	F

intersection belay, siven	100.7											
Intersection LOS	F											
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			4				4				4	
Traffic Vol, veh/h	0	53	122	86	0	64	122	88	0	51	265	34
Future Vol, veh/h	0	53	122	86	0	64	122	88	0	51	265	34
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	1	1	1	1	1	1	1	1
Mvmt Flow	0	55	127	90	0	67	127	92	0	53	276	35
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				2		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		2				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				2				1		
HCM Control Delay		24.4				25.5				35.2		
HCM LOS		С				D				Ε		
Lane	NE	3Ln1	EBLn1	WBLn1	SBLn1	SBLn2						
Vol Left, %		15%	20%	23%	13%	0%						
Vol Thru, %		76%	47%	45%	87%	0%						
Vol Right, %		10%	33%	32%	0%	100%						
Sign Control		Stop	Stop	Stop	Stop	Stop						
Traffic Vol by Lane		350	261	274	623	117						
LT Vol		51	53	64	80	0						
Through Vol		265	122	122	543	0						
RT Vol		34	86	88	0	117						
Lane Flow Rate		365	272	285	649	122						
Geometry Grp		5	2	2	7	7						
Degree of Util (X)	0	.777	0.602	0.627	1.41	0.238						
Departure Headway (Hd)	8	.432	8.875	8.8	7.819	7.032						
Convergence, Y/N		Yes	Yes	Yes	Yes	Yes						
Cap		434	411	414	467	507						
Service Time	6	.432	6.875	6.8	5.614	4.825						
HCM Lane V/C Ratio		.841	0.662	0.688	1.39	0.241						
HCM Control Delay		35.2	24.4	25.5	219.2	12						

Transpo Group Synchro 9 Report

31.1

В

0.9

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Intersection				
Intersection Delay, s/veh				
Intersection LOS				
Movement	SBU	SBL	SBT	SBR
Lane Configurations	020	002	ન	7
Traffic Vol, veh/h	0	80	543	117
Future Vol, veh/h	0	80	543	117
Peak Hour Factor	0.96	0.96	0.96	0.96
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	83	566	122
Number of Lanes	0	0	1	1
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		186.4		
HCM LOS		F		

Intersection									
Int Delay, s/veh	2.3								
Movement	EBL	EBT				WBT	WBR	SBL	SBR
Lane Configurations		<b></b>				î,		ሻ	#
Traffic Vol, veh/h	35	176				175	41	43	36
Future Vol, veh/h	35	176				175	41	43	36
Conflicting Peds, #/hr	0	0				0	0	0	0
Sign Control	Free	Free				Free	Free	Stop	Stop
RT Channelized	-	None				-	None	-	None
Storage Length	-	-				-	-	0	0
Veh in Median Storage, #	<del>!</del> _	0				0	-	0	-
Grade, %	-	0				0	-	0	-
Peak Hour Factor	94	94				94	94	94	94
Heavy Vehicles, %	1	1				1	1	0	0
Mvmt Flow	37	187				186	44	46	38
Major/Minor	Major1					Major2		Minor2	
Conflicting Flow All	230	0				-	0	470	208
Stage 1	-	-				_	-	208	-
Stage 2	_	_				_	_	262	_
Critical Hdwy	4.11	-				-	-	6.4	6.2
Critical Hdwy Stg 1	-	_				_	_	5.4	-
Critical Hdwy Stg 2	-	-				-	-	5.4	-
Follow-up Hdwy	2.209	_				_	_	3.5	3.3
Pot Cap-1 Maneuver	1344	-				-	-	556	837
Stage 1	-	-					-	832	-
Stage 2	-	_				-	-	786	-
Platoon blocked, %		-					-	, 00	
Mov Cap-1 Maneuver	1344	-				-	-	539	837
Mov Cap-2 Maneuver	-	_				_	_	539	-
Stage 1	-	-				-	-	832	-
Stage 2	-	-				_	-	762	-
								, 52	
Approach	EB					WB		SB	
HCM Control Delay, s	1.3					0		11	
HCM LOS	1.3					U		В	
TOW LOS								U	
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR SI	DI n1 (	SDL no			
		EDI	WDI	WDK SI					
Capacity (veh/h)	1344	-	-	-	539	837			
HCM Cantral Dalay (a)	0.028	-	-			0.046			
HCM Control Delay (s)	7.8	-	-	-	12.3	9.5			
HCM CEAL O(4112 O(4124)	A	-	-	-	В	A			
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	0.1			

2022 Future With-Project AM Peak Hour	(With Frontage	Improvements'

Intersection							
Int Delay, s/veh	8.8						
		ГОТ		WDT	WDD	CDI	SBR
Movement	EBL	EBT		WBT	WBR	SBL	
Lane Configurations	117	121		<b>-</b>	120		<b>*</b>
Traffic Vol, veh/h	117	121		65	138	113	96 96
Future Vol, veh/h	117	121		65	138	113	
Conflicting Peds, #/hr	50	0		0	50	50	50
Sign Control RT Channelized	Free	Free		Free	Free	Stop	Stop
	-	None		-	None	-	None
Storage Length	<u>-</u> ш	-		-	-	0	0
Veh in Median Storage, #	-	0		0	-	1 0	-
Grade, % Peak Hour Factor	60	60		0	-	60	- 40
	5	5		60 6	60 6	2	60
Heavy Vehicles, % Mvmt Flow	195	202		108	230	188	160
IVIVIIIL FIUW	195	202		IUQ	230	100	100
Major/Minor	Major1		[	Major2		Minor2	
Conflicting Flow All	388	0		-	0	915	323
Stage 1	-	-		-	-	273	-
Stage 2	-	-		-	-	642	-
Critical Hdwy	4.15	-		-	-	6.42	6.22
Critical Hdwy Stg 1	-	-		-	-	5.42	-
Critical Hdwy Stg 2	-	-		-	-	5.42	-
Follow-up Hdwy	2.245	-		-	-	3.518	3.318
Pot Cap-1 Maneuver	1154	-		-	-	303	718
Stage 1	-	-		-	-	773	-
Stage 2	-	-		-	-	524	-
Platoon blocked, %		-		-	-		
Mov Cap-1 Maneuver	1099	-		-	-	220	651
Mov Cap-2 Maneuver	-	-		-	-	322	-
Stage 1	-	-		-	-	736	-
Stage 2	-	-		-	-	399	-
Approach	EB			WB		SB	
HCM Control Delay, s	4.4			0		22.3	
HCM LOS	4.4			U		22.3 C	
TOW LOS							
			MDT MCT CT	001 6			
Minor Lane/Major Mvmt	EBL	EBT	WBT WBR SBLn1				
Capacity (veh/h)	1099	-	322	651			
HCM Lane V/C Ratio	0.177	-	0.585				
HCM Control Delay (s)	9	-	30.8	12.3			
HCM Lane LOS	А	-	D	В			
HCM 95th %tile Q(veh)	0.6	-	3.5	1			

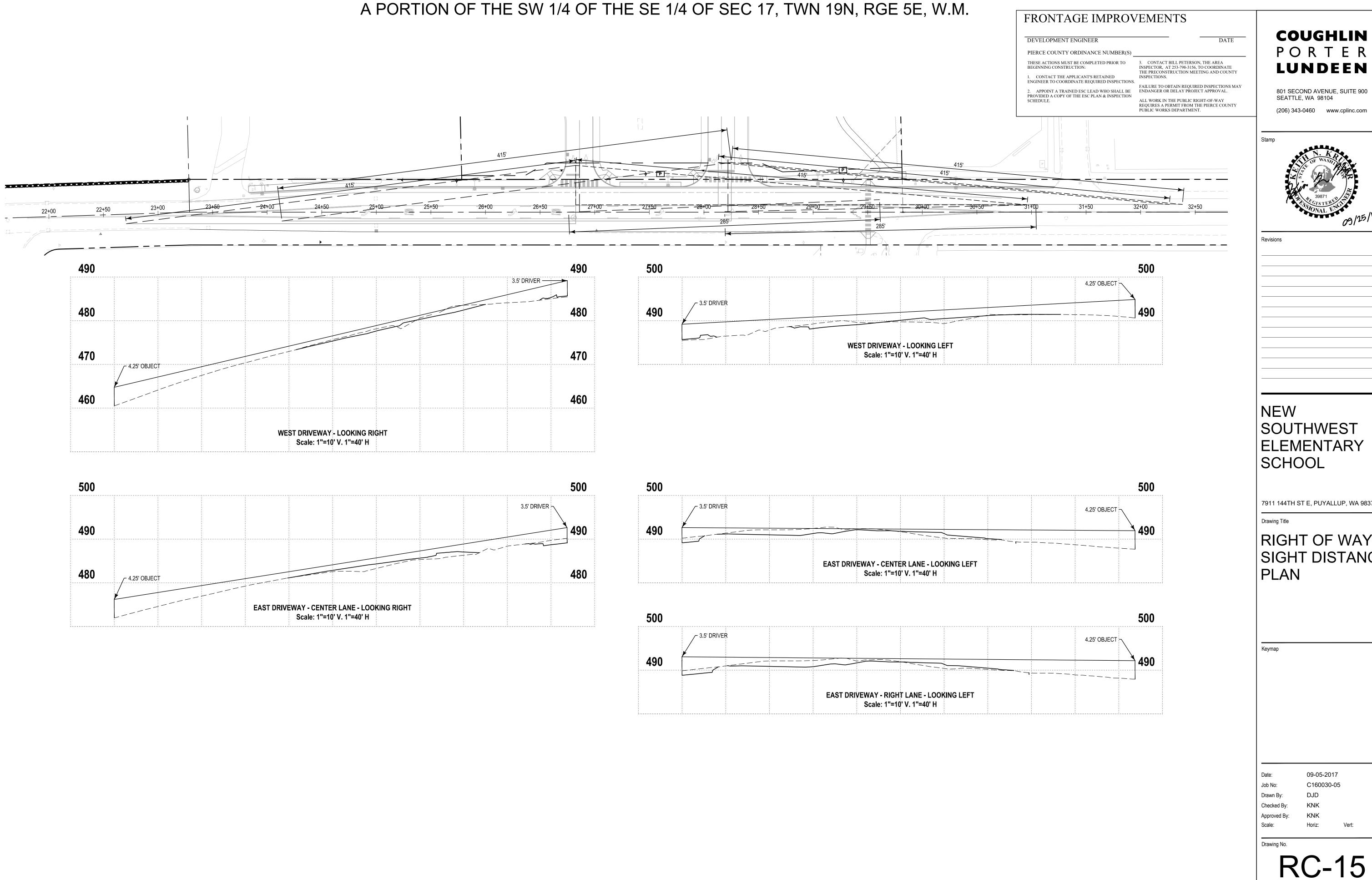
Intersection								
Int Delay, s/veh	5.4							
Movement	EBL	EBT		۱۸	VBT	WBR	SBL	SBR
	LDL			V		WDK	SDL Š	JUK 7
Lane Configurations Traffic Vol, veh/h	60	<b>↑</b> 134			<b>1</b> 38	70	<b>1</b> 85	<b>1</b> 73
Future Vol, veh/h	60	134			138	70	85	73
Conflicting Peds, #/hr	50	0			0	50	50	50
Sign Control	Free	Free			ree	Free	Stop	Stop
RT Channelized	-	None		Г	-	None	310p	None
Storage Length	_	INUITE			_	NONE	0	0
Veh in Median Storage, #	<del>-</del> # -	0			0		1	-
Grade, %	-	0			0	_	0	
Peak Hour Factor	60	60			60	60	60	60
Heavy Vehicles, %	3	3			4	4	2	2
Mvmt Flow	100	223			230	117	142	122
	100				_00		112	122
Major/Minor	Major1			Ma	jor2		Minor2	
Conflicting Flow All	397	0		ivia	JUIZ	0	811	388
Stage 1	397	U			-	U	338	388
Stage 2	-	-			-	-	473	-
Critical Hdwy	4.13	-			-	-	6.42	6.22
Critical Hdwy Stg 1	4.13	-			-	_	5.42	0.22
Critical Hdwy Stg 2	-	-			-	-	5.42	-
Follow-up Hdwy	2.227						3.518	3.318
Pot Cap-1 Maneuver	1156				_	_	3.510	660
Stage 1	1130						722	- 000
Stage 2		-			-	-	627	- -
Platoon blocked, %		_			_	_	021	
Mov Cap-1 Maneuver	1101	_			_	_	284	599
Mov Cap-2 Maneuver	-	_				_	401	-
Stage 1	_	-			-	-	688	-
Stage 2	-	_				-	535	-
Stage 2								
Approach	EB				WB		SB	
HCM Control Delay, s	2.7				0		15.9	
HCM LOS	2.1				U		13.9 C	
HOW LOS							C	
Minor Lane/Major Mvmt	EBL	EBT	WBT WBRS	BLn1 SB	l n2			
		LDI						
Capacity (veh/h) HCM Lane V/C Ratio	1101	-			599			
ncivi Lahe V/C Ralio	0.091	-		0.353 0.	203 12.5			
HCM Control Dolay (a)	0.4							
HCM Lang LOS	8.6	-						
HCM Control Delay (s) HCM Lane LOS HCM 95th %tile Q(veh)	8.6 A 0.3	-		С	B 0.8			

2022 Future With-Pr	oject PM Peak	Hour (Front	age Improvements

Intersection										
Int Delay, s/veh	2.2									
Movement	EBL	EBT				WBT	WBR		SBL	SBR
Lane Configurations		<b>†</b>				ĵ.				7
Traffic Vol, veh/h	35	176				175	41		43	36
Future Vol, veh/h	35	176				175	41		43	36
Conflicting Peds, #/hr	0	0				0	0		0	0
Sign Control	Free	Free				Free	Free		Stop	Stop
RT Channelized	-	None				-			-	None
Storage Length	-	-				-	-		0	0
Veh in Median Storage, #	# -	0				0	-		1	-
Grade, %	-	0				0	-		0	-
Peak Hour Factor	94	94				94	94		94	94
Heavy Vehicles, %	1	1				1	1		0	0
Mvmt Flow	37	187				186	44		46	38
Major/Minor	Major1				ľ	Major2		Mi	inor2	
Conflicting Flow All	230	0					0		470	208
Stage 1	-	-				-	-		208	-
Stage 2	-	-				-	-		262	-
Critical Hdwy	4.11	-				-	-		6.4	6.2
Critical Hdwy Stg 1	-	-				-	_		5.4	-
Critical Hdwy Stg 2	-	-				-	-		5.4	-
Follow-up Hdwy	2.209	-				-	_		3.5	3.3
Pot Cap-1 Maneuver	1344	-				-	-		556	837
Stage 1	-	-				-	-		832	-
Stage 2	-	-				-	-		786	-
Platoon blocked, %		-				-	-			
Mov Cap-1 Maneuver	1344	-				-	-		539	837
Mov Cap-2 Maneuver	-	-				-	-		608	-
Stage 1	-	-				-	-		832	-
Stage 2	-	-				-	-		762	-
Ŭ										
Approach	EB					WB			SB	
HCM Control Delay, s	1.3					0			10.5	
HCM LOS									В	
= 5 5										
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR SE	3Ln1 S	SBLn2				
Capacity (veh/h)	1344	_	_	_	608	837				
HCM Lane V/C Ratio	0.028	_	_	- 0		0.046				
HCM Control Delay (s)	7.8	-	-		11.4	9.5				
HCM Lane LOS	Α.	_	_	_	В	Α.5				
HCM 95th %tile Q(veh)	0.1	_	_	-	0.2	0.1				
110W 70W 70W Q(VCH)	0.1				0.2	0.1				

## Appendix D: Sight Distance





COUGHLIN PORTER LUNDEEN

801 SECOND AVENUE, SUITE 900 SEATTLE, WA 98104

SOUTHWEST ELEMENTARY

7911 144TH ST E, PUYALLUP, WA 98373

RIGHT OF WAY SIGHT DISTANCE