

961 St. David Street North, Fergus ON Transportation Impact Study

Paradigm Transportation Solutions Limited

June 2022 210066



Project Summary



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961 St. David Street North, Fergus, ON Transportation Impact Study



Erica Bayley, P.Eng.

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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Study for a proposed residential development at 961 St. David Street North (Highway 6) in Fergus, Township of Centre Wellington, Ontario.

This Transportation Impact Study (TIS) includes an analysis of existing traffic conditions, a description of the proposed development, traffic forecasts for an opening year horizon (2023), five-year horizon (2028) from full build-out, and ten-year horizon (2033) from full build-out, and any recommendations required to improve future traffic conditions.

Development Concept

The subject site is located at 961 St. David Street North (Highway 6). The property owner is proposing to construct 13 single family and 37 townhome residential units with assumed full-build-out by 2023.

Vehicle access is proposed via a single all-moves access to St. David Street North (Highway 6).

Conclusions

Based on the investigations carried out, it is concluded that:

- Existing Traffic Conditions: The study area intersections are currently operating within acceptable levels of service with no critical movements during the AM and PM peak hours.
- Development Trip Generation: The residential development is forecast to generate approximately 27 and 34 trips during the AM and PM peak hours upon full build-out.
- ▶ 2023 Background Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- 2023 Total Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- ► The addition of the site generated traffic does not increase the overall delay at the study area intersections during the AM and PM peak hours.



- 2028 Background Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- ▶ 2028 Total Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- ► The addition of the site generated traffic increases the overall delay at the study area intersections by one second or less during the AM and PM peak hours.
- ▶ 2033 Background Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service during the AM and PM peak hours with the following critical movement noted:
 - The eastbound left/right-turn movement at St. David Street North and Sideroad 19 is forecast to operate with delays in the LOS E range and v/c ratio 0.63 during the PM peak hour. The v/c ratio indicates that while there is delay, there remains excess capacity for this movement.
- ▶ 2033 Total Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service during the AM and PM peak hours with the following critical movement noted:
 - The eastbound left/right-turn movement at St. David Street North and Sideroad 19 is forecast to operate with delays in the LOS E range and v/c ratio 0.65 during the PM peak hour. The v/c ratio indicates that while there is delay, there remains excess capacity for this movement.
- ► The addition of the site generated traffic does not increase the overall delay at the study area intersections during the AM and PM peak hours.
- ▶ Remedial Measures: A northbound left-turn lane on St. David Street North at the proposed site driveway is not warranted due to the forecast left-turn volumes being less than 2% of the advancing volumes during the AM and PM peak hours.
- ➤ Traffic control signals are not warranted under 2033 total traffic conditions at the St. David Street North (Highway 6) intersections with Sideroad 18 and Sideroad 19.

Recommendations

Based on the findings of this study, it is recommended that the development be approved with no requirement for off-site transportation improvements.

It is also recommended that the MTO and Township of Centre Wellington monitor the future traffic volumes to ensure appropriate forms of traffic control are in place at the intersections of St. David Street North at Sideroad 18 and St. David Street North at Sideroad 19

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1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Study for a residential development located at municipal address 961 St. David Street North, Fergus, Township of Centre Wellington, Ontario. **Figure 1.1** illustrates the location of the subject site.

This study determines the impacts of the additional traffic on the surrounding road network, and the remedial measures necessary (if any) to accommodate future traffic in a satisfactory manner. The scope of the study includes:

- Assessment of the current traffic and site conditions within the study area;
- Estimates of background traffic growth;
- Estimates of additional traffic generated by the subject site;
- Analysis of the impact of the future traffic on the surrounding road network for opening year (year 2023), five-years after full build-out (year 2028) and ten-years after full build-out (year 2033) horizon years; and
- Recommendations necessary to mitigate this future traffic in a satisfactory manner.

The study scope was developed in consultation with the Ministry of Transportation (MTO) in March 2021. **Appendix A** contains the prestudy consultation material and response from the MTO.

1.2 Study Area

The intersections assessed in this study include:

- St. David Street North (Highway 6) and Sideroad 18 (unsignalized);
- St. David Street North (Highway 6) and Sideroad 19 (unsignalized); and
- St. David Street North (Highway 6) and the proposed site driveway.







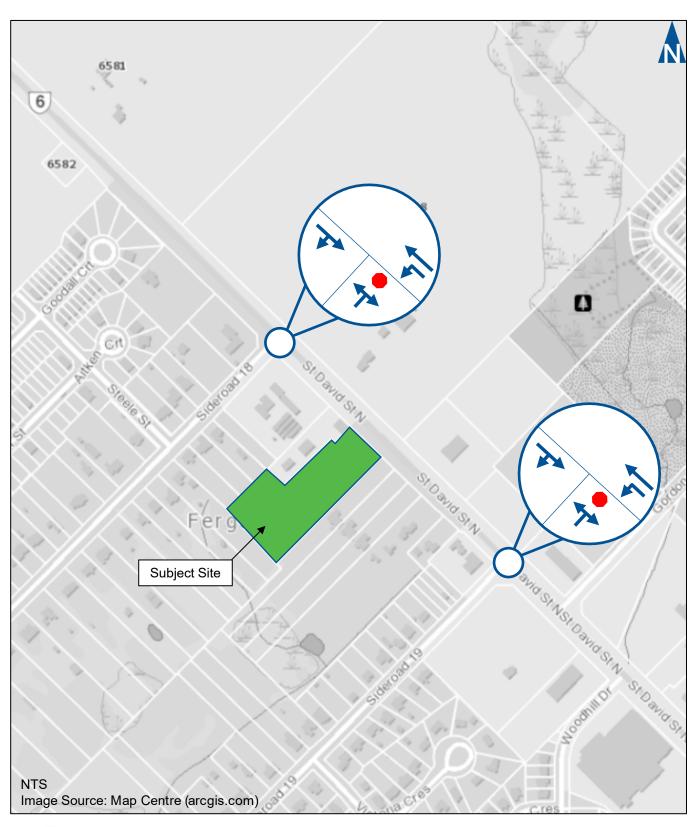
Location of Subject Site

2.1 Road Characteristics

The roadways of interest within the study area include St. David Street North (Highway 6), Sideroad 18, and Sideroad 19. These roadways are under the jurisdiction of the MTO and Township of Centre Wellington and are generally described as follows:

- ▶ St. David Street North (Highway 6) is designated as Provincial Highway withing the study area. The connecting link starts immediately south of the Sideroad 19 intersection. It is a paved two-lane arterial roadway running north-south. There are no sidewalks on St. David Street north of Sideroad 19. The posted speed limit in the study area is 60 km/h. It transitions to 80 km/h north of Sideroad 18 and to 50 km/h south of Sideroad 19.
- ➤ **Sideroad 18** is an east-west local roadway with a two-lane cross-section. The posted speed limit is 50 kilometres per hour. A sidewalk is provided on both sides of the road between St. David Street North and Steele Street.
- ▶ **Sideroad 19** is an east-west local roadway with a two-lane cross-section. The posted speed limit is 50 kilometres per hour. A sidewalk is provided on the south side of the roadway.

Figure 2.1 details the existing traffic control and lane configurations at the study area intersections.





Existing Lane Configuration & Traffic Control

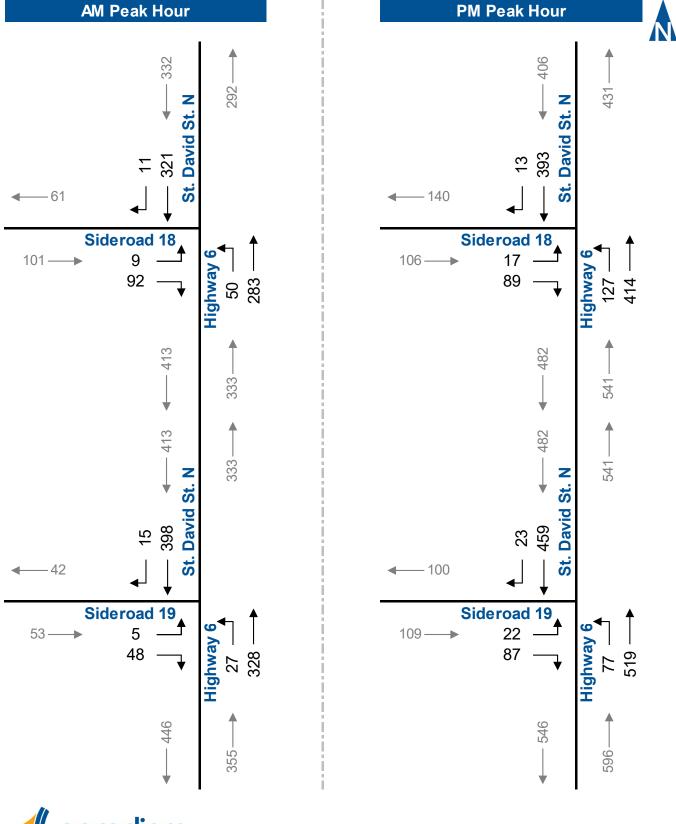
2.2 Traffic Volumes

Turning movement counts at the study area intersections were conducted in March 2021 to capture the weekday AM and PM peak hours. The turning movement counts were provided to, and subsequently approved by, the MTO for use in this study¹.

Figure 2.2 displays the existing weekday AM and PM peak hour traffic volumes. **Appendix B** contains the detailed turning movement counts for the study area intersections.



¹ Appendix A – Pre-Study Consultation



Existing Traffic Volumes

2.3 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the average delay experienced by drivers at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles intending to make a particular movement, compared to the estimated capacity for that movement. The capacity is based on a number of criteria related to the opposing traffic flows and intersection geometry.

The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds for signalized intersections, 50 seconds for unsignalized intersections or when the volume to capacity ratio is greater than 1.0, the movement is classed as LOS F and remedial measures are usually implemented if they are feasible. LOS E is usually used as a guideline for the determination of road improvement needs on through lanes, while LOS F may be acceptable for left-turn movements at peak times, depending on delays.

The operations of the study intersections were evaluated using the existing lane configurations, traffic controls, and the existing traffic peak volumes.

The level of service conditions on the existing road network have been assessed using Synchro 10. As noted in the MTO TIS guidelines², movements are considered critical under the following conditions:

V/C ratios for dedicated turning movements of 0.85 or greater.

Table 2.1 summarizes the existing intersection operations. The entries in the table indicating the AM and PM peak hour level of service (LOS), volume to capacity ratios (V/C), and 95th percentile queues experienced.

The study area intersections are currently operating with acceptable levels of service with no specific problem movements.

Appendix C contains the detailed Synchro reports.

² Ministry Transportation Traffic Impact Study Guideline, September 2014



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þ								Directi	ion / Mo	oveme	nt / App	oroach				
eric					Eastb	ound			North	bound			South	bound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	ijЭŢ	Through	Right	Approach	цеft	Through	Right	Approach	Overall
ık Hour	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	B 12 0.17 5 		^ ^ ^ ^ ^	B 12	A 8 0.05 1 110 109	A 0 0.18 0 		A 1		A 0 0.21 0 	^ ^ ^ ^ ^ ^	A 0	A 2
AM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	B 12 0.10 3 		^ ^ ^ ^ ^ ^	B 12	A 9 0.03 1 30 29	A 0 0.21 0 		A 1		A 0 0.26 0 	^ ^ ^ ^ ^	A 0	A 1
k Hour	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	C 16 0.25 8 		^ ^ ^ ^ ^ ^	C 16	A 9 0.13 4 110 107	A 0 0.26 0 		A 2		A 0 0.26 0 	^ ^ ^ ^ ^	A 0	A 3
PM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	C 19 0.32 11 		^	C 19	A 9 0.08 2 30 28	A 0 0.33 0 		A 1		A 0 0.31 0 	^ ^ ^ ^ ^	A 0	A 2

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m)

Ex. - Existing Available Storage (m)

Avail. - Available Storage (m)

TWSC - Two-Way Stop Control

< - Shared Left-Turn

> - Shared Right-Turn



3 Development Concept

3.1 Development Description

The subject site is located at 961 St. David Street North in Fergus. The property owner is proposing to construct approximately 50 residential units (13 single-family and 37 townhouse units) with assumed full-build-out by 2023.

Vehicle access is proposed via a single all-moves access to St. David Street North approximately 170 metres south of Sideroad 18 (CL to CL) and 240 metres north of Sideroad 19 (CL to CL)

Figure 3.1 shows the proposed development concept.

3.1.1 Sight Distance

St. David Street North (Highway 6) is relatively straight and flat at the proposed driveway location. Sightlines for the new driveway connection are unimpeded to the north and south with clear sightlines exceeding 200 metres.

In the pre-study consultation, the MTO requested that the design speed should be 20 km/h over the posted speed limit. An 80 km/h design speed requires:

- ▶ Minimum stopping sight distance³ 130 m:
- Intersection sight distance:
 - Left-turn from stop⁴ 170 m: and
 - Right-turn from stop⁵. 145 m.

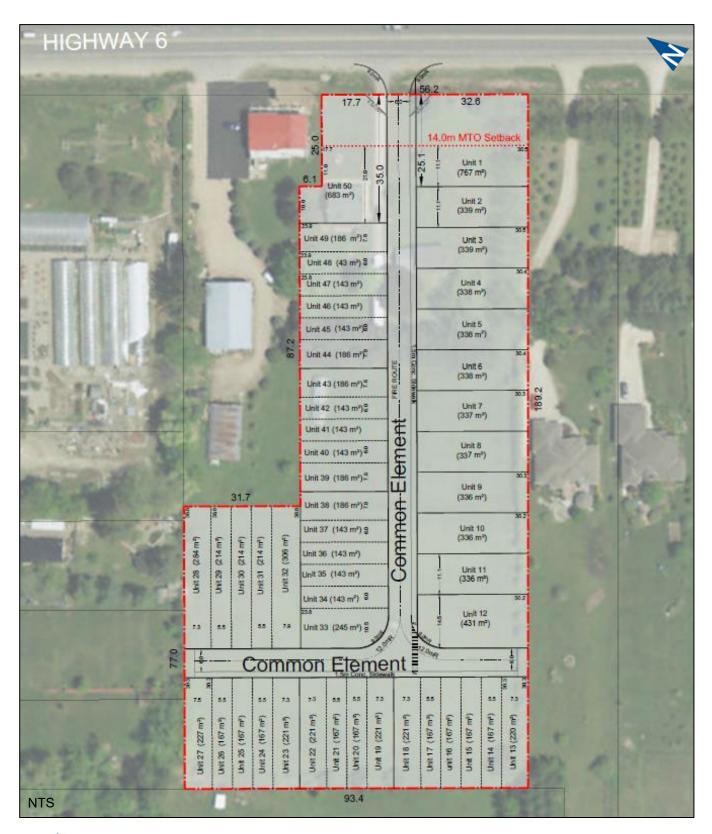
The sightline from the proposed driveway exceeds the minimum sight distance requirements for a design speed of 80 km/h to the north and south. The sight distance should not be a concern.

⁵ TAC Table 9.9.6. Design Intersection Sight Distance – Case B2, Right-Turn from Stop



³ TAC Table 2.5.2. Stopping Sight Distance on level roadways for Automobiles

⁴ TAC Table 9.9.4. Design Intersection Sight Distance – Case B1, Left-Turn from Stop





3.2 Site Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation⁶ methods predict the site trip generation. The following Land Use Code (LUC) were used to estimate the site trip generation:

- LUC 210 Single-Family, Detached Housing (Dwelling Units);
 and
- LUC 220 Multifamily Housing, Low-Rise (Dwelling Units).

The regression equation and average rates were used to calculate the site trips. **Table 3.1** summarizes the estimated trip generation. The site's trip generation upon full build-out is estimated to be approximately 27 AM peak hour trips and 34 PM peak hour trips. No reductions for alternative modes of transportation were used in the calculation.

TABLE 3.1: TRIP GENERATION

ITE Land Use	Units	AM	Peak H	lour	PM Peak Hour				
II E Land USe	Ullita	ln	Out	Total	In	Out	Total		
210 - Single-Family Detached Housing	13	3	9	12	9	6	15		
220 - Multifamily Housing, Low-Rise	37	4	11	15	12	7	19		
Total Trip Generation	50	7	20	27	21	13	34		

210: $AM Ln(T) = 0.91Ln(X) + 0.12 \mid PM Ln(T) = 0.94 Ln(X) + 0.27$

220: AM Average Rate 0.40 | PM Average Rate 0.51

The trip distribution used for this study was based on the existing distribution as the subject site is residential and will have similar travel characteristics of the existing traffic patterns. The trip distribution is shown in **Table 3.2**.

TABLE 3.2: TRIP DISTRIBUTION

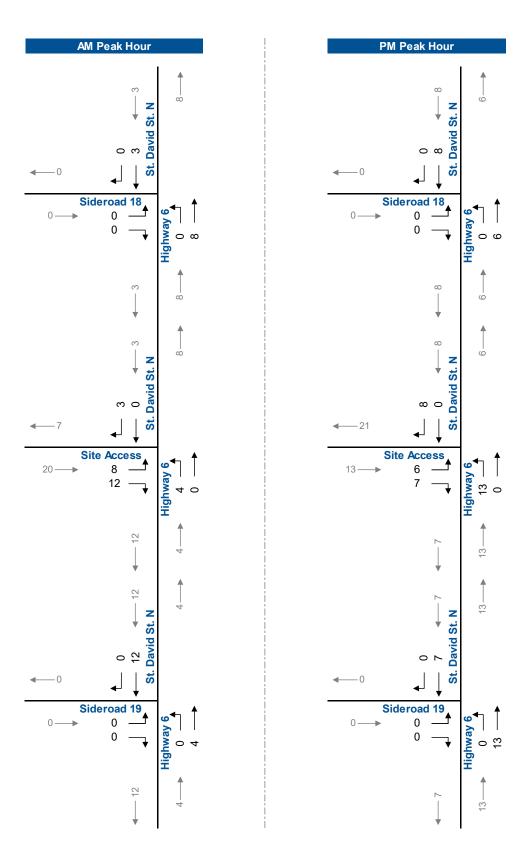
Direction	AM Pea	ak Hour	PM Peak Hour						
Direction	Inbound	Outbound	Inbound	Outbound					
North	48%	39%	39%	43%					
South	52%	61%	61%	57%					
Total	100%	100%	100%	100%					

Figure 3.2 contains the AM and PM peak hour trip assignment.

⁶ *Trip Generation Tenth Edition*, Institute of Transportation Engineers, Washington D.C., 2017



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Site Generated Traffic Volumes

4 Evaluation of Future Traffic Conditions

The assessment of the future traffic conditions contained in this section includes the future traffic forecasts as well as the level of service analysis. An opening year (2023), five-year horizon (2028) following full build-out, and ten-year horizon (2033) following the full build-out of the subject site has been assessed to determine the impact of the site-generated traffic volumes.

4.1 Forecast Traffic Volumes

The likely future traffic volumes are estimated to consist of:

- Increased non-site traffic (generalized background traffic growth) estimated to be 1.00 percent per annum⁷;
- ▶ Traffic generated by adjacent future developments including:
 - 6552,6554,6556 & 6558 Beatty Line North, Fergus⁸: a residential development with 1 single detached dwelling, 16 semi-detached dwellings, and 71 unit apartment building;
 - Wrighthaven Homes Sideroad 19 development with 19 single detached dwellings; and
- Traffic generated by the subject site.

The background development traffic volumes were derived by using the associated ITE trip generation rates and the trip distribution in **Section 3.2** or their associated traffic studies, where available. **Appendix D** contains the detailed traffic forecast for the adjacent development applications.

Figure 4.1 details the forecast 2023 background traffic volumes. **Figure 4.2** details the forecast 2028 background traffic volumes. **Figure 4.3** details the forecast 2033 background traffic volumes.

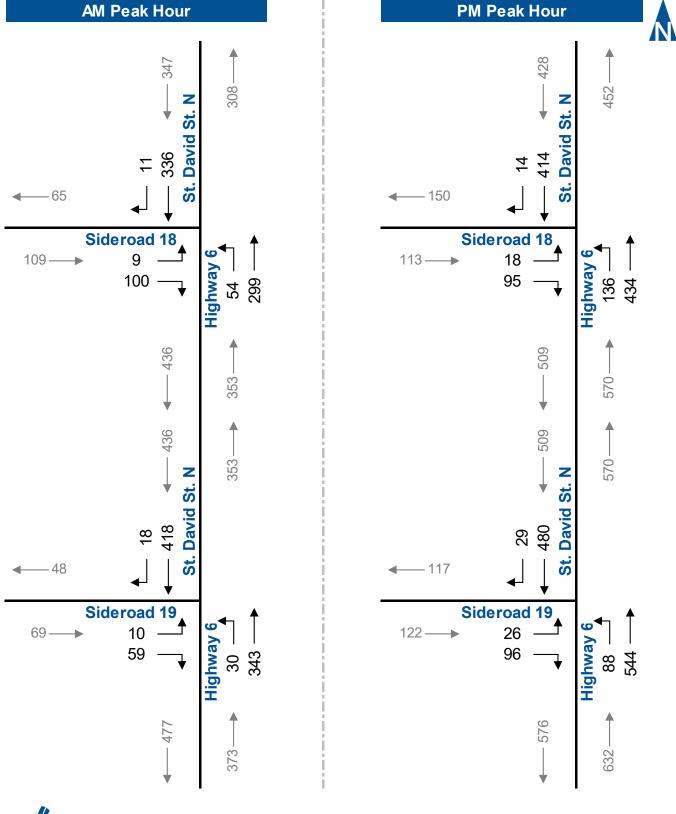
Figure 4.4 details the forecast 2023 total traffic volumes (background + site traffic). **Figure 4.5** details the forecast 2028 total traffic volumes. **Figure 4.6** details the forecast to 2033 total traffic volumes.

⁸ Beatty Line North, Fergus, Transportation Impact Study, Paradigm Transportation Solutions Limited, July 2018 (180135)

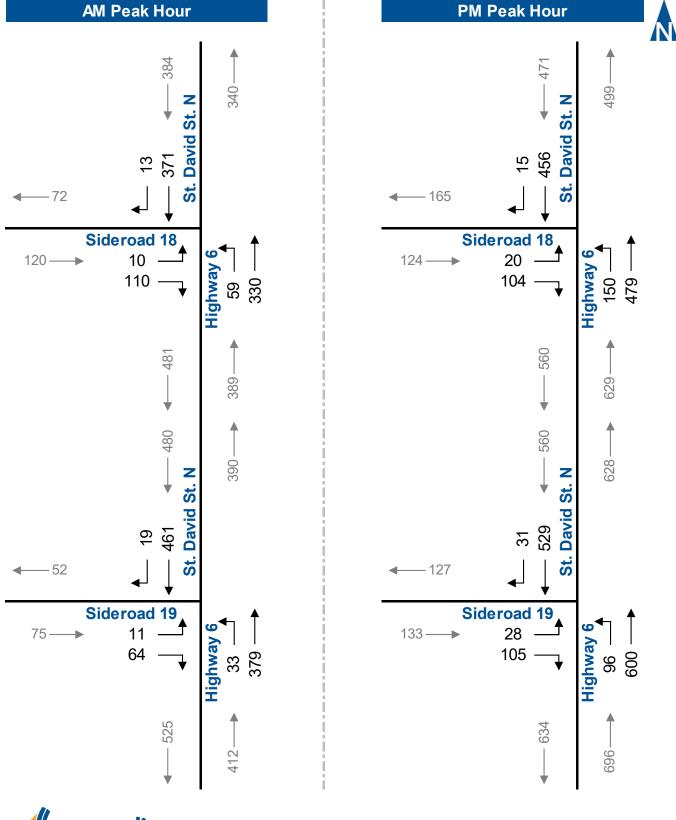


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⁷ Appendix A – Pre-Study Consultation

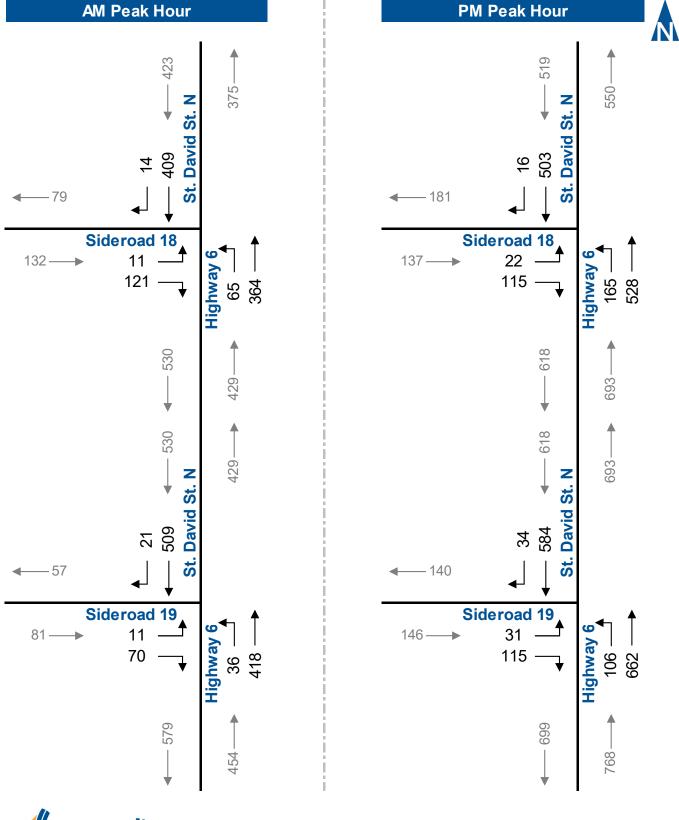


2023 Background Traffic Volumes



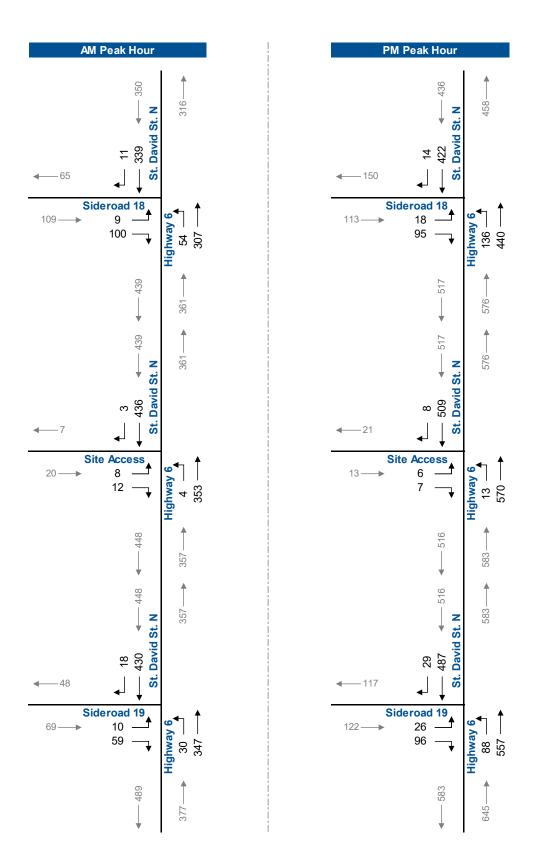


2028 Background Traffic Volumes



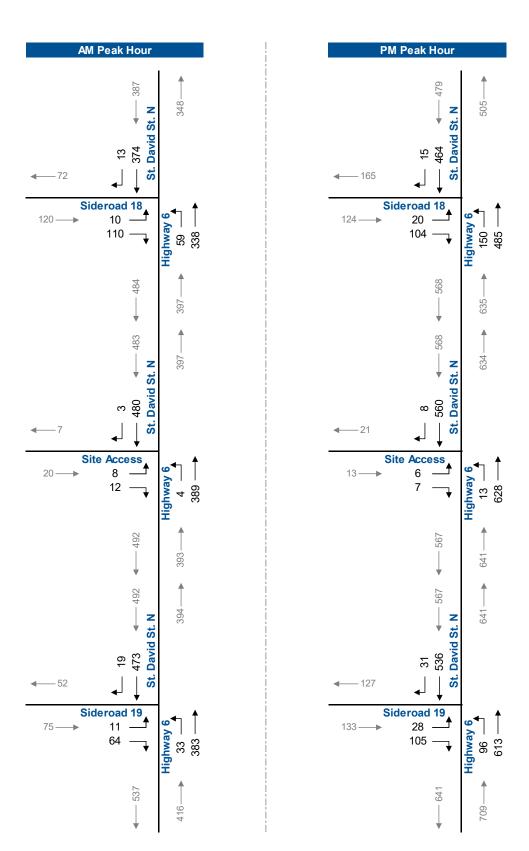


2033 Background Traffic Volumes



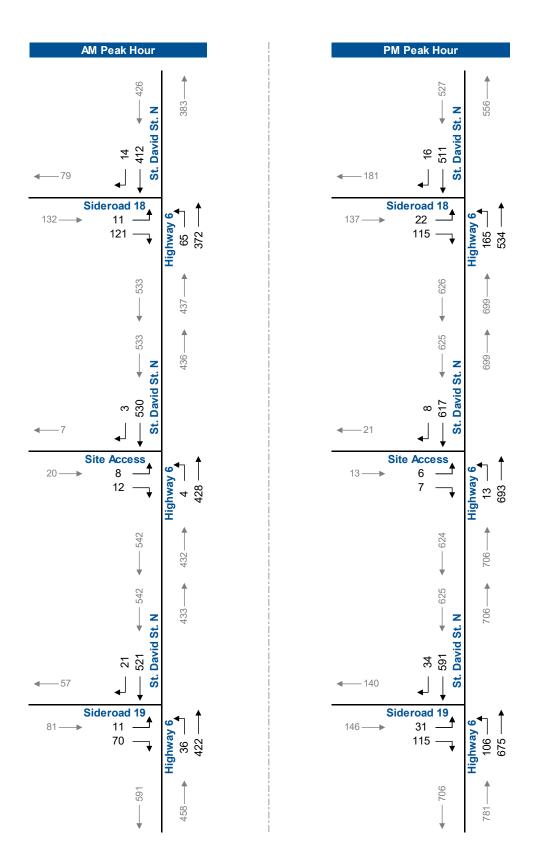


2023 Total Traffic Volumes





2028 Total Traffic Volumes





2033 Total Traffic Volumes

4.2 Forecast Traffic Operations

The study area intersection operations analysis for the future background and future total traffic forecast followed the same methodology used for existing conditions.

4.2.1 2023 Background Operations

Table 4.1 details the level of service conditions. The study area intersections are forecast to operate with acceptable levels of service with no specific problem movements during the weekday AM and PM peak hours.

Appendix E1 contains the supporting detailed Synchro 10 reports.

TABLE 4.1: 2023 BACKGROUND OPERATIONS

р								Directi	ion / Mo	oveme	nt / Apı	oroach				
erio					Eastb	ound			North	bound			Southl	bound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	1JeT	Through	Right	Approach	ц	Through	Right	Approach	Overall
			LOS	В		^	В	Α	Α		Α		Α	>	Α	Α
			Delay	12		>	12	8	0		1		0	>	0	2
	St David Street North	TWSC	V/C	0.19		>		0.05	0.19				0.22	>		
ur	(Hwy 6) & Sideroad 18	11100	Q	6		>		1	0				0	>		
운			Ex			>		110						>		
ak			Avail.			>		109						>		
AM Peak Hour	St David Street North (Hwy 6) & Sideroad 19		LOS	В		>	В	Α	Α		Α		Α	>	Α	Α
Z			Delay	13		>	13	9	0		1		0	>	0	1
1		TWSC	V/C	0.15		>		0.03	0.22				0.28	>		
			Q	4		>		1	0				0	>		
			Ex			>		30						>		
			Avail.			>	•	29						>		
			LOS	C 17		>	C 17	A 9	A 0		A 2		A 0	>	A 0	A
	St David Street North		Delay V/C	0.29		^	17	0.14	0.28		2		0.27	>	U	3
	(Hwy 6) & Sideroad 18	TWSC	Q Q	10		>		0.14 4	0.20				0.27	>		
oni	(Tiwy 0) & Siderbad 10		Ex			>		110					_	>		
PM Peak Hour			Avail.			>		106						>		
eal			LOS	С		>	С	A	A		Α		Α	>	Α	Α
A P			Delay	22		>	22	9	0		1		0	>	0	3
4	St David Street North		V/C	0.39		>		0.09	0.35				0.33	>		
	(Hwy 6) & Sideroad 19	TWSC	Q	14		>		3	0				0	>		
	, ,		Ex			>		30						>		
			Avail.			>		28						>		

MOE - Measure of Effectiveness LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m) Ex. - Existing Available Storage (m)

Ex. - Existing Available Storage (r Avail. - Available Storage (m) TWSC - Two-Way Stop Control

< - Shared Left-Turn

> - Shared Right-Turn



4.2.2 2028 Background Operations

Table 4.2 details the level of service conditions. The study area intersections are forecast to operate with acceptable levels of service with no specific problem movements during the weekday AM and PM peak hours.

Appendix E2 contains the supporting detailed Synchro 10 reports.

TABLE 4.2: 2028 BACKGROUND OPERATIONS

þ								Directi	ion / Mo	oveme	nt / App	oroach				
eric					Eastb	ound			North	oound			Southl	bound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	цэт	Through	Right	Approach	Teft	Through	Right	Approach	Overall
AM Peak Hour	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	B 13 0.23 7 			B 13	A 8 0.06 2 110 109	A 0 0.21 0 		A 1		A 0 0.25 0 	^ ^ ^ ^ ^ ^	A 0	A 2
AM Pea	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	B 14 0.17 5 		>	B 14	A 9 0.04 1 30 29	A 0 0.24 0 		A 1		A 0 0.31 0 	^ ^ ^ ^ ^ ^	A 0	A 1
k Hour	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	C 20 0.36 13 		>	C 20	A 9 0.16 5 110 106	A 0 0.31 0 		A 2		A 0 0.30 0 	^ ^ ^ ^ ^ ^	A 0	A 3
PM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	D 28 0.48 20 		>	D 28	A 9 0.11 3 30 27	A 0 0.38 0 		A 1		A 0 0.36 0 		A 0	A 3

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m)

Ex. - Existing Available Storage (m)

Avail. - Available Storage (m)

TWSC - Two-Way Stop Control

< - Shared Left-Turn

> - Shared Right-Turn



4.2.3 2033 Background Operations

Table 4.3 details the level of service conditions. The study area intersections are forecast to operate with acceptable levels of service with the following critical movements noted:

The eastbound left/right-turn movement at St. David Street North and Sideroad 19 is forecast to operate with delays in the LOS E range and v/c ratio 0.63 during the PM peak hour. The v/c ratio indicates that while there is delay, there remains excess capacity for this movement.

Appendix E3 contains the supporting detailed Synchro 10 reports.

TABLE 4.3: 2033 BACKGROUND OPERATIONS

þ								Directi	ion / Mo	vemer	nt / App	roach				
Peric					Eastb	ound			Northl	oound			Southl	oound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	Teft	Through	Right	Approach	Left	Through	Right	Approach	Overall
AM Peak Hour	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	B 14 0.27 9 			B 14	A 9 0.07 2 110 108	A 0 0.23 0 		A 1		A 0 0.27 0 	<pre>^</pre>	A 0	A 3
AM Pea	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	C 15 0.20 6 		^ ^ ^ ^	C 15	A 9 0.04 1 30 29	A 0 0.27 0 		A 1		A 0 0.34 0 	^ ^ ^ ^ ^	A 0	A 2
k Hour	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	C 25 0.46 18 		^ ^ ^ ^ ^	C 25	A 10 0.18 5 110 105	A 0 0.34 0 		A 2		A 0 0.33 0 	^ ^ ^ ^	A 0	A 4
PM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	E 41 0.63 31 		^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^	E 41	A 10 0.12 3 30 27	A 0 0.42 0 		A 1		A 0 0.40 0 	>	A 0	A 5

 $\ensuremath{\mathsf{MOE}}$ - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m)

Ex. - Existing Available Storage (m)

Avail. - Available Storage (m)

TWSC - Two-Way Stop Control

< - Shared Left-Turn

> - Shared Right-Turn



4.2.4 2023 Total Traffic Operations

Table 4.4 details the level of service conditions for the weekday AM and PM peak hours.

All study area intersections are forecast to operate within acceptable levels of service during the AM and PM peak hour with no specific problem movements.

With the addition of the site generated traffic volumes, the overall intersection delays at the study area intersections does not increase from 2023 background conditions during the AM and PM peak hours.

Appendix F1 contains the supporting detailed Synchro 10 reports.

TABLE 4.4: 2023 TOTAL OPERATIONS

ਰ								Directi	ion / Mo	oveme	nt / App	oroach				
erio					Eastb	ound			North	oound			Southl	oound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	Left	Through	Right	Approach	IJeТ	Through	Right	Approach	Overall
	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	B 12 0.19 5 -		^ ^ ^ ^ ^ ^ ^	B 12	A 8 0.05 1 110 109	A 0 0.20 0 		A 1		A 0 0.22 0 	<pre>^</pre>	A 0	A 2
AM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	B 13 0.15 4 		> > > > > > >	B 13	A 9 0.03 1 30 29	A 0 0.22 0 		A 1		A 0 0.29 0 	<pre>^</pre>	A 0	A 1
	St David Street North (Hwy 6) & Site Driveway	TWSC	LOS Delay V/C Q Ex Avail.	B 14 0.05 1 		>	B 14	< < < < < <	A 0 0.00 0 		A 0		A 0 0.28 0 	^ ^ ^ ^	A 0	A 0
	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	C 17 0.30 9 -		^	C 17	A 9 0.14 4 110 106	A 0 0.28 0 		A 2		A 0 0.28 0 	^ ^ ^ ^ ^	A 0	A 3
PM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	C 23 0.39 14 			C 23	A 9 0.09 2 30 28	A 0 0.36 0 		A 1		A 0 0.33 0 	^ ^ ^ ^	A 0	A 3
	St David Street North (Hwy 6) & Site Driveway	TWSC	LOS Delay V/C Q Ex Avail.	C 17 0.05 1 		>	C 17	<td>A 0 0.01 0 </td> <td></td> <td>A 0</td> <td></td> <td>A 0 0.33 0 </td> <td><pre></pre></td> <td>A 0</td> <td>A 0</td>	A 0 0.01 0 		A 0		A 0 0.33 0 	<pre></pre>	A 0	A 0

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

Ex. - Existing Available Storage (m)

Avail. - Available Storage (m)

< - Shared Left-Turn

> - Shared Right-Turn



4.2.5 2028 Total Traffic Operations

Table 4.5 details the level of service conditions for the weekday AM and PM peak hours.

All study area intersections are forecast to operate within acceptable levels of service during the AM and PM peak hour with no specific problem movements.

With the addition of the site generated traffic volumes, the overall intersection delays at the study area intersections increase by one second or less from 2028 background conditions during the AM and PM peak hours.

Appendix F2 contains the supporting detailed Synchro 10 reports.

TABLE 4.5: 2028 TOTAL OPERATIONS

p				Direction / Movement / Approach												
erio					Eastb	ound			Northi	oound			Southl	oound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Overall
	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	B 13 0.23 7 		^ ^ ^ ^ ^ ^	B 13	A 9 0.06 1 110 109	A 0 0.22 0 		A 1		A 0 0.25 0 	v v v v v	A 0	A 2
AM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	B 14 0.18 5 		^ ^ ^ ^ ^ ^	B 14	A 9 0.04 1 30 29	A 0 0.24 0 		A 1		A 0 0.32 0 	<pre></pre>	A 0	A 1
	St David Street North (Hwy 6) & Site Driveway	TWSC	LOS Delay V/C Q Ex Avail.	B 14 0.05 1 -		^ ^ ^ ^ ^ ^	B 14	· · · · · · · · · · · · · · · · · · ·	A 0 0.00 0		A 0		A 0 0.31 0 	· · · · ·	A 0	A 0
	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	C 20 0.37 13 -		^ ^ ^ ^ ^ ^	C 20	A 9 0.16 4 110 106	A 0 0.31 0 		A 2		A 0 0.31 0 	·	A 0	A 3
PM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	D 28 0.49 19 		^ ^ ^ ^ ^ ^	D 28	A 9 0.11 3 30 27	A 0 0.39 0 		A 1		A 0 0.36 0 	^ ^ ^ ^	A 0	A 3
	St David Street North (Hwy 6) & Site Driveway	TWSC	LOS Delay V/C Q Ex Avail.	C 20 0.06 1 		>	C 20	· · · · · · · · · · · · · · · · · · ·	A 0 0.01 0 		A 0		A 0 0.36 0 	<pre>></pre>	A 0	A 0 j2

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m)

Ex. - Existing Available Storage (m)

Avail. - Available Storage (m)

TWSC - Two-Way Stop Control

< - Shared Left-Turn

> - Shared Right-Turn



4.2.6 2033 Total Traffic Operations

Table 4.6 details the level of service conditions for the weekday AM and PM peak hours.

All study area intersections are forecast to operate within acceptable levels of service during the AM and PM peak hour with the following critical movement noted:

The eastbound left/right-turn movement at St. David Street North and Sideroad 19 is forecast to operate with delays in the LOS E range and v/c ratio 0.65 during the PM peak hour. The v/c ratio indicates that while there is delay, there remains excess capacity for this movement.

The above noted problem movement is present under the 2033 background horizon year and is not triggered by the addition of the site-generated traffic volumes.

With the addition of the site generated traffic volumes, the overall intersection delays at the study area intersections do not increase from 2033 background conditions during the AM and PM peak hours.

Appendix F3 contains the supporting detailed Synchro 10 reports.

TABLE 4.6: 2033 TOTAL OPERATIONS

p								Directi	on / Mo	oveme	nt / App	oroach				
erio					Eastb	ound			North	oound			Southl	oound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Overall
	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	B 14 0.27 8 		^ ^ ^ ^ ^ ^	B 14	A 9 0.07 2 110 108	A 0 0.24 0 		A 1		A 0 0.27 0 	v v v v v	0	A 2
AM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	C 16 0.21 6 		^ ^ ^ ^ ^ ^	C 16	A 9 0.04 1 30 29	A 0 0.27 0 		A 1		A 0 0.35 0 	v v v v v	0	A 2
	St David Street North (Hwy 6) & Site Driveway	TWSC	LOS Delay V/C Q Ex Avail.	C 16 0.06 2 		^ ^ ^ ^ ^ ^	C 16	· · · · · ·	A 0 0.00 0		A 0		A 0 0.34 0 	^ ^ ^ ^	A 0	A 0
	St David Street North (Hwy 6) & Sideroad 18	TWSC	LOS Delay V/C Q Ex Avail.	D 26 0.46 18 		^ ^ ^ ^ ^ ^	D 26	A 10 0.18 5 110 105	A 0 0.34 0 		A 2		A 0 0.34 0 	^ ^ ^ ^ ^	A 0	A 4
PM Peak Hour	St David Street North (Hwy 6) & Sideroad 19	TWSC	LOS Delay V/C Q Ex Avail.	E 43 0.65 30 		^ ^ ^ ^ ^ ^	E 43	A 10 0.13 3 30 27	A 0 0.43 0 		A 1		A 0 0.40 0 	· · · · · ·	A 0	A 5
	St David Street North (Hwy 6) & Site Driveway	TWSC	LOS Delay V/C Q Ex Avail.	C 22 0.07 2 - -		^ ^ ^ ^ ^	C 22		A 0 0.02 0 		A 0		A 0 0.40 0 	<pre></pre>	A 0	A 0

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

Q - 95th Percentile Queue Length (m)

Ex. - Existing Available Storage (m)

Avail. - Available Storage (m)

TWSC - Two-Way Stop Control

< - Shared Left-Turn

> - Shared Right-Turn



5 Remedial Measures

5.1 Left-Turn Lanes

The intersection of St. David Street North (Highway 6) and the proposed site driveway was assessed to determine if the projected traffic volumes warrant installation of left-turn lanes. The warrants for left-turn lanes follow the requirements in the Ministry of Transportation's (MTO) Geometric Design Standards⁹. A design speed of 80 km/h (20 km/h over the posted speed limit) was used for St. David Street North (Highway 6).

The percentages of left-turning vehicles in the approaching volume is 2% or less for all horizon years. The percentage of left-turning vehicles does not meet the minimum requirement of 5% for calculating a left-turn lane, based on the nomographs for 5% increments.

The proposed intersection of St. David Street North (Highway 6) and the site driveway is forecast to operate with very good level of service. The forecast left-turn volumes are generally very low and represent less than 1% of the future AM peak hour approaching traffic volume and less than 2% of the PM peak hour traffic volumes.

The proposed development is in a low-speed urban area with the northbound through traffic forecast to operate with excellent level of service without a left-turn lane.

5.2 Traffic Control Improvements

The traffic analysis in **Section 4** of the report indicates that traffic control improvements are not required to accommodate forecast traffic volumes. However, the minor street approaches at Sideroad 18 and Sideroad 19 are approaching capacity during the 2033 horizon year.

The intersections of St. David Street North (Highway 6) at Sideroad 18 and at Sideroad 19 were assessed using the Ontario Traffic Manual (OTM Book 12 – Justification 7) procedures ¹⁰. **Appendix G** contains the detailed analysis. **Table 5.1** summarizes the results. It indicates that traffic control signals are not justified at the intersections of St. David Street North (Highway 6) at Sideroad 18 and St. David Street North at Sideroad 19 under 2033 horizon year.

¹⁰ Ontario Traffic Manual Book 12, Ministry of Transportation of Ontario, July 2001.



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⁹ Design Supplement for TAC Geometric Design Guide for Canadian Roads, Ministry of Transportation Ontario, June 2017

TABLE 5.1: TRAFFIC SIGNAL WARRANT SUMMARY

St. David Street	Horizon		ОТ	M Warra	nts	
North (Highway 6)	Year	1A	1B	2A	2B	120%
Sideroad 18	2033 Total	81.8%	26.4%	72.5%	11.0%	No
Sideroad 19	2033 Total	91.5%	22.3%	83.6%	14.0%	No

As traffic volumes increase over time, actual traffic volumes may satisfy the minimum warrant criteria post 2033 horizon year. It is recommended that the MTO and Township of Centre Wellington monitor the future traffic volumes to ensure appropriate forms of traffic control are in place.

6 Conclusions and Recommendations

6.1 Conclusions

Based on the investigations carried out, it is concluded that:

- Existing Traffic Conditions: The study area intersections are currently operating within acceptable levels of service and not critical movements during the AM and PM peak hours.
- ▶ Development Trip Generation: The residential development is forecast to generate approximately 27 and 34 trips during the AM and PM peak hours upon full build-out.
- ▶ 2023 Background Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- 2023 Total Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- ► The addition of the site generated traffic does not increase the overall delay at the study area intersections during the AM and PM peak hours.
- ▶ 2028 Background Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- ▶ 2028 Total Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- ► The addition of the site generated traffic increases the overall delay at the study area intersections by one second or less during the AM and PM peak hours.
- ▶ 2033 Background Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service during the AM and PM peak hours with the following critical movement noted:
 - The eastbound left/right-turn movement at St. David Street North and Sideroad 19 is forecast to operate with delays in the LOS E range and v/c ratio 0.63 during the PM peak hour.

The v/c ratio indicates that while there is delay, there remains excess capacity for this movement.

- 2033 Total Traffic Conditions: The study area intersections are forecast to operate within acceptable levels of service during the AM and PM peak hours with the following critical movement noted:
 - The eastbound left/right-turn movement at St. David Street North and Sideroad 19 is forecast to operate with delays in the LOS E range and v/c ratio 0.65 during the PM peak hour. The v/c ratio indicates that while there is delay, there remains excess capacity for this movement.
- The addition of the site generated traffic does not increase the overall delay at the study area intersections during the AM and PM peak hours.
- Remedial Measures: A northbound left-turn lane on St. David Street North at the proposed site driveway is not warranted due to the forecast left-turn volumes being less than 2% of the advancing volumes during the AM and PM peak hours.
- Traffic control signals are not warranted under 2033 total traffic conditions at the St. David Street North (Highway 6) intersections with Sideroad 18 and Sideroad 19.

6.2 Recommendations

Based on the findings of this study, it is recommended that the development be approved with no requirement for off-site transportation improvements.

It is also recommended that the MTO and Township of Centre Wellington monitor the future traffic volumes to ensure appropriate forms of traffic control are in place at the intersections of St. David Street North at Sideroad 18 and St. David Street North at Sideroad 19.

Appendix A

Pre-Study Consultation

From: Santos, Paul (MTO)
To: Andrew Evans

Cc: <u>Erica Bayley</u>; <u>Hodgins, Allan (MTO)</u>

Subject: RE: (210066) 961 St. David Street North (Hwy 6), Fergus TIS Scope of Work

Date: April 7, 2021 10:16:20 AM

Attachments: <u>image001.png</u>

Hi Andrew,

The 2021 data is acceptable for use in the study. If you have any questions, please contact us

Regards,

Paul

Paul Santos

Senior Project Manager Corridor Management Section MTO West Operations Division, London. Tel.: (226) 559-9113, Fax.:(519) 873-4228

From: Andrew Evans <aevans@ptsl.com>

Sent: April-05-21 9:08 AM

To: Santos, Paul (MTO) <Paul.Santos@ontario.ca>

Cc: Erica Bayley <ebayley@ptsl.com>

Subject: RE: (210066) 961 St. David Street North (Hwy 6), Fergus TIS Scope of Work

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Paul

As requested, please find attached our recent turning movement counts on Hwy 6 at Sideroad 18 and Sideroad 19 for Ministry review and approval.

Note that the recent turning movement counts were done with no lockdown restrictions in place. The AM peak hour is approximately 1% higher and the PM peak hour is 22% higher than then 2014 turning movement count at Sideroad 18.

Thank you and regards.

Andrew Evans, M.Sc.

Transportation Planner



Paradigm Transportation Solutions Limited

p: 905.381.2229 x **305** m: 519.497.3239

From: Santos, Paul (MTO) < Paul.Santos@ontario.ca>

Sent: March 2, 2021 8:33 AM

To: Andrew Evans aevans@ptsl.com>

Cc: Erica Bayley <<u>ebayley@ptsl.com</u>>; Luisa Vacondio <<u>lvacondio@mhbcplan.com</u>>; Pierre Chauvin

<pchauvin@mhbcplan.com>; david@remaxcentre.ca; CBaker@centrewellington.ca;

<u>SRossi@centrewellington.ca</u>; Hodgins, Allan (MTO) < <u>Allan.Hodgins@ontario.ca</u>>; Luker, Michele

(MTO) < Michele. Luker@ontario.ca >

Subject: RE: (210066) 961 St. David Street North (Hwy 6), Fergus TIS Scope of Work

Hi Andrew,

We had not previously provided fulsome comments for this proposal because we were not prepared to support the proposed access/private road location on Highway 6. As noted, the proposed access does not meet the minimum intersection spacing requirements nor the existing frontage requirements on Highway 6 to support a severance that would intensify the use of one access point.

However, given the built-up nature of this section of Highway 6 and reduced posted speed, we will agree to review a Traffic Impact Study (TIS) in support of this access connection. Please see the TIS scope of work comments noted below in red font.

In light of the above, should the proposed access connection be supported by the TIS upon MTO review and approval, we offer the following additional comments regarding the proposed concept plan:

The proponents should be advised that given the high volumes of traffic for this area, the TIS may indicate that if a new access can be supported, a new left-turn-lane or other improvements may be required on Highway 6. The constrained highway right-of-way width may require additional property acquisition and/or utility relocations etc. by the proponent to facilitate the construction of these improvements.

Developer driven highway improvements such as new left-turn-lanes would require preliminary and detailed design, including pre-engineering activities such as undertaking an MTO Class EA, geotechnical reports etc. A legal agreement would be required whereby the proponent would assume financial responsibility for the design and construction of any highway improvements identified in the TIS.

Should the proposed access connection be supported by the TIS upon MTO review and approval, the proponents should also be aware of the following additional preliminary comments:

- The submission of a Stormwater Management Report will be required for review and approval to ensure that any post-development flows currently directed towards Highway 6 do not exceed pre-development levels.
- Daylighting triangles will be required on both sides of the proposed access to be dedicated as a highway widening.

- A 0.3m reserve may be required along the entire highway frontage to preclude any additional access in the future.
- All new buildings and structures integral to the development (including stormwater management facilities, parking areas, and septic beds etc.) must be set back a minimum of 14m from the Highway 6 property limit. As such, the proposed lots adjacent to the highway should be sized accordingly.
- The subject lands are within the MTO limits of permit control as defined in the *Public Transportation and Highway Improvement Act* (PTHIA). Permits are required from MTO prior to any construction, grading or other installations can take place, including signs.
- As a condition of MTO permits, applicants will be required to submit site plans, site-servicing plans, grading plans, drainage plans etc. for the proposed development to MTO for review and approval.

Additional comments will be provided upon review of a more detailed submission, should this proposal proceed through to the next stages of approval.

If you have any questions or concerns with any of the above, please contact us.

Regards,

Paul

Paul Santos

Senior Project Manager Corridor Management Section MTO West Operations Division, London. Tel.: (226) 559-9113, Fax.:(519) 873-4228

From: Andrew Evans < <u>aevans@ptsl.com</u> >

Sent: February-24-21 1:21 PM

To: Santos, Paul (MTO) < Paul. Santos@ontario.ca >

Cc: Erica Bayley <<u>ebayley@ptsl.com</u>>

Subject: (210066) 961 St. David Street North (Hwy 6), Fergus TIS Scope of Work

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Paul

As noted in our meeting Paradigm was retained to undertake transportation engineering services for a proposed residential development at 961 St. David Street North (Hwy 6) in Fergus.

The property owner is proposed to construct 20 condominium single-detached units with vehicle access proposed via a single all-moves access to St. David Street North.

Below is our scope of work for your review and approval.

Study Area:

St. David Street North and Side Road 18 (unsignalized);

- St. Davis Street North and Side Road 19 (unsignalized); and
- New site access connection to St. David Street North (assumed unsignalized).

Planning Horizons:

• Full Build-out year (Assumed 2023), Five years from full build-out (assumed Year 2028), and Ten years from full build-out (2032).

Analysis Periods:

Weekday AM and PM peak hours.

Existing Traffic:

- Derived from Turning Movement Counts at study area intersections
- We will compare and adjust (if needed) to historic turning movement counts due to current pandemic
- The ministry does not have recent traffic volumes in the study area. The ministry will allow the use of data collected during the pandemic, as long as it is collected when full lockdown restrictions are in not place. The data to be used in this study needs to be preapproved by the ministry. 2014 turning movement counts for the intersection of Hwy 6
 Nichol Twp Rd 18 are attached for reference only.

Background Traffic:

- A background growth rate consistent with Township studies. Use 1% Growth Rate.
- We will contact the Township for any background development to be included as future background traffic.

Site Generated Traffic:

- ITE Trip Generation Manual (10th Edition) Use number of units as the independent variable and the fitted equation to calculate the trip generation.
- Trip Distribution based on Existing Traffic Patterns and/or TTS

Traffic Analysis

- We will analyze the operation of the study area intersections for the Existing, Future Background (without the development) and Future Total (with the development) traffic conditions for each analysis period using Synchro v10 software. Volume to capacity (v/c) rations, Level of Service (LOS) and 95th percentile queueing will be assessed.
- Based on the analysis results, we will identify any operational deficiencies as
 well as the net impact of the proposed development on the study area road
 network. The need for road improvements (e.g. auxiliary turn lanes) and/or other
 mitigating measures (e.g. traffic control device modifications) to address
 deficiencies (if any) will be determined. A sensitivity analysis will be conducted
 to determine what increase in traffic can be accommodated before network
 improvements are warranted. We will asses whether these measures are

- required due to non-site traffic (i.e. Existing for Future Background) or the increase in volumes resulting from the proposed development.
- We will access the potential impact and requirements for the site for non-auto modes of transportation. This will include identifying existing and planned transit, walking, and cycling routes and facilities that would enhance connectivity both within the subdivision and with the rest of the municipality for these modes.
- When evaluating impacts at intersections please refer to the TAC's Geometric Design Guide for Canadian Roads, MTO Design Supplement for TAC's Geometric Design Guide for Canadian Roads and the OTM Books.
- Submit digital Synchro files
- Design speed: 20 km/h above the posted speed limit

Access and Circulation Review

 To ensure compliance of the proposed development plan with Township requirements and industry guidelines using AutoTURN on a suitable design vehicle (e.g. fire truck, garbage truck).

Thank you and regards.

Andrew Evans, M.Sc.

Transportation Planner



Paradigm Transportation Solutions Limited

5A-150 Pinebush Road Cambridge ON N1R 8J8 p: 905.381.2229 x **305**

m: 519.497.3239 e: aevans@ptsl.com w: www.ptsl.com

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Appendix B

Traffic Data





Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad

18 Site Code: 210066 Start Date: 03/16/2021

Page No: 1

Turning Movement Data

Signature Sign		1		0:1140			1 411	-	Desid Office of No		ı			. David Otas at Na			I
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Hourly Total						-				•	-				-	-	

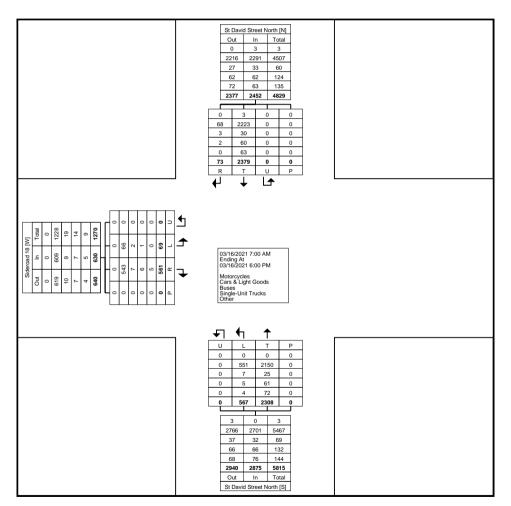
12:00 PM 12:15 PM 3 23 0 0 26 19 67 0 0 86 51 2 0 0 53 165 12:30 PM 0 11 0 0 18 11 62 0 0 77 188 12:45 PM 3 22 0 0 25 26 58 0 0 84 57 1 0 0 58 167 Houry Total 6 74 0 0 80 75 248 0 0 323 233 5 0 0 28 641 1:00 PM 1 12 0 0 12 15 59 0 0 74 72 0 0 0 72 188 1:15 PM 1 12 0 0 13 3 3 65 0 0 68 55 3 0 0 72 188 1:145 PM 1 12 0 0 14 9 54 0 0 68 55 3 0 0 58 139 1:30 PM 2 12 0 0 14 9 54 0 0 68 75 2 3 0 0 75 183 Hourly Total 4 47 0 0 14 9 54 0 0 68 75 2 3 0 0 75 183 Hourly Total 4 47 0 0 17 19 14 227 0 0 271 249 6 0 0 255 577 *** RREAK***																-	
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12:30 PM										-	-				-		
12:45 PM 3 22 0 0 25 26 58 0 0 84 57 1 0 0 58 167 Hourly Total 6 74 0 0 0 80 75 248 0 0 323 233 5 0 0 238 641 1:00 PM 0 12 0 0 12 15 59 0 0 74 72 0 0 0 72 158 1:15 PM 1 12 0 0 0 13 3 3 65 0 0 68 55 3 0 0 58 139 1:30 PM 2 12 0 0 14 9 54 0 0 63 50 0 0 68 55 3 0 0 75 127 1:45 PM 1 11 0 0 0 12 17 49 0 0 66 72 3 0 0 75 153 Hourly Total 4 47 0 0 0 51 44 227 0 0 0 271 249 6 0 0 0 255 577 ****BREAK****		-															
Hourly Total 6			•		-	-		•		•	-		-		•	-	
1:00 PM								•					-				
1:15 PM 1 12 0 0 13 3 65 0 0 68 55 3 0 0 58 139 1:30 PM 2 12 0 0 14 9 54 0 0 63 50 0 0 0 50 127 1:45 PM 1 11 0 0 12 17 49 0 0 66 72 3 0 0 75 153 Hourly Total 4 47 0 0 51 44 227 0 0 271 249 6 0 0 255 577 ************************************	<u> </u>																
1:30 PM				-		-		-			-		-		-	-	
1:45 PM 1 11 0 0 12 17 49 0 0 66 72 3 0 0 75 153 Hourly Total 4 47 0 0 51 44 227 0 0 271 249 6 0 0 255 577 ***BREAK*** -		· · · · · · · · · · · · · · · · · · ·				-		-		-	-			-		_	
Hourly Total 4 47 0 0 0 51 44 227 0 0 0 271 249 6 0 0 0 255 577 ****BREAK****		2															
****BREAK ****		1			0	12		49	0	-	66		. 3	0		•	
3:00 PM 3 16 0 0 19 10 75 0 0 85 82 2 0 0 84 188 3:15 PM 1 16 0 0 17 20 86 0 0 106 85 3 0 0 0 88 211 3:30 PM 4 15 0 0 19 14 97 0 0 111 87 0 0 0 87 217 3:45 PM 3 21 0 0 24 29 87 0 0 116 106 6 0 0 0 112 252 Hourly Total 11 68 0 0 79 73 345 0 0 418 360 11 0 0 371 868 4:00 PM 2 15 0 0 17 28 118 0 0 146 98 3 0 0 0 101 264 4:15 PM 2 24 0 0 26 35 88 0 0 123 72 1 0 0 0 93 266	Hourly Total	4	47	0	0	51	44	227	0	0	271	249	6	0	0	255	577
3:15 PM 1 16 0 0 17 20 86 0 0 106 85 3 0 0 88 211 3:30 PM 4 15 0 0 19 14 97 0 0 111 87 0 0 0 87 217 3:45 PM 3 21 0 0 24 29 87 0 0 116 106 6 0 0 112 252 Hourly Total 11 68 0 0 79 73 345 0 0 418 360 11 0 0 371 868 4:00 PM 2 15 0 0 17 28 118 0 0 146 98 3 0 0 101 264 4:15 PM 2 24 0 0 26 35 88 0 0 123 72 1 0 0 73 222 4:30 PM 10 23 <t< td=""><td>*** BREAK ***</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></t<>	*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:30 PM	3:00 PM	3	16	0	0	19	10	75	0	0	85	82	2	0	0	84	188
3:45 PM 3 21 0 0 24 29 87 0 0 116 106 6 0 0 112 252 Hourly Total 11 68 0 0 79 73 345 0 0 418 360 11 0 0 371 868 4:00 PM 2 15 0 0 17 28 118 0 0 146 98 3 0 0 101 264 4:15 PM 2 24 0 0 26 35 88 0 0 123 72 1 0 0 73 222 4:30 PM 10 23 0 0 33 31 109 0 140 90 3 0 0 93 266	3:15 PM	1	16	0	0	17	20	86	0	0	106	85	3	0	0	88	211
Hourly Total 11 68 0 0 79 73 345 0 0 418 360 11 0 0 371 868 4:00 PM 2 15 0 0 17 28 118 0 0 146 98 3 0 0 101 264 4:15 PM 2 24 0 0 26 35 88 0 0 123 72 1 0 0 73 222 4:30 PM 10 23 0 0 33 31 109 0 0 140 90 3 0 0 93 266	3:30 PM	4	15	0	0	19	14	97	0	0	111	87	0	0	0	87	217
4:00 PM 2 15 0 0 17 28 118 0 0 146 98 3 0 0 101 264 4:15 PM 2 24 0 0 26 35 88 0 0 123 72 1 0 0 73 222 4:30 PM 10 23 0 0 33 31 109 0 0 140 90 3 0 0 93 266	3:45 PM	3	21	0	0	24	29	87	0	0	116	106	6	0	0	112	252
4:15 PM 2 24 0 0 26 35 88 0 0 123 72 1 0 0 73 222 4:30 PM 10 23 0 0 33 31 109 0 0 140 90 3 0 0 93 266	Hourly Total	11	68	0	0	79	73	345	0	0	418	360	11	0	0	371	868
4:30 PM 10 23 0 0 33 31 109 0 0 140 90 3 0 0 93 266	4:00 PM	2	15	0	0	17	28	118	0	0	146	98	3	0	0	101	264
	4:15 PM	2	24	0	0	26	35	88	0	0	123	72	1	0	0	73	222
4:45 PM 4 27 0 0 31 27 90 0 0 117 76 4 0 0 80 228	4:30 PM	10	23	0	0	33	31	109	0	0	140	90	3	0	0	93	266
	4:45 PM	4	27	0	0	31	27	90	0	0	117	76	4	. 0	0	80	228

Hourly Total	18	89	0	0	107	121	405	0	0	526	336	11	0	0	347	980
5:00 PM	2	19	0	0	21	25	119	0	0	144	87	2	0	0	89	254
5:15 PM	4	20	0	0	24	25	100	0	0	125	90	7	0	0	97	246
5:30 PM	1	13	0	0	14	24	86	0	0	110	74	1	0	0	75	199
5:45 PM	2	12	0	0	14	24	82	0	0	106	64	6	0	0	70	190
Hourly Total	9	64	0	0	73	98	387	0	0	485	315	16	0	0	331	889
Grand Total	69	561	0	0	630	567	2308	0	0	2875	2379	73	0	0	2452	5957
Approach %	11.0	89.0	0.0	-	-	19.7	80.3	0.0	-	-	97.0	3.0	0.0	-	-	-
Total %	1.2	9.4	0.0	-	10.6	9.5	38.7	0.0	-	48.3	39.9	1.2	0.0	-	41.2	-
Motorcycles	0	0	0	-	0	0	0	0	-	0	3	0	0	-	3	3
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.1	0.0	-	-	0.1	0.1
Cars & Light Goods	66	543	0	-	609	551	2150	0	-	2701	2223	68	0	-	2291	5601
% Cars & Light Goods	95.7	96.8	-	-	96.7	97.2	93.2	-	-	93.9	93.4	93.2	-	-	93.4	94.0
Buses	2	7	0	-	9	7	25	0	-	32	30	3	0	-	33	74
% Buses	2.9	1.2	-	-	1.4	1.2	1.1	-	-	1.1	1.3	4.1	-	-	1.3	1.2
Single-Unit Trucks	1	6	0	-	7	5	61	0	-	66	60	2	0	-	62	135
% Single-Unit Trucks	1.4	1.1	-	-	1.1	0.9	2.6	-	-	2.3	2.5	2.7	-	-	2.5	2.3
Articulated Trucks	0	2	0	-	2	2	72	0	-	74	63	0	0	-	63	139
% Articulated Trucks	0.0	0.4	-	-	0.3	0.4	3.1	-	-	2.6	2.6	0.0	-	-	2.6	2.3
Bicycles on Road	0	3	0	-	3	2	0	0	-	2	0	0	0	-	0	5
% Bicycles on Road	0.0	0.5	_	-	0.5	0.4	0.0	-	-	0.1	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	_	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	<u>-</u>	0	-	_	-	<u>-</u>	0	-	_	_	-	0	-	_
% Pedestrians	-			-	-	_		_		_	_	_		-	-	_



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad



Turning Movement Data Plot



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad

18 Site Code: 210066 Start Date: 03/16/2021 Page No: 4

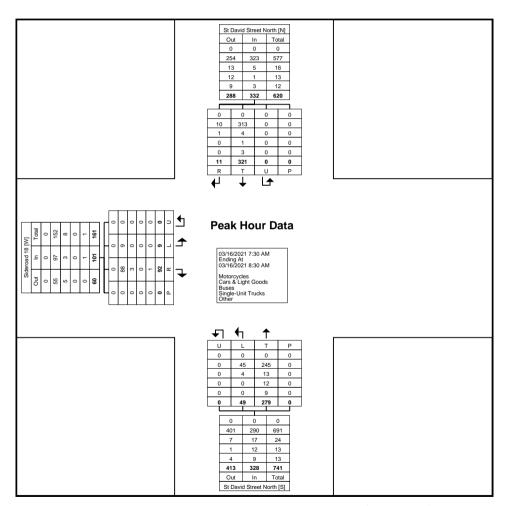
Turning Movement Peak Hour Data (7:30 AM)

					ı ummi	J IVIOVEII	HELLE I C	ak i loui i	Jaia (1.	.JU AIVI)						
			Sideroad 18				s	t David Street No	rth			St	David Street No	rth		1
Start Time			Eastbound					Northbound					Southbound			1
Start Time	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:30 AM	1	21	0	0	22	10	87	0	0	97	91	5	0	0	96	215
7:45 AM	2	17	0	0	19	10	68	0	0	78	76	1	0	0	77	174
8:00 AM	5	26	0	0	31	19	72	0	0	91	73	1	0	0	74	196
8:15 AM	1	28	0	0	29	10	52	0	0	62	81	. 4	0	0	85	176
Total	9	92	0	0	101	49	279	0	0	328	321	11	0	0	332	761
Approach %	8.9	91.1	0.0	-	-	14.9	85.1	0.0	-	-	96.7	3.3	0.0	-	-	-
Total %	1.2	12.1	0.0	-	13.3	6.4	36.7	0.0	-	43.1	42.2	1.4	0.0	-	43.6	-
PHF	0.450	0.821	0.000	-	0.815	0.645	0.802	0.000	-	0.845	0.882	0.550	0.000	-	0.865	0.885
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0		-	0.0	0.0	0.0		-	0.0	0.0
Cars & Light Goods	9	88	0	-	97	45	245	0	-	290	313	10	0	-	323	710
% Cars & Light Goods	100.0	95.7	-	-	96.0	91.8	87.8	-	-	88.4	97.5	90.9	-	-	97.3	93.3
Buses	0	3	0	-	3	4	13	0	-	17	4	. 1	0	-	5	25
% Buses	0.0	3.3	<u>-</u>	-	3.0	8.2	4.7	-	-	5.2	1.2	9.1	-	-	1.5	3.3
Single-Unit Trucks	0	0	0	-	0	0	12	0	-	12	1	0	0	-	1	13
% Single-Unit Trucks	0.0	0.0		-	0.0	0.0	4.3		-	3.7	0.3	0.0		-	0.3	1.7
Articulated Trucks	0	1	0	-	1	0	9	0	-	9	3	0	0	-	3	13
% Articulated Trucks	0.0	1.1	-	-	1.0	0.0	3.2	-	-	2.7	0.9	0.0	-	-	0.9	1.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	<u>-</u>	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	_	-	0	-	-	_	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-		-	-	-	-	-	-	-	-	-	_	-
Pedestrians	-	-	-	0	-	-	-	<u>-</u>	0	-	-	<u>-</u>	<u>-</u>	0	-	-
% Pedestrians	-			-		-	_		-		-	_		-		-



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad



Turning Movement Peak Hour Data Plot (7:30 AM)



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad

18 Site Code: 210066 Start Date: 03/16/2021 Page No: 6

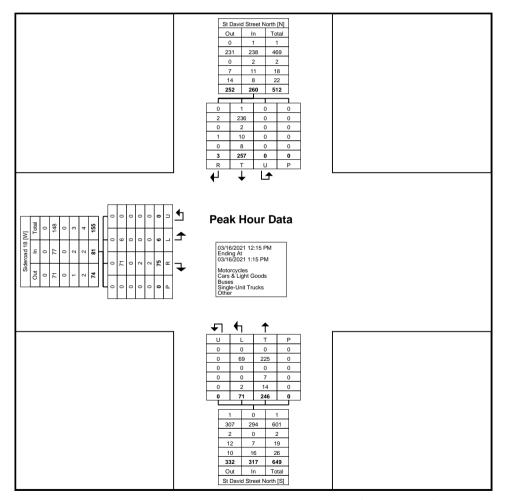
Turning Movement Peak Hour Data (12:15 PM)

					i unining	IVIOVCIII		IN I IOUI L	/ata (12	10 1 101/						
			Sideroad 18		_		S	David Street No	th	-		S	t David Street No	rth		
Start Time			Eastbound					Northbound					Southbound			
Start Time	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
12:15 PM	3	23	0	0	26	19	67	0	0	86	51	2	0	0	53	165
12:30 PM	0	18	0	0	18	11	62	0	0	73	77	0	0	0	77	168
12:45 PM	3	22	0	0	25	26	58	0	0	84	57	1	0	0	58	167
1:00 PM	0	12	0	0	12	15	59	0	0	74	72	0	0	0	72	158
Total	6	75	0	0	81	71	246	0	0	317	257	3	0	0	260	658
Approach %	7.4	92.6	0.0	-	-	22.4	77.6	0.0	-	-	98.8	1.2	0.0	-	-	-
Total %	0.9	11.4	0.0	-	12.3	10.8	37.4	0.0	-	48.2	39.1	0.5	0.0	-	39.5	-
PHF	0.500	0.815	0.000	-	0.779	0.683	0.918	0.000	-	0.922	0.834	0.375	0.000	-	0.844	0.979
Motorcycles	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	<u>-</u>	-	0.0	0.4	0.0	<u>-</u>	-	0.4	0.2
Cars & Light Goods	6	71	0	-	77	69	225	0	-	294	236	2	0	-	238	609
% Cars & Light Goods	100.0	94.7	-	-	95.1	97.2	91.5	-	-	92.7	91.8	66.7	-	-	91.5	92.6
Buses	0	0	0	-	0	0	0	0	-	0	2	0	0	-	2	2
% Buses	0.0	0.0		-	0.0	0.0	0.0	<u> </u>	-	0.0	0.8	0.0		-	0.8	0.3
Single-Unit Trucks	0	2	0	-	2	0	7	0	-	7	10	1	0	-	11	20
% Single-Unit Trucks	0.0	2.7		-	2.5	0.0	2.8		-	2.2	3.9	33.3		-	4.2	3.0
Articulated Trucks	0	0	0	-	0	0	14	0	-	14	8	0	0	-	8	22
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	5.7	-	-	4.4	3.1	0.0	-	-	3.1	3.3
Bicycles on Road	0	2	0	-	2	2	0	0	-	2	0	0	0	-	0	4
% Bicycles on Road	0.0	2.7		-	2.5	2.8	0.0	<u> </u>	-	0.6	0.0	0.0		-	0.0	0.6
Bicycles on Crosswalk	-	-		0		-	-		0	-	-	-		0	-	-
% Bicycles on Crosswalk	-	-		-	-	-	-		-	-	-	-		-	-	-
Pedestrians	-	-	-	0	-	-	-	<u>-</u>	0	-	-	-	-	0	-	-
% Pedestrians	-	-		-		-	-		-		-	-	<u>-</u>	-	-	-



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Count Name: St David Street North & Sideroad



Turning Movement Peak Hour Data Plot (12:15 PM)



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Count Name: St David Street North & Sideroad

18 Site Code: 210066 Start Date: 03/16/2021 Page No: 8

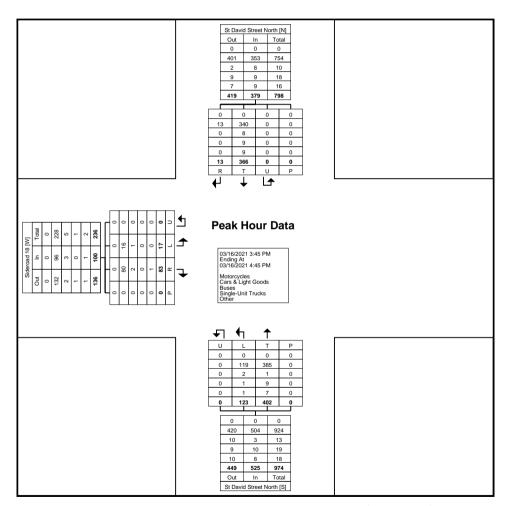
Turning Movement Peak Hour Data (3:45 PM)

						9 1110 101		ait i 10 ai 1	Jaia (U		i					
			Sideroad 18				S	t David Street No	rth			St	t David Street No	rth		İ
Start Time			Eastbound					Northbound					Southbound			İ
Start Time	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
3:45 PM	3	21	0	0	24	29	87	0	0	116	106	6	0	0	112	252
4:00 PM	2	15	0	0	17	28	118	0	0	146	98	3	0	0	101	264
4:15 PM	2	24	0	0	26	35	88	0	0	123	72	1	0	0	73	222
4:30 PM	10	23	0	0	33	31	109	0	0	140	90	3	0	0	93	266
Total	17	83	0	0	100	123	402	0	0	525	366	13	0	0	379	1004
Approach %	17.0	83.0	0.0	-	-	23.4	76.6	0.0	-	-	96.6	3.4	0.0	-	-	-
Total %	1.7	8.3	0.0	-	10.0	12.3	40.0	0.0	-	52.3	36.5	1.3	0.0	-	37.7	-
PHF	0.425	0.865	0.000	-	0.758	0.879	0.852	0.000	-	0.899	0.863	0.542	0.000	-	0.846	0.944
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	16	80	0	-	96	119	385	0	-	504	340	13	0	-	353	953
% Cars & Light Goods	94.1	96.4	-	-	96.0	96.7	95.8	-	-	96.0	92.9	100.0	-	-	93.1	94.9
Buses	1	2	0	-	3	2	1	0	-	3	8	0	0	-	8	14
% Buses	5.9	2.4	-	-	3.0	1.6	0.2	-	-	0.6	2.2	0.0	-	-	2.1	1.4
Single-Unit Trucks	0	0	0	-	0	1	9	0	-	10	9	0	0	-	9	19
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.8	2.2	-	-	1.9	2.5	0.0	-	-	2.4	1.9
Articulated Trucks	0	0	0	-	0	1	7	0	-	8	9	0	0	-	9	17
% Articulated Trucks	0.0	0.0	-	-	0.0	0.8	1.7	-	-	1.5	2.5	0.0	-	-	2.4	1.7
Bicycles on Road	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	1.2	-	-	1.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Count Name: St David Street North & Sideroad



Turning Movement Peak Hour Data Plot (3:45 PM)



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad 19 Site Code: 210066 Start Date: 03/16/2021 Page No: 1

Turning Movement Data

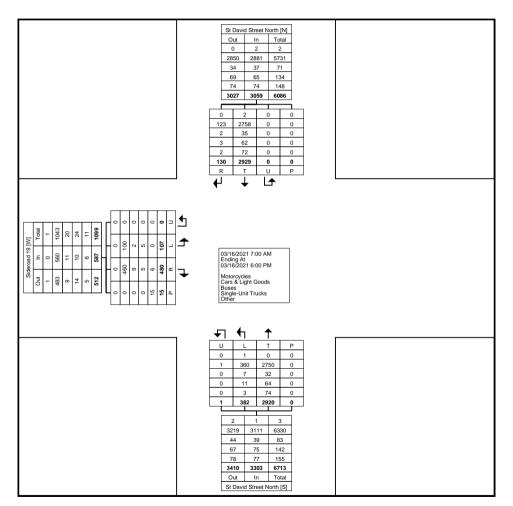
			Sideroad 19				S	t David Street No	th			St	t David Street No	rth		
Start Time			Eastbound					Northbound					Southbound			
Start Time	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	1	7	0	0	8	7	60	0	0	67	76	0	0	0	76	151
7:15 AM	0	10	0	0	10	4	75	0	0	79	67	0	0	0	67	156
7:30 AM	0	10	0	0	10	4	95	0	0	99	107	1	0	0	108	217
7:45 AM	0	11	0	2	11	6	78	0	0	84	90	2	0	0	92	187
Hourly Total	1	38	0	2	39	21	308	0	0	329	340	3	0	0	343	711
8:00 AM	1	15	0	0	16	7	92	1	0	100	97	5	0	0	102	218
8:15 AM	4	12	0	0	16	10	63	0	0	73	104	7	0	0	111	200
8:30 AM	1	13	0	0	14	5	65	0	0	70	114	3	0	0	117	201
8:45 AM	0	11	0	0	11	14	71	0	0	85	102	4	0	0	106	202
Hourly Total	6	51	0	0	57	36	291	1	0	328	417	19	0	0	436	821
9:00 AM	3	16	0	0	19	11	73	0	0	84	88	1	0	0	89	192
9:15 AM	1	9	0	0	10	4	66	0	0	70	74	0	0	0	74	154
9:30 AM	3	10	0	0	13	11	70	0	0	81	65	5	0	0	70	164
9:45 AM	1	11	0	0	12	7	64	0	0	71	88	6	0	0	94	177
Hourly Total	8	46	0	0	54	33	273	0	0	306	315	12	0	0	327	687
*** BREAK ***	-	-	-	-	-	-	-	-	-	<u>-</u>	1	-	-	-	-	-
12:00 PM	6	20	0	0	26	10	83	0	0	93	66	2	0	0	68	187
12:15 PM	4	12	0	0	16	14	91	0	0	105	76	5	0	0	81	202
12:30 PM	1	13	0	0	14	9	83	0	0	92	99	6	0	0	105	211
12:45 PM	1	11	0	1	12	12	91	0	0	103	88	4	0	0	92	207
Hourly Total	12	56	0	1	68	45	348	0	0	393	329	17	0	0	346	807
1:00 PM	4	12	0	0	16	13	78	0	0	91	83	5	0	0	88	195
1:15 PM	3	17	0	0	20	17	74	0	0	91	66	5	0	0	71	182
1:30 PM	4	18	0	0	22	10	69	0	0	79	70	4	0	0	74	175
1:45 PM	2	14	0	2	16	9	74	0	0	83	85	5	0	0	90	189
Hourly Total	13	61	0	2	74	49	295	0	0	344	304	19	0	0	323	741
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3:00 PM	8	19	0	0	27	15	87	0	0	102	99	5	0	0	104	233
3:15 PM	9	18	0	2	27	15	100	0	0	115	109	3	0	0	112	254
3:30 PM	2	20	0	0	22	16	116	0	0	132	102	4	0	0	106	260
3:45 PM	5	19	0	1	24	20	117	0	0	137	136	10	0	0	146	307
Hourly Total	24	76	0	3	100	66	420	0	0	486	446	22	0	0	468	1054
4:00 PM	4	23	0	1	27	22	146	0	0	168	115	4	0	0	119	314
4:15 PM	6	23	0	2	29	18	120	0	0	138	89	8	0	0	97	264
4:30 PM	7	22	0	1	29	17	136	0	0	153	119	1	0	0	120	302
4:45 PM	5	27	0	0	32	22	115	0	0	137	84	7	. 0	0	91	260

Hourly Total	22	95	0	4	117	79	517	0	0	596	407	20	0	0	427	1140
5:00 PM	2	12	0	1	14	10	148	0	0	158	111	6	0	0	117	289
5:15 PM	9	19	0	1	28	15	118	0	0	133	108	6	0	0	114	275
5:30 PM	8	16	0	1	24	11	96	0	0	107	80	3	0	0	83	214
5:45 PM	2	10	0	0	12	17	106	0	0	123	72	3	0	0	75	210
Hourly Total	21	57	0	3	78	53	468	0	0	521	371	18	0	0	389	988
Grand Total	107	480	0	15	587	382	2920	1	0	3303	2929	130	0	0	3059	6949
Approach %	18.2	81.8	0.0	-	-	11.6	88.4	0.0	-	-	95.8	4.2	0.0	-	-	-
Total %	1.5	6.9	0.0	-	8.4	5.5	42.0	0.0	-	47.5	42.1	1.9	0.0	-	44.0	-
Motorcycles	0	0	0	-	0	1	0	0	-	1	2	0	0	-	2	3
% Motorcycles	0.0	0.0	-	-	0.0	0.3	0.0	0.0	-	0.0	0.1	0.0	-	-	0.1	0.0
Cars & Light Goods	100	460	0	-	560	360	2750	1	-	3111	2758	123	0	-	2881	6552
% Cars & Light Goods	93.5	95.8	-	-	95.4	94.2	94.2	100.0	-	94.2	94.2	94.6	-	-	94.2	94.3
Buses	2	9	0	-	11	7	32	0	-	39	35	2	0	-	37	87
% Buses	1.9	1.9	-	-	1.9	1.8	1.1	0.0	-	1.2	1.2	1.5	-	-	1.2	1.3
Single-Unit Trucks	5	5	0	-	10	11	64	0	-	75	62	3	0	-	65	150
% Single-Unit Trucks	4.7	1.0	-	-	1.7	2.9	2.2	0.0	-	2.3	2.1	2.3	-	-	2.1	2.2
Articulated Trucks	0	6	0	-	6	3	73	0	-	76	71	2	0	-	73	155
% Articulated Trucks	0.0	1.3	-	-	1.0	0.8	2.5	0.0	-	2.3	2.4	1.5	-	-	2.4	2.2
Bicycles on Road	0	0	0	-	0	0	1	0	-	1	1	0	0	-	1	2
% Bicycles on Road	0.0	0.0	-		0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	15	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad



Turning Movement Data Plot



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad 19 Site Code: 210066 Start Date: 03/16/2021 Page No: 4

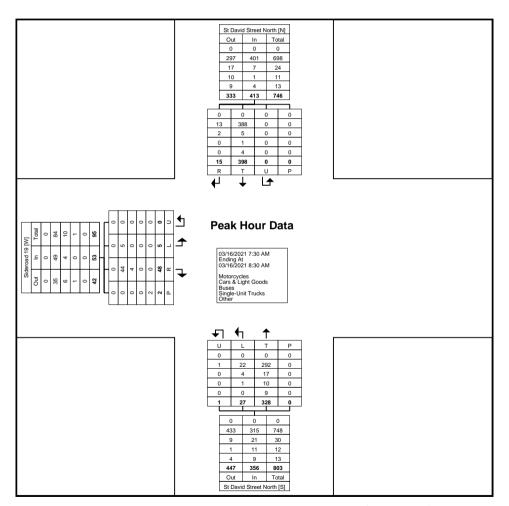
Turning Movement Peak Hour Data (7:30 AM)

Left	Right	Sideroad 19 Eastbound				Si	David Street Nor	th	-		St	David Street Nor	th		
	Pight	Eastbound									O.	David 01.001 110.			
	Dight						Northbound					Southbound			
	rigiii	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
0	10	0	0	10	4	95	0	0	99	107	1	0	0	108	217
0	11	0	2	11	6	78	0	0	84	90	2	0	0	92	187
1	15	0	0	16	7	92	1	0	100	97	5	0	0	102	218
4	12	0	0	16	10	63	0	0	73	104	7	0	0	111	200
5	48	0	2	53	27	328	1	0	356	398	15	0	0	413	822
9.4	90.6	0.0	-	-	7.6	92.1	0.3	-	-	96.4	3.6	0.0	-	-	-
0.6	5.8	0.0	-	6.4	3.3	39.9	0.1	-	43.3	48.4	1.8	0.0	-	50.2	-
0.313	0.800	0.000	-	0.828	0.675	0.863	0.250	-	0.890	0.930	0.536	0.000	-	0.930	0.943
0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
5	44	0	-	49	22	292	1	-	315	388	13	0	-	401	765
100.0	91.7	-	-	92.5	81.5	89.0	100.0	-	88.5	97.5	86.7		-	97.1	93.1
0	4	0	-	4	4	17	0	-	21	5	2	0	-	7	32
0.0	8.3	-	-	7.5	14.8	5.2	0.0	-	5.9	1.3	13.3	-	-	1.7	3.9
0	0	0	-	0	1	10	0	-	11	1	0	0	-	1	12
0.0	0.0	-	-	0.0	3.7	3.0	0.0	-	3.1	0.3	0.0	-	-	0.2	1.5
0	0	0	-	0	0	9	0	-	9	4	0	0	-	4	13
0.0	0.0	-	-	0.0	0.0	2.7	0.0	-	2.5	1.0	0.0	-	-	1.0	1.6
0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
-	-	-	0.0	-	-	-	_	-	-	-	-	-	-	-	-
-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-
	0 1 4 5 9.4 0.6 0.313 0 0.0 5 100.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0.0	0 11 1 15 4 12 5 48 9.4 90.6 0.6 5.8 0.313 0.800 0 0 0.0 0.0 5 44 100.0 91.7 0 4 0.0 8.3 0 0 0.0 0.0 0 0 0.0 0.0 0 0 0.0 0.0 0 0 0.0 0.0 - - - - - - - -	0 11 0 1 15 0 4 12 0 5 48 0 9.4 90.6 0.0 0.6 5.8 0.0 0.313 0.800 0.000 0 0 0 0.0 0.0 - 5 44 0 100.0 91.7 - 0 4 0 0.0 8.3 - 0 0 0 0.0 0.0 - 0 0 0 0.0 0 0 0.0 0 0 0.0 0 0 0.0 0 0 0.0 0 0 0.0 0 0 0.0 0 0 0.0 0 0 0.0 0 0 0.0 0 0	0 11 0 2 1 15 0 0 4 12 0 0 5 48 0 2 9.4 90.6 0.0 - 0.6 5.8 0.0 - 0.313 0.800 0.000 - 0 0 0 - 0.0 0.0 - - 5 44 0 - 100.0 91.7 - - 0 4 0 - 0.0 8.3 - - 0 0 0 - 0.0 0.0 - - 0 0 0 - 0 0 0 - 0 0 0 - 0 0 0 - 0 0 0 - 0 0 0 -	0 11 0 2 11 1 15 0 0 16 4 12 0 0 16 5 48 0 2 53 9.4 90.6 0.0 - - 0.6 5.8 0.0 - 6.4 0.313 0.800 0.000 - 0 0.0 0 0 - 0 0.0 0.0 - - 0 0.0 0.0 - - 0.0 5 44 0 - 49 100.0 91.7 - - 92.5 0 4 0 - 4 0.0 8.3 - - 7.5 0 0 0 - 0 0.0 0 - 0 0 0.0 0 - 0 0 0.0	0 11 0 2 11 6 1 15 0 0 16 7 4 12 0 0 16 10 5 48 0 2 53 27 9.4 90.6 0.0 - - 7.6 0.6 5.8 0.0 - 6.4 3.3 0.313 0.800 0.000 - 0.828 0.675 0 0 0 - 0 0 0.0 0.0 - 0 0 0.0 0.0 - 0 0 0 0 0 - 0 0 0 0 0 - 49 22 100.0 91.7 - - 92.5 81.5 0 4 0 - 4 4 0.0 8.3 - - 7.5 14.8 <t< td=""><td>0 11 0 2 11 6 78 1 15 0 0 16 7 92 4 12 0 0 16 10 63 5 48 0 2 53 27 328 9.4 90.6 0.0 - - 7.6 92.1 0.6 5.8 0.0 - 6.4 3.3 39.9 0.313 0.800 0.000 - 0.4 3.3 39.9 0.313 0.800 0.000 - 0.828 0.675 0.863 0 0 0 - 0 0 0 0 0.0 0.0 - 0 0 0 0 0 0 0 0 - 49 22 292 292 100.0 91.7 - - 92.5 81.5 89.0 0 0 14</td><td>0 11 0 2 11 6 78 0 1 15 0 0 16 7 92 1 4 12 0 0 16 10 63 0 5 48 0 2 53 27 328 1 9.4 90.6 0.0 - - 7.6 92.1 0.3 0.6 5.8 0.0 - - 7.6 92.1 0.3 0.6 5.8 0.0 - - 6.4 3.3 39.9 0.1 0.313 0.800 0.000 - 0.828 0.675 0.863 0.250 0 0 0 0 0 0 0 0 0 0.0 0 0 0 0 0 0 0 0 0 4 0 - 49 22 292 1</td><td>0 11 0 2 11 6 78 0 0 1 15 0 0 16 7 92 1 0 4 12 0 0 16 10 63 0 0 5 48 0 2 53 27 328 1 0 9.4 90.6 0.0 - - 7.6 92.1 0.3 - 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 0.313 0.800 0.000 - 0.828 0.675 0.863 0.250 - 0 0 0 0 0 0 0 0 - - 0.00 0 0 0 0 0 - 0 0 0 0 0</td><td>0 11 0 2 11 6 78 0 0 84 1 15 0 0 16 7 92 1 0 100 4 12 0 0 16 10 63 0 0 73 5 48 0 2 53 27 328 1 0 356 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 0.313 0.800 0.000 - 0.628 0.675 0.863 0.250 - 0.890 0 0 0 0 0 0 0 - 0.890 0 0 0 0 0 0 0 - 0.890 0 0 0 0 0</td><td>0 11 0 2 11 6 78 0 0 84 90 1 15 0 0 16 7 92 1 0 100 97 4 12 0 0 16 10 63 0 0 73 104 5 48 0 2 53 27 328 1 0 356 398 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 964 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 0.313 0.800 0.000 - 0.628 0.675 0.863 0.250 - 0.890 0.930 0 0 0 0 0 0 0 - 0 0 0 0 0 0.930 0 0.930 0</td><td>0 111 0 2 111 6 78 0 0 84 90 2 1 15 0 0 16 7 92 1 0 100 97 5 4 12 0 0 16 10 63 0 0 73 104 7 5 48 0 2 53 27 328 1 0 356 398 15 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 96.4 3.6 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 1.8 0.313 0.800 0.000 - 0.828 0.675 0.863 0.250 - 0.890 0.930 0.536 0 0 0 0 0 0 0 0 0 0</td><td>0 11 0 2 11 6 78 0 0 84 90 2 0 1 15 0 0 16 7 92 1 0 100 97 5 0 4 12 0 0 16 10 63 0 0 73 104 7 0 5 48 0 2 53 27 328 1 0 356 398 15 0 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 96.4 3.6 0.0 0.6 5.8 0.0 - 0.828 0.675 0.863 0.250 - 0.990 0.930 0.536 0.00 0.313 0.800 0.000 - 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>0 11 0 2 11 6 78 0 0 84 90 2 0 0 1 15 0 0 16 7 92 1 0 100 97 5 0 0 4 12 0 0 16 110 63 0 0 73 104 7 0 0 5 48 0 2 53 27 328 1 0 356 398 15 0 0 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 96.4 3.6 0.0 - 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 1.8 0.0 - 0.313 0.800 0.000 - 0.828 0.675 0.863 0.250 - 0.890 0.930</td><td>0 11 0 2 11 6 78 0 84 90 2 0 0 92 1 15 0 0 16 7 92 1 0 100 97 5 0 0 102 4 12 0 0 16 10 63 0 0 73 104 7 0 0 111 5 48 0 2 53 27 328 1 0 356 398 15 0 0 413 9.4 90.6 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 1.8 0.0 - 50.2 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 1.8 0.0 - 50.2 0.313 0.800 0.000 0 0 0 <td< td=""></td<></td></t<>	0 11 0 2 11 6 78 1 15 0 0 16 7 92 4 12 0 0 16 10 63 5 48 0 2 53 27 328 9.4 90.6 0.0 - - 7.6 92.1 0.6 5.8 0.0 - 6.4 3.3 39.9 0.313 0.800 0.000 - 0.4 3.3 39.9 0.313 0.800 0.000 - 0.828 0.675 0.863 0 0 0 - 0 0 0 0 0.0 0.0 - 0 0 0 0 0 0 0 0 - 49 22 292 292 100.0 91.7 - - 92.5 81.5 89.0 0 0 14	0 11 0 2 11 6 78 0 1 15 0 0 16 7 92 1 4 12 0 0 16 10 63 0 5 48 0 2 53 27 328 1 9.4 90.6 0.0 - - 7.6 92.1 0.3 0.6 5.8 0.0 - - 7.6 92.1 0.3 0.6 5.8 0.0 - - 6.4 3.3 39.9 0.1 0.313 0.800 0.000 - 0.828 0.675 0.863 0.250 0 0 0 0 0 0 0 0 0 0.0 0 0 0 0 0 0 0 0 0 4 0 - 49 22 292 1	0 11 0 2 11 6 78 0 0 1 15 0 0 16 7 92 1 0 4 12 0 0 16 10 63 0 0 5 48 0 2 53 27 328 1 0 9.4 90.6 0.0 - - 7.6 92.1 0.3 - 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 0.313 0.800 0.000 - 0.828 0.675 0.863 0.250 - 0 0 0 0 0 0 0 0 - - 0.00 0 0 0 0 0 - 0 0 0 0 0	0 11 0 2 11 6 78 0 0 84 1 15 0 0 16 7 92 1 0 100 4 12 0 0 16 10 63 0 0 73 5 48 0 2 53 27 328 1 0 356 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 0.313 0.800 0.000 - 0.628 0.675 0.863 0.250 - 0.890 0 0 0 0 0 0 0 - 0.890 0 0 0 0 0 0 0 - 0.890 0 0 0 0 0	0 11 0 2 11 6 78 0 0 84 90 1 15 0 0 16 7 92 1 0 100 97 4 12 0 0 16 10 63 0 0 73 104 5 48 0 2 53 27 328 1 0 356 398 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 964 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 0.313 0.800 0.000 - 0.628 0.675 0.863 0.250 - 0.890 0.930 0 0 0 0 0 0 0 - 0 0 0 0 0 0.930 0 0.930 0	0 111 0 2 111 6 78 0 0 84 90 2 1 15 0 0 16 7 92 1 0 100 97 5 4 12 0 0 16 10 63 0 0 73 104 7 5 48 0 2 53 27 328 1 0 356 398 15 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 96.4 3.6 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 1.8 0.313 0.800 0.000 - 0.828 0.675 0.863 0.250 - 0.890 0.930 0.536 0 0 0 0 0 0 0 0 0 0	0 11 0 2 11 6 78 0 0 84 90 2 0 1 15 0 0 16 7 92 1 0 100 97 5 0 4 12 0 0 16 10 63 0 0 73 104 7 0 5 48 0 2 53 27 328 1 0 356 398 15 0 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 96.4 3.6 0.0 0.6 5.8 0.0 - 0.828 0.675 0.863 0.250 - 0.990 0.930 0.536 0.00 0.313 0.800 0.000 - 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 11 0 2 11 6 78 0 0 84 90 2 0 0 1 15 0 0 16 7 92 1 0 100 97 5 0 0 4 12 0 0 16 110 63 0 0 73 104 7 0 0 5 48 0 2 53 27 328 1 0 356 398 15 0 0 9.4 90.6 0.0 - - 7.6 92.1 0.3 - - 96.4 3.6 0.0 - 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 1.8 0.0 - 0.313 0.800 0.000 - 0.828 0.675 0.863 0.250 - 0.890 0.930	0 11 0 2 11 6 78 0 84 90 2 0 0 92 1 15 0 0 16 7 92 1 0 100 97 5 0 0 102 4 12 0 0 16 10 63 0 0 73 104 7 0 0 111 5 48 0 2 53 27 328 1 0 356 398 15 0 0 413 9.4 90.6 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 1.8 0.0 - 50.2 0.6 5.8 0.0 - 6.4 3.3 39.9 0.1 - 43.3 48.4 1.8 0.0 - 50.2 0.313 0.800 0.000 0 0 0 <td< td=""></td<>



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad



Turning Movement Peak Hour Data Plot (7:30 AM)



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Count Name: St David Street North & Sideroad

Site Code: 210066 Start Date: 03/16/2021 Page No: 6

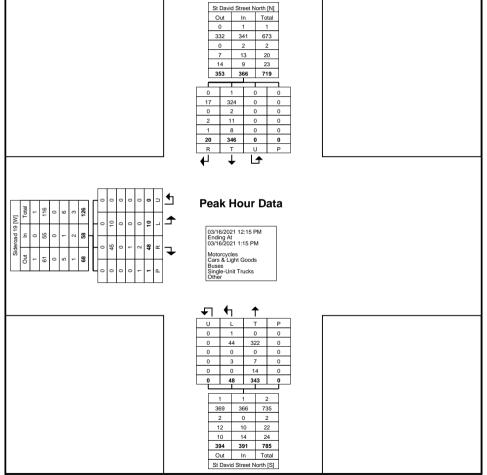
Turning Movement Peak Hour Data (12:15 PM)

					running	INIOAGII	ICHT L CC	ik i loui L	vala (12	I J F IVI)						
			Sideroad 19		_		S	t David Street No	rth			St	David Street No	rth		ĺ
Start Time			Eastbound					Northbound					Southbound			ĺ
Start Time	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
12:15 PM	4	12	0	0	16	14	91	0	0	105	76	5	0	0	81	202
12:30 PM	1	13	0	0	14	9	83	0	0	92	99	6	0	0	105	211
12:45 PM	1	11	0	1	12	12	91	0	0	103	88	4	0	0	92	207
1:00 PM	4	12	0	0	16	13	78	0	0	91	83	5	0	0	88	195
Total	10	48	0	1	58	48	343	0	0	391	346	20	0	0	366	815
Approach %	17.2	82.8	0.0	-	-	12.3	87.7	0.0	-	-	94.5	5.5	0.0	-	-	-
Total %	1.2	5.9	0.0	-	7.1	5.9	42.1	0.0	-	48.0	42.5	2.5	0.0	-	44.9	-
PHF	0.625	0.923	0.000	-	0.906	0.857	0.942	0.000	-	0.931	0.874	0.833	0.000	-	0.871	0.966
Motorcycles	0	0	0	-	0	1	0	0	-	1	1	0	0	-	1	2
% Motorcycles	0.0	0.0	-	-	0.0	2.1	0.0	-	-	0.3	0.3	0.0	<u>-</u>	-	0.3	0.2
Cars & Light Goods	10	45	0	-	55	44	322	0	-	366	324	17	0	-	341	762
% Cars & Light Goods	100.0	93.8	-	-	94.8	91.7	93.9	-	-	93.6	93.6	85.0	-	-	93.2	93.5
Buses	0	0	0	-	0	0	0	0	-	0	2	0	0	-	2	2
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.6	0.0	-	-	0.5	0.2
Single-Unit Trucks	0	1	0	-	1	3	7	0	-	10	11	2	0	-	13	24
% Single-Unit Trucks	0.0	2.1	-	-	1.7	6.3	2.0	-	-	2.6	3.2	10.0	<u>-</u>	-	3.6	2.9
Articulated Trucks	0	2	0	-	2	0	14	0	-	14	8	1	0	-	9	25
% Articulated Trucks	0.0	4.2	-	-	3.4	0.0	4.1	-	-	3.6	2.3	5.0	-	-	2.5	3.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	_	-	0.0	_	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-		-	0	-	-	-	<u>-</u>	0	-	-
% Pedestrians	-		-	100.0	-	-	-	-	-	-	-	-	-	-	-	-



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Count Name: St David Street North & Sideroad
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Turning Movement Peak Hour Data Plot (12:15 PM)



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Count Name: St David Street North & Sideroad

19 Site Code: 210066 Start Date: 03/16/2021 Page No: 8

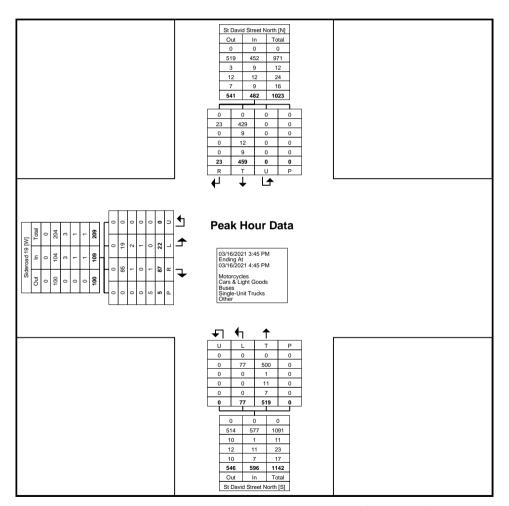
Turning Movement Peak Hour Data (3:45 PM)

					i allilli	g IVIOVCII			Julia (U	. 0 i ivi <i>)</i> ,						
			Sideroad 19				S	t David Street No	rth			St	t David Street No	rth		1
Others Time -			Eastbound					Northbound					Southbound			İ
Start Time	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
3:45 PM	5	19	0	. 1	24	20	117	0	0	137	136	10	0	0	146	307
4:00 PM	4	23	0	1	27	22	146	0	0	168	115	4	0	0	119	314
4:15 PM	6	23	0	2	29	18	120	0	0	138	89	8	0	0	97	264
4:30 PM	7	22	0	1	29	17	136	0	0	153	119	1	0	0	120	302
Total	22	87	0	5	109	77	519	0	0	596	459	23	0	0	482	1187
Approach %	20.2	79.8	0.0	-	-	12.9	87.1	0.0	-	-	95.2	4.8	0.0	-	-	-
Total %	1.9	7.3	0.0	-	9.2	6.5	43.7	0.0	-	50.2	38.7	1.9	0.0	-	40.6	-
PHF	0.786	0.946	0.000	-	0.940	0.875	0.889	0.000	-	0.887	0.844	0.575	0.000	-	0.825	0.945
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	<u>-</u>	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	19	85	0	-	104	77	500	0	-	577	429	23	0	-	452	1133
% Cars & Light Goods	86.4	97.7	-	-	95.4	100.0	96.3	-	-	96.8	93.5	100.0	-	-	93.8	95.5
Buses	2	1	0	-	3	0	1	0	-	1	9	0	0	-	9	13
% Buses	9.1	1.1	-	-	2.8	0.0	0.2	-	-	0.2	2.0	0.0	-	-	1.9	1.1
Single-Unit Trucks	1	0	0	-	1	0	11	0	-	11	12	0	0	-	12	24
% Single-Unit Trucks	4.5	0.0	<u>-</u>	-	0.9	0.0	2.1	-	-	1.8	2.6	0.0	-	-	2.5	2.0
Articulated Trucks	0	1	0	-	1	0	7	0	-	7	9	0	0	-	9	17
% Articulated Trucks	0.0	1.1	-	-	0.9	0.0	1.3	-	-	1.2	2.0	0.0	-	-	1.9	1.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	_	-
Pedestrians	-	-	-	5	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-



Cambridge, Ontario, Canada N1R 8J8 519-896-3163 cbowness@ptsl.com

Count Name: St David Street North & Sideroad



Turning Movement Peak Hour Data Plot (3:45 PM)

Appendix C

Existing Operation Reports

	•	•	1	†	ļ	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		ሻ	†	1>	
Traffic Volume (vph)	9	92	50	283	321	11
Future Volume (vph)	9	92	50	283	321	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		65.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.877				0.996	
Flt Protected	0.995		0.950			
Satd. Flow (prot)	1600	0	1671	1681	1851	0
Flt Permitted	0.995		0.950			
Satd. Flow (perm)	1600	0	1671	1681	1851	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	484.7			415.1	474.5	
Travel Time (s)	34.9			24.9	28.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	8%	13%	2%	9%
Adj. Flow (vph)	10	100	54	308	349	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	0	54	308	361	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 37.1%			IC	CU Level	of Service A
Analysis Period (min) 15						

	•	•	1	†	↓	4	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		*	†	1>		
Traffic Volume (veh/h)	9	92	50	283	321	11	
Future Volume (Veh/h)	9	92	50	283	321	11	
Sian Control	Stop	· · ·		Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	10	100	54	308	349	12	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	771	355	361				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	771	355	361				
tC, single (s)	6.4	6.2	4.2				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.3				
p0 queue free %	97	85	95				
cM capacity (veh/h)	354	684	1165				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	110	54	308	361			
Volume Left	10	54 54	0	0			
Volume Right	100	0	0	12			
cSH	631	1165	1700	1700			
Volume to Capacity	0.17	0.05	0.18	0.21			
Queue Length 95th (m)	5.0	1.2	0.10	0.21			
Control Delay (s)	11.9	8.2	0.0	0.0			
Lane LOS	11.9 B	0.2 A	0.0	0.0			
Approach Delay (s)	11.9	1.2		0.0			
Approach LOS	В	1.2		0.0			
Intersection Summary							
Average Delay			2.1				
Intersection Capacity Utiliz	zation		37.1%	IC	CU Level of	Service	Α
Analysis Period (min)			15			2200	- '`

Synchro 10 Report Page 1

	•	*	1	†	ļ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		*	*	1,	
Traffic Volume (vph)	5	48	27	328	398	15
Future Volume (vph)	5	48	27	328	398	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.877				0.995	
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1547	0	1517	1712	1829	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1547	0	1517	1712	1829	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	415.1	
Travel Time (s)	30.1			6.9	24.9	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	19%	11%	3%	13%
Adj. Flow (vph)	5	52	29	357	433	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	29	357	449	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 32.4%			IC	CU Level	of Service A
Analysis Period (min) 15						

	•	*	1	†	Ų.	4	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥		*	A	₽		
Fraffic Volume (veh/h)	5	48	27	328	398	15	
uture Volume (Veh/h)	5	48	27	328	398	15	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	5	52	29	357	433	16	
Pedestrians	2						
Lane Width (m)	3.6						
Walking Speed (m/s)	1.2						
Percent Blockage	0						
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	858	443	451				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	858	443	451				
tC, single (s)	6.4	6.3	4.3				
tC, 2 stage (s)							
tF (s)	3.5	3.4	2.4				
p0 queue free %	98	91	97				
cM capacity (veh/h)	320	601	1024				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	57	29	357	449			
Volume Left	5	29	0	0			
Volume Right	52	0	0	16			
cSH	558	1024	1700	1700			
Volume to Capacity	0.10	0.03	0.21	0.26			
Queue Length 95th (m)	2.7	0.7	0.0	0.0			
Control Delay (s)	12.2	8.6	0.0	0.0			
Lane LOS	В	Α					
Approach Delay (s)	12.2	0.6		0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			1.1				
Intersection Capacity Utilizat	ion		32.4%	IC	CU Level of	Service	Α
Analysis Period (min)			15				

	*	*	4	†	↓	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		ሻ	*	1₃	
Traffic Volume (vph)	17	89	127	414	393	13
Future Volume (vph)	17	89	127	414	393	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		65.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.886				0.996	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1601	0	1671	1681	1851	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1601	0	1671	1681	1851	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	484.7			415.1	474.5	
Travel Time (s)	34.9			24.9	28.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	4%	8%	13%	2%	9%
Adj. Flow (vph)	18	97	138	450	427	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	115	0	138	450	441	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 44.9%			IC	CU Level	of Service A
Analysis Period (min) 15						

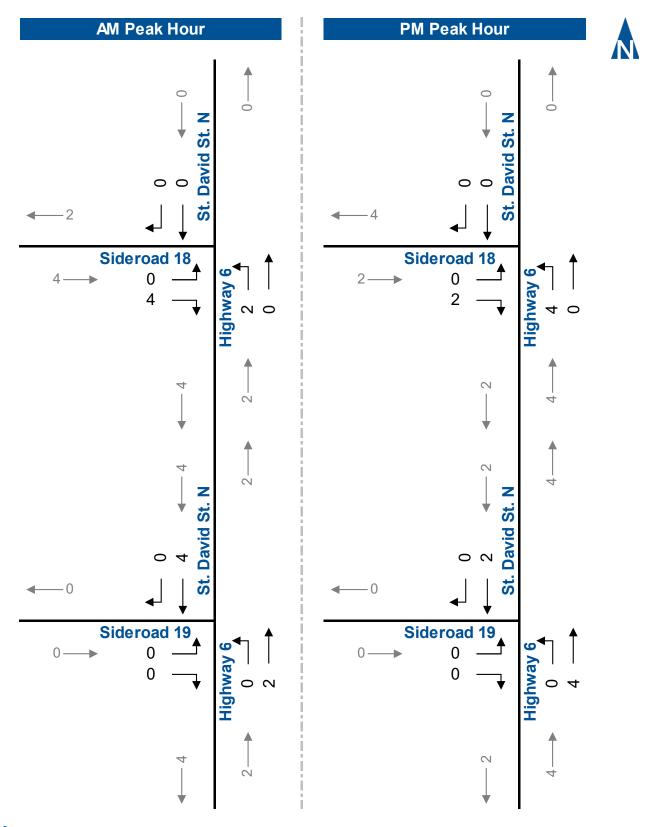
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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ሻ	*	1>		
Traffic Volume (veh/h)	17	89	127	414	393	13	
Future Volume (Veh/h)	17	89	127	414	393	13	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
lourly flow rate (vph)	18	97	138	450	427	14	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Jpstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1160	434	441				
C1, stage 1 conf vol							
vC2, stage 2 conf vol							
Cu, unblocked vol	1160	434	441				
tC, single (s)	6.5	6.2	4.2				
tC, 2 stage (s)							
F (s)	3.6	3.3	2.3				
p0 queue free %	90	84	87				
cM capacity (veh/h)	185	618	1088				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	115	138	450	441			
Volume Left	18	138	0	0			
Volume Right	97	0	0	14			
SH	452	1088	1700	1700			
Volume to Capacity	0.25	0.13	0.26	0.26			
Queue Length 95th (m)	8.0	3.5	0.0	0.0			
Control Delay (s)	15.6	8.8	0.0	0.0			
Lane LOS	С	Α					
Approach Delay (s)	15.6	2.1		0.0			
Approach LOS	С						
Intersection Summary							
verage Delay			2.6				
ntersection Capacity Utiliza	ation		44.9%	IC	CU Level of	Service	Α
Analysis Period (min)			15				
. , , ,							

Lane Group EBL EBR NBL NBT SBT SBR Lane Configurations Traffic Volume (vph) 22 87 77 519 459 23 Traffic Volume (vph) 22 87 77 519 459 23 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 100 0.0 Storage Langth (m) 0.0 0.0 30.0 0.0 0.0 0.0 Storage Langth (m) 7.5 25.0 1.0 1.0 1.00
Traffic Volume (vph) 22 87 77 519 459 23 Future Volume (vph) 22 87 77 519 459 23 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Storage Length (m) 0.0 0.0 30.0 0.0 0.0 Storage Lanes 1 0 1 0 0 Taper Length (m) 7.5 25.0 25.0 1 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00
Traffic Volume (vph) 22 87 77 519 459 23 Future Volume (vph) 22 87 77 519 459 23 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 100 0.0 Storage Length (m) 0.0 0
Ideal Flow (vphpt)
Storage Length (m) 0.0 0.0 30.0 0.0 Storage Lanes 1 0 1 0 Taper Length (m) 7.5 25.0 25.0 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00
Storage Lanes 1 0 1 0 Taper Length (m) 7.5 25.0 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00
Storage Lanes 1 0 1 0 Taper Length (m) 7.5 25.0 Lane Util. Factor 1.00 </td
Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00
D 101 F 4
Ped Bike Factor
Frt 0.892 0.994
Flt Protected 0.990 0.950
Satd. Flow (prot) 1607 0 1805 1827 1771 0
Flt Permitted 0.990 0.950
Satd. Flow (perm) 1607 0 1805 1827 1771 0
Link Speed (k/h) 50 50 60
Link Distance (m) 418.5 96.3 415.1
Travel Time (s) 30.1 6.9 24.9
Confl. Peds. (#/hr) 5
Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92
Heavy Vehicles (%) 14% 2% 0% 4% 7% 0%
Adj. Flow (vph) 24 95 84 564 499 25
Shared Lane Traffic (%)
Lane Group Flow (vph) 119 0 84 564 524 0
Enter Blocked Intersection No No No No No No
Lane Alignment Left Right Left Left Right
Median Width(m) 3.6 3.6 3.6
Link Offset(m) 0.0 0.0 0.0
Crosswalk Width(m) 4.8 4.8 4.8
Two way Left Turn Lane
Headway Factor 1.00 1.00 1.00 1.00 1.00
Turning Speed (k/h) 25 15 25 15
Sign Control Stop Free Free
Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 46.4% ICU Level of Service A
Analysis Period (min) 15

	•	*	1	1	↓ .	4	
Movement	EBL	EBR	NBL	NBT	SBT :	SBR	
Lane Configurations	¥		*	+	12		
Traffic Volume (veh/h)	22	87	77	519	459	23	
Future Volume (Veh/h)	22	87	77	519	459	23	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	24	95	84	564	499	25	
Pedestrians	5						
Lane Width (m)	3.6						
Walking Speed (m/s)	1.2						
Percent Blockage	0						
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1248	516	529				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1248	516	529				
tC, single (s)	6.5	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.6	3.3	2.2				
p0 queue free %	85	83	92				
cM capacity (veh/h)	165	556	1044				
. , ,	ED 4	ND 4	ND 0	OD 4			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	119	84	564	524			
Volume Left	24	84	0	0			
Volume Right	95	0	0	25			
cSH	377	1044	1700	1700			
Volume to Capacity	0.32	0.08	0.33	0.31			
Queue Length 95th (m)	10.6	2.1	0.0	0.0			
Control Delay (s)	18.9	8.7	0.0	0.0			
Lane LOS	С	Α					
Approach Delay (s)	18.9	1.1		0.0			
Approach LOS	С						
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Utiliz	zation		46.4%	IC	CU Level of S	Service	
Analysis Period (min)			15				

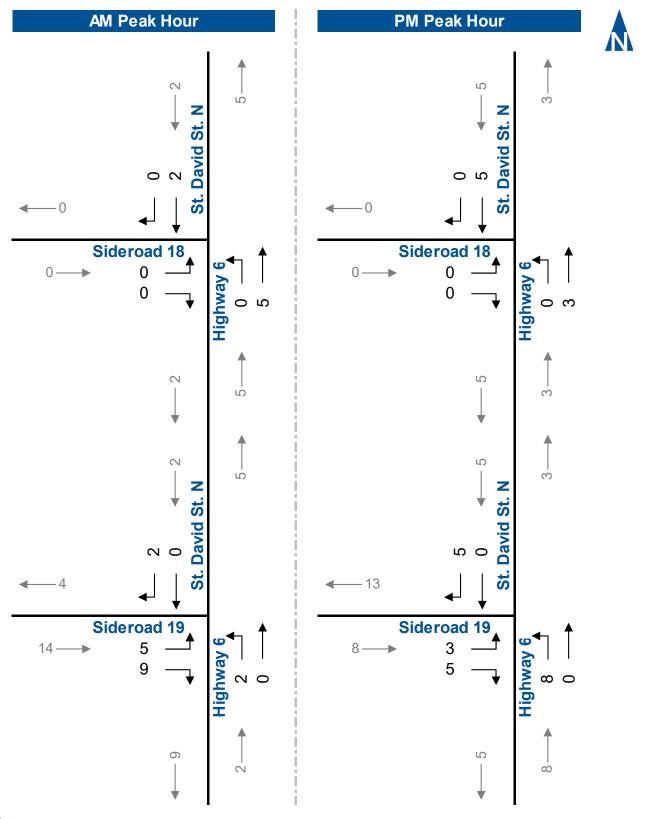
Appendix D

Background Development Traffic Assignment





6552, 6554, 6556 & 6558 Beatty Line Traffic Volumes





Wrighthaven Homes Sideroad 19
Traffic Volumes

Appendix E1

2023 Background Operation Reports

Lane Group EBL EBR NBL NBT SBT SBR Lane Configurations Y
Traffic Volume (vph) 9 100 54 299 336 11 Future Volume (vph) 9 100 54 299 336 11 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 Storage Length (m) 0.0 0.0 110.0 0.0 Storage Lanes 1 0 1 0 0 Taper Length (m) 7.5 65.0 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 Fit 0.876 0.996 Satd. Flow (prot) 1599 0 1671 1681 1851 0 Fit Permitted 0.996 0.950 Satd. Flow (perm) 1599 0 1671 1681 1851 0 Link Distance (m) 484.7 415.1 Travel Time (s) 34.9 24.9 28.5 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 Heavy Vehicles (%) 0% 4% 8% 13% 2% 9% Adj. Flow (yph) 10 109 59 325 365 12 Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Traffic Volume (vph) 9 100 54 299 336 11 Future Volume (vph) 9 100 54 299 336 11 Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 Storage Length (m) 0.0 0.0 110.0 0.0 Storage Length (m) 7.5 65.0 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 Fit 0.876 0.996 0.950 Satd. Flow (prot) 1599 0 1671 1681 1851 0 Fit Promitted 0.996 0.950 Satd. Flow (perm) 1599 0 1671 1681 1851 0 Satd. Flow (perm) 1599 0 1671 1681 1851 0 Link Speed (k/h) 50 60 60 Link Distance (m) 484.7 415.1 474.5 Travel Time (s) 34.9 24.9 28.5 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 Heavy Vehicles (%) 0% 4% 8% 13% 2% 9% Adj. Flow (yph) 10 109 59 325 365 12 Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Ideal Flow (vphpl)
Storage Length (m)
Storage Lanes
Taper Length (m) 7.5 65.0 Lane Util. Factor 1.00
Lane Util. Factor 1.00
Frt Description of the National Principle of
Fit Protected 0.996 0.950 Satd. Flow (prot) 1599 0 1671 1681 1851 0 Fit Permitted 0.996 0.950 Satd. Flow (perm) 1599 0 1671 1681 1851 0 Satd. Flow (perm) 1599 0 1671 1681 1851 0 Link Speed (k/h) 50 60 60 Link Distance (m) 484.7 415.1 474.5 Travel Time (s) 34.9 24.9 28.5 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Heavy Vehicles (%) 0% 4% 8% 13% 2% 9% Adj. Flow (vph) 10 109 59 325 365 12 Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Satd. Flow (prot) 1599 0 1671 1681 1851 0 FIt Permitted 0.996 0.950 0 0.950 0 500 0 0 0 1671 1681 1851 0 0 0 0 1671 1681 1851 0
Fit Permitted 0.996 0.950 Satd. Flow (perm) 1599 0 1671 1681 1851 0 Link Speed (k/h) 50 60 60 Link Speed (k/h) 50 415.1 474.5 Travel Time (s) 34.9 24.9 28.5 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Heavy Vehicles (%) 0% 4% 8% 13% 2% 9% Adj. Flow (vph) 10 109 59 325 365 12 Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Satd. Flow (perm) 1599 0 1671 1681 1851 0 Link Speed (k/h) 50 60 60 60 Link Distance (m) 484.7 415.1 474.5 Travel Time (s) 34.9 24.9 28.5 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Heavy Vehicles (%) 0% 4% 8% 13% 2% 9% Adj. Flow (vph) 10 109 59 325 365 12 Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Link Speed (k/h) 50 60 60 Link Distance (m) 484.7 415.1 474.5 Travel Time (s) 34.9 24.9 28.5 Peak Hour Factor 0.92
Link Distance (m) 484.7 415.1 474.5 Travel Time (s) 34.9 24.9 28.5 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Heavy Vehicles (%) 0% 4% 8% 13% 2% 9% Adj. Flow (vph) 10 109 59 325 365 12 Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Travel Time (s) 34.9 24.9 28.5 Peak Hour Factor 0.92 0
Peak Hour Factor 0.92
Heavy Vehicles (%) 0% 4% 8% 13% 2% 9% Adj. Flow (vph) 10 109 59 325 365 12 Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Adj. Flow (vph) 10 109 59 325 365 12 Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Shared Lane Traffic (%) Lane Group Flow (vph) 119 0 59 325 377 0
Lane Group Flow (vph) 119 0 59 325 377 0
Enter Blocked Intersection No No No No No
Lane Alignment Left Right Left Left Right
Median Width(m) 3.6 3.6 3.6
Link Offset(m) 0.0 0.0 0.0
Crosswalk Width(m) 4.8 4.8 4.8
Two way Left Turn Lane
Headway Factor 1.00 1.00 1.00 1.00 1.00
Turning Speed (k/h) 25 15 25 15
Sign Control Stop Free Free
Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 38.4% ICU Level of Service A
Analysis Period (min) 15

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		ሻ		1>	
Traffic Volume (veh/h)	9	100	54	299	336	11
Future Volume (Veh/h)	9	100	54	299	336	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	109	59	325	365	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	814	371	377			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	814	371	377			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	97	84	95			
cM capacity (veh/h)	332	670	1149			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		_
Volume Total	119	59	325	377		
Volume Left	10	59	0	0		
Volume Right	109	0	0	12		
cSH	618	1149	1700	1700		
Volume to Capacity	0.19	0.05	0.19	0.22		
Queue Length 95th (m)	5.7	1.3	0.0	0.0		
Control Delay (s)	12.2	8.3	0.0	0.0		
Lane LOS	В	Α				
Approach Delay (s)	12.2	1.3		0.0		
Approach LOS	В					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utiliza	ation		38.4%	IC	CU Level of	Service
Analysis Period (min)			15			
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		*		1	
Traffic Volume (vph)	10	59	30	343	418	18
Future Volume (vph)	10	59	30	343	418	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.885				0.994	
Flt Protected	0.993		0.950			
Satd. Flow (prot)	1563	0	1517	1712	1826	0
Flt Permitted	0.993		0.950			
Satd. Flow (perm)	1563	0	1517	1712	1826	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	415.1	
Travel Time (s)	30.1			6.9	24.9	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	19%	11%	3%	13%
Adj. Flow (vph)	11	64	33	373	454	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	0	33	373	474	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized	0 0 101					
Intersection Capacity Utiliza	tion 35.8%			10	:III evel	of Service
Analysis Period (min) 15	11011 00.0 /0			IC	JO LGVEI (JI OCI VICE

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Movement	EBL	EBR	NBL	NBT	SBT :	SBR	
Lane Configurations	W		*		12	-	
Traffic Volume (veh/h)	10	59	30	343	418	18	
Future Volume (Veh/h)	10	59	30	343	418	18	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	11	64	33	373	454	20	
Pedestrians	2			0.0	101		
Lane Width (m)	3.6						
Walking Speed (m/s)	1.2						
Percent Blockage	0						
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	905	466	476				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	905	466	476				
tC, single (s)	6.4	6.3	4.3				
tC, 2 stage (s)							
tF (s)	3.5	3.4	2.4				
p0 queue free %	96	89	97				
cM capacity (veh/h)	299	583	1001				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
· · · · · · · · · · · · · · · · · · ·							
Volume Total	75	33	373	474			
Volume Left	11	33	0	0			
Volume Right	64	0	0	20			
cSH	512	1001	1700	1700			
Volume to Capacity	0.15	0.03	0.22	0.28			
Queue Length 95th (m)	4.1	0.8	0.0	0.0			
Control Delay (s)	13.2	8.7	0.0	0.0			
Lane LOS	В	A					
Approach Delay (s)	13.2	0.7		0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			1.3				
Intersection Capacity Utiliz	zation		35.8%	IC	CU Level of S	Service	
Analysis Period (min)			15				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		ሻ	*	1	
Traffic Volume (vph)	18	95	136	434	414	14
Future Volume (vph)	18	95	136	434	414	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		65.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.887				0.996	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1603	0	1671	1681	1851	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1603	0	1671	1681	1851	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	484.7			415.1	474.5	
Travel Time (s)	34.9			24.9	28.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	4%	8%	13%	2%	9%
Adj. Flow (vph)	20	103	148	472	450	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	123	0	148	472	465	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 47.0%			IC	CU Level	of Service A
Analysis Period (min) 15						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	N/		*	A	1>		
Traffic Volume (veh/h)	18	95	136	434	414	14	
Future Volume (Veh/h)	18	95	136	434	414	14	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	20	103	148	472	450	15	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1226	458	465				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1226	458	465				
tC, single (s)	6.5	6.2	4.2				
tC, 2 stage (s)							
tF (s)	3.6	3.3	2.3				
p0 queue free %	88	83	86				
cM capacity (veh/h)	167	599	1066				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	123	148	472	465			
Volume Left	20	148	0	0			
Volume Right	103	0	0	15			
cSH	421	1066	1700	1700			
Volume to Capacity	0.29	0.14	0.28	0.27			
Queue Length 95th (m)	9.6	3.9	0.0	0.0			
Control Delay (s)	17.0	8.9	0.0	0.0			
Lane LOS	С	Α					
Approach Delay (s)	17.0	2.1		0.0			
Approach LOS	С						
Intersection Summary							
Average Delay			2.8				
Intersection Capacity Utili	zation		47.0%	IC	CU Level of	Service	Α
Analysis Period (min)			15				
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		ሻ		f)	
Traffic Volume (vph)	26	96	88	544	480	29
Future Volume (vph)	26	96	88	544	480	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.894				0.992	
Flt Protected	0.990		0.950			
Satd. Flow (prot)	1609	0	1805	1827	1768	0
Flt Permitted	0.990		0.950			
Satd. Flow (perm)	1609	0	1805	1827	1768	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	415.1	
Travel Time (s)	30.1			6.9	24.9	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	14%	2%	0%	4%	7%	0%
Adj. Flow (vph)	28	104	96	591	522	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	0	96	591	554	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 49.3%			IC	CU Level	of Service A
Analysis Period (min) 15						
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Movement	EBL	EBR	NBL	NBT	SBT S	SBR
Lane Configurations	W		*	A	1>	
Traffic Volume (veh/h)	26	96	88	544	480	29
Future Volume (Veh/h)	26	96	88	544	480	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	104	96	591	522	32
Pedestrians	5			001	022	02
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				140110	140110	
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1326	543	559			
vC1, stage 1 conf vol	1020	0.0	000			
vC2, stage 2 conf vol						
vCu, unblocked vol	1326	543	559			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)	0.0	J.L	7.1			
tF (s)	3.6	3.3	2.2			
p0 queue free %	81	81	91			
cM capacity (veh/h)	146	537	1018			
				00.5		
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	132	96	591	554		
Volume Left	28	96	0	0		
Volume Right	104	0	0	32		
cSH	342	1018	1700	1700		
Volume to Capacity	0.39	0.09	0.35	0.33		
Queue Length 95th (m)	14.1	2.5	0.0	0.0		
Control Delay (s)	22.0	8.9	0.0	0.0		
Lane LOS	С	Α				
Approach Delay (s)	22.0	1.2		0.0		
Approach LOS	С					
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utiliz	ation		49.3%	IC	CU Level of S	ervice
Analysis Period (min)			15			
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Appendix E2

2028 Background Operation Reports

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ሻ	*	^		
Traffic Volume (vph)	10	110	59	330	371	13	
Future Volume (vph)	10	110	59	330	371	13	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0	110.0			0.0	
Storage Lanes	1	0	1			0	
Taper Length (m)	7.5		65.0				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.876				0.995		
Flt Protected	0.996		0.950				
Satd. Flow (prot)	1599	0	1671	1681	1849	0	
Flt Permitted	0.996		0.950				
Satd. Flow (perm)	1599	0	1671	1681	1849	0	
Link Speed (k/h)	50			60	60		
Link Distance (m)	484.7			415.1	474.5		
Travel Time (s)	34.9			24.9	28.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	4%	8%	13%	2%	9%	
Adj. Flow (vph)	11	120	64	359	403	14	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	131	0	64	359	417	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	3.6			3.6	3.6	Ŭ	
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	4.8			4.8	4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25	15	25			15	
Sign Control	Stop			Free	Free		
Intersection Summary							
	Other						
Control Type: Unsignalized	Julei						
	ion 41 00/			10	III ovel e	of Service A	٨
Intersection Capacity Utilizat	1011 41.0%			IC	o Level (or Service P	А
Analysis Period (min) 15							

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥		*	*	1>		
Traffic Volume (veh/h)	10	110	59	330	371	13	
Future Volume (Veh/h)	10	110	59	330	371	13	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	11	120	64	359	403	14	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	897	410	417				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	897	410	417				
tC, single (s)	6.4	6.2	4.2				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.3				
p0 queue free %	96	81	94				
cM capacity (veh/h)	295	637	1110				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	131	64	359	417			
Volume Left	11	64	0	0			
Volume Right	120	0	0	14			
cSH	581	1110	1700	1700			
Volume to Capacity	0.23	0.06	0.21	0.25			
Queue Length 95th (m)	6.9	1.5	0.0	0.0			
Control Delay (s)	13.0	8.4	0.0	0.0			
Lane LOS	В	Α					
Approach Delay (s)	13.0	1.3		0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			2.3				Ī
Intersection Capacity Utilizatio	n		41.0%	IC	U Level of	Service	
Analysis Period (min)			15				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		ሻ	*	f)	
Traffic Volume (vph)	11	64	33	379	461	19
Future Volume (vph)	11	64	33	379	461	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.885				0.995	
Flt Protected	0.993		0.950			
Satd. Flow (prot)	1563	0	1517	1712	1828	0
Flt Permitted	0.993		0.950			
Satd. Flow (perm)	1563	0	1517	1712	1828	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	415.1	
Travel Time (s)	30.1			6.9	24.9	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	19%	11%	3%	13%
Adj. Flow (vph)	12	70	36	412	501	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	36	412	522	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized	0.101					
Intersection Capacity Utilizat	tion 38 7%			10	CUI evel	of Service A
Analysis Period (min) 15	uon 00.1 /0			- 10	JO LOVOI I	OI COI VICE A
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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		*	A	1>	
Traffic Volume (veh/h)	11	64	33	379	461	19
Future Volume (Veh/h)	11	64	33	379	461	19
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	70	36	412	501	21
Pedestrians	2					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	998	514	524			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	998	514	524			
tC, single (s)	6.4	6.3	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.4			
p0 queue free %	95	87	96			
cM capacity (veh/h)	262	548	960			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	82	36	412	522		
Volume Left	12	36	0	0		
Volume Right	70	0	0	21		
cSH	473	960	1700	1700		
Volume to Capacity	0.17	0.04	0.24	0.31		
Queue Length 95th (m)	5.0	0.9	0.0	0.0		
Control Delay (s)	14.2	8.9	0.0	0.0		
Lane LOS	В	Α				
Approach Delay (s)	14.2	0.7		0.0		
Approach LOS	В					
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utiliza	ation		38.7%	IC	CU Level of	Service
Analysis Period (min)			15			
, ,						

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		7	*	î,	
Traffic Volume (vph)	20	104	150	479	456	15
Future Volume (vph)	20	104	150	479	456	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		65.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.887				0.996	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1602	0	1671	1681	1851	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1602	0	1671	1681	1851	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	484.7			415.1	474.5	
Travel Time (s)	34.9			24.9	28.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	4%	8%	13%	2%	9%
Adj. Flow (vph)	22	113	163	521	496	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	135	0	163	521	512	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	tion 50.7%			IC	CU Level	of Service A
Analysis Period (min) 15						

Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92		*	*	1	†	↓	4	
Cane Configurations Cane Configurations	Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Traffic Volume (veh/h)								
Future Volume (Veh/h) 20 104 150 479 456 15 Sign Control Stop Free Free Grade 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%			104				15	
Stop		20	104	150	479	456	15	
Grade 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%		Stop			Free	Free		
Hourly flow rate (vph) 22 113 163 521 496 16 Pedestrians	Grade							
Hourly flow rate (vph) 22 113 163 521 496 16 Pedestrians	Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Pedestrians .ane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median strage veh) Jpstream signal (m) XX, platon unblocked CC, conflicting volume 1351 504 512 CC, stage 2 conf vol CCu, unblocked vol CC, single (s) 6.5 6.2 4.2 CC, 2 stage (s) F (s) 3.6 3.3 2.3 50 queue free % 84 80 84 50 queue free % 84 80 84 50 queue free % 84 80 84 50 queue free % 84 80 84 50 queue free % 84 80 84 60 queu	Hourly flow rate (vph)	22	113	163	521	496	16	
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) None None Upstream signal (m) Nox, platoon unblocked V.C., conflicting volume 1351 504 512 V.C.1, stage 1 conf vol V.C.2, stage 2 conf vol V.C.2, stage 2 conf vol C.V.2, unblocked vol 1351 504 512 C., 2 stage (s) 5F (s) 3.6 3.3 2.3 Ef (s) 3.6 3.3 2.3 20 queue free % 84 80 84 20 condition, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 135 163 521 512 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume Total 135 0.0 0.0 0.0 20 Usueue Length 95th (m) 12.9 4.5 0.0 0.0 20 Usueue Length 95th (m) 12.9 4.5 0.0 0.0 20 Lane LOS C A Approac	Pedestrians							
Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) None None Upstream signal (m) Nox, platoon unblocked V.C., conflicting volume 1351 504 512 V.C., stage 1 conf vol V.C., stage 2 conf vol V.C., stage 2 conf vol V.C., single (s) 6.5 6.2 4.2 C., 2 stage (s) F. (s) 3.6 3.3 2.3 50 queue free % 84 80 84 cond capacity (veh/h) 137 564 1023 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 135 163 521 512 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume Left 29 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0	Lane Width (m)							
Percent Blockage Right turn flare (veh) Median type Median type Median storage veh) Upstream signal (m) XX, platoon unblocked XC2, stage 1 conf vol XC2, stage 2 conf vol XC2, stage 2 conf vol XC3, stage 2 conf vol XC4, unblocked vol XC5, single (s) XC6, single (s) XC7, stage 1 conf vol XC8, stage 2 conf vol XC9, stage 2 conf vol XC9, stage 2 conf vol XC9, stage 3 conf vol XC9, stage 4 conf vol XC9, stage 4 conf vol XC9, stage 5 conf vol XC9, stage 6 conf vol XC9, stage 6 conf vol XC9, stage 1 conf vol XC9, stage 2 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 1 conf vol XC9, stage 2 conf v	Walking Speed (m/s)							
Median type weh None None None Median storage weh Upstream signal (m) UX, platoon unblocked UC, conflicting volume 1351 504 512 UC1, stage 1 conf vol UC2, stage 2 conf vol UC2, stage 2 conf vol UC3, stage 3 UC4, stage 3 UC5, stage 4 UC5, stage 5 UC6, stage 6 UC7, stage 6 UC7, stage 6 UC7, stage 7 UC8, stage 1 UC9, stage 8 UC9, stage 9 UC9, stage 1 UC9, stag	Percent Blockage							
Median storage veh) Upstream signal (m) Dpstream Right turn flare (veh)								
Median storage veh) Upstream signal (m) Dpstream Median type				None	None			
Upstream signal (m) OX, platon unblocked OX, platon unblocked OX, conflicting volume 1351 504 512 OXC1, stage 1 conf vol OXC2, stage 2 conf vol OXC2, stage 2 conf vol OXC2, stage 2 conf vol OXC3, stage 2 conf vol OXC3, stage 2 conf vol OXC4, unblocked vol 1351 504 512 OXC5, stage (s) OXC5, stage (
Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume to Capacity 0 13 0 0.0 Coulme to Capacity 0 12 0.0 Coulme to Capacity 0 12 0.0 Coulme Length 95th (m) 12.9 Coulme Lot Coulme Co								
//CC, conflicting volume 1351 504 512 //C1, stage 1 conf vol //C2, stage 2 conf vol //C2, stage 2 conf vol //C2, stage 2 conf vol //C2, stage 2 conf vol //C2, stage 2 conf vol //C2, stage (s)								
//CQ, stage 2 conf vol //CQ, unblocked vol //CQ, unblocked vol //CS, single (s) //CS, singl	vC, conflicting volume	1351	504	512				
//CQ, stage 2 conf vol //CQ, unblocked vol //CQ, unblocked vol //CS, single (s) //CS, singl	vC1, stage 1 conf vol							
// VCu, unblocked vol 1351 504 512 C, single (s)								
C, 2 stage (s) F (s) 3.6 3.3 2.3 Doû queue free % 84 80 84 DM capacity (veh/h) 137 564 1023 Direction, Lane # EB1 NB1 NB2 SB1 Volume Total 135 163 521 512 Volume Left 22 163 0 0 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Lane LOS C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay Average Delay Intersection Capacity Utilization 50.7% ICU Level of Service	vCu, unblocked vol	1351	504	512				
C. 2 stage (s) F (s) 3.6 3.3 2.3 Dot queue free % 84 80 84 M capacity (veh/h) 137 564 1023 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 135 163 521 512 Volume Left 22 163 0 0 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Lane LOS C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay Average Delay Intersection Capacity Utilization 50.7% ICU Level of Service	tC. single (s)	6.5	6.2	4.2				
F (s) 3.6 3.3 2.3 00 queue free % 84 80 84 Mc capacity (vel/h) 137 564 1023 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 135 163 521 512 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Lane LOS C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay Intersection Capacity Utilization 50.7% ICU Level of Service								
Do queue free % 84 80 84	tF (s)	3.6	3.3	2.3				
EM capacity (veh/h) 137 564 1023 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 135 163 521 512 Volume Right 22 163 0 0 Volume Right 113 0 0 16 ESH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Lane LOS C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay Average Delay Intersection Capacity Utilization 50.7% ICU Level of Service	p0 queue free %	84	80	84				
Volume Total 135 163 521 512 Volume Left 22 163 0 0 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Lane LOS C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C C No.0 No.0 No.0 Approach LOS C No.0 No.0 No.0 No.0 Approach LOS C No.0 No.0 No.0 No.0 No.0 Average Delay 3.2 No.0	cM capacity (veh/h)	137	564	1023				
Volume Total 135 163 521 512 Volume Left 22 163 0 0 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Lane LOS C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary 3.2 ICU Level of Service	Direction Lane #	FR 1	NR 1	NR 2	SR 1			
Volume Left 22 163 0 0 Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Cane LOS C A A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay 3.2 Intersection Capacity Utilization 50.7% ICU Level of Service								
Volume Right 113 0 0 16 SSH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Approach Delay (s) 20.0 2.2 0.0 Approach LOS C A Approach LOS C Intersection Summary Average Delay 13.2 Intersection Capacity Utilization 50.7% ICU Level of Service								
CSH 373 1023 1700 1700 Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Lane LOS C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay Intersection Capacity Utilization 50.7% ICU Level of Service				-				
Volume to Capacity 0.36 0.16 0.31 0.30 Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Jane LOS C A A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay 3.2 Intersection Capacity Utilization 50.7% ICU Level of Service			-					
Queue Length 95th (m) 12.9 4.5 0.0 0.0 Control Delay (s) 20.0 9.2 0.0 0.0 Los C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay 3.2 Intersection Capacity Utilization 50.7% ICU Level of Service								
Control Delay (s)								
Lane LOS C A Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay 3.2 Intersection Capacity Utilization 50.7% ICU Level of Service								
Approach Delay (s) 20.0 2.2 0.0 Approach LOS C Intersection Summary Average Delay 3.2 Intersection Capacity Utilization 50.7% ICU Level of Service				0.0	0.0			
Approach LOS C Intersection Summary 3.2 Average Delay 3.2 Intersection Capacity Utilization 50.7% ICU Level of Service					0.0			
Average Delay 3.2 Intersection Capacity Utilization 50.7% ICU Level of Service			2.2		0.0			
Average Delay 3.2 Intersection Capacity Utilization 50.7% ICU Level of Service		C						
ntersection Capacity Utilization 50.7% ICU Level of Service	Intersection Summary							
Analysis Period (min) 15		ation			IC	CU Level of	Service	
7-1-1-1	Analysis Period (min)			15				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		ሻ	↑	₽	
Traffic Volume (vph)	28	105	96	600	529	31
Future Volume (vph)	28	105	96	600	529	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.893				0.992	
Flt Protected	0.990		0.950			
Satd. Flow (prot)	1607	0	1805	1827	1768	0
Flt Permitted	0.990		0.950			
Satd. Flow (perm)	1607	0	1805	1827	1768	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	415.1	
Travel Time (s)	30.1			6.9	24.9	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	14%	2%	0%	4%	7%	0%
Adj. Flow (vph)	30	114	104	652	575	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	0	104	652	609	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 53.1%			IC	CU Level	of Service A
Analysis Period (min) 15						
, ()						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		*		12	
Traffic Volume (veh/h)	28	105	96	600	529	31
Future Volume (Veh/h)	28	105	96	600	529	31
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	114	104	652	575	34
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				7		
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1457	597	614			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1457	597	614			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	75	77	89			
cM capacity (veh/h)	119	501	971			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	144	104	652	609		
Volume Left	30	104	032	009		
Volume Right	114	0	0	34		
cSH	301	971	1700	1700		
Volume to Capacity	0.48	0.11	0.38	0.36		
Queue Length 95th (m)	19.6	2.9	0.0	0.0		
Control Delay (s)	27.5	9.2	0.0	0.0		
Lane LOS	D D	Α.Δ	0.0	0.0		
Approach Delay (s)	27.5	1.3		0.0		
Approach LOS	D	1.0		0.0		
••						
Intersection Summary			0.0			
Average Delay	ation.		3.3 53.1%	10	CU Level of S	`aniaa
Intersection Capacity Utiliza	ΠΟΙΙΣ			IC	Level of S	ervice
Analysis Period (min)			15			

961 St David St N Fergus, TIS PTSL (210066)

Appendix E3

2033 Background Operation Reports

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ሻ	*	î,		
Traffic Volume (vph)	11	121	65	364	409	14	
Future Volume (vph)	11	121	65	364	409	14	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0	110.0			0.0	
Storage Lanes	1	0	1			0	
Taper Length (m)	7.5		65.0				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.876				0.996		
Flt Protected	0.996		0.950				
Satd. Flow (prot)	1599	0	1671	1681	1851	0	
Flt Permitted	0.996		0.950				
Satd. Flow (perm)	1599	0	1671	1681	1851	0	
Link Speed (k/h)	50			60	60		
Link Distance (m)	484.7			415.1	474.5		
Travel Time (s)	34.9			24.9	28.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	4%	8%	13%	2%	9%	
Adj. Flow (vph)	12	132	71	396	445	15	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	144	0	71	396	460	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	3.6			3.6	3.6		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	4.8			4.8	4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25	15	25			15	
Sign Control	Stop			Free	Free		
Intersection Summary							
Area Type: (Other						
Control Type: Unsignalized							
Intersection Capacity Utilizat	tion 44.1%			IC	CU Level	of Service	A
Analysis Period (min) 15							

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	i
Lane Configurations	W		*	*	1>		_
Traffic Volume (veh/h)	11	121	65	364	409	14	
Future Volume (Veh/h)	11	121	65	364	409	14	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	12	132	71	396	445	15	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	990	452	460				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	990	452	460				
tC, single (s)	6.4	6.2	4.2				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.3				
p0 queue free %	95	78	93				
cM capacity (veh/h)	257	603	1070				
Direction. Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	144	71	396	460			
Volume Left	12	71	0	0			
Volume Right	132	0	0	15			
cSH	542	1070	1700	1700			
Volume to Capacity	0.27	0.07	0.23	0.27			
Queue Length 95th (m)	8.5	1.7	0.0	0.0			
Control Delay (s)	14.0	8.6	0.0	0.0			
Lane LOS	В	Α.	0.0	0.0			
Approach Delay (s)	14.0	1.3		0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			2.5				Ī
Intersection Capacity Utiliz	ation		44.1%	IC	CU Level of S	Service	
Analysis Period (min)			15				
raidiyolo i ollou (iliili)			13				

ane Configurations raffic Volume (vph) 11 70 36 418 509 21 uture Volume (vph) 11 70 36 418 509 21 leal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 torage Length (m) 0.0 0.0 30.0 0.0 torage Length (m) 0.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00		•	\rightarrow	1	†	↓	4
raffic Volume (vph)	Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
raffic Volume (vph) 11 70 36 418 509 21 uture Volume (vph) 11 70 36 418 509 21 leal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190	Lane Configurations	¥		ሻ		î,	
leal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1000 torage Length (m) 0.0 0.0 30.0 0.0 torage Lanes 1 0 1 0 1 0 aper Length (m) 7.5 25.0 ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Traffic Volume (vph)	11	70	36	418		21
torage Length (m)	Future Volume (vph)	11	70	36	418	509	21
torage Lanes 1 0 1 0 1 0 aper Length (m) 7.5 25.0 aper Length (m) 7.5 25.0 ane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
aper Length (m) aper Length (m) 7.5 aper Util. Factor et d Bike Factor rt 0.883 1 Protected 0.993 0.950 atd. Flow (prot) 1558 0 1517 1712 1828 0 1857 1879 1889 1890 1800 18	Storage Length (m)	0.0	0.0	30.0			0.0
ane Util. Factor	Storage Lanes	1	0	1			0
ed Bike Factor It 0.883	Taper Length (m)	7.5		25.0			
rt 0.883 0.995 It Protected 0.993 0.950 atd. Flow (prot) 1558 0 1517 1712 1828 0 It Permitted 0.993 0.950 atd. Flow (perm) 1558 0 1517 1712 1828 0 It Permitted 0.993 0.950 atd. Flow (perm) 1558 0 1517 1712 1828 0 Ink Speed (k/h) 50 50 60 Ink Distance (m) 418.5 96.3 415.1 ravel Time (s) 30.1 6.9 24.9 onfl. Peds. (#/hr) 2 2 2.49 onfl. Peds. (#/hr) 2 2 2.092 0.92 0.92 eavy Vehicles (%) 0% 8% 19% 11% 3% 13% diplomated Lane Traffic (%) ane Group Flow (vph) 12 76 39 454 553 23 hared Lane Traffic (%) ane Group Flow (vph) 88 0 39 454 556 0 Inter Blocked Intersection No No No No No No No No No No No No No	Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
tlt Protected 0.993 0.950 atd. Flow (prot) 1558 0 1517 1712 1828 0 tlt Permitted 0.993 0.950 atd. Flow (prot) 1558 0 1517 1712 1828 0 tlt Permitted 0.993 0.950 atd. Flow (perm) 1558 0 1517 1712 1828 0 ink Speed (k/h) 50 50 60 ink Speed (k/h) 50 50 60 ink Speed (k/h) 50 50 60 ink Speed (k/h) 50 50 60 ink Speed (k/h) 50 50 60 ink Speed (k/h) 50 50 60 ink Speed (k/h) 50 50 60 96.9 24.9 onfl. Peds. (#/hr) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Ped Bike Factor						
atd. Flow (prot) 1558 0 1517 1712 1828 0 It Permitted 0.993 0.950 atd. Flow (perm) 1558 0 1517 1712 1828 0 nk Speed (k/h) 50 50 60 ink Distance (m) 418.5 96.3 415.1 cavel Time (s) 30.1 6.9 24.9 onfl. Peds. (#hr) 2 2 2 eak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 early Vehicles (%) 0% 8% 19% 11% 3% 13% dij. Flow (vph) 12 76 39 454 553 23 hared Lane Traffic (%) ane Group Flow (vph) 88 0 39 454 576 0 nter Blocked Intersection No No No No No No No No neter Blocked Intersection Left Right Left Left Left Right ledian Width(m) 3.6 3.6 3.6 ink Offset(m) 0.0 0.0 0.0 rosswalk Width(m) 4.8 4.8 4.8 wow ay Left Turn Lane eadway Factor 1.00 1.00 1.00 1.00 1.00 1.00 ritersection Summary rea Type: Other ontrol Type: Unsignalized	Frt					0.995	
It Permitted	Flt Protected						
atd. Flow (perm) 1558 0 1517 1712 1828 0 nk Speed (k/h) 50 50 60 ink Distance (m) 418.5 96.3 415.1 aravel Time (s) 30.1 6.9 24.9 onfl. Peds. (#/hr) 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3	Satd. Flow (prot)	1558	0	1517	1712	1828	0
ink Speed (k/h) 50 50 60 ink Distance (m) 418.5 96.3 415.1 ravel Time (s) 30.1 6.9 24.9 onfl. Peds. (#hr) 2 2 eak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 early Vehicles (%) 0% 8% 19% 11% 3% 13% dip. Flow (vph) 12 76 39 454 553 23 hared Lane Traffic (%) ane Group Flow (vph) 88 0 39 454 576 0 nter Blocked Intersection No No No No No No No No No No No No No	Flt Permitted						
ink Distance (m)	Satd. Flow (perm)		0	1517			0
ravel Time (s) 30.1 6.9 24.9 onfl. Peds. (#/hr) 2 2 early Vehicles (%) 0,92 0,92 0,92 0,92 0,92 early Vehicles (%) 0% 8% 19% 11% 3% 13% dj. Flow (γph) 12 76 39 454 553 23 hared Lane Traffic (%) ane Group Flow (γph) 88 0 39 454 576 0 nter Blocked Intersection No No No No No No No No No No No No No	Link Speed (k/h)						
onfi. Peds. (#/hr) 2 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.	Link Distance (m)						
eak Hour Factor 0.92 28 0.92 28 0.92	Travel Time (s)	30.1			6.9	24.9	
eavy Vehicles (%)	Confl. Peds. (#/hr)						
dj. Flow (vph) 12 76 39 454 553 23 hared Lane Traffic (%) anae Group Flow (vph) 88 0 39 454 576 0 ane Group Flow (vph) 88 0 39 454 576 0 anter Blocked Intersection No No No No No No ane Alignment Left Right Left Left Left Right ledian Width(m) 3.6 3.6 3.6 3.6 inch inc	Peak Hour Factor						
Name Name	Heavy Vehicles (%)						
ane Group Flow (vph)	Adj. Flow (vph)	12	76	39	454	553	23
Inter Blocked Intersection ane Alignment No 4.8 4.8<	Shared Lane Traffic (%)						
Algebra	Lane Group Flow (vph)		-				
Iedian Width(m)							
ink Offset(m) 0.0 0.0 0.0 crosswalk Width(m) 4.8 4.8 4.8 wow avy Left Turn Lane eadway Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 uning Speed (k/h) 25 15 25 15 gr Control Stop Free Free teresction Summary rear Type: Other ontrol Type: Unsignalized	Lane Alignment		Right	Left			Right
rosswalk Width(m)	Median Width(m)						
wo way Left Turn Lane eadway Factor 1.00 1.00 1.00 1.00 1.00 1.00 urning Speed (k/h) 25 15 25 15 gin Control Stop Free Free ittersection Summary rea Type: Other ontrol Type: Unsignalized	Link Offset(m)						
eadway Factor 1.00	Crosswalk Width(m)	4.8			4.8	4.8	
urning Speed (k/h) 25 15 ign Control Stop Free Free itersection Summary rea Type: Other ontrol Type: Unsignalized Other Other							
ign Control Stop Free Free Itersection Summary rea Type: Other ontrol Type: Unsignalized	Headway Factor				1.00	1.00	
tersection Summary rea Type: Other ontrol Type: Unsignalized	Turning Speed (k/h)		15	25			15
rea Type: Other ontrol Type: Unsignalized	Sign Control	Stop			Free	Free	
ontrol Type: Unsignalized	Intersection Summary						
	Area Type:	Other					
stersection Capacity Utilization 41.5% ICU Level of Service A	Control Type: Unsignalized						
	Intersection Capacity Utiliza	tion 41.5%			IC	CU Level	of Service A
nalysis Period (min) 15	Analysis Period (min) 15						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		*	*	1>	-	
Traffic Volume (veh/h)	11	70	36	418	509	21	
Future Volume (Veh/h)	11	70	36	418	509	21	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	12	76	39	454	553	23	
Pedestrians	2						
Lane Width (m)	3.6						
Walking Speed (m/s)	1.2						
Percent Blockage	0						
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1098	566	578				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1098	566	578				
tC, single (s)	6.4	6.3	4.3				
tC, 2 stage (s)							
tF (s)	3.5	3.4	2.4				
p0 queue free %	95	85	96				
cM capacity (veh/h)	227	511	915				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	88	39	454	576			
Volume Left	12	39	0	0.0			
Volume Right	76	0	0	23			
cSH	437	915	1700	1700			
Volume to Capacity	0.20	0.04	0.27	0.34			
Queue Length 95th (m)	6.0	1.1	0.0	0.0			
Control Delay (s)	15.3	9.1	0.0	0.0			
Lane LOS	С	Α					
Approach Delay (s)	15.3	0.7		0.0			
Approach LOS	С						
Intersection Summary							
Average Delay			1.5				
Intersection Capacity Utiliza	ition		41.5%	IC	CU Level of	Service	
Analysis Period (min)			15				
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Group	EBL	EBR	NBL	NBT	SBT	SBR	EBI	Movement	EBL	EBR	NE	L	L NBT
figurations	W		*	*	1>			Lane Configurations	W		*		4
: Volume (vph)	22	115	165	528	503	16		Traffic Volume (veh/h)	22	115	165		528
ure Volume (vph)	22	115	165	528	503	16		Future Volume (Veh/h)	22	115	165		528
al Flow (vphpl)	1900	1900	1900	1900	1900	1900		Sign Control	Stop				Free
orage Length (m)	0.0	0.0	110.0	1300	1300	0.0		Grade	0%				0%
orage Lanes	1	0.0	1			0.0		Peak Hour Factor	0.92	0.92	0.92		0.92
aper Length (m)	7.5	U	65.0			U		Hourly flow rate (vph)	24	125	179		574
ane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	pm) 22	Pedestrians	24	123	113		314
ile Otii. I actoi	0.887	1.00	1.00	1.00	0.996	1.00		Lane Width (m)					
t Protected	0.007		0.950		0.990		. /- \						
		0		1681	1851	0		Walking Speed (m/s)					
td. Flow (prot)	1603	0		1001	1851	0		Percent Blockage					
Permitted	0.992	_	0.950				ıh)	Right turn flare (veh)					
td. Flow (perm)	1603	0	1671	1681	1851	0		Median type					None
nk Speed (k/h)	50			60	60			Median storage veh)					
nk Distance (m)	484.7			415.1	474.5			Upstream signal (m)					
ravel Time (s)	34.9			24.9	28.5			pX, platoon unblocked					
ak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		vC, conflicting volume	1488	556	564		
eavy Vehicles (%)	6%	4%	8%	13%	2%	9%	vol	vC1, stage 1 conf vol					
dj. Flow (vph)	24	125	179	574	547	17		vC2, stage 2 conf vol					
hared Lane Traffic (%)							1488 ار	vCu, unblocked vol	1488	556	564		
ane Group Flow (vph)	149	0	179	574	564	0	6.5	tC, single (s)	6.5	6.2	4.2		
nter Blocked Intersection	No	No	No	No	No	No		tC, 2 stage (s)					
ane Alignment	Left	Right	Left	Left	Left	Right	3.6	tF (s)	3.6	3.3	2.3		
edian Width(m)	3.6	Ŭ		3.6	3.6		78	p0 queue free %	78	76	82		
nk Offset(m)	0.0			0.0	0.0		109	cM capacity (veh/h)	109	527	978		
osswalk Width(m)	4.8			4.8	4.8		'	, ,, ,					
o way Left Turn Lane								Direction, Lane #	EB 1	NB 1	NB 2		SB 1
eadway Factor	1.00	1.00	1.00	1.00	1.00	1.00		Volume Total	149	179	574		564
rning Speed (k/h)	25	15	25	1.00	1.00	15		Volume Left	24	179	0		0
gn Control	Stop			Free	Free			Volume Right	125	0	0		17
	Отор			1100	1100			cSH	326	978	1700		1700
tersection Summary								Volume to Capacity	0.46	0.18	0.34		0.33
rea Type:	Other						h (m) 18.3	Queue Length 95th (m)	18.3	5.3	0.0		0.0
ontrol Type: Unsignalized							25.0	Control Delay (s)	25.0	9.5	0.0		0.0
tersection Capacity Utiliza	tion 54.9%			IC	CU Level	of Service A	(Lane LOS	С	Α			
nalysis Period (min) 15							3) 25.0	Approach Delay (s)	25.0	2.3			0.0
, ,								Approach LOS	C				
								Intersection Summary					
							iaiy	Average Delay			3.7		
							oity I Itilization	Intersection Capacity Utili	ration		54.9%		10
									auUII		54.9%		IV
							iin)	Analysis Period (min)			15		

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ሻ	*	f.		
Traffic Volume (vph)	31	115	106	662	584	34	
Future Volume (vph)	31	115	106	662	584	34	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0	30.0			0.0	
Storage Lanes	1	0	1			0	
Taper Length (m)	7.5		25.0				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt	0.894				0.993		
Flt Protected	0.989		0.950				
Satd. Flow (prot)	1607	0	1805	1827	1770	0	
Flt Permitted	0.989		0.950				
Satd. Flow (perm)	1607	0	1805	1827	1770	0	
Link Speed (k/h)	50			50	60		
Link Distance (m)	418.5			96.3	415.1		
Travel Time (s)	30.1			6.9	24.9		
Confl. Peds. (#/hr)			5			5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	14%	2%	0%	4%	7%	0%	
Adj. Flow (vph)	34	125	115	720	635	37	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	159	0	115	720	672	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	3.6			3.6	3.6		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	4.8			4.8	4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25	15	25			15	
Sign Control	Stop			Free	Free		
Intersection Summary							
Area Type:	Other						
Control Type: Unsignalized							
Intersection Capacity Utiliza	tion 57.5%			IC	CU Level	of Service B	3
Analysis Period (min) 15							
- '							

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥		ሻ	*	12		
Traffic Volume (veh/h)	31	115	106	662	584	34	
Future Volume (Veh/h)	31	115	106	662	584	34	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	34	125	115	720	635	37	
Pedestrians	5						
Lane Width (m)	3.6						
Walking Speed (m/s)	1.2						
Percent Blockage	0						
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1608	658	677				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1608	658	677				
tC, single (s)	6.5	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.6	3.3	2.2				
p0 queue free %	64	73	88				
cM capacity (veh/h)	94	462	920				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	159	115	720	672			
Volume Left	34	115	0	0			
Volume Right	125	0	0	37			
cSH	252	920	1700	1700			
Volume to Capacity	0.63	0.12	0.42	0.40			
Queue Length 95th (m)	30.9	3.4	0.0	0.0			
Control Delay (s)	41.0	9.5	0.0	0.0			
Lane LOS	E	Α					
Approach Delay (s)	41.0	1.3		0.0			
Approach LOS	Е						
Intersection Summary							
Average Delay			4.6				
Intersection Capacity Utilizati	ion		57.5%	IC	U Level of S	Service	
Analysis Period (min)			15				

Appendix F1

2023 Total Operation Reports

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ሻ	†	1		
Traffic Volume (vph)	9	100	54	307	339	11	
Future Volume (vph)	9	100	54	307	339	11	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0	110.0			0.0	
Storage Lanes	1	0	1			0	
Taper Length (m)	7.5		65.0				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.876				0.996		
Flt Protected	0.996		0.950				
Satd. Flow (prot)	1599	0	1671	1681	1851	0	
Flt Permitted	0.996		0.950				
Satd. Flow (perm)	1599	0	1671	1681	1851	0	
Link Speed (k/h)	50			60	60		
Link Distance (m)	484.7			166.2	474.5		
Travel Time (s)	34.9			10.0	28.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	4%	8%	13%	2%	9%	
Adj. Flow (vph)	10	109	59	334	368	12	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	119	0	59	334	380	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	3.6			3.6	3.6		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	4.8			4.8	4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25	15	25			15	
Sign Control	Stop			Free	Free		
Intersection Summary							
	Other						
Control Type: Unsignalized	Julion						
Intersection Capacity Utilizat	ion 38 5%			IC	ا امرادا	of Service A	Δ
Analysis Period (min) 15	1011 30.3 /0			- 10	O Level (JI GELVICE F	_
Analysis Feliou (IIIII) 15							

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ች	†	f >		
Traffic Volume (veh/h)	9	100	54	307	339	11	
Future Volume (Veh/h)	9	100	54	307	339	11	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	10	109	59	334	368	12	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	826	374	380				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	826	374	380				
tC, single (s)	6.4	6.2	4.2				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.3				
p0 queue free %	97	84	95				
cM capacity (veh/h)	327	668	1146				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	119	59	334	380			
Volume Left	10	59	0	0			
Volume Right	109	0	0	12			
cSH	614	1146	1700	1700			
Volume to Capacity	0.19	0.05	0.20	0.22			
Queue Length 95th (m)	5.4	1.2	0.0	0.0			
Control Delay (s)	12.3	8.3	0.0	0.0			
Lane LOS	В	Α					
Approach Delay (s)	12.3	1.2		0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			2.2				
Intersection Capacity Utiliza	ation		38.5%	IC	CU Level of	Service	
Analysis Period (min)			15				
,							

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EBL	EBR	NBL	NBT	SBT	SBR
W		7	†	1>	
10	59	30	347	430	18
10	59	30	347	430	18
1900	1900	1900	1900	1900	1900
0.0	0.0	30.0			0.0
1	0	1			0
7.5		25.0			
1.00	1.00	1.00	1.00	1.00	1.00
0.885				0.994	
0.993		0.950			
1563	0	1517	1712	1826	0
0.993		0.950			
1563	0	1517	1712	1826	0
50			50	60	
418.5			96.3	248.9	
30.1			6.9	14.9	
		2			2
0.92	0.92	0.92	0.92	0.92	0.92
0%	8%	19%	11%	3%	13%
11	64	33	377	467	20
75	0	33	377	487	0
No	No	No	No	No	No
Left	Right	Left	Left	Left	Right
3.6	Ů		3.6	3.6	
0.0			0.0	0.0	
4.8			4.8	4.8	
1.00	1.00	1.00	1.00	1.00	1.00
25	15	25			15
Stop			Free	Free	
Other					
tion 35.8%			IC	CU Level o	of Service A
					,
	EBL 100 100 100 100 100 100 100 100 100 10	EBL EBR 10 59 10 59 1900 1900 0.0 0.0 1 0 7.5 1.00 1.00 0.885 0.993 1563 0 0.993 1563 0 418.5 30.1 0.92 0.92 0% 8% 11 64 75 0 No No Left Right 3.6 0.0 4.8 1.00 1.00 25 15 Stop	EBL EBR NBL 10 59 30 10 59 30 100 1900 1900 0.0 0.0 30.0 1 0 1 0 1 7.5 25.0 1.00 1.00 1.00 0.885 0.993 0.950 1563 0 1517 0.993 0.950 1563 0 1517 50 418.5 30.1 2 0.92 0.92 0.92 0% 8% 19% 11 64 33 No No No No Left Right Left 3.6 0.0 4.8 1.00 1.00 1.00 25 15 25 Stop Other	EBL EBR NBL NBT 10 59 30 347 100 59 30 347 1900 1900 1900 1900 0.0 0.0 30.0 1 0 1 7.5 25.0 1.00 1.00 1.00 1.00 0.885 0.993 0.950 1563 0 1517 1712 0.993 0.950 1563 0 1517 1712 0.993 0.950 1563 0 1517 1712 0.993 0.950 1663 0 1517 1712 0.993 0.950 1	EBL EBR NBL NBT SBT 10 59 30 347 430 190 190 1900 1900 1900 190 1900 1900 1900 1900 1 0 1 7.5 25.0 1.00 1.00 1.00 1.00 1.00 0.885 0.993 0.950 1563 0 1517 1712 1826 0.993 0.950 1563 0 1517 1712 1826 50 50 60 60 418.5 96.3 248.9 30.1 2 0.92 0.92 0.92 0.92 0.92 0% 8% 19% 11% 3% 11 64 33 377 467 75 0 33 377 487 No 3.6 3.6 3.6 </td

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		*	^	1>	
Traffic Volume (veh/h)	10	59	30	347	430	18
Future Volume (Veh/h)	10	59	30	347	430	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	64	33	377	467	20
Pedestrians	2					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	922	479	489			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	922	479	489			
tC, single (s)	6.4	6.3	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.4			
p0 queue free %	96	89	97			
cM capacity (veh/h)	292	574	990			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	75	33	377	487		
Volume Left	11	33	0	0		
Volume Right	64	0	0	20		
cSH	502	990	1700	1700		
Volume to Capacity	0.15	0.03	0.22	0.29		
Queue Length 95th (m)	4.0	0.08	0.0	0.0		
Control Delay (s)	13.4	8.8	0.0	0.0		
Lane LOS	В	Α.	0.0	0.0		
Approach Delay (s)	13.4	0.7		0.0		
Approach LOS	В	3.1		0.0		
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utiliz	zation		35.8%	ıc	CU Level of	Service
Analysis Period (min)	Laudii		15	IC	O FEASI OI	OGI VICE
Alialysis i Gilou (IIIII)			10			

Total (2023) AM Peak Hour HCM Unsignalized Intersection Capacity Analysis 8: St David St (Hwy 6) & Site Driveway

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ની	1₃	
Traffic Volume (vph)	8	12	4	353	436	3
Future Volume (vph)	8	12	4	353	436	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.999	
Flt Protected	0.980			0.999		
Satd. Flow (prot)	1713	0	0	1861	1861	0
Flt Permitted	0.980			0.999		
Satd. Flow (perm)	1713	0	0	1861	1861	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	182.7			248.9	166.2	
Travel Time (s)	13.2			14.9	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	9	13	4	384	474	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	388	477	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 33.1%			IC	U Level	of Service A
Analysis Period (min) 15						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥			4	1		
Traffic Volume (veh/h)	8	12	4	353	436	3	
Future Volume (Veh/h)	8	12	4	353	436	3	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	9	13	4	384	474	3	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	868	476	477				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	868	476	477				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	97	98	100				
cM capacity (veh/h)	324	593	1096				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	22	388	477				
Volume Left	9	4	0				
Volume Right	13	0	3				
cSH	443	1096	1700				
Volume to Capacity	0.05	0.00	0.28				
Queue Length 95th (m)	1.2	0.1	0.0				
Control Delay (s)	13.5	0.1	0.0				
Lane LOS	В	Α					
Approach Delay (s)	13.5	0.1	0.0				
Approach LOS	В						
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utiliza	ation		33.1%	IC	CU Level o	f Service	
Analysis Period (min)			15				
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ሻ	*	1		
Traffic Volume (vph)	18	95	136	440	422	14	
Future Volume (vph)	18	95	136	440	422	14	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0	110.0			0.0	
Storage Lanes	1	0	1			0	
Taper Length (m)	7.5		65.0				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.887				0.996		
Flt Protected	0.992		0.950				
Satd. Flow (prot)	1603	0	1671	1681	1851	0	
Flt Permitted	0.992		0.950				
Satd. Flow (perm)	1603	0	1671	1681	1851	0	
Link Speed (k/h)	50			60	60		
Link Distance (m)	484.7			164.8	474.5		
Travel Time (s)	34.9			9.9	28.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	6%	4%	8%	13%	2%	9%	
Adj. Flow (vph)	20	103	148	478	459	15	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	123	0	148	478	474	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	3.6			3.6	3.6		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	4.8			4.8	4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25	15	25			15	
Sign Control	Stop			Free	Free		
Intersection Summary							
	Other						
Control Type: Unsignalized							
Intersection Capacity Utilizat	ion 47.5%			IC	CU Level	of Service A	Α
Analysis Period (min) 15						2. 30. 1.30 /	
lalysis Period (min) 15							

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		*	†	1>	-	_
Traffic Volume (veh/h)	18	95	136	440	422	14	
Future Volume (Veh/h)	18	95	136	440	422	14	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	20	103	148	478	459	15	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1240	466	474				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1240	466	474				
tC, single (s)	6.5	6.2	4.2				
tC, 2 stage (s)							
tF (s)	3.6	3.3	2.3				
p0 queue free %	88	83	86				
cM capacity (veh/h)	163	592	1057				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	123	148	478	474			
Volume Left	20	148	0	0			
Volume Right	103	0	0	15			
cSH	415	1057	1700	1700			
Volume to Capacity	0.30	0.14	0.28	0.28			
Queue Length 95th (m)	9.3	3.7	0.0	0.0			
Control Delay (s)	17.3	9.0	0.0	0.0			
Lane LOS	С	Α					
Approach Delay (s)	17.3	2.1		0.0			
Approach LOS	С						
Intersection Summary							
Average Delay			2.8				
Intersection Capacity Utiliz	ation		47.5%	IC	CU Level of	Service	
Analysis Period (min)			15				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		1	^	f)	
Traffic Volume (vph)	26	96	88	557	487	29
Future Volume (vph)	26	96	88	557	487	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.894				0.992	
Flt Protected	0.990		0.950			
Satd. Flow (prot)	1609	0	1805	1827	1768	0
Flt Permitted	0.990		0.950			
Satd. Flow (perm)	1609	0	1805	1827	1768	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	250.3	
Travel Time (s)	30.1			6.9	15.0	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	14%	2%	0%	4%	7%	0%
Adj. Flow (vph)	28	104	96	605	529	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	0	96	605	561	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 49.7%			10	CU Level	of Service A
Analysis Period (min) 15					-	
aiyəiə Feliou (IIIII) 13						

Affic Volume (Veh/h) 26 96 88 557 487 29 and Control Stop adde 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%		•	*	1	†	↓	4	
Affic Volume (Veh/h) 26 96 88 557 487 29 and Control Stop adde 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	Novement	EBL	EBR	NBL	NBT	SBT	SBR	
affic Volume (veh/h)								
ture Volume (Veh/h) 26 96 88 557 487 29 n Control Stop Free Free add			96				29	
Stop		26	96	88	557	487	29	
ade		Stop			Free	Free		
None None	Grade							
purly flow rate (vph)	Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	
Section Sect								
alking Speed (m/s) rcent Blockage 0 grit turn flare (veh) ddian type None None steram signal (m) splaton unblocked c, conflicting volume 1347 550 566 11, stage 1 conf vol 22, stage 2 conf vol u, unblocked vol single (s) 6.5 6.2 4.1 2 stage (s) (s) 3.6 3.3 2.2 queue free % 80 80 91 1 capacity (veh/h) 142 533 1012 rection, Lane # EB1 NB1 NB2 SB1 elume Total 132 96 605 561 elume Right 104 0 0 32 H 336 1012 1700 1700 elume Right 104 0 0 32 H 336 1012 1700 1700 elume Right 104 0 0 32 H 336 1012 1700 1700 elume Right 104 0 0 0 32 H 336 1012 1700 1700 elume Lography (s) 22.5 8.9 0.0 0.0 elume Logy (s) 22.5 8.9 0.0 0.0 elume Logy (s) 22.5 8.9 0.0 0.0 elume Logy (s) 22.5 1.2 0.0	Pedestrians						, <u>-</u>	
alking Speed (m/s) rcent Blockage 0 grit turn flare (veh) ddian type None None steram signal (m) splaton unblocked c, conflicting volume 1347 550 566 11, stage 1 conf vol 22, stage 2 conf vol u, unblocked vol single (s) 6.5 6.2 4.1 2 stage (s) (s) 3.6 3.3 2.2 queue free % 80 80 91 1 capacity (veh/h) 142 533 1012 rection, Lane # EB1 NB1 NB2 SB1 elume Total 132 96 605 561 elume Right 104 0 0 32 H 336 1012 1700 1700 elume Right 104 0 0 32 H 336 1012 1700 1700 elume Right 104 0 0 32 H 336 1012 1700 1700 elume Right 104 0 0 0 32 H 336 1012 1700 1700 elume Lography (s) 22.5 8.9 0.0 0.0 elume Logy (s) 22.5 8.9 0.0 0.0 elume Logy (s) 22.5 8.9 0.0 0.0 elume Logy (s) 22.5 1.2 0.0								
orcent Blockage 0 ght turn flare (veh) dedian type								
ght turn flare (veh) ddian type	Percent Blockage							
Addian type	Right turn flare (veh)							
adian storage veh) stream signal (m) ., platoon unblocked ., conflicting volume 1347 550 566 11, stage 1 conf vol .u, unblocked vol .u, unblocked vol .single (s) 2 stage 2 conf vol .u, unblocked vol .single (s) 6.5 6.2 4.1 2 stage (s) (s) 3.6 3.3 2.2 queue free % 80 80 91 1 capacity (veh/h) 142 533 1012 rection, Lane # EB1 NB1 NB2 SB1 Illume Total 132 96 605 561 Illume Right 104 0 0 32 Illume Right 104 0 0 32 Illume Right 104 0 0 32 Illume Right 104 0 0 32 Illume Left 28 96 0 0 Illume Right 104 0 0 32 Illume Left 104 0 0 32 Illume Left 105 96 00 0 Illume Right 106 00 0 Illume Right 107 1700 Illume Legacity 108 00 0 0 Illume Legacity 109 0.39 0.09 0.36 0.33 Illume Legacity 109 0.39 0.09 0.36 0.33 Illume Legacity 109 0.39 0.09 0.36 0.33 Illume Legacity 109 0.39 0.09 0.36 0.33 Illume Legacity 109 0.39 0.09 0.36 0.33 Illume Legacity 109 0.39 0.09 0.36 0.33 Illume Legacity 109 0.39 0.09 0.36 0.33 Illume Legacity 109 0.39 0.09 0.36 0.33 Illume Legacity 109 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	Median type				None	None		
setream signal (m) , platoon unblocked , conflicting volume 1347 550 566 11, stage 1 conf vol 12, stage 2 conf vol 12, stage 2 conf vol 12, unblocked vol 1347 550 566 1341 550 566 1351 566 14.1 14.1 15.2 15.3 15.3 15.3 15.3 15.3 15.3 15.3 15.3	Median storage veh)							
i, platon unblocked c, conflicting volume 1347 550 566 11, stage 1 conf vol 2, stage 2 conf vol 2, stage 2 conf vol 347 550 566 12, unblocked vol 1347 550 566 13, single (s) 6.5 6.2 4.1 2, stage (s) (s) 3.6 3.3 2.2 queue free % 80 80 91 1 capacity (veh/h) 142 533 1012 1 cection, Lane # EB 1 NB 1 NB 2 SB 1 1 slume Total 132 96 605 561 1 slume Left 28 96 0 0 1 slume Right 104 0 0 32 1 slume Right 104 0 0 32 1 slume to Capacity 0.39 0.09 0.36 0.33 1 useue Length 95th (m) 13.8 2.4 0.0 0.0 1 ntrol Delay (s) 22.5 8.9 0.0 0.0 1 net LOS C C 1 proach Delay (s) 22.5 1.2 0.0	Jpstream signal (m)							
Conflicting volume	X, platoon unblocked							
11, stage 1 conf vol 12, stage 2 conf vol 1347 550 566	C, conflicting volume	1347	550	566				
2, stage 2 conf vol 1347 550 566	C1, stage 1 conf vol							
A	C2, stage 2 conf vol							
2 stage (s) (s) 3.6 3.3 2.2 queue free % 80 80 91 I capacity (veh/h) 142 533 1012 rection, Lane # EB1 NB1 NB2 SB1 Illume Total 132 96 605 561 Illume Right 104 0 0 32 H 336 1012 1700 1700 Illume to Capacity 0.39 0.09 0.36 0.33 ueue Length 95th (m) 13.8 2.4 0.0 0.0 Introl Delay (s) 22.5 8.9 0.0 0.0 Introl Delay (s) 22.5 1.2 0.0	Cu, unblocked vol	1347	550	566				
, 2 stage (s) (s)	C, single (s)	6.5	6.2	4.1				
(s) 3.6 3.3 2.2 queue free % 80 80 91 I capacity (vel/h) 142 533 1012 recetion, Lane # EB 1 NB 1 NB 2 SB 1 Illume Total 132 96 605 561 Illume Left 28 96 0 0 Illume Right 104 0 0 32 H 336 1012 1700 1700 Illume to Capacity 0.39 0.09 0.36 0.33 ueue Length 95th (m) 13.8 2.4 0.0 0.0 Introl Delay (s) 22.5 8.9 0.0 0.0 Introl Delay (s) 22.5 1.2 0.0	C, 2 stage (s)							
queue free % 80 80 91 capacity (veh/h) 142 533 1012 rection, Lane # EB 1 NB 1 NB 2 SB 1 slume Total 132 96 605 561 slume Right 104 0 0 32 H 336 1012 1700 1700 slume to Capacity 0.39 0.09 0.36 0.33 sleue Length 95th (m) 13.8 2.4 0.0 0.0 ontrol Delay (s) 22.5 8.9 0.0 0.0 net LOS C A C A proach Delay (s) 22.5 1.2 0.0	F (s)	3.6	3.3	2.2				
rection, Lane # EB 1 NB 1 NB 2 SB 1 Illume Total 132 96 605 561 Illume Right 28 96 0 0 0 Illume Right 104 0 0 32 H 336 1012 1700 1700 Illume to Capacity 0.39 0.09 0.36 0.33 ILLUME Length 95th (m) 13.8 2.4 0.0 0.0 Introl Delay (s) 22.5 8.9 0.0 0.0 ILLUME LOSS C A ILLUME TOTAL TOT	0 queue free %	80	80	91				
lume Total 132 96 605 561 slume Left 28 96 0 0 0 slume Right 104 0 0 32 H 336 1012 1700 1700 slume to Capacity 0.39 0.09 0.36 0.33 see Length 95th (m) 13.8 2.4 0.0 0.0 shrtol Delay (s) 22.5 8.9 0.0 0.0 nee LOS C A proach Delay (s) 22.5 1.2 0.0	M capacity (veh/h)	142	533	1012				
lume Total 132 96 605 561 slume Left 28 96 0 0 0 slume Right 104 0 0 32 H 336 1012 1700 1700 slume to Capacity 0.39 0.09 0.36 0.33 seue Length 95th (m) 13.8 2.4 0.0 0.0 shtrol Delay (s) 22.5 8.9 0.0 0.0 net LOS C A proach Delay (s) 22.5 1.2 0.0	irection I ane #	FR 1	NR 1	NR 2	SR 1			
blume Left 28 96 0 0 Ilume Right 104 0 0 32 H 336 1012 1700 1700 Ilume to Capacity 0.39 0.09 0.36 0.33 ueue Length 95th (m) 13.8 2.4 0.0 0.0 ntrol Delay (s) 22.5 8.9 0.0 0.0 ne LOS C A C proach Delay (s) 22.5 1.2 0.0	<u> </u>							
Hume Right 104 0 0 32 H 336 1012 1700 1700 Hume to Capacity 0.39 0.09 0.36 0.33 Hueu Length 95th (m) 13.8 2.4 0.0 0.0 Huber to Capacity 0.39 0.09 0.0 0.0 Huber to Capacity 0.39 0.0 0.0 Huber to Capacity 0.39 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.0 0.0 Huber to Capacity 0.39								
H 336 1012 1700 1700 slume to Capacity 0.39 0.09 0.36 0.33 sleue Length 95th (m) 13.8 2.4 0.0 0.0 suntrol Delay (s) 22.5 8.9 0.0 0.0 ne LOS C A sproach Delay (s) 22.5 1.2 0.0								
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ne LOS C A proach Delay (s) 22.5 1.2 0.0								
proach Delay (s) 22.5 1.2 0.0	ane LOS			0.0	0.0			
					0.0			
	Approach LOS		1.2		0.0			
ersection Summary	ntersection Summary							
	Average Delay			2.7				
ersection Capacity Utilization 49.7% ICU Level of Service A		zation			IC	CU Level of	Service	А
	Analysis Period (min)				10	2 20.0101		

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	- 1}	
Traffic Volume (vph)	6	7	13	570	509	8
Future Volume (vph)	6	7	13	570	509	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928				0.998	
Flt Protected	0.977			0.999		
Satd. Flow (prot)	1723	0	0	1862	1860	0
Flt Permitted	0.977			0.999		
Satd. Flow (perm)	1723	0	0	1862	1860	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	210.3			250.3	164.8	
Travel Time (s)	15.1			15.0	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	7	8	14	620	553	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	634	562	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 50.4%			IC	CU Level	of Service A
Analysis Period (min) 15						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W			ની	1>		
Traffic Volume (veh/h)	6	7	13	570	509	8	
Future Volume (Veh/h)	6	7	13	570	509	8	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	7	8	14	620	553	9	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1206	558	562				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1206	558	562				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	97	99	99				
cM capacity (veh/h)	202	533	1019				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	15	634	562				
Volume Left	7	14	0				
Volume Right	8	0	9				
cSH	302	1019	1700				
Volume to Capacity	0.05	0.01	0.33				
Queue Length 95th (m)	1.2	0.3	0.0				
Control Delay (s)	17.5	0.4	0.0				
Lane LOS	С	Α					
Approach Delay (s)	17.5	0.4	0.0				
Approach LOS	С						
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utilization	on		50.4%	IC	CU Level o	f Service	
Analysis Period (min)			15				
, ,							

Appendix F2

2028 Total Operation Reports

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		*	A	₽	
Traffic Volume (vph)	10	110	59	338	374	13
Future Volume (vph)	10	110	59	338	374	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		65.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.876				0.996	
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1599	0	1671	1681	1851	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1599	0	1671	1681	1851	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	484.7			166.2	474.5	
Travel Time (s)	34.9			10.0	28.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	8%	13%	2%	9%
Adj. Flow (vph)	11	120	64	367	407	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	0	64	367	421	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: (Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 41.2%			IC	CU Level	of Service A
Analysis Period (min) 15						

	•	\rightarrow		†	↓	4	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥			+	₽		
Traffic Volume (veh/h)	10	110	59	338	374	13	
uture Volume (Veh/h)	10	110	59	338	374	13	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	11	120	64	367	407	14	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Jpstream signal (m)							
pX, platoon unblocked							
C, conflicting volume	909	414	421				
C1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	909	414	421				
C, single (s)	6.4	6.2	4.2				
C, 2 stage (s)							
tF (s)	3.5	3.3	2.3				
p0 queue free %	96	81	94				
cM capacity (veh/h)	290	634	1107				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
/olume Total	131	64	367	421			
Volume Left	11	64	0	0			
Volume Right	120	0	0	14			
SH	577	1107	1700	1700			
Volume to Capacity	0.23	0.06	0.22	0.25			
Queue Length 95th (m)	6.6	1.4	0.0	0.0			
Control Delay (s)	13.1	8.5	0.0	0.0			
Lane LOS	В	Α					
Approach Delay (s)	13.1	1.3		0.0			
Approach LOS	В						
ntersection Summary							
verage Delay			2.3				
ntersection Capacity Utiliz	ation		41.2%	IC	CU Level of	Service	Α
Analysis Period (min)			15				
, ,							

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		ሻ		f)	
Traffic Volume (vph)	11	64	33	383	473	19
Future Volume (vph)	11	64	33	383	473	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.885				0.995	
Flt Protected	0.993		0.950			
Satd. Flow (prot)	1563	0	1517	1712	1828	0
Flt Permitted	0.993		0.950			
Satd. Flow (perm)	1563	0	1517	1712	1828	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	248.9	
Travel Time (s)	30.1			6.9	14.9	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	19%	11%	3%	13%
Adj. Flow (vph)	12	70	36	416	514	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	0	36	416	535	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 38.7%			IC	CU Level	of Service A
Analysis Period (min) 15						
, , ,						

Movement		•	*	4	†	↓	4	
Lane Configurations Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume (veh/h) Traffic Volume Veh/h) Traffic Volume Veh/h Traffic Veh/h Tr	Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Traffic Volume (veh/h)		W		*	4	î.		
Future Volume (Veh/h) 11 64 33 383 473 19 Sign Control Stop Free Free Grade 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%			64				19	
Sign Control Stop		11	64	33	383	473	19	
Oracle		Ston			Free	Free		
Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 Hourly flow rate (vph) 12 70 36 416 514 21 Pedestrians 2 2 Lane Width (m) 3.6 Walking Speed (m/s) 1.2 Percent Blockage 0 Right turn flare (veh) Median type None None Median storage veh) Upstream signal (m) XX, platoon unblocked vC, conflicting volume 1014 526 537 VC2, stage 1 conf vol vCQ, stage 2 conf vol VCQ, stage 1 conf vol vCQ, stage 1 conf vol vCQ, stage 1 conf vol vCQ, stage 3 conf vol vCQ, stage 4 conf vol vCQ, stage 5 conf vol vCQ, stage 6 conf vol vCQ, stage 8 conf vol vCQ, stage 1 c								
Hourly flow rate (vph) 12 70 36 416 514 21 Pedestrians 2 Lane Width (m) 3.6 Walking Speed (m/s) 1.2 Percent Blockage 0 Right turn flare (veh) Median type	Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	
Pedestrians 2 ane Width (m) 3.6 Walking Speed (m/s) 1.2 Percent Blockage 0 Right turn flare (veh) Wedian storage veh) Upstream signal (m) XX, platon unblocked CC, conflicting volume 1014 526 537 CC1, stage 2 conf vol CC2, stage 2 conf vol CC3, stage 2 conf vol CC4, unblocked vol CC4, stage 2 conf vol CC5, single (s) 6.4 6.3 4.3 CC7, 2 stage (s) F (s) 3.5 3.4 2.4 Du queue free % 95 87 96 CM capacity (veh/h) 256 539 949 Direction, Lane # EB1 NB1 NB2 SB1 Volume Total 82 36 416 535 Volume Right 70 0 0 21 CSH 464 949 1700 1700 Volume Right 70 0 0 21 CSH 464 949 1700 1700 Volume Coapacity 0.18 0.04 0.24 0.31 Cueue Length 95th (m) 4.8 0.9 0.0 0.0 Cane Loos B A Approach Delay (s) 14.4 0.7 0.0 Approach LOS B Intersection Summary Average Delay 1.4								
Ane Width (m) 3.6 Valking Speed (m/s) 1.2 Percent Blockage 0 Right turn flare (veh) Median type None None Median storage veh) Justream signal (m) XX, platoon unblocked CC, conflicting volume 1014 526 537 CC1, stage 1 conf vol CC2, stage 2 conf vol CC2, stage 1 conf vol CC2, stage 1 conf vol CC2, stage 1 conf vol CC3, stage 1 conf vol CC4, stage 1 conf vol CC5, stage 1 conf vol CC9, stage 1 conf vol CC9, stage 1 conf vol CC1, stage 1 conf vol CC1, stage 1 conf vol CC2, stage 2 conf vol CO3, stage 1 conf vol CO4, stage 1 conf vol CC9, stage 1 conf vol CO5, stage 1 conf vol CO5, stage 1 conf vol CO5, stage 1 conf vol CO6, stage 1 conf vol CO6, stage 1 conf vol CO7, stage 1 conf vol CO8, stage 1 conf vol CO9, stage 1 conf vol CO1, stage 1 conf vol CO1, stage 1 conf vol CO2, stage 2 conf vol CO2, stage 1 conf vol CO3, stage 1 conf vol CO5, stage 1 conf vol CO6, stage 1 conf vol CO6, stage 1 conf vol CO7, stage 1 conf vol CO7, stage 2 conf vol CO7, stage 1 conf vol CO7, stage 1 conf vol CO7, stage 2 conf vol CO7, stage 1 conf vol CO7, stage 2 conf vol CO7, stage 1 conf vol CO7, stage 1 conf vol CO7, stage 2 conf vol CO7, stage 1 con					110	0		
Walking Speed (m/s) 1.2 Percent Blockage 0 Right turn flare (veh) None Median storage veh) None Upstream signal (m) None XX, platoon unblocked C., conflicting volume CC, stage 1 conf vol 1014 CQ, stage 2 conf vol 700 CQ, stage (s) 6.4 F (s) 3.5 A) Queue free % 95 B) M capacity (veh/h) 256 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total A2 36 416 535 70 Olume Right 70 0 0 21 SSH 464 464 949 1700 Volume Left 12 36 0 Outure to Capacity 0.18 0.0 0 Oueue Length 95th (m) 4.8 0.9 0.0 0.0 Deuce Length 95th (m) 4.8 0.9 0.0 0.0 Approach Delay (s) 14.4 8.9 0.0 0.0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Percent Blockage 0 Right turn flare (veh) Redian type								
Right turn flare (veh) Median type Median storage veh) Upstream signal (m) XX, platon unblocked CC, conflicting volume CCJ, stage 1 conf vol CCJ, stage 2 conf vol CCJ, stage 2 conf vol CCJ, stage (s) C, single (s) C, single (s) C, single (s) C, single (s) C, stage (s)								
Median type None None Median storage veh) Upstream signal (m) pX, platoon unblocked vC, conflicting volume 1014 526 537 vC1, stage 1 conf vol vC2, stage 2 conf vol vCU, unblocked vol 1014 526 537 vC2, stage (s) 6.4 6.3 4.3 4.3 4.3 vC2, stage (s) 15 (s) 3.5 3.4 2.4 4.4 4.4 4.6 4.8 4.6 4.8 4.6 4.8 4.6 4.8 4.8 4.6 4.8 4.8 4.8 4.8 4.8 4.6 4.8 4.8 4.6 4.8 4.8 4.6 4.8 4.8 4.8								
Median storage veh) Upstream signal (m) Dpstream signal (m) Xx, platoon unblocked VC, conflicting volume 1014 526 537 VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, single (s) C, single (s) C, single (s) C, 2 stage (s) F(s) 3,5 3,4 2,4 30 queue free % 95 87 96 0M capacity (veh/h) 256 539 949 Direction, Lane # EB1 NB1 NB2 SB1 Volume Total 82 36 416 535 Volume Left 12 36 0 0 Volume Left 12 36 0 0 Volume Right 70 0 0 21 SSH 464 949 1700 1700 Volume Loracity Volume Copacity Volume Copacity Volume Loracity Volume Loracity 0,18 0,04 0,24 0,31 Queue Length 95th (m) 4,8 0,9 0,0 0,0 Control Delay (s) 14,4 8,9 0,0 0,0 Approach Delay (s) 14,4 0,7 0,0 Approach LOS B Intersection Summary Average Delay 1,4					None	None		
Upstream signal (m) XX, platoon unblocked VC, conflicting volume VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC2, stage (s) KF (s) 3.5 3.4 2.4 D0 queue free % 95 81 82 36 416 535 Volume Total 82 36 416 535 Volume Right 70 0 0 0 0 0 0 0 0 0 0 0 0								
DX, platoon unblocked WC, conflicting volume VC1, stage 1 conf vol WC2, stage 2 conf vol WC2, stage 2 conf vol WC2, unblocked vol C, single (s) C, stage (s) C, stage (s) F(s) S, stage (s) F(s) F(s) S, stage (s) F(s) F(s) S, stage (s) F(s) F(s) F(s) F(s) F(s) S, stage (s) F(s) F(s) F(s) F(s) F(s) F(s) F(s) F								
VC, conflicting volume VC1, stage 1 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC2, stage 1 conf vol VC2, stage 2 conf vol VC2, unblocked vol 1014 526 537 CC, 2 stage (s) UC, 2 sta								
vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, unblocked vol CC, single (s) CC, single (s) CC, single (s) CC, single (s) CC, single (s) CC, stage (s) CC,		1014	526	537				
VC2, stage 2 conf vol VCU, unblocked vol VCU, unblocked vol (C, single (s) (C, si								
vCu, unblocked vol 1014 526 537 IC, single (s) 6.4 6.3 4.3 IC, 2 stage (s) IET (s) 3.5 3.4 2.4 p0 queue free % 95 87 96 OM capacity (veh/h) 256 539 949 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 82 36 416 535 Volume Right 70 0 0 21 cSH 464 949 1700 1700 Volume Right 70 0.18 0.04 0.24 0.31 Queue Length 95th (m) 4.8 0.9 0.0 0.0 Control Delay (s) 14.4 8.9 0.0 0.0 Lane LOS B A Approach LOS B Intersection Summary Average Delay 1.4								
IC, single (s) 6.4 6.3 4.3 IC, 2 stage (s) 5 7 96 IC (stage (s) 6 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 7 96 IC (stage (s) 8 1 94 IC (stage (stage (s) 94 IC (stage (stage (s) 94 IC (stage (stage (s) 94 IC (stage (stage (stage (1014	526	537				
IC, 2 stage (s) IF (s) 3.5 3.4 2.4 p0 queue free % 95 87 96 Olume To Capacity (veh/h) 256 539 949 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 82 36 416 535 Volume Left 12 36 0 0 Volume Right 70 0 0 21 cSH 464 949 1700 1700 Volume to Capacity 0.18 0.04 0.24 0.31 Queue Length 95th (m) 4.8 0.9 0.0 0.0 Control Delay (s) 14.4 8.9 0.0 0.0 Lane LOS B A Approach Delay (s) 14.4 0.7 0.0 Approach LOS B Intersection Summary Average Delay 1.4		6.4	6.3	4.3				
If (s) 3.5 3.4 2.4 p0 queue free % 95 87 96 cM capacity (veh/h) 256 539 949 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 82 36 416 535 Volume Left 12 36 0 0 Volume Right 70 0 0 21 cSH 464 949 1700 1700 Volume to Capacity 0.18 0.04 0.24 0.31 Queue Length 95th (m) 4.8 0.9 0.0 0.0 Control Delay (s) 14.4 8.9 0.0 0.0 Lane LOS B A Approach Delay (s) 14.4 0.7 0.0 B Intersection Summary Average Delay 1.4								
p0 queue free % 95 87 96 CM capacity (veh/h) 256 539 949 Direction, Lane # EB1 NB1 NB2 SB1 Volume Total 82 36 416 535 Volume Left 12 36 0 0 Volume Right 70 0 0 21 cSH 464 949 1700 1700 Volume to Capacity 0.18 0.04 0.24 0.31 Queue Length 95th (m) 4.8 0.9 0.0 0.0 Control Delay (s) 14.4 8.9 0.0 0.0 Approach Delay (s) 14.4 0.7 0.0 Approach LOS B Intersection Summary Average Delay 1.4		3.5	3.4	2.4				
CM capacity (veh/h) 256 539 949 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 82 36 416 535 Volume Left 12 36 0 0 Volume Right 70 0 0 21 cSH 464 949 1700 1700 Volume to Capacity 0.18 0.04 0.24 0.31 Queue Length 95th (m) 4.8 0.9 0.0 0.0 Control Delay (s) 14.4 8.9 0.0 0.0 Lane LOS B A Approach Delay (s) 14.4 0.7 0.0 Approach LOS B Intersection Summary Average Delay 1.4		95	87	96				
Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 82 36 416 535 Volume Left 12 36 0 0 Volume Right 70 0 0 21 cSH 464 949 1700 1700 Volume to Capacity 0.18 0.04 0.24 0.31 Queue Length 95th (m) 4.8 0.9 0.0 0.0 Control Delay (s) 14.4 8.9 0.0 0.0 Lane LOS B A A Approach Delay (s) 14.4 0.7 0.0 Approach LOS B Intersection Summary Average Delay 1.4		256	539	949				
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Lane LOS B A Approach Delay (s) 14.4 0.7 0.0 Approach LOS B Intersection Summary Average Delay 1.4								
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Approach LOS B Intersection Summary Average Delay 1.4		_			0.0			
			0.7		0.0			
Average Delay 1.4	•	В						
ntersection Capacity Utilization 38.7% ICU Level of Service								
		ization			IC	CU Level of	Service	Α
Analysis Period (min) 15	Analysis Period (min)			15				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			ર્ન	1>	
Traffic Volume (vph)	8	12	4	389	480	3
Future Volume (vph)	8	12	4	389	480	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.999	
Flt Protected	0.980					
Satd. Flow (prot)	1713	0	0	1863	1861	0
Flt Permitted	0.980					
Satd. Flow (perm)	1713	0	0	1863	1861	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	182.7			248.9	166.2	
Travel Time (s)	13.2			14.9	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	9	13	4	423	522	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	427	525	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	tion 35.4%			IC	CU Level	of Service
Analysis Period (min) 15						

	•	*	1	†	↓	4
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			ની	<u>}</u>	
Traffic Volume (veh/h)	8	12	4	389	480	3
Future Volume (Veh/h)	8	12	4	389	480	3
Sign Control	Stop	·-		Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	13	4	423	522	3
Pedestrians		10	_	120	OLL	
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				None	None	
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	954	524	525			
vC1, stage 1 conf vol	904	324	323			
vC2, stage 2 conf vol						
vCu, unblocked vol	954	524	525			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.5	0.0	2.2			
tF (s)	3.5	3.3				
p0 queue free %	97	98	100			
cM capacity (veh/h)	288	558	1052			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	427	525			
Volume Left	9	4	0			
Volume Right	13	0	3			
cSH	403	1052	1700			
Volume to Capacity	0.05	0.00	0.31			
Queue Length 95th (m)	1.3	0.1	0.0			
Control Delay (s)	14.4	0.1	0.0			
Lane LOS	В	Α				
Approach Delay (s)	14.4	0.1	0.0			
Approach LOS	В					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utiliz	zation		35.4%	IC	CU Level o	f Service
Analysis Period (min)			15			. 5000
Analysis i Gilou (IIIII)			10			

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ሻ	†	^		
Traffic Volume (vph)	20	104	150	485	464	15	
Future Volume (vph)	20	104	150	485	464	15	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0	110.0			0.0	
Storage Lanes	1	0	1			0	
Taper Length (m)	7.5		65.0				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.887				0.996		
Flt Protected	0.992		0.950				
Satd. Flow (prot)	1602	0	1671	1681	1851	0	
Flt Permitted	0.992		0.950				
Satd. Flow (perm)	1602	0	1671	1681	1851	0	
Link Speed (k/h)	50			60	60		
Link Distance (m)	484.7			164.8	474.5		
Travel Time (s)	34.9			9.9	28.5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	6%	4%	8%	13%	2%	9%	
Adj. Flow (vph)	22	113	163	527	504	16	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	135	0	163	527	520	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	3.6			3.6	3.6		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	4.8			4.8	4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25	15	25			15	
Sign Control	Stop			Free	Free		
Intersection Summary							
Area Type:	Other						
Control Type: Unsignalized							
Intersection Capacity Utilizat	tion 51.2%			IC	CU Level	of Service A	Α
Analysis Period (min) 15							
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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		*	*	12	
Traffic Volume (veh/h)	20	104	150	485	464	15
Future Volume (Veh/h)	20	104	150	485	464	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	113	163	527	504	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1365	512	520			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1365	512	520			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.3			
p0 queue free %	84	80	84			
cM capacity (veh/h)	134	558	1016			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	135	163	527	520		
Volume Left	22	163	0	0		
Volume Right	113	0	0	16		
cSH	368	1016	1700	1700		
Volume to Capacity	0.37	0.16	0.31	0.31		
Queue Length 95th (m)	12.5	4.3	0.0	0.0		
Control Delay (s)	20.4	9.2	0.0	0.0		
Lane LOS	C	A	0.0	0.0		
Approach Delay (s)	20.4	2.2		0.0		
Approach LOS	С					
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utiliz	ation		51.2%	IC	CU Level of S	Service
Analysis Period (min)			15			
, marjore i enou (min)			10			

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		*		₽	
Traffic Volume (vph)	28	105	96	613	536	31
Future Volume (vph)	28	105	96	613	536	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.893				0.993	
Flt Protected	0.990		0.950			
Satd. Flow (prot)	1607	0	1805	1827	1770	0
Flt Permitted	0.990		0.950			
Satd. Flow (perm)	1607	0	1805	1827	1770	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	250.3	
Travel Time (s)	30.1			6.9	15.0	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	14%	2%	0%	4%	7%	0%
Adj. Flow (vph)	30	114	104	666	583	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	0	104	666	617	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized	Outor					
Intersection Capacity Utiliza	tion 53 5%			10	III ovol (of Service
Analysis Period (min) 15	11011 00.0 /0			IC	JO LGVEI (JI OCI VICE

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Movement	EBL	EBR	NBL	NBT	SBT :	SBR	
Lane Configurations	W		*	*	12		_
Traffic Volume (veh/h)	28	105	96	613	536	31	
Future Volume (Veh/h)	28	105	96	613	536	31	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	30	114	104	666	583	34	
Pedestrians	5						
Lane Width (m)	3.6						
Walking Speed (m/s)	1.2						
Percent Blockage	0						
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1479	605	622				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1479	605	622				
tC, single (s)	6.5	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.6	3.3	2.2				
p0 queue free %	74	77	89				
cM capacity (veh/h)	116	496	965				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	144	104	666	617			
Volume Left	30	104	0	0			
Volume Right	114	0	0	34			
cSH	294	965	1700	1700			
Volume to Capacity	0.49	0.11	0.39	0.36			
Queue Length 95th (m)	19.3	2.7	0.0	0.0			
Control Delay (s)	28.4	9.2	0.0	0.0			
Lane LOS	D	Α					
Approach Delay (s)	28.4	1.2		0.0			
Approach LOS	D						
Intersection Summary							
Average Delay			3.3				
Intersection Capacity Utiliza	ation		53.5%	IC	CU Level of S	Service	
Analysis Period (min)			15				
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			ર્ન	- ↑	
Traffic Volume (vph)	6	7	13	628	560	8
Future Volume (vph)	6	7	13	628	560	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928				0.998	
Flt Protected	0.977			0.999		
Satd. Flow (prot)	1723	0	0	1862	1860	0
Flt Permitted	0.977			0.999		
Satd. Flow (perm)	1723	0	0	1862	1860	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	210.3			250.3	164.8	
Travel Time (s)	15.1			15.0	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	7	8	14	683	609	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	697	618	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utiliza	ition 53.5%			IC	CU Level	of Service A
Analysis Period (min) 15						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W			ની	1>		
Traffic Volume (veh/h)	6	7	13	628	560	8	
Future Volume (Veh/h)	6	7	13	628	560	8	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	7	8	14	683	609	9	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1324	614	618				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1324	614	618				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	96	98	99				
cM capacity (veh/h)	171	496	972				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	15	697	618				
Volume Left	7	14	0				
Volume Right	8	0	9				
cSH	263	972	1700				
Volume to Capacity	0.06	0.01	0.36				
Queue Length 95th (m)	1.4	0.3	0.0				
Control Delay (s)	19.5	0.4	0.0				
Lane LOS	С	Α					
Approach Delay (s)	19.5	0.4	0.0				
Approach LOS	С						
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utiliz	ation		53.5%	IC	CU Level o	of Service	Α
Analysis Period (min)			15				
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Appendix F3

2033 Total Operation Reports

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		7	*	- 1}	
Traffic Volume (vph)	11	121	65	372	412	14
Future Volume (vph)	11	121	65	372	412	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		65.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.876				0.996	
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1599	0	1671	1681	1851	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1599	0	1671	1681	1851	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	484.7			166.2	474.5	
Travel Time (s)	34.9			10.0	28.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	8%	13%	2%	9%
Adj. Flow (vph)	12	132	71	404	448	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	0	71	404	463	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: C	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 44.2%			IC	CU Level o	of Service A
Analysis Period (min) 15						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		*	*	1→		
Traffic Volume (veh/h)	11	121	65	372	412	14	
Future Volume (Veh/h)	11	121	65	372	412	14	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	12	132	71	404	448	15	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1002	456	463				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1002	456	463				
tC, single (s)	6.4	6.2	4.2				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.3				
p0 queue free %	95	78	93				
cM capacity (veh/h)	253	601	1067				
		LID 4	NID 0	00.4			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	144	71	404	463			
Volume Left	12	71	0	0			
Volume Right	132	0	0	15			
cSH	539	1067	1700	1700			
Volume to Capacity	0.27	0.07	0.24	0.27			
Queue Length 95th (m)	8.1	1.6	0.0	0.0			
Control Delay (s)	14.1	8.6	0.0	0.0			
Lane LOS	В	Α					
Approach Delay (s)	14.1	1.3		0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			2.4				
Intersection Capacity Utiliz	ation		44.2%	IC	CU Level of	Service	
Analysis Period (min)			15				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥		*	A	₽	
Traffic Volume (vph)	11	70	36	422	521	21
Future Volume (vph)	11	70	36	422	521	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		25.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.883				0.995	
Flt Protected	0.993		0.950			
Satd. Flow (prot)	1558	0	1517	1712	1829	0
Flt Permitted	0.993		0.950			
Satd. Flow (perm)	1558	0	1517	1712	1829	0
Link Speed (k/h)	50			50	60	
Link Distance (m)	418.5			96.3	248.9	
Travel Time (s)	30.1			6.9	14.9	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	8%	19%	11%	3%	13%
Adj. Flow (vph)	12	76	39	459	566	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	39	459	589	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	Ŭ
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized	0 0 101					
Intersection Capacity Utiliza	tion 41 5%			10	:III evel	of Service
Analysis Period (min) 15	uon -/1.070			- 10	JO LOVOI (JI 00/ 1/100

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		*	*	1>		_
Traffic Volume (veh/h)	11	70	36	422	521	21	
Future Volume (Veh/h)	11	70	36	422	521	21	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	12	76	39	459	566	23	
Pedestrians	2						
Lane Width (m)	3.6						
Walking Speed (m/s)	1.2						
Percent Blockage	0						
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1116	580	591				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1116	580	591				
tC, single (s)	6.4	6.3	4.3				
tC, 2 stage (s)							
tF (s)	3.5	3.4	2.4				
p0 queue free %	95	85	96				
cM capacity (veh/h)	221	503	905				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	88	39	459	589			
Volume Left	12	39	0	0			
Volume Right	76	0	0	23			
cSH	428	905	1700	1700			
Volume to Capacity	0.21	0.04	0.27	0.35			
Queue Length 95th (m)	5.8	1.0	0.0	0.0			
Control Delay (s)	15.6	9.2	0.0	0.0			
Lane LOS	С	Α					
Approach Delay (s)	15.6	0.7		0.0			
Approach LOS	С						
Intersection Summary							
Average Delay			1.5				
Intersection Capacity Utiliza	ation		41.5%	IC	CU Level of	Service	
Analysis Period (min)			15		•		
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	**			ર્ન	- ↑	
Traffic Volume (vph)	8	12	4	428	530	3
Future Volume (vph)	8	12	4	428	530	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.999	
Flt Protected	0.980					
Satd. Flow (prot)	1713	0	0	1863	1861	0
Flt Permitted	0.980					
Satd. Flow (perm)	1713	0	0	1863	1861	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	182.7			248.9	166.2	
Travel Time (s)	13.2			14.9	10.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	9	13	4	465	576	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	469	579	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	•		3.6	3.6	_
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizat	ion 38.1%			IC	CU Level	of Service A
Analysis Period (min) 15						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y			4	<u>}</u>		
Traffic Volume (veh/h)	8	12	4	428	530	3	
Future Volume (Veh/h)	8	12	4	428	530	3	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	9	13	4	465	576	3	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1050	578	579				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1050	578	579				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	96	97	100				
cM capacity (veh/h)	253	520	1005				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	22	469	579				-
Volume Left	9	409	0				
Volume Right	13	0	3				
cSH	363	1005	1700				
Volume to Capacity	0.06	0.00	0.34				
Queue Length 95th (m)	1.5	0.00	0.0				
Control Delay (s)	15.6	0.1	0.0				
Lane LOS	C	Α.	0.0				
Approach Delay (s)	15.6	0.1	0.0				
Approach LOS	C	V. I	0.0				
Intersection Summary							
Average Delay			0.4				
Intersection Capacity Utiliz	ation		38.1%	IC	CU Level o	f Service	
Analysis Period (min)			15	10		0 00	
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		7	*	ĵ,	
Traffic Volume (vph)	22	115	165	534	511	16
Future Volume (vph)	22	115	165	534	511	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		65.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.887				0.996	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1603	0	1671	1681	1852	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1603	0	1671	1681	1852	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	484.7			164.8	474.5	
Travel Time (s)	34.9			9.9	28.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	4%	8%	13%	2%	9%
Adj. Flow (vph)	24	125	179	580	555	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	149	0	179	580	572	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	Ŭ
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop		_,	Free	Free	
Intersection Summary						
	041					
	Other					
Control Type: Unsignalized				10	2111	(0 : 0
Intersection Capacity Utilizat	tion 55.3%			10	JU Level	of Service B
Analysis Period (min) 15						

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		*	*	1>	
Traffic Volume (veh/h)	22	115	165	534	511	16
Future Volume (Veh/h)	22	115	165	534	511	16
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	125	179	580	555	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1502	564	572			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1502	564	572			
tC, single (s)	6.5	6.2	4.2			
tC, 2 stage (s)	0.0	0.2				
tF (s)	3.6	3.3	2.3			
p0 queue free %	78	76	82			
cM capacity (veh/h)	107	522	972			
				00.0		
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	149	179	580	572		
Volume Left	24	179	0	0		
Volume Right	125	0	0	17		
cSH	321	972	1700	1700		
Volume to Capacity	0.46	0.18	0.34	0.34		
Queue Length 95th (m)	17.8	5.1	0.0	0.0		
Control Delay (s)	25.5	9.5	0.0	0.0		
Lane LOS	D	Α				
Approach Delay (s)	25.5	2.2		0.0		
Approach LOS	D					
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utili	zation		55.3%	IC	CU Level of	Service
Analysis Period (min)			15			
, 5.00 , 6.100 (11.11)						

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		ሻ	1	f)		Т
Traffic Volume (vph)	31	115	106	675	591	34	
Future Volume (vph)	31	115	106	675	591	34	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (m)	0.0	0.0	30.0			0.0	
Storage Lanes	1	0	1			0	
Taper Length (m)	7.5		25.0				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt	0.894				0.993		
Flt Protected	0.989		0.950				
Satd. Flow (prot)	1607	0	1805	1827	1770	0	
Flt Permitted	0.989		0.950				
Satd. Flow (perm)	1607	0	1805	1827	1770	0	
Link Speed (k/h)	50			50	60		
Link Distance (m)	418.5			96.3	250.3		
Travel Time (s)	30.1			6.9	15.0		
Confl. Peds. (#/hr)			5			5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	14%	2%	0%	4%	7%	0%	
Adj. Flow (vph)	34	125	115	734	642	37	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	159	0	115	734	679	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(m)	3.6			3.6	3.6		
Link Offset(m)	0.0			0.0	0.0		
Crosswalk Width(m)	4.8			4.8	4.8		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25	15	25			15	
Sign Control	Stop			Free	Free		
Intersection Summary							
Area Type:	Other						
Control Type: Unsignalized							
Intersection Capacity Utiliza	ition 57.9%			IC	CU Level	of Service B	3
Analysis Period (min) 15							
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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W		*	+	1>		
Traffic Volume (veh/h)	31	115	106	675	591	34	
Future Volume (Veh/h)	31	115	106	675	591	34	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	34	125	115	734	642	37	
Pedestrians	5						
Lane Width (m)	3.6						
Walking Speed (m/s)	1.2						
Percent Blockage	0						
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1630	666	684				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1630	666	684				
tC, single (s)	6.5	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.6	3.3	2.2				
p0 queue free %	63	73	87				
cM capacity (veh/h)	91	458	915				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	159	115	734	679			
Volume Left	34	115	0	0			
Volume Right	125	0	0	37			
cSH	246	915	1700	1700			
Volume to Capacity	0.65	0.13	0.43	0.40			
Queue Length 95th (m)	30.4	3.3	0.0	0.0			
Control Delay (s)	42.9	9.5	0.0	0.0			
Lane LOS	Е	Α					
Approach Delay (s)	42.9	1.3		0.0			
Approach LOS	Е						
Intersection Summary							
Average Delay			4.7				
Intersection Capacity Utilization	on		57.9%	IC	CU Level of S	Service	
Analysis Period (min)			15				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	1>	
Traffic Volume (vph)	6	7	13	693	617	8
Future Volume (vph)	6	7	13	693	617	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928				0.998	
Flt Protected	0.977			0.999		
Satd. Flow (prot)	1723	0	0	1862	1860	0
Flt Permitted	0.977			0.999		
Satd. Flow (perm)	1723	0	0	1862	1860	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	210.3			250.3	164.8	
Travel Time (s)	15.1			15.0	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	7	8	14	753	671	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	0	767	680	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6	•		3.6	3.6	•
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
	Other					
Control Type: Unsignalized	Juli01					
Intersection Capacity Utilizat	ion 56 9%			IC	III evel o	of Service E
Analysis Period (min) 15	00.0 /0			10	201010	J. JOI 1100 L

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Movement	EBL	EBR	NBL	NBT	SBT :	SBR	
Lane Configurations	N/			ની	1→		
Traffic Volume (veh/h)	6	7	13	693	617	8	
Future Volume (Veh/h)	6	7	13	693	617	8	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	7	8	14	753	671	9	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1456	676	680				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1456	676	680				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	95	98	98				
cM capacity (veh/h)	142	457	922				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	15	767	680				
Volume Left	7	14	0				
Volume Right	8	0	9				
cSH	225	922	1700				
Volume to Capacity	0.07	0.02	0.40				
Queue Length 95th (m)	1.6	0.4	0.0				
Control Delay (s)	22.2	0.4	0.0				
Lane LOS	C	A	0.0				
Approach Delay (s)	22.2	0.4	0.0				
Approach LOS	C	0.4	0.0				
Intersection Summary							
Average Delay			0.4				
Average Delay Intersection Capacity Utilizat	tion		56.9%	ır	CU Level of S	onvice	
Analysis Period (min)	UUII		15	IC	O LEVELUI S	PELVICE	
Analysis Pellou (IIIIII)			10				

Appendix G

Traffic Control Signal Warrants

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total (2033)

Region/City/Township: Fergus, Centre Wellington

Major Street: St David St North (Hwy 6)

Minor Street: Sideroad 19

North/South?: Y

Number of Approach Lanes: Tee Intersection? Flow Conditions: Restricted

Warrant Results 150% Satisfied Justification for new intersections with forecast traffic 120% Satisfied Justification for existing intersections with forecast traffic

PM Forecast Only? N

			Major	Street					Minor	Street			1
		St	David St N	North (Hwy	[,] 6)		Sideroad 19						
	Northbound				Southbound			Eastbound			Westbound		
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Main Road
AM Peak Hour	36	422			521	21	11		70				0
PM Peak Hour	106	675			591	34	31		115				0
Average Hourly Volume	36	274	0	0	278	14	11	0	46	0	0	0	0

Warrant	AHV
1A - All	658
1B - Minor	57
2A - Major	602
2B - Cross	11

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes		1	2 or	Average	
1A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
	Flow Conditions		X			Volume
	All Approaches	480	720	600	900	658
	All Approaches				% Fulfilled	91.4%

	Approach Lanes		1	2 or	more	Average
	Flavy Canditions	Free	Restricted	Free	Restricted	Hourly
1B	Flow Conditions		X			Volume
	Minor Street	180	255	180	255	57
	Approaches				% Fulfilled	22.3%

Warrant 2 - Delay To Cross Traffic

	Approach Lanes		1	2 or	Average		
2A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly	
	Flow Conditions		Х			Volume	
	Major Street	480	720	600	900	602	
	Approaches				% Fulfilled	83.5%	

2B	Approach Lanes		1	2 or	Average	
	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
	Flow Cortailloris		X			Volume
	Traffic Crossing Major	50	75	50	75	11
	Street				% Fulfilled	14.0%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total (2033)

Region/City/Township: Fergus, Centre Wellington

Major Street: St David St North (Hwy 6)

Minor Street: Sideroad 18

North/South?: Y

Number of Approach Lanes: Tee Intersection? Y

Flow Conditions: Restricted

		vvarrant Results
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

PM Forecast Only? N

			Major	Street					Minor	Street			
		St	David St N	North (Hwy	<i>i</i> 6)		Sideroad 18						1
	Northbound			Southbound			Eastbound			Westbound			Peds Crossing
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Main Road
AM Peak Hour	65	372			412	14	11		121				0
PM Peak Hour	165	534			511	16	22		115				0
Average Hourly Volume	58	227	0	0	231	8	8	0	59	0	0	0	0

Warrant	AHV
1A - All	590
1B - Minor	67
2A - Major	522
2B - Cross	8

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes		1	2 or	Average	
	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
1A	Flow Conditions		X			Volume
	All Approaches	480	720	600	900	590
	All Approaches				% Fulfilled	81.9%

	Approach Lanes		1	2 or	more	Average
	Flavy Canditions	Free	Restricted	Free	Restricted	Hourly
1B	Flow Conditions		X			Volume
	Minor Street	180	255	180	255	67
	Approaches				% Fulfilled	26.4%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average
	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
			X			Volume
	Major Street	480	720	600	900	522
	Approaches				% Fulfilled	72.5%

2B	Approach Lanes	1		2 or more		Average
	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
			X			Volume
	Traffic Crossing Major	50	75	50	75	8
	Street				% Fulfilled	11.0%