Bisgould Lands
2699 Victoria Street North, Breslau ON

Transportation Impact Study

Paradigm Transportation Solutions Limited

June 2026
250847

ptsl.com

Project Summary

Project Number:

250847

Date and Version:

June 2026
1.0

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Bisgould Lands 2699 Victoria Street North, Breslau ON
Transportation Impact Study



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Executive Summary

Content

Paradigm Transportation Solutions Limited has been retained to conduct this Transportation Impact Study (TIS) on behalf of Thomasfield Homes for the proposed development of the Bisgould Lands at 2699 Victoria Street North in Breslau, Ontario, which stretches between Victoria Street North and Kramp Road, east of Greenhouse Road.

In February 2016[1], a TIS report was completed for the lands on the south side of Victoria Street North (Highway 7) to the east and west of Greenhouse Road. The lands west of Greenhouse Road (Hopewell Crossing) are to be developed in four phases. At this time, addendums have been completed for Hopewell Crossing Phase 1 (March 2018[2]) and Phase 2 (March 2021[3]), and the addendum for Phase 3 is ongoing. The lands to the east of Greenhouse Road are the subject lands (Phase 4A, 4B and 4C).

This TIS includes an analysis of existing traffic conditions, a description of the proposed development, traffic forecasts for Stage 1 (Phase 4A/4B) build-out (2035), five years (2040) and ten years (2045) from build-out and recommendations to improve future traffic conditions, if required.

Development Concept

The subject lands are generally located south of Victoria Street North (Highway 7), east of Greenhouse Road, north of Kramp Road and west of Shantz Station Road. The lands are separated into two developable areas to the east and west of a natural heritage corridor.

The lands to the west of the natural heritage corridor are proposed to include 52 stacked townhouse units.

The lands to the east of the natural heritage corridor are proposed to be completed in two stages. Stage 1 (Phase 4A/4B) includes the southerly portion of the lands which is proposed to include 267 single-family units and 43 street townhouse units. Stage 2 (Phase 4C) includes two mixed-use blocks along the Victoria Street North (Highway 7) frontage including 262 residential units (174 apartment

[1] Paradigm Transportation Solutions Limited, Thomasfield Mixed use Development Transportation Impact Study Update, February 2016.
[2] Paradigm Transportation Solutions Limited, *Hopewell Crossing Phase 1 Transportation Impact Study*, March 2018.
[3] Paradigm Transportation Solutions Limited, *Hopewell Crossing Phase 2 Transportation Impact Study,* March 2021.

and 88 back-to-back townhouse units) and 1,400 m^2 of commercial uses.

While Victoria Street/Highway 7 remains under Ministry of Transportation (MTO) jurisdiction, only Stage 1 is to proceed. Access to Stage 1 is proposed via a single connection to Kramp Road with an emergency access to Victoria Street/Highway 7.

Development of Phase 4C and full access to Victoria Street will only occur once the new Highway 7 is constructed and Victoria Street is transferred to the Region.

Development of Stage 1 and the lands west of the natural heritage corridor are assumed to be completed by 2035.

Conclusions

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

- **Study Scope:** The scope of the study is based on the Hopewell Crossing Phase 1 (March 2018), Phase 2 (March 2021) and Phase 3 (ongoing) TIS scope.
- **Existing Traffic Conditions:** The study area intersections are operating with acceptable levels of service, except for the following critical movements at Victoria Street (Highway 7) and Shantz Station Road:
  - The eastbound through movement is operating with a v/c ratio greater than 0.85 and LOS D during the AM and PM peak hours; and
  - The westbound through movement is operating with a v/c ratio greater than 0.85 and LOS C during the PM peak hour.
- **Development Trip Generation:**
  - Stage 1 (Phase 4A/4B) of development is forecast to generate 194 and 247 trips during the AM and PM peak hours, respectively;
  - The stacked townhouse block west of the natural heritage corridor is forecast to generate 30 trips each during the AM and PM peak hours; and
  - Phase 4C of development is forecast to generate 153 and 192 trips during the AM and PM peak hours, respectively.
- **Other Area Developments:** The following Hopewell Crossing development phases are included in the background traffic forecasts:

- Phase 1 is forecast to generate 239 AM peak hour trips and 134 PM peak hour trips.
- Phase 2 is forecast to generate 175 AM peak hour trips and 217 PM peak hour trips.
- Phase 3 is forecast to generate 107 AM peak hour trips and 143 PM peak hour trips.

- **Background Traffic Conditions:** The study area intersections are forecast to operate with similar levels of service as under existing traffic conditions, with the addition of the following movements:

  Starting under 2035 conditions:

  - Victoria Street (Highway 7) and Greenhouse Road:
    - The eastbound through movement is forecast to operate with a v/c ratio greater than 0.85 and LOS E during the AM and PM peak hours; and
    - The westbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS D during the PM peak hour.
  - Victoria Street (Highway 7) and Shantz Station Road: The westbound through movement is forecast to operate with a v/c ratio greater than 0.85 and LOS C during the AM peak hour.

  Starting under 2040 conditions: The southbound left-turn movement at Victoria Street (Highway 7) and Shantz Station Road is forecast to operate with a v/c ratio greater than 0.85 and LOS F during the AM peak hour.

  Starting under 2045 conditions:

  - Victoria Street (Highway 7) and Greenhouse Road: The westbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS C during the AM peak hour.
  - Victoria Street (Highway 7) and Shantz Station Road: The northbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS E during the AM peak hour.

- **Total Traffic Conditions:** The study area intersections are forecast to operate with similar levels of service as under background traffic conditions, with the addition of the following movements:

  Starting under 2035 conditions:

- Victoria Street (Highway 7) and Greenhouse Road: The northbound left-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during and AM and PM peak hours.
- Victoria Street (Highway 7) and Shantz Station Road:
  - The northbound shared through/right-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the AM peak hour; and
  - The southbound left-turn movement is forecast to operate with LOS F and a v/c ratio greater than 0.85 during the AM peak hour.

Starting under 2040 conditions: The westbound shared through/right-turn movement at Victoria Street (Highway 7) and Greenhouse Road is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the AM peak hour.

Starting under 2045 conditions:

- Victoria Street (Highway 7) and Shantz Station Road:
  - The westbound left-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the PM peak hour; and
  - The northbound shared through/right-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the PM peak hour.

- **2045 Future Traffic Conditions (with new Highway 7):** The study area intersections are forecast to operate with acceptable levels of service under 2045 background and total traffic conditions during the AM and PM peak hours.
- **Site Access:**
  - Without new Highway 7: An eastbound left-turn lane is not warranted at Kramp Road and Wambold Street.
  - With new Highway 7:
    - Traffic signal control is unlikely to be warranted at the Victoria Street and Wambold Street intersection;
    - A westbound left-turn lane with 40 metres of storage is warranted at Victoria Street and Wambold Street; and
    - An eastbound left-turn lane is not warranted at Kramp Road and Wambold Street.
- **New Highway 7:** The eastbound and westbound through movements along Victoria Street (Highway 7) at both

Greenhouse Road and Shantz Station Road are forecast to operate with poor levels of service during the AM and PM peak hours without the new Highway 7.

It is anticipated that the new Highway 7 will improve operations along Victoria Street by diverting trips away from Victoria Street and therefore would be sufficient to resolve the critical movements identified under existing, background and total traffic conditions.

It is noted that the timing related to the new Highway 7 and Breslau Corridor Road connections referenced in this study is an estimate and will depend on market conditions.

Recommendations

Based on the findings of this study, it is recommended that the subject development be considered for approval as proposed. No improvements to Victoria Street are recommended at this time and is further supported by the completion of the new Highway 7. The new Highway 7 is forecast to add sufficient capacity, making improvements on Victoria Street unnecessary. Once the new Highway 7 is constructed and Victoria Street is transferred to the Region, a 40-metre westbound left-turn lane is forecast to be warranted at the future Wambold Street connection on Victoria Street.

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1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited has been retained to conduct this Transportation Impact Study (TIS) on behalf of Thomasfield Homes for the proposed development of the Bisgould Lands at 2699 Victoria Street in Breslau, Ontario. **Figure 1.1** illustrates the subject development location.

1.2 Purpose and Scope

The purpose of this report is to identify and assess the potential traffic impact from the proposed development of the lands to the east of Greenhouse Road (Bisgould Lands) on the surrounding road network.

The scope of the study is based on the Hopewell Crossing Phase 1 (March 2018 TIS), Phase 2 (March 2021 TIS) and Phase 3 (ongoing) scope and was provided to the Region of Waterloo, Township of Woolwich and Ministry of Transportation (MTO) via e-mail in January and June 2026.

The scope of the study includes:

- Assessment of the current traffic and site conditions within the study area;
- Estimates of background traffic growth for Stage 1 (Phase 4A/4B) build-out (2035), five-years (2040) and ten-years (2045) beyond build-out;
- Estimates of traffic generated by the subject development;
- Analyses of the impact of the future traffic on the surrounding road network, including the following study area intersections:
  - Victoria Street (Highway 7) and Greenhouse Road (signalized);
  - Victoria Street (Highway 7) and Shantz Station Road (signalized);
  - Greenhouse Road and Loxleigh Lane (unsignalized);
  - Greenhouse Road and Kramp Road/Hopewell Crossing Drive (unsignalized);
  - Shantz Station Road and Kramp Road (unsignalized);
  - Kramp Road and Wambold Street (future); and

  - Vicotria Street (Highway 7) and Wambold Street (future – only with New Highway 7 in place).
- Recommendations necessary to mitigate the site generated traffic in a satisfactory manner.

This study has been prepared in accordance with the requirements detailed by the *Region of Waterloo Transportation Impact Study Guidelines*[4] and *MTO Traffic Impact Study Guidelines*[5].

[4] Region of Waterloo, Transportation Impact Study Guidelines, July 2014.
[5] Ministry of Transportation Ontario, General Guidelines for the Preparation of Traffic Impact Studies, March 2023.



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Study Area and Subject Development Location

2699 Victoria Street North, Breslau TIS
250847

Figure 1.1

2 Existing Conditions

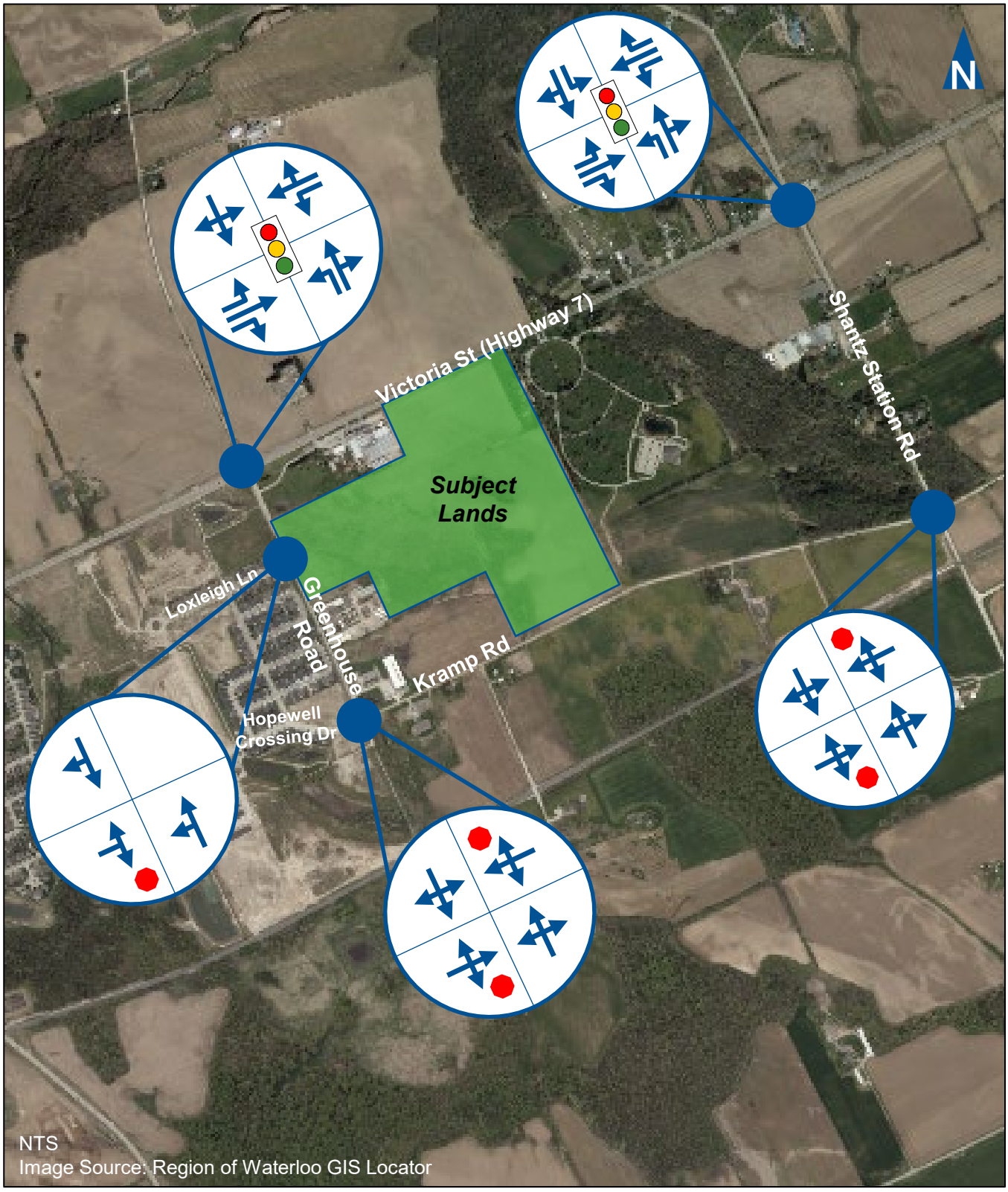
This section documents current traffic conditions, operational conditions, and deficiencies at the study area intersections. The operations of the study area intersections identified at this stage will be fundamental to the process of defining the required remedial measures.

2.1 Road Network

The main roadways near the subject site considered in assessing the traffic impacts of the development include:

- **Victoria Street (Highway 7)** is a highway under the jurisdiction of MTO, and has a four-lane cross section west of Spitzig Road and a two-lane cross section east of Spitzig Road. This roadway has a posted speed limit of 80 km/h. The intersections with Shantz Station Road and Greenhouse Road are controlled by a traffic signal. Pedestrian and cycling facilities are not provided throughout the study area.
- **Greenhouse Road** is a north-south rural roadway with a two-lane rural cross section and a posted speed limit of 50 km/h. No pedestrian or cycling facilities are provided along Greenhouse Road.
- **Kramp Road** is an east-west local gravel roadway with a two-lane rural cross section. The roadway has a posted speed limit of 50 km/h along the frontage of the subject lands and to the west towards Greenhouse Road, and increases to 80 km/h east of the subject lands. The Kramp Road approaches at Greenhouse Road and Shantz Station Road operate under stop control. No pedestrian or cycling facilities are provided along Kramp Road.
- **Shantz Station Road** is a north-south regional roadway with a two-lane rural cross-section and a posted speed limit of 80 km/h. No pedestrian or cycling facilities are provided along Shantz Station Road.
- **Loxleigh Lane** and **Hopewell Crossing Drive** are local township roads with a two-lane urban cross section and an assumed speed limit of 40 km/h. Sidewalks are generally provided on both sides of the roadway.

Figure 2.1 illustrates the existing lane configuration and traffic control.



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Existing Lane Configuration and Traffic Control

2699 Victoria Street North, Breslau TIS
250847

Figure 2.1

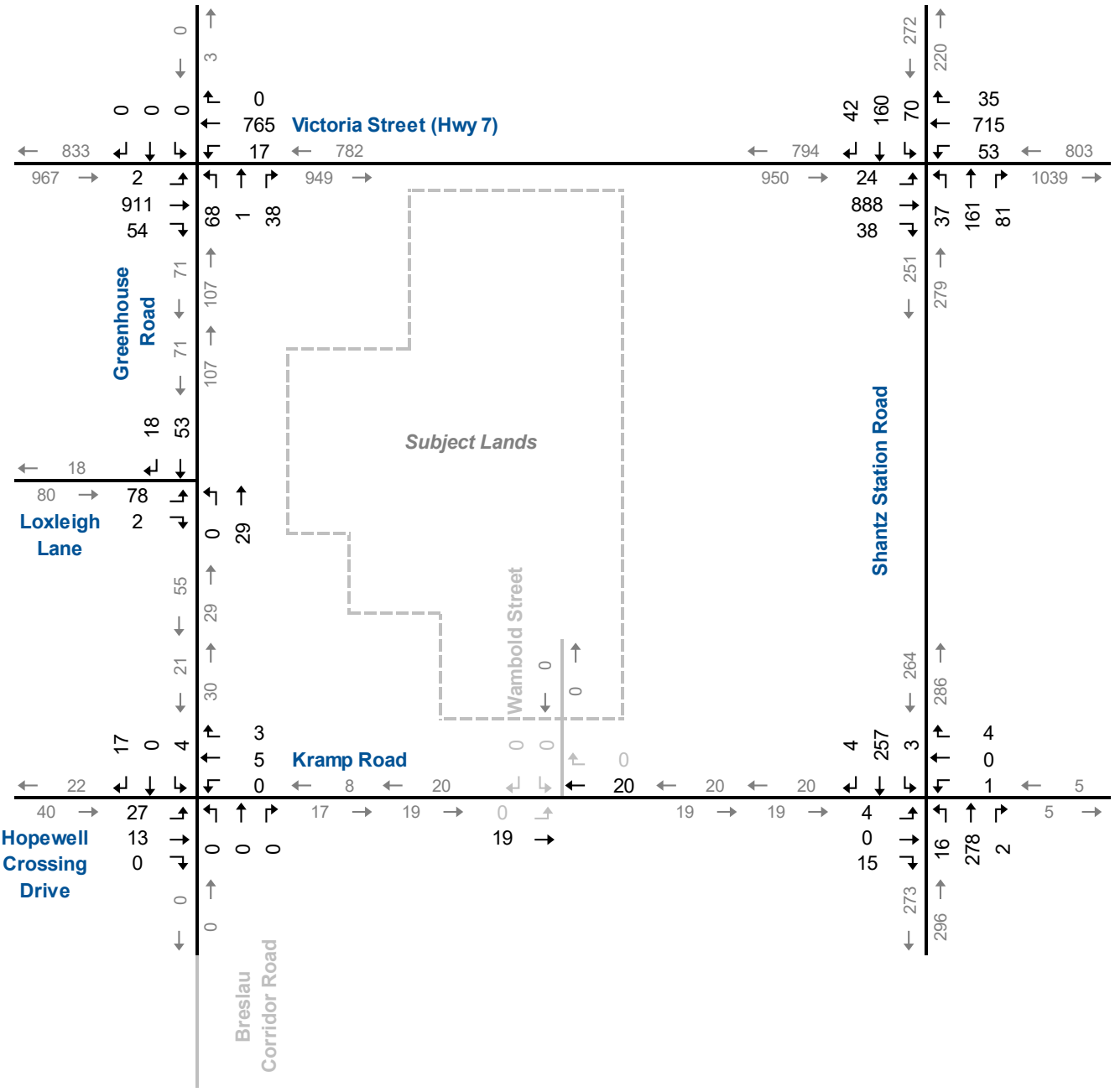
2.2 Traffic Volumes

Paradigm collected turning movement counts at the study area intersections on 10 June 2025, except for the intersection of Greenhouse Road and Loxleigh Lane which was collected on 29 July 2025.

Traffic volumes on Greenhouse Road between Victoria Street (Highway 7) and Loxleigh Lane have been balanced.

Figure 2.2a and **Figure 2.2b** illustrate the existing AM and PM peak hour traffic volumes, respectively.

Appendix A contains the detailed traffic counts and signal timings for the study area intersections.

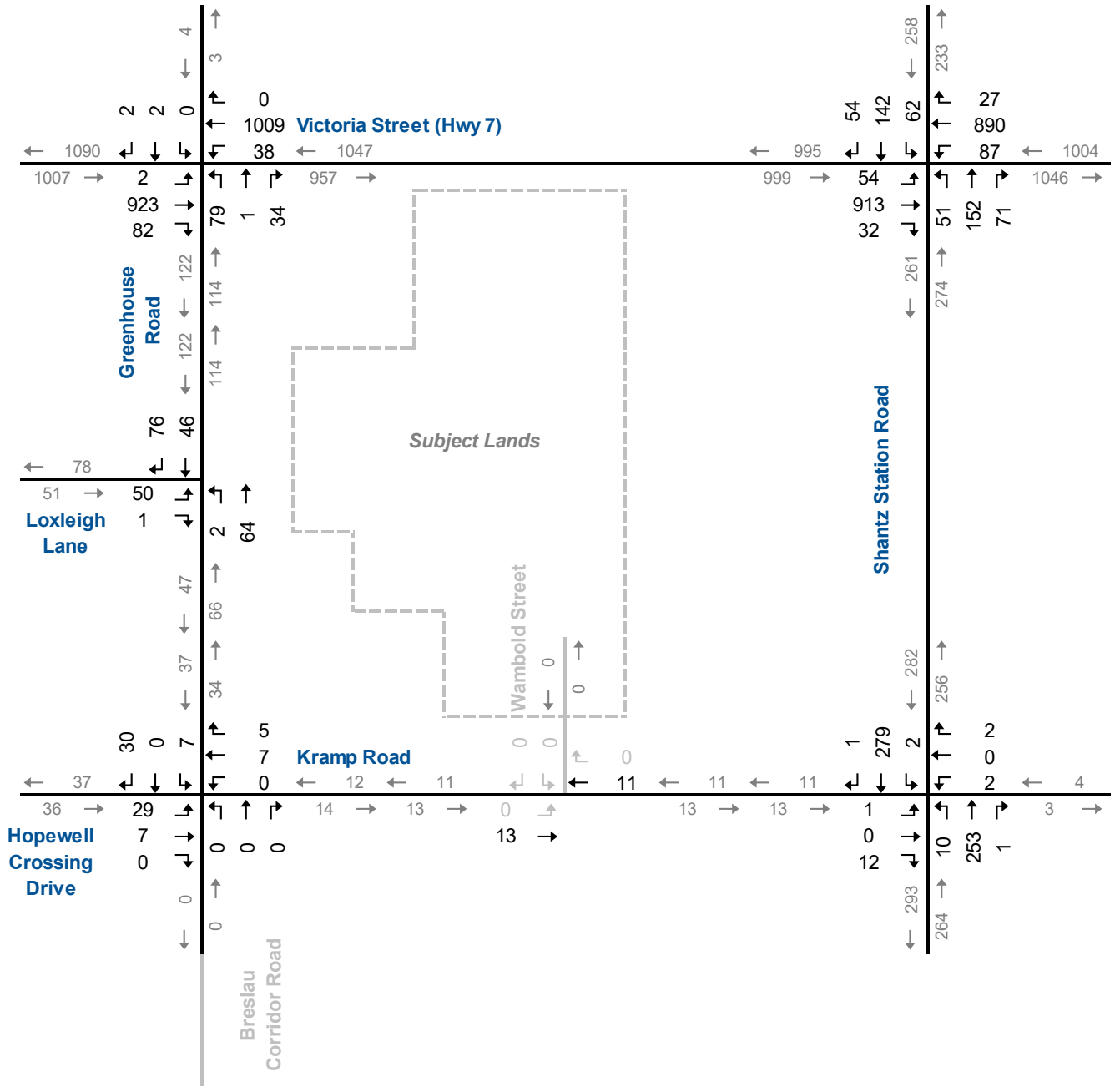


NTS

Existing Traffic Volumes
AM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 2.2a



NTS

Existing Traffic Volumes
PM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 2.2b

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 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 to 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 area intersections were evaluated with the existing turning movement volumes using Synchro 12. The current signal timings for the intersections on Victoria Street (Highway 7) at both Shantz Station Road and at Greenhouse Road were provided by MTO. As per the Region's TIS guidelines, intersections/movements are considered critical under the following conditions:

- Overall LOS E of F (i.e. average control delay per vehicle greater than 55 seconds) for signalized intersections; and
- Overall LOS E of F (i.e. average control delay per vehicle greater than 35 seconds) for unsignalized intersections.
- The average control delay for individual movements is greater than 55 seconds;
- The estimated 95th percentile queue length for an exclusive movement exceeds the available storage space;
- The estimated 95th percentile queue length of an individual movement will block an existing access;
- Exclusive turning lanes are inaccessible because of queue lengths in adjacent through lanes; or
- There exists poor quality of service for non-auto modes.

As per MTO TIS guidelines, movements at signalized intersections are considered critical with a volume-to-capacity (v/c) ratio greater than 0.85.

Table 2.1 summarizes the results of the existing intersection operational analysis during the AM and PM peak hours, including the LOS, v/c ratios and 95th percentile queues.

The results indicate that the study area intersections are operating with generally acceptable levels of service, except for the following critical movements at Victoria Street (Highway 7) and Shantz Station Road:

- The eastbound through movement is operating with a v/c ratio greater than 0.85 and LOS D during the AM and PM peak hours; and
- The westbound through movement is operating with a v/c ratio greater than 0.85 and LOS C during the PM peak hour.

Appendix B contains the detailed Synchro 12 reports.

TABLE 2.1: EXISTING TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	A	B	A	B	A	A	>	A	D	B	>	D	<	A	>	A	B
			Delay	8	18	2	17	4	9	>	9	48	14	>	36	<	0	>	0	15
			V/C	0.00	0.78	0.05		0.07	0.62	>		0.46	0.19	>		<	0.00	>		
			Q	1	263	4		2	118	>		27	9	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	134	-	131		138	-	>		88	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	A	>	A	<	A	>		<	A	>	A	<	A	>		
			Delay	<	9	>	9	<	0	>		<	0	>	0	<	0	>		
			V/C	<	0.04	>		<	0.00	>		<	0.00	>		<	0.00	>		
			Q	<	1	>		<	0	>		<	0	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	11	>	11	<	11	>	11	<	8	>	0	<	8	>	0	
			V/C	<	0.03	>		<	0.01	>		<	0.01	>		<	0.00	>		
			Q	<	1	>		<	0	>		<	0	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	A	D	A	D	B	C	A	C	D	D	>	D	E	D	>	D	D
			Delay	6	40	1	37	10	22	1	20	41	55	>	53	68	49	>	54	35
			V/C	0.07	0.94	0.05		0.32	0.73	0.04		0.27	0.79	>		0.67	0.69	>		
			Q	5	302	2		8	190	2		17	77	>		32	66	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	85	-	88		82	-	98		68	-	>		48	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	A		>	A					<	A		A		A	>	A	
			Delay	9		>	9					<	0		0		0	>	0	
			V/C	0.09		>						<	0.00				0.00	>		
			Q	2		>						<	0				0	>		
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	A	B	A	B	A	B	>	B	D	B	>	D	<	C	>	C	B
			Delay	8	20	2	18	4	14	>	14	51	15	>	40	<	32	>	32	17
			V/C	0.01	0.79	0.08		0.14	0.79	>		0.49	0.17	>		<	0.02	>		
			Q	1	274	5		4	223	>		32	9	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	134	-	130		136	-	>		83	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	A	>	A	<	A	>		<	A	>	A	<	A	>		
			Delay	<	9	>	9	<	0	>		<	0	>	0	<	0	>		
			V/C	<	0.04	>		<	0.00	>		<	0.00	>		<	0.00	>		
			Q	<	1	>		<	0	>		<	0	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	10	>	10	<	12	>	11	<	8	>	0	<	8	>	0	
			V/C	<	0.02	>		<	0.01	>		<	0.01	>		<	0.00	>		
			Q	<	1	>		<	0	>		<	0	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	A	D	A	D	C	C	A	C	D	D	>	D	D	D	>	D	D
			Delay	9	41	1	38	27	32	0	30	45	53	>	51	55	47	>	49	38
			V/C	0.29	0.95	0.04		0.56	0.89	0.03		0.37	0.75	>		0.53	0.65	>		
			Q	8	309	1		25	295	0		22	70	>		27	62	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	82	-	89		65	-	100		63	-	>		53	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	A		>	A					<	A		A		A	>	A	
			Delay	10		>	10					<	7		0		0	>	0	
			V/C	0.06		>						<	0.00				0.00	>		
			Q	2		>						<	0				0	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

2.4 MTO Queueing Analysis

In addition to the Synchro 12 analysis, queue length analysis at the two signalized intersections on Victoria Street (Highway 7), at both Greenhouse Road and at Shantz Station Road, has been completed following methods requested by MTO.

Queue length analysis for through and left-turn lanes was carried out following the *MTO Traffic Signal Operating and Timing Policy*[6] Table 1 under LOS A conditions and assuming a vehicle length of 7.5 metres. These methods require the conversion of volumes to Passenger Car Equivalents (PCE) by multiplying the number of heavy vehicles by a conversion factor of 2.0[7].

Right-turn queues follow the methodology outlined in the *Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads*[8]. The right-turn queue length is calculated by multiplying the average number of vehicles stored per cycle by 1.5 for roadways with design speeds of 60 km/h or less and 2.0 for roadways with design speeds greater than 60 km/h. Volumes used in this method are not converted to PCE's.

Table 2.2a and **Table 2.2b** summarize the results of the through/left-turn and exclusive right-turn queue length analysis under existing traffic conditions. The results indicate that the calculated queues are not exceeding the available storage.

[6] Ministry of Transportation Ontario, Traffic Signal Operating and Timing Policy 2010-02, June 2016.
[7] The Institute of Transportation Engineers, Canadian Capacity Guide for Signalized Intersections, February 2008.
[8] Transportation Association of Canada, "Design Elements for Right-Turn Tapers with Auxiliary Lanes" chap. 9.14.4 in Geometric Design Guide for Canadian Roads, (Ottawa: TAC, 2017), 102.

TABLE 2.2A: EXISTING QUEUE LENGTH ANALYSIS – THROUGH AND LEFT-TURNS

Horizon	Intersection	Lane	Cycle Length (s)		Volumes (vph)		m_u max	Calc'd Length per Lane (m)	Ex. Storage Length (m)
			AM	PM	AM	PM			
Existing	Highway 7 & Greenhouse Road	NBL	120	120	73	79	2.6	37.5	115
		NBTR			40	36	1.3	22.5	-
		SBT			0	4	0.1	7.5	-
		EBL			2	2	0.1	7.5	135
		EBT			957	946	31.9	262.5+	-
		WBL			22	38	1.3	22.5	140
		WBTR			793	1023	34.1	262.5+	-
	Highway 7 & Shantz Station Road	NBL	115	115	40	52	1.7	30.0	85
		NBTR			255	226	8.1	97.5	-
		SBL			76	62	2.4	37.5	80
		SBTR			220	197	7.0	90.0	-
		EBL			24	55	1.8	30.0	90
		EBT			932	934	29.8	262.5+	-
		WBL			56	95	3.0	45.0	90
		WBT			742	901	28.8	262.5+	-

TABLE 2.2B: EXISTING QUEUE LENGTH ANALYSIS – RIGHT-TURNS

Horizon	Intersection	Movement	Cycle Length (s)		Right Turn Volume (vph)		Average Arrival Rate (vpc)		Calc'd Length (m)		Ex. Storage Length (m)
			AM	PM	AM	PM	AM	PM	AM	PM	
Existing	Highway 7 & Greenhouse Road	EBR	120	120	54	82	1.8	2.7	27	41	135
	Highway 7 & Shantz Station Road	EBR	115	115	38	32	1.2	1	18	15	90
		WBR			35	27	1.1	0.9	17	14	100

3 Development Concept

3.1 Description

The subject lands are generally located south of Victoria Street North (Highway 7), east of Greenhouse Road, north of Kramp Road and west of Shantz Station Road. The lands are separated into two developable areas to the east and west of a natural heritage corridor.

The lands to the west of the natural heritage corridor are proposed to include 52 stacked townhouse units.

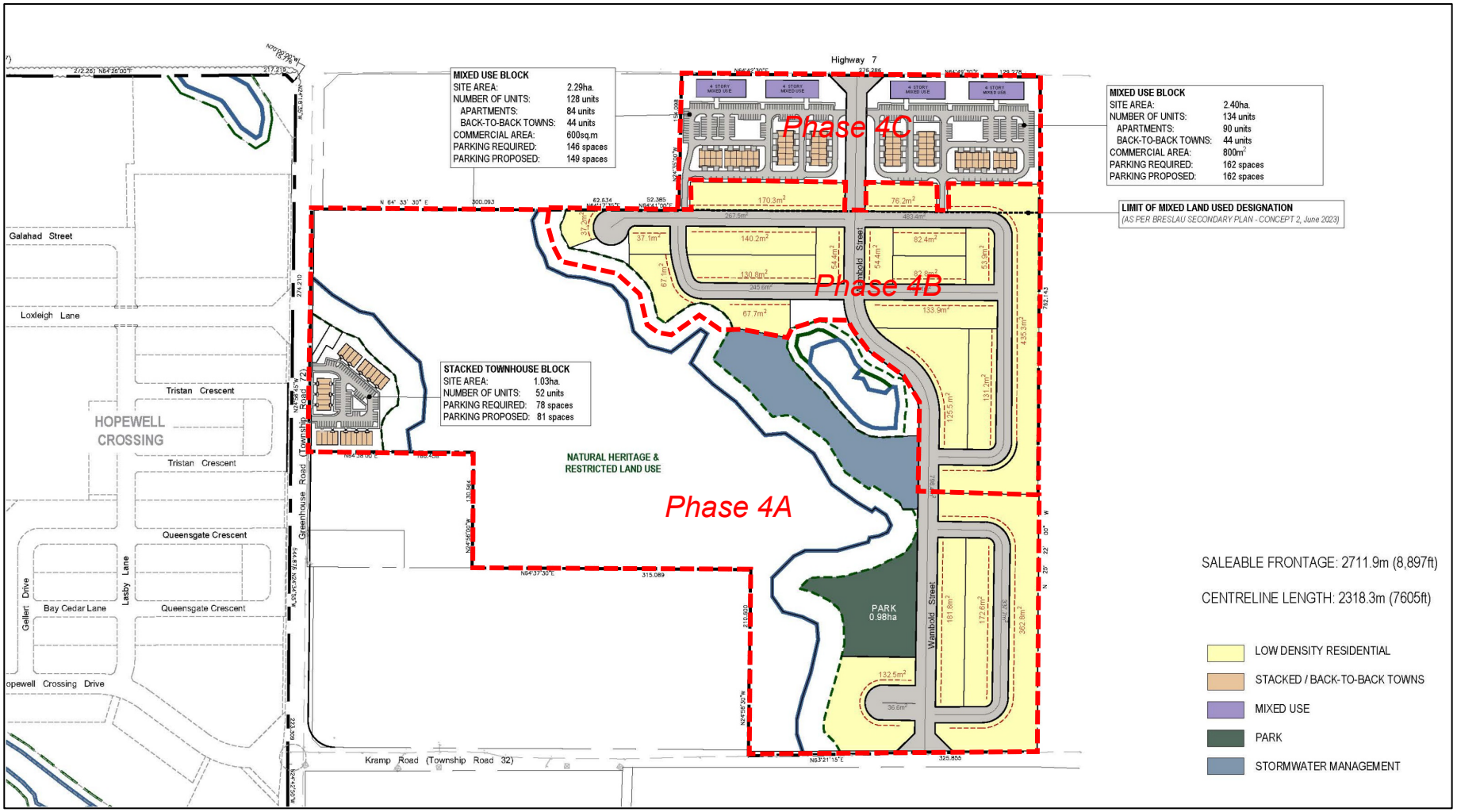
The lands to the east of the natural heritage corridor are proposed to be completed in two stages. Stage 1 (Phase 4A/4B) includes the southerly portion of the lands which is proposed to include 267 single-family units and 43 street townhouse units. Stage 2 (Phase 4C) includes two mixed-use blocks along the Victoria Street North (Highway 7) frontage including 262 residential units (174 apartment and 88 back-to-back townhouse units) and 1,400 m^2 of commercial uses.

While Victoria Street/Highway 7 remains under Ministry of Transportation (MTO) jurisdiction, only Stage 1 is to proceed. Access to Stage 1 is proposed via a single connection to Kramp Road with an emergency access to Victoria Street/Highway 7.

Development of Phase 4C and full access to Victoria Street will only occur once the new Highway 7 is constructed and Victoria Street is transferred to the Region.

Development of Stage 1 and the lands west of the natural heritage corridor are assumed to be completed by 2035.

Figure 3.1 shows the development concept.



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Concept Plan

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Figure 3.1

3.2 Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Manual[9] provides rates and equations used to estimate the peak hour traffic volumes generated by the Land Use Codes (LUC) of this development:

- LUC 210 (Single-Family Detached Housing);
- LUC 215 (Single-Family Attached Housing);
- LUC 220 (Multifamily Housing, Low Rise);
- LUC 221 (Multifamily Housing, Mid Rise); and
- LUC 822 (Strip Retail Plaza, <40k).

Table 3.1 summarizes the forecast number of net new trips generated by Stage 1 (Phase 4A/4B) of the proposed development.

TABLE 3.1: STAGE 1 (PHASE 4A/4B) TRIP GENERATION

Land Use	Number of Units	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
LUC 210 - Single-Family Detached Housing	267	FCE	50	134	**184**	FCE	147	91	**238**
LUC 215 - Single-Family Attached Housing	43	0.47	5	15	**20**	0.51	13	9	**22**
Total Trip Generation			**55**	**149**	**204**		**160**	**100**	**260**
Mode Share		*5%*	*3*	*7*	*10*	*5%*	*8*	*5*	*13*
Net Trip Generation			**52**	**142**	**194**		**152**	**95**	**247**

Table 3.2 summarizes the forecast number of net new trips generated by the stacked townhouse block west of the natural heritage corridor.

TABLE 3.2: STACKED TOWNHOUSE BLOCK TRIP GENERATION

Land Use	Number of Units	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
LUC 220 - Multifamily Housing (Low-Rise)	52	FCE	7	24	**31**	FCE	20	12	**32**
Total Trip Generation			**7**	**24**	**31**		**20**	**12**	**32**
Mode Share		*5%*	*0*	*1*	*1*	*5%*	*1*	*1*	*2*
Net Trip Generation			**7**	**23**	**30**		**19**	**11**	**30**

Table 3.3 summarizes the forecast number of net new trips generated by Phase 4C of the proposed development.

[9] Institute of Transportation Engineers, *Trip Generation Manual,* 12th ed., (Washington, DC: ITE, 2025).

TABLE 3.3: PHASE 4C TRIP GENERATION

Land Use	Number of Units	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
LUC 215 - Single-Family Attached Housing	88	FCE	9	28	**37**	FCE	24	18	**42**
LUC 221 - Multifamily Housing (Mid-Rise)	174	FCE	15	50	**65**	FCE	42	24	**66**
LUC 822 - Strip Retail Plaza (<40k) 1,000 sq. ft.	15	3.93	32	27	**59**	6.29	47	47	**94**
Total Trip Generation			**56**	**105**	**161**		**113**	**89**	**202**
Mode Share		*5%*	*3*	*5*	*8*	*5%*	*6*	*4*	*10*
Net Trip Generation			**53**	**100**	**153**		**107**	**85**	**192**

3.3 Trip Distribution and Assignment

The trip distribution used in this study was taken from the full 2016 TIS, which was based on the relative location of employment areas in Waterloo Region and Guelph.

The trip distribution used is summarized in **Table 3.4**.

TABLE 3.4: ESTIMATED TRIP DISTRIBUTION

Origin/Destination	Percentage
North via Shantz Station Rd	10%
South via Shantz Station Rd	12%
South via Greenhouse Rd	20%
East via Victoria St	16%
West via Victoria St	42%
Total	**100%**

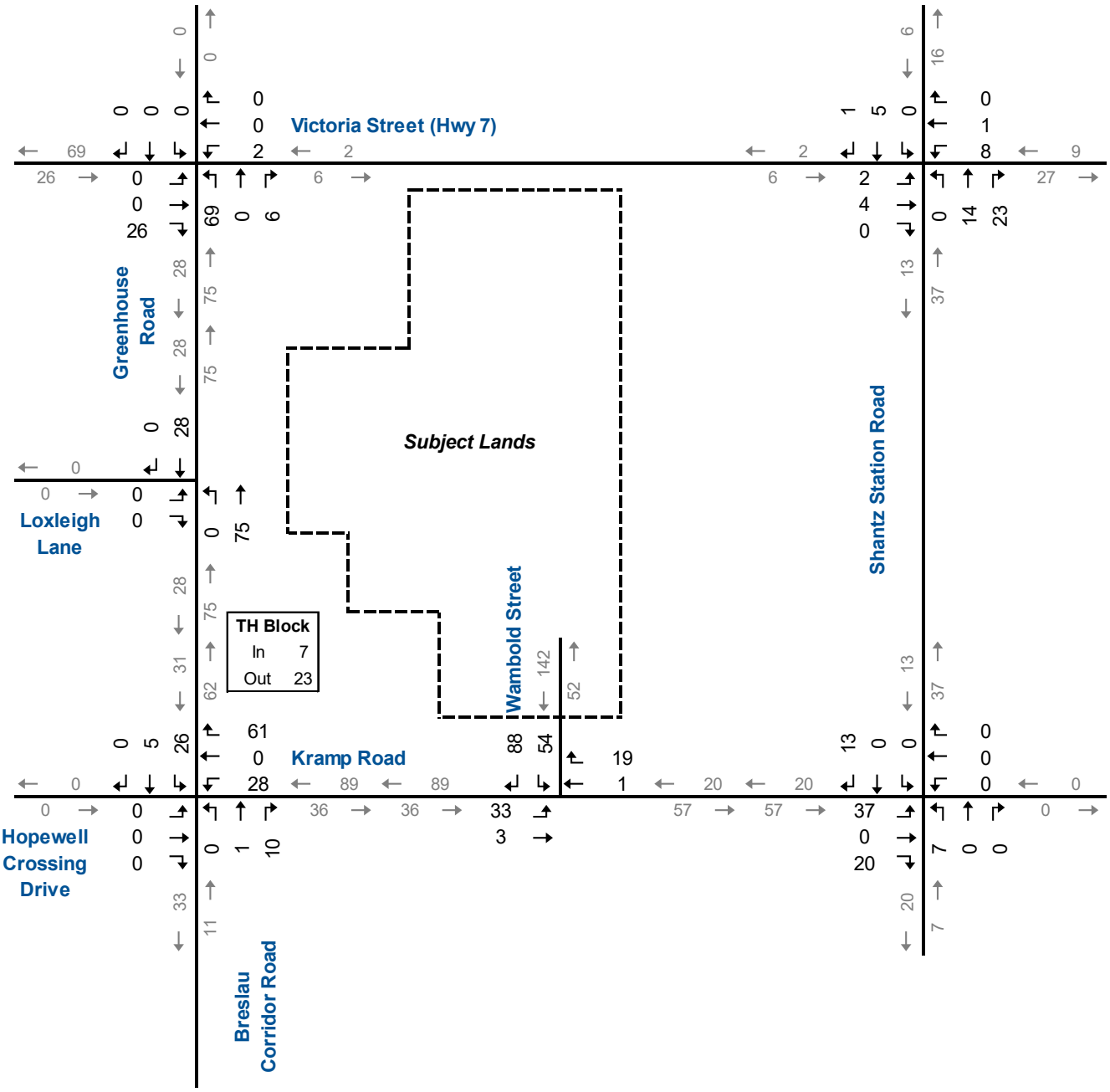
Trips generated by the townhouse block west of the natural heritage corridor have been assigned directly to Greenhouse Road.

In Stage 1 while Victoria Street/Highway 7 remains under MTO jurisdiction, access is proposed via a single connection to Kramp Road with emergency access to Victoria Street/Highway 7. All Stage 1 trips have been assigned to the Wambold Street connection to Kramp Road.

Figure 3.2a and **Figure 3.2b** illustrate the site-generated traffic volumes for the AM and PM peak hours, respectively, without new Highway 7.

Once the new Highway 7 is constructed and Victoria Street is transferred to the Region, Phase 4C is to proceed and a secondary full access to Victoria Street is proposed via Wambold Street.

Figure 3.3a and **Figure 3.3b** illustrate the site-generated traffic volumes for the AM and PM peak hours, respectively, with new Highway 7.

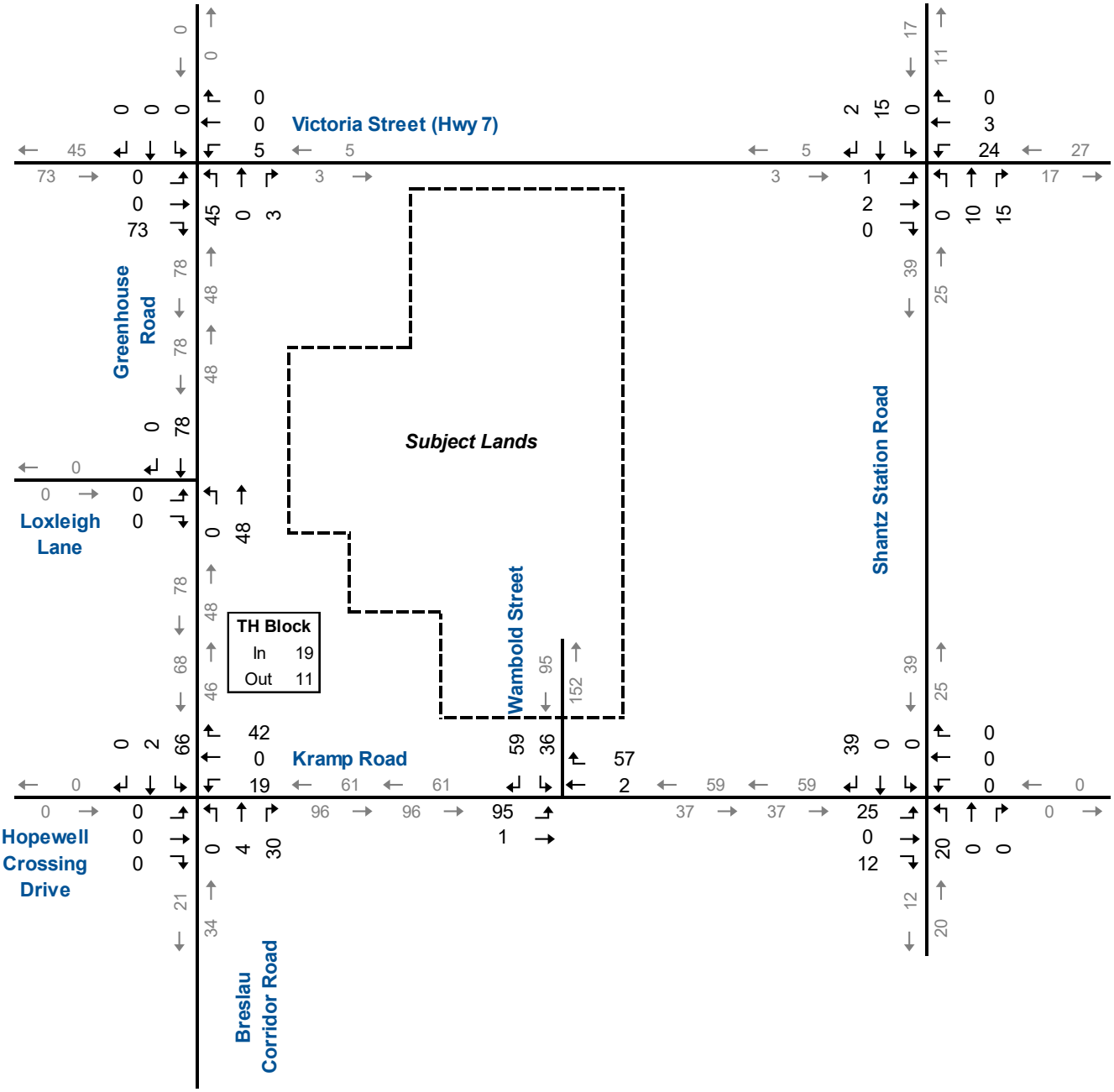


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Site Generated Traffic Volumes (without New Highway 7) AM Peak Hour

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Figure 3.2a

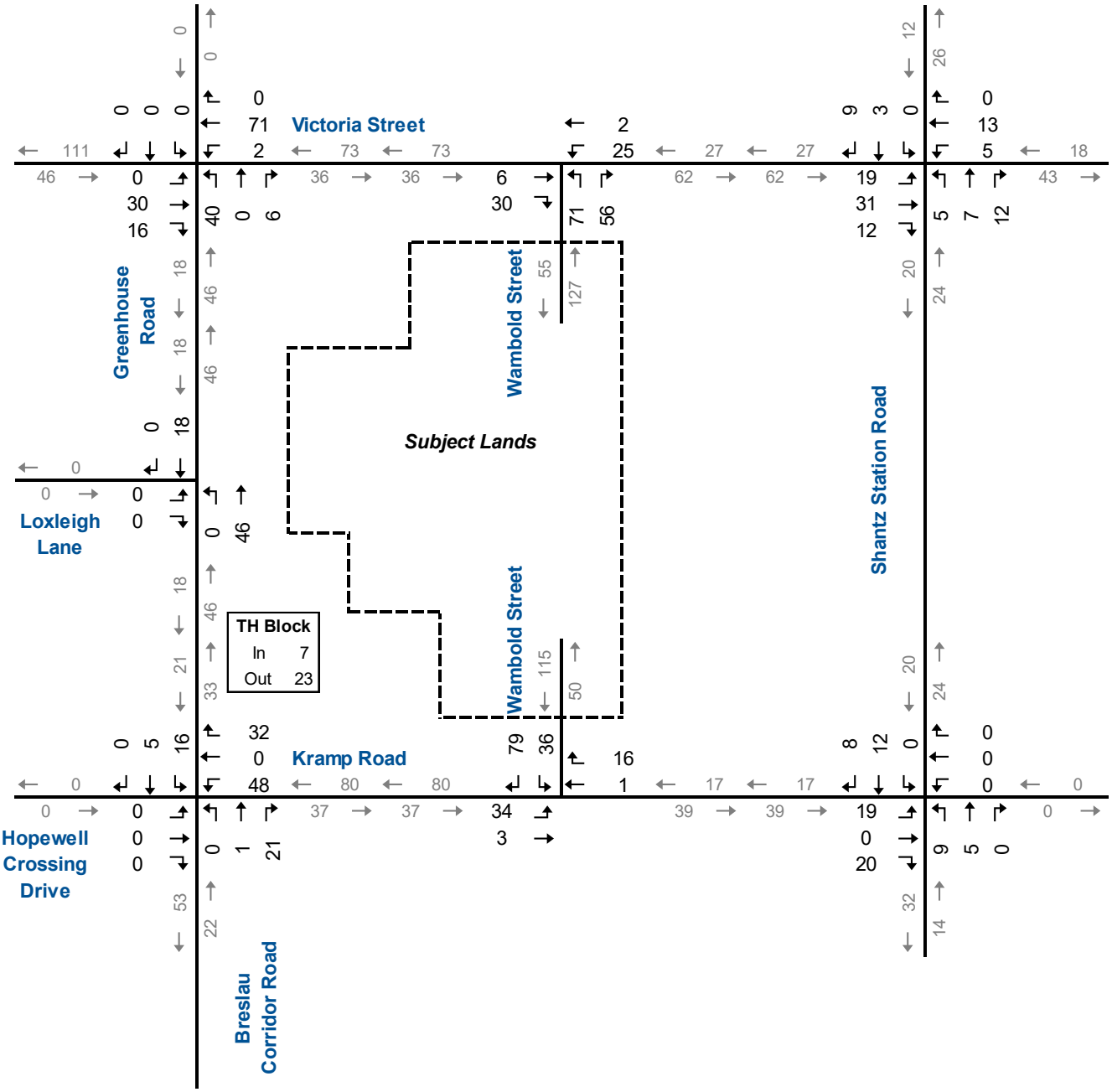


NTS

Site Generated Traffic Volumes (without New Highway 7) PM Peak Hour

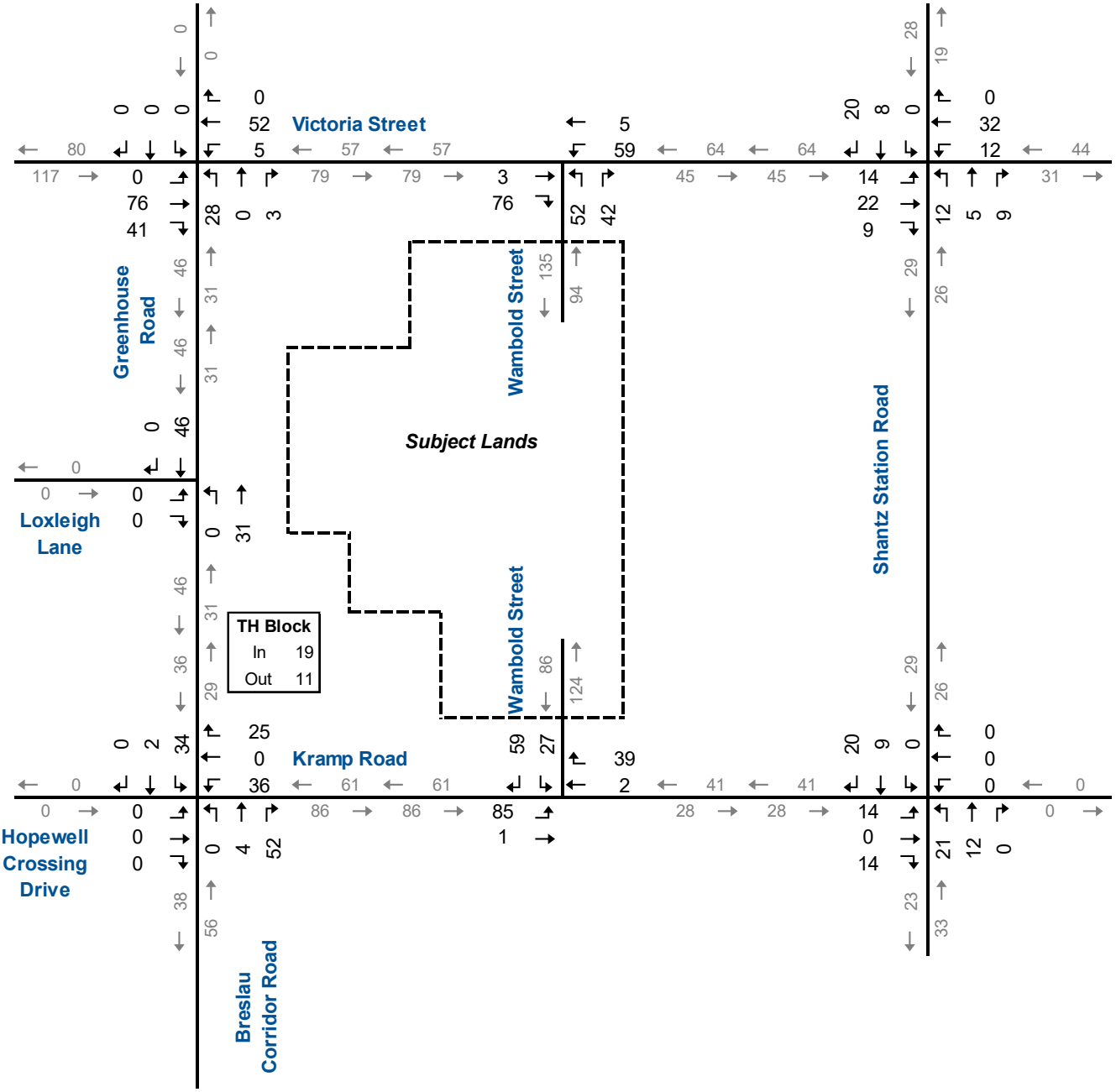
2699 Victoria Street North, Breslau TIS
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Figure 3.2b



NTS

Site Generated Traffic Volumes (with New Highway 7) AM Peak Hour



NTS

Site Generated Traffic Volumes (with New Highway 7) PM Peak Hour

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Figure 3.3b

4 Evaluation of Future Traffic Conditions

The assessment of future traffic conditions contained in this section includes estimates of future background and total traffic and analysis for the 2035, 2040, and 2045 horizon years.

4.1 Background Traffic Forecasts

4.1.1 General Growth

To derive the 2035, 2040 and 2045 generalized background traffic volumes, a growth rate of 1% was applied to the existing roadway traffic volumes. This growth rate is consistent with the growth rate used in the previous Hopewell Crossing reports.

4.1.2 Hopewell Crossing Phase 1, Phase 2 and Phase 3

The traffic volumes generated by Hopewell Crossing Phase 1, Phase 2 and Phase 3 have been included in the background traffic volumes. This section summarizes the location and trips generated by these phases.

As discussed in **Section 1.1**, a TIS for Phase 1 of the Hopewell Crossing Subdivision was completed by Paradigm in March 2018. Phase 1 consisted of 223 single-family units, 32 townhouse units, an elementary school, 3.1 ha of employment lands and 1.46 ha of mixed-use lands. As of June 2025 when turning movement counts were collected, all single-family units and townhouse units were occupied within Phase 1. The employment block on the east side of Greenhouse Road that was originally proposed as part of Phase 1 is the 52-unit townhouse block now being considered as part of the subject lands. Therefore, the employment land area has been reduced accordingly. The remaining blocks are forecast to generate 239 AM peak hour trips and 134 PM peak hour trips.

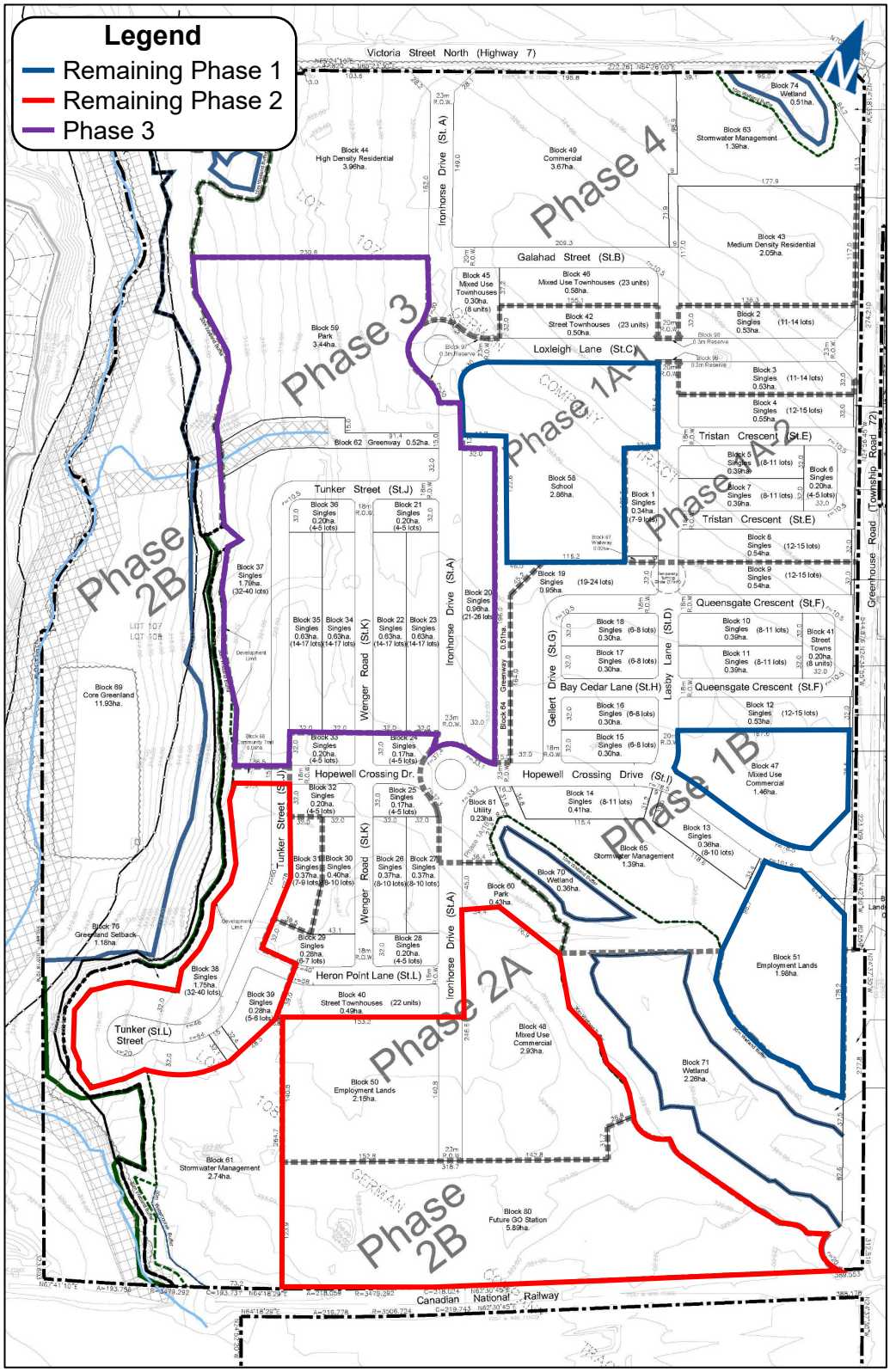
Additionally, a TIS for Phase 2 of the Hopewell Crossing Subdivision was completed by Paradigm in March 2021. Phase 2 consists of 117 single-family units, 22 townhouse units, 223 apartment units, 2.15 ha of employment lands and 1,890 m^2 of commercial uses. As of June 2025 when turning movement counts were collected, Phase 2 was partially completed with approximately 46 single-family units, employment lands and a mixed-use block remaining. The remaining blocks are forecast to generate 175 AM peak hour trips and 217 PM peak hour trips.

A draft TIS for Phase 3 of the Hopewell Crossing Subdivision has been completed by Paradigm. Phase 3 consists of 156 single-family units

and is forecast to generate 107 AM peak hour trips and 143 PM peak hour trips.

Figure 4.1 illustrates the location of the remaining blocks in Phase 1 and Phase 2, and the location of Phase 3.

Appendix C contains the Phase 1, Phase 2 and Phase 3 traffic volumes.



Location of Hopewell Crossing Phase 1, 2 and 3

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Figure 4.1

4.2 Network Improvements

4.2.1 Breslau Corridor Road

The Breslau Corridor Road has been included in the future traffic forecasts. This is consistent with the Hopewell Crossing Phase 2 and Phase 3 TIS. The connector is the subject of a Class Environmental Assessment and is planned to connect Fountain Street to the southerly terminus of Greenhouse Road.

This extension has been assumed to be completed by 2035 for the purpose of this report.

The trip distribution outlined in **Section 3.3** reflects these improvements, as approximately 20% of the trips generated by the subject development and the Hopewell Crossing development are expected to use this new connection to travel to/from the south, based on the distribution discussed in **Section 3.3**.

In addition, 20% of existing trips generated by the Hopewell Crossing units completed as of June 2025 have been redistributed to this new connection.

4.2.2 New Highway 7

The new Highway 7 connection between Kitchener and Guelph is expected to impact forecast travel demand on the existing Victoria Street.

Traffic forecasts have been analyzed with and without the new Highway 7 connection for the 2045 horizon year. For the scenario with the new Highway 7 connection, a reduction of 49% has been applied to through volumes along Victoria Street and is consistent with the reduction in the March 2018 Phase 1, March 2021 Phase 2 and ongoing Phase 3 studies.

For the scenario with the new Highway 7 connection, Victoria Street has been assumed to be a Regional Road. Therefore, regional parameters have been used in the analysis and the MTO queueing analysis has not been completed for this scenario.



4.3 2035 Traffic Forecasts

4.3.1 Background Traffic

Figure 4.2a and **Figure 4.2b** illustrate the 2035 background traffic volumes, including the background road traffic growth and Hopewell Crossing development phases.

Table 4.1 summarizes the results of the 2035 background traffic operations. Signal timings have not been optimized.

The results indicate that the study area intersections are forecast to operate with similar levels of service as under existing traffic operations, except for the following movements:

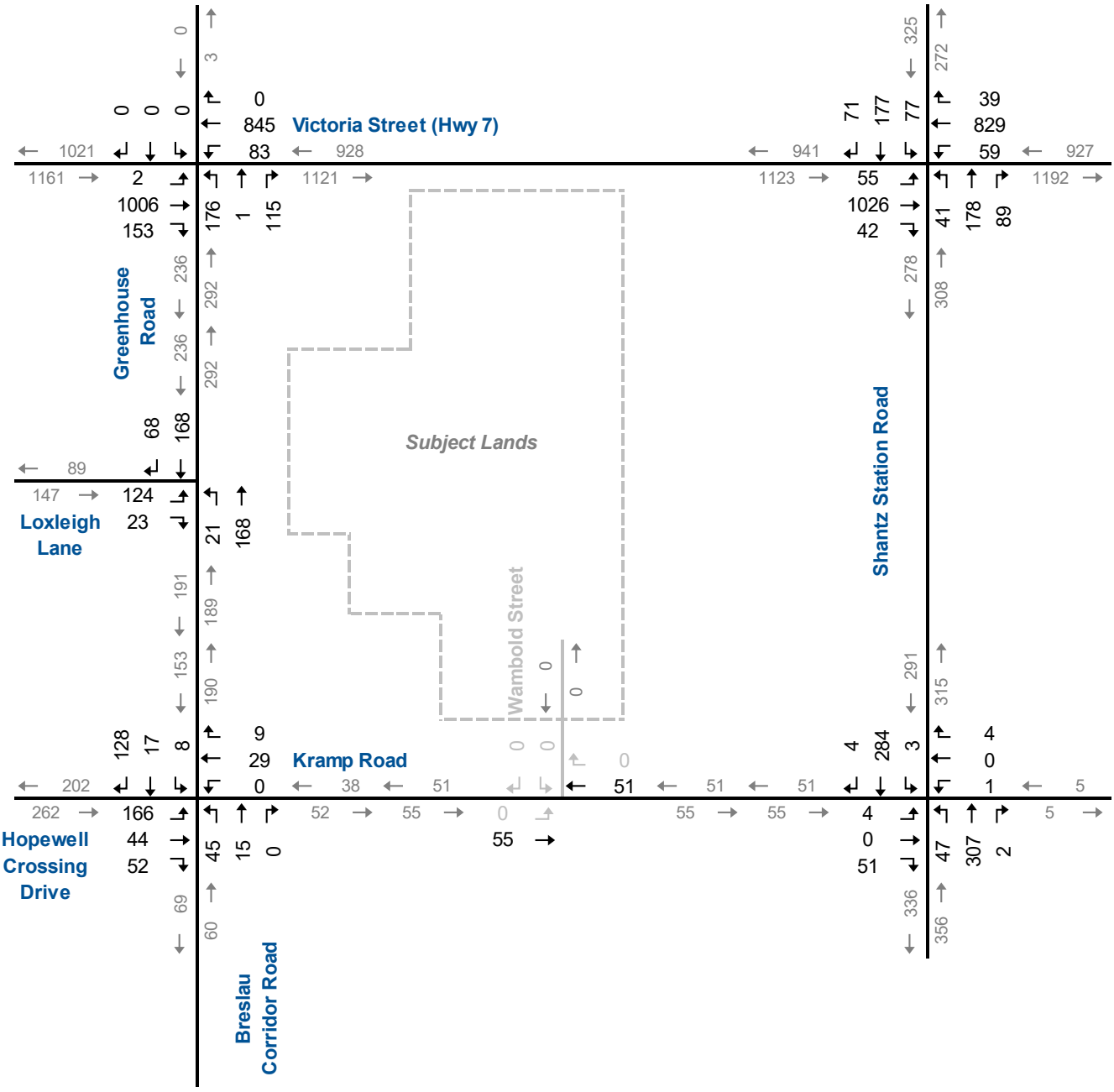
Victoria Street (Highway 7) and Greenhouse Road

- The eastbound through movement is forecast to operate with a v/c ratio greater than 0.85 and LOS E during the AM and PM peak hours; and
- The westbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS D during the PM peak hour.

Victoria Street (Highway 7) and Shantz Station Road

- The westbound through movement is forecast to operate with a v/c ratio greater than 0.85 and LOS C during the AM peak hour.

Appendix D contains the supporting detailed Synchro 12 reports.

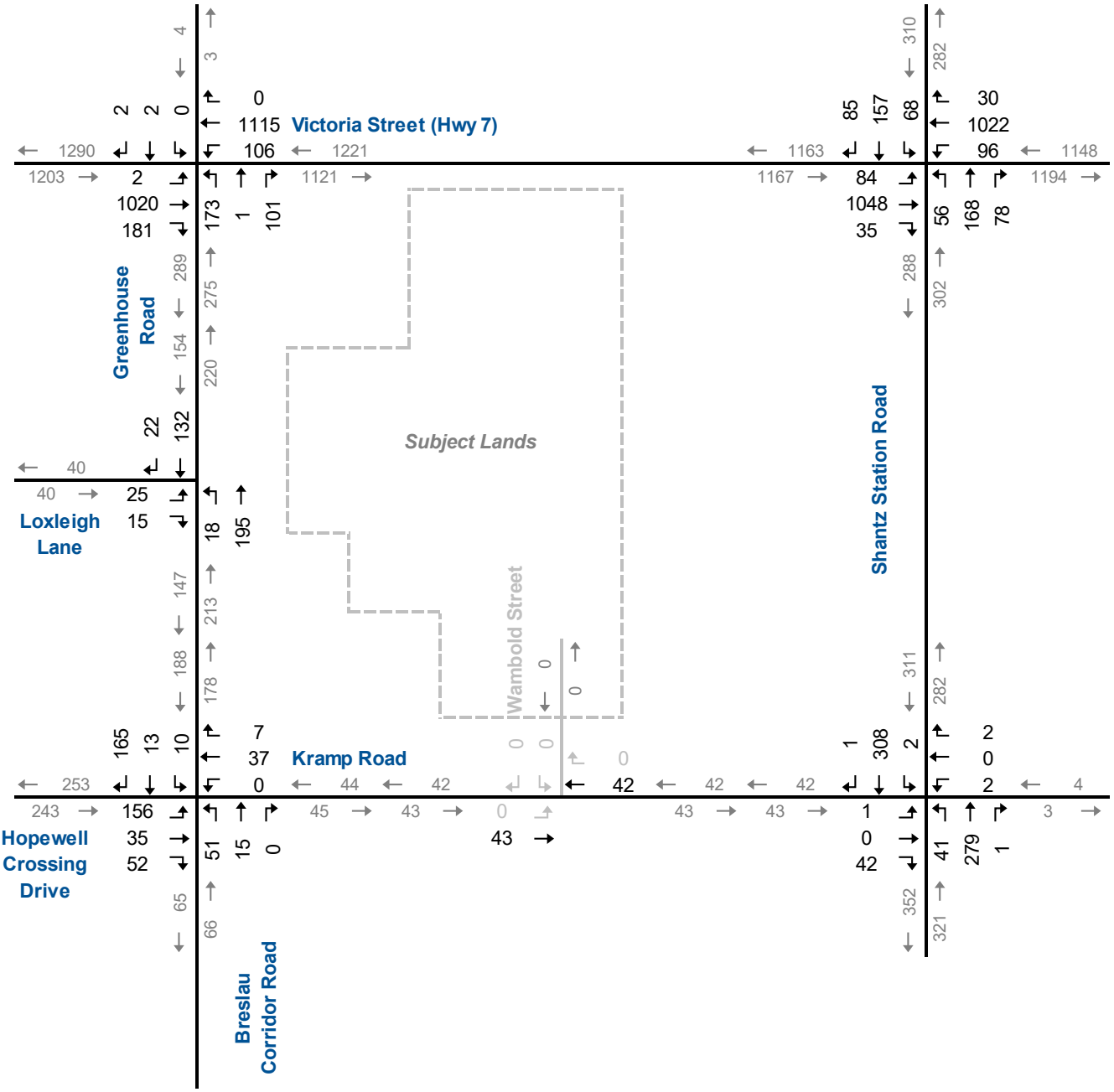


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2035 Background Traffic Volumes AM Peak Hour

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Figure 4.2a



NTS

2035 Background Traffic Volumes PM Peak Hour

2699 Victoria Street North, Breslau TIS
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Figure 4.2b

TABLE 4.1: 2035 BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	E	A	**E**	C	B	>	**B**	E	A	>	**D**	<	A	>		**D**
			Delay	14	78	3	**68**	28	19	>	**20**	63	9	>	**42**	<	0	>		**46**
			V/C	0.01	1.08	0.18		0.54	0.78	>		0.78	0.33	>		<	0.00	>		
			Q	2	388	10		23	206	>		66	15	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	125		117	-	>		49	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	13	>	**13**	<	10	>	**11**	<	8	>	**6**	<	7	>	**0**	
			V/C	<	0.37	>		<	0.06	>		<	0.03	>		<	0.01	>		
			Q	<	13	>		<	2	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	11	>	**11**	<	12	>	**12**	<	8	>	**1**	<	8	>	**0**	
			V/C	<	0.08	>		<	0.01	>		<	0.04	>		<	0.00	>		
			Q	<	2	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	A	F	A	**E**	B	C	A	**C**	D	E	>	**E**	F	E	>	**E**	**E**
			Delay	9	85	2	**78**	15	33	1	**30**	46	57	>	**56**	85	56	>	**63**	**57**
			V/C	0.26	1.10	0.05		0.37	0.88	0.05		0.36	0.83	>		0.79	0.80	>		
			Q	9	375	3		12	269	2		20	86	>		40	81	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	81	-	87		78	-	98		65	-	>		40	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	13		>	**13**					<	8		**1**		0	>	**0**	
			V/C	0.24		>						<	0.02				0.00	>		
			Q	7		>						<	0				0	>		
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	E	A	**E**	C	D	>	**D**	E	A	>	**D**	<	C	>	**C**	**D**
			Delay	14	75	2	**64**	27	39	>	**38**	64	9	>	**44**	<	30	>	**30**	**50**
			V/C	0.03	1.07	0.20		0.57	0.98	>		0.77	0.31	>		<	0.01	>		
			Q	2	392	10		28	382	>		64	14	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	125		112	-	>		51	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	14	>	**14**	<	11	>	**11**	<	8	>	**6**	<	8	>	**0**	
			V/C	<	0.36	>		<	0.07	>		<	0.04	>		<	0.01	>		
			Q	<	13	>		<	2	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	10	>	**10**	<	13	>	**13**	<	8	>	**1**	<	8	>	**0**	
			V/C	<	0.06	>		<	0.01	>		<	0.03	>		<	0.00	>		
			Q	<	2	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	C	F	A	**E**	C	E	A	**E**	D	D	>	**D**	E	D	>	**D**	**E**
			Delay	22	86	1	**79**	33	60	0	**56**	54	55	>	**55**	63	52	>	**55**	**65**
			V/C	0.51	1.11	0.04		0.63	1.03	0.03		0.52	0.79	>		0.63	0.77	>		
			Q	20	380	2		30	364	1		25	78	>		30	76	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	70	-	88		60	-	99		60	-	>		50	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	10		>	**10**					<	8		**1**		0	>	**0**	
			V/C	0.06		>						<	0.01				0.00	>		
			Q	2		>						<	0				0	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.3.2 Total Traffic

Figure 4.3a and **Figure 4.3b** illustrate the 2035 total traffic volumes, including background traffic volumes and site generated traffic volumes (**Figure 3.2**).

Table 4.2 summarizes the results of the 2035 total traffic operations. Signal timings have not been optimized.

The results indicate that the study area intersections are forecast to operate with the same critical movements as under 2035 background traffic conditions, with the following additional critical movements:

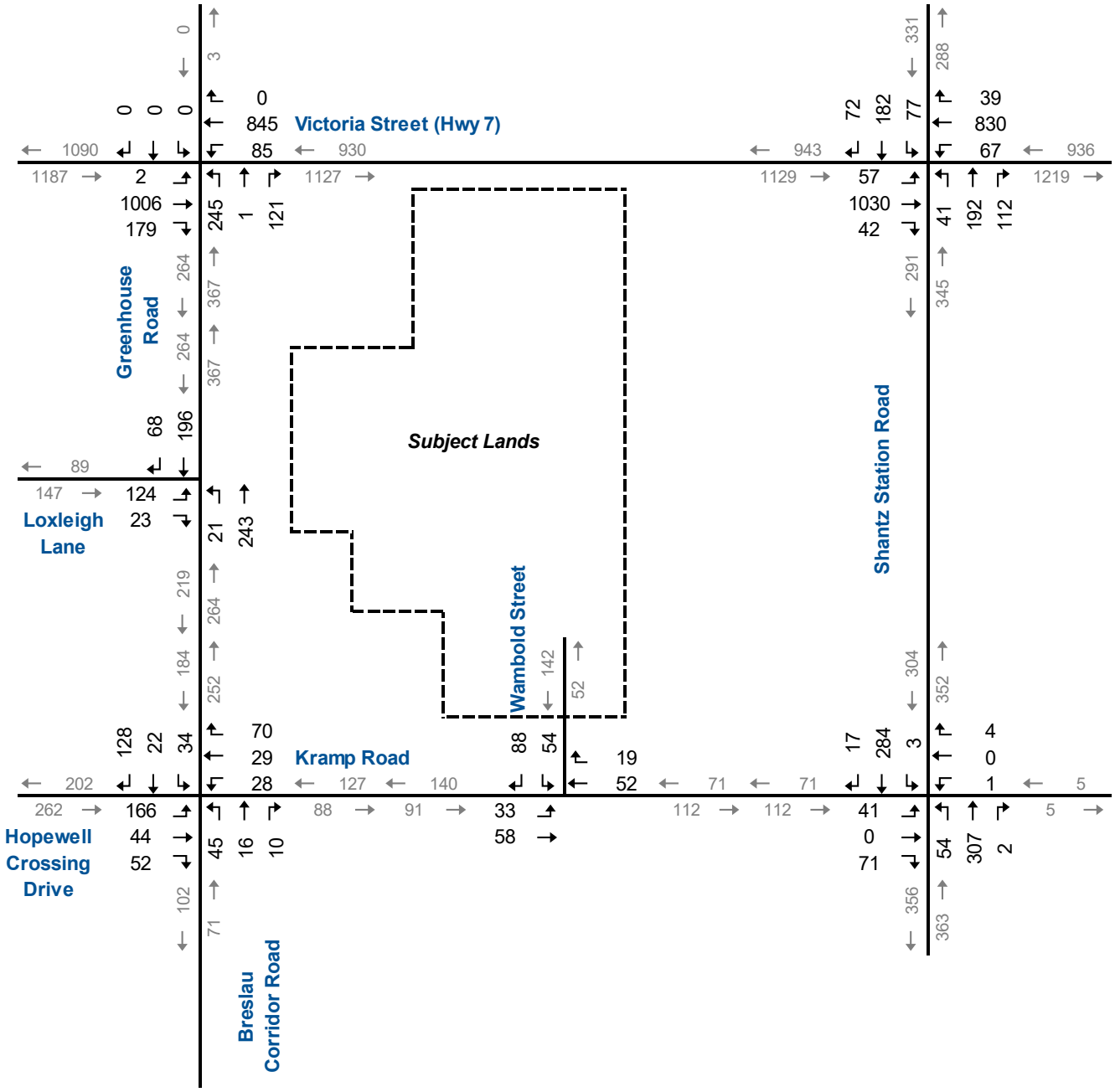
Victoria Street (Highway 7) and Greenhouse Road

- The northbound left-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during and AM and PM peak hours.

Victoria Street (Highway 7) and Shantz Station Road

- The northbound shared through/right-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the AM peak hour; and
- The southbound left-turn movement is forecast to operate with LOS F and a v/c ratio greater than 0.85 during the AM peak hour.

Appendix E contains the supporting detailed Synchro 12 reports.

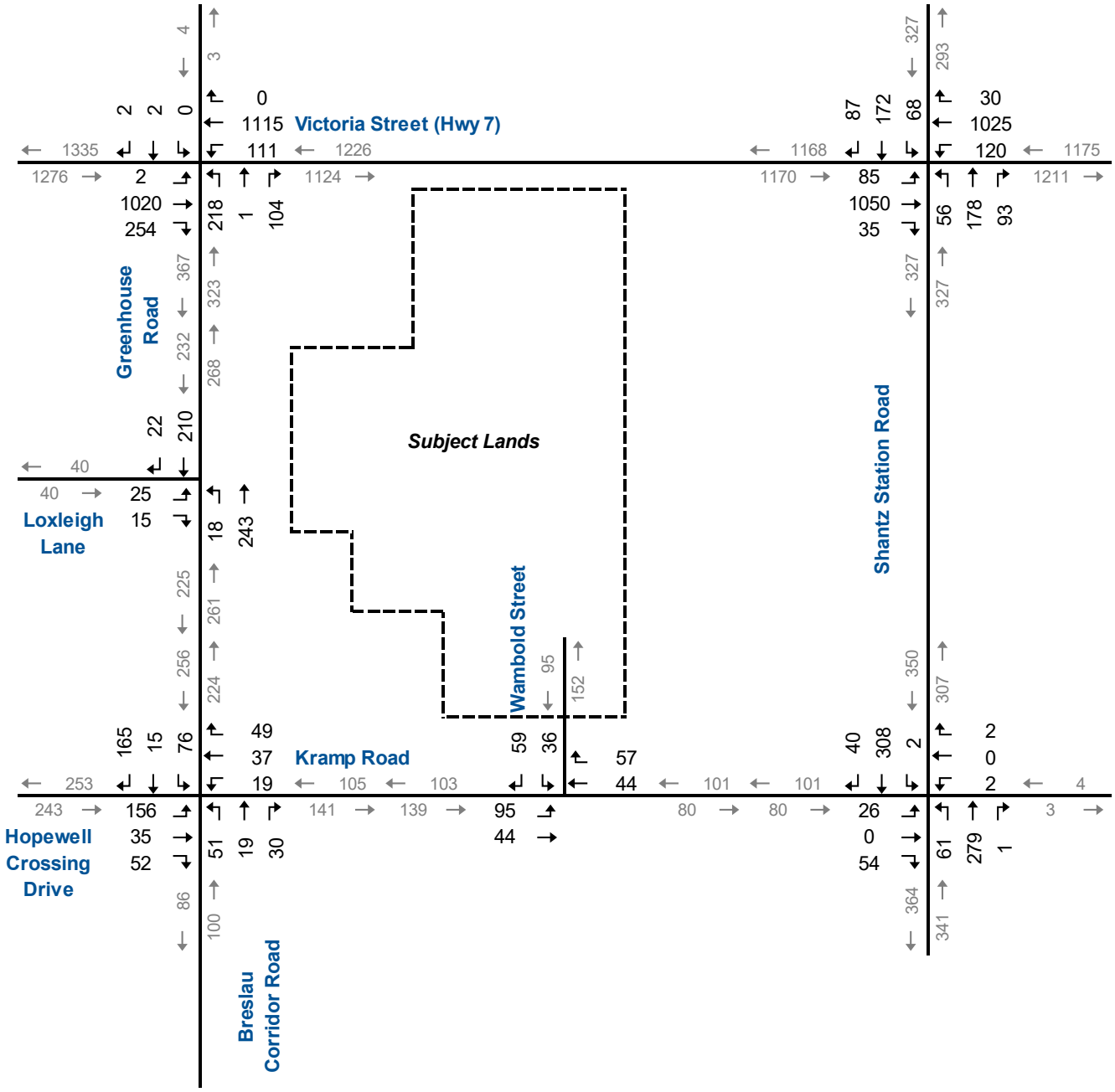


NTS

2035 Total Traffic Volumes AM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.3a



NTS

2035 Total Traffic Volumes
PM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.3b

TABLE 4.2: 2035 TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	C	>	C	E	A	>	D	<	A	>		E
			Delay	14	115	3	98	32	23	>	24	78	8	>	54	<	0	>		64
			V/C	0.01	1.17	0.22		0.58	0.81	>		0.91	0.30	>		<	0.00	>		
			Q	2	388	10		24	206	>		107	15	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	125		116	-	>		8	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	15	>	15	<	10	>	11	<	8	>	5	<	7	>	1	
			V/C	<	0.42	>		<	0.16	>		<	0.03	>		<	0.02	>		
			Q	<	16	>		<	4	>		<	1	>		<	1	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	14	>	14	<	12	>	12	<	8	>	1	<	8	>	0	
			V/C	<	0.22	>		<	0.01	>		<	0.04	>		<	0.00	>		
			Q	<	6	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	A	F	A	F	B	D	A	C	D	E	>	E	F	D	>	E	E
			Delay	10	97	2	89	18	36	1	33	44	62	>	60	109	52	>	65	64
			V/C	0.30	1.13	0.05		0.43	0.90	0.05		0.33	0.87	>		0.89	0.76	>		
			Q	9	377	3		14	270	2		19	107	>		46	83	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	81	-	87		76	-	98		66	-	>		34	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	14		>	14					<	8		1		0	>	0	
			V/C	0.27		>						<	0.02				0.00	>		
			Q	8		>						<	0				0	>		
	Kramp Road & Wambold Street	TWSC	LOS	<	A		A		A	>	A					A		>	A	
			Delay	<	7		3		0	>	0					10		>	10	
			V/C	<	0.02				0.00	>						0.16		>		
			Q	<	1				0	>						4		>		
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	E	C	D	>	D	E	A	>	D	<	C	>	C	E
			Delay	16	91	2	74	30	48	>	47	70	9	>	50	<	29	>	29	59
			V/C	0.03	1.11	0.28		0.60	1.01	>		0.85	0.29	>		<	0.01	>		
			Q	2	392	12		30	382	>		86	14	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	123		110	-	>		29	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	C	>	C	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	18	>	19	<	12	>	12	<	8	>	4	<	8	>	2	
			V/C	<	0.48	>		<	0.17	>		<	0.04	>		<	0.05	>		
			Q	<	20	>		<	4	>		<	1	>		<	2	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	14	>	14	<	13	>	13	<	8	>	1	<	8	>	0	
			V/C	<	0.16	>		<	0.01	>		<	0.05	>		<	0.00	>		
			Q	<	4	>		<	0	>		<	2	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	C	F	A	F	D	E	A	E	E	E	>	E	E	D	>	E	E
			Delay	24	93	1	85	52	66	0	63	55	57	>	57	71	53	>	57	70
			V/C	0.53	1.12	0.04		0.79	1.05	0.03		0.53	0.82	>		0.69	0.78	>		
			Q	21	381	2		46	366	1		26	86	>		33	82	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	69	-	88		44	-	99		59	-	>		47	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	11		>	11					<	8		1		0	>	0	
			V/C	0.07		>						<	0.01				0.00	>		
			Q	2		>						<	0				0	>		
	Kramp Road & Wambold Street	TWSC	LOS	<	A		A		A	>	A					A		>	A	
			Delay	<	8		5		0	>	0					10		>	10	
			V/C	<	0.06				0.00	>						0.12		>		
			Q	<	2				0	>						3		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.3.3 MTO Queueing Analysis

In addition to the Synchro 12 analysis, queue length analysis has been completed for the two signalized intersections along Victoria Street (Highway 7), at both Greenhouse Road and at Shantz Station Road, under 2035 background and total traffic conditions.

The queue analysis has been completed using the same methodology as under existing traffic conditions.

Table 4.3a and **Table 4.3b** summarize the results of the queue length analysis under 2035 background and total traffic conditions. The results indicate that the calculated queues are not exceeding the available storage.

TABLE 4.3A: 2035 QUEUE LENGTH ANALYSIS – THROUGH AND LEFT-TURNS

Horizon	Intersection	Lane	Cycle Length (s)		Volumes (vph)		m_u max	Calc'd Length per Lane (m)	Ex. Storage Length (m)
			AM	PM	AM	PM			
2035 Background	Highway 7 & Greenhouse Road	NBL	120	120	182	173	6.1	75.0	115
		NBTR			117	103	3.9	52.5	-
		SBT			0	4	0.1	7.5	-
		EBL			2	2	0.1	7.5	135
		EBT			1056	1046	35.2	262.5+	-
		WBL			88	106	3.5	52.5	140
		WBTR			875	1131	37.7	262.5+	-
	Highway 7 & Shantz Station Road	NBL	115	115	44	57	1.8	30.0	85
		NBTR			282	249	9.0	105.0	-
		SBL			84	68	2.7	37.5	80
		SBTR			267	243	8.5	105.0	-
		EBL			55	85	2.7	37.5	90
		EBT			1075	1071	34.3	262.5+	-
		WBL			62	105	3.4	52.5	90
		WBT			859	1034	33.0	262.5+	-
2035 Total	Highway 7 & Greenhouse Road	NBL	120	120	251	218	8.4	97.5	115
		NBTR			123	106	4.1	60.0	-
		SBT			0	4	0.1	7.5	-
		EBL			2	2	0.1	7.5	135
		EBT			1056	1046	35.2	262.5+	-
		WBL			90	111	3.7	52.5	140
		WBTR			875	1131	37.7	262.5+	-
	Highway 7 & Shantz Station Road	NBL	115	115	44	57	1.8	30.0	85
		NBTR			319	274	10.2	120.0	-
		SBL			84	68	2.7	37.5	80
		SBTR			273	260	8.7	105.0	-
		EBL			57	86	2.7	37.5	90
		EBT			1079	1073	34.5	262.5+	-
		WBL			70	129	4.1	60.0	90
		WBT			860	1037	33.1	262.5+	-

TABLE 4.3B: 2035 QUEUE LENGTH ANALYSIS – RIGHT-TURNS

Horizon	Intersection	Movement	Cycle Length (s)		Right Turn Volume (vph)		Average Arrival Rate (vpc)		Calc'd Length (m)		Ex. Storage Length (m)
			AM	PM	AM	PM	AM	PM	AM	PM	
2035 Background	Highway 7 & Greenhouse Road	EBR	120	120	153	181	5.1	6	77	90	135
	Highway 7 & Shantz Station Road	EBR	115	115	42	35	1.3	1.1	20	17	90
		WBR			39	30	1.2	1	18	15	100
2035 Total	Highway 7 & Greenhouse Road	EBR	120	120	179	254	6	8.5	90	128	135
	Highway 7 & Shantz Station Road	EBR	115	115	42	35	1.3	1.1	20	17	90
		WBR			39	30	1.2	1	18	15	100

4.4 2040 Traffic Forecasts

4.4.1 Background Traffic

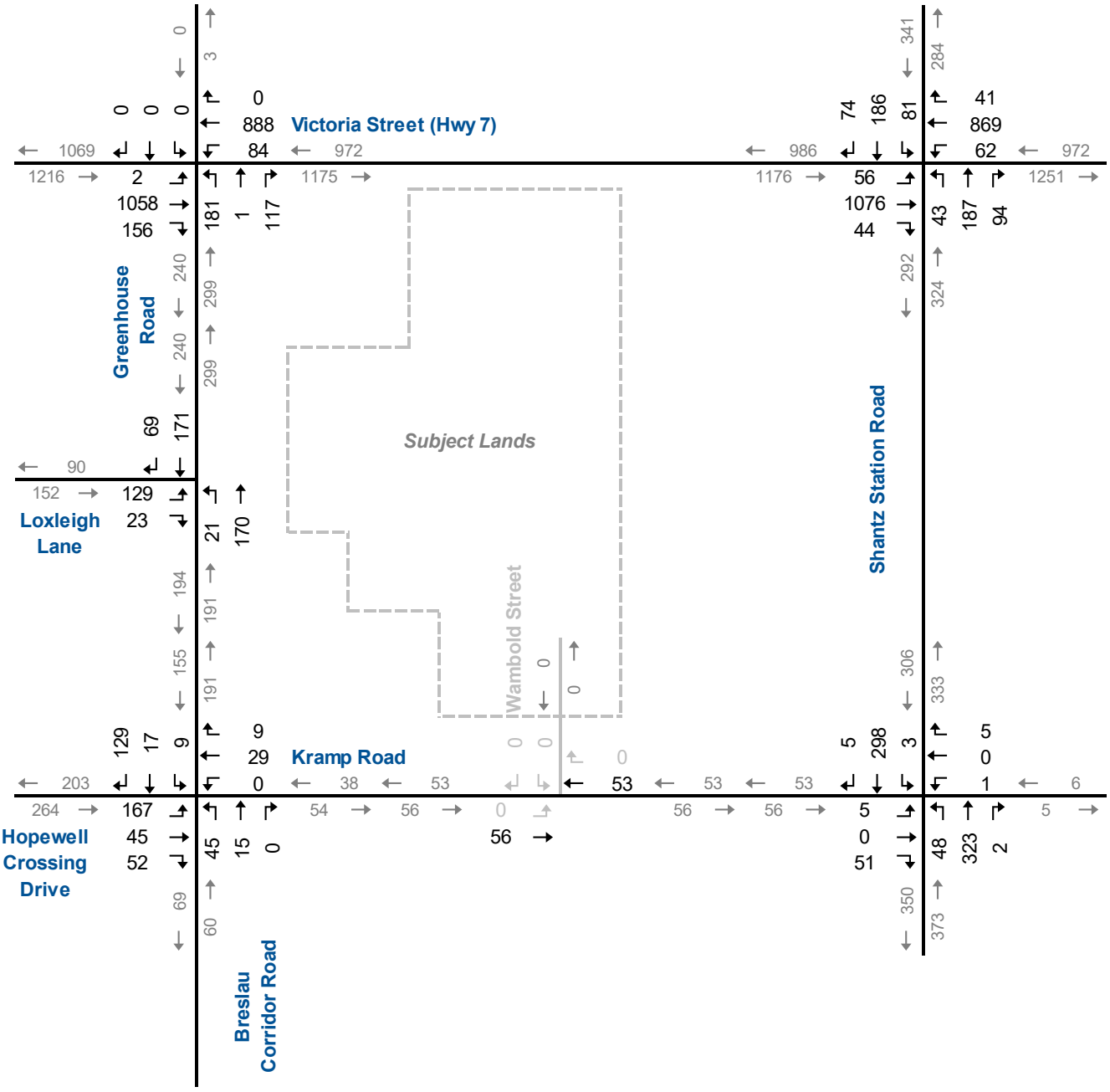
Figure 4.4a and **Figure 4.4b** illustrate the 2040 background traffic volumes, including the background road traffic growth and Hopewell Crossing development phases.

Table 4.4 summarizes the results of the 2040 background traffic operations.

The results indicate that the study area intersections are forecast to operate with similar levels of service as under 2035 background traffic conditions, except for the southbound left-turn movement at Victoria Street (Highway 7) and Shantz Station Road which is forecast to operate with a v/c ratio greater than 0.85 and LOS F during the AM peak hour.

The critical movements identified under existing and 2035 background traffic conditions are forecast to continue to operate with poor levels of service.

Appendix F contains the supporting detailed Synchro 12 reports.

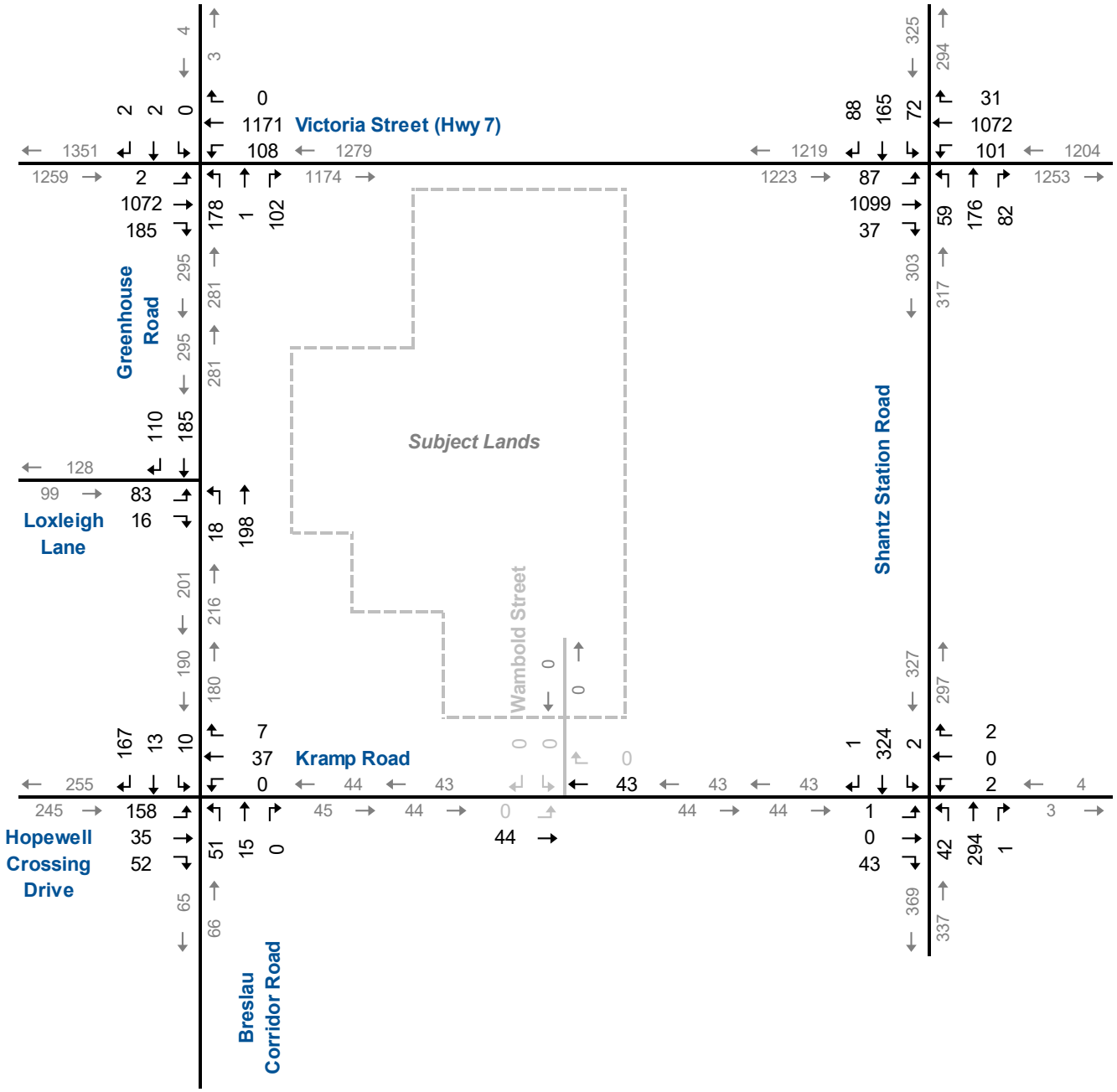


NTS

2040 Background Traffic Volumes AM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.4a



NTS

2040 Background Traffic Volumes PM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.4b

TABLE 4.4: 2040 BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	C	>	C	E	A	>	D	<	A	>		E
			Delay	14	114	3	99	29	22	>	22	66	9	>	43	<	0	>		62
			V/C	0.01	1.17	0.19		0.56	0.82	>		0.80	0.33	>		<	0.00	>		
			Q	2	416	10		24	231	>		68	14	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	125		116	-	>		47	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	13	>	13	<	11	>	11	<	8	>	6	<	7	>	0	
			V/C	<	0.37	>		<	0.06	>		<	0.03	>		<	0.01	>		
			Q	<	13	>		<	2	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	11	>	11	<	12	>	12	<	8	>	1	<	8	>	0	
			V/C	<	0.09	>		<	0.01	>		<	0.04	>		<	0.00	>		
			Q	<	2	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	B	F	A	F	B	D	A	D	D	E	>	E	F	E	>	E	E
			Delay	11	111	2	102	16	40	1	37	47	59	>	57	99	57	>	67	70
			V/C	0.33	1.17	0.05		0.39	0.93	0.05		0.39	0.84	>		0.86	0.81	>		
			Q	9	402	3		12	290	3		20	91	>		45	85	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	81	-	87		78	-	97		65	-	>		35	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	13		>	13					<	8		1		0	>	0	
			V/C	0.25		>						<	0.02				0.00	>		
			Q	8		>						<	0				0	>		
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	D	>	D	E	A	>	D	<	C	>	C	E
			Delay	15	97	3	83	28	53	>	51	64	9	>	44	<	30	>	30	65
			V/C	0.03	1.13	0.21		0.58	1.03	>		0.78	0.31	>		<	0.01	>		
			Q	2	420	11		29	413	>		65	14	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	124		111	-	>		50	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	14	>	14	<	11	>	11	<	8	>	6	<	8	>	0	
			V/C	<	0.37	>		<	0.07	>		<	0.04	>		<	0.01	>		
			Q	<	13	>		<	2	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	11	>	11	<	13	>	13	<	8	>	1	<	8	>	0	
			V/C	<	0.06	>		<	0.01	>		<	0.03	>		<	0.00	>		
			Q	<	2	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	C	F	A	F	D	F	A	F	E	E	>	E	E	D	>	E	F
			Delay	24	110	1	101	35	94	0	87	57	56	>	56	69	54	>	57	86
			V/C	0.53	1.17	0.04		0.66	1.13	0.04		0.55	0.81	>		0.69	0.78	>		
			Q	21	407	2		33	390	1		27	82	>		32	80	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	69	-	88		57	-	99		58	-	>		48	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	13		>	13					<	8		1		0	>	0	
			V/C	0.17		>						<	0.01				0.00	>		
			Q	4		>						<	0				0	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.4.2 Total Traffic

Figure 4.5a and **Figure 4.5b** illustrate the 2040 total traffic volumes, including background traffic volumes and site generated traffic volumes (**Figure 3.2**).

Table 4.5 summarizes the results of the 2040 total traffic operations. Signal timings have not been optimized.

The results indicate that the study area intersections are forecast to operate with the same critical movements as under 2040 background traffic conditions, with the following additional critical movements:

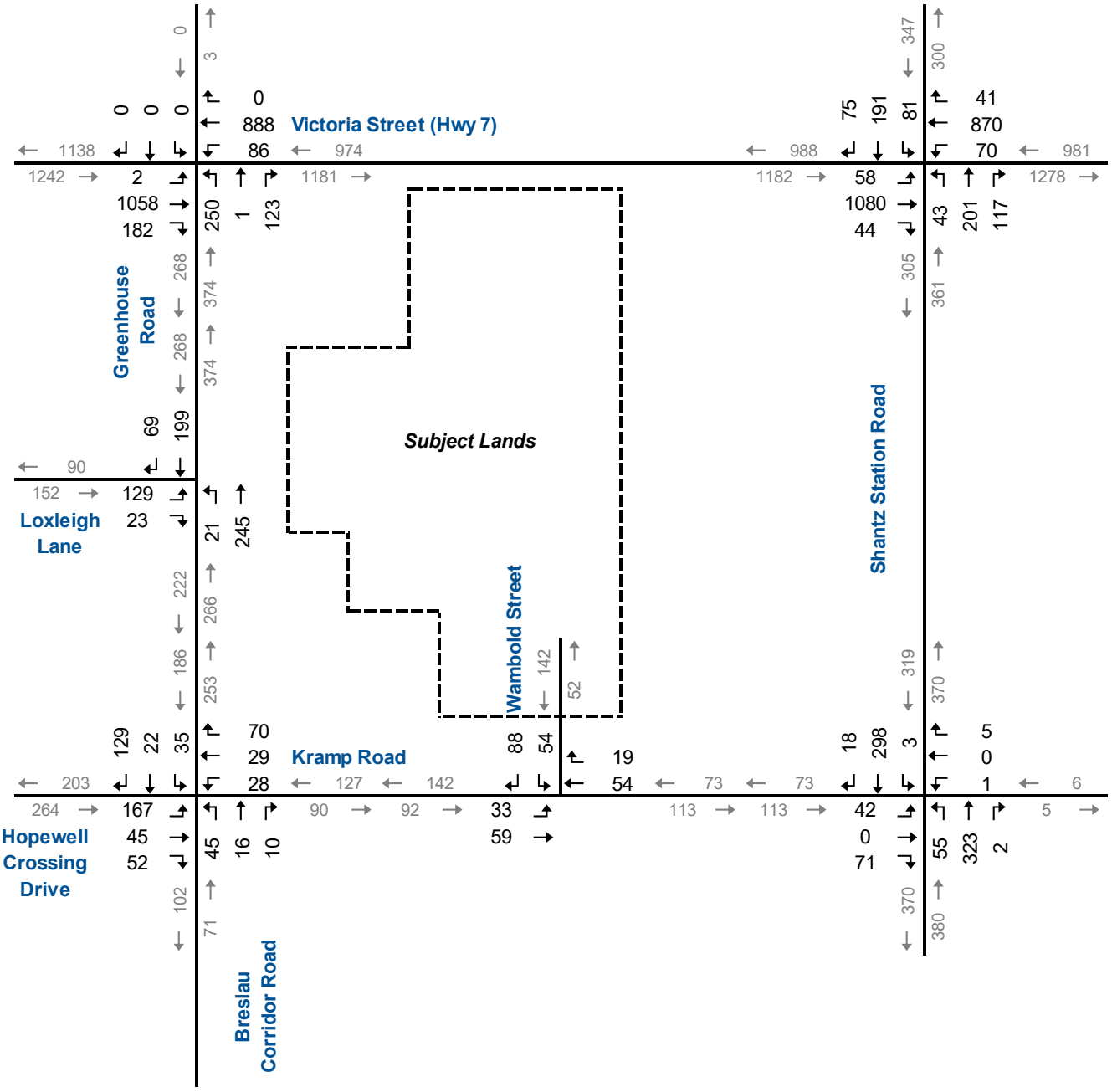
Victoria Street (Highway 7) and Greenhouse Road

- The westbound shared through/right-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the AM peak hour; and
- The northbound left-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during and AM and PM peak hours.

Victoria Street (Highway 7) and Shantz Station Road

- The northbound shared through/right-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the AM peak hour.

Appendix G contains the supporting detailed Synchro 12 reports.

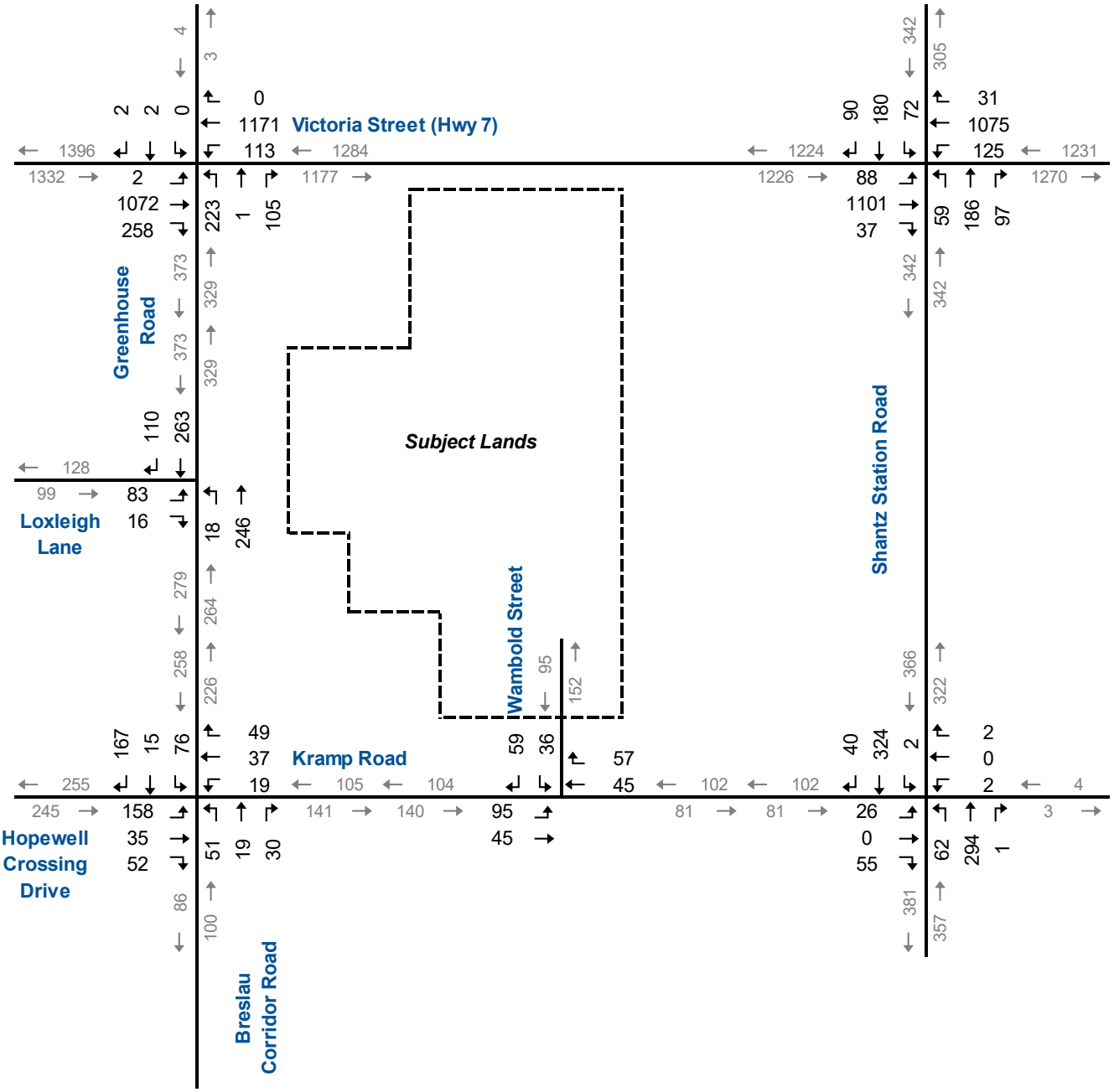


NTS

2040 Total Traffic Volumes AM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.5a



NTS

2040 Total Traffic Volumes
PM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.5b

TABLE 4.5: 2040 TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	C	>	C	E	A	>	E	<	A	>		E
			Delay	14	140	3	120	32	26	>	26	80	8	>	56	<	0	>		76
			V/C	0.01	1.23	0.22		0.59	0.86	>		0.93	0.30	>		<	0.00	>		
			Q	2	416	10		25	231	>		111	15	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	125		115	-	>		4	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	C	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	15	>	15	<	11	>	11	<	8	>	5	<	7	>	1	
			V/C	<	0.43	>		<	0.16	>		<	0.03	>		<	0.02	>		
			Q	<	16	>		<	4	>		<	1	>		<	1	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	15	>	15	<	12	>	12	<	8	>	1	<	8	>	0	
			V/C	<	0.23	>		<	0.01	>		<	0.04	>		<	0.00	>		
			Q	<	7	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	B	F	A	F	B	D	A	D	D	E	>	E	F	D	>	E	E
			Delay	13	125	2	115	19	45	1	41	44	63	>	60	127	52	>	70	77
			V/C	0.35	1.20	0.06		0.46	0.96	0.05		0.35	0.88	>		0.96	0.77	>		
			Q	10	403	3		16	291	3		20	116	>		50	88	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	80	-	87		74	-	97		65	-	>		30	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	14		>	14					<	8		1		0	>	0	
			V/C	0.28		>						<	0.02				0.00	>		
			Q	8		>						<	0				0	>		
	Kramp Road & Wambold Street	TWSC	LOS	<	A		A		A	>	A					A		>	A	
			Delay	<	7		3		0	>	0					10		>	10	
			V/C	<	0.02				0.00	>						0.16		>		
			Q	<	1				0	>						4		>		
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	E	>	E	E	A	>	D	<	C	>	C	E
			Delay	16	116	3	94	30	65	>	62	71	9	>	51	<	29	>	29	75
			V/C	0.03	1.18	0.29		0.61	1.06	>		0.85	0.29	>		<	0.01	>		
			Q	2	420	12		30	413	>		88	14	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	123		110	-	>		27	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	C	>	C	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	19	>	19	<	12	>	12	<	8	>	4	<	8	>	2	
			V/C	<	0.49	>		<	0.17	>		<	0.04	>		<	0.05	>		
			Q	<	20	>		<	4	>		<	1	>		<	2	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	14	>	14	<	14	>	14	<	8	>	1	<	8	>	0	
			V/C	<	0.17	>		<	0.01	>		<	0.05	>		<	0.00	>		
			Q	<	4	>		<	0	>		<	2	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	C	F	A	F	E	F	A	F	E	E	>	E	E	D	>	E	F
			Delay	25	118	1	108	56	103	0	96	58	59	>	59	79	54	>	60	93
			V/C	0.54	1.19	0.04		0.82	1.15	0.04		0.56	0.84	>		0.75	0.80	>		
			Q	21	408	2		49	392	1		27	91	>		38	86	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	69	-	88		41	-	99		58	-	>		42	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	14		>	14					<	8		1		0	>	0	
			V/C	0.20		>						<	0.01				0.00	>		
			Q	6		>						<	0				0	>		
	Kramp Road & Wambold Street	TWSC	LOS	<	A		A		A	>	A					A		>	A	
			Delay	<	8		5		0	>	0					10		>	10	
			V/C	<	0.06				0.00	>						0.12		>		
			Q	<	2				0	>						3		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.4.3 MTO Queueing Analysis

In addition to the Synchro 12 analysis, queue length analysis has been completed for the two signalized intersections along Victoria Street (Highway 7), at both Greenhouse Road and at Shantz Station Road, under 2040 background and total traffic conditions.

The queue analysis has been completed using the same methodology as under existing traffic conditions.

Table 4.6a and **Table 4.6b** summarize the results of the queue length analysis under 2040 background and total traffic conditions. The results indicate that the calculated queues are not exceeding the available storage.

TABLE 4.6A: 2040 QUEUE LENGTH ANALYSIS – THROUGH AND LEFT-TURNS

Horizon	Intersection	Lane	Cycle Length (s)		Volumes (vph)		m_u max	Calc'd Length per Lane (m)	Ex. Storage Length (m)
			AM	PM	AM	PM			
2040 Background	Highway 7 & Greenhouse Road	NBL	120	120	187	178	6.2	82.5	115
		NBTR			119	104	4.0	60.0	-
		SBT			0	4	0.1	7.5	-
		EBL			2	2	0.1	7.5	135
		EBT			1111	1099	37.0	262.5+	-
		WBL			89	108	3.6	52.5	140
		WBTR			920	1187	39.6	262.5+	-
	Highway 7 & Shantz Station Road	NBL	115	115	46	60	1.9	30.0	85
		NBTR			296	261	9.5	112.5	-
		SBL			88	72	2.8	37.5	80
		SBTR			281	254	9.0	105.0	-
		EBL			56	88	2.8	37.5	90
		EBT			1128	1123	36.0	262.5+	-
		WBL			66	110	3.5	52.5	90
		WBT			901	1084	34.6	262.5+	-
2040 Total	Highway 7 & Greenhouse Road	NBL	120	120	256	223	8.5	105.0	115
		NBTR			125	107	4.2	60.0	-
		SBT			0	4	0.1	7.5	-
		EBL			2	2	0.1	7.5	135
		EBT			1111	1099	37.0	262.5+	-
		WBL			91	113	3.8	52.5	140
		WBTR			920	1187	39.6	262.5+	-
	Highway 7 & Shantz Station Road	NBL	115	115	46	60	1.9	30.0	85
		NBTR			333	286	10.6	120.0	-
		SBL			88	72	2.8	37.5	80
		SBTR			287	271	9.2	105.0	-
		EBL			58	89	2.8	37.5	90
		EBT			1132	1125	36.2	262.5+	-
		WBL			74	134	4.3	60.0	90
		WBT			902	1087	34.7	262.5+	-

TABLE 4.6B: 2040 QUEUE LENGTH ANALYSIS – RIGHT-TURNS

Horizon	Intersection	Movement	Cycle Length (s)		Right Turn Volume (vph)		Average Arrival Rate (vpc)		Calc'd Length (m)		Ex. Storage Length (m)
			AM	PM	AM	PM	AM	PM	AM	PM	
2040 Background	Highway 7 & Greenhouse Road	EBR	120	120	156	185	5.2	6.2	78	93	135
	Highway 7 & Shantz Station Road	EBR	115	115	44	37	1.4	1.2	21	18	90
		WBR			41	31	1.3	1	20	15	100
2040 Total	Highway 7 & Greenhouse Road	EBR	120	120	182	258	6.1	8.6	92	129	135
	Highway 7 & Shantz Station Road	EBR	115	115	44	37	1.4	1.2	21	18	90
		WBR			41	31	1.3	1	20	15	100

4.5 2045 Traffic Forecasts (without New Highway 7)

4.5.1 Background Traffic

Figure 4.6a and **Figure 4.6b** illustrate the 2045 background traffic volumes, including the background road traffic growth and Hopewell Crossing development phases.

Table 4.7 summarizes the results of the 2045 background traffic operations.

The results indicate that the study area intersections are forecast to operate with similar levels of service as under 2040 background traffic conditions, except for the

Victoria Street (Highway 7) and Greenhouse Road

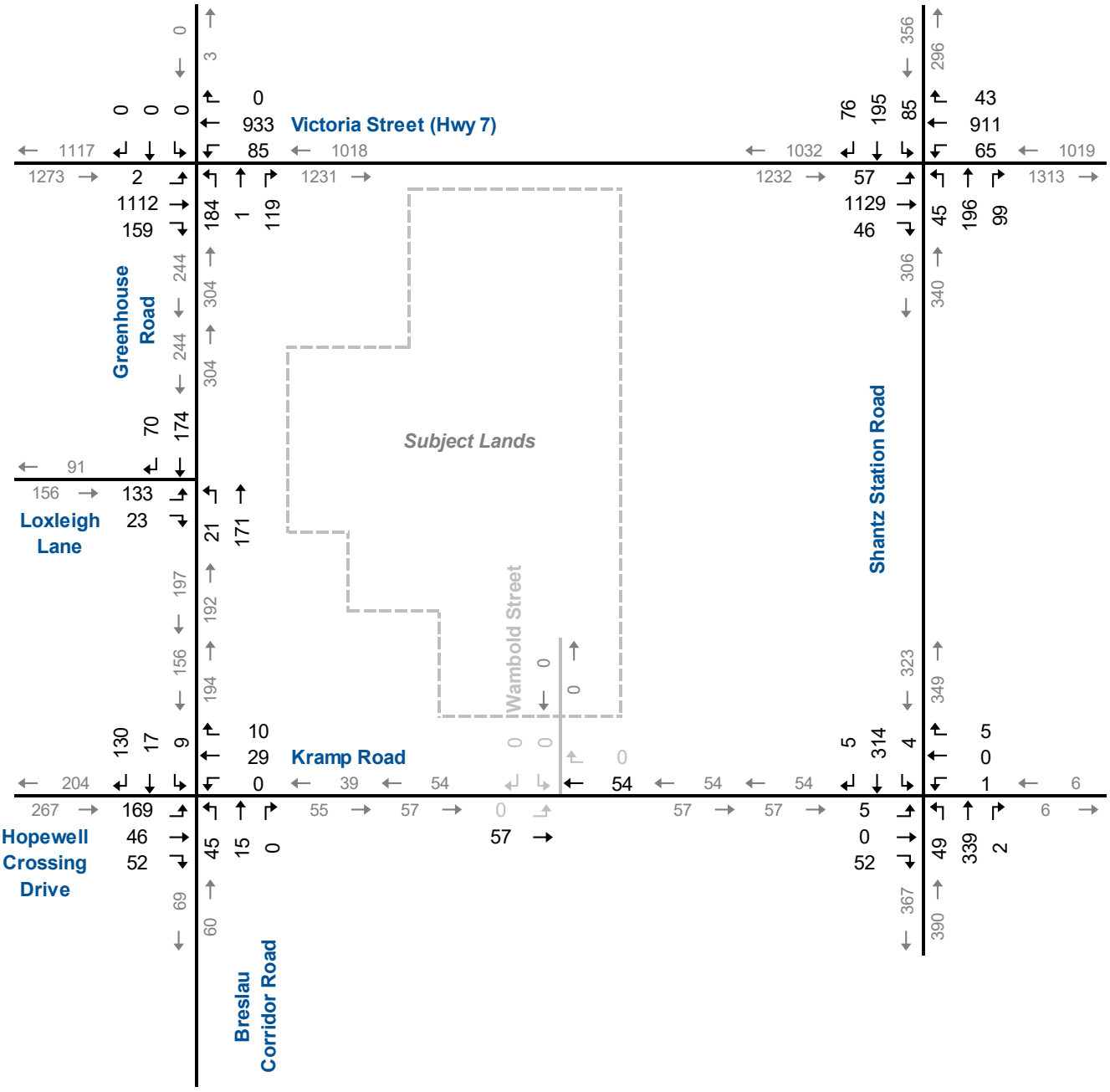
- The westbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS C during the AM peak hour.

Victoria Street (Highway 7) and Shantz Station Road

- The northbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS E during the AM peak hour.

The critical movements identified under existing and 2035 and 2040 background traffic conditions are forecast to continue to operate with poor levels of service.

Appendix H contains the supporting detailed Synchro 12 reports.

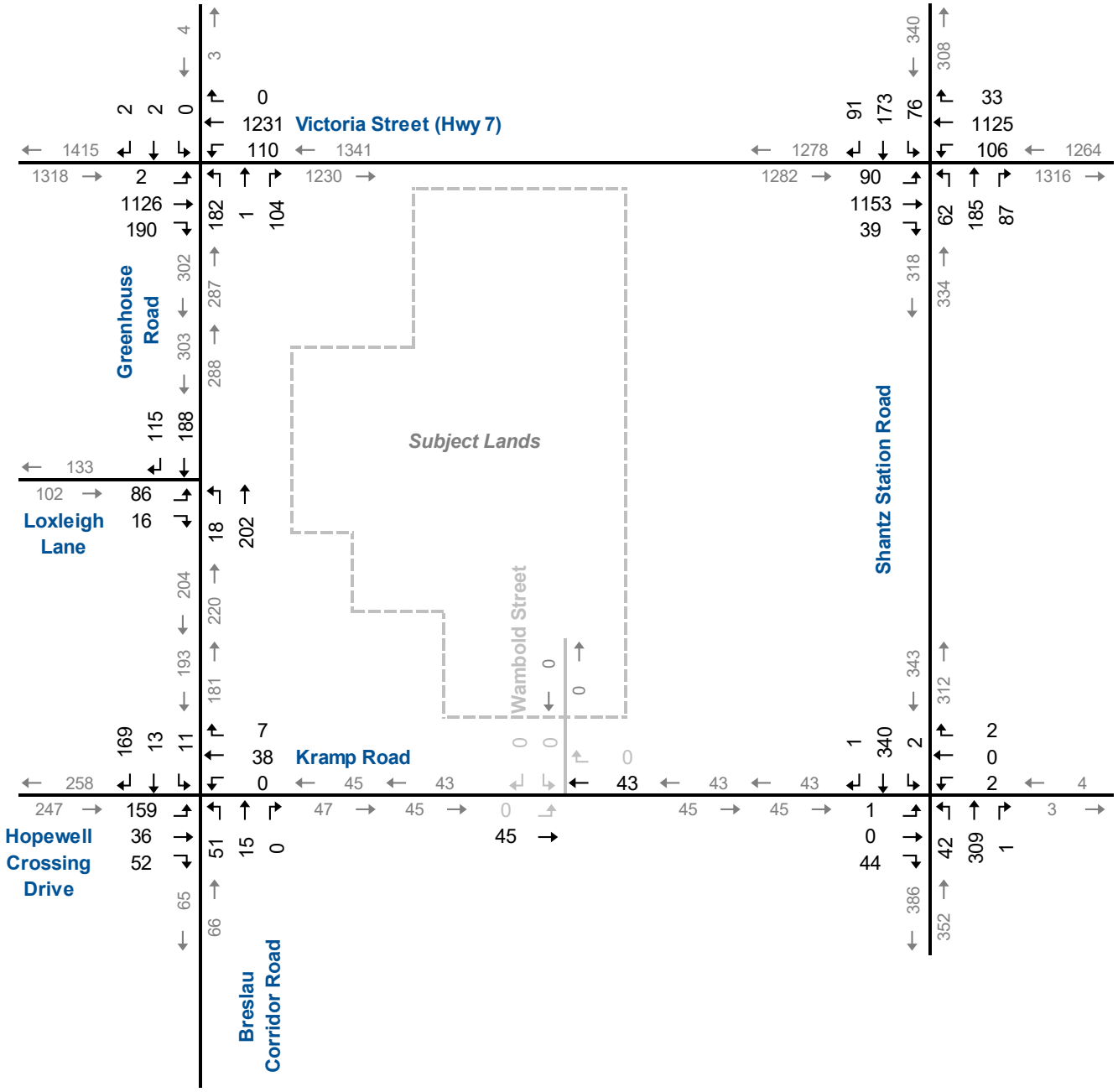


NTS

2045 Background Traffic Volumes (without New Highway 7) AM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.6a



NTS

2045 Background Traffic Volumes (without New Highway 7) PM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.6b

TABLE 4.7: 2045 BACKGROUND (WITHOUT NEW HIGHWAY 7) TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	C	>	C	E	A	>	D	<	A	>		E
			Delay	14	139	3	122	30	24	>	25	66	9	>	44	<	0	>		75
			V/C	0.01	1.23	0.19		0.57	0.86	>		0.81	0.33	>		<	0.00	>		
			Q	2	446	11		24	268	>		69	15	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	124		116	-	>		46	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	13	>	13	<	10	>	11	<	8	>	6	<	7	>	0	
			V/C	<	0.38	>		<	0.06	>		<	0.03	>		<	0.01	>		
			Q	<	14	>		<	2	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	11	>	11	<	12	>	12	<	8	>	1	<	8	>	0	
			V/C	<	0.09	>		<	0.01	>		<	0.04	>		<	0.00	>		
			Q	<	2	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	B	F	A	F	B	D	A	D	D	E	>	E	F	E	>	E	F
			Delay	13	140	2	129	17	51	2	47	48	60	>	58	118	57	>	72	85
			V/C	0.35	1.24	0.06		0.42	0.99	0.06		0.41	0.86	>		0.94	0.82	>		
			Q	10	429	3		14	312	3		21	103	>		50	91	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	80	-	87		76	-	97		64	-	>		30	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	13		>	13					<	8		1		0	>	0	
			V/C	0.26		>						<	0.02				0.00	>		
			Q	8		>						<	0				0	>		
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	E	>	E	E	A	>	D	<	C	>	C	F
			Delay	15	123	3	106	28	72	>	69	65	9	>	44	<	30	>	30	83
			V/C	0.03	1.20	0.21		0.59	1.09	>		0.79	0.31	>		<	0.01	>		
			Q	2	450	12		30	445	>		67	14	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	123		110	-	>		48	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	14	>	14	<	11	>	11	<	8	>	6	<	8	>	0	
			V/C	<	0.38	>		<	0.07	>		<	0.04	>		<	0.01	>		
			Q	<	13	>		<	2	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	11	>	11	<	14	>	14	<	8	>	1	<	8	>	0	
			V/C	<	0.07	>		<	0.01	>		<	0.03	>		<	0.00	>		
			Q	<	2	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	C	F	A	F	D	F	A	F	E	E	>	E	E	D	>	E	F
			Delay	25	139	1	126	39	121	1	111	60	58	>	58	79	54	>	60	106
			V/C	0.55	1.23	0.05		0.69	1.19	0.04		0.59	0.82	>		0.75	0.79	>		
			Q	22	435	2		36	418	1		28	87	>		38	84	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	68	-	88		54	-	99		57	-	>		42	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	13		>	13					<	8		1		0	>	0	
			V/C	0.18		>						<	0.01				0.00	>		
			Q	5		>						<	0				0	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.5.2 Total Traffic

Figure 4.7a and **Figure 4.7b** illustrate the 2045 total traffic volumes, including background traffic volumes and site generated traffic volumes (**Figure 3.2**).

Table 4.8 summarizes the results of the 2045 total traffic operations. Signal timings have not been optimized.

The results indicate that the study area intersections are forecast to operate with the same critical movements as under 2045 background traffic conditions, with the following additional critical movements:

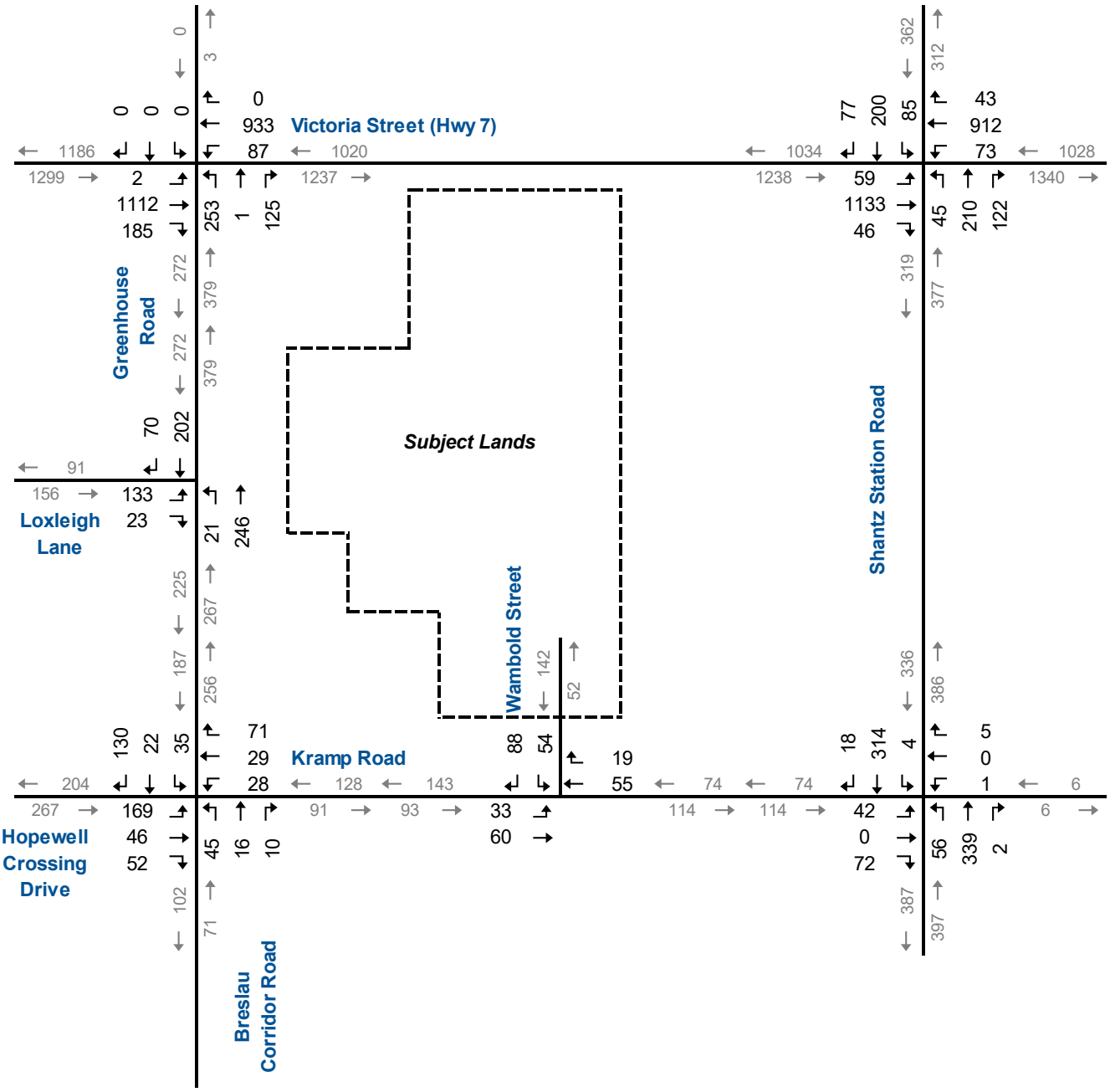
Victoria Street (Highway 7) and Greenhouse Road

- The northbound left-turn movement is forecast to operate with LOS E/F and a v/c ratio greater than 0.85 during and AM and PM peak hours.

Victoria Street (Highway 7) and Shantz Station Road

- The westbound left-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the PM peak hour; and
- The northbound shared through/right-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the PM peak hour.

Appendix I contains the supporting detailed Synchro 12 reports.

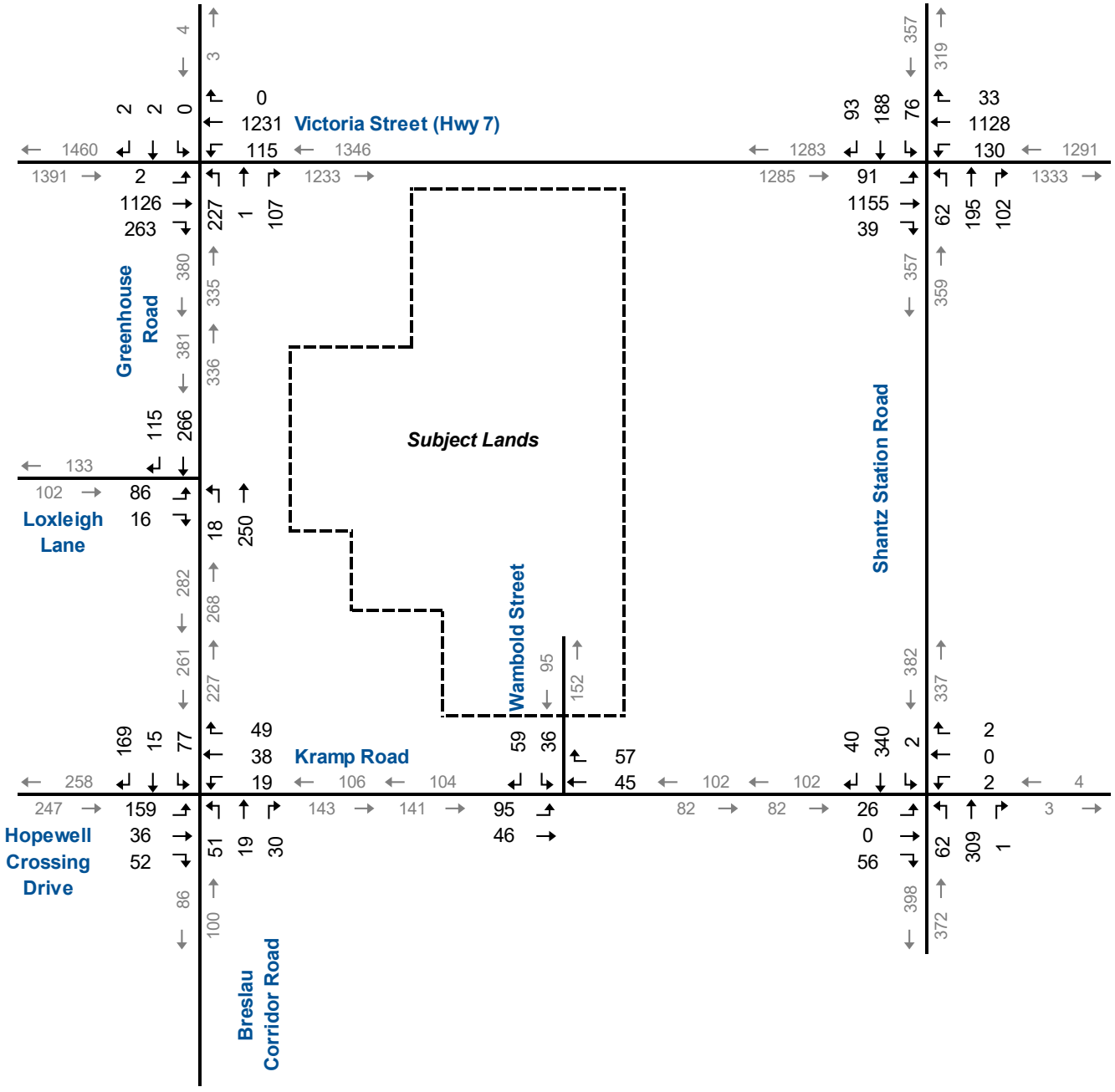


NTS

2045 Total Traffic Volumes (without New Highway 7) AM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.7a



NTS

2045 Total Traffic Volumes (without New Highway 7) PM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.7b

TABLE 4.8: 2045 TOTAL (WITHOUT NEW HIGHWAY 7) TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	C	>	C	F	A	>	E	<	A	>		F
			Delay	14	169	3	145	33	30	>	31	81	8	>	57	<	0	>		89
			V/C	0.02	1.30	0.23		0.59	0.90	>		0.93	0.30	>		<	0.00	>		
			Q	2	446	12		25	268	>		113	15	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	123		115	-	>		2	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	C	>	C	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	15	>	15	<	11	>	11	<	8	>	5	<	7	>	1	
			V/C	<	0.43	>		<	0.17	>		<	0.03	>		<	0.02	>		
			Q	<	16	>		<	4	>		<	1	>		<	1	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	C	>	C	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	15	>	15	<	12	>	13	<	8	>	1	<	8	>	0	
			V/C	<	0.24	>		<	0.01	>		<	0.04	>		<	0.00	>		
			Q	<	8	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	B	F	A	F	C	E	A	E	D	E	>	E	F	D	>	E	F
			Delay	14	162	2	149	21	61	2	56	44	60	>	58	128	51	>	69	96
			V/C	0.37	1.29	0.06		0.48	1.02	0.06		0.34	0.87	>		0.97	0.75	>		
			Q	10	431	3		17	313	3		21	124	>		54	97	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	80	-	87		73	-	97		64	-	>		26	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	14		>	14					<	8		1		0	>	0	
			V/C	0.29		>						<	0.02				0.00	>		
			Q	9		>						<	0				0	>		
	Kramp Road & Wambold Street	TWSC	LOS	<	A		A		A	>	A					A		>	A	
			Delay	<	7		3		0	>	0					10		>	10	
			V/C	<	0.02				0.00	>						0.16		>		
			Q	<	1				0	>						4		>		
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	F	A	F	C	F	>	F	E	A	>	D	<	C	>	C	F
			Delay	16	144	3	117	31	87	>	82	71	9	>	51	<	29	>	29	94
			V/C	0.03	1.24	0.29		0.62	1.12	>		0.86	0.29	>		<	0.01	>		
			Q	2	450	14		31	445	>		92	14	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	121		109	-	>		23	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	C	>	C	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	19	>	19	<	12	>	12	<	8	>	4	<	8	>	2	
			V/C	<	0.49	>		<	0.17	>		<	0.04	>		<	0.06	>		
			Q	<	20	>		<	4	>		<	1	>		<	2	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	14	>	14	<	14	>	14	<	8	>	1	<	8	>	0	
			V/C	<	0.17	>		<	0.01	>		<	0.05	>		<	0.00	>		
			Q	<	4	>		<	0	>		<	2	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	C	F	A	F	E	F	A	F	E	E	>	E	F	D	>	E	F
			Delay	26	148	1	135	64	130	1	120	62	60	>	61	93	55	>	63	113
			V/C	0.56	1.26	0.05		0.87	1.21	0.04		0.60	0.86	>		0.83	0.80	>		
			Q	22	436	2		52	420	1		29	98	>		42	90	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	68	-	88		38	-	99		56	-	>		38	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	15		>	15					<	8		1		0	>	0	
			V/C	0.21		>						<	0.01				0.00	>		
			Q	6		>						<	0				0	>		
	Kramp Road & Wambold Street	TWSC	LOS	<	A		A		A	>	A					A		>	A	
			Delay	<	8		5		0	>	0					10		>	10	
			V/C	<	0.06				0.00	>						0.12		>		
			Q	<	2				0	>						3		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.5.3 MTO Queueing Analysis

In addition to the Synchro 12 analysis, queue length analysis has been completed for the two signalized intersections along Victoria Street (Highway 7), at both Greenhouse Road and at Shantz Station Road, under 2045 background and total traffic conditions.

The queue analysis has been completed using the same methodology as under existing traffic conditions.

Table 4.9a and **Table 4.9b** summarize the results of the queue length analysis under 2045 background and total traffic conditions. The results indicate that the calculated queues are not exceeding the available storage.

TABLE 4.9A: 2045 (WITHOUT NEW HIGHWAY 7) QUEUE LENGTH ANALYSIS – THROUGH AND LEFT-TURNS

Horizon	Intersection	Lane	Cycle Length (s)		Volumes (vph)		m_u max	Calc'd Length per Lane (m)	Ex. Storage Length (m)
			AM	PM	AM	PM			
2045 Background	Highway 7 & Greenhouse Road	NBL	120	120	190	182	6.3	82.5	115
		NBTR			121	106	4.0	60.0	-
		SBT			0	4	0.1	7.5	-
		EBL			2	2	0.1	7.5	135
		EBT			1168	1154	38.9	262.5+	-
		WBL			91	110	3.7	52.5	140
		WBTR			967	1248	41.6	262.5+	-
	Highway 7 & Shantz Station Road	NBL	115	115	49	63	2.0	37.5	85
		NBTR			310	275	9.9	112.5	-
		SBL			92	76	2.9	45.0	80
		SBTR			293	265	9.4	112.5	-
		EBL			57	91	2.9	45.0	90
		EBT			1183	1179	37.8	262.5+	-
		WBL			69	116	3.7	52.5	90
		WBT			944	1138	36.4	262.5+	-
2045 Total	Highway 7 & Greenhouse Road	NBL	120	120	259	227	8.6	105.0	115
		NBTR			127	109	4.2	60.0	-
		SBT			0	4	0.1	7.5	-
		EBL			2	2	0.1	7.5	135
		EBT			1168	1154	38.9	262.5+	-
		WBL			93	115	3.8	52.5	140
		WBTR			967	1248	41.6	262.5+	-
	Highway 7 & Shantz Station Road	NBL	115	115	49	63	2.0	37.5	85
		NBTR			347	300	11.1	127.5	-
		SBL			92	76	2.9	45.0	80
		SBTR			299	282	9.6	112.5	-
		EBL			59	92	2.9	45.0	90
		EBT			1187	1181	37.9	262.5+	-
		WBL			77	140	4.5	60.0	90
		WBT			945	1141	36.4	262.5+	-

TABLE 4.9B: 2045 (WITHOUT NEW HIGHWAY 7) QUEUE LENGTH ANALYSIS – RIGHT-TURNS

Horizon	Intersection	Movement	Cycle Length (s)		Right Turn Volume (vph)		Average Arrival Rate (vpc)		Calc'd Length (m)		Ex. Storage Length (m)
			AM	PM	AM	PM	AM	PM	AM	PM	
2045 Background	Highway 7 & Greenhouse Road	EBR	120	120	159	190	5.3	6.3	80	95	135
	Highway 7 & Shantz Station Road	EBR	115	115	46	39	1.5	1.2	23	18	90
		WBR			43	33	1.4	1.1	21	17	100
2045 Total	Highway 7 & Greenhouse Road	EBR	120	120	185	263	6.2	8.8	93	132	135
	Highway 7 & Shantz Station Road	EBR	115	115	46	39	1.5	1.2	23	18	90
		WBR			43	33	1.4	1.1	21	17	100

4.6 Traffic Forecasts (with New Highway 7)

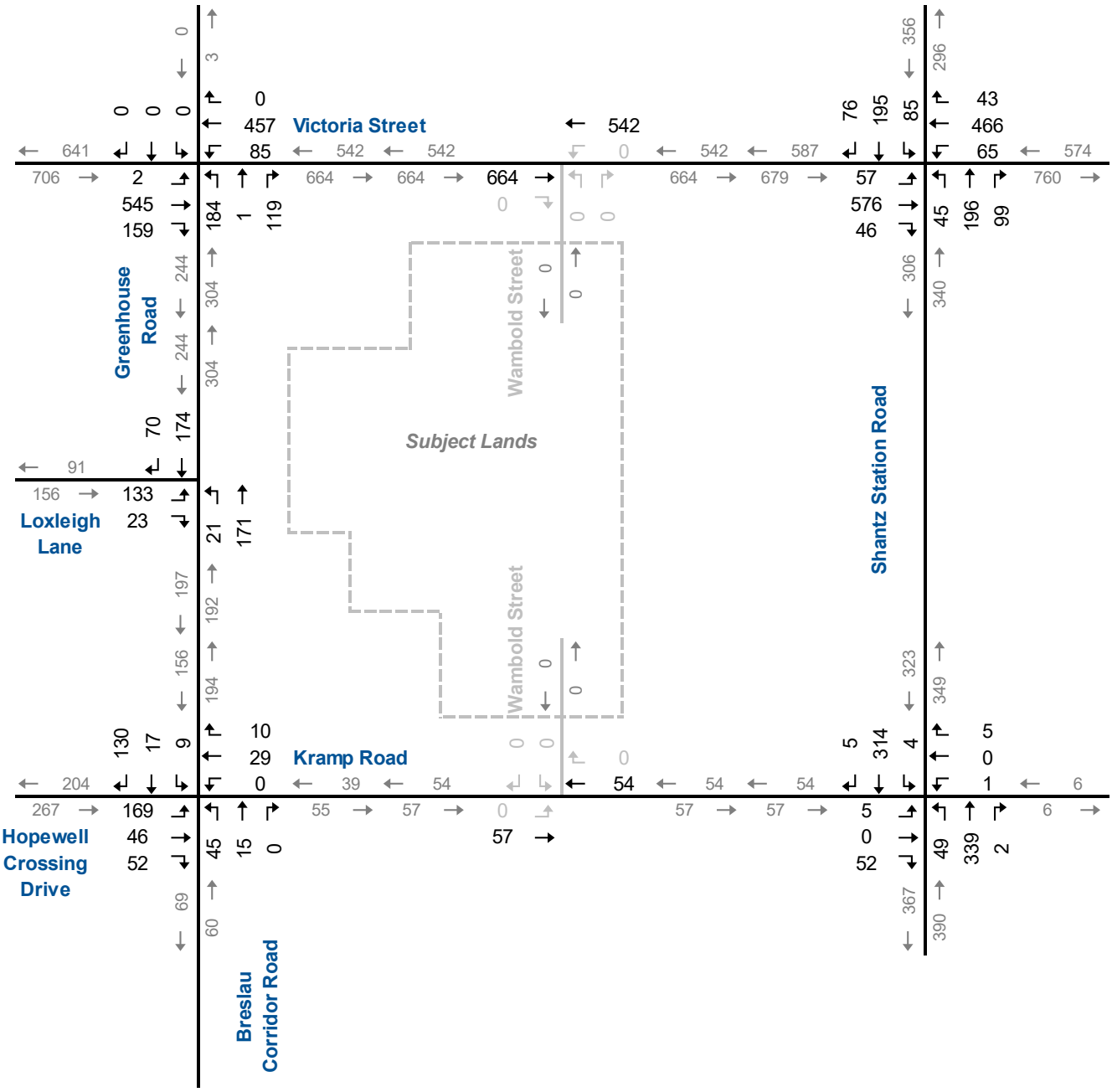
4.6.1 Background Traffic

Figure 4.8a and **Figure 4.8b** illustrate the 2045 background traffic volumes, including the background road traffic growth and Hopewell Crossing development phases, and reflects the new Highway 7 connection.

Table 4.10 summarizes the results of the 2045 background traffic operations. Signal timings at the intersection of Victoria Street and Shantz Station Road have been optimized to account for the reduction in through volumes along Victoria Street.

The results indicate that the study area intersections are forecast to operate with acceptable levels of service during the AM and PM peak hours.

Appendix J contains the supporting detailed Synchro 12 reports.

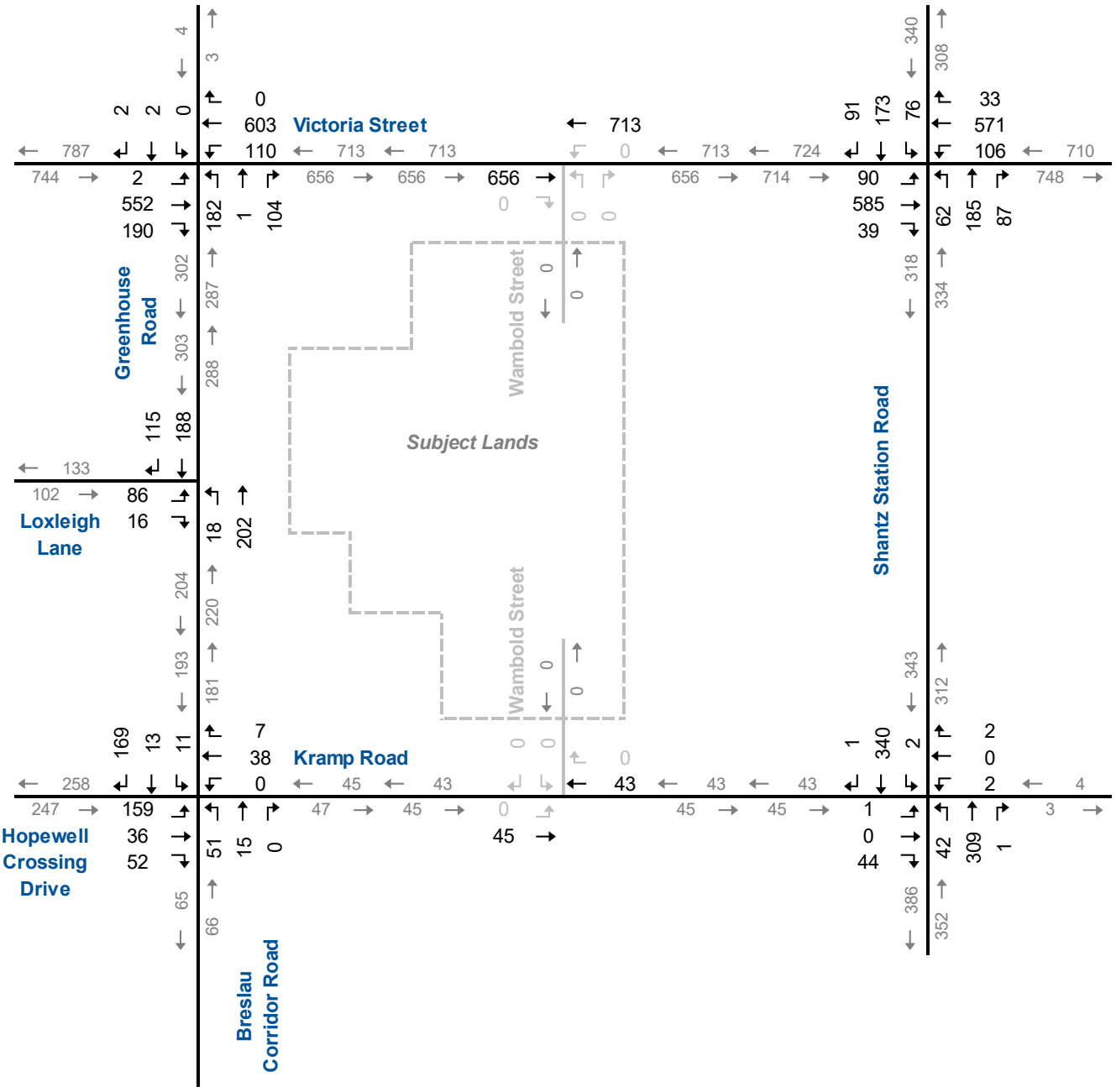


NTS

2045 Background Traffic Volumes (with New Highway 7) AM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.8a



NTS

2045 Background Traffic Volumes (with New Highway 7) PM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.8b

TABLE 4.10: 2045 BACKGROUND (WITH NEW HIGHWAY 7) TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	C	A	C	A	B	>	B	D	A	>	C	<	A	>		B
			Delay	14	25	4	20	8	13	>	13	37	8	>	25	<	0	>		19
			V/C	0.01	0.72	0.23		0.25	0.54	>		0.62	0.29	>		<	0.00	>		
			Q	2	116	11		12	73	>		51	13	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	124		128	-	>		64	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	13	>	13	<	10	>	11	<	8	>	6	<	7	>	0	
			V/C	<	0.38	>		<	0.06	>		<	0.03	>		<	0.01	>		
			Q	<	14	>		<	2	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	11	>	11	<	12	>	12	<	8	>	1	<	8	>	0	
			V/C	<	0.09	>		<	0.01	>		<	0.04	>		<	0.00	>		
			Q	<	2	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	A	C	A	B	A	B	A	B	C	D	>	D	D	D	>	D	C
			Delay	8	22	2	19	8	19	2	17	32	46	>	44	45	45	>	45	28
			V/C	0.11	0.62	0.06		0.16	0.49	0.06		0.25	0.79	>		0.54	0.75	>		
			Q	10	131	3		11	98	3		16	74	>		28	69	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	80	-	87		79	-	97		69	-	>		52	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	13		>	13					<	8		1		0	>	0	
			V/C	0.26		>						<	0.02				0.00	>		
			Q	8		>						<	0				0	>		
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	C	A	B	A	B	>	B	D	A	>	C	<	C	>	C	B
			Delay	14	24	4	19	7	16	>	15	36	8	>	26	<	21	>	21	18
			V/C	0.01	0.71	0.26		0.25	0.68	>		0.59	0.27	>		<	0.01	>		
			Q	1	113	11		14	102	>		50	12	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	134	-	124		126	-	>		65	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	14	>	14	<	11	>	11	<	8	>	6	<	8	>	0	
			V/C	<	0.38	>		<	0.07	>		<	0.04	>		<	0.01	>		
			Q	<	13	>		<	2	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	B	<	B	>	B	<	A	>	A	<	A	>	A	
			Delay	<	11	>	11	<	14	>	14	<	8	>	1	<	8	>	0	
			V/C	<	0.07	>		<	0.01	>		<	0.03	>		<	0.00	>		
			Q	<	2	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	A	B	A	B	A	B	A	B	D	D	>	D	D	D	>	D	C
			Delay	8	20	1	17	8	19	0	16	41	50	>	48	45	47	>	47	27
			V/C	0.19	0.59	0.05		0.26	0.54	0.04		0.39	0.78	>		0.49	0.75	>		
			Q	13	126	2		16	121	1		22	72	>		27	70	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	77	-	88		74	-	99		63	-	>		53	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	B					<	A		A		A	>	A	
			Delay	13		>	13					<	8		1		0	>	0	
			V/C	0.18		>						<	0.01				0.00	>		
			Q	5		>						<	0				0	>		

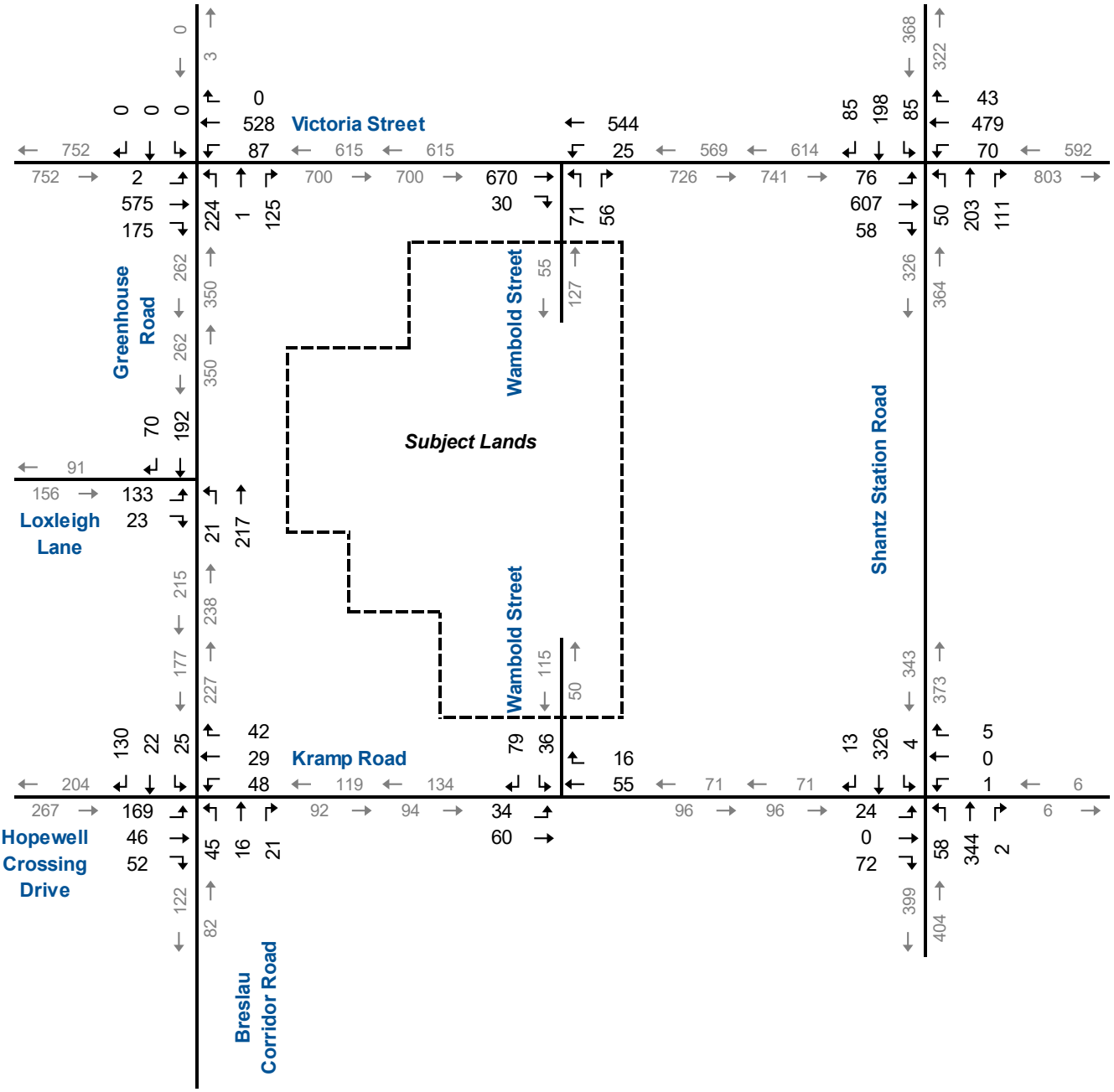
MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.6.2 Total Traffic

Figure 4.9a and **Figure 4.9b** illustrate the 2045 total traffic volumes, including background traffic volumes and site generated traffic volumes (**Figure 3.3**).

Table 4.11a and **Table 4.11b** summarize the results of the 2045 total traffic operations. The results indicate that the study area intersections are forecast to operate with acceptable levels of service during the AM and PM peak hours.

Appendix K contains the supporting detailed Synchro 12 reports.

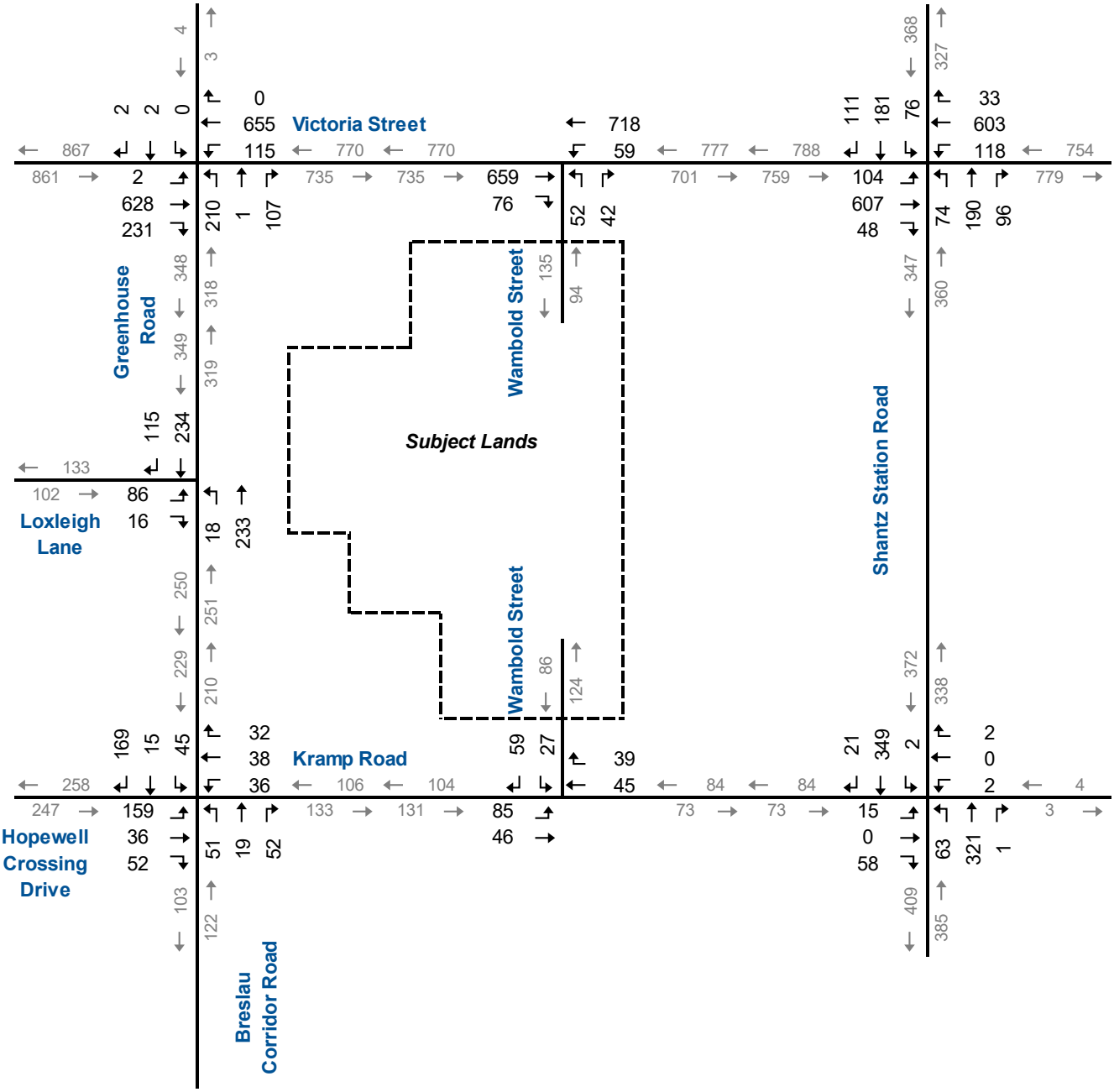


NTS

2045 Total Traffic Volumes (with New Highway 7) AM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.9a



NTS

2045 Total Traffic Volumes (with New Highway 7) PM Peak Hour

2699 Victoria Street North, Breslau TIS
250847

Figure 4.9b

TABLE 4.11A: 2045 TOTAL (WITH NEW HIGHWAY 7) TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	C	A	**C**	A	B	>	**B**	D	A	>	**C**	<	A	>		**C**
			Delay	15	27	4	**22**	9	16	>	**15**	41	8	>	**29**	<	0	>		**21**
			V/C	0.01	0.75	0.25		0.28	0.62	>		0.70	0.28	>		<	0.00	>		
			Q	2	126	11		12	89	>		66	14	>		<	0	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	124		128	-	>		49	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	14	>	**14**	<	11	>	**11**	<	8	>	**4**	<	7	>	**1**	
			V/C	<	0.41	>		<	0.17	>		<	0.03	>		<	0.02	>		
			Q	<	15	>		<	4	>		<	1	>		<	0	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	14	>	**14**	<	13	>	**13**	<	8	>	**1**	<	8	>	**0**	
			V/C	<	0.19	>		<	0.01	>		<	0.05	>		<	0.00	>		
			Q	<	5	>		<	0	>		<	1	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	A	C	A	**C**	A	C	A	**B**	C	D	>	**D**	D	D	>	**D**	**C**
			Delay	9	24	3	**21**	9	20	2	**18**	33	47	>	**45**	45	44	>	**44**	**28**
			V/C	0.15	0.66	0.08		0.19	0.52	0.06		0.28	0.81	>		0.54	0.75	>		
			Q	13	147	5		12	105	3		17	79	>		29	72	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	77	-	85		78	-	97		68	-	>		51	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	14		>	**14**					<	8		**1**		0	>	**0**	
			V/C	0.28		>						<	0.02				0.00	>		
			Q	8		>						<	0				0	>		
	Kramp Road & Wambold Street	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	
			Delay	<	7		**3**		0	>	**0**					9		>	**9**	
			V/C	<	0.02				0.00	>						0.12		>		
			Q	<	1				0	>						3		>		
	Wambold Street & Victoria Street	TWSC	LOS		A	>	**A**	<	A		**A**	E		>	**E**					
			Delay		0	>	**0**	<	9		**0**	35		>	**35**					
			V/C		0.00	>		<	0.03			0.52		>						
			Q		0	>		<	1			21		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.11B: 2045 TOTAL (WITH NEW HIGHWAY 7) TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Greenhouse Road & Victoria Street	TCS	LOS	B	C	A	**C**	A	B	>	**B**	D	A	>	**C**	<	C	>	**C**	**C**
			Delay	14	26	3	**20**	8	18	>	**16**	42	8	>	**30**	<	24	>	**24**	**20**
			V/C	0.01	0.77	0.30		0.30	0.72	>		0.67	0.27	>		<	0.01	>		
			Q	2	140	12		15	122	>		63	13	>		<	3	>		
			Stor.	135	-	135		140	-	>		115	-	>		<	-	>		
			Avail.	133	-	123		125	-	>		52	-	>		<	-	>		
	Greenhouse Road & Hopewell Crossing Drive/Kramp Road	TWSC	LOS	<	C	>	**C**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	16	>	**16**	<	12	>	**12**	<	8	>	**3**	<	8	>	**2**	
			V/C	<	0.44	>		<	0.17	>		<	0.04	>		<	0.03	>		
			Q	<	16	>		<	4	>		<	1	>		<	1	>		
	Shantz Station Road & Kramp Road	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	13	>	**13**	<	14	>	**14**	<	8	>	**1**	<	8	>	**0**	
			V/C	<	0.14	>		<	0.01	>		<	0.05	>		<	0.00	>		
			Q	<	4	>		<	0	>		<	2	>		<	0	>		
	Shantz Station Road & Victoria Street	TCS	LOS	A	C	A	**B**	A	C	A	**B**	D	D	>	**D**	D	D	>	**D**	**C**
			Delay	9	21	2	**18**	9	21	0	**18**	46	50	>	**49**	45	50	>	**49**	**28**
			V/C	0.25	0.62	0.06		0.30	0.61	0.04		0.50	0.79	>		0.49	0.80	>		
			Q	16	138	3		18	136	1		27	76	>		27	77	>		
			Stor.	90	-	90		90	-	100		85	-	>		80	-	>		
			Avail.	74	-	87		72	-	99		58	-	>		53	-	>		
	Greenhouse Road & Loxleigh Lane	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	14		>	**14**					<	8		**1**		0	>	**0**	
			V/C	0.20		>						<	0.01				0.00	>		
			Q	5		>						<	0				0	>		
	Kramp Road & Wambold Street	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	
			Delay	<	8		**5**		0	>	**0**					10		>	**10**	
			V/C	<	0.06				0.00	>						0.10		>		
			Q	<	2				0	>						2		>		
	Wambold Street & Victoria Street	TWSC	LOS		A	>	**A**	<	A		**A**	E		>	**E**					
			Delay		0	>	**0**	<	9		**1**	48		>	**49**					
			V/C		0.00	>		<	0.07			0.55		>						
			Q		0	>		<	2			21		>						

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

5 Site Access

5.1 Signal Warrants

The Wambold Street connection to Victoria Street, with the new Highway 7 is in place, has been assessed using the *Ontario Traffic Manual* (OTM) *Book 12*[10] signal warrant guidelines for projected traffic volumes to determine if a change in traffic control is warranted.

The *OTM Book 12* provides guidance on traffic signal control warrants based on three cases:

- Case 1: The traffic signal is certainly warranted – the suggested threshold for this condition is meeting 200% or more of Justifications 1 and 2. The traffic signal can be installed at the time of development;
- Case 2: The traffic signal might be warranted – falls between Cases 1 and 3, somewhere between 100% and 199% of Justifications 1 or 2. The need for traffic signal control cannot be known for certain; and
- Case 3: Signal warrant is unlikely – meets less than 100% of Justifications 1 or 2. The intersection can be monitored post development.

Based on the above information, the warrant analysis results indicate that traffic control signals are unlikely to be warranted at the Wambold Street intersection on Victoria Street under 2045 total traffic conditions with the New Highway 7 in place.

Appendix L contains the signal warrant worksheets.

5.2 Left-Turn Lanes

The Ministry of Transportation Design Supplement for the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads[11] provides guidance on the assessment and/or need for auxiliary left-turn lanes.

Warrants have been calculated for eastbound left-turns at Wambold Street and Kramp Road and westbound left-turns at Wambold Street and Victoria Street.

[10] Ontario Ministry of Transportation, *Ontario Traffic Manual Book 12: Traffic Signals*, (Toronto: Queen's Printer for Ontario, 2024).
[11] Ontario Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*, (Toronto: Queen's Printer for Ontario, 2023).

The warrant was calculated using the nomographs for left-turn lanes on a two-lane undivided highway at an unsignalized intersection. A design speed of 60 km/h (10 km/h over the posted speed limit) has been used on Kramp Road and 100 km/h (20 km/h over the posted speed limit) on Victoria Street.

Based on this criterion, the following is noted:

- 2045 Total Traffic Conditions without New Highway 7:
  - An eastbound left-turn lane is not warranted on Kramp Road at Wambold Street.
- 2045 Total Traffic Conditions with New Highway 7:
  - An eastbound left-turn lane is not warranted on Kramp Road at Wambold Street; and
  - A westbound left-turn lane with 40 metres of storage is warranted on Victoria Street at Wambold Street.

Appendix M contains the warrant nomographs.

6 Conclusions and Recommendations

6.1 Conclusions

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

- **Study Scope:** The scope of the study is based on the Hopewell Crossing Phase 1 (March 2018), Phase 2 (March 2021) and Phase 3 (ongoing) TIS scope.
- **Existing Traffic Conditions:** The study area intersections are operating with acceptable levels of service, except for the following critical movements at Victoria Street (Highway 7) and Shantz Station Road:
  - The eastbound through movement is operating with a v/c ratio greater than 0.85 and LOS D during the AM and PM peak hours; and
  - The westbound through movement is operating with a v/c ratio greater than 0.85 and LOS C during the PM peak hour.
- **Development Trip Generation:**
  - Stage 1 (Phase 4A/4B) of development is forecast to generate 194 and 247 trips during the AM and PM peak hours, respectively;
  - The stacked townhouse block west of the natural heritage corridor is forecast to generate 30 trips each during the AM and PM peak hours; and
  - Phase 4C of development is forecast to generate 153 and 192 trips during the AM and PM peak hours, respectively.
- **Other Area Developments:** The following Hopewell Crossing development phases are included in the background traffic forecasts:
  - Phase 1 is forecast to generate 239 AM peak hour trips and 134 PM peak hour trips.
  - Phase 2 is forecast to generate 175 AM peak hour trips and 217 PM peak hour trips.
  - Phase 3 is forecast to generate 107 AM peak hour trips and 143 PM peak hour trips.
- **Background Traffic Conditions:** The study area intersections are forecast to operate with similar levels of service as under existing traffic conditions, with the addition of the following movements:



Starting under 2035 conditions:

- Victoria Street (Highway 7) and Greenhouse Road:
  - The eastbound through movement is forecast to operate with a v/c ratio greater than 0.85 and LOS E during the AM and PM peak hours; and
  - The westbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS D during the PM peak hour.
- Victoria Street (Highway 7) and Shantz Station Road: The westbound through movement is forecast to operate with a v/c ratio greater than 0.85 and LOS C during the AM peak hour.

Starting under 2040 conditions: The southbound left-turn movement at Victoria Street (Highway 7) and Shantz Station Road is forecast to operate with a v/c ratio greater than 0.85 and LOS F during the AM peak hour.

Starting under 2045 conditions:

- Victoria Street (Highway 7) and Greenhouse Road: The westbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS C during the AM peak hour.
- Victoria Street (Highway 7) and Shantz Station Road: The northbound shared through/right-turn movement is forecast to operate with a v/c ratio greater than 0.85 and LOS E during the AM peak hour.

- **Total Traffic Conditions:** The study area intersections are forecast to operate with similar levels of service as under background traffic conditions, with the addition of the following movements:

Starting under 2035 conditions:

- Victoria Street (Highway 7) and Greenhouse Road: The northbound left-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during and AM and PM peak hours.
- Victoria Street (Highway 7) and Shantz Station Road:
  - The northbound shared through/right-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the AM peak hour; and

    - The southbound left-turn movement is forecast to operate with LOS F and a v/c ratio greater than 0.85 during the AM peak hour.

  Starting under 2040 conditions: The westbound shared through/right-turn movement at Victoria Street (Highway 7) and Greenhouse Road is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the AM peak hour.

  Starting under 2045 conditions:

  - Victoria Street (Highway 7) and Shantz Station Road:
    - The westbound left-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the PM peak hour; and
    - The northbound shared through/right-turn movement is forecast to operate with LOS E and a v/c ratio greater than 0.85 during the PM peak hour.

- **2045 Future Traffic Conditions (with new Highway 7):** The study area intersections are forecast to operate with acceptable levels of service under 2045 background and total traffic conditions during the AM and PM peak hours.
- **Site Access:**
  - Without new Highway 7: An eastbound left-turn lane is not warranted at Kramp Road and Wambold Street.
  - With new Highway 7:
    - Traffic signal control is unlikely to be warranted at the Victoria Street and Wambold Street intersection;
    - A westbound left-turn lane with 40 metres of storage is warranted at Victoria Street and Wambold Street; and
    - An eastbound left-turn lane is not warranted at Kramp Road and Wambold Street.
- **New Highway 7:** The eastbound and westbound through movements along Victoria Street (Highway 7) at both Greenhouse Road and Shantz Station Road are forecast to operate with poor levels of service during the AM and PM peak hours without the new Highway 7.

  It is anticipated that the new Highway 7 will improve operations along Victoria Street by diverting trips away from Victoria Street and therefore would be sufficient to resolve the critical movements identified under existing, background and total traffic conditions.

It is noted that the timing related to the new Highway 7 and Breslau Corridor Road connections referenced in this study is an estimate and will depend on market conditions.

6.2 Recommendations

Based on the findings of this study, it is recommended that the subject development be considered for approval as proposed. No improvements to Victoria Street are recommended at this time and is further supported by the completion of the new Highway 7. The new Highway 7 is forecast to add sufficient capacity, making improvements on Victoria Street unnecessary. Once the new Highway 7 is constructed and Victoria Street is transferred to the Region, a 40-metre westbound left-turn lane is forecast to be warranted at the future Wambold Street connection on Victoria Street.

Appendix A

Existing Traffic Data

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Loxleigh Lane
Site Code: 250443
Start Date: 07/29/2025

Turning Movement Data

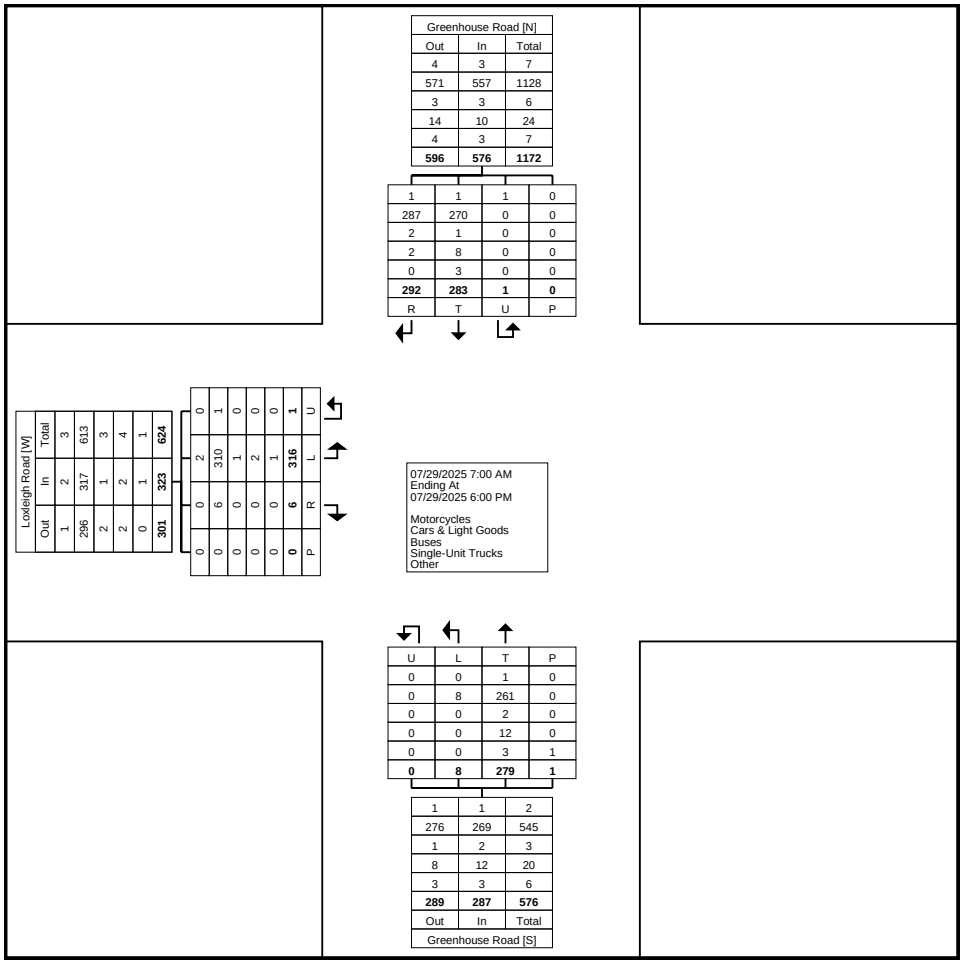
Start Time	Loxleigh Road Eastbound					Greenhouse Road Northbound					Greenhouse Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	12	0	0	0	12	0	4	0	0	4	3	3	0	0	6	22
7:15 AM	12	0	0	0	12	0	2	0	0	2	6	1	0	0	7	21
7:30 AM	23	0	0	0	23	0	6	0	0	6	9	3	0	0	12	41
7:45 AM	21	0	0	0	21	0	9	0	0	9	23	6	0	0	29	59
Hourly Total	68	0	0	0	68	0	21	0	0	21	41	13	0	0	54	143
8:00 AM	25	0	0	0	25	0	4	0	0	4	13	3	0	0	16	45
8:15 AM	9	1	0	0	10	0	5	0	0	5	6	6	0	0	12	27
8:30 AM	22	1	0	0	23	0	11	0	1	11	11	3	0	0	14	48
8:45 AM	11	0	0	0	11	1	13	0	0	14	9	5	0	0	14	39
Hourly Total	67	2	0	0	69	1	33	0	1	34	39	17	0	0	56	159
9:00 AM	13	0	0	0	13	0	7	0	0	7	3	5	0	0	8	28
9:15 AM	5	0	0	0	5	0	5	0	0	5	8	7	0	0	15	25
9:30 AM	10	0	0	0	10	0	4	0	0	4	5	7	0	0	12	26
9:45 AM	4	0	0	0	4	0	6	0	0	6	3	3	0	0	6	16
Hourly Total	32	0	0	0	32	0	22	0	0	22	19	22	0	0	41	95
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	6	0	0	0	6	0	8	0	0	8	11	6	0	0	17	31
12:15 PM	10	0	0	0	10	0	14	0	0	14	12	7	0	0	19	43
12:30 PM	5	0	0	0	5	0	7	0	0	7	12	7	0	0	19	31
12:45 PM	3	0	0	0	3	0	9	0	0	9	8	6	0	0	14	26
Hourly Total	24	0	0	0	24	0	38	0	0	38	43	26	0	0	69	131
1:00 PM	3	0	0	0	3	0	7	0	0	7	8	5	0	0	13	23
1:15 PM	3	0	0	0	3	0	8	0	0	8	8	11	0	0	19	30
1:30 PM	9	1	0	0	10	1	9	0	0	10	4	6	0	0	10	30
1:45 PM	4	0	0	0	4	0	13	0	0	13	10	3	0	0	13	30
Hourly Total	19	1	0	0	20	1	37	0	0	38	30	25	0	0	55	113
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	7	0	0	0	7	0	9	0	0	9	6	14	0	0	20	36
3:15 PM	8	0	0	0	8	0	7	0	0	7	7	13	0	0	20	35
3:30 PM	8	2	0	0	10	2	14	0	0	16	6	16	0	0	22	48
3:45 PM	11	0	0	0	11	0	12	0	0	12	7	10	0	0	17	40
Hourly Total	34	2	0	0	36	2	42	0	0	44	26	53	0	0	79	159
4:00 PM	4	0	0	0	4	0	19	0	0	19	15	11	0	0	26	49
4:15 PM	11	1	1	0	13	1	6	0	0	7	12	20	0	0	32	52
4:30 PM	14	0	0	0	14	1	22	0	0	23	8	11	0	0	19	56
4:45 PM	9	0	0	0	9	0	17	0	0	17	11	13	0	0	24	50

Hourly Total	38	1	1	0	40	2	64	0	0	66	46	55	0	0	101	207
5:00 PM	7	0	0	0	7	1	8	0	0	9	6	21	0	0	27	43
5:15 PM	7	0	0	0	7	0	1	0	0	1	11	27	0	0	38	46
5:30 PM	7	0	0	0	7	0	5	0	0	5	12	18	1	0	31	43
5:45 PM	13	0	0	0	13	1	8	0	0	9	10	15	0	0	25	47
Hourly Total	34	0	0	0	34	2	22	0	0	24	39	81	1	0	121	179
Grand Total	316	6	1	0	323	8	279	0	1	287	283	292	1	0	576	1186
Approach %	97.8	1.9	0.3	-	-	2.8	97.2	0.0	-	-	49.1	50.7	0.2	-	-	-
Total %	26.6	0.5	0.1	-	27.2	0.7	23.5	0.0	-	24.2	23.9	24.6	0.1	-	48.6	-
Motorcycles	2	0	0	-	2	0	1	0	-	1	1	1	1	-	3	6
% Motorcycles	0.6	0.0	0.0	-	0.6	0.0	0.4	-	-	0.3	0.4	0.3	100.0	-	0.5	0.5
Cars & Light Goods	310	6	1	-	317	8	261	0	-	269	270	287	0	-	557	1143
% Cars & Light Goods	98.1	100.0	100.0	-	98.1	100.0	93.5	-	-	93.7	95.4	98.3	0.0	-	96.7	96.4
Buses	1	0	0	-	1	0	2	0	-	2	1	2	0	-	3	6
% Buses	0.3	0.0	0.0	-	0.3	0.0	0.7	-	-	0.7	0.4	0.7	0.0	-	0.5	0.5
Single-Unit Trucks	2	0	0	-	2	0	12	0	-	12	8	2	0	-	10	24
% Single-Unit Trucks	0.6	0.0	0.0	-	0.6	0.0	4.3	-	-	4.2	2.8	0.7	0.0	-	1.7	2.0
Articulated Trucks	0	0	0	-	0	0	3	0	-	3	2	0	0	-	2	5
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	1.1	-	-	1.0	0.7	0.0	0.0	-	0.3	0.4
Bicycles on Road	1	0	0	-	1	0	0	0	-	0	1	0	0	-	1	2
% Bicycles on Road	0.3	0.0	0.0	-	0.3	0.0	0.0	-	-	0.0	0.4	0.0	0.0	-	0.2	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

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5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Greenhouse Road & Loxleigh Lane
Site Code: 250443
Start Date: 07/29/2025



Turning Movement Data Plot

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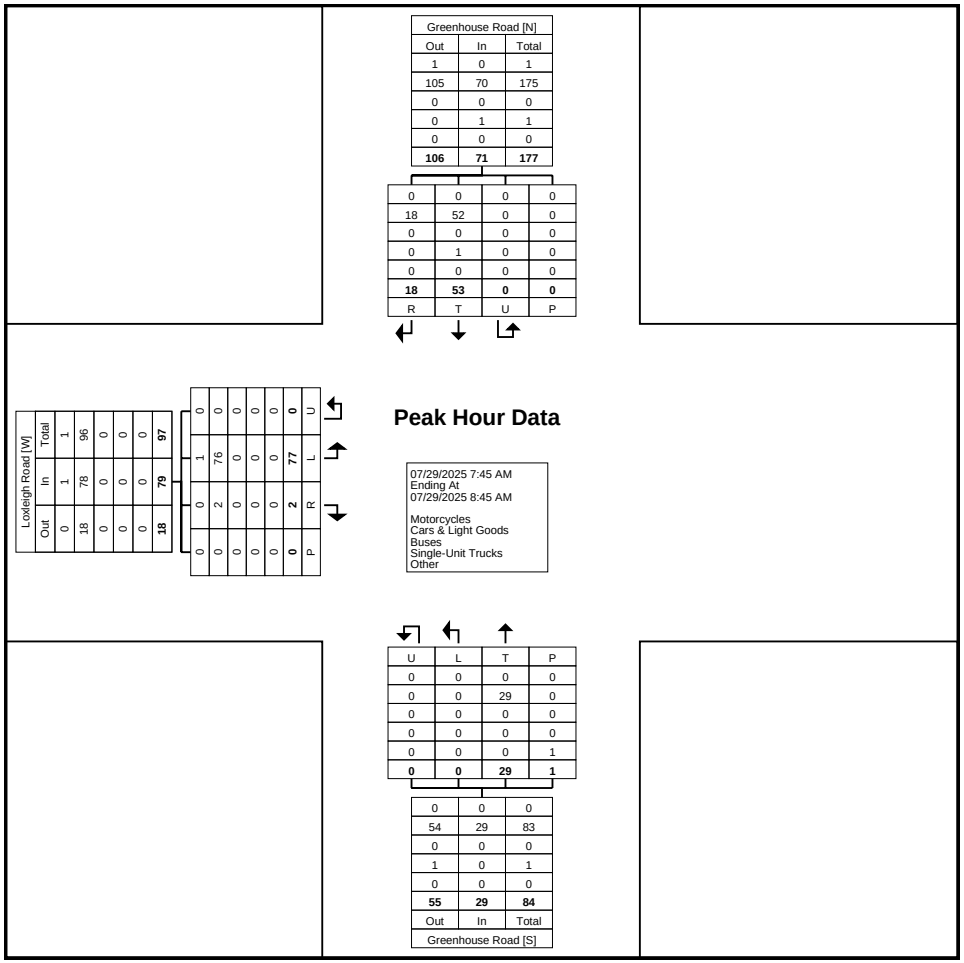
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Loxleigh Road Eastbound					Greenhouse Road Northbound					Greenhouse Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:45 AM	21	0	0	0	21	0	9	0	0	9	23	6	0	0	29	59
8:00 AM	25	0	0	0	25	0	4	0	0	4	13	3	0	0	16	45
8:15 AM	9	1	0	0	10	0	5	0	0	5	6	6	0	0	12	27
8:30 AM	22	1	0	0	23	0	11	0	1	11	11	3	0	0	14	48
Total	77	2	0	0	79	0	29	0	1	29	53	18	0	0	71	179
Approach %	97.5	2.5	0.0	-	-	0.0	100.0	0.0	-	-	74.6	25.4	0.0	-	-	-
Total %	43.0	1.1	0.0	-	44.1	0.0	16.2	0.0	-	16.2	29.6	10.1	0.0	-	39.7	-
PHF	0.770	0.500	0.000	-	0.790	0.000	0.659	0.000	-	0.659	0.576	0.750	0.000	-	0.612	0.758
Motorcycles	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Motorcycles	1.3	0.0	-	-	1.3	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.6
Cars & Light Goods	76	2	0	-	78	0	29	0	-	29	52	18	0	-	70	177
% Cars & Light Goods	98.7	100.0	-	-	98.7	-	100.0	-	-	100.0	98.1	100.0	-	-	98.6	98.9
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Single-Unit Trucks	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	1.9	0.0	-	-	1.4	0.6
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	-	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
% Bicycles on Road	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	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

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

Count Name: Greenhouse Road & Loxleigh Lane
Site Code: 250443
Start Date: 07/29/2025



Turning Movement Peak Hour Data Plot (7:45 AM)

Paradigm Transportation Solutions Limited
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Count Name: Greenhouse Road & Loxleigh Lane
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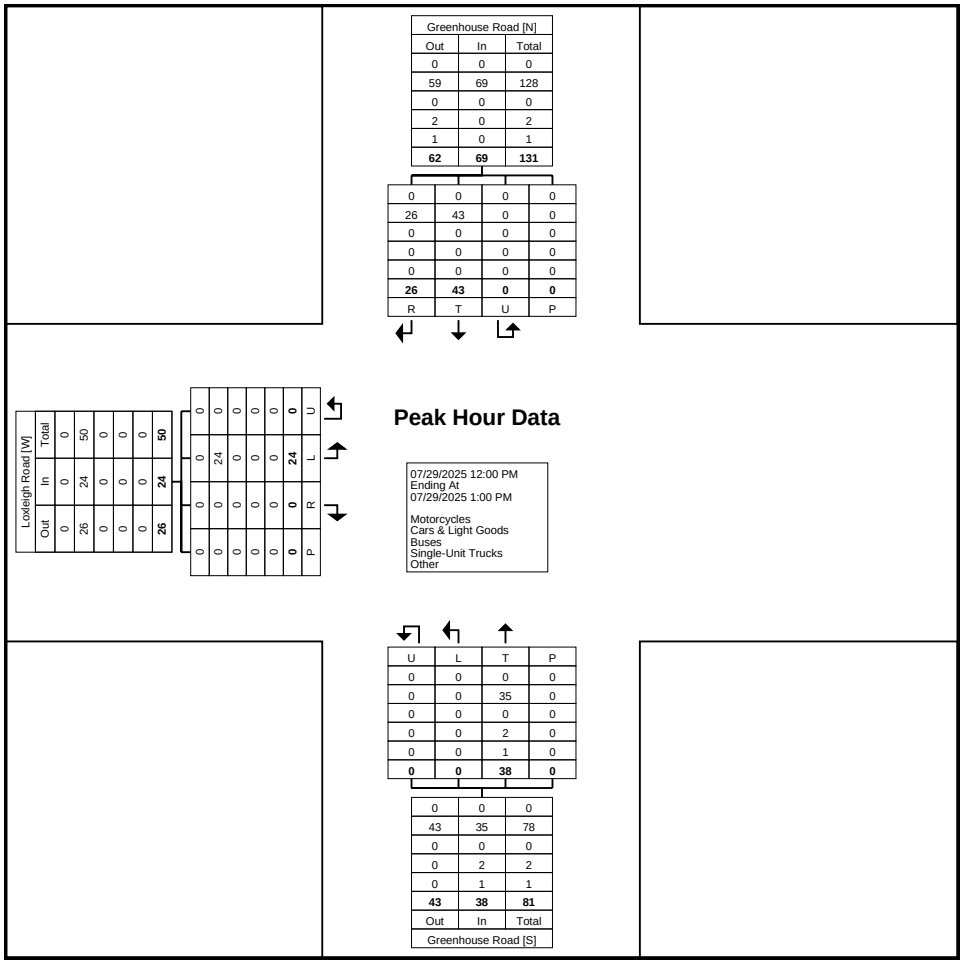
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Loxleigh Road Eastbound					Greenhouse Road Northbound					Greenhouse Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
12:00 PM	6	0	0	0	6	0	8	0	0	8	11	6	0	0	17	31
12:15 PM	10	0	0	0	10	0	14	0	0	14	12	7	0	0	19	43
12:30 PM	5	0	0	0	5	0	7	0	0	7	12	7	0	0	19	31
12:45 PM	3	0	0	0	3	0	9	0	0	9	8	6	0	0	14	26
Total	24	0	0	0	24	0	38	0	0	38	43	26	0	0	69	131
Approach %	100.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-	62.3	37.7	0.0	-	-	-
Total %	18.3	0.0	0.0	-	18.3	0.0	29.0	0.0	-	29.0	32.8	19.8	0.0	-	52.7	-
PHF	0.600	0.000	0.000	-	0.600	0.000	0.679	0.000	-	0.679	0.896	0.929	0.000	-	0.908	0.762
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
Cars & Light Goods	24	0	0	-	24	0	35	0	-	35	43	26	0	-	69	128
% Cars & Light Goods	100.0	-	-	-	100.0	-	92.1	-	-	92.1	100.0	100.0	-	-	100.0	97.7
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	-	-	-	0.0	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	2	0	-	2	0	0	0	-	0	2
% Single-Unit Trucks	0.0	-	-	-	0.0	-	5.3	-	-	5.3	0.0	0.0	-	-	0.0	1.5
Articulated Trucks	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Articulated Trucks	0.0	-	-	-	0.0	-	2.6	-	-	2.6	0.0	0.0	-	-	0.0	0.8
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
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Greenhouse Road & Loxleigh Lane
Site Code: 250443
Start Date: 07/29/2025



Turning Movement Peak Hour Data Plot (12:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Greenhouse Road & Loxleigh Lane
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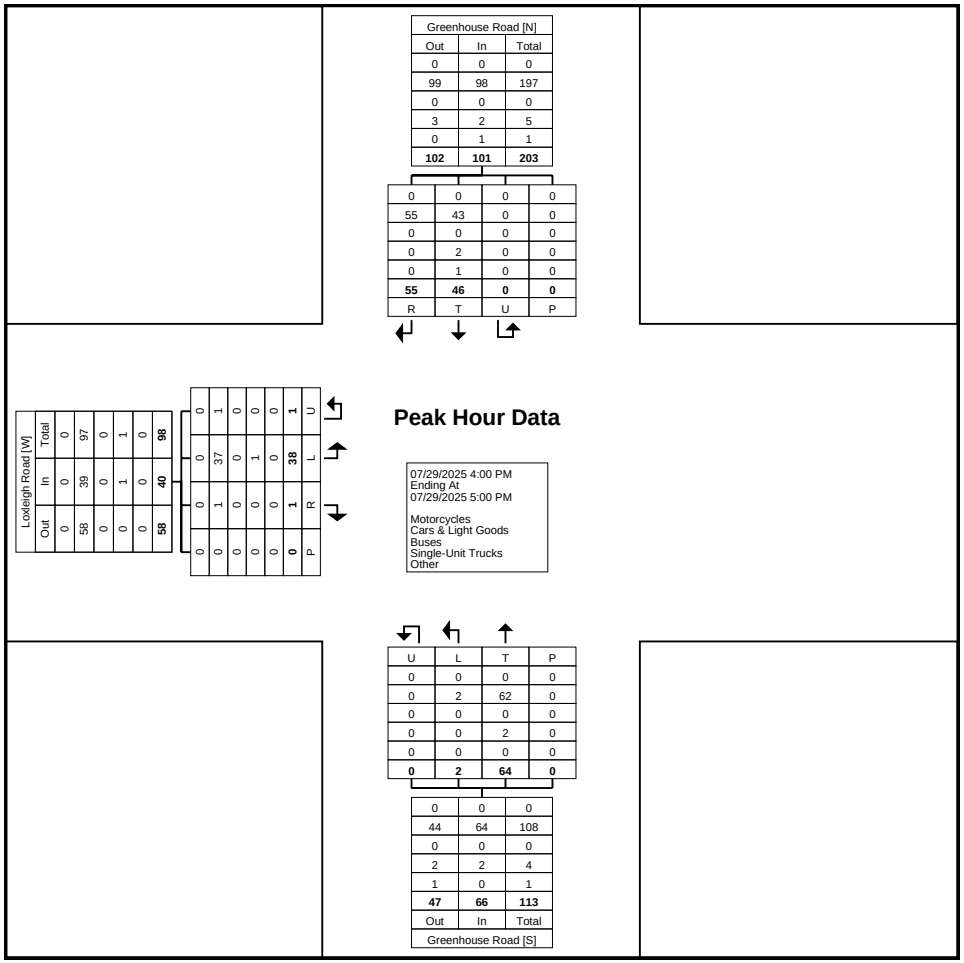
Turning Movement Peak Hour Data (4:00 PM)

Start Time	Loxleigh Road Eastbound					Greenhouse Road Northbound					Greenhouse Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
4:00 PM	4	0	0	0	4	0	19	0	0	19	15	11	0	0	26	49
4:15 PM	11	1	1	0	13	1	6	0	0	7	12	20	0	0	32	52
4:30 PM	14	0	0	0	14	1	22	0	0	23	8	11	0	0	19	56
4:45 PM	9	0	0	0	9	0	17	0	0	17	11	13	0	0	24	50
Total	38	1	1	0	40	2	64	0	0	66	46	55	0	0	101	207
Approach %	95.0	2.5	2.5	-	-	3.0	97.0	0.0	-	-	45.5	54.5	0.0	-	-	-
Total %	18.4	0.5	0.5	-	19.3	1.0	30.9	0.0	-	31.9	22.2	26.6	0.0	-	48.8	-
PHF	0.679	0.250	0.250	-	0.714	0.500	0.727	0.000	-	0.717	0.767	0.688	0.000	-	0.789	0.924
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	0.0
Cars & Light Goods	37	1	1	-	39	2	62	0	-	64	43	55	0	-	98	201
% Cars & Light Goods	97.4	100.0	100.0	-	97.5	100.0	96.9	-	-	97.0	93.5	100.0	-	-	97.0	97.1
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	1	0	0	-	1	0	2	0	-	2	2	0	0	-	2	5
% Single-Unit Trucks	2.6	0.0	0.0	-	2.5	0.0	3.1	-	-	3.0	4.3	0.0	-	-	2.0	2.4
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	2.2	0.0	-	-	1.0	0.5
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Loxleigh Lane
Site Code: 250443
Start Date: 07/29/2025



Turning Movement Peak Hour Data Plot (4:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025

Turning Movement Data

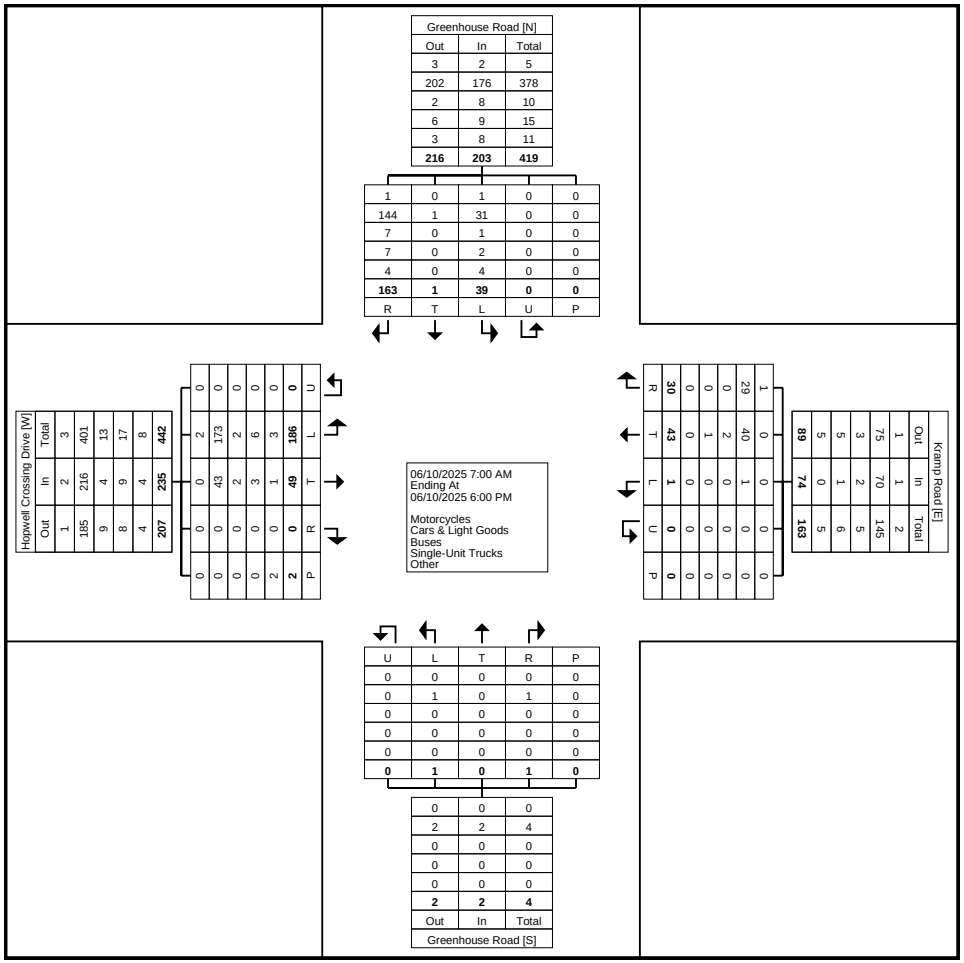
Start Time	Hopwell Crossing Drive Eastbound						Kramp Road Westbound						Greenhouse Road Northbound						Greenhouse Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	6	0	0	0	0	6	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	9
7:15 AM	4	3	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
7:30 AM	7	3	0	0	0	10	0	1	0	0	0	1	0	0	0	0	0	0	1	0	5	0	0	6	17
7:45 AM	8	3	0	0	0	11	0	2	3	0	0	5	0	0	0	0	0	0	1	0	4	0	0	5	21
Hourly Total	25	9	0	0	0	34	0	4	3	0	0	7	0	0	0	0	0	0	2	0	11	0	0	13	54
8:00 AM	5	4	0	0	0	9	0	2	0	0	0	2	0	0	0	0	0	0	1	0	4	0	0	5	16
8:15 AM	7	3	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	5	15
8:30 AM	8	4	0	0	0	12	0	2	0	0	0	2	0	0	0	0	0	0	1	0	2	0	0	3	17
8:45 AM	7	0	0	0	0	7	0	0	1	0	0	1	0	0	0	0	0	0	1	0	5	0	0	6	14
Hourly Total	27	11	0	0	0	38	0	4	1	0	0	5	0	0	0	0	0	0	4	0	15	0	0	19	62
9:00 AM	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	0	8	14
9:15 AM	9	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	12
9:30 AM	1	0	0	0	0	1	0	2	1	0	0	3	0	0	0	0	0	0	1	0	2	0	0	3	7
9:45 AM	5	1	0	0	0	6	0	3	1	0	0	4	0	0	0	0	0	0	2	0	7	0	0	9	19
Hourly Total	21	1	0	0	0	22	0	5	2	0	0	7	0	0	0	0	0	0	4	0	19	0	0	23	52
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	6	1	0	0	0	7	0	2	0	0	0	2	0	0	0	0	0	0	2	0	6	0	0	8	17
12:15 PM	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	3	0	7	0	0	10	16
12:30 PM	6	2	0	0	1	8	0	0	2	0	0	2	0	0	0	0	0	0	2	0	1	0	0	3	13
12:45 PM	1	0	0	0	1	1	0	1	1	0	0	2	0	0	0	0	0	0	1	0	3	0	0	4	7
Hourly Total	19	3	0	0	2	22	0	3	3	0	0	6	0	0	0	0	0	0	8	0	17	0	0	25	53
1:00 PM	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	2	0	9	0	0	11	21
1:15 PM	5	1	0	0	0	6	0	0	1	0	0	1	0	0	0	0	0	0	3	0	5	0	0	8	15
1:30 PM	7	1	0	0	0	8	0	4	1	0	0	5	0	0	1	0	0	1	0	0	2	0	0	2	16
1:45 PM	3	1	0	0	0	4	1	0	2	0	0	3	1	0	0	0	0	1	2	0	5	0	0	7	15
Hourly Total	25	3	0	0	0	28	1	4	4	0	0	9	1	0	1	0	0	2	7	0	21	0	0	28	67
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	8	3	0	0	0	11	0	1	1	0	0	2	0	0	0	0	0	0	0	0	5	0	0	5	18
3:15 PM	1	0	0	0	0	1	0	1	2	0	0	3	0	0	0	0	0	0	0	0	3	0	0	3	7
3:30 PM	11	3	0	0	0	14	0	3	2	0	0	5	0	0	0	0	0	0	0	0	7	0	0	7	26
3:45 PM	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	11	0	0	12	17
Hourly Total	25	6	0	0	0	31	0	5	5	0	0	10	0	0	0	0	0	0	1	0	26	0	0	27	68
4:00 PM	6	2	0	0	0	8	0	1	3	0	0	4	0	0	0	0	0	0	2	0	10	0	0	12	24
4:15 PM	7	2	0	0	0	9	0	3	0	0	0	3	0	0	0	0	0	0	4	0	2	0	0	6	18
4:30 PM	4	7	0	0	0	11	0	1	3	0	0	4	0	0	0	0	0	0	0	1	3	0	0	4	19

4:45 PM	3	1	0	0	0	4	0	0	2	0	0	2	0	0	0	0	0	0	1	0	5	0	0	6	12
Hourly Total	20	12	0	0	0	32	0	5	8	0	0	13	0	0	0	0	0	0	7	1	20	0	0	28	73
5:00 PM	6	0	0	0	0	6	0	3	1	0	0	4	0	0	0	0	0	0	1	0	9	0	0	10	20
5:15 PM	6	1	0	0	0	7	0	2	2	0	0	4	0	0	0	0	0	0	1	0	5	0	0	6	17
5:30 PM	8	1	0	0	0	9	0	5	1	0	0	6	0	0	0	0	0	0	2	0	8	0	0	10	25
5:45 PM	4	2	0	0	0	6	0	3	0	0	0	3	0	0	0	0	0	0	2	0	12	0	0	14	23
Hourly Total	24	4	0	0	0	28	0	13	4	0	0	17	0	0	0	0	0	0	6	0	34	0	0	40	85
Grand Total	186	49	0	0	2	235	1	43	30	0	0	74	1	0	1	0	0	2	39	1	163	0	0	203	514
Approach %	79.1	20.9	0.0	0.0	-	-	1.4	58.1	40.5	0.0	-	-	50.0	0.0	50.0	0.0	-	-	19.2	0.5	80.3	0.0	-	-	-
Total %	36.2	9.5	0.0	0.0	-	45.7	0.2	8.4	5.8	0.0	-	14.4	0.2	0.0	0.2	0.0	-	0.4	7.6	0.2	31.7	0.0	-	39.5	-
Motorcycles	2	0	0	0	-	2	0	0	1	0	-	1	0	0	0	0	-	0	1	0	1	0	-	2	5
% Motorcycles	1.1	0.0	-	-	-	0.9	0.0	0.0	3.3	-	-	1.4	0.0	-	0.0	-	-	0.0	2.6	0.0	0.6	-	-	1.0	1.0
Cars & Light Goods	173	43	0	0	-	216	1	40	29	0	-	70	1	0	1	0	-	2	31	1	144	0	-	176	464
% Cars & Light Goods	93.0	87.8	-	-	-	91.9	100.0	93.0	96.7	-	-	94.6	100.0	-	100.0	-	-	100.0	79.5	100.0	88.3	-	-	86.7	90.3
Buses	2	2	0	0	-	4	0	2	0	0	-	2	0	0	0	0	-	0	1	0	7	0	-	8	14
% Buses	1.1	4.1	-	-	-	1.7	0.0	4.7	0.0	-	-	2.7	0.0	-	0.0	-	-	0.0	2.6	0.0	4.3	-	-	3.9	2.7
Single-Unit Trucks	6	3	0	0	-	9	0	1	0	0	-	1	0	0	0	0	-	0	2	0	7	0	-	9	19
% Single-Unit Trucks	3.2	6.1	-	-	-	3.8	0.0	2.3	0.0	-	-	1.4	0.0	-	0.0	-	-	0.0	5.1	0.0	4.3	-	-	4.4	3.7
Articulated Trucks	1	1	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	4	0	2	0	-	6	8
% Articulated Trucks	0.5	2.0	-	-	-	0.9	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	10.3	0.0	1.2	-	-	3.0	1.6
Bicycles on Road	2	0	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	4
% Bicycles on Road	1.1	0.0	-	-	-	0.9	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	1.2	-	-	1.0	0.8
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025

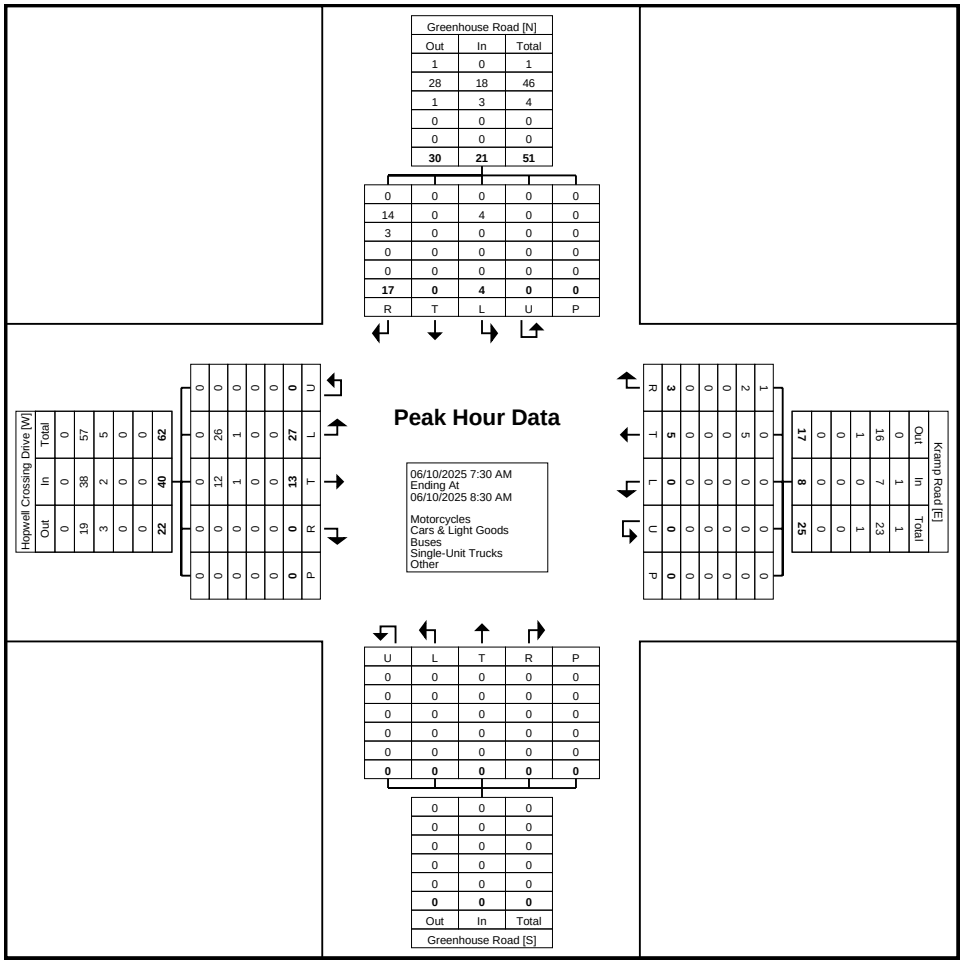
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Hopwell Crossing Drive Eastbound						Kramp Road Westbound						Greenhouse Road Northbound						Greenhouse Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	7	3	0	0	0	10	0	1	0	0	0	1	0	0	0	0	0	0	1	0	5	0	0	6	17
7:45 AM	8	3	0	0	0	11	0	2	3	0	0	5	0	0	0	0	0	0	1	0	4	0	0	5	21
8:00 AM	5	4	0	0	0	9	0	2	0	0	0	2	0	0	0	0	0	0	1	0	4	0	0	5	16
8:15 AM	7	3	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	5	15
Total	27	13	0	0	0	40	0	5	3	0	0	8	0	0	0	0	0	0	4	0	17	0	0	21	69
Approach %	67.5	32.5	0.0	0.0	-	-	0.0	62.5	37.5	0.0	-	-	0.0	0.0	0.0	0.0	-	-	19.0	0.0	81.0	0.0	-	-	-
Total %	39.1	18.8	0.0	0.0	-	58.0	0.0	7.2	4.3	0.0	-	11.6	0.0	0.0	0.0	0.0	-	0.0	5.8	0.0	24.6	0.0	-	30.4	-
PHF	0.844	0.813	0.000	0.000	-	0.909	0.000	0.625	0.250	0.000	-	0.400	0.000	0.000	0.000	0.000	-	0.000	1.000	0.000	0.850	0.000	-	0.875	0.821
Motorcycles	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Motorcycles	0.0	0.0	-	-	-	0.0	-	0.0	33.3	-	-	12.5	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	1.4
Cars & Light Goods	26	12	0	0	-	38	0	5	2	0	-	7	0	0	0	0	-	0	4	0	14	0	-	18	63
% Cars & Light Goods	96.3	92.3	-	-	-	95.0	-	100.0	66.7	-	-	87.5	-	-	-	-	-	-	100.0	-	82.4	-	-	85.7	91.3
Buses	1	1	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	3	0	-	3	5
% Buses	3.7	7.7	-	-	-	5.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	17.6	-	-	14.3	7.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	-	0.0	-	0.0	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	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	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025



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

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025

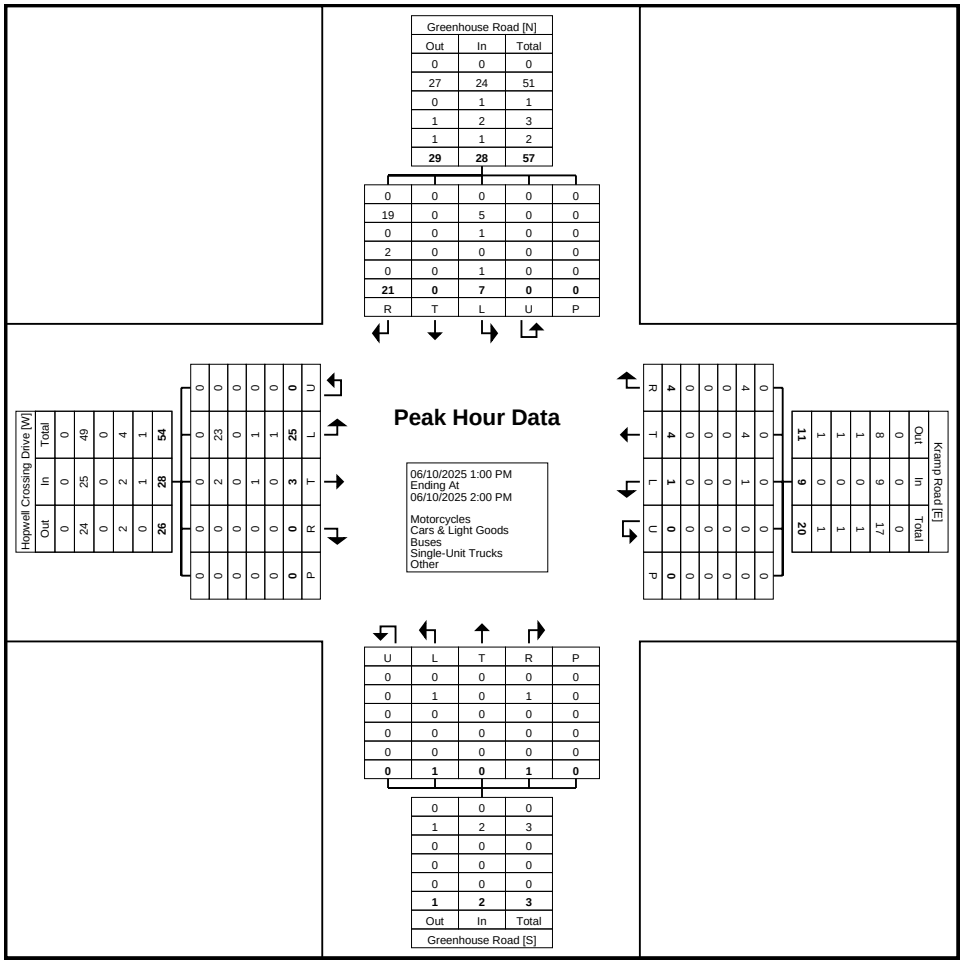
Turning Movement Peak Hour Data (1:00 PM)

Start Time	Hopwell Crossing Drive Eastbound						Kramp Road Westbound						Greenhouse Road Northbound						Greenhouse Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
1:00 PM	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	2	0	9	0	0	11	21
1:15 PM	5	1	0	0	0	6	0	0	1	0	0	1	0	0	0	0	0	0	3	0	5	0	0	8	15
1:30 PM	7	1	0	0	0	8	0	4	1	0	0	5	0	0	1	0	0	1	0	0	2	0	0	2	16
1:45 PM	3	1	0	0	0	4	1	0	2	0	0	3	1	0	0	0	0	1	2	0	5	0	0	7	15
Total	25	3	0	0	0	28	1	4	4	0	0	9	1	0	1	0	0	2	7	0	21	0	0	28	67
Approach %	89.3	10.7	0.0	0.0	-	-	11.1	44.4	44.4	0.0	-	-	50.0	0.0	50.0	0.0	-	-	25.0	0.0	75.0	0.0	-	-	-
Total %	37.3	4.5	0.0	0.0	-	41.8	1.5	6.0	6.0	0.0	-	13.4	1.5	0.0	1.5	0.0	-	3.0	10.4	0.0	31.3	0.0	-	41.8	-
PHF	0.625	0.750	0.000	0.000	-	0.700	0.250	0.250	0.500	0.000	-	0.450	0.250	0.000	0.250	0.000	-	0.500	0.583	0.000	0.583	0.000	-	0.636	0.798
Motorcycles	0	0	0	0	-	0	0	0	0	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	0.0	-	0.0	-	-	0.0	0.0
Cars & Light Goods	23	2	0	0	-	25	1	4	4	0	-	9	1	0	1	0	-	2	5	0	19	0	-	24	60
% Cars & Light Goods	92.0	66.7	-	-	-	89.3	100.0	100.0	100.0	-	-	100.0	100.0	-	100.0	-	-	100.0	71.4	-	90.5	-	-	85.7	89.6
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	1
% Buses	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	14.3	-	0.0	-	-	3.6	1.5
Single-Unit Trucks	1	1	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	4
% Single-Unit Trucks	4.0	33.3	-	-	-	7.1	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	-	9.5	-	-	7.1	6.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	1
% Articulated Trucks	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	14.3	-	0.0	-	-	3.6	1.5
Bicycles on Road	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	4.0	0.0	-	-	-	3.6	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	1.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Peak Hour Data Plot (1:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025

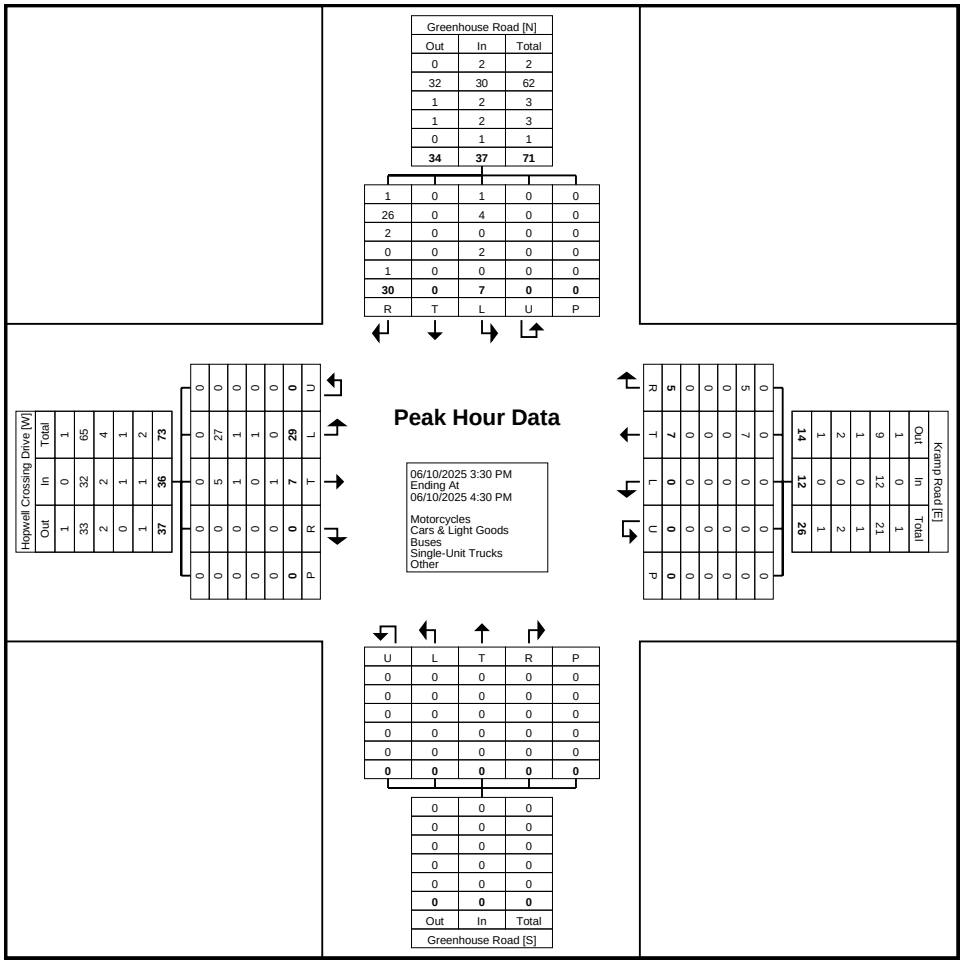
Turning Movement Peak Hour Data (3:30 PM)

Start Time	Hopwell Crossing Drive Eastbound						Kramp Road Westbound						Greenhouse Road Northbound						Greenhouse Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
3:30 PM	11	3	0	0	0	14	0	3	2	0	0	5	0	0	0	0	0	0	0	0	7	0	0	7	26
3:45 PM	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	11	0	0	12	17
4:00 PM	6	2	0	0	0	8	0	1	3	0	0	4	0	0	0	0	0	0	2	0	10	0	0	12	24
4:15 PM	7	2	0	0	0	9	0	3	0	0	0	3	0	0	0	0	0	0	4	0	2	0	0	6	18
Total	29	7	0	0	0	36	0	7	5	0	0	12	0	0	0	0	0	0	7	0	30	0	0	37	85
Approach %	80.6	19.4	0.0	0.0	-	-	0.0	58.3	41.7	0.0	-	-	0.0	0.0	0.0	0.0	-	-	18.9	0.0	81.1	0.0	-	-	-
Total %	34.1	8.2	0.0	0.0	-	42.4	0.0	8.2	5.9	0.0	-	14.1	0.0	0.0	0.0	0.0	-	0.0	8.2	0.0	35.3	0.0	-	43.5	-
PHF	0.659	0.583	0.000	0.000	-	0.643	0.000	0.583	0.417	0.000	-	0.600	0.000	0.000	0.000	0.000	-	0.000	0.438	0.000	0.682	0.000	-	0.771	0.817
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	1	0	-	2	2
% Motorcycles	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	14.3	-	3.3	-	-	5.4	2.4
Cars & Light Goods	27	5	0	0	-	32	0	7	5	0	-	12	0	0	0	0	-	0	4	0	26	0	-	30	74
% Cars & Light Goods	93.1	71.4	-	-	-	88.9	-	100.0	100.0	-	-	100.0	-	-	-	-	-	-	57.1	-	86.7	-	-	81.1	87.1
Buses	1	1	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	4
% Buses	3.4	14.3	-	-	-	5.6	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	6.7	-	-	5.4	4.7
Single-Unit Trucks	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	0	-	2	3
% Single-Unit Trucks	3.4	0.0	-	-	-	2.8	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	28.6	-	0.0	-	-	5.4	3.5
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	2
% Articulated Trucks	0.0	14.3	-	-	-	2.8	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	3.3	-	-	2.7	2.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	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	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Greenhouse Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Peak Hour Data Plot (3:30 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Shantz Station Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025

Turning Movement Data

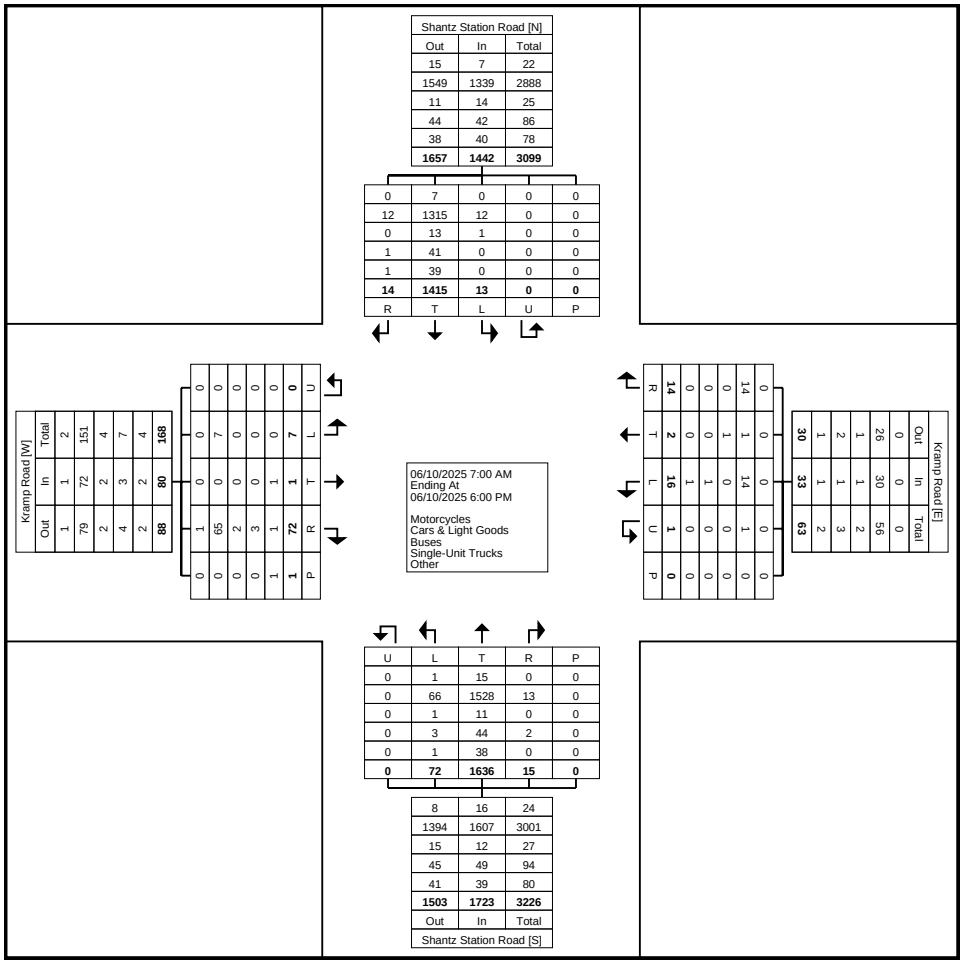
Start Time	Kramp Road Eastbound						Kramp Road Westbound						Shantz Station Road Northbound						Shantz Station Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	32	0	0	0	34	0	28	0	0	0	28	62
7:15 AM	0	0	4	0	0	4	1	0	0	0	0	1	2	41	0	0	0	43	0	41	0	0	0	41	89
7:30 AM	1	0	3	0	0	4	0	0	1	0	0	1	2	61	0	0	0	63	1	57	1	0	0	59	127
7:45 AM	0	0	5	0	0	5	0	0	0	0	0	0	6	61	2	0	0	69	0	55	1	0	0	56	130
Hourly Total	1	0	12	0	0	13	1	0	1	0	0	2	12	195	2	0	0	209	1	181	2	0	0	184	408
8:00 AM	1	0	1	0	0	2	1	0	0	0	0	1	6	95	0	0	0	101	1	59	0	0	0	60	164
8:15 AM	2	0	6	0	0	8	0	0	3	0	0	3	2	61	0	0	0	63	1	86	2	0	0	89	163
8:30 AM	0	0	3	0	0	3	0	1	0	0	0	1	0	45	1	0	0	46	1	32	0	0	0	33	83
8:45 AM	0	0	3	0	0	3	2	0	1	0	0	3	4	62	2	0	0	68	0	26	0	0	0	26	100
Hourly Total	3	0	13	0	0	16	3	1	4	0	0	8	12	263	3	0	0	278	3	203	2	0	0	208	510
9:00 AM	0	0	0	0	0	0	0	1	1	0	0	2	0	31	0	0	0	31	0	27	0	0	0	27	60
9:15 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	26	0	0	0	26	0	27	0	0	0	27	55
9:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	2	42	1	0	0	45	0	23	0	0	0	23	69
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	33	1	0	0	37	0	31	0	0	0	31	68
Hourly Total	0	0	3	0	0	3	0	1	1	0	0	2	5	132	2	0	0	139	0	108	0	0	0	108	252
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	2	35	2	0	0	39	0	30	1	0	0	31	72
12:15 PM	0	0	1	0	0	1	0	0	1	0	0	1	0	34	1	0	0	35	1	31	0	0	0	32	69
12:30 PM	1	0	2	0	0	3	1	0	1	1	0	3	0	29	0	0	0	29	0	22	0	0	0	22	57
12:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	3	31	1	0	0	35	0	37	1	0	0	38	73
Hourly Total	1	0	5	0	1	6	1	0	2	1	0	4	5	129	4	0	0	138	1	120	2	0	0	123	271
1:00 PM	0	0	0	0	0	0	1	0	0	0	0	1	1	33	1	0	0	35	0	35	0	0	0	35	71
1:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	1	19	0	0	0	20	0	33	1	0	0	34	55
1:30 PM	1	0	2	0	0	3	0	0	1	0	0	1	4	40	0	0	0	44	0	24	0	0	0	24	72
1:45 PM	0	1	1	0	0	2	1	0	0	0	0	1	1	34	0	0	0	35	1	31	2	0	0	34	72
Hourly Total	1	1	4	0	0	6	2	0	1	0	0	3	7	126	1	0	0	134	1	123	3	0	0	127	270
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	4	0	0	4	0	0	0	0	0	0	1	68	0	0	0	69	0	39	1	0	0	40	113
3:15 PM	0	0	3	0	0	3	0	0	1	0	0	1	1	82	0	0	0	83	1	62	0	0	0	63	150
3:30 PM	0	0	2	0	0	2	1	0	0	0	0	1	5	79	0	0	0	84	1	54	0	0	0	55	142
3:45 PM	0	0	1	0	0	1	3	0	1	0	0	4	0	61	2	0	0	63	1	71	1	0	0	73	141
Hourly Total	0	0	10	0	0	10	4	0	2	0	0	6	7	290	2	0	0	299	3	226	2	0	0	231	546
4:00 PM	0	0	5	0	0	5	1	0	1	0	0	2	3	64	0	0	0	67	1	40	0	0	0	41	115
4:15 PM	0	0	3	0	0	3	1	0	0	0	0	1	4	76	0	0	0	80	1	40	0	0	0	41	125
4:30 PM	0	0	7	0	0	7	0	0	1	0	0	1	2	59	1	0	0	62	0	62	0	0	0	62	132

4:45 PM	0	0	2	0	0	2	1	0	0	0	0	1	2	72	0	0	0	74	0	76	0	0	0	76	153
Hourly Total	0	0	17	0	0	17	3	0	2	0	0	5	11	271	1	0	0	283	2	218	0	0	0	220	525
5:00 PM	1	0	1	0	0	2	0	0	0	0	0	0	2	51	0	0	0	53	0	81	1	0	0	82	137
5:15 PM	0	0	2	0	0	2	1	0	1	0	0	2	4	71	0	0	0	75	2	60	0	0	0	62	141
5:30 PM	0	0	1	0	0	1	1	0	0	0	0	1	4	57	0	0	0	61	0	55	1	0	0	56	119
5:45 PM	0	0	4	0	0	4	0	0	0	0	0	0	3	51	0	0	0	54	0	40	1	0	0	41	99
Hourly Total	1	0	8	0	0	9	2	0	1	0	0	3	13	230	0	0	0	243	2	236	3	0	0	241	496
Grand Total	7	1	72	0	1	80	16	2	14	1	0	33	72	1636	15	0	0	1723	13	1415	14	0	0	1442	3278
Approach %	8.8	1.3	90.0	0.0	-	-	48.5	6.1	42.4	3.0	-	-	4.2	95.0	0.9	0.0	-	-	0.9	98.1	1.0	0.0	-	-	-
Total %	0.2	0.0	2.2	0.0	-	2.4	0.5	0.1	0.4	0.0	-	1.0	2.2	49.9	0.5	0.0	-	52.6	0.4	43.2	0.4	0.0	-	44.0	-
Motorcycles	0	0	1	0	-	1	0	0	0	0	-	0	1	15	0	0	-	16	0	7	0	0	-	7	24
% Motorcycles	0.0	0.0	1.4	-	-	1.3	0.0	0.0	0.0	0.0	-	0.0	1.4	0.9	0.0	-	-	0.9	0.0	0.5	0.0	-	-	0.5	0.7
Cars & Light Goods	7	0	65	0	-	72	14	1	14	1	-	30	66	1528	13	0	-	1607	12	1315	12	0	-	1339	3048
% Cars & Light Goods	100.0	0.0	90.3	-	-	90.0	87.5	50.0	100.0	100.0	-	90.9	91.7	93.4	86.7	-	-	93.3	92.3	92.9	85.7	-	-	92.9	93.0
Buses	0	0	2	0	-	2	0	1	0	0	-	1	1	11	0	0	-	12	1	13	0	0	-	14	29
% Buses	0.0	0.0	2.8	-	-	2.5	0.0	50.0	0.0	0.0	-	3.0	1.4	0.7	0.0	-	-	0.7	7.7	0.9	0.0	-	-	1.0	0.9
Single-Unit Trucks	0	0	3	0	-	3	1	0	0	0	-	1	3	44	2	0	-	49	0	41	1	0	-	42	95
% Single-Unit Trucks	0.0	0.0	4.2	-	-	3.8	6.3	0.0	0.0	0.0	-	3.0	4.2	2.7	13.3	-	-	2.8	0.0	2.9	7.1	-	-	2.9	2.9
Articulated Trucks	0	0	1	0	-	1	1	0	0	0	-	1	1	37	0	0	-	38	0	38	0	0	-	38	78
% Articulated Trucks	0.0	0.0	1.4	-	-	1.3	6.3	0.0	0.0	0.0	-	3.0	1.4	2.3	0.0	-	-	2.2	0.0	2.7	0.0	-	-	2.6	2.4
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	1	1	0	-	2	4
% Bicycles on Road	0.0	100.0	0.0	-	-	1.3	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0	0.1	7.1	-	-	0.1	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Data Plot

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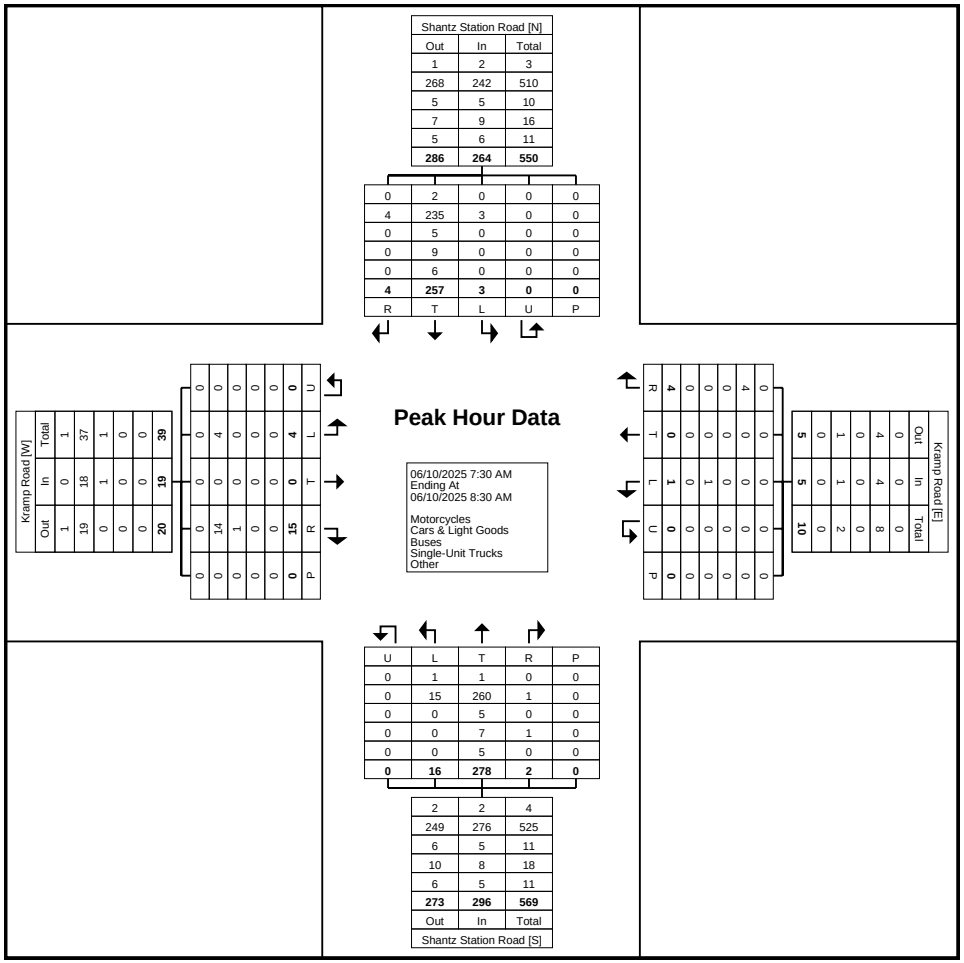
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Kramp Road Eastbound						Kramp Road Westbound						Shantz Station Road Northbound						Shantz Station Road Southbound						
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:30 AM	1	0	3	0	0	4	0	0	1	0	0	1	2	61	0	0	0	63	1	57	1	0	0	59	127
7:45 AM	0	0	5	0	0	5	0	0	0	0	0	0	6	61	2	0	0	69	0	55	1	0	0	56	130
8:00 AM	1	0	1	0	0	2	1	0	0	0	0	1	6	95	0	0	0	101	1	59	0	0	0	60	164
8:15 AM	2	0	6	0	0	8	0	0	3	0	0	3	2	61	0	0	0	63	1	86	2	0	0	89	163
Total	4	0	15	0	0	19	1	0	4	0	0	5	16	278	2	0	0	296	3	257	4	0	0	264	584
Approach %	21.1	0.0	78.9	0.0	-	-	20.0	0.0	80.0	0.0	-	-	5.4	93.9	0.7	0.0	-	-	1.1	97.3	1.5	0.0	-	-	-
Total %	0.7	0.0	2.6	0.0	-	3.3	0.2	0.0	0.7	0.0	-	0.9	2.7	47.6	0.3	0.0	-	50.7	0.5	44.0	0.7	0.0	-	45.2	-
PHF	0.500	0.000	0.625	0.000	-	0.594	0.250	0.000	0.333	0.000	-	0.417	0.667	0.732	0.250	0.000	-	0.733	0.750	0.747	0.500	0.000	-	0.742	0.890
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	1	1	0	0	-	2	0	2	0	0	-	2	4
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	6.3	0.4	0.0	-	-	0.7	0.0	0.8	0.0	-	-	0.8	0.7
Cars & Light Goods	4	0	14	0	-	18	0	0	4	0	-	4	15	260	1	0	-	276	3	235	4	0	-	242	540
% Cars & Light Goods	100.0	-	93.3	-	-	94.7	0.0	-	100.0	-	-	80.0	93.8	93.5	50.0	-	-	93.2	100.0	91.4	100.0	-	-	91.7	92.5
Buses	0	0	1	0	-	1	0	0	0	0	-	0	0	5	0	0	-	5	0	5	0	0	-	5	11
% Buses	0.0	-	6.7	-	-	5.3	0.0	-	0.0	-	-	0.0	0.0	1.8	0.0	-	-	1.7	0.0	1.9	0.0	-	-	1.9	1.9
Single-Unit Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	7	1	0	-	8	0	9	0	0	-	9	18
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	100.0	-	0.0	-	-	20.0	0.0	2.5	50.0	-	-	2.7	0.0	3.5	0.0	-	-	3.4	3.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	0	-	5	0	5	0	0	-	5	10
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	1.8	0.0	-	-	1.7	0.0	1.9	0.0	-	-	1.9	1.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% 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	0.4	0.0	-	-	0.4	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Shantz Station Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025



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

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Shantz Station Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025

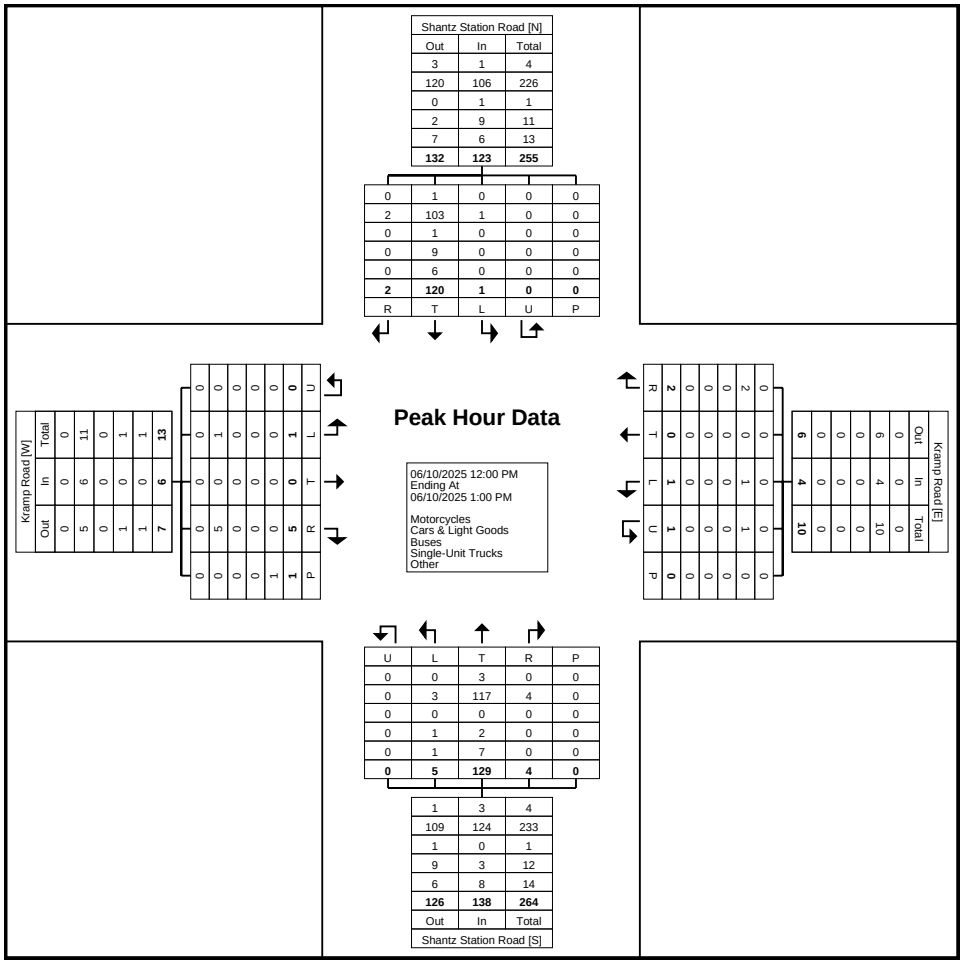
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Kramp Road Eastbound						Kramp Road Westbound						Shantz Station Road Northbound						Shantz Station Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	2	35	2	0	0	39	0	30	1	0	0	31	72
12:15 PM	0	0	1	0	0	1	0	0	1	0	0	1	0	34	1	0	0	35	1	31	0	0	0	32	69
12:30 PM	1	0	2	0	0	3	1	0	1	1	0	3	0	29	0	0	0	29	0	22	0	0	0	22	57
12:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	3	31	1	0	0	35	0	37	1	0	0	38	73
Total	1	0	5	0	1	6	1	0	2	1	0	4	5	129	4	0	0	138	1	120	2	0	0	123	271
Approach %	16.7	0.0	83.3	0.0	-	-	25.0	0.0	50.0	25.0	-	-	3.6	93.5	2.9	0.0	-	-	0.8	97.6	1.6	0.0	-	-	-
Total %	0.4	0.0	1.8	0.0	-	2.2	0.4	0.0	0.7	0.4	-	1.5	1.8	47.6	1.5	0.0	-	50.9	0.4	44.3	0.7	0.0	-	45.4	-
PHF	0.250	0.000	0.625	0.000	-	0.500	0.250	0.000	0.500	0.250	-	0.333	0.417	0.921	0.500	0.000	-	0.885	0.250	0.811	0.500	0.000	-	0.809	0.928
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	0	-	3	0	1	0	0	-	1	4
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	2.3	0.0	-	-	2.2	0.0	0.8	0.0	-	-	0.8	1.5
Cars & Light Goods	1	0	5	0	-	6	1	0	2	1	-	4	3	117	4	0	-	124	1	103	2	0	-	106	240
% Cars & Light Goods	100.0	-	100.0	-	-	100.0	100.0	-	100.0	100.0	-	100.0	60.0	90.7	100.0	-	-	89.9	100.0	85.8	100.0	-	-	86.2	88.6
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Buses	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.8	0.0	-	-	0.8	0.4
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	1	2	0	0	-	3	0	9	0	0	-	9	12
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	20.0	1.6	0.0	-	-	2.2	0.0	7.5	0.0	-	-	7.3	4.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	1	6	0	0	-	7	0	6	0	0	-	6	13
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	20.0	4.7	0.0	-	-	5.1	0.0	5.0	0.0	-	-	4.9	4.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	0.8	0.0	-	-	0.7	0.0	0.0	0.0	-	-	0.0	0.4
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Shantz Station Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Peak Hour Data Plot (12:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Shantz Station Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025

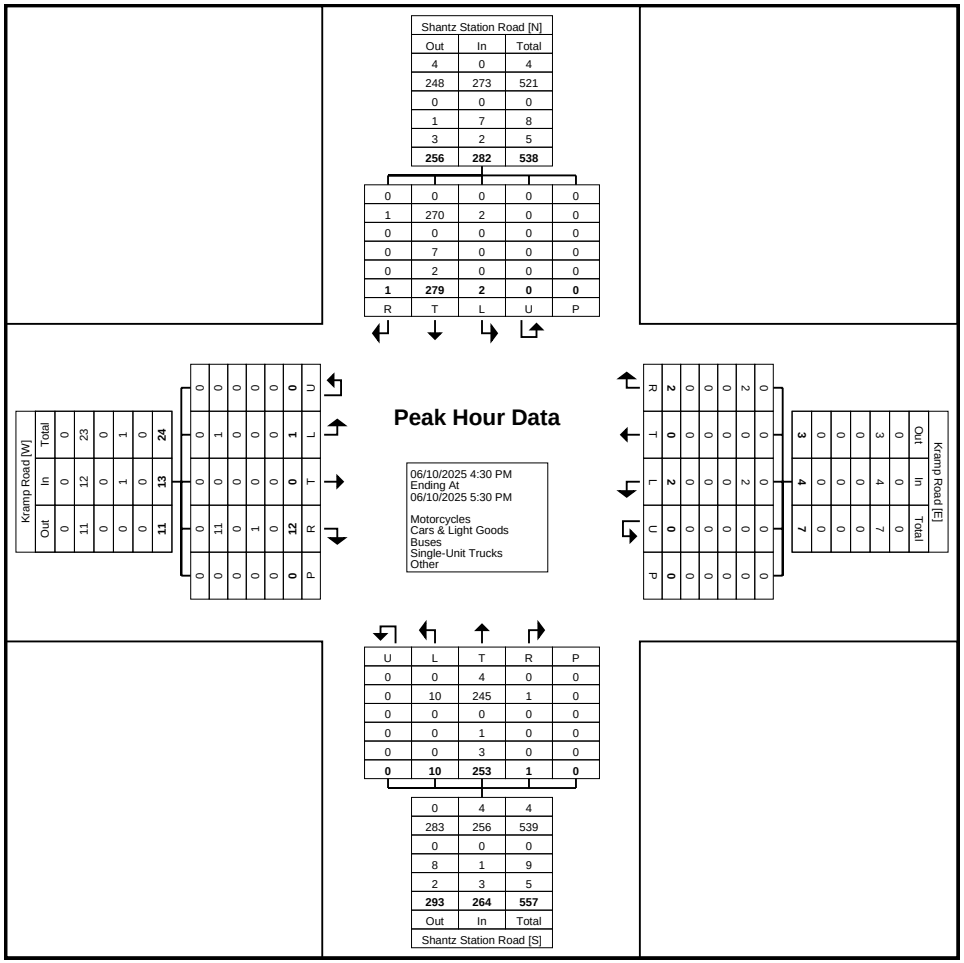
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Kramp Road Eastbound						Kramp Road Westbound						Shantz Station Road Northbound						Shantz Station Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	0	0	7	0	0	7	0	0	1	0	0	1	2	59	1	0	0	62	0	62	0	0	0	62	132
4:45 PM	0	0	2	0	0	2	1	0	0	0	0	1	2	72	0	0	0	74	0	76	0	0	0	76	153
5:00 PM	1	0	1	0	0	2	0	0	0	0	0	0	2	51	0	0	0	53	0	81	1	0	0	82	137
5:15 PM	0	0	2	0	0	2	1	0	1	0	0	2	4	71	0	0	0	75	2	60	0	0	0	62	141
Total	1	0	12	0	0	13	2	0	2	0	0	4	10	253	1	0	0	264	2	279	1	0	0	282	563
Approach %	7.7	0.0	92.3	0.0	-	-	50.0	0.0	50.0	0.0	-	-	3.8	95.8	0.4	0.0	-	-	0.7	98.9	0.4	0.0	-	-	-
Total %	0.2	0.0	2.1	0.0	-	2.3	0.4	0.0	0.4	0.0	-	0.7	1.8	44.9	0.2	0.0	-	46.9	0.4	49.6	0.2	0.0	-	50.1	-
PHF	0.250	0.000	0.429	0.000	-	0.464	0.500	0.000	0.500	0.000	-	0.500	0.625	0.878	0.250	0.000	-	0.880	0.250	0.861	0.250	0.000	-	0.860	0.920
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	0	-	4	0	0	0	0	-	0	4
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	1.6	0.0	-	-	1.5	0.0	0.0	0.0	-	-	0.0	0.7
Cars & Light Goods	1	0	11	0	-	12	2	0	2	0	-	4	10	245	1	0	-	256	2	270	1	0	-	273	545
% Cars & Light Goods	100.0	-	91.7	-	-	92.3	100.0	-	100.0	-	-	100.0	100.0	96.8	100.0	-	-	97.0	100.0	96.8	100.0	-	-	96.8	96.8
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	7	0	0	-	7	9
% Single-Unit Trucks	0.0	-	8.3	-	-	7.7	0.0	-	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.4	0.0	2.5	0.0	-	-	2.5	1.6
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	0	-	3	0	2	0	0	-	2	5
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	1.2	0.0	-	-	1.1	0.0	0.7	0.0	-	-	0.7	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	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	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Shantz Station Road & Kramp Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Peak Hour Data Plot (4:30 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Greenhouse Road
Site Code: 250443
Start Date: 06/10/2025

Turning Movement Data

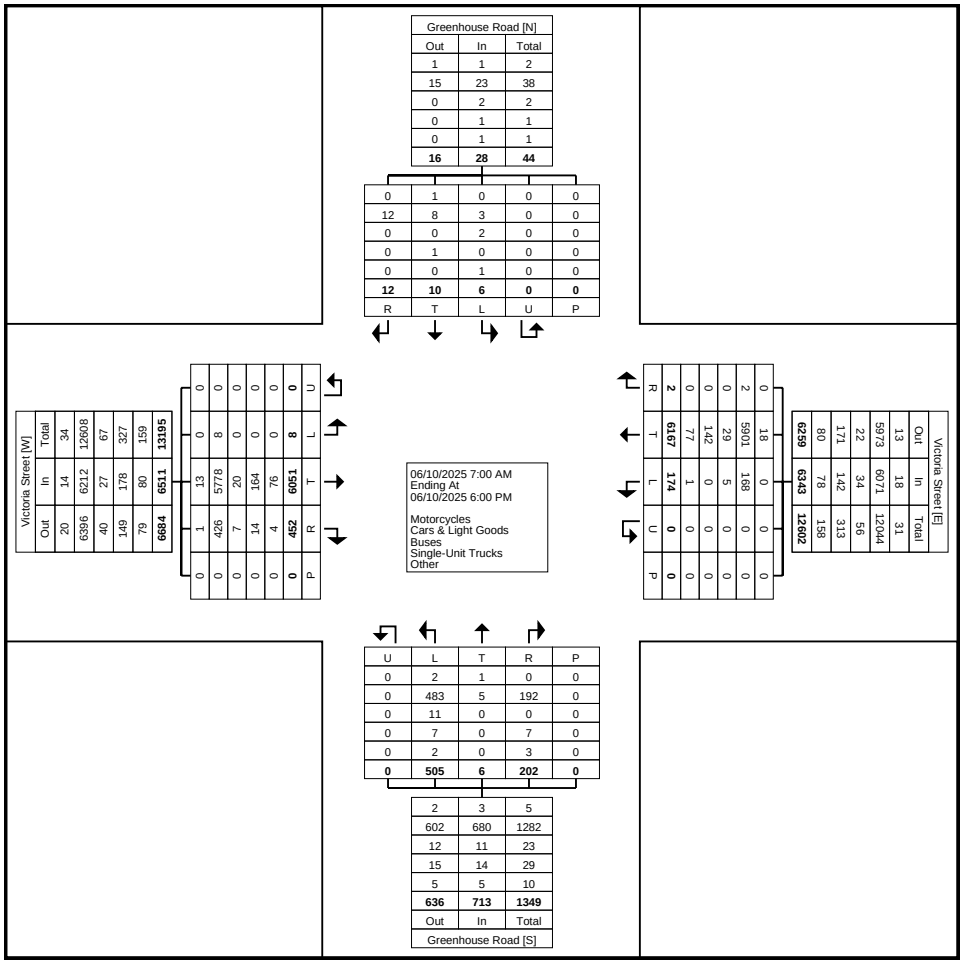
Start Time	Victoria Street Eastbound						Victoria Street Westbound						Greenhouse Road Northbound						Greenhouse Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	1	192	2	0	0	195	3	162	0	0	0	165	8	0	5	0	0	13	0	0	0	0	0	0	373
7:15 AM	0	224	3	0	0	227	1	233	0	0	0	234	19	0	7	0	0	26	0	0	0	0	0	0	487
7:30 AM	0	274	6	0	0	280	6	166	0	0	0	172	18	0	8	0	0	26	0	0	0	0	0	0	478
7:45 AM	2	195	18	0	0	215	5	191	0	0	0	196	20	1	7	0	0	28	0	0	0	0	0	0	439
Hourly Total	3	885	29	0	0	917	15	752	0	0	0	767	65	1	27	0	0	93	0	0	0	0	0	0	1777
8:00 AM	0	208	11	0	0	219	3	192	0	0	0	195	15	0	14	0	0	29	0	0	0	0	0	0	443
8:15 AM	0	234	13	0	0	247	1	216	0	0	0	217	15	0	9	0	0	24	0	0	0	0	0	0	488
8:30 AM	0	191	6	0	0	197	1	211	0	0	0	212	19	0	5	0	0	24	0	0	0	0	0	0	433
8:45 AM	0	198	12	0	0	210	3	183	0	0	0	186	20	0	2	0	0	22	1	1	0	0	0	2	420
Hourly Total	0	831	42	0	0	873	8	802	0	0	0	810	69	0	30	0	0	99	1	1	0	0	0	2	1784
9:00 AM	0	145	17	0	0	162	2	163	0	0	0	165	17	1	4	0	0	22	0	0	0	0	0	0	349
9:15 AM	0	160	11	0	0	171	2	188	1	0	0	191	16	0	8	0	0	24	1	0	0	0	0	1	387
9:30 AM	0	155	13	0	0	168	4	146	0	0	0	150	9	0	6	0	0	15	1	0	0	0	0	1	334
9:45 AM	0	138	11	0	0	149	6	126	0	0	0	132	10	0	5	0	0	15	0	0	0	0	0	0	296
Hourly Total	0	598	52	0	0	650	14	623	1	0	0	638	52	1	23	0	0	76	2	0	0	0	0	2	1366
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	0	106	17	0	0	123	2	141	0	0	0	143	12	0	6	0	0	18	0	1	0	0	0	1	285
12:15 PM	0	160	12	0	0	172	9	167	0	0	0	176	11	1	5	0	0	17	0	0	1	0	0	1	366
12:30 PM	0	155	4	0	0	159	3	130	0	0	0	133	18	0	12	0	0	30	0	0	1	0	0	1	323
12:45 PM	0	151	9	0	0	160	7	131	0	0	0	138	11	0	4	0	0	15	0	0	0	0	0	0	313
Hourly Total	0	572	42	0	0	614	21	569	0	0	0	590	52	1	27	0	0	80	0	1	2	0	0	3	1287
1:00 PM	0	115	9	0	0	124	12	130	0	0	0	142	13	0	6	0	0	19	0	0	0	0	0	0	285
1:15 PM	1	180	13	0	0	194	4	131	0	0	0	135	17	0	5	0	0	22	1	1	0	0	0	2	353
1:30 PM	0	213	12	0	0	225	1	141	1	0	0	143	9	1	3	0	0	13	0	0	1	0	0	1	382
1:45 PM	1	206	16	0	0	223	7	157	0	0	0	164	16	0	3	0	0	19	1	0	0	0	0	1	407
Hourly Total	2	714	50	0	0	766	24	559	1	0	0	584	55	1	17	0	0	73	2	1	1	0	0	4	1427
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	184	18	0	0	203	7	197	0	0	0	204	20	0	5	0	0	25	0	1	1	0	0	2	434
3:15 PM	0	172	9	0	0	181	2	234	0	0	0	236	9	0	5	0	0	14	1	0	4	0	0	5	436
3:30 PM	0	190	19	0	0	209	4	232	0	0	0	236	21	0	7	0	0	28	0	0	0	0	0	0	473
3:45 PM	0	171	21	0	0	192	11	253	0	0	0	264	17	0	3	0	0	20	0	0	1	0	0	1	477
Hourly Total	1	717	67	0	0	785	24	916	0	0	0	940	67	0	20	0	0	87	1	1	6	0	0	8	1820
4:00 PM	0	188	20	0	0	208	10	244	0	0	0	254	14	0	9	0	0	23	0	2	0	0	0	2	487
4:15 PM	0	238	30	0	0	268	3	254	0	0	0	257	14	0	5	0	0	19	0	1	0	0	0	1	545
4:30 PM	0	223	16	0	0	239	6	240	0	0	0	246	27	1	5	0	0	33	0	1	0	0	0	1	519

4:45 PM	2	248	20	0	0	270	10	268	0	0	0	278	20	0	7	0	0	27	0	0	1	0	0	1	576
Hourly Total	2	897	86	0	0	985	29	1006	0	0	0	1035	75	1	26	0	0	102	0	4	1	0	0	5	2127
5:00 PM	0	207	18	0	0	225	12	228	0	0	0	240	21	1	13	0	0	35	0	1	0	0	0	1	501
5:15 PM	0	245	22	0	0	267	7	253	0	0	0	260	16	0	10	0	0	26	0	1	1	0	0	2	555
5:30 PM	0	223	22	0	0	245	9	260	0	0	0	269	22	0	4	0	0	26	0	0	0	0	0	0	540
5:45 PM	0	162	22	0	0	184	11	199	0	0	0	210	11	0	5	0	0	16	0	0	1	0	0	1	411
Hourly Total	0	837	84	0	0	921	39	940	0	0	0	979	70	1	32	0	0	103	0	2	2	0	0	4	2007
Grand Total	8	6051	452	0	0	6511	174	6167	2	0	0	6343	505	6	202	0	0	713	6	10	12	0	0	28	13595
Approach %	0.1	92.9	6.9	0.0	-	-	2.7	97.2	0.0	0.0	-	-	70.8	0.8	28.3	0.0	-	-	21.4	35.7	42.9	0.0	-	-	-
Total %	0.1	44.5	3.3	0.0	-	47.9	1.3	45.4	0.0	0.0	-	46.7	3.7	0.0	1.5	0.0	-	5.2	0.0	0.1	0.1	0.0	-	0.2	-
Motorcycles	0	13	1	0	-	14	0	18	0	0	-	18	2	1	0	0	-	3	0	1	0	0	-	1	36
% Motorcycles	0.0	0.2	0.2	-	-	0.2	0.0	0.3	0.0	-	-	0.3	0.4	16.7	0.0	-	-	0.4	0.0	10.0	0.0	-	-	3.6	0.3
Cars & Light Goods	8	5778	426	0	-	6212	168	5901	2	0	-	6071	483	5	192	0	-	680	3	8	12	0	-	23	12986
% Cars & Light Goods	100.0	95.5	94.2	-	-	95.4	96.6	95.7	100.0	-	-	95.7	95.6	83.3	95.0	-	-	95.4	50.0	80.0	100.0	-	-	82.1	95.5
Buses	0	20	7	0	-	27	5	29	0	0	-	34	11	0	0	0	-	11	2	0	0	0	-	2	74
% Buses	0.0	0.3	1.5	-	-	0.4	2.9	0.5	0.0	-	-	0.5	2.2	0.0	0.0	-	-	1.5	33.3	0.0	0.0	-	-	7.1	0.5
Single-Unit Trucks	0	164	14	0	-	178	0	142	0	0	-	142	7	0	7	0	-	14	0	1	0	0	-	1	335
% Single-Unit Trucks	0.0	2.7	3.1	-	-	2.7	0.0	2.3	0.0	-	-	2.2	1.4	0.0	3.5	-	-	2.0	0.0	10.0	0.0	-	-	3.6	2.5
Articulated Trucks	0	76	4	0	-	80	1	77	0	0	-	78	2	0	3	0	-	5	1	0	0	0	-	1	164
% Articulated Trucks	0.0	1.3	0.9	-	-	1.2	0.6	1.2	0.0	-	-	1.2	0.4	0.0	1.5	-	-	0.7	16.7	0.0	0.0	-	-	3.6	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
% 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	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Greenhouse Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Victoria Street & Greenhouse Road
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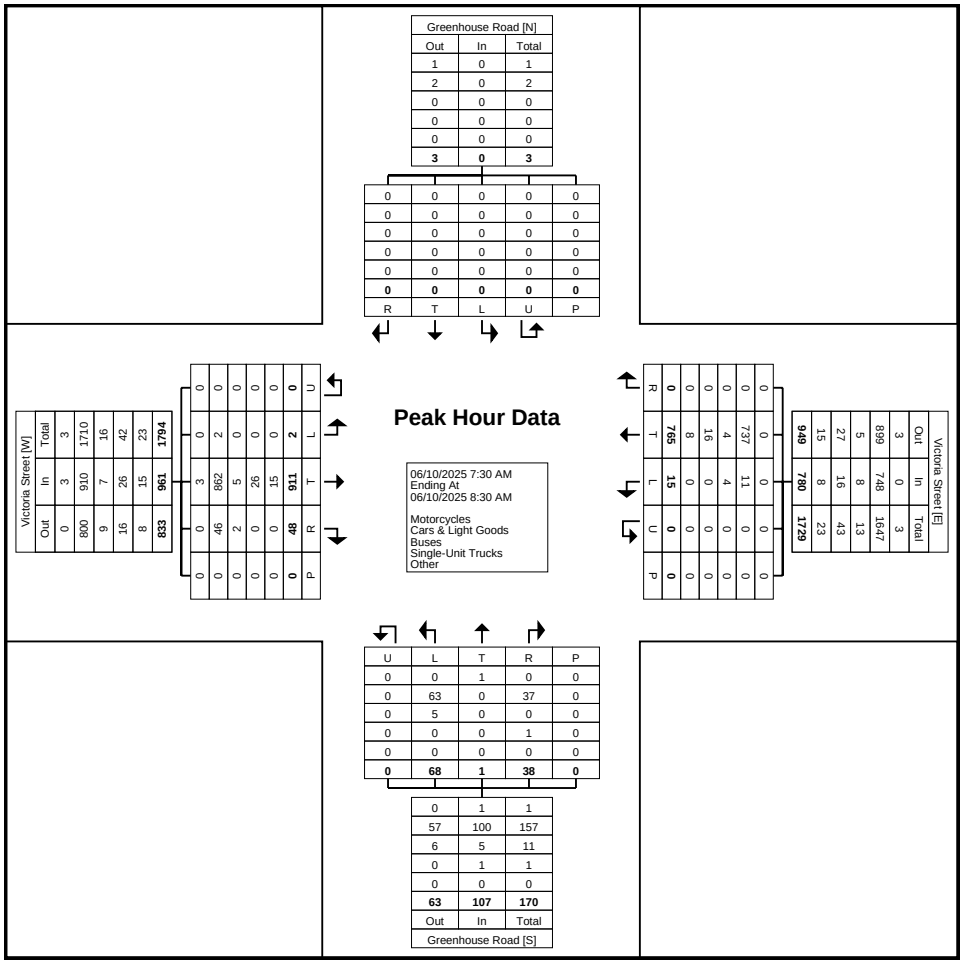
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Victoria Street Eastbound						Victoria Street Westbound						Greenhouse Road Northbound						Greenhouse Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	274	6	0	0	280	6	166	0	0	0	172	18	0	8	0	0	26	0	0	0	0	0	0	478
7:45 AM	2	195	18	0	0	215	5	191	0	0	0	196	20	1	7	0	0	28	0	0	0	0	0	0	439
8:00 AM	0	208	11	0	0	219	3	192	0	0	0	195	15	0	14	0	0	29	0	0	0	0	0	0	443
8:15 AM	0	234	13	0	0	247	1	216	0	0	0	217	15	0	9	0	0	24	0	0	0	0	0	0	488
Total	2	911	48	0	0	961	15	765	0	0	0	780	68	1	38	0	0	107	0	0	0	0	0	0	1848
Approach %	0.2	94.8	5.0	0.0	-	-	1.9	98.1	0.0	0.0	-	-	63.6	0.9	35.5	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	0.1	49.3	2.6	0.0	-	52.0	0.8	41.4	0.0	0.0	-	42.2	3.7	0.1	2.1	0.0	-	5.8	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.250	0.831	0.667	0.000	-	0.858	0.625	0.885	0.000	0.000	-	0.899	0.850	0.250	0.679	0.000	-	0.922	0.000	0.000	0.000	0.000	-	0.000	0.947
Motorcycles	0	3	0	0	-	3	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	4
% Motorcycles	0.0	0.3	0.0	-	-	0.3	0.0	0.0	-	-	-	0.0	0.0	100.0	0.0	-	-	0.9	-	-	-	-	-	-	0.2
Cars & Light Goods	2	862	46	0	-	910	11	737	0	0	-	748	63	0	37	0	-	100	0	0	0	0	-	0	1758
% Cars & Light Goods	100.0	94.6	95.8	-	-	94.7	73.3	96.3	-	-	-	95.9	92.6	0.0	97.4	-	-	93.5	-	-	-	-	-	-	95.1
Buses	0	5	2	0	-	7	4	4	0	0	-	8	5	0	0	0	-	5	0	0	0	0	-	0	20
% Buses	0.0	0.5	4.2	-	-	0.7	26.7	0.5	-	-	-	1.0	7.4	0.0	0.0	-	-	4.7	-	-	-	-	-	-	1.1
Single-Unit Trucks	0	26	0	0	-	26	0	16	0	0	-	16	0	0	1	0	-	1	0	0	0	0	-	0	43
% Single-Unit Trucks	0.0	2.9	0.0	-	-	2.7	0.0	2.1	-	-	-	2.1	0.0	0.0	2.6	-	-	0.9	-	-	-	-	-	-	2.3
Articulated Trucks	0	15	0	0	-	15	0	8	0	0	-	8	0	0	0	0	-	0	0	0	0	0	-	0	23
% Articulated Trucks	0.0	1.6	0.0	-	-	1.6	0.0	1.0	-	-	-	1.0	0.0	0.0	0.0	-	-	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
% 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	-	-	-	-	-	-	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Greenhouse Road
Site Code: 250443
Start Date: 06/10/2025



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

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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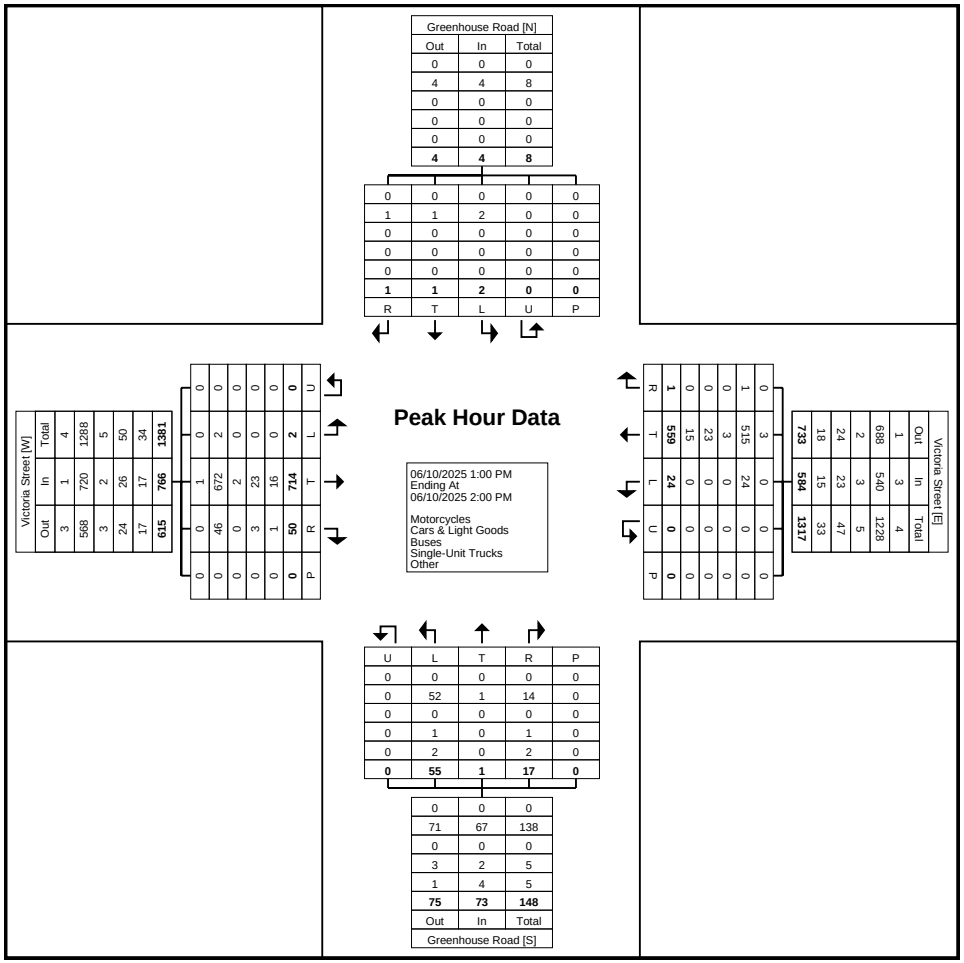
Turning Movement Peak Hour Data (1:00 PM)

Start Time	Victoria Street Eastbound						Victoria Street Westbound						Greenhouse Road Northbound						Greenhouse Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
1:00 PM	0	115	9	0	0	124	12	130	0	0	0	142	13	0	6	0	0	19	0	0	0	0	0	0	285
1:15 PM	1	180	13	0	0	194	4	131	0	0	0	135	17	0	5	0	0	22	1	1	0	0	0	2	353
1:30 PM	0	213	12	0	0	225	1	141	1	0	0	143	9	1	3	0	0	13	0	0	1	0	0	1	382
1:45 PM	1	206	16	0	0	223	7	157	0	0	0	164	16	0	3	0	0	19	1	0	0	0	0	1	407
Total	2	714	50	0	0	766	24	559	1	0	0	584	55	1	17	0	0	73	2	1	1	0	0	4	1427
Approach %	0.3	93.2	6.5	0.0	-	-	4.1	95.7	0.2	0.0	-	-	75.3	1.4	23.3	0.0	-	-	50.0	25.0	25.0	0.0	-	-	-
Total %	0.1	50.0	3.5	0.0	-	53.7	1.7	39.2	0.1	0.0	-	40.9	3.9	0.1	1.2	0.0	-	5.1	0.1	0.1	0.1	0.0	-	0.3	-
PHF	0.500	0.838	0.781	0.000	-	0.851	0.500	0.890	0.250	0.000	-	0.890	0.809	0.250	0.708	0.000	-	0.830	0.500	0.250	0.250	0.000	-	0.500	0.877
Motorcycles	0	1	0	0	-	1	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	4
% Motorcycles	0.0	0.1	0.0	-	-	0.1	0.0	0.5	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.3
Cars & Light Goods	2	672	46	0	-	720	24	515	1	0	-	540	52	1	14	0	-	67	2	1	1	0	-	4	1331
% Cars & Light Goods	100.0	94.1	92.0	-	-	94.0	100.0	92.1	100.0	-	-	92.5	94.5	100.0	82.4	-	-	91.8	100.0	100.0	100.0	-	-	100.0	93.3
Buses	0	2	0	0	-	2	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	5
% Buses	0.0	0.3	0.0	-	-	0.3	0.0	0.5	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.4
Single-Unit Trucks	0	23	3	0	-	26	0	23	0	0	-	23	1	0	1	0	-	2	0	0	0	0	-	0	51
% Single-Unit Trucks	0.0	3.2	6.0	-	-	3.4	0.0	4.1	0.0	-	-	3.9	1.8	0.0	5.9	-	-	2.7	0.0	0.0	0.0	-	-	0.0	3.6
Articulated Trucks	0	16	1	0	-	17	0	15	0	0	-	15	2	0	2	0	-	4	0	0	0	0	-	0	36
% Articulated Trucks	0.0	2.2	2.0	-	-	2.2	0.0	2.7	0.0	-	-	2.6	3.6	0.0	11.8	-	-	5.5	0.0	0.0	0.0	-	-	0.0	2.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	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	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Greenhouse Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Peak Hour Data Plot (1:00 PM)

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5A-150 Pinebush Rd

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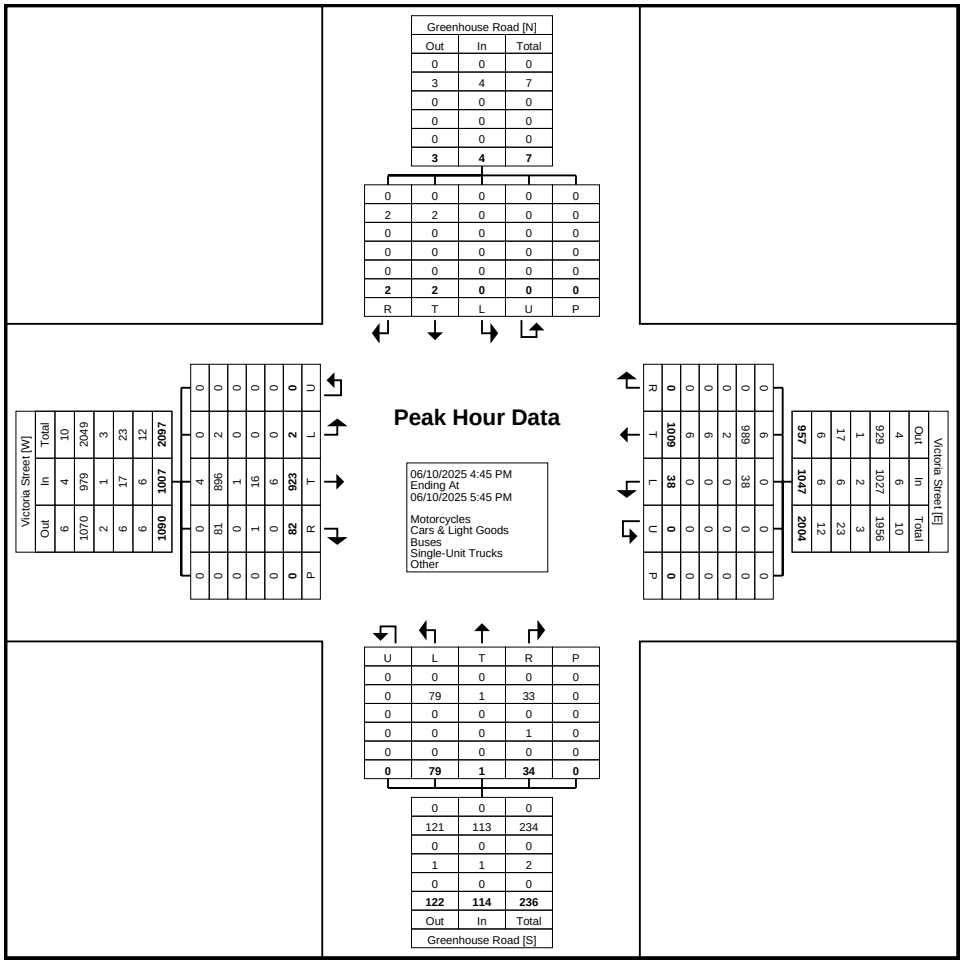
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Victoria Street Eastbound						Victoria Street Westbound						Greenhouse Road Northbound						Greenhouse Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	2	248	20	0	0	270	10	268	0	0	0	278	20	0	7	0	0	27	0	0	1	0	0	1	576
5:00 PM	0	207	18	0	0	225	12	228	0	0	0	240	21	1	13	0	0	35	0	1	0	0	0	1	501
5:15 PM	0	245	22	0	0	267	7	253	0	0	0	260	16	0	10	0	0	26	0	1	1	0	0	2	555
5:30 PM	0	223	22	0	0	245	9	260	0	0	0	269	22	0	4	0	0	26	0	0	0	0	0	0	540
Total	2	923	82	0	0	1007	38	1009	0	0	0	1047	79	1	34	0	0	114	0	2	2	0	0	4	2172
Approach %	0.2	91.7	8.1	0.0	-	-	3.6	96.4	0.0	0.0	-	-	69.3	0.9	29.8	0.0	-	-	0.0	50.0	50.0	0.0	-	-	-
Total %	0.1	42.5	3.8	0.0	-	46.4	1.7	46.5	0.0	0.0	-	48.2	3.6	0.0	1.6	0.0	-	5.2	0.0	0.1	0.1	0.0	-	0.2	-
PHF	0.250	0.930	0.932	0.000	-	0.932	0.792	0.941	0.000	0.000	-	0.942	0.898	0.250	0.654	0.000	-	0.814	0.000	0.500	0.500	0.000	-	0.500	0.943
Motorcycles	0	4	0	0	-	4	0	6	0	0	-	6	0	0	0	0	-	0	0	0	0	0	-	0	10
% Motorcycles	0.0	0.4	0.0	-	-	0.4	0.0	0.6	-	-	-	0.6	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.5
Cars & Light Goods	2	896	81	0	-	979	38	989	0	0	-	1027	79	1	33	0	-	113	0	2	2	0	-	4	2123
% Cars & Light Goods	100.0	97.1	98.8	-	-	97.2	100.0	98.0	-	-	-	98.1	100.0	100.0	97.1	-	-	99.1	-	100.0	100.0	-	-	100.0	97.7
Buses	0	1	0	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	3
% Buses	0.0	0.1	0.0	-	-	0.1	0.0	0.2	-	-	-	0.2	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.1
Single-Unit Trucks	0	16	1	0	-	17	0	6	0	0	-	6	0	0	1	0	-	1	0	0	0	0	-	0	24
% Single-Unit Trucks	0.0	1.7	1.2	-	-	1.7	0.0	0.6	-	-	-	0.6	0.0	0.0	2.9	-	-	0.9	-	0.0	0.0	-	-	0.0	1.1
Articulated Trucks	0	6	0	0	-	6	0	6	0	0	-	6	0	0	0	0	-	0	0	0	0	0	-	0	12
% Articulated Trucks	0.0	0.7	0.0	-	-	0.6	0.0	0.6	-	-	-	0.6	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	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	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Victoria Street & Greenhouse Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Peak Hour Data Plot (4:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Shantz Station Road
Site Code: 250443
Start Date: 06/10/2025

Turning Movement Data

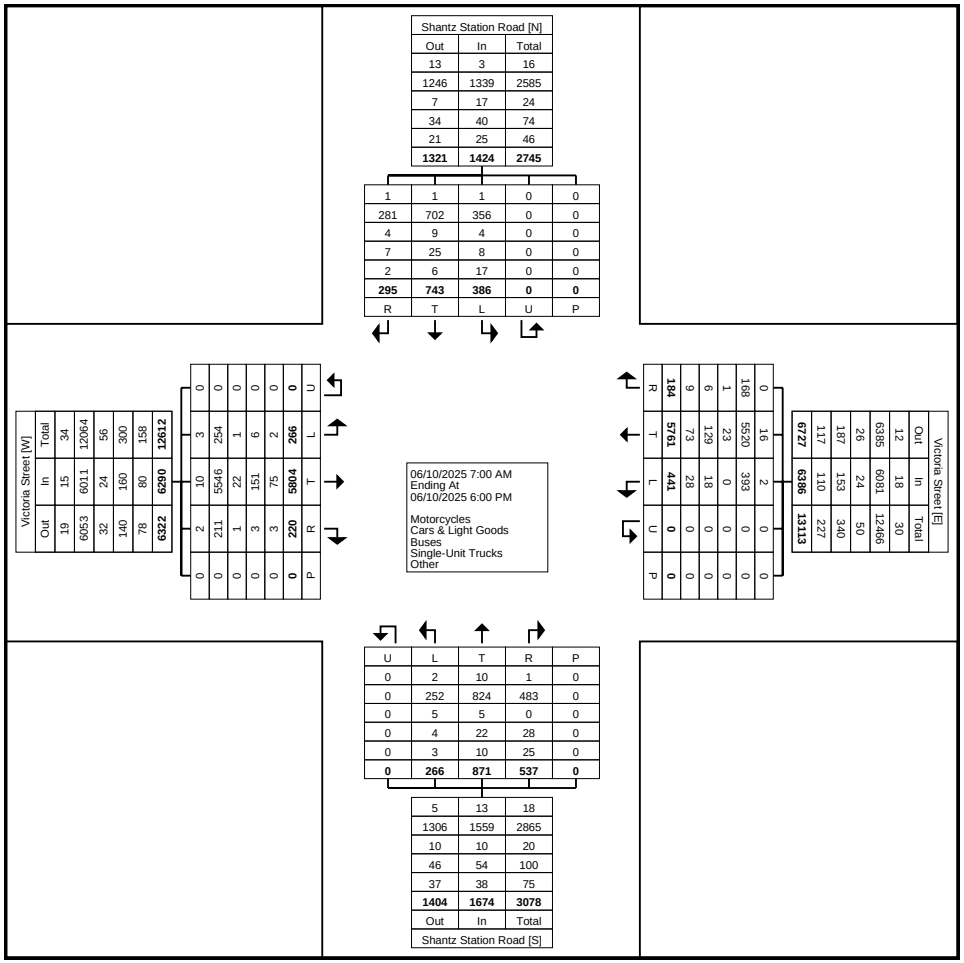
Start Time	Victoria Street Eastbound						Victoria Street Westbound						Shantz Station Road Northbound						Shantz Station Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	5	189	4	0	0	198	6	185	3	0	0	194	2	12	14	0	0	28	5	21	5	0	0	31	451
7:15 AM	6	207	2	0	0	215	18	207	6	0	0	231	5	20	21	0	0	46	10	24	6	0	0	40	532
7:30 AM	3	241	6	0	0	250	12	167	8	0	0	187	9	22	26	0	0	57	14	28	7	0	0	49	543
7:45 AM	1	233	11	0	0	245	11	195	15	0	0	221	8	33	23	0	0	64	11	36	9	0	0	56	586
Hourly Total	15	870	23	0	0	908	47	754	32	0	0	833	24	87	84	0	0	195	40	109	27	0	0	176	2112
8:00 AM	13	192	6	0	0	211	16	177	7	0	0	200	11	61	14	0	0	86	18	34	11	0	0	63	560
8:15 AM	7	222	15	0	0	244	14	176	5	0	0	195	9	45	18	0	0	72	27	62	15	0	0	104	615
8:30 AM	6	192	4	0	0	202	11	182	7	0	0	200	8	23	19	0	0	50	14	16	5	0	0	35	487
8:45 AM	3	175	7	0	0	185	10	150	3	0	0	163	12	19	24	0	0	55	10	15	7	0	0	32	435
Hourly Total	29	781	32	0	0	842	51	685	22	0	0	758	40	148	75	0	0	263	69	127	38	0	0	234	2097
9:00 AM	7	147	5	0	0	159	11	155	3	0	0	169	9	14	12	0	0	35	2	11	5	0	0	18	381
9:15 AM	9	160	5	0	0	174	14	180	7	0	0	201	3	10	14	0	0	27	5	9	5	0	0	19	421
9:30 AM	4	167	4	0	0	175	10	153	3	0	0	166	2	12	23	0	0	37	7	8	1	0	0	16	394
9:45 AM	2	144	9	0	0	155	14	116	5	0	0	135	7	19	10	0	0	36	11	10	3	0	0	24	350
Hourly Total	22	618	23	0	0	663	49	604	18	0	0	671	21	55	59	0	0	135	25	38	14	0	0	77	1546
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	6	113	8	0	0	127	7	145	4	0	0	156	6	8	16	0	0	30	2	12	2	0	0	16	329
12:15 PM	6	138	8	0	0	152	11	149	7	0	0	167	11	11	10	0	0	32	7	13	5	0	0	25	376
12:30 PM	8	162	6	0	0	176	9	126	4	0	0	139	8	11	16	0	0	35	12	6	6	0	0	24	374
12:45 PM	8	132	7	0	0	147	21	139	3	0	0	163	5	14	12	0	0	31	6	10	5	0	0	21	362
Hourly Total	28	545	29	0	0	602	48	559	18	0	0	625	30	44	54	0	0	128	27	41	18	0	0	86	1441
1:00 PM	8	120	5	0	0	133	12	118	8	0	0	138	10	13	13	0	0	36	7	18	7	0	0	32	339
1:15 PM	11	149	7	0	0	167	19	118	4	0	0	141	4	6	7	0	0	17	13	12	1	0	0	26	351
1:30 PM	7	194	5	0	0	206	19	145	5	0	0	169	8	15	14	0	0	37	8	8	10	0	0	26	438
1:45 PM	9	213	7	0	0	229	16	133	7	0	0	156	5	15	18	0	0	38	15	14	15	0	0	44	467
Hourly Total	35	676	24	0	0	735	66	514	24	0	0	604	27	49	52	0	0	128	43	52	33	0	0	128	1595
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	11	160	5	0	0	176	19	187	2	0	0	208	6	47	20	0	0	73	5	13	7	0	0	25	482
3:15 PM	15	155	6	0	0	176	14	214	11	0	0	239	8	65	11	0	0	84	18	34	9	0	0	61	560
3:30 PM	14	173	8	0	0	195	10	224	3	0	0	237	8	39	27	0	0	74	26	36	21	0	0	83	589
3:45 PM	2	158	10	0	0	170	13	223	4	0	0	240	7	34	22	0	0	63	15	48	21	0	0	84	557
Hourly Total	42	646	29	0	0	717	56	848	20	0	0	924	29	185	80	0	0	294	64	131	58	0	0	253	2188
4:00 PM	10	186	7	0	0	203	12	233	5	0	0	250	12	32	21	0	0	65	13	23	16	0	0	52	570
4:15 PM	15	206	8	0	0	229	3	237	5	0	0	245	12	47	13	0	0	72	14	29	13	0	0	56	602
4:30 PM	11	208	9	0	0	228	16	249	9	0	0	274	9	37	15	0	0	61	15	33	19	0	0	67	630

4:45 PM	13	221	11	0	0	245	35	222	3	0	0	260	13	43	18	0	0	74	11	29	10	0	0	50	629
Hourly Total	49	821	35	0	0	905	66	941	22	0	0	1029	46	159	67	0	0	272	53	114	58	0	0	225	2431
5:00 PM	17	219	7	0	0	243	17	208	6	0	0	231	15	39	10	0	0	64	19	42	19	0	0	80	618
5:15 PM	12	246	9	0	0	267	16	223	7	0	0	246	13	32	31	0	0	76	18	33	13	0	0	64	653
5:30 PM	12	227	5	0	0	244	19	237	11	0	0	267	10	38	12	0	0	60	14	38	12	0	0	64	635
5:45 PM	5	155	4	0	0	164	6	188	4	0	0	198	11	35	13	0	0	59	14	18	5	0	0	37	458
Hourly Total	46	847	25	0	0	918	58	856	28	0	0	942	49	144	66	0	0	259	65	131	49	0	0	245	2364
Grand Total	266	5804	220	0	0	6290	441	5761	184	0	0	6386	266	871	537	0	0	1674	386	743	295	0	0	1424	15774
Approach %	4.2	92.3	3.5	0.0	-	-	6.9	90.2	2.9	0.0	-	-	15.9	52.0	32.1	0.0	-	-	27.1	52.2	20.7	0.0	-	-	-
Total %	1.7	36.8	1.4	0.0	-	39.9	2.8	36.5	1.2	0.0	-	40.5	1.7	5.5	3.4	0.0	-	10.6	2.4	4.7	1.9	0.0	-	9.0	-
Motorcycles	3	10	2	0	-	15	2	16	0	0	-	18	2	10	1	0	-	13	1	1	1	0	-	3	49
% Motorcycles	1.1	0.2	0.9	-	-	0.2	0.5	0.3	0.0	-	-	0.3	0.8	1.1	0.2	-	-	0.8	0.3	0.1	0.3	-	-	0.2	0.3
Cars & Light Goods	254	5546	211	0	-	6011	393	5520	168	0	-	6081	252	824	483	0	-	1559	356	702	281	0	-	1339	14990
% Cars & Light Goods	95.5	95.6	95.9	-	-	95.6	89.1	95.8	91.3	-	-	95.2	94.7	94.6	89.9	-	-	93.1	92.2	94.5	95.3	-	-	94.0	95.0
Buses	1	22	1	0	-	24	0	23	1	0	-	24	5	5	0	0	-	10	4	9	4	0	-	17	75
% Buses	0.4	0.4	0.5	-	-	0.4	0.0	0.4	0.5	-	-	0.4	1.9	0.6	0.0	-	-	0.6	1.0	1.2	1.4	-	-	1.2	0.5
Single-Unit Trucks	6	151	3	0	-	160	18	129	6	0	-	153	4	22	28	0	-	54	8	25	7	0	-	40	407
% Single-Unit Trucks	2.3	2.6	1.4	-	-	2.5	4.1	2.2	3.3	-	-	2.4	1.5	2.5	5.2	-	-	3.2	2.1	3.4	2.4	-	-	2.8	2.6
Articulated Trucks	2	75	2	0	-	79	28	73	9	0	-	110	3	9	25	0	-	37	17	4	2	0	-	23	249
% Articulated Trucks	0.8	1.3	0.9	-	-	1.3	6.3	1.3	4.9	-	-	1.7	1.1	1.0	4.7	-	-	2.2	4.4	0.5	0.7	-	-	1.6	1.6
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	2	0	0	-	2	4
% Bicycles on Road	0.0	0.0	0.5	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0	0.3	0.0	-	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Shantz Station Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Data Plot

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5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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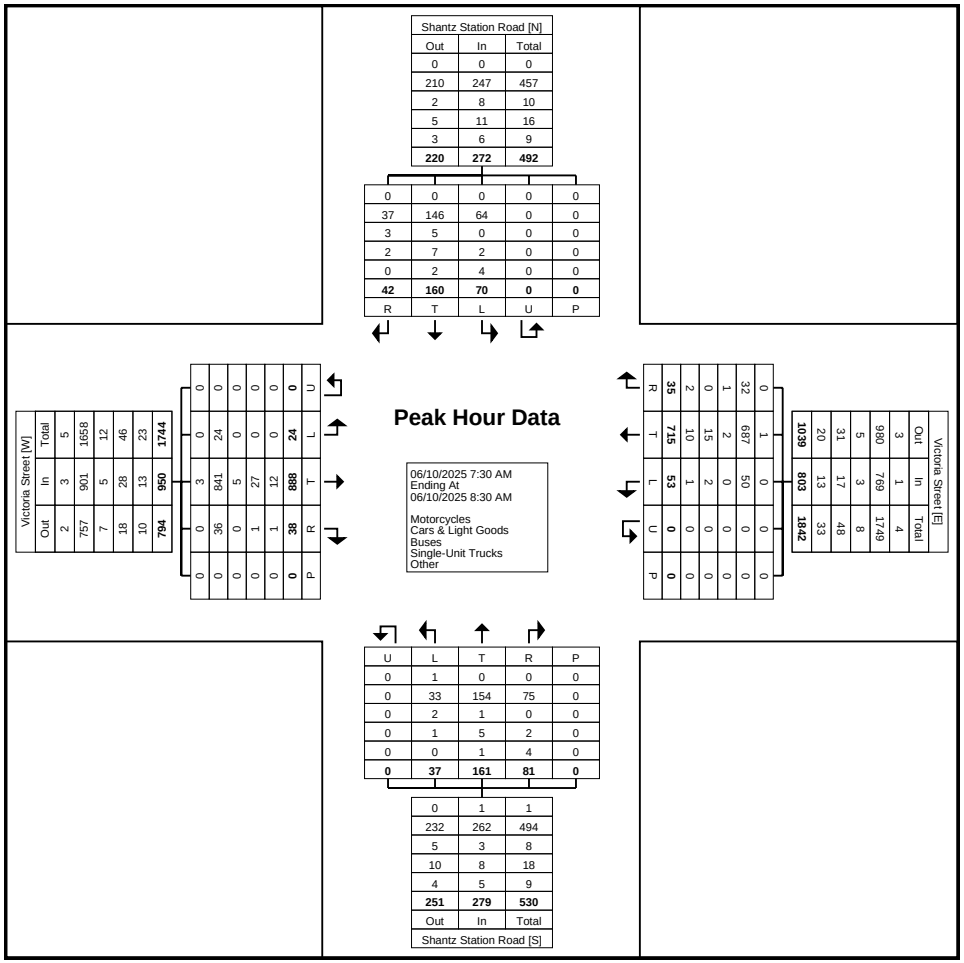
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Victoria Street Eastbound						Victoria Street Westbound						Shantz Station Road Northbound						Shantz Station Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	3	241	6	0	0	250	12	167	8	0	0	187	9	22	26	0	0	57	14	28	7	0	0	49	543
7:45 AM	1	233	11	0	0	245	11	195	15	0	0	221	8	33	23	0	0	64	11	36	9	0	0	56	586
8:00 AM	13	192	6	0	0	211	16	177	7	0	0	200	11	61	14	0	0	86	18	34	11	0	0	63	560
8:15 AM	7	222	15	0	0	244	14	176	5	0	0	195	9	45	18	0	0	72	27	62	15	0	0	104	615
Total	24	888	38	0	0	950	53	715	35	0	0	803	37	161	81	0	0	279	70	160	42	0	0	272	2304
Approach %	2.5	93.5	4.0	0.0	-	-	6.6	89.0	4.4	0.0	-	-	13.3	57.7	29.0	0.0	-	-	25.7	58.8	15.4	0.0	-	-	-
Total %	1.0	38.5	1.6	0.0	-	41.2	2.3	31.0	1.5	0.0	-	34.9	1.6	7.0	3.5	0.0	-	12.1	3.0	6.9	1.8	0.0	-	11.8	-
PHF	0.462	0.921	0.633	0.000	-	0.950	0.828	0.917	0.583	0.000	-	0.908	0.841	0.660	0.779	0.000	-	0.811	0.648	0.645	0.700	0.000	-	0.654	0.937
Motorcycles	0	3	0	0	-	3	0	1	0	0	-	1	1	0	0	0	-	1	0	0	0	0	-	0	5
% Motorcycles	0.0	0.3	0.0	-	-	0.3	0.0	0.1	0.0	-	-	0.1	2.7	0.0	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.2
Cars & Light Goods	24	841	36	0	-	901	50	687	32	0	-	769	33	154	75	0	-	262	64	146	37	0	-	247	2179
% Cars & Light Goods	100.0	94.7	94.7	-	-	94.8	94.3	96.1	91.4	-	-	95.8	89.2	95.7	92.6	-	-	93.9	91.4	91.3	88.1	-	-	90.8	94.6
Buses	0	5	0	0	-	5	0	2	1	0	-	3	2	1	0	0	-	3	0	5	3	0	-	8	19
% Buses	0.0	0.6	0.0	-	-	0.5	0.0	0.3	2.9	-	-	0.4	5.4	0.6	0.0	-	-	1.1	0.0	3.1	7.1	-	-	2.9	0.8
Single-Unit Trucks	0	27	1	0	-	28	2	15	0	0	-	17	1	5	2	0	-	8	2	7	2	0	-	11	64
% Single-Unit Trucks	0.0	3.0	2.6	-	-	2.9	3.8	2.1	0.0	-	-	2.1	2.7	3.1	2.5	-	-	2.9	2.9	4.4	4.8	-	-	4.0	2.8
Articulated Trucks	0	12	1	0	-	13	1	10	2	0	-	13	0	1	4	0	-	5	4	1	0	0	-	5	36
% Articulated Trucks	0.0	1.4	2.6	-	-	1.4	1.9	1.4	5.7	-	-	1.6	0.0	0.6	4.9	-	-	1.8	5.7	0.6	0.0	-	-	1.8	1.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% 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	-	-	0.0	0.0	0.6	0.0	-	-	0.4	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Start Date: 06/10/2025



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

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5A-150 Pinebush Rd

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Count Name: Victoria Street & Shantz Station Road
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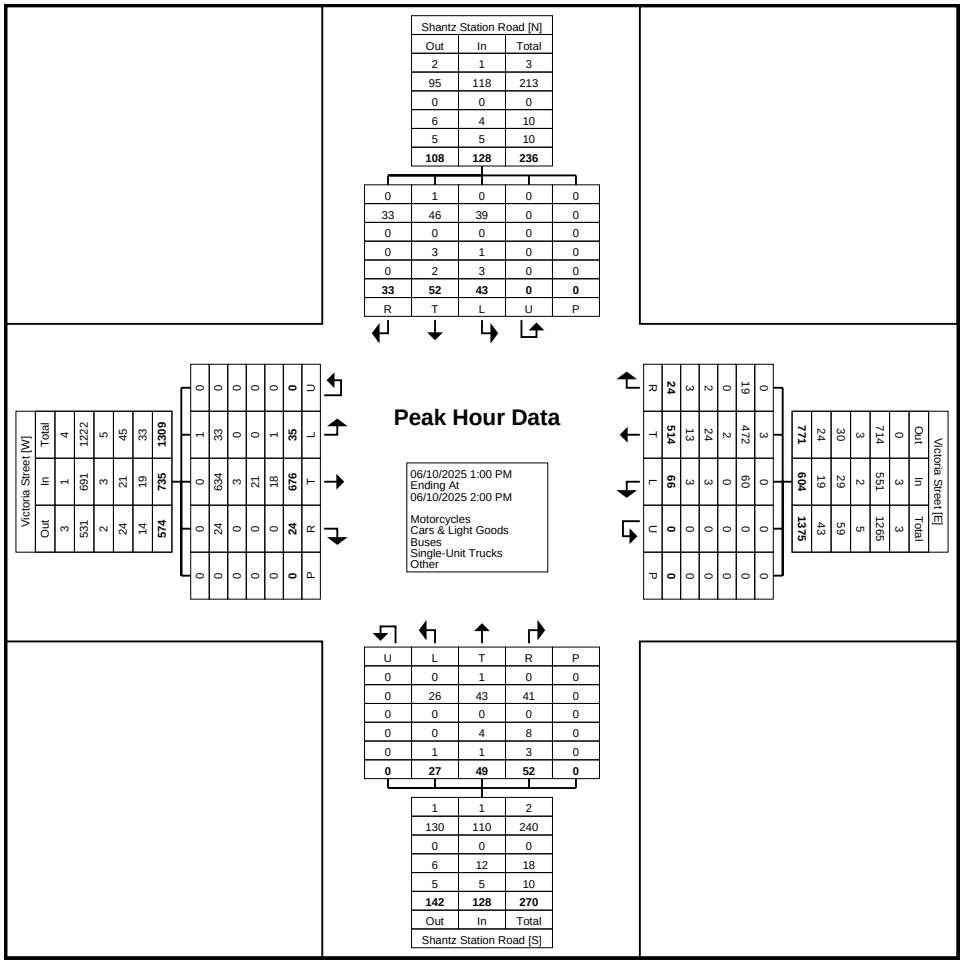
Turning Movement Peak Hour Data (1:00 PM)

Start Time	Victoria Street Eastbound						Victoria Street Westbound						Shantz Station Road Northbound						Shantz Station Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
1:00 PM	8	120	5	0	0	133	12	118	8	0	0	138	10	13	13	0	0	36	7	18	7	0	0	32	339
1:15 PM	11	149	7	0	0	167	19	118	4	0	0	141	4	6	7	0	0	17	13	12	1	0	0	26	351
1:30 PM	7	194	5	0	0	206	19	145	5	0	0	169	8	15	14	0	0	37	8	8	10	0	0	26	438
1:45 PM	9	213	7	0	0	229	16	133	7	0	0	156	5	15	18	0	0	38	15	14	15	0	0	44	467
Total	35	676	24	0	0	735	66	514	24	0	0	604	27	49	52	0	0	128	43	52	33	0	0	128	1595
Approach %	4.8	92.0	3.3	0.0	-	-	10.9	85.1	4.0	0.0	-	-	21.1	38.3	40.6	0.0	-	-	33.6	40.6	25.8	0.0	-	-	-
Total %	2.2	42.4	1.5	0.0	-	46.1	4.1	32.2	1.5	0.0	-	37.9	1.7	3.1	3.3	0.0	-	8.0	2.7	3.3	2.1	0.0	-	8.0	-
PHF	0.795	0.793	0.857	0.000	-	0.802	0.868	0.886	0.750	0.000	-	0.893	0.675	0.817	0.722	0.000	-	0.842	0.717	0.722	0.550	0.000	-	0.727	0.854
Motorcycles	1	0	0	0	-	1	0	3	0	0	-	3	0	1	0	0	-	1	0	1	0	0	-	1	6
% Motorcycles	2.9	0.0	0.0	-	-	0.1	0.0	0.6	0.0	-	-	0.5	0.0	2.0	0.0	-	-	0.8	0.0	1.9	0.0	-	-	0.8	0.4
Cars & Light Goods	33	634	24	0	-	691	60	472	19	0	-	551	26	43	41	0	-	110	39	46	33	0	-	118	1470
% Cars & Light Goods	94.3	93.8	100.0	-	-	94.0	90.9	91.8	79.2	-	-	91.2	96.3	87.8	78.8	-	-	85.9	90.7	88.5	100.0	-	-	92.2	92.2
Buses	0	3	0	0	-	3	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	5
% Buses	0.0	0.4	0.0	-	-	0.4	0.0	0.4	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	0	21	0	0	-	21	3	24	2	0	-	29	0	4	8	0	-	12	1	3	0	0	-	4	66
% Single-Unit Trucks	0.0	3.1	0.0	-	-	2.9	4.5	4.7	8.3	-	-	4.8	0.0	8.2	15.4	-	-	9.4	2.3	5.8	0.0	-	-	3.1	4.1
Articulated Trucks	1	18	0	0	-	19	3	13	3	0	-	19	1	1	3	0	-	5	3	1	0	0	-	4	47
% Articulated Trucks	2.9	2.7	0.0	-	-	2.6	4.5	2.5	12.5	-	-	3.1	3.7	2.0	5.8	-	-	3.9	7.0	1.9	0.0	-	-	3.1	2.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% 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	-	-	0.0	0.0	1.9	0.0	-	-	0.8	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Shantz Station Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Peak Hour Data Plot (1:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Shantz Station Road
Site Code: 250443
Start Date: 06/10/2025

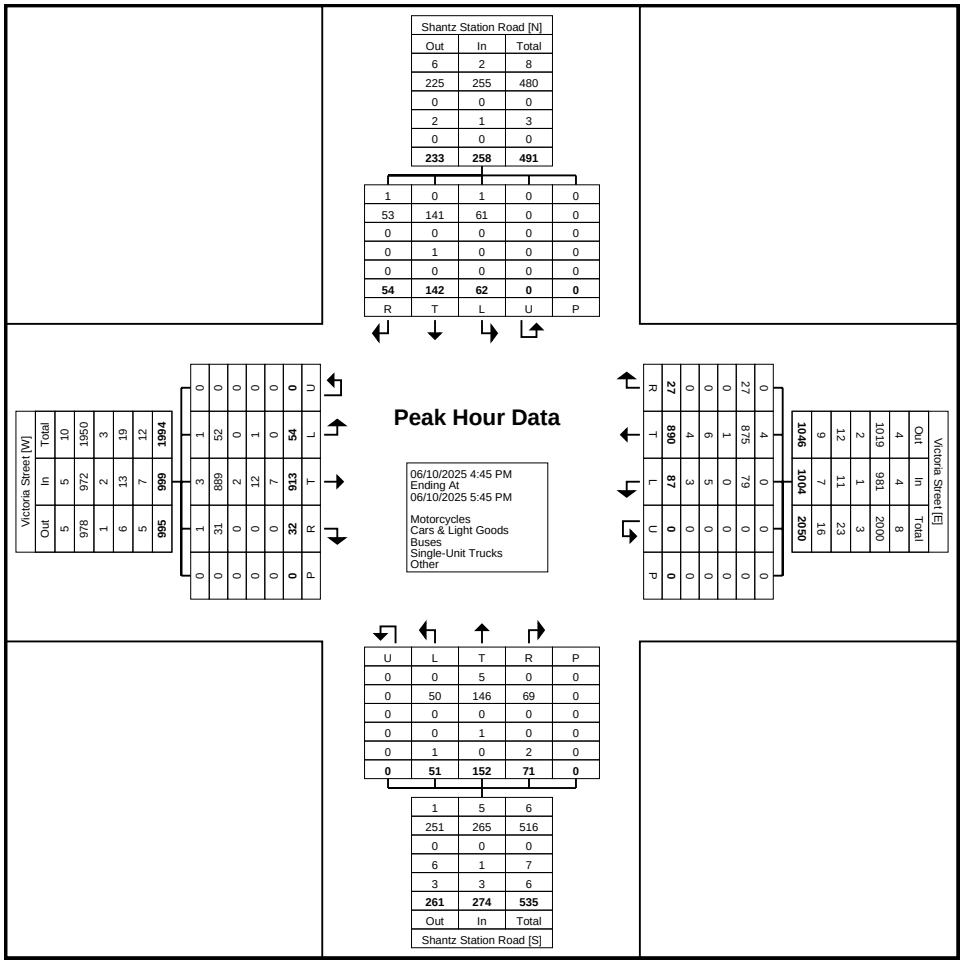
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Victoria Street Eastbound						Victoria Street Westbound						Shantz Station Road Northbound						Shantz Station Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	13	221	11	0	0	245	35	222	3	0	0	260	13	43	18	0	0	74	11	29	10	0	0	50	629
5:00 PM	17	219	7	0	0	243	17	208	6	0	0	231	15	39	10	0	0	64	19	42	19	0	0	80	618
5:15 PM	12	246	9	0	0	267	16	223	7	0	0	246	13	32	31	0	0	76	18	33	13	0	0	64	653
5:30 PM	12	227	5	0	0	244	19	237	11	0	0	267	10	38	12	0	0	60	14	38	12	0	0	64	635
Total	54	913	32	0	0	999	87	890	27	0	0	1004	51	152	71	0	0	274	62	142	54	0	0	258	2535
Approach %	5.4	91.4	3.2	0.0	-	-	8.7	88.6	2.7	0.0	-	-	18.6	55.5	25.9	0.0	-	-	24.0	55.0	20.9	0.0	-	-	-
Total %	2.1	36.0	1.3	0.0	-	39.4	3.4	35.1	1.1	0.0	-	39.6	2.0	6.0	2.8	0.0	-	10.8	2.4	5.6	2.1	0.0	-	10.2	-
PHF	0.794	0.928	0.727	0.000	-	0.935	0.621	0.939	0.614	0.000	-	0.940	0.850	0.884	0.573	0.000	-	0.901	0.816	0.845	0.711	0.000	-	0.806	0.971
Motorcycles	1	3	1	0	-	5	0	4	0	0	-	4	0	5	0	0	-	5	1	0	1	0	-	2	16
% Motorcycles	1.9	0.3	3.1	-	-	0.5	0.0	0.4	0.0	-	-	0.4	0.0	3.3	0.0	-	-	1.8	1.6	0.0	1.9	-	-	0.8	0.6
Cars & Light Goods	52	889	31	0	-	972	79	875	27	0	-	981	50	146	69	0	-	265	61	141	53	0	-	255	2473
% Cars & Light Goods	96.3	97.4	96.9	-	-	97.3	90.8	98.3	100.0	-	-	97.7	98.0	96.1	97.2	-	-	96.7	98.4	99.3	98.1	-	-	98.8	97.6
Buses	0	2	0	0	-	2	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	3
% Buses	0.0	0.2	0.0	-	-	0.2	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Single-Unit Trucks	1	12	0	0	-	13	5	6	0	0	-	11	0	1	0	0	-	1	0	1	0	0	-	1	26
% Single-Unit Trucks	1.9	1.3	0.0	-	-	1.3	5.7	0.7	0.0	-	-	1.1	0.0	0.7	0.0	-	-	0.4	0.0	0.7	0.0	-	-	0.4	1.0
Articulated Trucks	0	7	0	0	-	7	3	4	0	0	-	7	1	0	2	0	-	3	0	0	0	0	-	0	17
% Articulated Trucks	0.0	0.8	0.0	-	-	0.7	3.4	0.4	0.0	-	-	0.7	2.0	0.0	2.8	-	-	1.1	0.0	0.0	0.0	-	-	0.0	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	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	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Victoria Street & Shantz Station Road
Site Code: 250443
Start Date: 06/10/2025



Turning Movement Peak Hour Data Plot (4:45 PM)

PROVINCE OF ONTARIO

233 TRAFFIC SIGNAL TIMING SHEET

LOCATION:

Hwy 7 @ Waterloo 30 (Shantz Station)

TIMING BASED ON TM DATED :

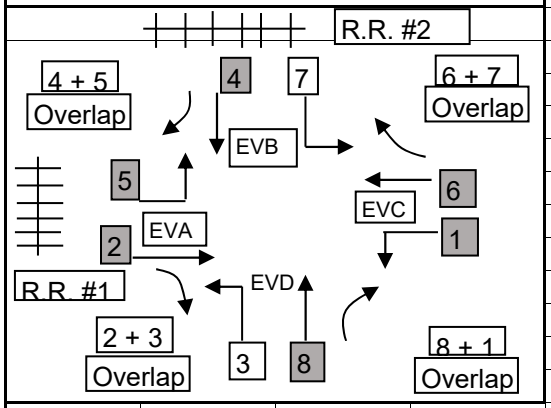
TIMING PLAN DATE:

07-Nov-19

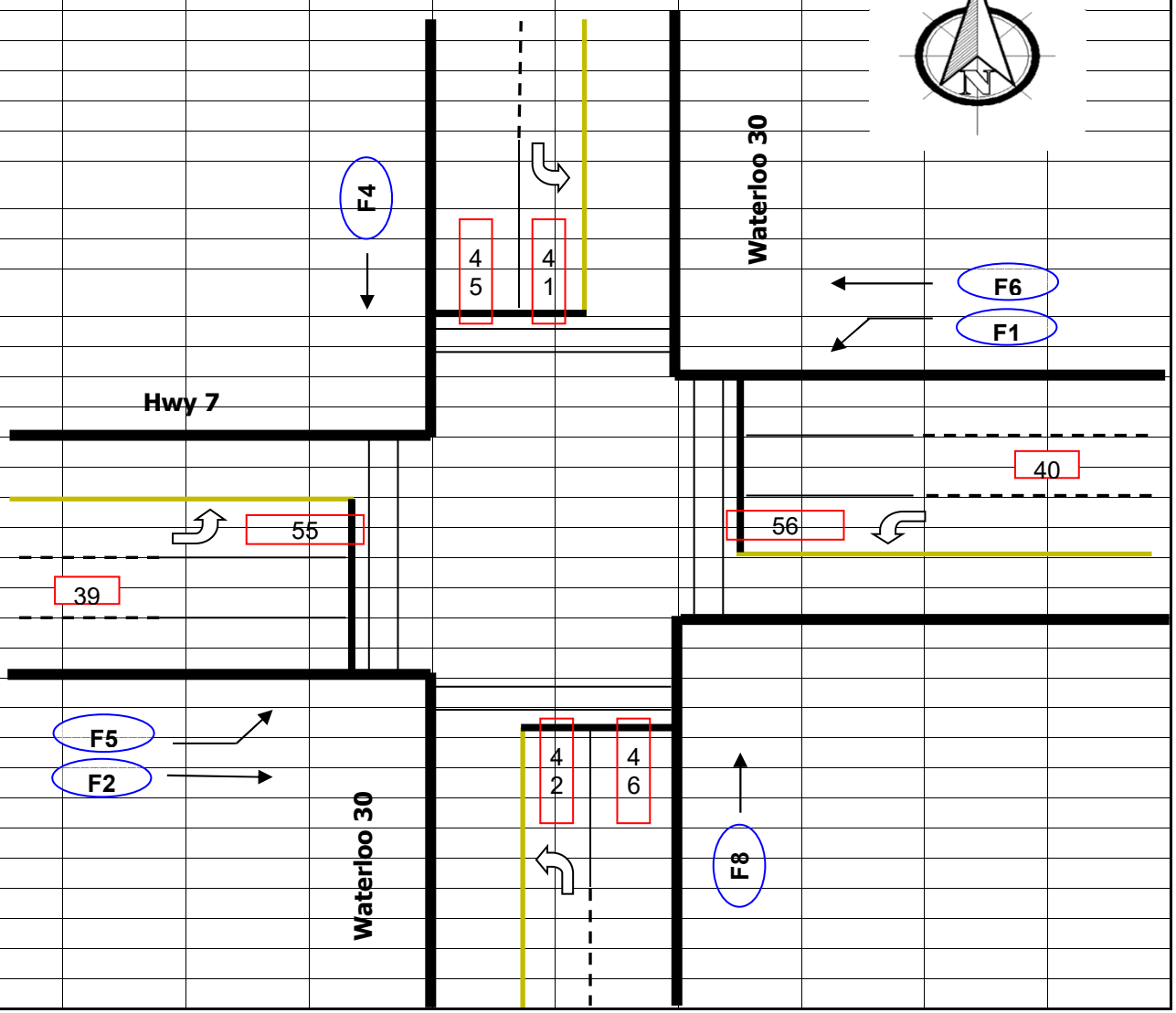
TIMING INSTALLATION DATE :

TIMING INSTALLED BY :

COMMENTS : add EB & WB advance



Hwy 7 @ Waterloo 30 (Shantz Station)



		PHASE							
		1	2	3	4	5	6	7	8
0	WALK		7		7		7		7
1	DON'T WALK		18		16		18		16
2	MIN INTIAL	7	20		10	7	20		10
3	TYPE 3 LIMIT		-		-		-		-
4	ADD PER VEH		1.9		-		1.9		-
5	VEH EXT	3.0	4.0		3.0	3.0	4.0		3.0
6	MAX GAP	3.0	4.0		3.0	3.0	4.0		3.0
7	MIN GAP	3.0	4.0		3.0	3.0	4.0		3.0
8	MAX LIMIT	10	50		35	10	50		35
9	MAXIMUM 2	10	70		35	10	70		35
A	ADV /DLY WALK		-		-		-		-
B	SEQUENCE TO		-		-		-		-
C	COND SRV MIN		-		-		-		-
D	REDUCE EVERY		-		-		-		-
E	YELLOW	3.0	5.9		5.9	3.0	5.9		5.9
F	RED CLEAR		1.6		1.6		1.6		1.6

PHASE BANK # 1 < C + O + F = 1 >

		9	A	B	C	D		E
0							RR1 DLY	
1	PHASE 1	-					RR1 CLR	
2	PHASE 2	34					EVA DLY	
3	PHASE 3	-					EVA CLR	
4	PHASE 4	-					EVB DLY	
5	PHASE 5	-					EVB CLR	
6	PHASE 6	34					EVC DLY	
7	PHASE 7	-					EVC CLR	
8	PHASE 8	-					EVD DLY	
		MAX INT	ALT WALK	ALT FLH D/W	ALT INT	ALT EXT	EVD CLR	
							RR2 DLY	
							RR2 CLR	
							EV CLR	
							EV DLY	
							RR CLR	
							RR DLY	

ALL RED START
(F/1 + C +O) = 5.0
RED REVERT
(F/1 + O + F) = 5.0

		COLUMN F PHASES							
		1	2	3	4	5	6	7	8
0	PERMIT	X	X		X	X	X		X
1	RED LOCK								
2	YELLOW LOCK								
3	VEH MIN CALL								
4	PED RECALL		X				X		
5	PEDESTRIANS				View		Only		
6	YIELD AT FL D/W								
7	RED REST								
8	DOUBLE ENTRY		X		X		X		X
9	VEH MAX CALL								
A	SOFT RECALL								
B	MAXIMUN 2								
C	COND SERVICE								
D	MAN CONT CALL								
E	YELLOW START		X				X		
F	FIRST PHASES				X				X

< C + O + F = 1 >

COMM ADDRESS
(C/ O + O + O) = 1
ZONE ADDRESS
(C/ O + O + 1) = 1 - Always
AREA NUMBER
(C/ O + 0 + 2) = 1 - Region/Agcy #
AREA ADDRESS
(C/ O + O + 3) = 126 - Assigned by System Admin

PREEMPT MINIMUMS		A RR1-2 SPEV1	B SP EV2	C EMER VEH
A	WLK (DFLT)			
B	D 'T WALK			
C	INITAL			

< C + O + F = 1 >

Issued Date: Nov-19

Installed Date:

ONTARIO 233 PROGRAM
Hwy 7 @ Waterloo 30

Column E Phases / Bits

		1	2	3	4	5	6	7	8
0	EXCLUSIVE								
1	RR1 CLEAR								
2	RR2 CLEAR								
3	RR2 LTD SRV								
4	PROT/PERM	X				X			
5	FLH TO PREMT								
6	FLASH ENTRY								
7	DISABL MIN YEL								
8	DISABL OVP YEL								
9	OVP FLH YEL								
A	EM VEH A								
B	EM VEH B								
C	EM VEH C								
D	EM VEH D								
E	EXTRA 1	X		X		X			
F	IC SELECT		X						

Column F Phases / Bits

		1	2	3	4	5	6	7	8
0									
1	EXT PERMIT 1								
2	EXT PERMIT 2								
3	EXCLU PED								
4									
5	PED 2P OUT		X						
6	PED 6P OUT						X		
7	PED 4P OUT				X				
8	PED 8P OUT								X
9	FLH YELLOW								
A									
B									
C									
D									
E	RESTRICTED								
F	EXTRA 2								

< C + O + E = 125 >

Column F

		1	2	3	4	5	6	7	8
0	ADV GRN FLH								
1	PHASE FLASH								
2	FLASH WALK								
3	GUAR PASS								
4	SIMUL GAP		X		X		X		X
5	SEQ TIMING								
6	ADV WALK								
7	DELAY WALK								
8	EXT RECALL								
9									
A	MAX EXTEN								
B	INH PED RSRV								
C	SEMI ACTUATD								
D									
E	STRT VEH CALL								
F	STRT PED CALL		X		X		X		X

SPECIALS < C + O + F = 2 >

Dial-out Telephone Number

		D
0	NO. OF DIGITS	
1	1st DIGIT	
2	2nd DIGIT	
3	3rd DIGIT	
4	4th DIGIT	
5	5th DIGIT	
6	6th DIGIT	
7	7th DIGIT	
8	8th DIGIT	
9	9th DIGIT	
A	10th DIGIT	
B	11th DIGIT	
C		
D		
E		
F		

< C + O + C =5 >

REDIAL TIME - 10
(C/5 + C + 0)

DEFAULT IS : REPORT ALL ALARMS (NO FLAGS SET)

DISABLE ALARM REPORTING

Column F	1	2	3	4	5	6	7	8
0 OMIT ALARMS					X			

< C + O + C = 5 >

1 = STOP TIME
2 = FLASH SENCE
3 = KEYBOARD ENTRY
4 = MANUAL PLAN
5= ENABLE POLICE CONTROL
6 = EXTERNAL ALARM
7 = DETECTOR FAILURE

FLASH TO PREEMPT

1 = EVA
2 = EVB
3 = EVC
4 = EVD
5 = RR1
6 = RR2
7 = SE1
8 = SE2

EXTRA 1

1 = TBC TYPE 1
2 = NEMA EXT. COORD.
3 = DAYLIGHT SAVINGS
4 =
5 = EXPANDED STATUS REPORTING
6 = INTERNATIONAL PED
7 = CLEAR OUTPUTS DURING FLASH
8 = SPLIT RING

EXTRA 2

1 = AWR ON DURING PHASE INITAL
2 = LMU INSTALLED

IC SELECT

2 = 2 WAY MODEM
3 = 7 WIRE SLAVE
4 = FLASH / FREE
5 = SIMPLES MASTER
7 = 7 WIRE MASTER
8 = OFFSET INTURP

PRETIMED ONTARIO 233 PROGRAM

PHASE

	1	2	3	4	5	6	7	8
WALK		7		7		7		7
DON'T WALK		18		16		18		16
MIN INTIAL	7	20		10	7	20		10
TYPE 3 LIMIT		-		-		-		-
ADD PER VEH		1.9		-		1.9		-
VEH EXT	3.0	4.0		3.0	3.0	4.0		3.0
MAX GAP	3.0	4.0		3.0	3.0	4.0		3.0
MIN GAP	3.0	4.0		3.0	3.0	4.0		3.0
MAX LIMIT	10	50		35	10	50		35
MAXIMUM 2	10	70		35	10	70		35
ADV / DLY WALK		-		-		-		-
SEQUENCE TO		-		-		-		-
COND SRV MIN		-		-		-		-
REDUCE EVERY		-		-		-		-
YELLOW	3.0	5.9		5.9	3.0	5.9		5.9
RED CLEAR		1.6		1.6		1.6		1.6

PHASE BANK # < C + O + F = 1 >

Column F

PHASES

		1	2	3	4	5	6	7	8
0	PERMIT	X	X		X	X	X		X
1	RED LOCK								
2	YELLOW LOCK								
3	VEH MIN CALL	(X)				(X)			
4	PED RECALL		X		(X)		X		(X)
5	PEDESTRIANS								
6	REST IN WALK								
7	RED REST								
8	DOUBLE ENTRY		X		X		X		X
9	VEH MAX CALL		(X)		(X)		(X)		(X)
A	SOFT RECALL								
B	MAXIMUM 2								
C	CORD SERVICE								
D	MAN CONT CALL								
E	YELLOW START		X				X		
F	FIRST PHASES				X				X

< C + O + F = 1 >

T.O.D. FUNCTIONS

	TIME HH MM	FUN	DAY OF WEEK S	M	T	W	T	F	S
0	06:30	B		X	X	X	X	X	
1	09:00	B		X	X	X	X	X	
2	14:30	B		X	X	X	X	X	
3	18:30	B		X	X	X	X	X	
4	06:30	9		X	X	X	X	X	
5	09:00	9		X	X	X	X	X	
6	14:30	9		X	X	X	X	X	
7	18:30	9		X	X	X	X	X	
8									
9									
A									
B									
C									
D									
E									
F									

< C + O + 7 = 1 >

Column 4

PHASES / BITS	1	2	3	4	5	6	7	8
0	X	X		X	X	X		X
1								
2	X	X		X	X	X		X
3								
4		X				X		
5								
6		X				X		
7								
8								
9								
A								
B								
C								
D								
E								
F								

< C+ O + E = 27 >

T.O.D. FUNCTIONS

0 = PERMIT PHASES
1 = RED LOCK
2 = YELLOW LOCK
3 = VEH MIN RECALL
4 = PED RECALL
5 -
6 - REST IN WALK
7 = RED REST
8 = DOUBLE ENTRY
9 = VEH MAX RECALL
A = VEH SOFT RECALL
B = MAXIMUM 2
C = CONDITIONAL SERVICE
D = LAG PHASES
E = BIT 1 - LOCAL OVERIDE
BIT 4 - DISABLE DET OFF MONITOR
BIT 7 - DET COUNT MONITOR
BIT 8 - REAL TIME SPLIT MONITOR
F = OUTPUT BITS 1 THRU 4

LOCATION: Hwy 7 @ Waterloo 30

BI Tran Systems, Inc.
510 Bercut Dr., Sacremento, Calif. 95814
916/441-0260

*Traffic Signal Program **233** Ontario*
Timing Sheet #2
Revised (02/95)

Issued Date: Feb 26 2018

Installed Date:

STANDARD 332 CABINET LOCATION	column	1	3
		delay	carry over
I-2 U	0		
J-2 U	1		
I-6 U	2	5	
J-6 U	3	5	
1-2 L	4		
J-2 L	5		
1-6 L	6	10	
J-6 L	7	10	
I-4	8		
J-4	9		
I-8	A		
J-8	B		
J-1	C	5	
I-1	D	5	
J-5	E		
I-5	F		
	< C + O + D = 0 >		

Column 0	Column 1								Column 2								Column 3							
C1	ATTRIBUTES								PHASE(S)								ASSIGNMENTS							
pin #	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
0 39				X	X					X							X	X	X					X
1 40				X	X									X			X	X	X					X
2 41				X	X		X					X					X	X	X					X
3 42				X	X		X									X	X	X	X					X
4 43																								
5 44																								
6 45				X	X		X					X					X	X	X					X
7 46				X	X		X									X	X	X	X					X
8 47																								
9 48																								
A 49																								
B 50																								
C 55				X	X		X						X				X	X	X					X
D 56				X	X		X		X								X	X	X					X
E 57																								
F 58																								

DETECTOR ASSIGNMENTS < C + O + E = 126>

STANDARD 332 CABINET LOCATION	column	2	4
		delay	carry over
J-9 U	0		
I-9 U	1		
I-9 L	2		
J-9 L	3		
I-3 U	4		
J-3 U	5		
I-7 U	6		
J-7 U	7		
I-12 U	8		
I-13 U	9		
I-12 L	A		
I-13 L	B		
I-3 L	C		
J-3 L	D		
I-7 L	E		
J-7 L	F		
	< C + O + D = 0 >		

Column 4	Column 5								Column 6								Column 7							
C1	ATTRIBUTES								PHASE(S)								ASSIGNMENTS							
pin #	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
0 59																								
1 60																								
2 61																								
3 62																								
4 63																								
5 64																								
6 65																								
7 66																								
8 67																								
9 68																								
A 69		X										X					X	X	X					X
B 70		X														X	X	X	X					X
C 76																								
D 77																								
E																								
F																								

DETECTOR ASSIGNMENTS < C + O + E = 126 >

DETECTOR ASSIGNMENT SHEET
ONTARIO 233 PROGRAM

LOCATION:
Hwy 7
Waterloo 30
Issued Date: Feb 26 2018
Installed Date:

DETECTOR ATTRIBUTES

1 = FULL TIME DELAY
2 = PEDESTRIAN CALL
3 =
4 = COUNT
5 = EXTENSION
6 = TYPE 3
7 = CALLING
8 = ALTERNATE

DETECTOR ASSIGNMENTS

1 = DET. SET # 1
2 = DET. SET # 2
3 = DET. SET # 3
4 =
5 =
6 = MIN RECALL ON FAILURE
7 = MAX RECALL ON FAILURE
8 - REPORT ON FAILURE

DETECTOR MONITOR

MAX OFF: D/0+0+1=120
MAX ON: D/0+0+2=60

ADVANCE WARNING BEACONS

SIGN #1 SIGN #2
PHASE NUMBER
(F/1+C+F)= (F/1+D+F)=
TIME BEFORE YELLOW
(F/1+C+E)= (F/1+D+E)=
OUTPUT PIN NUMBER
(E/127+E+8)= (E/127+E+9)=

Input File Slot No. →

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I" FILE	**1** Ext, Cnt, Call <C1-56>	**2** Ext, Cnt, Call <C1-39>	**2** Ext, Cnt, Call <C1-63>	**2** Type 3, Call <C1-47>	**3** Ext, Cnt, Call <C1-58>	**4** Ext, Cnt, Call <C1-41>	**4** Ext, Cnt, Call <C1-65>	**4** Type 3, Call <C1-49>	**1** Ext, Cnt, Call <C1-60>	NOT WIRED	Not Assigned <C1-80>	**2** Ped Call <C1-67>	**6** Ped Call <C1-68>	Flash Sense <C1-81>
		2 Ext, Cnt, Call <C1-43>	**2** Ext, Cnt, Call <C1-76>			**4** Ext, Cnt, Call <C1-45>	**4** Ext, Cnt, Call <C1-78>		**3** Ext, Cnt, Call <C1-62>		Not Assigned <C1-53>	**4** Ped Call <C1-69>	**8** Ped Call <C1-70>	Stop Time <C1-82>
"J" FILE	**5** Ext, Cnt, Call <C1-55>	**6** Ext, Cnt, Call <C1-40>	**6** Ext, Cnt, Call <C1-64>	**6** Type 3, Call <C1-48>	**7** Ext, Cnt, Call <C1-57>	**8** Ext, Cnt, Call <C1-42>	**8** Ext, Cnt, Call <C1-66>	**8** Type 3, Call <C1-50>	**5** Ext, Cnt, Call <C1-59>	NOT WIRED	Not Assigned <C1-54>	EV **A** Preempt <C1-71>	EV **B** Preempt <C1-72>	Railroad 1 <C1-51>
		6 Ext, Cnt, Call <C1-44>	**6** Ext, Cnt, Call <C1-77>			**8** Ext, Cnt, Call <C1-46>	**8** Ext, Cnt, Call <C1-79>		**7** Ext, Cnt, Call <C1-61>		Not Assigned <C1-75>	EV **C** Ped Call <C1-73>	EV **D** Preempt <C1-74>	Railroad 2 <C1-52>

DETECTOR TYPES

Ext = Extension Detector
Detector is only active during the Phase's GREEN Intervals (ie, will NOT *Call* the Phase)

Cnt = Count Detector
Used in computing "Added Initial"

Call = Calling Detector
Detector is only active during the Phase's NON-GREEN Intervals (ie, will NOT *Extend* the Phase)

Type 3 = Type 3 Disconnect
Will allow a Calling Detector to Extend its Phase until the Call first drops or the "Type 3 Limit" is reached

BI Tran Systems, Inc.
510 Bercut Dr., Sacramento, Calif. 95814
916/441-0260
Traffic Signal Program 233
Initialized Detector Assignments
(Revised 8/92) 332 Cabinet

Controller Intervals

0 = Walk
1 = FDW
2 = Min. Green
3 =
4= Var. Initial
5 = Extension
6 =
7 = Reduce Gap
8 = Red Rest
9 = Preemption
A = Stop Time
B = Red Revert
C = Yellow-Gap Termination
D = Yellow-Max. Termination
E = Yellow-Forceoff Termination
F = Red Clearance

Continuous Memory Error Monitoring

The controller's RAM and EPROM memories are continuously checked for errors. If an erro is found, the intersection will go into FLASH (via Watch Dog Timer), and one of the following will be shown on the controller's display:

bAd A = An error was detected in the CPU's RAM, or a new program has been installed on the memory module. Often caused by a bad controller "gel-cell" battery.
bAd b = An error was detected in the memory module's RAM. Often caused by a bad "lithium" battery on the memory module.
bAd E = An error was detected in the 233 Program EPROM.
bAd F = An error was detected in the Z-RAM (Dallas chip) on the memory module.

412/C Memory Module Lithium Battery Condition

To check the condition of the 3.6 volt Lithium Battery on the 412/C Memory Module:

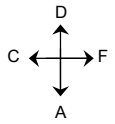
If E/112 + 0 + A = 84 - the battery is BAD
If E/112 + 0 + A = 85 - the battery is O.K.

Monitor "Activate" Flags

(Also Requires T.O.D. Function "E" Flag)
Detector Count Recording:
E/2 + 0 + 9 = Not Zero
Real Time Split Monitor:
E/2 + 0 + E = Not Zero

E Page Enable: F/1 + 9 + E = Not Zero

Display Movement Codes



A = Advance ROW
D = Decrement ROW
C = COLUMN Back
F = Forward COLUMN

Special Event Schedules

Special Event #1: C + 0 + E = 27
Special Event #2: C + 0 + E = 28

Current Interval = E + 5 + 0
Current Interval Timer = E + 5 + B
Current Interval Clearance Phases = E + 5 + C

Time of Day Function (7 Key)

Current T.O.D. "E Function" Control Bits = C/0 + E + E
Current T.O.D. "F Function" Output Bits = C/0 + E + F

Logic DELAY Gate Delay Timer Display

DELAY A Timer = C/0 + 9 +A
DELAY B Timer = C/0 + 9 + B
thru thru
DELAY F Timer = C/0 + 9 + F

Interval Timer Display

Ring A = F/0 + A + Interval Row
Ring B = F/0 + B + (Interval Row From PHASE BANK data)

Display Locations

	Plan Select	Offset Select
Manual	C/0 + A + 1	C/0 + B + 1
Master	C/0 + A + 2	C/0 + B + 2
Current	C/0 + A + 3	C/0 + B + 3
Next	C/0 + A + 4	C/0 + B + 4
TOD	C/0 + A +5	C/0 + B + 5

Master Cycle = C/0 + A + 0
Ring A Cycle = C/0 + B + 0
Ring B Cycle = C/0 + D + 0

MIN Cycle = C/0 + A + E
MAX Cycle = C/0 + B + E

Phase Hold = C/0 + F + D
Phase Next = C/0 + F + E
Force Off = C/0 + F + F
(with Ring A Cycle Timer)

Current Calculated Cycle Length = C/0 + B + F
Current Permitted Phases = E/0 + 7 +8
Current Phase Bank = F/0 + C + E

Last Power Failure:
(HR-MIN-DOW) = 8 + 4
(DOW-YR-MONTH) = 8 + 5
Last Cabinet Flash
(HR-MIN-DOW) = 8 + 6
(DOW-YR-MONTH) = 8 + 7
Power Fail Counts:
(Long Failures) = F/1 + 0 + C
(Short Failures) = F/1 + 0 + D
Current Time:
(HR-MIN-DOW) = 8 + 0
(DOW-YR-MONTH) = 8 + 1
(MIN-SEC-1/10SEC) = 8 + F

BI Tran Systems, Inc.
510 Bercut Dr., Sacramento, Calif. 95814
916/441-0260
Traffic Signal Program 233
"View" Locations
(Revised 03/94

How to create a template file	
1)	From the pull down menu go to File
2)	Save As
3)	Go to C: dive
4)	Program Files/Microsoft Office/Templates
5)	Now create a folder
6)	Call this folder "Signal Timings"
7)	Now open the Signal Timings folder
8)	Save file as New Signal Timings.**xlt**
9)	The template has been created. It can now be open from Excel

B.3 System Information

System Id	1001
Name	Omni 332 Cabinet I/O
Location	

1.2 Unit Setup

Auto Ped Clear	Disabled
Red Revert	5
Min Yellow Time	3
Texas Dmd Mode	Disabled
Texas Dmd Type	4-Phase

1.3 Startup

Flash	0
All Red	5
Start Veh Call	1,2,4,6,8
Start Ped Call	

1.4 Channel Setup (1-16)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Type	V	V	P	V	V	P	V	V	P	V	V	P	O	O	O	O
Source	1	2	2	3	4	4	5	6	6	7	8	8	1	2	3	4
Alt 1/2 Hz																
Flash Red	X	X		X	X		X	X		X	X		X	X	X	X
Flash Yel																

1.4 Channel Setup (17-32)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Type	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Source																
Alt 1/2 Hz																
Flsh Red																
Flsh Yel																

Start Next Phases	

Program Type	McCain Omni eX
Firmware	1.10
Street 1	Hwy 7
Street 2	Greenhouse Rd
Last Modified	2025-03-27 7:45 AM

5.1 Coordination Constants

Correction Mode	Shortway
Max Cycles Trans	3
Coord Max Mode	Max Inhibit
Coord Force Mode	Fixed
Perm Strategy	Maximum
Omit Strategy	Minimum
Sync Point	Begin Green
No Early Return	Disable
Sync Ref Time	0
Operational Mode	0

2.5 Phase Concurrency

	1	2	3	4	5	6	7	8
Phase 1						X		
Phase 2						X		
Phase 3								
Phase 4								X
Phase 5								
Phase 6	X	X						
Phase 7								
Phase 8				X				
Phase 9								
Phase 10								
Phase 11								
Phase 12								
Phase 13								
Phase 14								
Phase 15								
Phase 16								

2.4 Phase Enable and Rings

	1	2	3	4	5	6	7	8
Startup	.	Y	.	.	.	Y	.	.
Enabled	X	X		X		X		X
Ring1	X	X		X				
Ring2						X		X
Ring3								
Ring4								

Organization
R1NL Hwy 7 @ Greenhouse Rd > Phases > Phase Timing

2.1 Phase Parameters Set 1	1	2	3	4	5	6	7	8
Min Green	7	20	0	10	0	20	0	10
Passage	3.0	4.2	0.0	3.0	0.0	4.2	0.0	3.0
Max 1	15	70	0	35	0	70	0	35
Max 2	0	0	0	0	0	0	0	0
Yellow Change	3.0	5.9	0.0	5.0	0.0	5.9	0.0	5.0
Red Clear	0.0	1.6	0.0	2.3	0.0	1.6	0.0	2.3
Walk	0	0	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0	0	0
Added Initial	0.0	1.9	0.0	0.0	0.0	1.9	0.0	0.0
Max Initial	0	34	0	0	0	34	0	0
Time Before Reduction	0	0	0	0	0	0	0	0
Cars Before Reduction	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0
Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	3.0	4.2	0.0	3.0	0.0	4.2	0.0	3.0
Dynamic Max Limit	0	0	0	0	0	0	0	0
Dynamic Max Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Cond. Service Min	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0
Alternate Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0
Alternate Ped Clear	0	0	0	0	0	0	0	0
Advanced Walk	0	0	0	0	0	0	0	0
Delay Walk	0	0	0	0	0	0	0	0
Start Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Green Clear	0	0	0	0	0	0	0	0

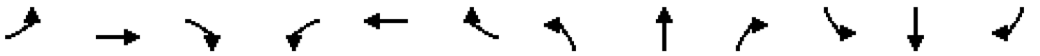
2.2 Phase Options Set 1	1	2	3	4	5	6	7	8
Phase Omit								
Ped Omit								
Min Veh Recall		X				X		
Max Veh Recall								
Soft Veh Recall								
Ped Recall								
Ped Recycle								
Cond. Service								
Lock Detector Memory								
Dual Entry		X		X		X		X
Simultaneous Gap		X		X		X		X
Guaranteed Passage								
Added Initial Calculation								
Rest In Walk								
Red Rest								
Auto Flash Entry								
Auto Flash Exit								
Non-Actuated 1								
Non-Actuated 2								
No Backup	X							
Max Walk								
Max Extension								
Sequential Timing								
No Min Yellow								
FDW Ped Recycle								

2.1 Phase Parameters Set 2	1	2	3	4	5	6	7	8
Min Green	7	20	0	10	0	20	0	10
Passage	3.0	4.0	0.0	3.0	0.0	4.0	0.0	3.0
Max 1	15	70	0	35	0	70	0	35
Max 2	0	0	0	0	0	0	0	0
Yellow Change	3.0	5.9	0.0	5.0	0.0	5.9	0.0	5.0
Red Clear	0.0	1.6	0.0	2.3	0.0	1.6	0.0	2.3
Walk	0	0	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0	0	0
Added Initial	0.0	1.9	0.0	0.0	0.0	1.9	0.0	0.0
Max Initial	0	34	0	0	0	34	0	0
Time Before Reduction	0	0	0	0	0	0	0	0
Cars Before Reduction	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0
Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	3.0	4.0	0.0	3.0	0.0	4.0	0.0	3.0
Dynamic Max Limit	0	0	0	0	0	0	0	0
Dynamic Max Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Cond. Service Min	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0
Alternate Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0
Alternate Ped Clear	0	0	0	0	0	0	0	0
Advanced Walk	0	0	0	0	0	0	0	0
Delay Walk	0	0	0	0	0	0	0	0
Start Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Green Clear	0	0	0	0	0	0	0	0

2.2 Phase Options Set 2	1	2	3	4	5	6	7	8
Phase Omit								
Ped Omit								
Min Veh Recall								
Max Veh Recall								
Soft Veh Recall								
Ped Recall								
Ped Recycle								
Cond. Service								
Lock Detector Memory	X	X	X	X	X	X	X	X
Dual Entry								
Simultaneous Gap	X	X	X	X	X	X	X	X
Guaranteed Passage								
Added Initial Calculation								
Rest In Walk								
Red Rest								
Auto Flash Entry								
Auto Flash Exit								
Non-Actuated 1								
Non-Actuated 2								
No Backup								
Max Walk								
Max Extension								
Sequential Timing								
No Min Yellow								
FDW Ped Recycle								

Appendix B

Existing Traffic Operations Reports

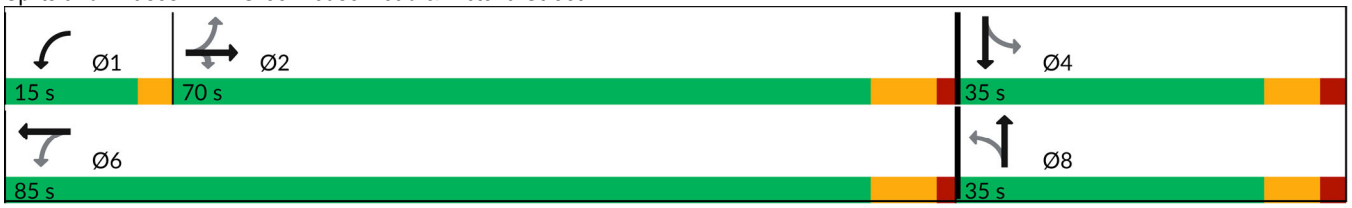


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	911	54	17	765	0	68	1	38	0	0	0
Future Volume (vph)	2	911	54	17	765	0	68	1	38	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.853				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1810	1553	1421	1827	0	1687	1575	0	0	1900	0
Flt Permitted	0.292			0.141			0.757					
Satd. Flow (perm)	555	1810	1553	211	1827	0	1344	1575	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66					43				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1035	61	19	869	0	77	1	43	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1035	61	19	869	0	77	44	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	68.4	68.4	68.4	74.9	72.1		11.7	11.7				
Actuated g/C Ratio	0.73	0.73	0.73	0.80	0.77		0.13	0.13				
v/c Ratio	0.00	0.78	0.05	0.07	0.62		0.46	0.19				
Control Delay (s/veh)	7.5	18.2	2.0	3.5	9.1		48.3	14.4				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	7.5	18.2	2.0	3.5	9.1		48.3	14.4				
LOS	A	B	A	A	A		D	B				
Approach Delay (s/veh)		17.3			9.0			36.0				
Approach LOS		B			A			D				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 93.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay (s/veh): 14.8		Intersection LOS: B	
Intersection Capacity Utilization 68.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	1035	61	19	869	77	44
v/c Ratio	0.00	0.78	0.05	0.07	0.62	0.46	0.19
Control Delay (s/veh)	7.5	18.2	2.0	3.5	9.1	48.3	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.5	18.2	2.0	3.5	9.1	48.3	14.4
Queue Length 50th (m)	0.1	96.3	0.0	0.6	66.0	12.1	0.2
Queue Length 95th (m)	1.0	#263.3	4.1	2.4	117.9	27.1	9.1
Internal Link Dist (m)		340.2			1713.2		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	407	1328	1157	326	1560	401	500
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.78	0.05	0.06	0.56	0.19	0.09

Intersection Summary

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	13	0	0	5	3	0	0	0	4	0	17
Future Volume (vph)	27	13	0	0	5	3	0	0	0	4	0	17
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.949						0.891	
Flt Protected		0.967									0.991	
Satd. Flow (prot)	0	1423	0	0	1471	0	0	1550	0	0	1195	0
Flt Permitted		0.967									0.991	
Satd. Flow (perm)	0	1423	0	0	1471	0	0	1550	0	0	1195	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	27	13	0	0	5	3	0	0	0	4	0	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	40	0	0	8	0	0	0	0	0	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	27	13	0	0	5	3	0	0	0	4	0	17
Future Vol, veh/h	27	13	0	0	5	3	0	0	0	4	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	27	13	0	0	5	3	0	0	0	4	0	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	19	17	9	15	25	0	17	0	0	0	0	0
Stage 1	17	17	-	0	0	-	-	-	-	-	-	-
Stage 2	3	0	-	15	25	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	990	866	1079	1007	872	-	1613	-	-	-	-	-
Stage 1	998	870	-	-	-	-	-	-	-	-	-	-
Stage 2	1015	-	-	1011	878	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	866	1079	992	872	-	1613	-	-	-	-	-
Mov Cap-2 Maneuver	-	866	-	992	872	-	-	-	-	-	-	-
Stage 1	998	870	-	-	-	-	-	-	-	-	-	-
Stage 2	1015	-	-	996	878	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v			0	
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1613	-	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	15	1	0	4	16	278	2	3	257	4
Future Volume (vph)	4	0	15	1	0	4	16	278	2	3	257	4
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.893			0.892			0.999			0.998	
Flt Protected		0.990			0.990			0.997			0.999	
Satd. Flow (prot)	0	1299	0	0	1141	0	0	1457	0	0	1447	0
Flt Permitted		0.990			0.990			0.997			0.999	
Satd. Flow (perm)	0	1299	0	0	1141	0	0	1457	0	0	1447	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	4	0	15	1	0	4	16	278	2	3	257	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	5	0	0	296	0	0	264	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 40.2%		ICU Level of Service A	
Analysis Period (min) 15			

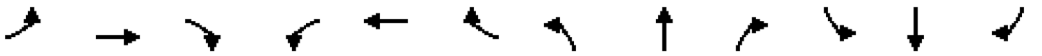
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	15	1	0	4	16	278	2	3	257	4
Future Vol, veh/h	4	0	15	1	0	4	16	278	2	3	257	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	4	0	15	1	0	4	16	278	2	3	257	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	575	577	259	574	578	279	261	0	0	280	0	0
Stage 1	265	265	-	311	311	-	-	-	-	-	-	-
Stage 2	310	312	-	263	267	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	432	430	768	313	430	765	1315	-	-	1294	-	-
Stage 1	745	693	-	533	662	-	-	-	-	-	-	-
Stage 2	705	661	-	570	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	422	423	768	302	422	765	1315	-	-	1294	-	-
Mov Cap-2 Maneuver	422	423	-	302	422	-	-	-	-	-	-	-
Stage 1	743	691	-	525	652	-	-	-	-	-	-	-
Stage 2	691	652	-	557	690	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.66	11.21	0.42	0.09
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	97	-	-	655	585	20	-	-
HCM Lane V/C Ratio	0.012	-	-	0.029	0.009	0.002	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	10.7	11.2	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

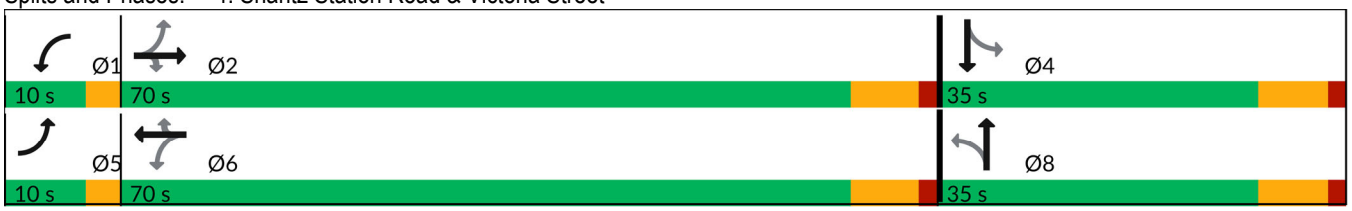


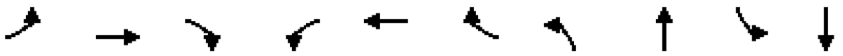
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	888	38	53	715	35	37	161	81	70	160	42
Future Volume (vph)	24	888	38	53	715	35	37	161	81	70	160	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.950			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1810	1538	1703	1827	1482	1671	1719	0	1656	1692	0
Flt Permitted	0.212			0.069			0.458			0.355		
Satd. Flow (perm)	403	1810	1538	124	1827	1482	806	1719	0	619	1692	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		21			11	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	27	1009	43	60	813	40	42	183	92	80	182	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1009	43	60	813	40	42	275	0	80	230	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	72.9	63.0	63.0	73.5	65.0	65.0	20.5	20.5		20.5	20.5	
Actuated g/C Ratio	0.69	0.59	0.59	0.69	0.61	0.61	0.19	0.19		0.19	0.19	
v/c Ratio	0.07	0.94	0.05	0.32	0.73	0.04	0.27	0.79		0.67	0.69	
Control Delay (s/veh)	6.2	39.7	1.2	10.4	21.8	0.9	41.4	54.6		67.8	49.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	6.2	39.7	1.2	10.4	21.8	0.9	41.4	54.6		67.8	49.3	
LOS	A	D	A	B	C	A	D	D		E	D	
Approach Delay (s/veh)		37.3			20.2			52.8			54.1	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 106.3			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay (s/veh): 35.2		Intersection LOS: D	
Intersection Capacity Utilization 87.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street

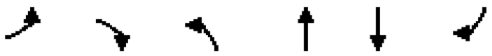




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	27	1009	43	60	813	40	42	275	80	230
v/c Ratio	0.07	0.94	0.05	0.32	0.73	0.04	0.27	0.79	0.67	0.69
Control Delay (s/veh)	6.2	39.7	1.2	10.4	21.8	0.9	41.4	54.6	67.8	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.2	39.7	1.2	10.4	21.8	0.9	41.4	54.6	67.8	49.3
Queue Length 50th (m)	1.5	191.6	0.0	3.4	123.1	0.0	7.5	51.0	15.6	42.9
Queue Length 95th (m)	4.6	#302.2	2.0	8.2	190.3	1.5	17.2	77.1	31.6	66.1
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	369	1072	940	190	1117	933	210	463	161	449
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.94	0.05	0.32	0.73	0.04	0.20	0.59	0.50	0.51

Intersection Summary

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	2	0	29	53	18
Future Volume (vph)	78	2	0	29	53	18
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.966	
Flt Protected	0.954					
Satd. Flow (prot)	1679	0	0	1650	1570	0
Flt Permitted	0.954					
Satd. Flow (perm)	1679	0	0	1650	1570	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	78	2	0	29	53	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	0	0	29	71	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		

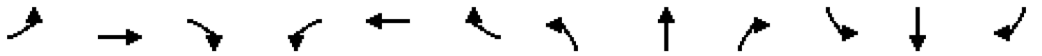
Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	78	2	0	29	53	18
Future Vol, veh/h	78	2	0	29	53	18
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	78	2	0	29	53	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	91	63	71	0	-	0
Stage 1	62	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	914	1007	1542	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	914	1006	1542	-	-	-
Mov Cap-2 Maneuver	914	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	999	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1542	-	916	-	-
HCM Lane V/C Ratio	-	-	0.087	-	-
HCM Ctrl Dly (s/v)	0	-	9.3	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

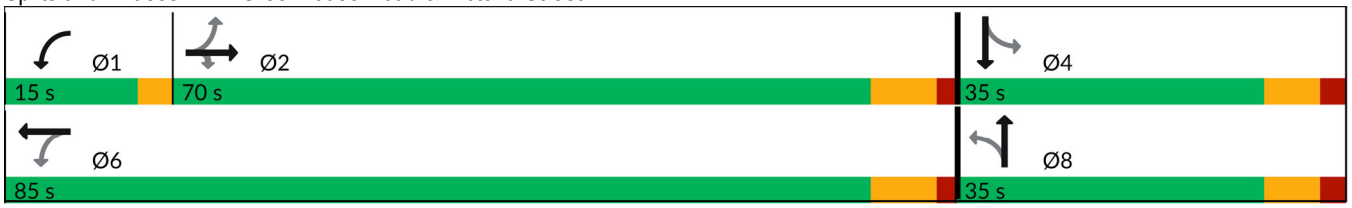


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	923	82	38	1009	0	79	1	34	0	2	2
Future Volume (vph)	2	923	82	38	1009	0	79	1	34	0	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.854			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1845	1599	1805	1881	0	1805	1576	0	0	1771	0
Flt Permitted	0.150			0.127			0.755					
Satd. Flow (perm)	285	1845	1599	241	1881	0	1434	1576	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93					39			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1049	93	43	1147	0	90	1	39	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1049	93	43	1147	0	90	40	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	70.1	70.1	70.1	78.5	75.7		12.4	12.4			12.4	
Actuated g/C Ratio	0.72	0.72	0.72	0.81	0.78		0.13	0.13			0.13	
v/c Ratio	0.01	0.79	0.08	0.14	0.79		0.49	0.17			0.02	
Control Delay (s/veh)	8.0	19.7	1.9	4.0	14.5		51.1	15.1			32.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	8.0	19.7	1.9	4.0	14.5		51.1	15.1			32.5	
LOS	A	B	A	A	B		D	B			C	
Approach Delay (s/veh)		18.3			14.1			40.0			32.5	
Approach LOS		B			B			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 97.4			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 17.4		Intersection LOS: B	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	1049	93	43	1147	90	40	4
v/c Ratio	0.01	0.79	0.08	0.14	0.79	0.49	0.17	0.02
Control Delay (s/veh)	8.0	19.7	1.9	4.0	14.5	51.1	15.1	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.0	19.7	1.9	4.0	14.5	51.1	15.1	32.5
Queue Length 50th (m)	0.1	155.3	0.0	1.5	126.5	16.3	0.2	0.4
Queue Length 95th (m)	1.0	#273.6	5.4	4.3	222.6	31.9	9.1	3.3
Internal Link Dist (m)		340.2			1713.2		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	205	1328	1177	388	1545	412	480	510
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.79	0.08	0.11	0.74	0.22	0.08	0.01

Intersection Summary

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	7	0	0	7	5	0	0	0	7	0	30
Future Volume (vph)	29	7	0	0	7	5	0	0	0	7	0	30
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.944						0.891	
Flt Protected		0.961									0.991	
Satd. Flow (prot)	0	1339	0	0	1463	0	0	1550	0	0	1205	0
Flt Permitted		0.961									0.991	
Satd. Flow (perm)	0	1339	0	0	1463	0	0	1550	0	0	1205	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	29	7	0	0	7	5	0	0	0	7	0	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	0	0	12	0	0	0	0	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	29	7	0	0	7	5	0	0	0	7	0	30
Future Vol, veh/h	29	7	0	0	7	5	0	0	0	7	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	29	7	0	0	7	5	0	0	0	7	0	30

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	33	29	15	18	44	0	30	0	0	0	0	0
Stage 1	29	29	-	0	0	-	-	-	-	-	-	-
Stage 2	4	0	-	18	44	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	962	814	1070	1002	852	-	1596	-	-	-	-	-
Stage 1	975	820	-	-	-	-	-	-	-	-	-	-
Stage 2	1006	-	-	1007	862	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	814	1070	994	852	-	1596	-	-	-	-	-
Mov Cap-2 Maneuver	-	814	-	994	852	-	-	-	-	-	-	-
Stage 1	975	820	-	-	-	-	-	-	-	-	-	-
Stage 2	1006	-	-	998	862	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v			0	
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1596	-	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	-	-	-	-
HCM Lane LOS	A	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	12	2	0	2	10	253	1	2	279	1
Future Volume (vph)	1	0	12	2	0	2	10	253	1	2	279	1
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.875			0.932			0.999				
Flt Protected		0.996			0.976			0.998				
Satd. Flow (prot)	0	1258	0	0	1410	0	0	1516	0	0	1505	0
Flt Permitted		0.996			0.976			0.998				
Satd. Flow (perm)	0	1258	0	0	1410	0	0	1516	0	0	1505	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	1	0	12	2	0	2	10	253	1	2	279	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	0	4	0	0	264	0	0	282	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.6%		ICU Level of Service A	
Analysis Period (min) 15			

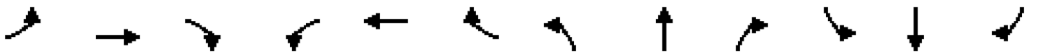
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	12	2	0	2	10	253	1	2	279	1
Future Vol, veh/h	1	0	12	2	0	2	10	253	1	2	279	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	1	0	12	2	0	2	10	253	1	2	279	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	557	558	280	557	558	254	280	0	0	254	0	0
Stage 1	284	284	-	274	274	-	-	-	-	-	-	-
Stage 2	273	274	-	283	284	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	444	441	745	444	441	790	1294	-	-	1323	-	-
Stage 1	728	680	-	737	687	-	-	-	-	-	-	-
Stage 2	737	687	-	728	680	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	439	436	745	433	436	790	1294	-	-	1323	-	-
Mov Cap-2 Maneuver	439	436	-	433	436	-	-	-	-	-	-	-
Stage 1	727	679	-	730	681	-	-	-	-	-	-	-
Stage 2	729	681	-	715	679	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.19	11.49	0.3	0.05
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	68	-	-	707	559	13	-	-
HCM Lane V/C Ratio	0.008	-	-	0.018	0.007	0.002	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	10.2	11.5	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

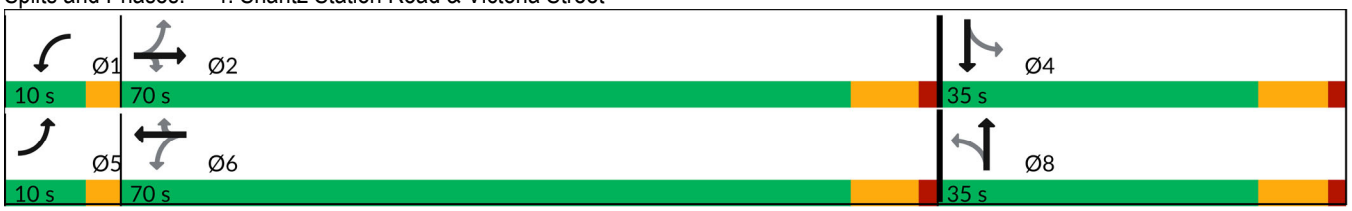


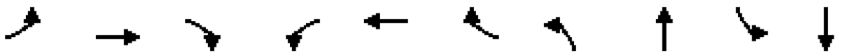
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	913	32	87	890	27	51	152	71	62	142	54
Future Volume (vph)	54	913	32	87	890	27	51	152	71	62	142	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.952			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1615	1656	1881	1615	1770	1780	0	1805	1809	0
Flt Permitted	0.082			0.062			0.462			0.383		
Satd. Flow (perm)	153	1863	1615	108	1881	1615	861	1780	0	728	1809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		19			16	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	61	1038	36	99	1011	31	58	173	81	70	161	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	1038	36	99	1011	31	58	254	0	70	222	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	74.2	62.6	62.6	74.8	64.8	64.8	19.3	19.3		19.3	19.3	
Actuated g/C Ratio	0.69	0.59	0.59	0.70	0.61	0.61	0.18	0.18		0.18	0.18	
v/c Ratio	0.29	0.95	0.04	0.56	0.89	0.03	0.37	0.75		0.53	0.65	
Control Delay (s/veh)	8.9	40.8	0.6	27.1	31.6	0.1	45.2	52.8		54.7	46.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	8.9	40.8	0.6	27.1	31.6	0.1	45.2	52.8		54.7	46.9	
LOS	A	D	A	C	C	A	D	D		D	D	
Approach Delay (s/veh)		37.8			30.4			51.4			48.8	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 107			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 37.5		Intersection LOS: D	
Intersection Capacity Utilization 96.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street

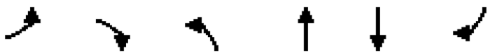




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	1038	36	99	1011	31	58	254	70	222
v/c Ratio	0.29	0.95	0.04	0.56	0.89	0.03	0.37	0.75	0.53	0.65
Control Delay (s/veh)	8.9	40.8	0.6	27.1	31.6	0.1	45.2	52.8	54.7	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.9	40.8	0.6	27.1	31.6	0.1	45.2	52.8	54.7	46.9
Queue Length 50th (m)	3.1	187.2	0.0	5.2	174.5	0.0	10.6	46.3	13.2	39.7
Queue Length 95th (m)	8.4	#309.4	0.9	#24.8	#294.7	0.1	22.1	70.4	26.6	61.5
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	211	1090	974	177	1138	1005	221	472	187	477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.95	0.04	0.56	0.89	0.03	0.26	0.54	0.37	0.47

Intersection Summary

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	1	2	64	46	76
Future Volume (vph)	50	1	2	64	46	76
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.916	
Flt Protected	0.953			0.998		
Satd. Flow (prot)	1629	0	0	1600	1489	0
Flt Permitted	0.953			0.998		
Satd. Flow (perm)	1629	0	0	1600	1489	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	50	1	2	64	46	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	0	0	66	122	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	1	2	64	46	76
Future Vol, veh/h	50	1	2	64	46	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	50	1	2	64	46	76

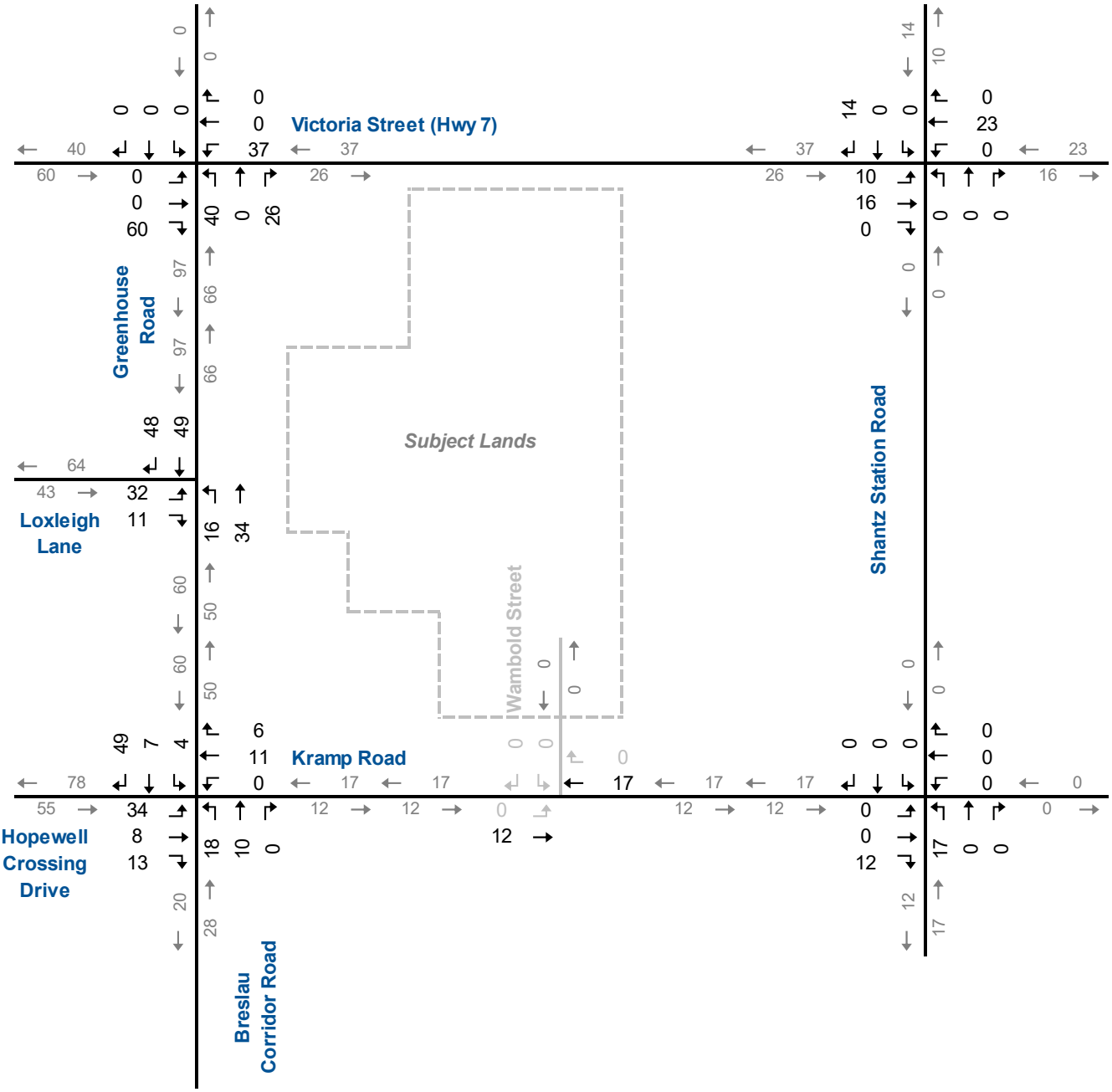
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	152	84	122	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	837	981	1478	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	836	981	1478	-	-	-
Mov Cap-2 Maneuver	836	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.57	0.23	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	55	-	839	-	-
HCM Lane V/C Ratio	0.001	-	0.061	-	-
HCM Ctrl Dly (s/v)	7.4	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

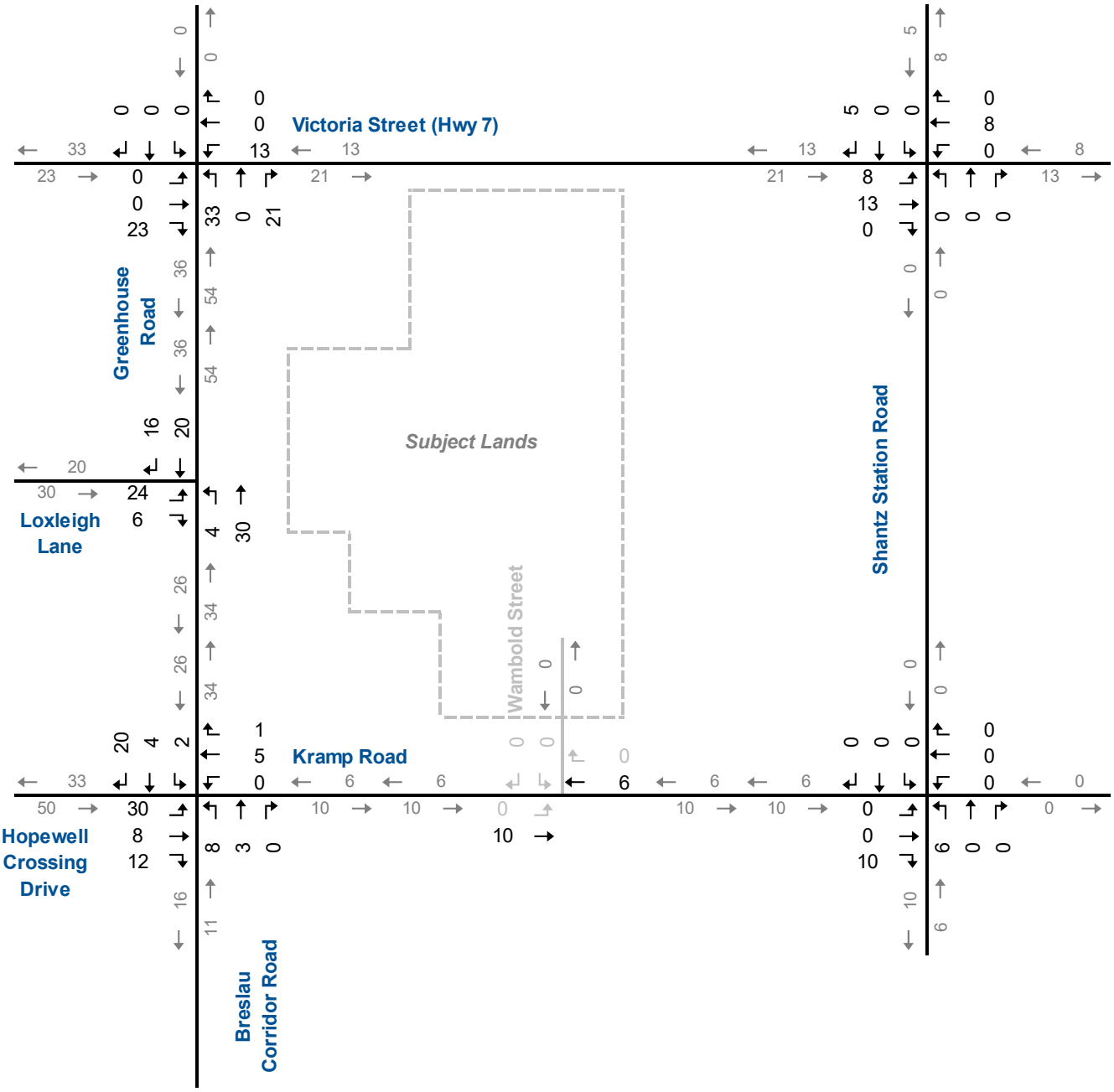
Appendix C

Hopewell Crossing Traffic Volumes



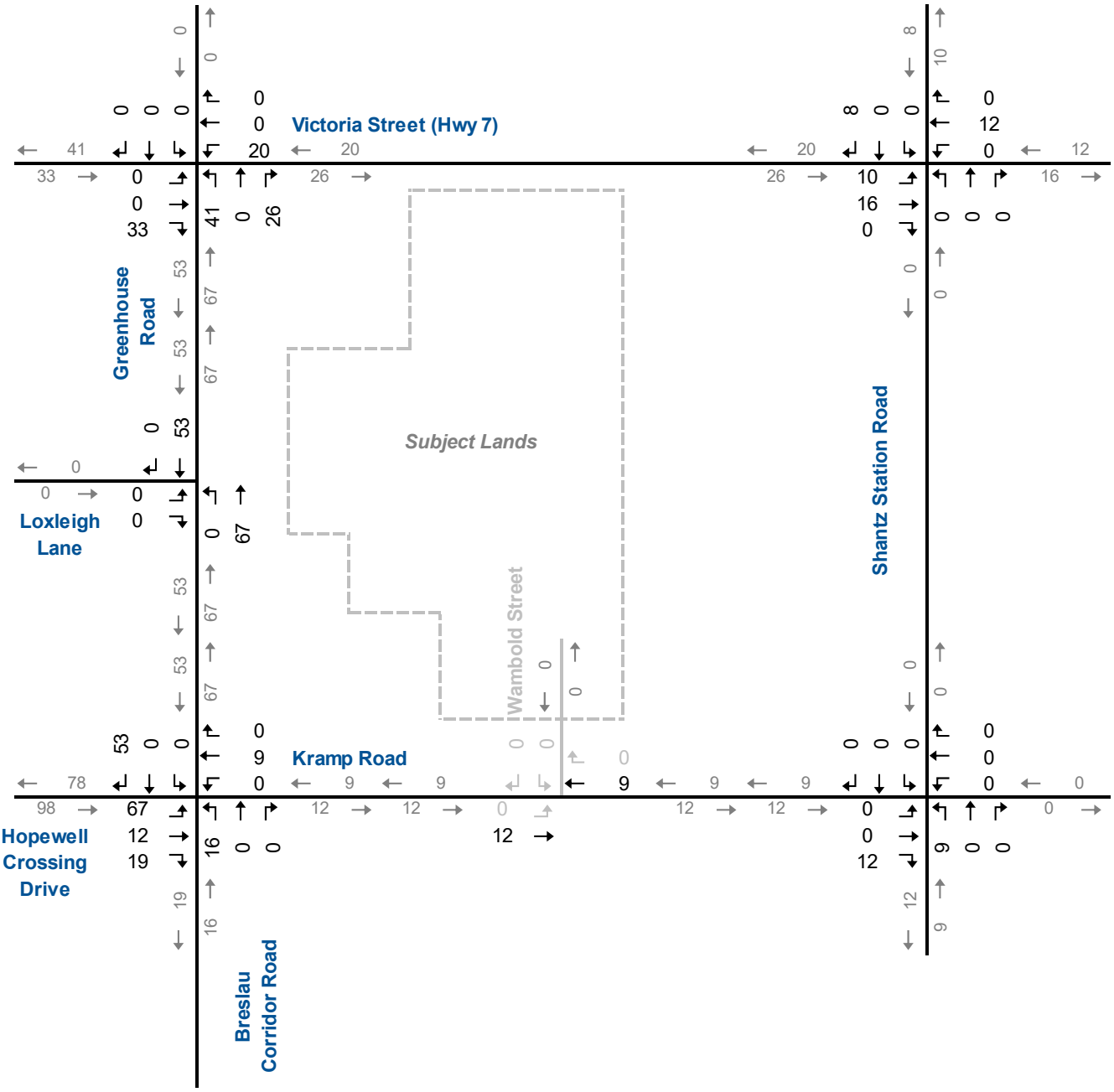
NTS

Background Development Traffic Volumes
Hopewell Crossing Phase 1
AM peak Hour



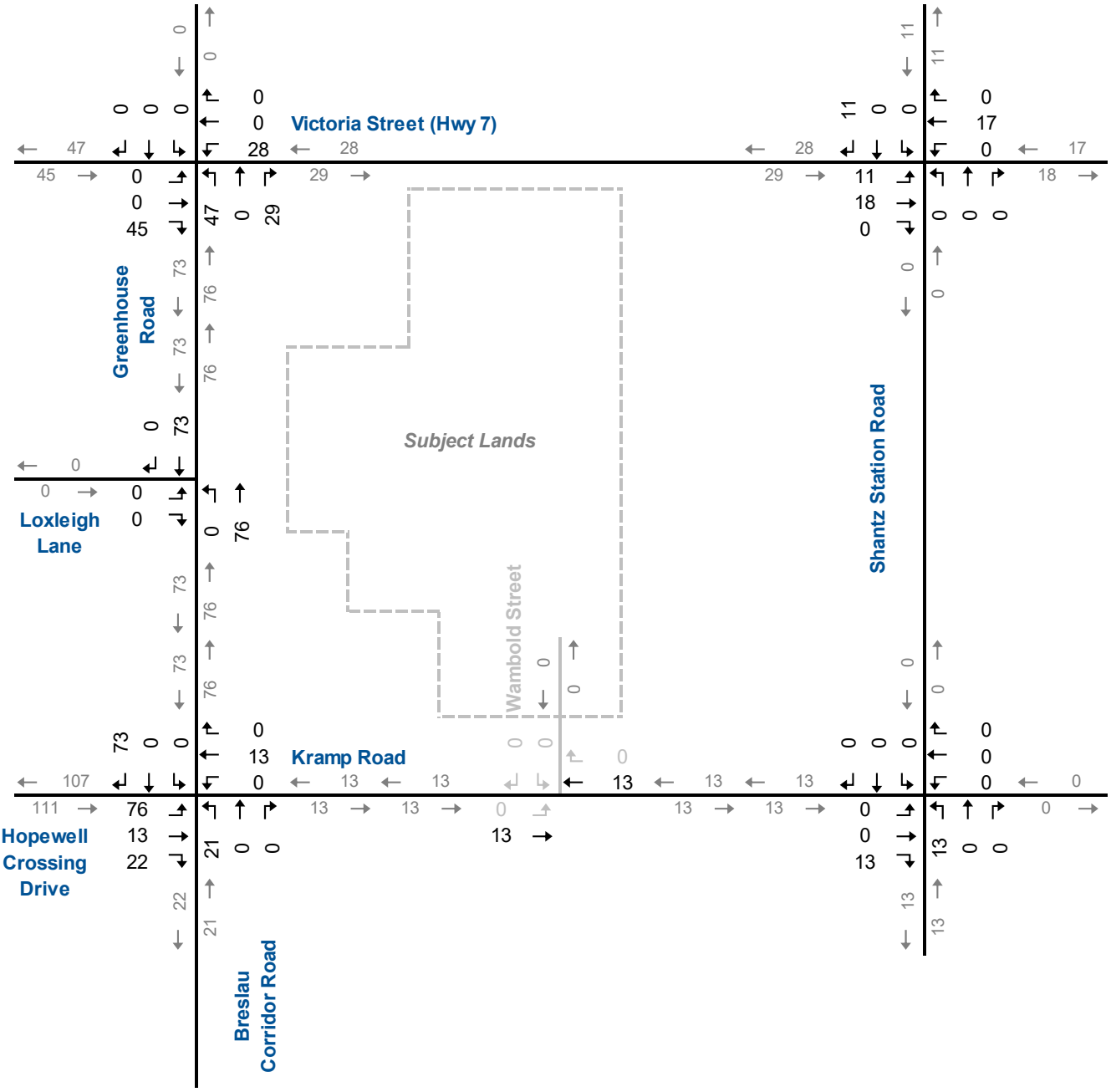
NTS

Background Development Traffic Volumes
Hopewell Crossing Phase 1
PM peak Hour



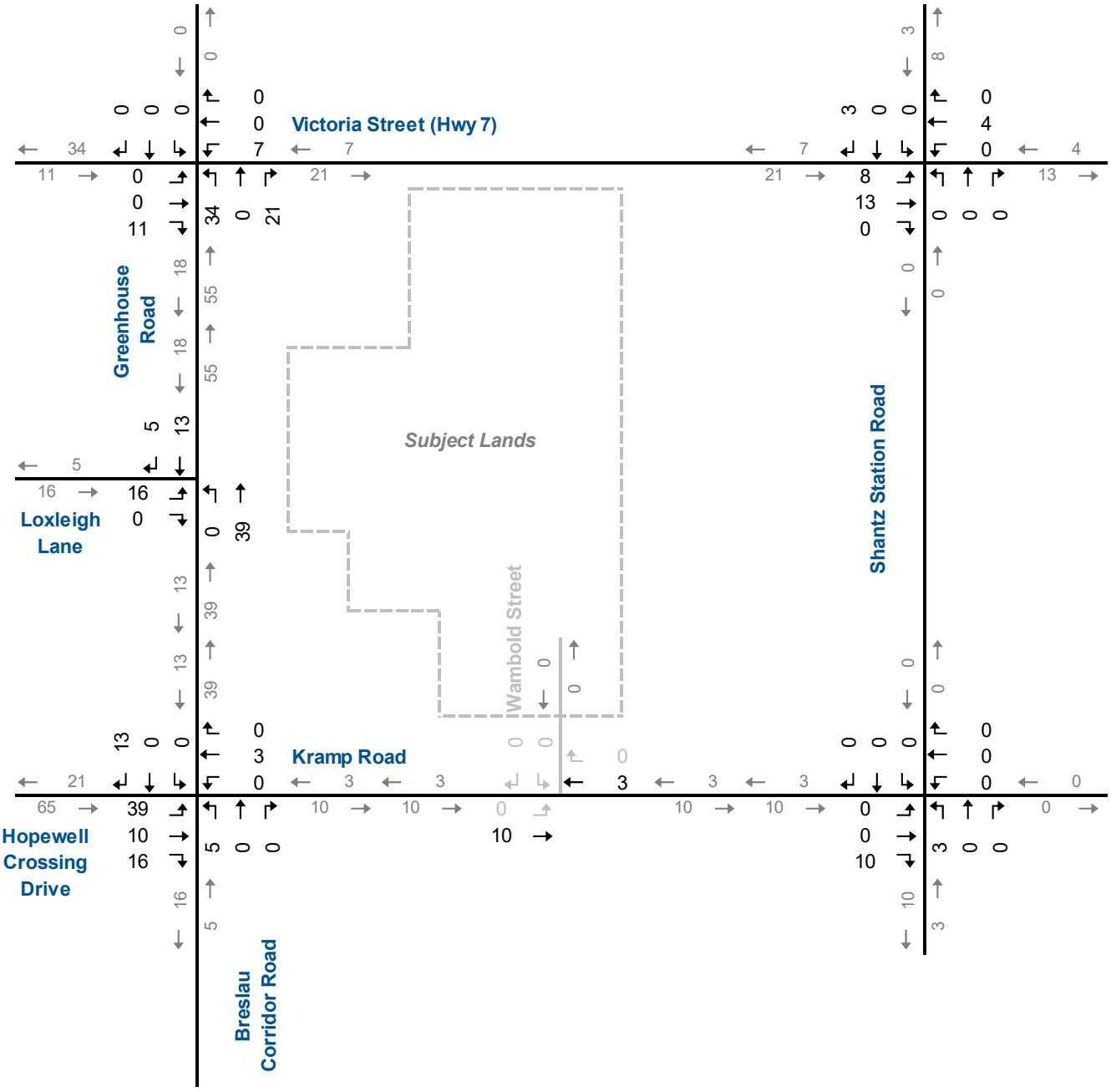
NTS

Background Development Traffic Volumes
Hopewell Crossing Phase 2
AM peak Hour



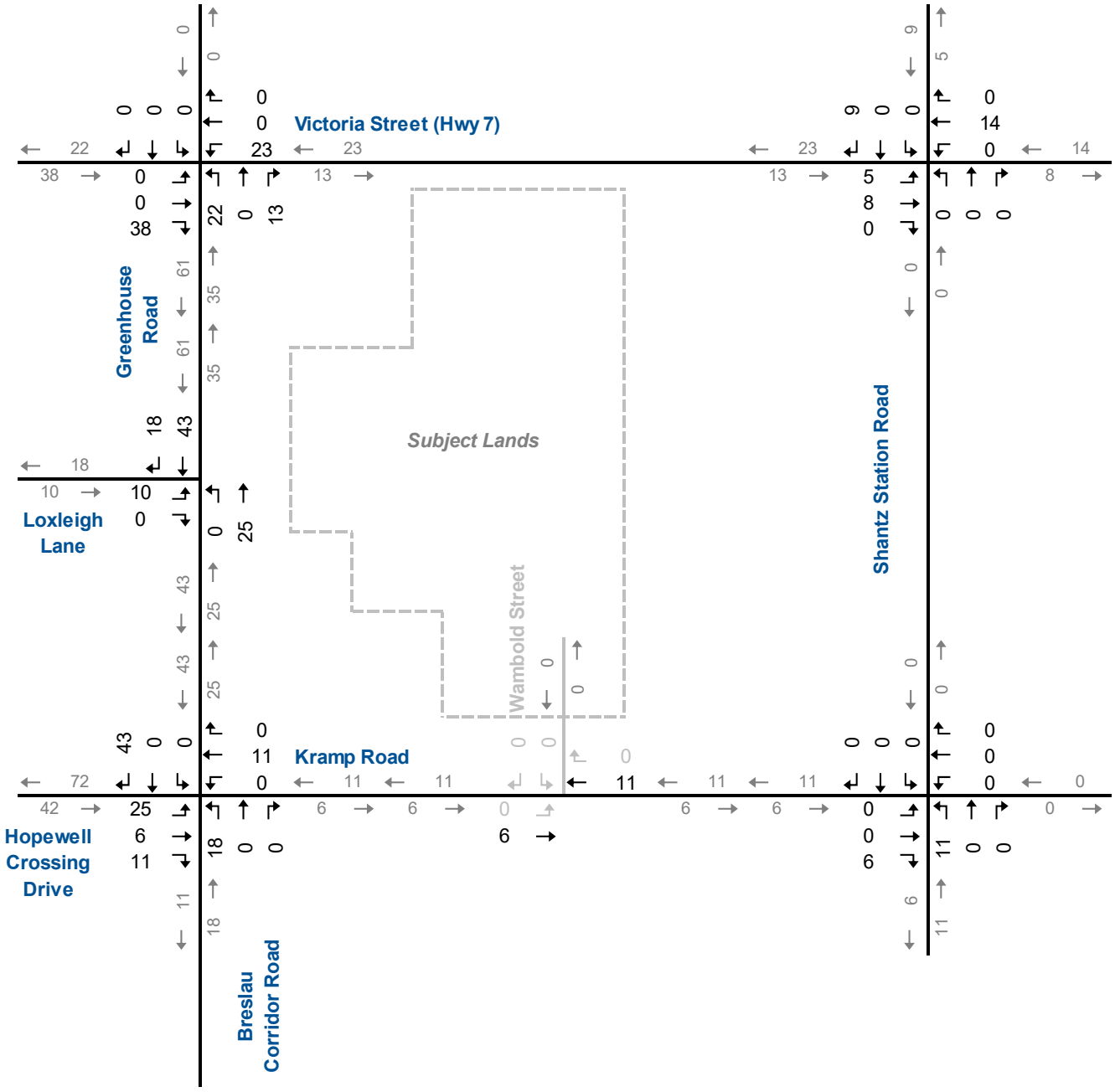
NTS

Background Development Traffic Volumes
Hopewell Crossing Phase 2
PM peak Hour



NTS

Background Development Traffic Volumes
Hopewell Crossing Phase 3
AM peak Hour

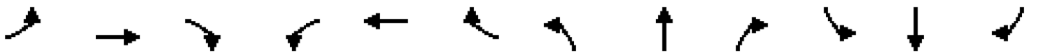


NTS

Background Development Traffic Volumes
Hopewell Crossing Phase 3
PM peak Hour

Appendix D

2035 Background Traffic Operations Reports

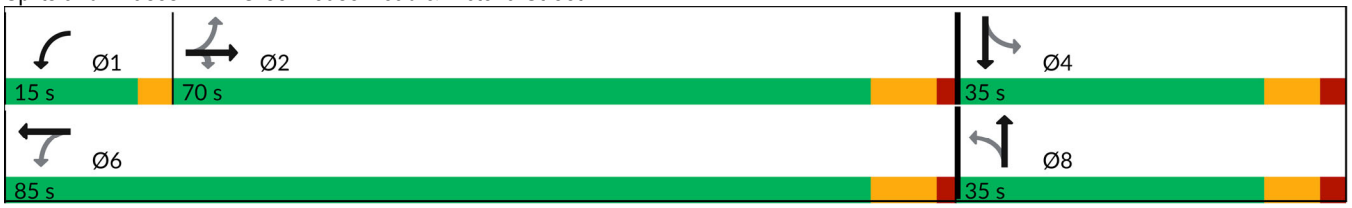


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1006	153	83	845	0	176	1	115	0	0	0
Future Volume (vph)	2	1006	153	83	845	0	176	1	115	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1810	1553	1421	1827	0	1687	1570	0	0	1900	0
Flt Permitted	0.199			0.061			0.757					
Satd. Flow (perm)	378	1810	1553	91	1827	0	1344	1570	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			174					131				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1143	174	94	960	0	200	1	131	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1143	174	94	960	0	200	132	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	63.1	63.1	63.1	77.1	72.6		20.7	20.7				
Actuated g/C Ratio	0.58	0.58	0.58	0.71	0.67		0.19	0.19				
v/c Ratio	0.01	1.08	0.18	0.54	0.78		0.78	0.33				
Control Delay (s/veh)	13.5	78.2	2.6	28.0	19.3		63.1	8.9				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	13.5	78.2	2.6	28.0	19.3		63.1	8.9				
LOS	B	E	A	C	B		E	A				
Approach Delay (s/veh)		68.1			20.0			41.6				
Approach LOS		E			C			D				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108.2			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay (s/veh): 46.1		Intersection LOS: D	
Intersection Capacity Utilization 89.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	1143	174	94	960	200	132
v/c Ratio	0.01	1.08	0.18	0.54	0.78	0.78	0.33
Control Delay (s/veh)	13.5	78.2	2.6	28.0	19.3	63.1	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.5	78.2	2.6	28.0	19.3	63.1	8.9
Queue Length 50th (m)	0.2	~276.0	0.0	5.9	127.3	40.3	0.2
Queue Length 95th (m)	1.5	#388.1	9.5	23.1	205.6	65.9	14.6
Internal Link Dist (m)		340.2			1713.2		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	220	1055	978	214	1321	347	503
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	1.08	0.18	0.44	0.73	0.58	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	44	52	0	29	9	45	15	0	8	17	128
Future Volume (vph)	166	44	52	0	29	9	45	15	0	8	17	128
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.968						0.887	
Flt Protected		0.969						0.964			0.997	
Satd. Flow (prot)	0	1407	0	0	1500	0	0	1494	0	0	1191	0
Flt Permitted		0.969						0.964			0.997	
Satd. Flow (perm)	0	1407	0	0	1500	0	0	1494	0	0	1191	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	166	44	52	0	29	9	45	15	0	8	17	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	262	0	0	38	0	0	60	0	0	153	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.0%		ICU Level of Service A	
Analysis Period (min) 15			

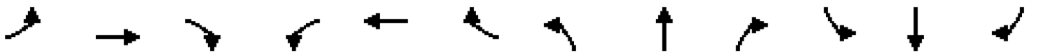
Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	166	44	52	0	29	9	45	15	0	8	17	128
Future Vol, veh/h	166	44	52	0	29	9	45	15	0	8	17	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	166	44	52	0	29	9	45	15	0	8	17	128

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	217	202	81	160	266	15	145	0	0	15	0	0
Stage 1	97	97	-	105	105	-	-	-	-	-	-	-
Stage 2	120	105	-	55	161	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	736	684	985	810	643	1070	1450	-	-	1616	-	-
Stage 1	905	803	-	906	812	-	-	-	-	-	-	-
Stage 2	880	797	-	962	769	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	671	659	985	692	620	1070	1450	-	-	1616	-	-
Mov Cap-2 Maneuver	671	659	-	692	620	-	-	-	-	-	-	-
Stage 1	900	799	-	877	787	-	-	-	-	-	-	-
Stage 2	814	772	-	857	764	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.94	10.54	5.67	0.38
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1350	-	-	714	688	80	-	-
HCM Lane V/C Ratio	0.031	-	-	0.367	0.055	0.005	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	12.9	10.5	7.2	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	51	1	0	4	47	307	2	3	284	4
Future Volume (vph)	4	0	51	1	0	4	47	307	2	3	284	4
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.875			0.892			0.999			0.998	
Flt Protected		0.996			0.990			0.993			0.999	
Satd. Flow (prot)	0	1268	0	0	1141	0	0	1458	0	0	1447	0
Flt Permitted		0.996			0.990			0.993			0.999	
Satd. Flow (perm)	0	1268	0	0	1141	0	0	1458	0	0	1447	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	4	0	51	1	0	4	47	307	2	3	284	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	5	0	0	356	0	0	291	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.5%		ICU Level of Service B	
Analysis Period (min) 15			

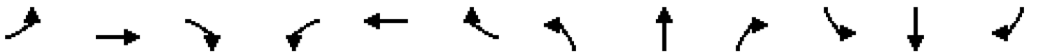
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	51	1	0	4	47	307	2	3	284	4
Future Vol, veh/h	4	0	51	1	0	4	47	307	2	3	284	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	4	0	51	1	0	4	47	307	2	3	284	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	693	695	286	692	696	308	288	0	0	309	0	0
Stage 1	292	292	-	402	402	-	-	-	-	-	-	-
Stage 2	401	403	-	290	294	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	360	368	741	256	368	737	1286	-	-	1263	-	-
Stage 1	720	675	-	469	604	-	-	-	-	-	-	-
Stage 2	630	603	-	548	673	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	342	351	741	227	351	737	1286	-	-	1263	-	-
Mov Cap-2 Maneuver	342	351	-	227	351	-	-	-	-	-	-	-
Stage 1	718	673	-	448	577	-	-	-	-	-	-	-
Stage 2	599	577	-	509	671	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.73	12.15	1.04	0.08
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	237	-	-	683	508	19	-	-
HCM Lane V/C Ratio	0.037	-	-	0.081	0.01	0.002	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	10.7	12.2	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-	-

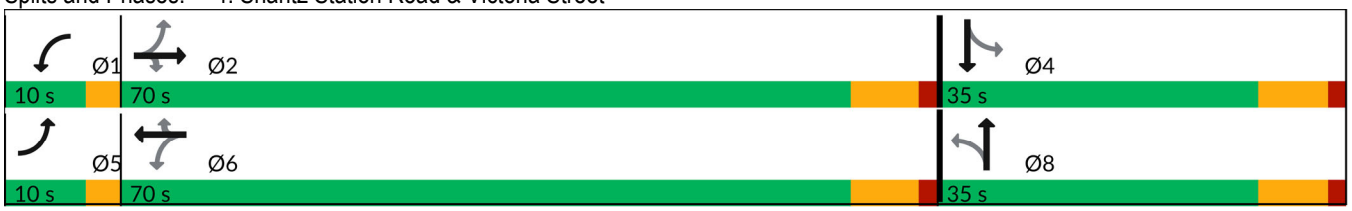


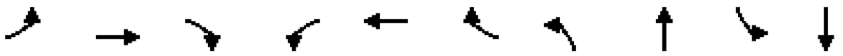
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	1026	42	59	829	39	41	178	89	77	177	71
Future Volume (vph)	55	1026	42	59	829	39	41	178	89	77	177	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.950			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1810	1538	1703	1827	1482	1671	1719	0	1656	1666	0
Flt Permitted	0.104			0.063			0.359			0.314		
Satd. Flow (perm)	198	1810	1538	113	1827	1482	632	1719	0	547	1666	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		21			17	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	63	1166	48	67	942	44	47	202	101	88	201	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	1166	48	67	942	44	47	303	0	88	282	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	72.9	63.0	63.0	72.9	63.0	63.0	22.0	22.0		22.0	22.0	
Actuated g/C Ratio	0.68	0.58	0.58	0.68	0.58	0.58	0.20	0.20		0.20	0.20	
v/c Ratio	0.26	1.10	0.05	0.37	0.88	0.05	0.36	0.83		0.79	0.80	
Control Delay (s/veh)	8.9	85.4	1.5	14.9	33.0	1.3	45.9	57.3		85.2	55.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	8.9	85.4	1.5	14.9	33.0	1.3	45.9	57.3		85.2	55.7	
LOS	A	F	A	B	C	A	D	E		F	E	
Approach Delay (s/veh)		78.5			30.5			55.8			62.8	
Approach LOS		E			C			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 107.8			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay (s/veh): 57.4		Intersection LOS: E	
Intersection Capacity Utilization 95.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



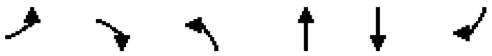


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	1166	48	67	942	44	47	303	88	282
v/c Ratio	0.26	1.10	0.05	0.37	0.88	0.05	0.36	0.83	0.79	0.80
Control Delay (s/veh)	8.9	85.4	1.5	14.9	33.0	1.3	45.9	57.3	85.2	55.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.9	85.4	1.5	14.9	33.0	1.3	45.9	57.3	85.2	55.7
Queue Length 50th (m)	3.8	~292.3	0.0	4.1	172.0	0.0	8.6	57.8	17.8	53.9
Queue Length 95th (m)	8.6	#374.9	2.8	11.6	#268.6	2.1	19.5	85.6	#40.5	81.0
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	239	1057	927	180	1067	895	162	457	140	440
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	1.10	0.05	0.37	0.88	0.05	0.29	0.66	0.63	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	124	23	21	168	168	68
Future Volume (vph)	124	23	21	168	168	68
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.979				0.961	
Flt Protected	0.960			0.994		
Satd. Flow (prot)	1659	0	0	1640	1563	0
Flt Permitted	0.960			0.994		
Satd. Flow (perm)	1659	0	0	1640	1563	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	124	23	21	168	168	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	147	0	0	189	236	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

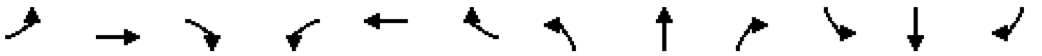
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	124	23	21	168	168	68
Future Vol, veh/h	124	23	21	168	168	68
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	124	23	21	168	168	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	412	203	236	0	-	0
Stage 1	202	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	600	843	1343	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	590	842	1343	-	-	-
Mov Cap-2 Maneuver	590	-	-	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	830	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.62	0.86	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	200	-	619	-	-
HCM Lane V/C Ratio	0.016	-	0.238	-	-
HCM Ctrl Dly (s/v)	7.7	0	12.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-

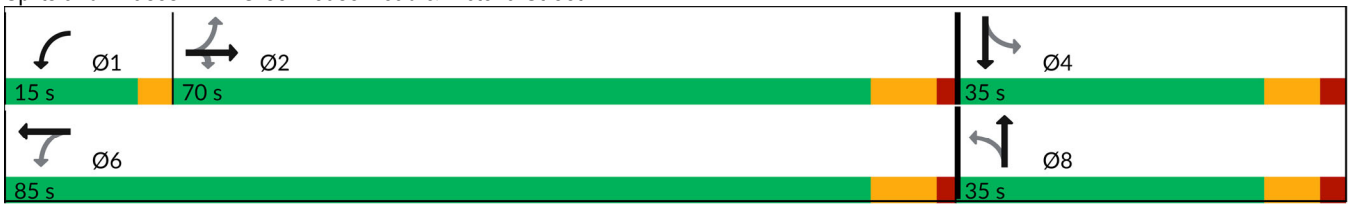


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1020	181	106	1115	0	173	1	101	0	2	2
Future Volume (vph)	2	1020	181	106	1115	0	173	1	101	0	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1845	1599	1805	1881	0	1805	1570	0	0	1771	0
Flt Permitted	0.061			0.058			0.755					
Satd. Flow (perm)	116	1845	1599	110	1881	0	1434	1570	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			206					115			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1159	206	120	1267	0	197	1	115	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1159	206	120	1267	0	197	116	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	65.9	65.9	65.9	82.2	77.7		20.2	20.2			20.2	
Actuated g/C Ratio	0.58	0.58	0.58	0.73	0.69		0.18	0.18			0.18	
v/c Ratio	0.03	1.07	0.20	0.57	0.98		0.77	0.31			0.01	
Control Delay (s/veh)	14.5	74.7	2.4	26.7	38.9		63.7	9.3			29.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	14.5	74.7	2.4	26.7	38.9		63.7	9.3			29.5	
LOS	B	E	A	C	D		E	A			C	
Approach Delay (s/veh)		63.7			37.9			43.5			29.5	
Approach LOS		E			D			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 112.7			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay (s/veh): 49.9		Intersection LOS: D	
Intersection Capacity Utilization 110.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	1159	206	120	1267	197	116	4
v/c Ratio	0.03	1.07	0.20	0.57	0.98	0.77	0.31	0.01
Control Delay (s/veh)	14.5	74.7	2.4	26.7	38.9	63.7	9.3	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.5	74.7	2.4	26.7	38.9	63.7	9.3	29.5
Queue Length 50th (m)	0.2	~278.3	0.0	8.3	237.4	41.1	0.2	0.4
Queue Length 95th (m)	1.6	#391.5	10.1	28.0	#381.8	63.6	13.6	3.1
Internal Link Dist (m)		340.2			1713.2		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	67	1079	1021	261	1296	353	473	437
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	1.07	0.20	0.46	0.98	0.56	0.25	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	35	52	0	37	7	51	15	0	10	13	165
Future Volume (vph)	156	35	52	0	37	7	51	15	0	10	13	165
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.979						0.882	
Flt Protected		0.969						0.963			0.997	
Satd. Flow (prot)	0	1342	0	0	1517	0	0	1493	0	0	1236	0
Flt Permitted		0.969						0.963			0.997	
Satd. Flow (perm)	0	1342	0	0	1517	0	0	1493	0	0	1236	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	156	35	52	0	37	7	51	15	0	10	13	165
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	243	0	0	44	0	0	66	0	0	188	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	156	35	52	0	37	7	51	15	0	10	13	165
Future Vol, veh/h	156	35	52	0	37	7	51	15	0	10	13	165
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	156	35	52	0	37	7	51	15	0	10	13	165

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	251	233	96	168	315	15	178	0	0	15	0	0
Stage 1	116	116	-	117	117	-	-	-	-	-	-	-
Stage 2	136	117	-	51	198	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	692	623	967	801	604	1070	1410	-	-	1444	-	-
Stage 1	877	751	-	892	803	-	-	-	-	-	-	-
Stage 2	856	750	-	968	741	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	617	596	967	684	577	1070	1410	-	-	1444	-	-
Mov Cap-2 Maneuver	617	596	-	684	577	-	-	-	-	-	-	-
Stage 1	870	745	-	860	773	-	-	-	-	-	-	-
Stage 2	780	722	-	866	735	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.5	11.22	5.91	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	665	623	81	-	-
HCM Lane V/C Ratio	0.036	-	-	0.365	0.071	0.007	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	13.5	11.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	42	2	0	2	41	279	1	2	308	1
Future Volume (vph)	1	0	42	2	0	2	41	279	1	2	308	1
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.868			0.932							
Flt Protected		0.999			0.976			0.994				
Satd. Flow (prot)	0	1247	0	0	1410	0	0	1514	0	0	1505	0
Flt Permitted		0.999			0.976			0.994				
Satd. Flow (perm)	0	1247	0	0	1410	0	0	1514	0	0	1505	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	1	0	42	2	0	2	41	279	1	2	308	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	0	4	0	0	321	0	0	311	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			

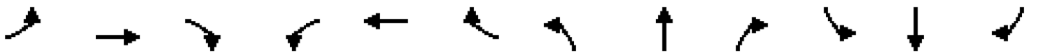
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	42	2	0	2	41	279	1	2	308	1
Future Vol, veh/h	1	0	42	2	0	2	41	279	1	2	308	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	1	0	42	2	0	2	41	279	1	2	308	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	674	675	309	674	675	280	309	0	0	280	0	0
Stage 1	313	313	-	362	362	-	-	-	-	-	-	-
Stage 2	361	362	-	312	313	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	371	378	718	371	378	764	1263	-	-	1294	-	-
Stage 1	702	661	-	661	629	-	-	-	-	-	-	-
Stage 2	662	629	-	703	661	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	356	363	718	336	363	764	1263	-	-	1294	-	-
Mov Cap-2 Maneuver	356	363	-	336	363	-	-	-	-	-	-	-
Stage 1	701	660	-	636	605	-	-	-	-	-	-	-
Stage 2	634	605	-	660	659	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.47	12.79	1.01	0.05
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	230	-	-	701	466	12	-	-
HCM Lane V/C Ratio	0.032	-	-	0.061	0.009	0.002	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	10.5	12.8	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

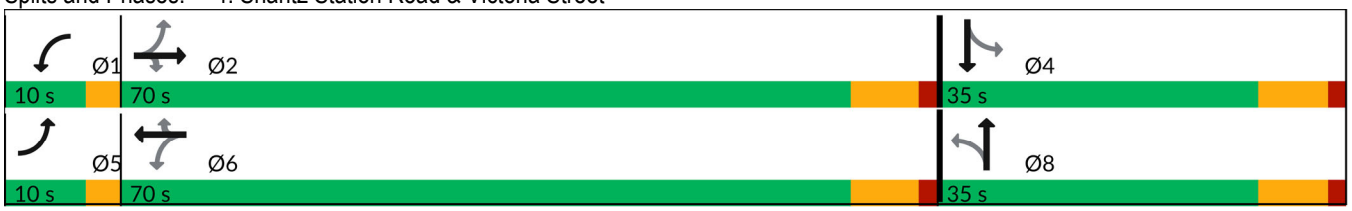


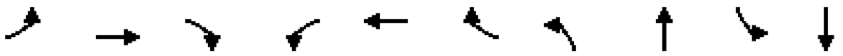
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	1048	35	96	1022	30	56	168	78	68	157	85
Future Volume (vph)	84	1048	35	96	1022	30	56	168	78	68	157	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.952			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1615	1656	1881	1615	1770	1780	0	1805	1788	0
Flt Permitted	0.063			0.062			0.350			0.339		
Satd. Flow (perm)	117	1863	1615	108	1881	1615	652	1780	0	644	1788	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		19			22	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	95	1191	40	109	1161	34	64	191	89	77	178	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	1191	40	109	1161	34	64	280	0	77	275	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	74.2	62.6	62.6	74.8	64.8	64.8	20.7	20.7		20.7	20.7	
Actuated g/C Ratio	0.68	0.58	0.58	0.69	0.60	0.60	0.19	0.19		0.19	0.19	
v/c Ratio	0.51	1.11	0.04	0.63	1.03	0.03	0.52	0.79		0.63	0.77	
Control Delay (s/veh)	22.3	86.1	0.9	33.0	60.2	0.4	54.3	55.0		63.0	52.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	22.3	86.1	0.9	33.0	60.2	0.4	54.3	55.0		63.0	52.5	
LOS	C	F	A	C	E	A	D	E		E	D	
Approach Delay (s/veh)		78.9			56.3			54.9			54.8	
Approach LOS		E			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 108.4			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay (s/veh): 65.0		Intersection LOS: E	
Intersection Capacity Utilization 105.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



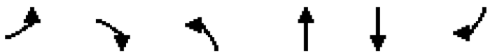


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	1191	40	109	1161	34	64	280	77	275
v/c Ratio	0.51	1.11	0.04	0.63	1.03	0.03	0.52	0.79	0.63	0.77
Control Delay (s/veh)	22.3	86.1	0.9	33.0	60.2	0.4	54.3	55.0	63.0	52.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.3	86.1	0.9	33.0	60.2	0.4	54.3	55.0	63.0	52.5
Queue Length 50th (m)	5.4	~285.6	0.0	7.1	~270.2	0.0	12.1	52.3	14.9	50.5
Queue Length 95th (m)	20.2	#380.2	1.5	#30.5	#364.1	0.6	25.3	78.2	30.1	76.1
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	187	1076	963	174	1124	994	165	466	163	471
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	1.11	0.04	0.63	1.03	0.03	0.39	0.60	0.47	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	25	15	18	195	132	22
Future Volume (vph)	25	15	18	195	132	22
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.981	
Flt Protected	0.970			0.996		
Satd. Flow (prot)	1595	0	0	1599	1565	0
Flt Permitted	0.970			0.996		
Satd. Flow (perm)	1595	0	0	1599	1565	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	25	15	18	195	132	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	0	213	154	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	15	18	195	132	22
Future Vol, veh/h	25	15	18	195	132	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	25	15	18	195	132	22

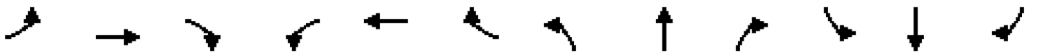
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	374	143	154	0	-	0
Stage 1	143	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	625	910	1439	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	616	910	1439	-	-	-
Mov Cap-2 Maneuver	616	-	-	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	805	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.44	0.64	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	152	-	701	-	-
HCM Lane V/C Ratio	0.013	-	0.057	-	-
HCM Ctrl Dly (s/v)	7.5	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Appendix E

2035 Total Traffic Operations Reports

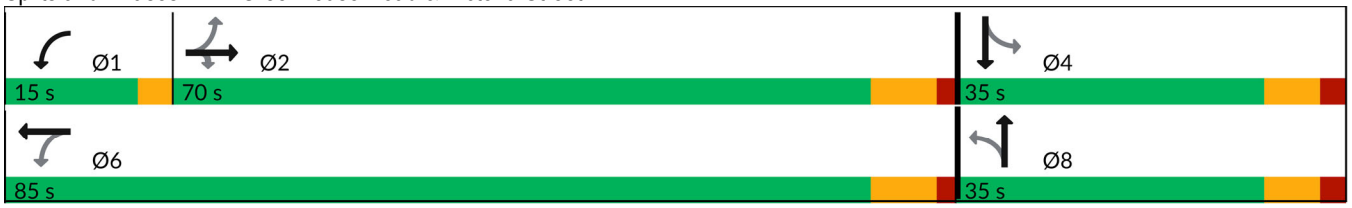


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1006	179	85	845	0	245	1	121	0	0	0
Future Volume (vph)	2	1006	179	85	845	0	245	1	121	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1810	1553	1421	1827	0	1687	1570	0	0	1900	0
Flt Permitted	0.177			0.061			0.757					
Satd. Flow (perm)	336	1810	1553	91	1827	0	1344	1570	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			203					138				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1143	203	97	960	0	278	1	138	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1143	203	97	960	0	278	139	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	62.6	62.6	62.6	79.2	74.7		26.3	26.3				
Actuated g/C Ratio	0.54	0.54	0.54	0.68	0.64		0.23	0.23				
v/c Ratio	0.01	1.17	0.22	0.58	0.81		0.91	0.30				
Control Delay (s/veh)	14.0	114.8	2.6	31.7	22.9		77.8	8.1				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	14.0	114.8	2.6	31.7	22.9		77.8	8.1				
LOS	B	F	A	C	C		E	A				
Approach Delay (s/veh)		97.7			23.7			54.5				
Approach LOS		F			C			D				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 115.9			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay (s/veh): 63.6		Intersection LOS: E	
Intersection Capacity Utilization 93.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	1143	203	97	960	278	139
v/c Ratio	0.01	1.17	0.22	0.58	0.81	0.91	0.30
Control Delay (s/veh)	14.0	114.8	2.6	31.7	22.9	77.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.0	114.8	2.6	31.7	22.9	77.8	8.1
Queue Length 50th (m)	0.2	~308.8	0.0	7.9	153.9	60.6	0.2
Queue Length 95th (m)	1.5	#388.1	10.0	24.4	205.6	#107.3	14.8
Internal Link Dist (m)		340.2			1713.2		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	181	977	932	200	1223	321	480
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	1.17	0.22	0.49	0.78	0.87	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	44	52	28	29	70	45	16	10	34	22	128
Future Volume (vph)	166	44	52	28	29	70	45	16	10	34	22	128
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.926			0.981			0.906	
Flt Protected		0.969			0.989			0.969			0.991	
Satd. Flow (prot)	0	1407	0	0	1420	0	0	1473	0	0	1237	0
Flt Permitted		0.969			0.989			0.969			0.991	
Satd. Flow (perm)	0	1407	0	0	1420	0	0	1473	0	0	1237	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			713.1			150.6			504.1	
Travel Time (s)		13.8			51.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	166	44	52	28	29	70	45	16	10	34	22	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	262	0	0	127	0	0	71	0	0	184	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	166	44	52	28	29	70	45	16	10	34	22	128
Future Vol, veh/h	166	44	52	28	29	70	45	16	10	34	22	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	166	44	52	28	29	70	45	16	10	34	22	128

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	275	270	86	223	329	21	150	0	0	26	0	0
Stage 1	154	154	-	111	111	-	-	-	-	-	-	-
Stage 2	121	116	-	112	218	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	674	626	978	737	593	1062	1444	-	-	1601	-	-
Stage 1	844	759	-	899	807	-	-	-	-	-	-	-
Stage 2	879	788	-	898	726	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	566	592	978	613	561	1062	1444	-	-	1601	-	-
Mov Cap-2 Maneuver	566	592	-	613	561	-	-	-	-	-	-	-
Stage 1	824	741	-	871	782	-	-	-	-	-	-	-
Stage 2	766	763	-	781	709	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.91	10.53	4.8	1.35
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1059	-	-	623	778	284	-	-
HCM Lane V/C Ratio	0.031	-	-	0.421	0.163	0.021	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	14.9	10.5	7.3	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.1	0.6	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	0	71	1	0	4	54	307	2	3	284	17
Future Volume (vph)	41	0	71	1	0	4	54	307	2	3	284	17
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.914			0.892			0.999			0.992	
Flt Protected		0.982			0.990			0.993				
Satd. Flow (prot)	0	1332	0	0	1141	0	0	1460	0	0	1443	0
Flt Permitted		0.982			0.990			0.993				
Satd. Flow (perm)	0	1332	0	0	1141	0	0	1460	0	0	1443	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	41	0	71	1	0	4	54	307	2	3	284	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	0	0	5	0	0	363	0	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			

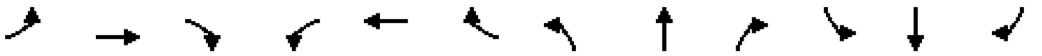
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	41	0	71	1	0	4	54	307	2	3	284	17
Future Vol, veh/h	41	0	71	1	0	4	54	307	2	3	284	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	41	0	71	1	0	4	54	307	2	3	284	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	714	716	293	706	723	308	301	0	0	309	0	0
Stage 1	299	299	-	416	416	-	-	-	-	-	-	-
Stage 2	415	417	-	290	307	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	349	358	735	249	355	737	1272	-	-	1263	-	-
Stage 1	715	670	-	459	595	-	-	-	-	-	-	-
Stage 2	619	595	-	548	665	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	329	339	735	213	336	737	1272	-	-	1263	-	-
Mov Cap-2 Maneuver	329	339	-	213	336	-	-	-	-	-	-	-
Stage 1	713	668	-	436	565	-	-	-	-	-	-	-
Stage 2	584	564	-	494	663	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.13	12.36	1.18	0.08
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	267	-	-	506	494	18	-	-
HCM Lane V/C Ratio	0.042	-	-	0.221	0.01	0.002	-	-
HCM Ctrl Dly (s/v)	8	0	-	14.1	12.4	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0	0	-	-

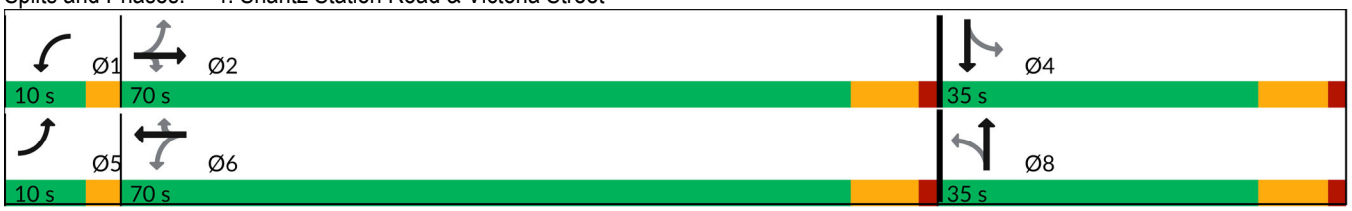


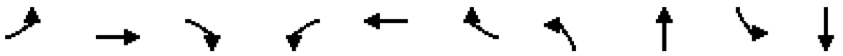
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	1030	42	67	830	39	41	192	112	77	182	72
Future Volume (vph)	57	1030	42	67	830	39	41	192	112	77	182	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.945			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1810	1538	1703	1827	1482	1671	1708	0	1656	1666	0
Flt Permitted	0.091			0.064			0.367			0.258		
Satd. Flow (perm)	173	1810	1538	115	1827	1482	646	1708	0	450	1666	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		24			16	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	65	1170	48	76	943	44	47	218	127	88	207	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	1170	48	76	943	44	47	345	0	88	289	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	72.8	62.9	62.9	72.8	62.9	62.9	24.3	24.3		24.3	24.3	
Actuated g/C Ratio	0.66	0.57	0.57	0.66	0.57	0.57	0.22	0.22		0.22	0.22	
v/c Ratio	0.30	1.13	0.05	0.43	0.90	0.05	0.33	0.87		0.89	0.76	
Control Delay (s/veh)	10.0	97.0	1.5	17.9	36.2	1.3	43.7	61.7		109.2	52.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	10.0	97.0	1.5	17.9	36.2	1.3	43.7	61.7		109.2	52.0	
LOS	A	F	A	B	D	A	D	E		F	D	
Approach Delay (s/veh)		89.0			33.4			59.5			65.3	
Approach LOS		F			C			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 110			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay (s/veh): 63.5		Intersection LOS: E	
Intersection Capacity Utilization 99.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



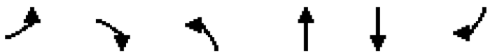


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	65	1170	48	76	943	44	47	345	88	289
v/c Ratio	0.30	1.13	0.05	0.43	0.90	0.05	0.33	0.87	0.89	0.76
Control Delay (s/veh)	10.0	97.0	1.5	17.9	36.2	1.3	43.7	61.7	109.2	52.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.0	97.0	1.5	17.9	36.2	1.3	43.7	61.7	109.2	52.0
Queue Length 50th (m)	4.5	~313.8	0.0	5.3	189.1	0.0	8.6	68.0	18.6	55.9
Queue Length 95th (m)	8.7	#377.2	2.8	14.2	#269.5	2.1	19.4	#107.2	#45.9	83.3
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	218	1034	909	177	1044	877	162	447	113	431
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	1.13	0.05	0.43	0.90	0.05	0.29	0.77	0.78	0.67

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	124	23	21	243	196	68
Future Volume (vph)	124	23	21	243	196	68
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.979				0.965	
Flt Protected	0.960			0.996		
Satd. Flow (prot)	1659	0	0	1643	1569	0
Flt Permitted	0.960			0.996		
Satd. Flow (perm)	1659	0	0	1643	1569	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	124	23	21	243	196	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	147	0	0	264	264	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

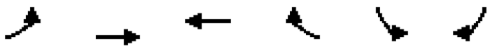
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	124	23	21	243	196	68
Future Vol, veh/h	124	23	21	243	196	68
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	124	23	21	243	196	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	515	231	264	0	-	0
Stage 1	230	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	523	813	1312	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	514	812	1312	-	-	-
Mov Cap-2 Maneuver	514	-	-	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	768	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.03	0.62	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	143	-	545	-	-
HCM Lane V/C Ratio	0.016	-	0.27	-	-
HCM Ctrl Dly (s/v)	7.8	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	58	52	19	54	88
Future Volume (vph)	33	58	52	19	54	88
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.964		0.916	
Flt Protected		0.982			0.981	
Satd. Flow (prot)	0	1570	1591	0	1586	0
Flt Permitted		0.982			0.981	
Satd. Flow (perm)	0	1570	1591	0	1586	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		713.1	152.8		136.7	
Travel Time (s)		51.3	11.0		9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	33	58	52	19	54	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	91	71	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

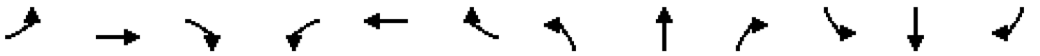
Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	58	52	19	54	88
Future Vol, veh/h	33	58	52	19	54	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	5	0	0	0	0
Mvmt Flow	33	58	52	19	54	88

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	71	0	-	0	186	62
Stage 1	-	-	-	-	62	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1542	-	-	-	808	1009
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1542	-	-	-	790	1009
Mov Cap-2 Maneuver	-	-	-	-	790	-
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	907	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.68	0	9.67
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	653	-	-	-	913
HCM Lane V/C Ratio	0.021	-	-	-	0.156
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

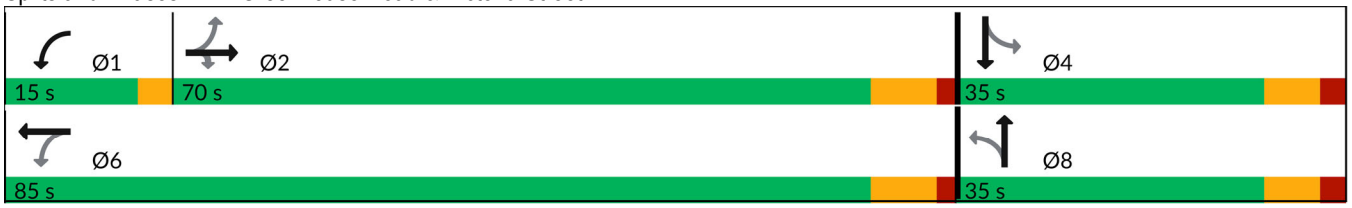


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1020	254	111	1115	0	218	1	104	0	2	2
Future Volume (vph)	2	1020	254	111	1115	0	218	1	104	0	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1845	1599	1805	1881	0	1805	1570	0	0	1771	0
Flt Permitted	0.061			0.058			0.755					
Satd. Flow (perm)	116	1845	1599	110	1881	0	1434	1570	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			289					118			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1159	289	126	1267	0	248	1	118	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1159	289	126	1267	0	248	119	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	65.5	65.5	65.5	82.2	77.6		23.7	23.7			23.7	
Actuated g/C Ratio	0.56	0.56	0.56	0.71	0.67		0.20	0.20			0.20	
v/c Ratio	0.03	1.11	0.28	0.60	1.01		0.85	0.29			0.01	
Control Delay (s/veh)	15.5	91.4	2.4	29.9	48.5		69.9	8.7			29.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	15.5	91.4	2.4	29.9	48.5		69.9	8.7			29.0	
LOS	B	F	A	C	D		E	A			C	
Approach Delay (s/veh)		73.6			46.8			50.1			29.0	
Approach LOS		E			D			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.2			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay (s/veh): 59.2		Intersection LOS: E	
Intersection Capacity Utilization 112.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	1159	289	126	1267	248	119	4
v/c Ratio	0.03	1.11	0.28	0.60	1.01	0.85	0.29	0.01
Control Delay (s/veh)	15.5	91.4	2.4	29.9	48.5	69.9	8.7	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.5	91.4	2.4	29.9	48.5	69.9	8.7	29.0
Queue Length 50th (m)	0.2	~307.4	0.0	11.2	~310.1	54.0	0.2	0.4
Queue Length 95th (m)	1.6	#391.5	11.5	29.8	#381.8	#85.8	13.8	3.1
Internal Link Dist (m)		340.2			1713.2		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	65	1040	1027	253	1256	342	464	424
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	1.11	0.28	0.50	1.01	0.73	0.26	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	35	52	19	37	49	51	19	30	76	15	165
Future Volume (vph)	156	35	52	19	37	49	51	19	30	76	15	165
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.937			0.959			0.913	
Flt Protected		0.969			0.991			0.975			0.985	
Satd. Flow (prot)	0	1342	0	0	1439	0	0	1449	0	0	1212	0
Flt Permitted		0.969			0.991			0.975			0.985	
Satd. Flow (perm)	0	1342	0	0	1439	0	0	1449	0	0	1212	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			713.1			150.6			504.1	
Travel Time (s)		13.8			51.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	156	35	52	19	37	49	51	19	30	76	15	165
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	243	0	0	105	0	0	100	0	0	256	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	9.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	156	35	52	19	37	49	51	19	30	76	15	165
Future Vol, veh/h	156	35	52	19	37	49	51	19	30	76	15	165
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	156	35	52	19	37	49	51	19	30	76	15	165

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	389	401	98	321	468	34	180	0	0	49	0	0
Stage 1	250	250	-	136	136	-	-	-	-	-	-	-
Stage 2	140	151	-	185	332	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	561	498	964	636	496	1045	1408	-	-	1401	-	-
Stage 1	744	653	-	872	788	-	-	-	-	-	-	-
Stage 2	852	724	-	822	648	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	447	450	964	505	448	1045	1408	-	-	1401	-	-
Mov Cap-2 Maneuver	447	450	-	505	448	-	-	-	-	-	-	-
Stage 1	698	613	-	839	758	-	-	-	-	-	-	-
Stage 2	743	697	-	688	608	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	18.55	11.87	3.9	2.29
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	818	-	-	505	628	452	-	-
HCM Lane V/C Ratio	0.036	-	-	0.481	0.167	0.054	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	18.5	11.9	7.7	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	0.6	0.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	0	54	2	0	2	61	279	1	2	308	40
Future Volume (vph)	26	0	54	2	0	2	61	279	1	2	308	40
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.909			0.932						0.985	
Flt Protected		0.984			0.976			0.991				
Satd. Flow (prot)	0	1315	0	0	1410	0	0	1511	0	0	1487	0
Flt Permitted		0.984			0.976			0.991				
Satd. Flow (perm)	0	1315	0	0	1410	0	0	1511	0	0	1487	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	26	0	54	2	0	2	61	279	1	2	308	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	4	0	0	341	0	0	350	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

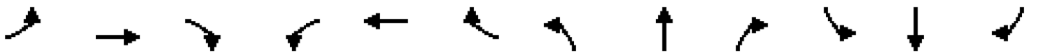
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	26	0	54	2	0	2	61	279	1	2	308	40
Future Vol, veh/h	26	0	54	2	0	2	61	279	1	2	308	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	26	0	54	2	0	2	61	279	1	2	308	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	733	734	328	714	754	280	348	0	0	280	0	0
Stage 1	332	332	-	402	402	-	-	-	-	-	-	-
Stage 2	401	402	-	312	352	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	339	350	700	349	341	764	1222	-	-	1294	-	-
Stage 1	686	648	-	629	604	-	-	-	-	-	-	-
Stage 2	630	604	-	703	635	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	317	328	700	303	320	764	1222	-	-	1294	-	-
Mov Cap-2 Maneuver	317	328	-	303	320	-	-	-	-	-	-	-
Stage 1	684	647	-	592	568	-	-	-	-	-	-	-
Stage 2	591	568	-	647	634	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.51	13.38	1.45	0.04
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	322	-	-	503	434	10	-	-
HCM Lane V/C Ratio	0.05	-	-	0.159	0.009	0.002	-	-
HCM Ctrl Dly (s/v)	8.1	0	-	13.5	13.4	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0	0	-	-

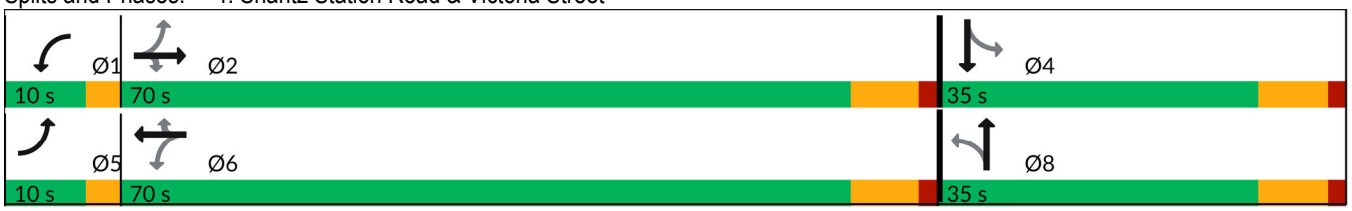


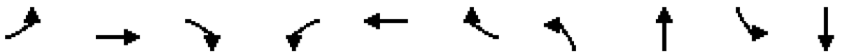
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1050	35	120	1025	30	56	178	93	68	172	87
Future Volume (vph)	85	1050	35	120	1025	30	56	178	93	68	172	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.948			0.949	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1615	1656	1881	1615	1770	1771	0	1805	1791	0
Flt Permitted	0.063			0.062			0.325			0.295		
Satd. Flow (perm)	117	1863	1615	108	1881	1615	605	1771	0	560	1791	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		22			21	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	97	1193	40	136	1165	34	64	202	106	77	195	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1193	40	136	1165	34	64	308	0	77	294	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	74.2	62.6	62.6	74.8	64.8	64.8	22.1	22.1		22.1	22.1	
Actuated g/C Ratio	0.68	0.57	0.57	0.68	0.59	0.59	0.20	0.20		0.20	0.20	
v/c Ratio	0.53	1.12	0.04	0.79	1.05	0.03	0.53	0.82		0.69	0.78	
Control Delay (s/veh)	23.8	93.1	0.9	52.2	66.2	0.4	55.3	57.3		70.9	53.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	23.8	93.1	0.9	52.2	66.2	0.4	55.3	57.3		70.9	53.2	
LOS	C	F	A	D	E	A	E	E		E	D	
Approach Delay (s/veh)		85.2			63.1			56.9			56.9	
Approach LOS		F			E			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 109.8			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay (s/veh): 70.4		Intersection LOS: E	
Intersection Capacity Utilization 107.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



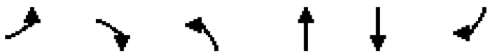


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	97	1193	40	136	1165	34	64	308	77	294
v/c Ratio	0.53	1.12	0.04	0.79	1.05	0.03	0.53	0.82	0.69	0.78
Control Delay (s/veh)	23.8	93.1	0.9	52.2	66.2	0.4	55.3	57.3	70.9	53.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.8	93.1	0.9	52.2	66.2	0.4	55.3	57.3	70.9	53.2
Queue Length 50th (m)	5.9	~295.7	0.0	13.7	~281.0	0.0	12.2	58.5	15.2	55.1
Queue Length 95th (m)	20.7	#381.2	1.5	#46.5	#366.0	0.6	25.7	86.5	#33.4	82.0
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	184	1062	951	172	1109	982	151	461	140	465
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	1.12	0.04	0.79	1.05	0.03	0.42	0.67	0.55	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	25	15	18	243	210	22
Future Volume (vph)	25	15	18	243	210	22
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.987	
Flt Protected	0.970			0.997		
Satd. Flow (prot)	1595	0	0	1600	1572	0
Flt Permitted	0.970			0.997		
Satd. Flow (perm)	1595	0	0	1600	1572	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	25	15	18	243	210	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	0	261	232	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.8%		ICU Level of Service A	
Analysis Period (min) 15			

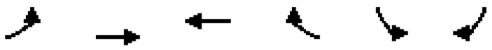
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	15	18	243	210	22
Future Vol, veh/h	25	15	18	243	210	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	25	15	18	243	210	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	500	221	232	0	-	0
Stage 1	221	-	-	-	-	-
Stage 2	279	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	529	824	1348	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	520	824	1348	-	-	-
Mov Cap-2 Maneuver	520	-	-	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.39	0.53	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	124	-	604	-	-
HCM Lane V/C Ratio	0.013	-	0.066	-	-
HCM Ctrl Dly (s/v)	7.7	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	95	44	44	57	36	59
Future Volume (vph)	95	44	44	57	36	59
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.924		0.916	
Flt Protected		0.967			0.981	
Satd. Flow (prot)	0	1556	1525	0	1586	0
Flt Permitted		0.967			0.981	
Satd. Flow (perm)	0	1556	1525	0	1586	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		713.1	152.8		136.7	
Travel Time (s)		51.3	11.0		9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	0%	0%	0%	0%
Adj. Flow (vph)	95	44	44	57	36	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	139	101	0	95	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	44	44	57	36	59
Future Vol, veh/h	95	44	44	57	36	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	0	0
Mvmt Flow	95	44	44	57	36	59

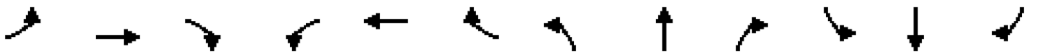
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	101	0	-	0	307	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	234	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1504	-	-	-	690	995
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1504	-	-	-	645	995
Mov Cap-2 Maneuver	-	-	-	-	645	-
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	810	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	5.16	0	9.93
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1230	-	-	-	825
HCM Lane V/C Ratio	0.063	-	-	-	0.115
HCM Ctrl Dly (s/v)	7.6	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

Appendix F

2040 Background Traffic Operations Reports

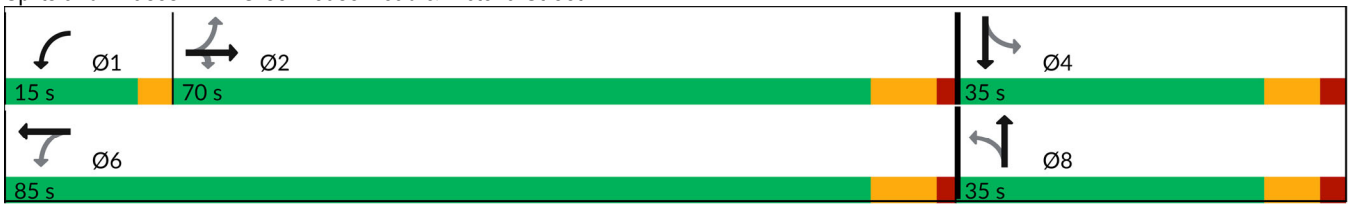


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1058	156	84	888	0	181	1	117	0	0	0
Future Volume (vph)	2	1058	156	84	888	0	181	1	117	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1810	1553	1421	1827	0	1687	1570	0	0	1900	0
Flt Permitted	0.172			0.061			0.757					
Satd. Flow (perm)	327	1810	1553	91	1827	0	1344	1570	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			175					133				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1202	177	95	1009	0	206	1	133	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1202	177	95	1009	0	206	134	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	62.8	62.8	62.8	79.2	74.7		21.3	21.3				
Actuated g/C Ratio	0.57	0.57	0.57	0.71	0.67		0.19	0.19				
v/c Ratio	0.01	1.17	0.19	0.56	0.82		0.80	0.33				
Control Delay (s/veh)	13.5	113.5	2.7	28.9	21.5		65.5	8.8				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	13.5	113.5	2.7	28.9	21.5		65.5	8.8				
LOS	B	F	A	C	C		E	A				
Approach Delay (s/veh)		99.1			22.1			43.2				
Approach LOS		F			C			D				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 110.8			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay (s/veh): 62.3		Intersection LOS: E	
Intersection Capacity Utilization 92.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	1202	177	95	1009	206	134
v/c Ratio	0.01	1.17	0.19	0.56	0.82	0.80	0.33
Control Delay (s/veh)	13.5	113.5	2.7	28.9	21.5	65.5	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.5	113.5	2.7	28.9	21.5	65.5	8.8
Queue Length 50th (m)	0.2	~305.4	0.2	6.2	144.7	41.7	0.2
Queue Length 95th (m)	1.5	#416.2	9.8	23.6	230.8	68.0	14.4
Internal Link Dist (m)		340.2			1713.2		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	185	1025	955	209	1283	337	493
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	1.17	0.19	0.45	0.79	0.61	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	45	52	0	29	9	45	15	0	9	17	129
Future Volume (vph)	167	45	52	0	29	9	45	15	0	9	17	129
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.968						0.888	
Flt Protected		0.969						0.964			0.997	
Satd. Flow (prot)	0	1407	0	0	1500	0	0	1494	0	0	1193	0
Flt Permitted		0.969						0.964			0.997	
Satd. Flow (perm)	0	1407	0	0	1500	0	0	1494	0	0	1193	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	167	45	52	0	29	9	45	15	0	9	17	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	264	0	0	38	0	0	60	0	0	155	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	167	45	52	0	29	9	45	15	0	9	17	129
Future Vol, veh/h	167	45	52	0	29	9	45	15	0	9	17	129
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	167	45	52	0	29	9	45	15	0	9	17	129

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	219	205	82	163	269	15	146	0	0	15	0	0
Stage 1	100	100	-	105	105	-	-	-	-	-	-	-
Stage 2	120	105	-	58	164	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	733	681	984	807	641	1070	1448	-	-	1616	-	-
Stage 1	902	801	-	906	812	-	-	-	-	-	-	-
Stage 2	880	797	-	959	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	668	656	984	687	617	1070	1448	-	-	1616	-	-
Mov Cap-2 Maneuver	668	656	-	687	617	-	-	-	-	-	-	-
Stage 1	896	796	-	877	787	-	-	-	-	-	-	-
Stage 2	814	772	-	852	762	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.03	10.56	5.67	0.42
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1350	-	-	711	686	89	-	-
HCM Lane V/C Ratio	0.031	-	-	0.371	0.055	0.006	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	13	10.6	7.2	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	51	1	0	5	48	323	2	3	298	5
Future Volume (vph)	5	0	51	1	0	5	48	323	2	3	298	5
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.877			0.887			0.999			0.998	
Flt Protected		0.996			0.992			0.994				
Satd. Flow (prot)	0	1273	0	0	1169	0	0	1459	0	0	1448	0
Flt Permitted		0.996			0.992			0.994				
Satd. Flow (perm)	0	1273	0	0	1169	0	0	1459	0	0	1448	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	5	0	51	1	0	5	48	323	2	3	298	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	56	0	0	6	0	0	373	0	0	306	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			

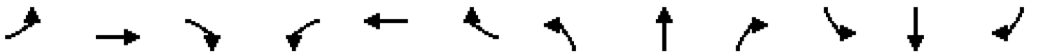
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	51	1	0	5	48	323	2	3	298	5
Future Vol, veh/h	5	0	51	1	0	5	48	323	2	3	298	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	5	0	51	1	0	5	48	323	2	3	298	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	726	728	301	724	729	324	303	0	0	325	0	0
Stage 1	307	307	-	420	420	-	-	-	-	-	-	-
Stage 2	419	421	-	304	309	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	343	353	727	242	352	722	1269	-	-	1246	-	-
Stage 1	708	665	-	457	593	-	-	-	-	-	-	-
Stage 2	616	592	-	538	663	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	324	336	727	214	335	722	1269	-	-	1246	-	-
Mov Cap-2 Maneuver	324	336	-	214	335	-	-	-	-	-	-	-
Stage 1	706	663	-	436	566	-	-	-	-	-	-	-
Stage 2	583	565	-	499	661	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.01	12.04	1.02	0.08
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	231	-	-	655	517	18	-	-
HCM Lane V/C Ratio	0.038	-	-	0.086	0.012	0.002	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	11	12	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-	-

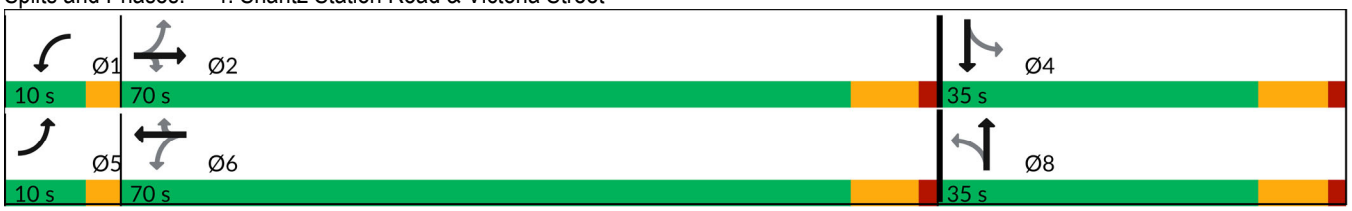


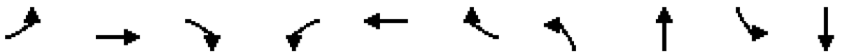
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	1076	44	62	869	41	43	187	94	81	186	74
Future Volume (vph)	56	1076	44	62	869	41	43	187	94	81	186	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.950			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1810	1538	1703	1827	1482	1671	1719	0	1656	1666	0
Flt Permitted	0.068			0.064			0.342			0.292		
Satd. Flow (perm)	129	1810	1538	115	1827	1482	602	1719	0	509	1666	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		21			16	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	64	1223	50	70	988	47	49	213	107	92	211	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	1223	50	70	988	47	49	320	0	92	295	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	72.9	62.9	62.9	72.9	62.9	62.9	23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.67	0.58	0.58	0.67	0.58	0.58	0.21	0.21		0.21	0.21	
v/c Ratio	0.33	1.17	0.05	0.39	0.93	0.05	0.39	0.84		0.86	0.81	
Control Delay (s/veh)	11.0	111.1	1.6	15.6	39.7	1.4	47.0	59.0		99.3	56.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	11.0	111.1	1.6	15.6	39.7	1.4	47.0	59.0		99.3	56.7	
LOS	B	F	A	B	D	A	D	E		F	E	
Approach Delay (s/veh)		102.2			36.6			57.4			66.8	
Approach LOS		F			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 108.7			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay (s/veh): 70.1		Intersection LOS: E	
Intersection Capacity Utilization 99.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



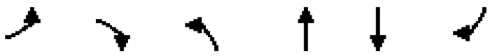


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	1223	50	70	988	47	49	320	92	295
v/c Ratio	0.33	1.17	0.05	0.39	0.93	0.05	0.39	0.84	0.86	0.81
Control Delay (s/veh)	11.0	111.1	1.6	15.6	39.7	1.4	47.0	59.0	99.3	56.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.0	111.1	1.6	15.6	39.7	1.4	47.0	59.0	99.3	56.7
Queue Length 50th (m)	4.1	~326.3	0.0	4.5	197.9	0.0	9.1	62.1	19.1	57.4
Queue Length 95th (m)	8.7	#401.7	3.0	12.3	#290.4	2.6	20.1	91.4	#45.0	85.2
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	195	1047	920	179	1057	887	153	453	129	436
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	1.17	0.05	0.39	0.93	0.05	0.32	0.71	0.71	0.68

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	129	23	21	170	171	69
Future Volume (vph)	129	23	21	170	171	69
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.980				0.961	
Flt Protected	0.959			0.995		
Satd. Flow (prot)	1659	0	0	1642	1563	0
Flt Permitted	0.959			0.995		
Satd. Flow (perm)	1659	0	0	1642	1563	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	129	23	21	170	171	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	0	191	240	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	129	23	21	170	171	69
Future Vol, veh/h	129	23	21	170	171	69
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	129	23	21	170	171	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	418	207	240	0	-	0
Stage 1	206	-	-	-	-	-
Stage 2	212	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	596	839	1339	-	-	-
Stage 1	834	-	-	-	-	-
Stage 2	828	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	585	838	1339	-	-	-
Mov Cap-2 Maneuver	585	-	-	-	-	-
Stage 1	819	-	-	-	-	-
Stage 2	828	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.79	0.85	0
HCM LOS	B		

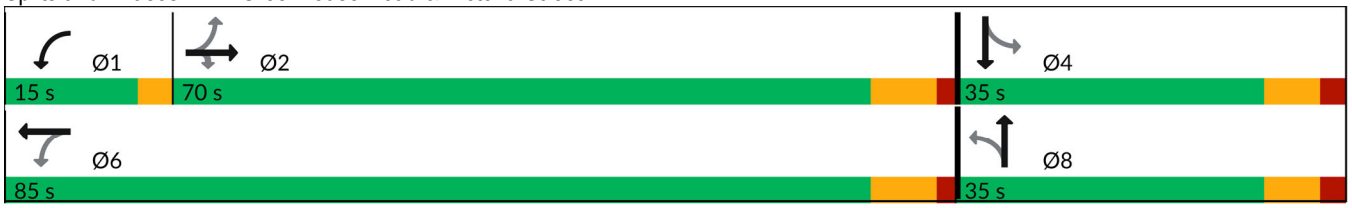
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	198	-	613	-	-
HCM Lane V/C Ratio	0.016	-	0.248	-	-
HCM Ctrl Dly (s/v)	7.7	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1072	185	108	1171	0	178	1	102	0	2	2
Future Volume (vph)	2	1072	185	108	1171	0	178	1	102	0	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1845	1599	1805	1881	0	1805	1570	0	0	1771	0
Flt Permitted	0.061			0.058			0.755					
Satd. Flow (perm)	116	1845	1599	110	1881	0	1434	1570	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			205					116			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1218	210	123	1331	0	202	1	116	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1218	210	123	1331	0	202	117	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	65.8	65.8	65.8	82.2	77.7		20.5	20.5			20.5	
Actuated g/C Ratio	0.58	0.58	0.58	0.73	0.69		0.18	0.18			0.18	
v/c Ratio	0.03	1.13	0.21	0.58	1.03		0.78	0.31			0.01	
Control Delay (s/veh)	15.0	97.3	2.6	27.7	52.9		64.2	9.2			29.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	15.0	97.3	2.6	27.7	52.9		64.2	9.2			29.5	
LOS	B	F	A	C	D		E	A			C	
Approach Delay (s/veh)		83.3			50.7			44.1			29.5	
Approach LOS		F			D			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay (s/veh): 64.6		Intersection LOS: E	
Intersection Capacity Utilization 113.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	1218	210	123	1331	202	117	4
v/c Ratio	0.03	1.13	0.21	0.58	1.03	0.78	0.31	0.01
Control Delay (s/veh)	15.0	97.3	2.6	27.7	52.9	64.2	9.2	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.0	97.3	2.6	27.7	52.9	64.2	9.2	29.5
Queue Length 50th (m)	0.2	~308.6	0.4	9.1	~313.3	42.3	0.2	0.4
Queue Length 95th (m)	1.6	#419.5	10.9	28.7	#412.8	65.3	13.6	3.1
Internal Link Dist (m)		340.2			1713.2		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	67	1074	1016	260	1292	352	473	436
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	1.13	0.21	0.47	1.03	0.57	0.25	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	35	52	0	37	7	51	15	0	10	13	167
Future Volume (vph)	158	35	52	0	37	7	51	15	0	10	13	167
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.979						0.881	
Flt Protected		0.969						0.963			0.997	
Satd. Flow (prot)	0	1342	0	0	1517	0	0	1493	0	0	1234	0
Flt Permitted		0.969						0.963			0.997	
Satd. Flow (perm)	0	1342	0	0	1517	0	0	1493	0	0	1234	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	158	35	52	0	37	7	51	15	0	10	13	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	0	0	44	0	0	66	0	0	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	158	35	52	0	37	7	51	15	0	10	13	167
Future Vol, veh/h	158	35	52	0	37	7	51	15	0	10	13	167
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	158	35	52	0	37	7	51	15	0	10	13	167

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	252	234	97	168	317	15	180	0	0	15	0	0
Stage 1	117	117	-	117	117	-	-	-	-	-	-	-
Stage 2	136	117	-	51	200	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	691	623	965	801	602	1070	1408	-	-	1444	-	-
Stage 1	876	750	-	892	803	-	-	-	-	-	-	-
Stage 2	856	750	-	968	739	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	616	595	965	684	576	1070	1408	-	-	1444	-	-
Mov Cap-2 Maneuver	616	595	-	684	576	-	-	-	-	-	-	-
Stage 1	869	744	-	860	773	-	-	-	-	-	-	-
Stage 2	780	722	-	866	734	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.57	11.23	5.91	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	664	622	80	-	-
HCM Lane V/C Ratio	0.036	-	-	0.369	0.071	0.007	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	13.6	11.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	43	2	0	2	42	294	1	2	324	1
Future Volume (vph)	1	0	43	2	0	2	42	294	1	2	324	1
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.868			0.932							
Flt Protected		0.999			0.976			0.994				
Satd. Flow (prot)	0	1247	0	0	1410	0	0	1514	0	0	1505	0
Flt Permitted		0.999			0.976			0.994				
Satd. Flow (perm)	0	1247	0	0	1410	0	0	1514	0	0	1505	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	1	0	43	2	0	2	42	294	1	2	324	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	4	0	0	337	0	0	327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.3%		ICU Level of Service B	
Analysis Period (min) 15			

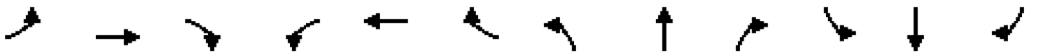
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	43	2	0	2	42	294	1	2	324	1
Future Vol, veh/h	1	0	43	2	0	2	42	294	1	2	324	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	1	0	43	2	0	2	42	294	1	2	324	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	707	708	325	707	708	295	325	0	0	295	0	0
Stage 1	329	329	-	379	379	-	-	-	-	-	-	-
Stage 2	378	379	-	328	329	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	353	362	703	353	362	750	1246	-	-	1278	-	-
Stage 1	689	650	-	647	618	-	-	-	-	-	-	-
Stage 2	648	618	-	689	650	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	337	347	703	317	347	750	1246	-	-	1278	-	-
Mov Cap-2 Maneuver	337	347	-	317	347	-	-	-	-	-	-	-
Stage 1	687	649	-	621	593	-	-	-	-	-	-	-
Stage 2	620	593	-	646	649	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.61	13.15	1	0.05
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	224	-	-	686	446	11	-	-
HCM Lane V/C Ratio	0.034	-	-	0.064	0.009	0.002	-	-
HCM Ctrl Dly (s/v)	8	0	-	10.6	13.1	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

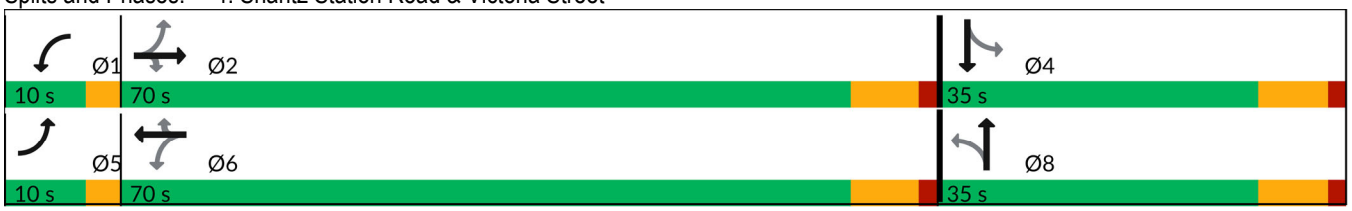


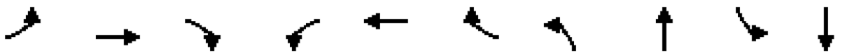
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	1099	37	101	1072	31	59	176	82	72	165	88
Future Volume (vph)	87	1099	37	101	1072	31	59	176	82	72	165	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.952			0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1615	1656	1881	1615	1770	1780	0	1805	1790	0
Flt Permitted	0.064			0.064			0.333			0.322		
Satd. Flow (perm)	119	1863	1615	112	1881	1615	620	1780	0	612	1790	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		19			22	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	99	1249	42	115	1218	35	67	200	93	82	188	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	1249	42	115	1218	35	67	293	0	82	288	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	74.1	62.6	62.6	74.1	62.6	62.6	21.4	21.4		21.4	21.4	
Actuated g/C Ratio	0.68	0.57	0.57	0.68	0.57	0.57	0.20	0.20		0.20	0.20	
v/c Ratio	0.53	1.17	0.04	0.66	1.13	0.04	0.55	0.81		0.69	0.78	
Control Delay (s/veh)	23.5	110.5	1.1	35.3	94.4	0.5	57.3	56.3		69.4	53.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	23.5	110.5	1.1	35.3	94.4	0.5	57.3	56.3		69.4	53.6	
LOS	C	F	A	D	F	A	E	E		E	D	
Approach Delay (s/veh)		101.0			87.0			56.5			57.1	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 109			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay (s/veh): 86.3		Intersection LOS: F	
Intersection Capacity Utilization 108.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



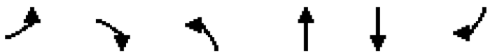


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	99	1249	42	115	1218	35	67	293	82	288
v/c Ratio	0.53	1.17	0.04	0.66	1.13	0.04	0.55	0.81	0.69	0.78
Control Delay (s/veh)	23.5	110.5	1.1	35.3	94.4	0.5	57.3	56.3	69.4	53.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.5	110.5	1.1	35.3	94.4	0.5	57.3	56.3	69.4	53.6
Queue Length 50th (m)	5.8	~315.5	0.0	8.0	~299.6	0.0	12.8	55.4	16.1	53.5
Queue Length 95th (m)	21.1	#406.6	1.9	#33.1	#390.0	0.7	26.6	82.4	32.3	79.9
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	186	1070	957	175	1080	957	156	464	154	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	1.17	0.04	0.66	1.13	0.04	0.43	0.63	0.53	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	16	18	198	185	110
Future Volume (vph)	83	16	18	198	185	110
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.978				0.950	
Flt Protected	0.960			0.996		
Satd. Flow (prot)	1616	0	0	1599	1529	0
Flt Permitted	0.960			0.996		
Satd. Flow (perm)	1616	0	0	1599	1529	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	83	16	18	198	185	110
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	216	295	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	83	16	18	198	185	110
Future Vol, veh/h	83	16	18	198	185	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	83	16	18	198	185	110

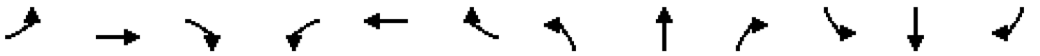
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	474	240	295	0	-	0
Stage 1	240	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	547	804	1278	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	539	804	1278	-	-	-
Mov Cap-2 Maneuver	539	-	-	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	802	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.66	0.65	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	150	-	569	-	-
HCM Lane V/C Ratio	0.014	-	0.174	-	-
HCM Ctrl Dly (s/v)	7.9	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Appendix G

2040 Total Traffic Operations Reports

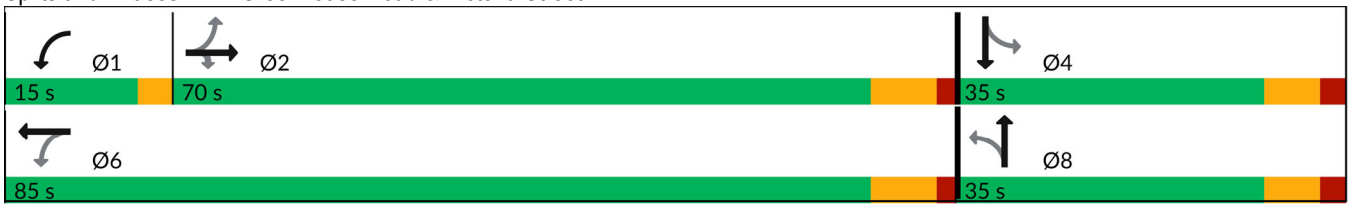


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1058	182	86	888	0	250	1	123	0	0	0
Future Volume (vph)	2	1058	182	86	888	0	250	1	123	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1810	1553	1421	1827	0	1687	1570	0	0	1900	0
Flt Permitted	0.141			0.061			0.757					
Satd. Flow (perm)	268	1810	1553	91	1827	0	1344	1570	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			205					140				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1202	207	98	1009	0	284	1	140	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1202	207	98	1009	0	284	141	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	62.8	62.8	62.8	79.4	74.9		26.7	26.7				
Actuated g/C Ratio	0.54	0.54	0.54	0.68	0.64		0.23	0.23				
v/c Ratio	0.01	1.23	0.22	0.59	0.86		0.93	0.30				
Control Delay (s/veh)	14.0	140.4	2.6	32.3	26.0		80.0	8.0				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	14.0	140.4	2.6	32.3	26.0		80.0	8.0				
LOS	B	F	A	C	C		E	A				
Approach Delay (s/veh)		120.0			26.5			56.1				
Approach LOS		F			C			E				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.4			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay (s/veh): 75.6		Intersection LOS: E	
Intersection Capacity Utilization 95.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	1202	207	98	1009	284	141
v/c Ratio	0.01	1.23	0.22	0.59	0.86	0.93	0.30
Control Delay (s/veh)	14.0	140.4	2.6	32.3	26.0	80.0	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.0	140.4	2.6	32.3	26.0	80.0	8.0
Queue Length 50th (m)	0.2	~336.5	0.2	8.1	171.7	62.2	0.2
Queue Length 95th (m)	1.5	#416.2	10.5	24.7	230.8	#110.7	14.8
Internal Link Dist (m)		340.2			1713.2		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	144	975	931	199	1217	320	480
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	1.23	0.22	0.49	0.83	0.89	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	45	52	28	29	70	45	16	10	35	22	129
Future Volume (vph)	167	45	52	28	29	70	45	16	10	35	22	129
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973			0.926			0.981			0.906	
Flt Protected		0.969			0.989			0.969			0.991	
Satd. Flow (prot)	0	1407	0	0	1420	0	0	1473	0	0	1237	0
Flt Permitted		0.969			0.989			0.969			0.991	
Satd. Flow (perm)	0	1407	0	0	1420	0	0	1473	0	0	1237	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			713.1			150.6			504.1	
Travel Time (s)		13.8			51.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	167	45	52	28	29	70	45	16	10	35	22	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	264	0	0	127	0	0	71	0	0	186	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			

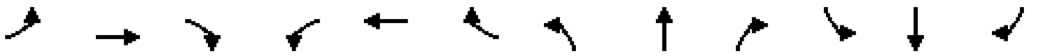
Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	167	45	52	28	29	70	45	16	10	35	22	129
Future Vol, veh/h	167	45	52	28	29	70	45	16	10	35	22	129
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	167	45	52	28	29	70	45	16	10	35	22	129

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	277	273	87	226	332	21	151	0	0	26	0	0
Stage 1	157	157	-	111	111	-	-	-	-	-	-	-
Stage 2	121	116	-	115	221	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	671	624	978	734	591	1062	1442	-	-	1601	-	-
Stage 1	841	757	-	899	807	-	-	-	-	-	-	-
Stage 2	879	788	-	895	724	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	563	590	978	609	558	1062	1442	-	-	1601	-	-
Mov Cap-2 Maneuver	563	590	-	609	558	-	-	-	-	-	-	-
Stage 1	821	739	-	871	782	-	-	-	-	-	-	-
Stage 2	766	763	-	777	707	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	15.05	10.55	4.8	1.37
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1059	-	-	620	775	289	-	-
HCM Lane V/C Ratio	0.031	-	-	0.426	0.164	0.022	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	15	10.6	7.3	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.1	0.6	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	0	71	1	0	5	55	323	2	3	298	18
Future Volume (vph)	42	0	71	1	0	5	55	323	2	3	298	18
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.915			0.887			0.999			0.992	
Flt Protected		0.982			0.992			0.993				
Satd. Flow (prot)	0	1334	0	0	1169	0	0	1459	0	0	1443	0
Flt Permitted		0.982			0.992			0.993				
Satd. Flow (perm)	0	1334	0	0	1169	0	0	1459	0	0	1443	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	42	0	71	1	0	5	55	323	2	3	298	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	6	0	0	380	0	0	319	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.3%		ICU Level of Service C	
Analysis Period (min) 15			

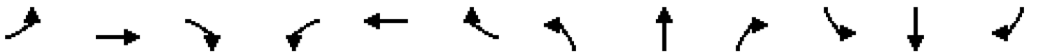
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	42	0	71	1	0	5	55	323	2	3	298	18
Future Vol, veh/h	42	0	71	1	0	5	55	323	2	3	298	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	42	0	71	1	0	5	55	323	2	3	298	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	746	748	307	738	756	324	316	0	0	325	0	0
Stage 1	313	313	-	434	434	-	-	-	-	-	-	-
Stage 2	433	435	-	304	322	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	332	343	721	236	340	722	1256	-	-	1246	-	-
Stage 1	702	661	-	448	585	-	-	-	-	-	-	-
Stage 2	605	584	-	538	655	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	311	324	721	201	321	722	1256	-	-	1246	-	-
Mov Cap-2 Maneuver	311	324	-	201	321	-	-	-	-	-	-	-
Stage 1	700	659	-	424	553	-	-	-	-	-	-	-
Stage 2	569	553	-	483	653	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.68	12.23	1.16	0.07
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	260	-	-	484	504	17	-	-
HCM Lane V/C Ratio	0.044	-	-	0.233	0.012	0.002	-	-
HCM Ctrl Dly (s/v)	8	0	-	14.7	12.2	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	0	0	-	-

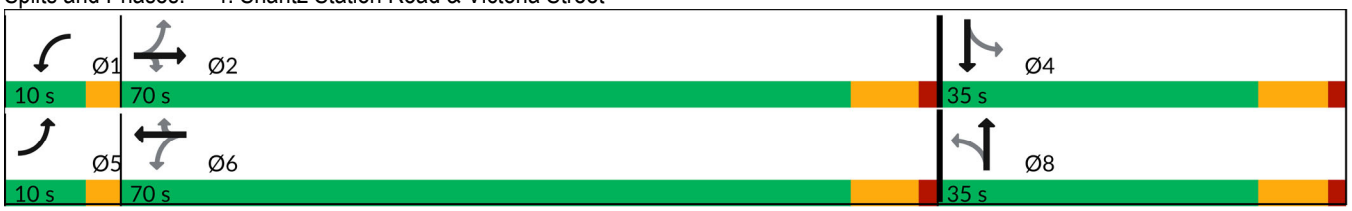


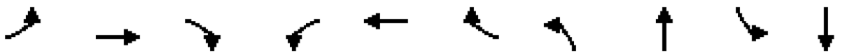
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1080	44	70	870	41	43	201	117	81	191	75
Future Volume (vph)	58	1080	44	70	870	41	43	201	117	81	191	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.945			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1810	1538	1703	1827	1482	1671	1708	0	1656	1668	0
Flt Permitted	0.064			0.064			0.352			0.242		
Satd. Flow (perm)	122	1810	1538	115	1827	1482	619	1708	0	422	1668	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		24			16	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	66	1227	50	80	989	47	49	228	133	92	217	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	1227	50	80	989	47	49	361	0	92	302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	72.8	62.9	62.9	72.8	62.9	62.9	25.4	25.4		25.4	25.4	
Actuated g/C Ratio	0.66	0.57	0.57	0.66	0.57	0.57	0.23	0.23		0.23	0.23	
v/c Ratio	0.35	1.20	0.06	0.46	0.96	0.05	0.35	0.88		0.96	0.77	
Control Delay (s/veh)	13.3	124.8	1.6	19.4	44.8	1.4	44.3	62.7		126.9	52.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	13.3	124.8	1.6	19.4	44.8	1.4	44.3	62.7		126.9	52.1	
LOS	B	F	A	B	D	A	D	E		F	D	
Approach Delay (s/veh)		114.7			41.2			60.5			69.6	
Approach LOS		F			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 111.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay (s/veh): 77.3		Intersection LOS: E	
Intersection Capacity Utilization 103.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



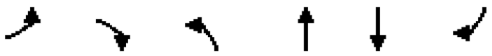


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	1227	50	80	989	47	49	361	92	302
v/c Ratio	0.35	1.20	0.06	0.46	0.96	0.05	0.35	0.88	0.96	0.77
Control Delay (s/veh)	13.3	124.8	1.6	19.4	44.8	1.4	44.3	62.7	126.9	52.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.3	124.8	1.6	19.4	44.8	1.4	44.3	62.7	126.9	52.1
Queue Length 50th (m)	4.6	~340.2	0.0	5.6	209.0	0.0	9.1	72.2	20.0	59.1
Queue Length 95th (m)	10.0	#403.1	3.0	15.7	#290.8	2.6	20.0	#115.7	#49.8	87.6
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	186	1023	901	175	1033	869	154	443	104	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	1.20	0.06	0.46	0.96	0.05	0.32	0.81	0.88	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	129	23	21	245	199	69
Future Volume (vph)	129	23	21	245	199	69
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.980				0.965	
Flt Protected	0.959			0.996		
Satd. Flow (prot)	1659	0	0	1643	1569	0
Flt Permitted	0.959			0.996		
Satd. Flow (perm)	1659	0	0	1643	1569	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	129	23	21	245	199	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	0	266	268	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.9%		ICU Level of Service A	
Analysis Period (min) 15			

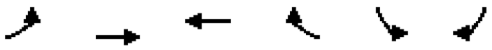
Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	129	23	21	245	199	69
Future Vol, veh/h	129	23	21	245	199	69
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	129	23	21	245	199	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	521	235	268	0	-	0
Stage 1	234	-	-	-	-	-
Stage 2	287	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	520	810	1307	-	-	-
Stage 1	810	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	510	809	1307	-	-	-
Mov Cap-2 Maneuver	510	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.26	0.62	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	142	-	540	-	-
HCM Lane V/C Ratio	0.016	-	0.281	-	-
HCM Ctrl Dly (s/v)	7.8	0	14.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	59	54	19	54	88
Future Volume (vph)	33	59	54	19	54	88
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.965		0.916	
Flt Protected		0.982			0.981	
Satd. Flow (prot)	0	1570	1592	0	1586	0
Flt Permitted		0.982			0.981	
Satd. Flow (perm)	0	1570	1592	0	1586	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		713.1	152.8		136.7	
Travel Time (s)		51.3	11.0		9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	33	59	54	19	54	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	92	73	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		

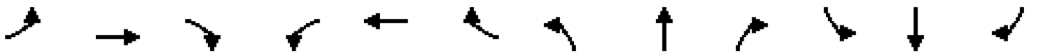
Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	59	54	19	54	88
Future Vol, veh/h	33	59	54	19	54	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	5	0	0	0	0
Mvmt Flow	33	59	54	19	54	88

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	189	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	125	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1540	-	-	-	805	1007
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1540	-	-	-	787	1007
Mov Cap-2 Maneuver	-	-	-	-	787	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	906	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.65	0	9.68
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	646	-	-	-	910
HCM Lane V/C Ratio	0.021	-	-	-	0.156
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

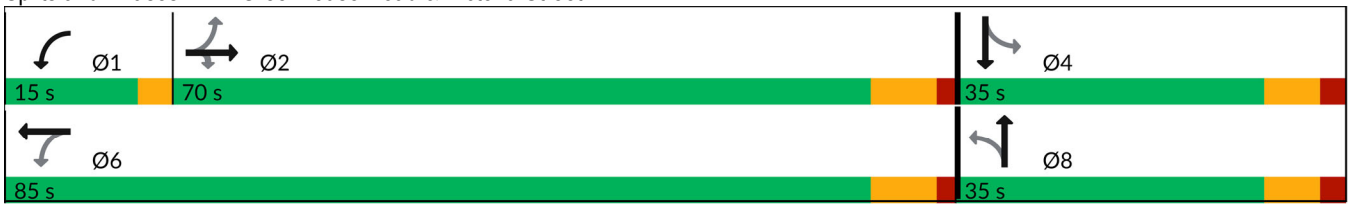


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1072	258	113	1171	0	223	1	105	0	2	2
Future Volume (vph)	2	1072	258	113	1171	0	223	1	105	0	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1845	1599	1805	1881	0	1805	1570	0	0	1771	0
Flt Permitted	0.061			0.058			0.755					
Satd. Flow (perm)	116	1845	1599	110	1881	0	1434	1570	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			286					119			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1218	293	128	1331	0	253	1	119	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1218	293	128	1331	0	253	120	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	65.4	65.4	65.4	82.1	77.6		24.1	24.1			24.1	
Actuated g/C Ratio	0.56	0.56	0.56	0.70	0.67		0.21	0.21			0.21	
v/c Ratio	0.03	1.18	0.29	0.61	1.06		0.85	0.29			0.01	
Control Delay (s/veh)	15.5	116.1	2.6	30.5	65.2		70.7	8.7			29.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	15.5	116.1	2.6	30.5	65.2		70.7	8.7			29.0	
LOS	B	F	A	C	E		E	A			C	
Approach Delay (s/veh)		94.0			62.1			50.7			29.0	
Approach LOS		F			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.5			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay (s/veh): 75.2		Intersection LOS: E	
Intersection Capacity Utilization 115.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	1218	293	128	1331	253	120	4
v/c Ratio	0.03	1.18	0.29	0.61	1.06	0.85	0.29	0.01
Control Delay (s/veh)	15.5	116.1	2.6	30.5	65.2	70.7	8.7	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.5	116.1	2.6	30.5	65.2	70.7	8.7	29.0
Queue Length 50th (m)	0.2	~339.2	0.7	11.8	~343.9	55.2	0.2	0.4
Queue Length 95th (m)	1.6	#419.5	12.3	30.3	#412.8	#88.2	14.0	3.1
Internal Link Dist (m)		340.2			1713.2		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	65	1035	1022	252	1253	341	464	423
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	1.18	0.29	0.51	1.06	0.74	0.26	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	35	52	19	37	49	51	19	30	76	15	167
Future Volume (vph)	158	35	52	19	37	49	51	19	30	76	15	167
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.937			0.959			0.913	
Flt Protected		0.969			0.991			0.975			0.985	
Satd. Flow (prot)	0	1342	0	0	1439	0	0	1449	0	0	1212	0
Flt Permitted		0.969			0.991			0.975			0.985	
Satd. Flow (perm)	0	1342	0	0	1439	0	0	1449	0	0	1212	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			713.1			150.6			504.1	
Travel Time (s)		13.8			51.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	158	35	52	19	37	49	51	19	30	76	15	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	0	0	105	0	0	100	0	0	258	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	9.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	158	35	52	19	37	49	51	19	30	76	15	167
Future Vol, veh/h	158	35	52	19	37	49	51	19	30	76	15	167
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	158	35	52	19	37	49	51	19	30	76	15	167

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	390	402	99	321	470	34	182	0	0	49	0	0
Stage 1	251	251	-	136	136	-	-	-	-	-	-	-
Stage 2	140	151	-	185	334	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	560	498	963	636	495	1045	1405	-	-	1401	-	-
Stage 1	743	653	-	872	788	-	-	-	-	-	-	-
Stage 2	852	724	-	822	647	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	446	450	963	505	447	1045	1405	-	-	1401	-	-
Mov Cap-2 Maneuver	446	450	-	505	447	-	-	-	-	-	-	-
Stage 1	697	612	-	839	758	-	-	-	-	-	-	-
Stage 2	743	697	-	688	607	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	18.72	11.89	3.91	2.27
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	818	-	-	504	627	448	-	-
HCM Lane V/C Ratio	0.036	-	-	0.486	0.167	0.054	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	18.7	11.9	7.7	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	0.6	0.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	0	55	2	0	2	62	294	1	2	324	40
Future Volume (vph)	26	0	55	2	0	2	62	294	1	2	324	40
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.908			0.932						0.985	
Flt Protected		0.984			0.976			0.991				
Satd. Flow (prot)	0	1314	0	0	1410	0	0	1511	0	0	1487	0
Flt Permitted		0.984			0.976			0.991				
Satd. Flow (perm)	0	1314	0	0	1410	0	0	1511	0	0	1487	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	26	0	55	2	0	2	62	294	1	2	324	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	4	0	0	357	0	0	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.8%		ICU Level of Service B	
Analysis Period (min) 15			

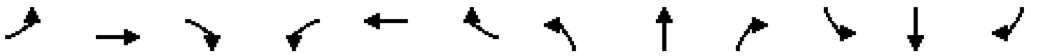
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	0	55	2	0	2	62	294	1	2	324	40
Future Vol, veh/h	26	0	55	2	0	2	62	294	1	2	324	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	26	0	55	2	0	2	62	294	1	2	324	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	766	767	344	747	787	295	364	0	0	295	0	0
Stage 1	348	348	-	419	419	-	-	-	-	-	-	-
Stage 2	418	419	-	328	368	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	322	335	685	332	326	750	1206	-	-	1278	-	-
Stage 1	672	638	-	616	594	-	-	-	-	-	-	-
Stage 2	616	593	-	689	625	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	301	314	685	286	306	750	1206	-	-	1278	-	-
Mov Cap-2 Maneuver	301	314	-	286	306	-	-	-	-	-	-	-
Stage 1	671	636	-	578	557	-	-	-	-	-	-	-
Stage 2	577	557	-	633	624	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.88	13.78	1.41	0.04
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	312	-	-	486	414	10	-	-
HCM Lane V/C Ratio	0.051	-	-	0.167	0.01	0.002	-	-
HCM Ctrl Dly (s/v)	8.1	0	-	13.9	13.8	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0	0	-	-

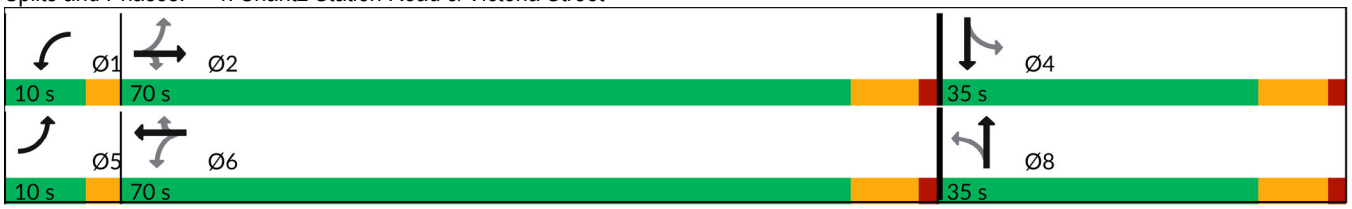


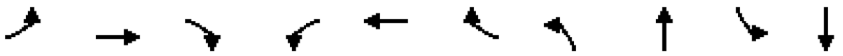
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	1101	37	125	1075	31	59	186	97	72	180	90
Future Volume (vph)	88	1101	37	125	1075	31	59	186	97	72	180	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.949			0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1615	1656	1881	1615	1770	1773	0	1805	1793	0
Flt Permitted	0.064			0.064			0.310			0.281		
Satd. Flow (perm)	119	1863	1615	112	1881	1615	577	1773	0	534	1793	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		21			20	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	100	1251	42	142	1222	35	67	211	110	82	205	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	1251	42	142	1222	35	67	321	0	82	307	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	74.1	62.6	62.6	74.1	62.6	62.6	22.9	22.9		22.9	22.9	
Actuated g/C Ratio	0.67	0.57	0.57	0.67	0.57	0.57	0.21	0.21		0.21	0.21	
v/c Ratio	0.54	1.19	0.04	0.82	1.15	0.04	0.56	0.84		0.75	0.80	
Control Delay (s/veh)	24.7	118.5	1.1	56.3	102.8	0.5	58.3	58.7		79.2	54.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	24.7	118.5	1.1	56.3	102.8	0.5	58.3	58.7		79.2	54.4	
LOS	C	F	A	E	F	A	E	E		E	D	
Approach Delay (s/veh)		108.3			95.5			58.6			59.6	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 110.5			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay (s/veh): 92.6		Intersection LOS: F	
Intersection Capacity Utilization 111.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



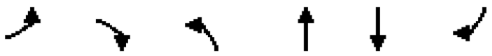


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	100	1251	42	142	1222	35	67	321	82	307
v/c Ratio	0.54	1.19	0.04	0.82	1.15	0.04	0.56	0.84	0.75	0.80
Control Delay (s/veh)	24.7	118.5	1.1	56.3	102.8	0.5	58.3	58.7	79.2	54.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.7	118.5	1.1	56.3	102.8	0.5	58.3	58.7	79.2	54.4
Queue Length 50th (m)	6.4	~328.2	0.0	14.9	~312.9	0.0	12.9	61.9	16.5	58.5
Queue Length 95th (m)	21.4	#408.0	1.9	#49.1	#392.3	0.7	27.1	90.8	#37.6	86.1
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	184	1055	945	173	1065	945	143	457	133	461
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	1.19	0.04	0.82	1.15	0.04	0.47	0.70	0.62	0.67

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	83	16	18	246	263	110
Future Volume (vph)	83	16	18	246	263	110
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.978				0.960	
Flt Protected	0.960			0.997		
Satd. Flow (prot)	1616	0	0	1600	1541	0
Flt Permitted	0.960			0.997		
Satd. Flow (perm)	1616	0	0	1600	1541	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	83	16	18	246	263	110
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	264	373	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.6%		ICU Level of Service A	
Analysis Period (min) 15			

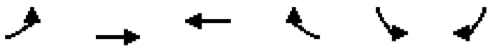
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	83	16	18	246	263	110
Future Vol, veh/h	83	16	18	246	263	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	83	16	18	246	263	110

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	600	318	373	0	-	0
Stage 1	318	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	462	727	1197	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	454	727	1197	-	-	-
Mov Cap-2 Maneuver	454	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	763	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.35	0.55	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	123	-	484	-	-
HCM Lane V/C Ratio	0.015	-	0.205	-	-
HCM Ctrl Dly (s/v)	8.1	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	95	45	45	57	36	59
Future Volume (vph)	95	45	45	57	36	59
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.925		0.916	
Flt Protected		0.967			0.981	
Satd. Flow (prot)	0	1556	1526	0	1586	0
Flt Permitted		0.967			0.981	
Satd. Flow (perm)	0	1556	1526	0	1586	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		713.1	152.8		136.7	
Travel Time (s)		51.3	11.0		9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	0%	0%	0%	0%
Adj. Flow (vph)	95	45	45	57	36	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	140	102	0	95	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	45	45	57	36	59
Future Vol, veh/h	95	45	45	57	36	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	0	0
Mvmt Flow	95	45	45	57	36	59

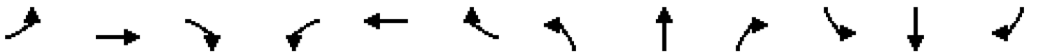
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	102	0	-	0	309	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1503	-	-	-	688	994
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1503	-	-	-	643	994
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	809	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	5.13	0	9.94
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1221	-	-	-	824
HCM Lane V/C Ratio	0.063	-	-	-	0.115
HCM Ctrl Dly (s/v)	7.6	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

Appendix H

2045 Background Traffic Operations Reports (without New Highway 7)

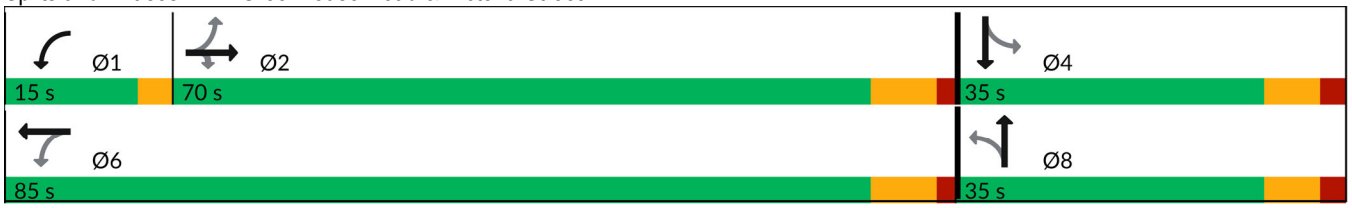


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1112	159	85	933	0	184	1	119	0	0	0
Future Volume (vph)	2	1112	159	85	933	0	184	1	119	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1810	1553	1421	1827	0	1687	1570	0	0	1900	0
Flt Permitted	0.137			0.061			0.757					
Satd. Flow (perm)	260	1810	1553	91	1827	0	1344	1570	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			170					135				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1264	181	97	1060	0	209	1	135	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1264	181	97	1060	0	209	136	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	63.0	63.0	63.0	79.5	75.0		21.5	21.5				
Actuated g/C Ratio	0.57	0.57	0.57	0.71	0.67		0.19	0.19				
v/c Ratio	0.01	1.23	0.19	0.57	0.86		0.81	0.33				
Control Delay (s/veh)	14.0	139.3	3.1	29.9	24.5		66.5	8.8				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	14.0	139.3	3.1	29.9	24.5		66.5	8.8				
LOS	B	F	A	C	C		E	A				
Approach Delay (s/veh)		122.1			25.0			43.8				
Approach LOS		F			C			D				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.3			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay (s/veh): 74.8		Intersection LOS: E	
Intersection Capacity Utilization 93.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	1264	181	97	1060	209	136
v/c Ratio	0.01	1.23	0.19	0.57	0.86	0.81	0.33
Control Delay (s/veh)	14.0	139.3	3.1	29.9	24.5	66.5	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.0	139.3	3.1	29.9	24.5	66.5	8.8
Queue Length 50th (m)	0.2	~335.5	1.0	6.7	163.8	42.5	0.2
Queue Length 95th (m)	1.5	#446.2	11.0	24.4	#267.6	68.8	14.6
Internal Link Dist (m)		340.2			1713.2		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	147	1024	952	209	1278	336	493
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	1.23	0.19	0.46	0.83	0.62	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	46	52	0	29	10	45	15	0	9	17	130
Future Volume (vph)	169	46	52	0	29	10	45	15	0	9	17	130
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.965						0.887	
Flt Protected		0.969						0.964			0.997	
Satd. Flow (prot)	0	1408	0	0	1496	0	0	1494	0	0	1192	0
Flt Permitted		0.969						0.964			0.997	
Satd. Flow (perm)	0	1408	0	0	1496	0	0	1494	0	0	1192	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	169	46	52	0	29	10	45	15	0	9	17	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	0	0	39	0	0	60	0	0	156	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	169	46	52	0	29	10	45	15	0	9	17	130
Future Vol, veh/h	169	46	52	0	29	10	45	15	0	9	17	130
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	169	46	52	0	29	10	45	15	0	9	17	130

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	220	205	82	163	270	15	147	0	0	15	0	0
Stage 1	100	100	-	105	105	-	-	-	-	-	-	-
Stage 2	120	105	-	58	165	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	732	681	983	806	640	1070	1447	-	-	1616	-	-
Stage 1	901	801	-	906	812	-	-	-	-	-	-	-
Stage 2	880	797	-	959	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	667	656	983	685	616	1070	1447	-	-	1616	-	-
Mov Cap-2 Maneuver	667	656	-	685	616	-	-	-	-	-	-	-
Stage 1	896	796	-	877	787	-	-	-	-	-	-	-
Stage 2	813	772	-	850	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.11	10.52	5.68	0.42
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1350	-	-	709	691	88	-	-
HCM Lane V/C Ratio	0.031	-	-	0.377	0.056	0.006	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	13.1	10.5	7.2	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	52	1	0	5	49	339	2	4	314	5
Future Volume (vph)	5	0	52	1	0	5	49	339	2	4	314	5
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.877			0.887			0.999			0.998	
Flt Protected		0.996			0.992			0.994			0.999	
Satd. Flow (prot)	0	1273	0	0	1169	0	0	1459	0	0	1447	0
Flt Permitted		0.996			0.992			0.994			0.999	
Satd. Flow (perm)	0	1273	0	0	1169	0	0	1459	0	0	1447	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	5	0	52	1	0	5	49	339	2	4	314	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	0	0	6	0	0	390	0	0	323	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.2%		ICU Level of Service B	
Analysis Period (min) 15			

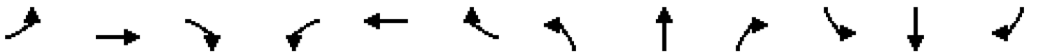
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	52	1	0	5	49	339	2	4	314	5
Future Vol, veh/h	5	0	52	1	0	5	49	339	2	4	314	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	5	0	52	1	0	5	49	339	2	4	314	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	762	764	317	760	765	340	319	0	0	341	0	0
Stage 1	325	325	-	438	438	-	-	-	-	-	-	-
Stage 2	437	439	-	322	327	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	324	336	713	227	336	707	1252	-	-	1229	-	-
Stage 1	692	653	-	445	582	-	-	-	-	-	-	-
Stage 2	602	582	-	524	651	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	305	319	713	200	318	707	1252	-	-	1229	-	-
Mov Cap-2 Maneuver	305	319	-	200	318	-	-	-	-	-	-	-
Stage 1	689	650	-	424	554	-	-	-	-	-	-	-
Stage 2	569	553	-	484	649	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.2	12.34	1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	226	-	-	638	497	22	-	-
HCM Lane V/C Ratio	0.039	-	-	0.089	0.012	0.003	-	-
HCM Ctrl Dly (s/v)	8	0	-	11.2	12.3	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-	-

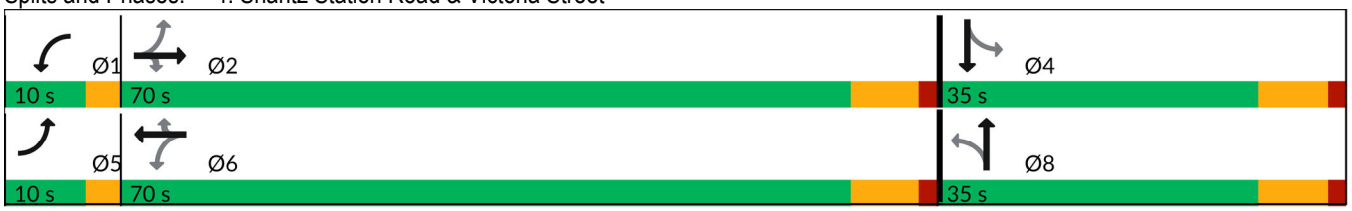


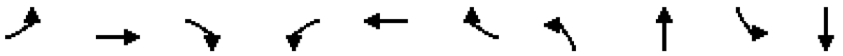
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	1129	46	65	911	43	45	196	99	85	195	76
Future Volume (vph)	57	1129	46	65	911	43	45	196	99	85	195	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.950			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1810	1538	1703	1827	1482	1671	1719	0	1656	1668	0
Flt Permitted	0.064			0.064			0.327			0.272		
Satd. Flow (perm)	122	1810	1538	115	1827	1482	575	1719	0	474	1668	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		21			16	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	65	1283	52	74	1035	49	51	223	113	97	222	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	1283	52	74	1035	49	51	336	0	97	308	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	72.8	62.9	62.9	72.8	62.9	62.9	24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.66	0.57	0.57	0.66	0.57	0.57	0.22	0.22		0.22	0.22	
v/c Ratio	0.35	1.24	0.06	0.42	0.99	0.06	0.41	0.86		0.94	0.82	
Control Delay (s/veh)	12.7	140.0	1.8	17.2	50.8	1.5	48.1	60.1		118.2	56.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	12.7	140.0	1.8	17.2	50.8	1.5	48.1	60.1		118.2	56.9	
LOS	B	F	A	B	D	A	D	E		F	E	
Approach Delay (s/veh)		128.9			46.6			58.5			71.6	
Approach LOS		F			D			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 109.7			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay (s/veh): 85.4		Intersection LOS: F	
Intersection Capacity Utilization 102.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



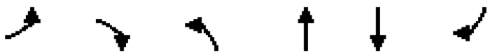


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	65	1283	52	74	1035	49	51	336	97	308
v/c Ratio	0.35	1.24	0.06	0.42	0.99	0.06	0.41	0.86	0.94	0.82
Control Delay (s/veh)	12.7	140.0	1.8	17.2	50.8	1.5	48.1	60.1	118.2	56.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.7	140.0	1.8	17.2	50.8	1.5	48.1	60.1	118.2	56.9
Queue Length 50th (m)	4.5	~366.1	0.0	5.2	~249.2	0.0	9.5	66.1	20.7	60.6
Queue Length 95th (m)	9.6	#429.0	3.3	13.7	#312.1	2.8	21.3	#103.0	#50.1	#90.6
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	188	1037	912	178	1047	879	145	449	119	433
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	1.24	0.06	0.42	0.99	0.06	0.35	0.75	0.82	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	133	23	21	171	174	70
Future Volume (vph)	133	23	21	171	174	70
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.980				0.961	
Flt Protected	0.959			0.995		
Satd. Flow (prot)	1659	0	0	1642	1563	0
Flt Permitted	0.959			0.995		
Satd. Flow (perm)	1659	0	0	1642	1563	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	133	23	21	171	174	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	0	0	192	244	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.7%		ICU Level of Service A	
Analysis Period (min) 15			

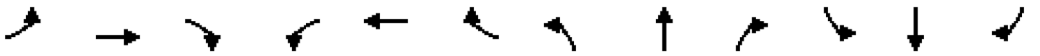
Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	133	23	21	171	174	70
Future Vol, veh/h	133	23	21	171	174	70
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	133	23	21	171	174	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	422	210	244	0	-	0
Stage 1	209	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	592	835	1334	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	582	835	1334	-	-	-
Mov Cap-2 Maneuver	582	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	827	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.93	0.85	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	197	-	609	-	-
HCM Lane V/C Ratio	0.016	-	0.256	-	-
HCM Ctrl Dly (s/v)	7.7	0	12.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

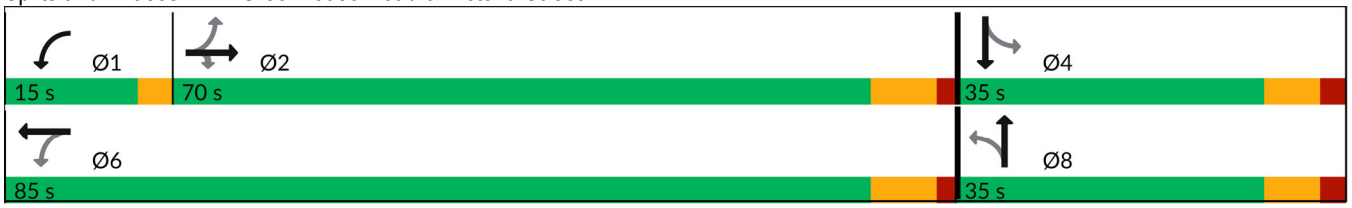


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1126	190	110	1231	0	182	1	104	0	2	2
Future Volume (vph)	2	1126	190	110	1231	0	182	1	104	0	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1845	1599	1805	1881	0	1805	1570	0	0	1771	0
Flt Permitted	0.061			0.058			0.755					
Satd. Flow (perm)	116	1845	1599	110	1881	0	1434	1570	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			201					118			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1280	216	125	1399	0	207	1	118	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1280	216	125	1399	0	207	119	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	65.8	65.8	65.8	82.2	77.7		20.9	20.9			20.9	
Actuated g/C Ratio	0.58	0.58	0.58	0.72	0.69		0.18	0.18			0.18	
v/c Ratio	0.03	1.20	0.21	0.59	1.09		0.79	0.31			0.01	
Control Delay (s/veh)	15.0	122.9	3.0	28.5	72.2		64.8	9.2			29.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	15.0	122.9	3.0	28.5	72.2		64.8	9.2			29.5	
LOS	B	F	A	C	E		E	A			C	
Approach Delay (s/veh)		105.5			68.6			44.5			29.5	
Approach LOS		F			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113.4			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay (s/veh): 82.7		Intersection LOS: F	
Intersection Capacity Utilization 116.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	1280	216	125	1399	207	119	4
v/c Ratio	0.03	1.20	0.21	0.59	1.09	0.79	0.31	0.01
Control Delay (s/veh)	15.0	122.9	3.0	28.5	72.2	64.8	9.2	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.0	122.9	3.0	28.5	72.2	64.8	9.2	29.5
Queue Length 50th (m)	0.2	~339.4	1.3	9.7	~346.6	43.5	0.2	0.4
Queue Length 95th (m)	1.6	#449.5	12.1	29.5	#445.2	67.4	13.8	3.1
Internal Link Dist (m)		340.2			1713.2		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	67	1069	1012	259	1288	351	473	435
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	1.20	0.21	0.48	1.09	0.59	0.25	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	36	52	0	38	7	51	15	0	11	13	169
Future Volume (vph)	159	36	52	0	38	7	51	15	0	11	13	169
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.979						0.882	
Flt Protected		0.969						0.963			0.997	
Satd. Flow (prot)	0	1343	0	0	1517	0	0	1493	0	0	1234	0
Flt Permitted		0.969						0.963			0.997	
Satd. Flow (perm)	0	1343	0	0	1517	0	0	1493	0	0	1234	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	159	36	52	0	38	7	51	15	0	11	13	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	45	0	0	66	0	0	193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	159	36	52	0	38	7	51	15	0	11	13	169
Future Vol, veh/h	159	36	52	0	38	7	51	15	0	11	13	169
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	159	36	52	0	38	7	51	15	0	11	13	169

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	256	237	98	170	321	15	182	0	0	15	0	0
Stage 1	120	120	-	117	117	-	-	-	-	-	-	-
Stage 2	136	117	-	53	204	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	687	620	964	798	599	1070	1405	-	-	1444	-	-
Stage 1	873	748	-	892	803	-	-	-	-	-	-	-
Stage 2	855	750	-	965	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	611	592	964	679	572	1070	1405	-	-	1444	-	-
Mov Cap-2 Maneuver	611	592	-	679	572	-	-	-	-	-	-	-
Stage 1	865	741	-	860	773	-	-	-	-	-	-	-
Stage 2	778	722	-	861	730	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.71	11.29	5.92	0.43
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	659	617	87	-	-
HCM Lane V/C Ratio	0.036	-	-	0.375	0.073	0.008	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	13.7	11.3	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	44	2	0	2	42	309	1	2	340	1
Future Volume (vph)	1	0	44	2	0	2	42	309	1	2	340	1
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.868			0.932							
Flt Protected		0.999			0.976			0.994				
Satd. Flow (prot)	0	1247	0	0	1410	0	0	1514	0	0	1505	0
Flt Permitted		0.999			0.976			0.994				
Satd. Flow (perm)	0	1247	0	0	1410	0	0	1514	0	0	1505	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	1	0	44	2	0	2	42	309	1	2	340	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	0	0	4	0	0	352	0	0	343	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

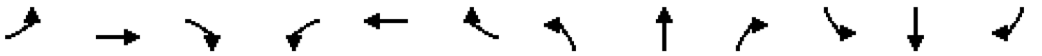
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	44	2	0	2	42	309	1	2	340	1
Future Vol, veh/h	1	0	44	2	0	2	42	309	1	2	340	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	1	0	44	2	0	2	42	309	1	2	340	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	738	739	341	738	739	310	341	0	0	310	0	0
Stage 1	345	345	-	394	394	-	-	-	-	-	-	-
Stage 2	393	394	-	344	345	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	336	348	688	336	348	735	1229	-	-	1262	-	-
Stage 1	675	640	-	635	609	-	-	-	-	-	-	-
Stage 2	636	609	-	676	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	321	333	688	301	333	735	1229	-	-	1262	-	-
Mov Cap-2 Maneuver	321	333	-	301	333	-	-	-	-	-	-	-
Stage 1	674	639	-	609	584	-	-	-	-	-	-	-
Stage 2	608	584	-	631	638	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.75	13.5	0.96	0.05
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	215	-	-	671	428	10	-	-
HCM Lane V/C Ratio	0.034	-	-	0.067	0.009	0.002	-	-
HCM Ctrl Dly (s/v)	8	0	-	10.7	13.5	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

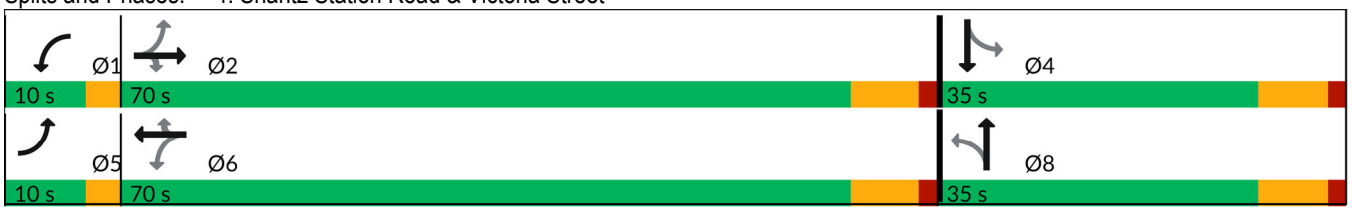


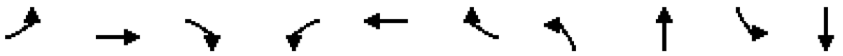
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1153	39	106	1125	33	62	185	87	76	173	91
Future Volume (vph)	90	1153	39	106	1125	33	62	185	87	76	173	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.952			0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1615	1656	1881	1615	1770	1780	0	1805	1789	0
Flt Permitted	0.064			0.064			0.317			0.298		
Satd. Flow (perm)	119	1863	1615	112	1881	1615	590	1780	0	566	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		19			22	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	102	1310	44	120	1278	38	70	210	99	86	197	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	1310	44	120	1278	38	70	309	0	86	300	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	74.1	62.6	62.6	74.1	62.6	62.6	22.2	22.2		22.2	22.2	
Actuated g/C Ratio	0.67	0.57	0.57	0.67	0.57	0.57	0.20	0.20		0.20	0.20	
v/c Ratio	0.55	1.23	0.05	0.69	1.19	0.04	0.59	0.82		0.75	0.79	
Control Delay (s/veh)	25.2	138.6	1.2	39.0	121.2	0.8	60.2	57.7		79.0	54.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	25.2	138.6	1.2	39.0	121.2	0.8	60.2	57.7		79.0	54.0	
LOS	C	F	A	D	F	A	E	E		E	D	
Approach Delay (s/veh)		126.5			111.1			58.2			59.6	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 109.9			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay (s/veh): 106.3		Intersection LOS: F	
Intersection Capacity Utilization 112.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



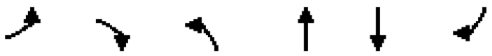


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	102	1310	44	120	1278	38	70	309	86	300
v/c Ratio	0.55	1.23	0.05	0.69	1.19	0.04	0.59	0.82	0.75	0.79
Control Delay (s/veh)	25.2	138.6	1.2	39.0	121.2	0.8	60.2	57.7	79.0	54.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.2	138.6	1.2	39.0	121.2	0.8	60.2	57.7	79.0	54.0
Queue Length 50th (m)	6.3	~348.8	0.0	9.5	~332.3	0.0	13.5	59.4	17.2	56.4
Queue Length 95th (m)	22.1	#434.8	2.1	#36.0	#417.8	1.3	28.0	87.2	#38.1	83.5
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	185	1061	950	174	1071	950	147	460	141	465
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	1.23	0.05	0.69	1.19	0.04	0.48	0.67	0.61	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	86	16	18	202	188	115
Future Volume (vph)	86	16	18	202	188	115
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.949	
Flt Protected	0.960			0.996		
Satd. Flow (prot)	1618	0	0	1599	1528	0
Flt Permitted	0.960			0.996		
Satd. Flow (perm)	1618	0	0	1599	1528	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	86	16	18	202	188	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	220	303	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	16	18	202	188	115
Future Vol, veh/h	86	16	18	202	188	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	86	16	18	202	188	115

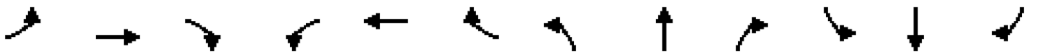
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	484	246	303	0	-	0
Stage 1	246	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	540	798	1269	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	532	798	1269	-	-	-
Mov Cap-2 Maneuver	532	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	799	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.84	0.64	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	147	-	561	-	-
HCM Lane V/C Ratio	0.014	-	0.182	-	-
HCM Ctrl Dly (s/v)	7.9	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Appendix I

2045 Total Traffic Operations Reports (without New Highway 7)

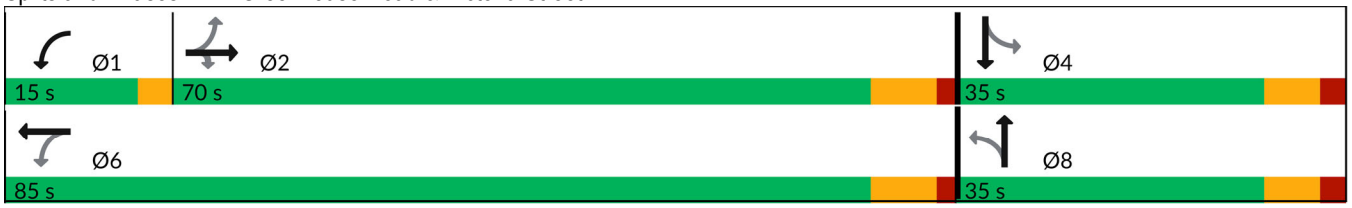


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1112	185	87	933	0	253	1	125	0	0	0
Future Volume (vph)	2	1112	185	87	933	0	253	1	125	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1810	1553	1421	1827	0	1687	1570	0	0	1900	0
Flt Permitted	0.103			0.061			0.757					
Satd. Flow (perm)	196	1810	1553	91	1827	0	1344	1570	0	0	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			198					142				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1264	210	99	1060	0	288	1	142	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1264	210	99	1060	0	288	143	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	62.7	62.7	62.7	79.4	74.9		26.9	26.9				
Actuated g/C Ratio	0.54	0.54	0.54	0.68	0.64		0.23	0.23				
v/c Ratio	0.02	1.30	0.23	0.59	0.90		0.93	0.30				
Control Delay (s/veh)	14.5	168.9	3.1	32.8	30.4		81.2	8.0				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	14.5	168.9	3.1	32.8	30.4		81.2	8.0				
LOS	B	F	A	C	C		F	A				
Approach Delay (s/veh)		145.1			30.6			56.9				
Approach LOS		F			C			E				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.6			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.30			
Intersection Signal Delay (s/veh): 89.4		Intersection LOS: F	
Intersection Capacity Utilization 98.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	1264	210	99	1060	288	143
v/c Ratio	0.02	1.30	0.23	0.59	0.90	0.93	0.30
Control Delay (s/veh)	14.5	168.9	3.1	32.8	30.4	81.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.5	168.9	3.1	32.8	30.4	81.2	8.0
Queue Length 50th (m)	0.2	~366.1	1.2	8.4	192.3	63.4	0.2
Queue Length 95th (m)	1.5	#446.2	11.7	24.9	#267.6	#112.6	15.0
Internal Link Dist (m)		340.2			1713.2		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	105	973	926	199	1215	319	481
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	1.30	0.23	0.50	0.87	0.90	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	46	52	28	29	71	45	16	10	35	22	130
Future Volume (vph)	169	46	52	28	29	71	45	16	10	35	22	130
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.925			0.981			0.906	
Flt Protected		0.969			0.989			0.969			0.991	
Satd. Flow (prot)	0	1408	0	0	1418	0	0	1473	0	0	1237	0
Flt Permitted		0.969			0.989			0.969			0.991	
Satd. Flow (perm)	0	1408	0	0	1418	0	0	1473	0	0	1237	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			713.1			150.6			504.1	
Travel Time (s)		13.8			51.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	169	46	52	28	29	71	45	16	10	35	22	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	0	0	128	0	0	71	0	0	187	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.1%		ICU Level of Service A	
Analysis Period (min) 15			

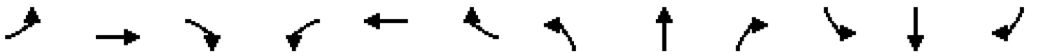
Intersection	
Int Delay, s/veh	9.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	169	46	52	28	29	71	45	16	10	35	22	130
Future Vol, veh/h	169	46	52	28	29	71	45	16	10	35	22	130
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	169	46	52	28	29	71	45	16	10	35	22	130

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	278	273	87	226	333	21	152	0	0	26	0	0
Stage 1	157	157	-	111	111	-	-	-	-	-	-	-
Stage 2	121	116	-	115	222	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	671	624	977	734	590	1062	1441	-	-	1601	-	-
Stage 1	841	756	-	899	807	-	-	-	-	-	-	-
Stage 2	879	788	-	895	723	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	562	589	977	608	558	1062	1441	-	-	1601	-	-
Mov Cap-2 Maneuver	562	589	-	608	558	-	-	-	-	-	-	-
Stage 1	820	738	-	871	782	-	-	-	-	-	-	-
Stage 2	765	763	-	775	706	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	15.17	10.55	4.8	1.37
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1059	-	-	618	776	288	-	-
HCM Lane V/C Ratio	0.031	-	-	0.432	0.165	0.022	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	15.2	10.6	7.3	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.2	0.6	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	0	72	1	0	5	56	339	2	4	314	18
Future Volume (vph)	42	0	72	1	0	5	56	339	2	4	314	18
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.915			0.887			0.999			0.993	
Flt Protected		0.982			0.992			0.993			0.999	
Satd. Flow (prot)	0	1334	0	0	1169	0	0	1459	0	0	1443	0
Flt Permitted		0.982			0.992			0.993			0.999	
Satd. Flow (perm)	0	1334	0	0	1169	0	0	1459	0	0	1443	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	42	0	72	1	0	5	56	339	2	4	314	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	6	0	0	397	0	0	336	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			

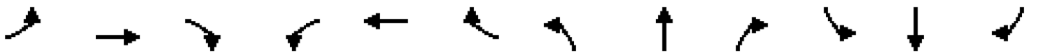
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	42	0	72	1	0	5	56	339	2	4	314	18
Future Vol, veh/h	42	0	72	1	0	5	56	339	2	4	314	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	42	0	72	1	0	5	56	339	2	4	314	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	782	784	323	774	792	340	332	0	0	341	0	0
Stage 1	331	331	-	452	452	-	-	-	-	-	-	-
Stage 2	451	453	-	322	340	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	314	327	707	222	324	707	1239	-	-	1229	-	-
Stage 1	687	649	-	437	574	-	-	-	-	-	-	-
Stage 2	592	573	-	524	643	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	293	308	707	187	305	707	1239	-	-	1229	-	-
Mov Cap-2 Maneuver	293	308	-	187	305	-	-	-	-	-	-	-
Stage 1	684	646	-	412	542	-	-	-	-	-	-	-
Stage 2	555	541	-	469	640	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	15.23	12.54	1.13	0.09
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	254	-	-	465	483	21	-	-
HCM Lane V/C Ratio	0.045	-	-	0.245	0.012	0.003	-	-
HCM Ctrl Dly (s/v)	8	0	-	15.2	12.5	7.9	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1	0	0	-	-

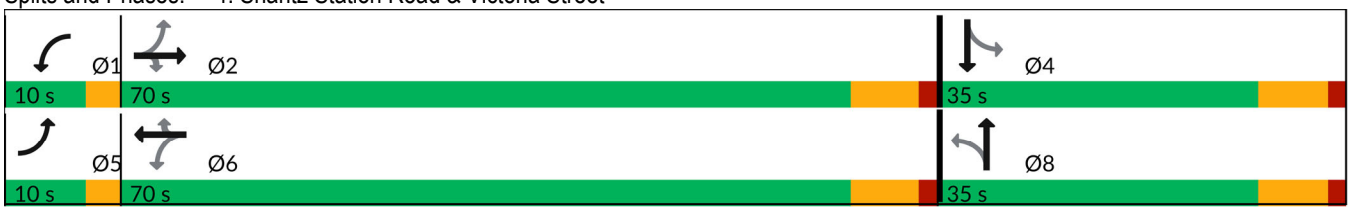


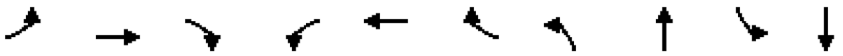
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	1133	46	73	912	43	45	210	122	85	200	77
Future Volume (vph)	59	1133	46	73	912	43	45	210	122	85	200	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.945			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1810	1538	1703	1827	1482	1671	1708	0	1656	1668	0
Flt Permitted	0.064			0.064			0.346			0.237		
Satd. Flow (perm)	122	1810	1538	115	1827	1482	609	1708	0	413	1668	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		24			16	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	67	1288	52	83	1036	49	51	239	139	97	227	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	1288	52	83	1036	49	51	378	0	97	315	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	72.6	62.6	62.6	72.6	62.6	62.6	27.5	27.5		27.5	27.5	
Actuated g/C Ratio	0.64	0.55	0.55	0.64	0.55	0.55	0.24	0.24		0.24	0.24	
v/c Ratio	0.37	1.29	0.06	0.48	1.02	0.06	0.34	0.87		0.97	0.75	
Control Delay (s/veh)	13.9	161.8	1.8	21.0	61.3	1.5	44.3	60.4		127.9	50.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	13.9	161.8	1.8	21.0	61.3	1.5	44.3	60.4		127.9	50.8	
LOS	B	F	A	C	E	A	D	E		F	D	
Approach Delay (s/veh)		148.9			56.0			58.5			68.9	
Approach LOS		F			E			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 113			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.29			
Intersection Signal Delay (s/veh): 96.1		Intersection LOS: F	
Intersection Capacity Utilization 106.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



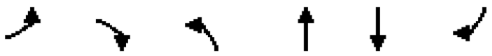


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	67	1288	52	83	1036	49	51	378	97	315
v/c Ratio	0.37	1.29	0.06	0.48	1.02	0.06	0.34	0.87	0.97	0.75
Control Delay (s/veh)	13.9	161.8	1.8	21.0	61.3	1.5	44.3	60.4	127.9	50.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.9	161.8	1.8	21.0	61.3	1.5	44.3	60.4	127.9	50.8
Queue Length 50th (m)	4.6	~368.4	0.0	5.8	~249.6	0.0	9.5	76.8	21.5	62.4
Queue Length 95th (m)	10.3	#431.3	3.3	16.6	#312.6	2.8	21.1	#124.2	#53.5	#96.9
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	182	1002	883	172	1011	852	148	434	100	418
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	1.29	0.06	0.48	1.02	0.06	0.34	0.87	0.97	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	133	23	21	246	202	70
Future Volume (vph)	133	23	21	246	202	70
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.980				0.965	
Flt Protected	0.959			0.996		
Satd. Flow (prot)	1659	0	0	1643	1569	0
Flt Permitted	0.959			0.996		
Satd. Flow (perm)	1659	0	0	1643	1569	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	133	23	21	246	202	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	0	0	267	272	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

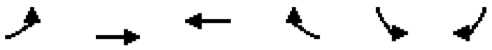
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	133	23	21	246	202	70
Future Vol, veh/h	133	23	21	246	202	70
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	133	23	21	246	202	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	525	238	272	0	-	0
Stage 1	237	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	516	806	1303	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	507	805	1303	-	-	-
Mov Cap-2 Maneuver	507	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.45	0.61	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	142	-	536	-	-
HCM Lane V/C Ratio	0.016	-	0.291	-	-
HCM Ctrl Dly (s/v)	7.8	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.2	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	60	55	19	54	88
Future Volume (vph)	33	60	55	19	54	88
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.965		0.916	
Flt Protected		0.983			0.981	
Satd. Flow (prot)	0	1571	1592	0	1586	0
Flt Permitted		0.983			0.981	
Satd. Flow (perm)	0	1571	1592	0	1586	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		713.1	152.8		136.7	
Travel Time (s)		51.3	11.0		9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	33	60	55	19	54	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	93	74	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	60	55	19	54	88
Future Vol, veh/h	33	60	55	19	54	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	5	0	0	0	0
Mvmt Flow	33	60	55	19	54	88

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	74	0	-	0	191	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	126	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1538	-	-	-	803	1005
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	905	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1538	-	-	-	785	1005
Mov Cap-2 Maneuver	-	-	-	-	785	-
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	905	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.62	0	9.7
HCM LOS			A

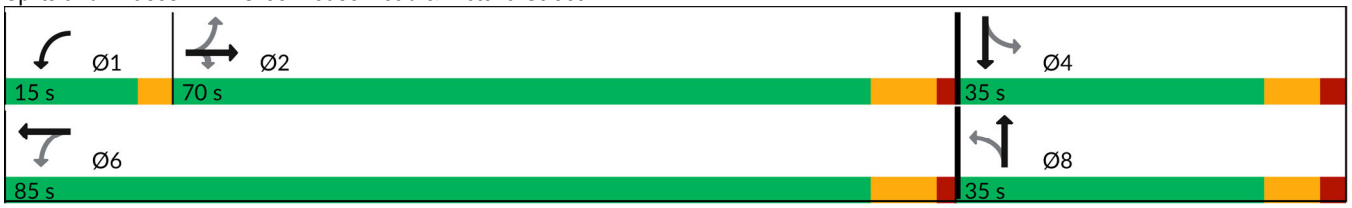
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	639	-	-	-	909
HCM Lane V/C Ratio	0.021	-	-	-	0.156
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1126	263	115	1231	0	227	1	107	0	2	2
Future Volume (vph)	2	1126	263	115	1231	0	227	1	107	0	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1805	1845	1599	1805	1881	0	1805	1570	0	0	1771	0
Flt Permitted	0.061			0.059			0.755					
Satd. Flow (perm)	116	1845	1599	112	1881	0	1434	1570	0	0	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278					122			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	1280	299	131	1399	0	258	1	122	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1280	299	131	1399	0	258	123	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	65.3	65.3	65.3	82.1	77.6		24.4	24.4			24.4	
Actuated g/C Ratio	0.56	0.56	0.56	0.70	0.66		0.21	0.21			0.21	
v/c Ratio	0.03	1.24	0.29	0.62	1.12		0.86	0.29			0.01	
Control Delay (s/veh)	15.5	143.6	3.1	30.9	87.1		71.3	8.6			29.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	15.5	143.6	3.1	30.9	87.1		71.3	8.6			29.0	
LOS	B	F	A	C	F		E	A			C	
Approach Delay (s/veh)		116.9			82.3			51.1			29.0	
Approach LOS		F			F			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.8			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay (s/veh): 94.5		Intersection LOS: F	
Intersection Capacity Utilization 119.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	1280	299	131	1399	258	123	4
v/c Ratio	0.03	1.24	0.29	0.62	1.12	0.86	0.29	0.01
Control Delay (s/veh)	15.5	143.6	3.1	30.9	87.1	71.3	8.6	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.5	143.6	3.1	30.9	87.1	71.3	8.6	29.0
Queue Length 50th (m)	0.2	~373.7	2.1	12.4	~380.5	56.6	0.2	0.4
Queue Length 95th (m)	1.6	#449.5	14.2	31.0	#445.2	#91.6	14.0	3.1
Internal Link Dist (m)		340.2			1713.2		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	64	1030	1016	252	1249	340	465	422
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	1.24	0.29	0.52	1.12	0.76	0.26	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	36	52	19	38	49	51	19	30	77	15	169
Future Volume (vph)	159	36	52	19	38	49	51	19	30	77	15	169
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.938			0.959			0.913	
Flt Protected		0.969			0.991			0.975			0.985	
Satd. Flow (prot)	0	1343	0	0	1441	0	0	1449	0	0	1212	0
Flt Permitted		0.969			0.991			0.975			0.985	
Satd. Flow (perm)	0	1343	0	0	1441	0	0	1449	0	0	1212	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			713.1			150.6			504.1	
Travel Time (s)		13.8			51.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	159	36	52	19	38	49	51	19	30	77	15	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	106	0	0	100	0	0	261	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.8%		ICU Level of Service A	
Analysis Period (min) 15			

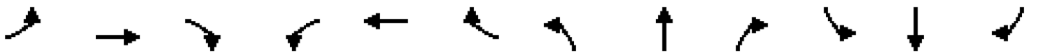
Intersection	
Int Delay, s/veh	9.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	159	36	52	19	38	49	51	19	30	77	15	169
Future Vol, veh/h	159	36	52	19	38	49	51	19	30	77	15	169
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	159	36	52	19	38	49	51	19	30	77	15	169

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	394	405	100	323	474	34	184	0	0	49	0	0
Stage 1	254	254	-	136	136	-	-	-	-	-	-	-
Stage 2	140	151	-	187	338	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	557	496	962	634	492	1045	1403	-	-	1401	-	-
Stage 1	740	651	-	872	788	-	-	-	-	-	-	-
Stage 2	851	724	-	819	644	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	442	447	962	501	444	1045	1403	-	-	1401	-	-
Mov Cap-2 Maneuver	442	447	-	501	444	-	-	-	-	-	-	-
Stage 1	694	610	-	839	758	-	-	-	-	-	-	-
Stage 2	742	697	-	684	604	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	19.05	11.97	3.91	2.28
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	818	-	-	500	622	449	-	-
HCM Lane V/C Ratio	0.036	-	-	0.494	0.17	0.055	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	19	12	7.7	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.7	0.6	0.2	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	0	56	2	0	2	62	309	1	2	340	40
Future Volume (vph)	26	0	56	2	0	2	62	309	1	2	340	40
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.908			0.932						0.986	
Flt Protected		0.984			0.976			0.992				
Satd. Flow (prot)	0	1313	0	0	1410	0	0	1512	0	0	1489	0
Flt Permitted		0.984			0.976			0.992				
Satd. Flow (perm)	0	1313	0	0	1410	0	0	1512	0	0	1489	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	26	0	56	2	0	2	62	309	1	2	340	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	82	0	0	4	0	0	372	0	0	382	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	0	56	2	0	2	62	309	1	2	340	40
Future Vol, veh/h	26	0	56	2	0	2	62	309	1	2	340	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	26	0	56	2	0	2	62	309	1	2	340	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	797	798	360	778	818	310	380	0	0	310	0	0
Stage 1	364	364	-	434	434	-	-	-	-	-	-	-
Stage 2	433	434	-	344	384	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	307	321	671	316	313	735	1190	-	-	1262	-	-
Stage 1	659	627	-	605	585	-	-	-	-	-	-	-
Stage 2	605	585	-	676	615	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	286	300	671	271	293	735	1190	-	-	1262	-	-
Mov Cap-2 Maneuver	286	300	-	271	293	-	-	-	-	-	-	-
Stage 1	658	626	-	567	548	-	-	-	-	-	-	-
Stage 2	565	548	-	618	614	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.26	14.18	1.37	0.04
HCM LOS	B	B		

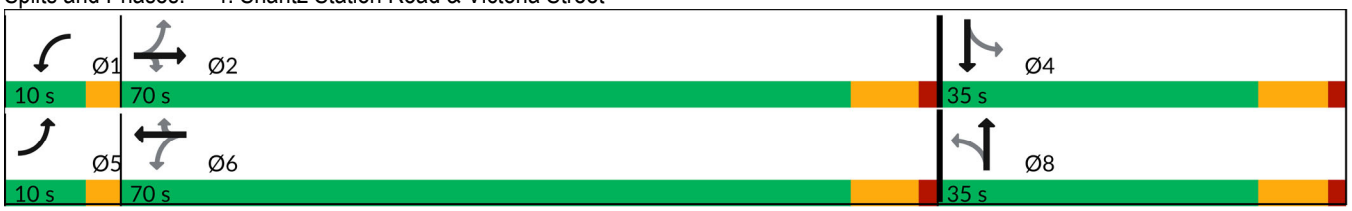
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	300	-	-	471	396	9	-	-
HCM Lane V/C Ratio	0.052	-	-	0.174	0.01	0.002	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	14.3	14.2	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0	0	-	-

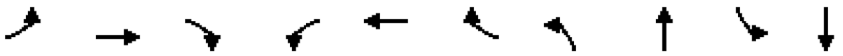
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	1155	39	130	1128	33	62	195	102	76	188	93
Future Volume (vph)	91	1155	39	130	1128	33	62	195	102	76	188	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.949			0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1615	1656	1881	1615	1770	1773	0	1805	1793	0
Flt Permitted	0.064			0.064			0.294			0.259		
Satd. Flow (perm)	119	1863	1615	112	1881	1615	548	1773	0	492	1793	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		21			20	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	103	1313	44	148	1282	38	70	222	116	86	214	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	1313	44	148	1282	38	70	338	0	86	320	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	35.0	35.0		35.0	35.0	
Total Split (%)	8.7%	60.9%	60.9%	8.7%	60.9%	60.9%	30.4%	30.4%		30.4%	30.4%	
Maximum Green (s)	7.0	62.5	62.5	7.0	62.5	62.5	27.5	27.5		27.5	27.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	74.1	62.6	62.6	74.1	62.6	62.6	23.8	23.8		23.8	23.8	
Actuated g/C Ratio	0.67	0.56	0.56	0.67	0.56	0.56	0.21	0.21		0.21	0.21	
v/c Ratio	0.56	1.26	0.05	0.87	1.21	0.04	0.60	0.86		0.83	0.80	
Control Delay (s/veh)	26.3	147.9	1.2	63.8	130.4	0.8	61.6	60.5		93.2	55.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	26.3	147.9	1.2	63.8	130.4	0.8	61.6	60.5		93.2	55.0	
LOS	C	F	A	E	F	A	E	E		F	D	
Approach Delay (s/veh)		134.9			120.3			60.7			63.0	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 111.4			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.26			
Intersection Signal Delay (s/veh): 113.3		Intersection LOS: F	
Intersection Capacity Utilization 114.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 4: Shantz Station Road & Victoria Street



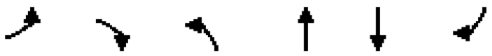


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	1313	44	148	1282	38	70	338	86	320
v/c Ratio	0.56	1.26	0.05	0.87	1.21	0.04	0.60	0.86	0.83	0.80
Control Delay (s/veh)	26.3	147.9	1.2	63.8	130.4	0.8	61.6	60.5	93.2	55.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.3	147.9	1.2	63.8	130.4	0.8	61.6	60.5	93.2	55.0
Queue Length 50th (m)	6.9	~365.2	0.0	16.9	~348.8	0.0	13.6	66.2	17.7	61.7
Queue Length 95th (m)	22.1	#436.2	2.1	#52.4	#420.1	1.3	28.7	#98.1	#42.2	90.3
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	183	1046	938	171	1056	938	135	453	121	458
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.26	0.05	0.87	1.21	0.04	0.52	0.75	0.71	0.70

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	86	16	18	250	266	115
Future Volume (vph)	86	16	18	250	266	115
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.959	
Flt Protected	0.960			0.997		
Satd. Flow (prot)	1618	0	0	1600	1539	0
Flt Permitted	0.960			0.997		
Satd. Flow (perm)	1618	0	0	1600	1539	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	86	16	18	250	266	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	268	381	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.0%		ICU Level of Service A	
Analysis Period (min) 15			

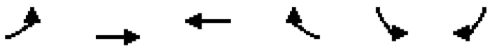
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	16	18	250	266	115
Future Vol, veh/h	86	16	18	250	266	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	86	16	18	250	266	115

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	610	324	381	0	-	0
Stage 1	324	-	-	-	-	-
Stage 2	286	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	456	722	1189	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	760	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	448	722	1189	-	-	-
Mov Cap-2 Maneuver	448	-	-	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	760	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.6	0.54	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	121	-	477	-	-
HCM Lane V/C Ratio	0.015	-	0.214	-	-
HCM Ctrl Dly (s/v)	8.1	0	14.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	95	46	45	57	36	59
Future Volume (vph)	95	46	45	57	36	59
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.925		0.916	
Flt Protected		0.967			0.981	
Satd. Flow (prot)	0	1555	1526	0	1586	0
Flt Permitted		0.967			0.981	
Satd. Flow (perm)	0	1555	1526	0	1586	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		713.1	152.8		136.7	
Travel Time (s)		51.3	11.0		9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	0%	0%	0%	0%
Adj. Flow (vph)	95	46	45	57	36	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	141	102	0	95	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	46	45	57	36	59
Future Vol, veh/h	95	46	45	57	36	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	0	0
Mvmt Flow	95	46	45	57	36	59

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	102	0	-	0	310	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	236	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1503	-	-	-	687	994
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1503	-	-	-	642	994
Mov Cap-2 Maneuver	-	-	-	-	642	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	5.09	0	9.94
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1213	-	-	-	823
HCM Lane V/C Ratio	0.063	-	-	-	0.115
HCM Ctrl Dly (s/v)	7.6	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

Appendix J

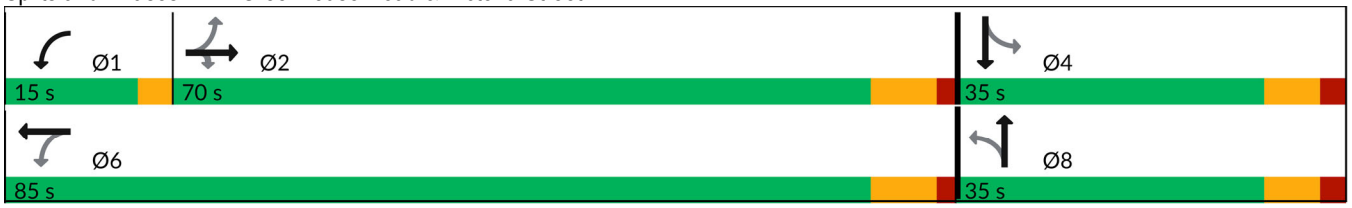
2045 Background Traffic Operations Reports (with New Highway 7)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	545	159	85	457	0	184	1	119	0	0	0
Future Volume (vph)	2	545	159	85	457	0	184	1	119	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1650	1650	1775	1650	1650	1550	1550	1550
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1686	1810	1430	1328	1587	0	1576	1364	0	0	1550	0
Flt Permitted	0.500			0.273			0.757					
Satd. Flow (perm)	888	1810	1430	382	1587	0	1256	1364	0	0	1550	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159					119				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	545	159	85	457	0	184	1	119	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	545	159	85	457	0	184	120	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.11	1.09	1.20	1.20	1.09	1.20	1.20	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	29.3	29.3	29.3	42.6	37.8		16.7	16.7				
Actuated g/C Ratio	0.42	0.42	0.42	0.61	0.54		0.24	0.24				
v/c Ratio	0.01	0.72	0.23	0.25	0.54		0.62	0.29				
Control Delay (s/veh)	14.5	25.1	3.8	8.2	13.4		36.9	7.8				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	14.5	25.1	3.8	8.2	13.4		36.9	7.8				
LOS	B	C	A	A	B		D	A				
Approach Delay (s/veh)		20.3			12.6			25.4				
Approach LOS		C			B			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 70.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 18.6		Intersection LOS: B	
Intersection Capacity Utilization 73.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	545	159	85	457	184	120
v/c Ratio	0.01	0.72	0.23	0.25	0.54	0.62	0.29
Control Delay (s/veh)	14.5	25.1	3.8	8.2	13.4	36.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.5	25.1	3.8	8.2	13.4	36.9	7.8
Queue Length 50th (m)	0.2	57.1	0.0	3.8	32.8	20.8	0.1
Queue Length 95th (m)	1.5	116.4	10.7	11.7	72.6	51.0	12.8
Internal Link Dist (m)		340.2			1713.2		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	767	1563	1257	404	1504	531	645
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.35	0.13	0.21	0.30	0.35	0.19

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	46	52	0	29	10	45	15	0	9	17	130
Future Volume (vph)	169	46	52	0	29	10	45	15	0	9	17	130
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.965						0.887	
Flt Protected		0.969						0.964			0.997	
Satd. Flow (prot)	0	1408	0	0	1496	0	0	1494	0	0	1192	0
Flt Permitted		0.969						0.964			0.997	
Satd. Flow (perm)	0	1408	0	0	1496	0	0	1494	0	0	1192	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	169	46	52	0	29	10	45	15	0	9	17	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	0	0	39	0	0	60	0	0	156	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

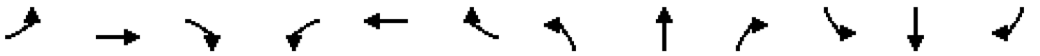
Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	169	46	52	0	29	10	45	15	0	9	17	130
Future Vol, veh/h	169	46	52	0	29	10	45	15	0	9	17	130
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	169	46	52	0	29	10	45	15	0	9	17	130

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	220	205	82	163	270	15	147	0	0	15	0	0
Stage 1	100	100	-	105	105	-	-	-	-	-	-	-
Stage 2	120	105	-	58	165	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	732	681	983	806	640	1070	1447	-	-	1616	-	-
Stage 1	901	801	-	906	812	-	-	-	-	-	-	-
Stage 2	880	797	-	959	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	667	656	983	685	616	1070	1447	-	-	1616	-	-
Mov Cap-2 Maneuver	667	656	-	685	616	-	-	-	-	-	-	-
Stage 1	896	796	-	877	787	-	-	-	-	-	-	-
Stage 2	813	772	-	850	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.11	10.52	5.68	0.42
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1350	-	-	709	691	88	-	-
HCM Lane V/C Ratio	0.031	-	-	0.377	0.056	0.006	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	13.1	10.5	7.2	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	0	52	1	0	5	49	339	2	4	314	5
Future Volume (vph)	5	0	52	1	0	5	49	339	2	4	314	5
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.877			0.887			0.999			0.998	
Flt Protected		0.996			0.992			0.994			0.999	
Satd. Flow (prot)	0	1273	0	0	1169	0	0	1459	0	0	1447	0
Flt Permitted		0.996			0.992			0.994			0.999	
Satd. Flow (perm)	0	1273	0	0	1169	0	0	1459	0	0	1447	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	5	0	52	1	0	5	49	339	2	4	314	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	0	0	6	0	0	390	0	0	323	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.2%		ICU Level of Service B	
Analysis Period (min) 15			

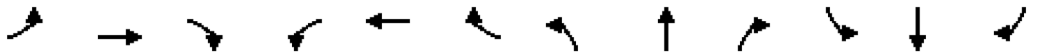
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	52	1	0	5	49	339	2	4	314	5
Future Vol, veh/h	5	0	52	1	0	5	49	339	2	4	314	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	5	0	52	1	0	5	49	339	2	4	314	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	762	764	317	760	765	340	319	0	0	341	0	0
Stage 1	325	325	-	438	438	-	-	-	-	-	-	-
Stage 2	437	439	-	322	327	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	324	336	713	227	336	707	1252	-	-	1229	-	-
Stage 1	692	653	-	445	582	-	-	-	-	-	-	-
Stage 2	602	582	-	524	651	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	305	319	713	200	318	707	1252	-	-	1229	-	-
Mov Cap-2 Maneuver	305	319	-	200	318	-	-	-	-	-	-	-
Stage 1	689	650	-	424	554	-	-	-	-	-	-	-
Stage 2	569	553	-	484	649	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.2	12.34	1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	226	-	-	638	497	22	-	-
HCM Lane V/C Ratio	0.039	-	-	0.089	0.012	0.003	-	-
HCM Ctrl Dly (s/v)	8	0	-	11.2	12.3	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-	-

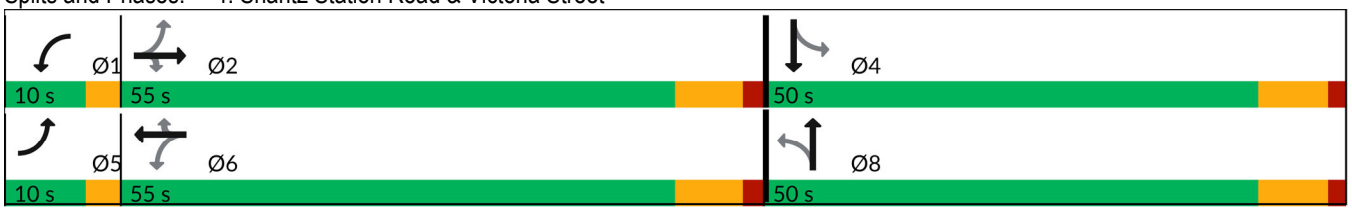


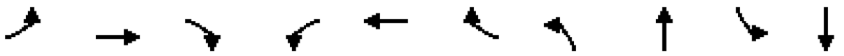
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	576	46	65	466	43	45	196	99	85	195	76
Future Volume (vph)	57	576	46	65	466	43	45	196	99	85	195	76
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1650	1650	1775	1650	1650
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.950			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1686	1810	1417	1591	1827	1365	1561	1493	0	1547	1449	0
Flt Permitted	0.409			0.318			0.454			0.409		
Satd. Flow (perm)	726	1810	1417	532	1827	1365	746	1493	0	666	1449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		25			19	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	57	576	46	65	466	43	45	196	99	85	195	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	576	46	65	466	43	45	295	0	85	271	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.11	1.09	1.00	1.11	1.09	1.20	1.20	1.09	1.20	1.20
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	55.0	55.0	10.0	55.0	55.0	50.0	50.0		50.0	50.0	
Total Split (%)	8.7%	47.8%	47.8%	8.7%	47.8%	47.8%	43.5%	43.5%		43.5%	43.5%	
Maximum Green (s)	7.0	47.5	47.5	7.0	47.5	47.5	42.5	42.5		42.5	42.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	58.0	48.1	48.1	58.0	48.1	48.1	22.1	22.1		22.1	22.1	
Actuated g/C Ratio	0.62	0.52	0.52	0.62	0.52	0.52	0.24	0.24		0.24	0.24	
v/c Ratio	0.11	0.62	0.06	0.16	0.49	0.06	0.25	0.79		0.54	0.75	
Control Delay (s/veh)	8.1	21.9	2.0	8.5	19.1	1.7	32.4	46.2		44.6	44.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	8.1	21.9	2.0	8.5	19.1	1.7	32.4	46.2		44.6	44.6	
LOS	A	C	A	A	B	A	C	D		D	D	
Approach Delay (s/veh)		19.4			16.6			44.3			44.6	
Approach LOS		B			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 93.1			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 27.5		Intersection LOS: C	
Intersection Capacity Utilization 85.4%		ICU Level of Service E	
Analysis Period (min) 15			

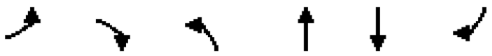
Splits and Phases: 4: Shantz Station Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	576	46	65	466	43	45	295	85	271
v/c Ratio	0.11	0.62	0.06	0.16	0.49	0.06	0.25	0.79	0.54	0.75
Control Delay (s/veh)	8.1	21.9	2.0	8.5	19.1	1.7	32.4	46.2	44.6	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.1	21.9	2.0	8.5	19.1	1.7	32.4	46.2	44.6	44.6
Queue Length 50th (m)	3.3	72.9	0.0	3.8	54.0	0.0	6.6	46.2	13.5	42.7
Queue Length 95th (m)	9.8	131.1	3.2	11.0	98.3	2.7	15.6	74.2	28.5	69.1
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	525	935	766	412	944	739	344	703	308	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.62	0.06	0.16	0.49	0.06	0.13	0.42	0.28	0.40

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	133	23	21	171	174	70
Future Volume (vph)	133	23	21	171	174	70
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.980				0.961	
Flt Protected	0.959			0.995		
Satd. Flow (prot)	1659	0	0	1642	1563	0
Flt Permitted	0.959			0.995		
Satd. Flow (perm)	1659	0	0	1642	1563	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	133	23	21	171	174	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	0	0	192	244	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	133	23	21	171	174	70
Future Vol, veh/h	133	23	21	171	174	70
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	133	23	21	171	174	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	422	210	244	0	-	0
Stage 1	209	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	592	835	1334	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	582	835	1334	-	-	-
Mov Cap-2 Maneuver	582	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	827	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.93	0.85	0
HCM LOS	B		

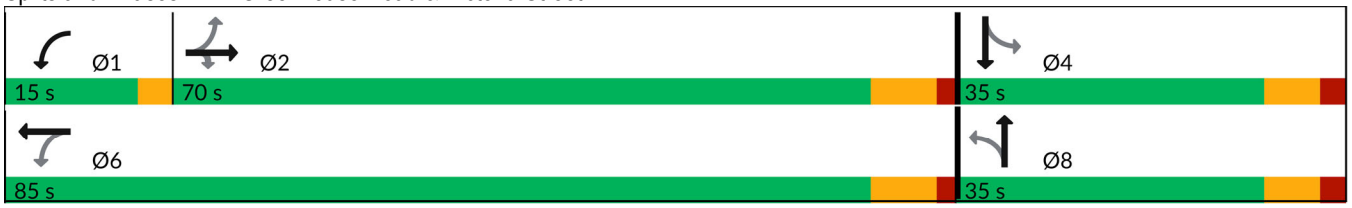
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	197	-	609	-	-
HCM Lane V/C Ratio	0.016	-	0.256	-	-
HCM Ctrl Dly (s/v)	7.7	0	12.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	552	190	110	603	0	182	1	104	0	2	2
Future Volume (vph)	2	552	190	110	603	0	182	1	104	0	2	2
Ideal Flow (vphpl)	1775	1900	1750	1775	1650	1650	1775	1650	1650	1550	1550	1550
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1686	1845	1473	1686	1634	0	1686	1364	0	0	1445	0
Flt Permitted	0.437			0.270			0.755					
Satd. Flow (perm)	776	1845	1473	479	1634	0	1340	1364	0	0	1445	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190					104			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			1737.2			287.2			155.6	
Travel Time (s)		16.4			78.2			20.7			11.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	552	190	110	603	0	182	1	104	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	552	190	110	603	0	182	105	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.11	1.09	1.20	1.20	1.09	1.20	1.20	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	29.1	29.1	29.1	42.4	37.5		15.9	15.9			15.9	
Actuated g/C Ratio	0.42	0.42	0.42	0.61	0.54		0.23	0.23			0.23	
v/c Ratio	0.01	0.71	0.26	0.25	0.68		0.59	0.27			0.01	
Control Delay (s/veh)	14.0	24.0	3.5	7.4	16.1		35.6	8.2			21.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	14.0	24.0	3.5	7.4	16.1		35.6	8.2			21.0	
LOS	B	C	A	A	B		D	A			C	
Approach Delay (s/veh)		18.7			14.8			25.6			21.0	
Approach LOS		B			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 69.3			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 18.2		Intersection LOS: B	
Intersection Capacity Utilization 89.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	552	190	110	603	182	105	4
v/c Ratio	0.01	0.71	0.26	0.25	0.68	0.59	0.27	0.01
Control Delay (s/veh)	14.0	24.0	3.5	7.4	16.1	35.6	8.2	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.0	24.0	3.5	7.4	16.1	35.6	8.2	21.0
Queue Length 50th (m)	0.1	56.5	0.0	4.8	47.4	20.5	0.1	0.2
Queue Length 95th (m)	1.4	113.1	11.1	13.5	101.8	50.0	12.1	2.8
Internal Link Dist (m)		340.2			1713.2		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	677	1609	1309	516	1563	574	644	620
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.34	0.15	0.21	0.39	0.32	0.16	0.01

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	36	52	0	38	7	51	15	0	11	13	169
Future Volume (vph)	159	36	52	0	38	7	51	15	0	11	13	169
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.979						0.882	
Flt Protected		0.969						0.963			0.997	
Satd. Flow (prot)	0	1343	0	0	1517	0	0	1493	0	0	1234	0
Flt Permitted		0.969						0.963			0.997	
Satd. Flow (perm)	0	1343	0	0	1517	0	0	1493	0	0	1234	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			865.8			150.6			504.1	
Travel Time (s)		13.8			62.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	159	36	52	0	38	7	51	15	0	11	13	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	45	0	0	66	0	0	193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	159	36	52	0	38	7	51	15	0	11	13	169
Future Vol, veh/h	159	36	52	0	38	7	51	15	0	11	13	169
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	159	36	52	0	38	7	51	15	0	11	13	169

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	256	237	98	170	321	15	182	0	0	15	0	0
Stage 1	120	120	-	117	117	-	-	-	-	-	-	-
Stage 2	136	117	-	53	204	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	687	620	964	798	599	1070	1405	-	-	1444	-	-
Stage 1	873	748	-	892	803	-	-	-	-	-	-	-
Stage 2	855	750	-	965	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	611	592	964	679	572	1070	1405	-	-	1444	-	-
Mov Cap-2 Maneuver	611	592	-	679	572	-	-	-	-	-	-	-
Stage 1	865	741	-	860	773	-	-	-	-	-	-	-
Stage 2	778	722	-	861	730	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.71	11.29	5.92	0.43
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	659	617	87	-	-
HCM Lane V/C Ratio	0.036	-	-	0.375	0.073	0.008	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	13.7	11.3	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.7	0.2	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	44	2	0	2	42	309	1	2	340	1
Future Volume (vph)	1	0	44	2	0	2	42	309	1	2	340	1
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.868			0.932							
Flt Protected		0.999			0.976			0.994				
Satd. Flow (prot)	0	1247	0	0	1410	0	0	1514	0	0	1505	0
Flt Permitted		0.999			0.976			0.994				
Satd. Flow (perm)	0	1247	0	0	1410	0	0	1514	0	0	1505	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	1	0	44	2	0	2	42	309	1	2	340	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	0	0	4	0	0	352	0	0	343	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	1	0	44	2	0	2	42	309	1	2	340	1
Future Vol, veh/h	1	0	44	2	0	2	42	309	1	2	340	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	1	0	44	2	0	2	42	309	1	2	340	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	738	739	341	738	739	310	341	0	0	310	0	0
Stage 1	345	345	-	394	394	-	-	-	-	-	-	-
Stage 2	393	394	-	344	345	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	336	348	688	336	348	735	1229	-	-	1262	-	-
Stage 1	675	640	-	635	609	-	-	-	-	-	-	-
Stage 2	636	609	-	676	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	321	333	688	301	333	735	1229	-	-	1262	-	-
Mov Cap-2 Maneuver	321	333	-	301	333	-	-	-	-	-	-	-
Stage 1	674	639	-	609	584	-	-	-	-	-	-	-
Stage 2	608	584	-	631	638	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.75	13.5	0.96	0.05
HCM LOS	B	B		

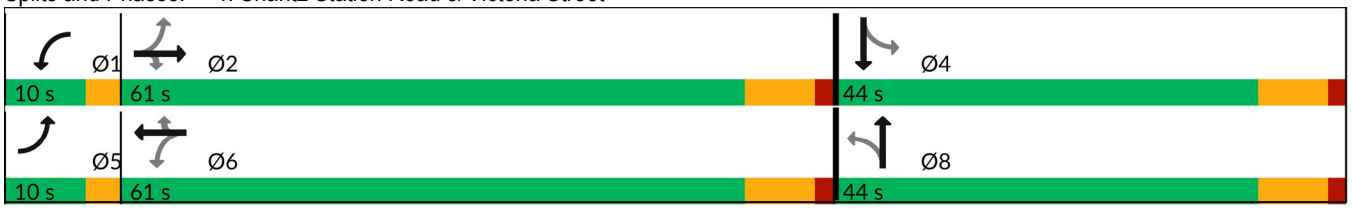
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	215	-	-	671	428	10	-	-
HCM Lane V/C Ratio	0.034	-	-	0.067	0.009	0.002	-	-
HCM Ctrl Dly (s/v)	8	0	-	10.7	13.5	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

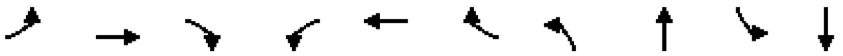
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	585	39	106	571	33	62	185	87	76	173	91
Future Volume (vph)	90	585	39	106	571	33	62	185	87	76	173	91
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1650	1650	1775	1650	1650
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.952			0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1653	1863	1488	1547	1881	1488	1653	1545	0	1686	1554	0
Flt Permitted	0.351			0.314			0.426			0.409		
Satd. Flow (perm)	611	1863	1488	511	1881	1488	741	1545	0	726	1554	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		22			24	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1737.2			234.8			966.2			182.6	
Travel Time (s)		78.2			10.6			43.5			8.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	90	585	39	106	571	33	62	185	87	76	173	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	585	39	106	571	33	62	272	0	76	264	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.11	1.09	1.00	1.11	1.09	1.20	1.20	1.09	1.20	1.20
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	61.0	61.0	10.0	61.0	61.0	44.0	44.0		44.0	44.0	
Total Split (%)	8.7%	53.0%	53.0%	8.7%	53.0%	53.0%	38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	7.0	53.5	53.5	7.0	53.5	53.5	36.5	36.5		36.5	36.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	65.3	53.7	53.7	65.9	55.9	55.9	21.5	21.5		21.5	21.5	
Actuated g/C Ratio	0.65	0.54	0.54	0.66	0.56	0.56	0.21	0.21		0.21	0.21	
v/c Ratio	0.19	0.59	0.05	0.26	0.54	0.04	0.39	0.78		0.49	0.75	
Control Delay (s/veh)	7.7	20.0	1.1	8.4	18.6	0.4	40.7	49.9		45.3	47.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	7.7	20.0	1.1	8.4	18.6	0.4	40.7	49.9		45.3	47.1	
LOS	A	B	A	A	B	A	D	D		D	D	
Approach Delay (s/veh)		17.4			16.2			48.2			46.7	
Approach LOS		B			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 100.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay (s/veh): 26.7		Intersection LOS: C	
Intersection Capacity Utilization 84.8%		ICU Level of Service E	
Analysis Period (min) 15			

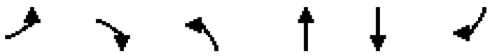
Splits and Phases: 4: Shantz Station Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	585	39	106	571	33	62	272	76	264
v/c Ratio	0.19	0.59	0.05	0.26	0.54	0.04	0.39	0.78	0.49	0.75
Control Delay (s/veh)	7.7	20.0	1.1	8.4	18.6	0.4	40.7	49.9	45.3	47.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.7	20.0	1.1	8.4	18.6	0.4	40.7	49.9	45.3	47.1
Queue Length 50th (m)	5.2	71.8	0.0	6.2	69.1	0.0	10.2	45.5	12.8	43.4
Queue Length 95th (m)	13.3	126.3	1.8	15.5	121.4	0.7	22.1	72.4	26.7	69.5
Internal Link Dist (m)		1713.2			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	470	998	830	408	1048	861	270	578	265	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.59	0.05	0.26	0.54	0.04	0.23	0.47	0.29	0.45

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	86	16	18	202	188	115
Future Volume (vph)	86	16	18	202	188	115
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.949	
Flt Protected	0.960			0.996		
Satd. Flow (prot)	1618	0	0	1599	1528	0
Flt Permitted	0.960			0.996		
Satd. Flow (perm)	1618	0	0	1599	1528	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	86	16	18	202	188	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	220	303	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	16	18	202	188	115
Future Vol, veh/h	86	16	18	202	188	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	86	16	18	202	188	115

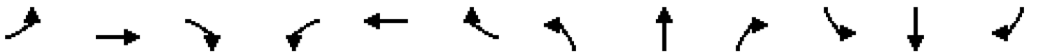
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	484	246	303	0	-	0
Stage 1	246	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	540	798	1269	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	532	798	1269	-	-	-
Mov Cap-2 Maneuver	532	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	799	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.84	0.64	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	147	-	561	-	-
HCM Lane V/C Ratio	0.014	-	0.182	-	-
HCM Ctrl Dly (s/v)	7.9	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Appendix K

2045 Total Traffic Operations Reports (with New Highway 7)

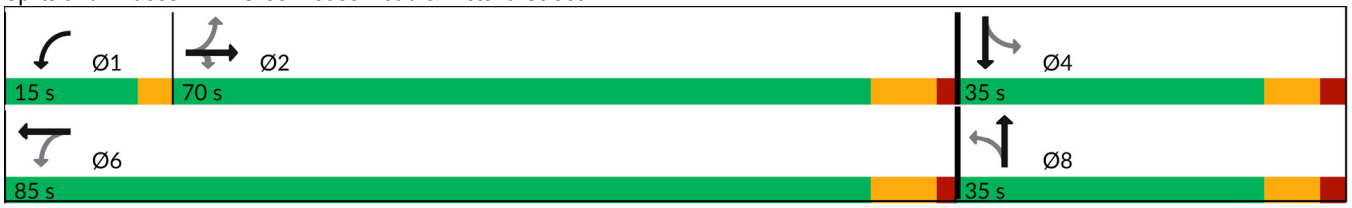


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	575	175	87	528	0	224	1	125	0	0	0
Future Volume (vph)	2	575	175	87	528	0	224	1	125	0	0	0
Ideal Flow (vphpl)	1775	1900	1750	1775	1650	1650	1775	1650	1650	1550	1550	1550
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851				
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1686	1810	1430	1328	1587	0	1576	1364	0	0	1550	0
Flt Permitted	0.468			0.245			0.757					
Satd. Flow (perm)	831	1810	1430	342	1587	0	1256	1364	0	0	1550	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			175					125				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			608.1			287.2			155.6	
Travel Time (s)		16.4			27.4			20.7			11.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	5%	4%	27%	4%	0%	7%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	575	175	87	528	0	224	1	125	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	575	175	87	528	0	224	126	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.11	1.09	1.20	1.20	1.09	1.20	1.20	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA				
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	32.4	32.4	32.4	45.8	41.0		19.7	19.7				
Actuated g/C Ratio	0.42	0.42	0.42	0.60	0.53		0.26	0.26				
v/c Ratio	0.01	0.75	0.25	0.28	0.62		0.70	0.28				
Control Delay (s/veh)	15.0	27.4	3.7	9.4	16.2		41.4	7.7				
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay (s/veh)	15.0	27.4	3.7	9.4	16.2		41.4	7.7				
LOS	B	C	A	A	B		D	A				
Approach Delay (s/veh)		21.8			15.3			29.3				
Approach LOS		C			B			C				

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 76.7			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 21.0		Intersection LOS: C	
Intersection Capacity Utilization 80.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT
Lane Group Flow (vph)	2	575	175	87	528	224	126
v/c Ratio	0.01	0.75	0.25	0.28	0.62	0.70	0.28
Control Delay (s/veh)	15.0	27.4	3.7	9.4	16.2	41.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	15.0	27.4	3.7	9.4	16.2	41.4	7.7
Queue Length 50th (m)	0.2	70.4	0.0	4.8	47.8	29.7	0.1
Queue Length 95th (m)	1.5	126.1	11.0	12.0	89.4	66.2	13.6
Internal Link Dist (m)		340.2			584.1		263.2
Turn Bay Length (m)	135.0		135.0	140.0		115.0	
Base Capacity (vph)	672	1463	1190	371	1458	491	610
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.39	0.15	0.23	0.36	0.46	0.21

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	46	52	48	29	42	45	16	21	25	22	130
Future Volume (vph)	169	46	52	48	29	42	45	16	21	25	22	130
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.952			0.965			0.901	
Flt Protected		0.969			0.980			0.973			0.993	
Satd. Flow (prot)	0	1408	0	0	1446	0	0	1455	0	0	1225	0
Flt Permitted		0.969			0.980			0.973			0.993	
Satd. Flow (perm)	0	1408	0	0	1446	0	0	1455	0	0	1225	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			713.1			150.6			504.1	
Travel Time (s)		13.8			51.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	18%
Adj. Flow (vph)	169	46	52	48	29	42	45	16	21	25	22	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	0	0	119	0	0	82	0	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.9%		ICU Level of Service A	
Analysis Period (min) 15			

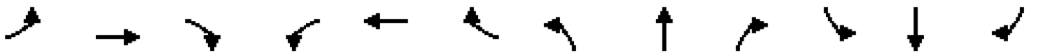
Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	169	46	52	48	29	42	45	16	21	25	22	130
Future Vol, veh/h	169	46	52	48	29	42	45	16	21	25	22	130
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	4	8	0	0	0	0	0	0	0	0	0	18
Mvmt Flow	169	46	52	48	29	42	45	16	21	25	22	130

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	258	264	87	212	319	27	152	0	0	37	0	0
Stage 1	137	137	-	117	117	-	-	-	-	-	-	-
Stage 2	121	127	-	95	202	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.58	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.58	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.072	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	691	631	977	750	601	1055	1441	-	-	1587	-	-
Stage 1	861	772	-	893	803	-	-	-	-	-	-	-
Stage 2	879	780	-	917	738	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	601	600	977	626	572	1055	1441	-	-	1587	-	-
Mov Cap-2 Maneuver	601	600	-	626	572	-	-	-	-	-	-	-
Stage 1	846	758	-	864	777	-	-	-	-	-	-	-
Stage 2	787	755	-	801	725	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.36	11.07	4.16	1.03
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	887	-	-	650	712	217	-	-
HCM Lane V/C Ratio	0.031	-	-	0.411	0.167	0.016	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	14.4	11.1	7.3	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2	0.6	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	0	72	1	0	5	58	344	2	4	326	13
Future Volume (vph)	24	0	72	1	0	5	58	344	2	4	326	13
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.899			0.887			0.999			0.995	
Flt Protected		0.988			0.992			0.993			0.999	
Satd. Flow (prot)	0	1308	0	0	1169	0	0	1459	0	0	1445	0
Flt Permitted		0.988			0.992			0.993			0.999	
Satd. Flow (perm)	0	1308	0	0	1169	0	0	1459	0	0	1445	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	7%	100%	0%	0%	0%	6%	50%	0%	7%	0%
Adj. Flow (vph)	24	0	72	1	0	5	58	344	2	4	326	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	0	0	6	0	0	404	0	0	343	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.6%		ICU Level of Service C	
Analysis Period (min) 15			

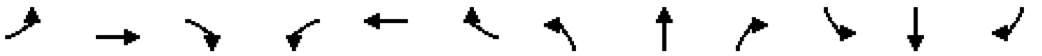
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	24	0	72	1	0	5	58	344	2	4	326	13
Future Vol, veh/h	24	0	72	1	0	5	58	344	2	4	326	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	7	100	0	0	0	6	50	0	7	0
Mvmt Flow	24	0	72	1	0	5	58	344	2	4	326	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	801	803	333	795	808	345	339	0	0	346	0	0
Stage 1	341	341	-	461	461	-	-	-	-	-	-	-
Stage 2	460	462	-	334	347	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	8.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	7.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.363	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	305	319	698	214	317	702	1231	-	-	1224	-	-
Stage 1	679	643	-	431	569	-	-	-	-	-	-	-
Stage 2	585	568	-	516	638	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	284	300	698	180	297	702	1231	-	-	1224	-	-
Mov Cap-2 Maneuver	284	300	-	180	297	-	-	-	-	-	-	-
Stage 1	676	640	-	406	535	-	-	-	-	-	-	-
Stage 2	547	535	-	461	636	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.65	12.7	1.16	0.09
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	258	-	-	512	473	21	-	-
HCM Lane V/C Ratio	0.047	-	-	0.188	0.013	0.003	-	-
HCM Ctrl Dly (s/v)	8.1	0	-	13.7	12.7	8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0	0	-	-

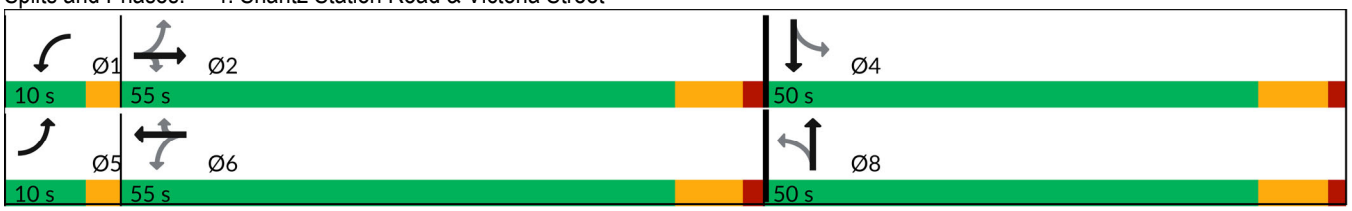


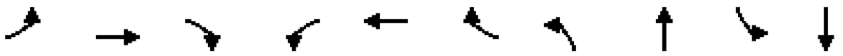
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	607	58	70	479	43	50	203	111	85	198	85
Future Volume (vph)	76	607	58	70	479	43	50	203	111	85	198	85
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1650	1650	1775	1650	1650
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.947			0.955	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1686	1810	1417	1591	1827	1365	1561	1487	0	1547	1443	0
Flt Permitted	0.393			0.287			0.440			0.385		
Satd. Flow (perm)	698	1810	1417	481	1827	1365	723	1487	0	627	1443	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		27			21	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1129.1			234.8			966.2			182.6	
Travel Time (s)		50.8			10.6			43.5			8.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	5%	5%	6%	4%	9%	8%	4%	7%	9%	8%	12%
Adj. Flow (vph)	76	607	58	70	479	43	50	203	111	85	198	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	607	58	70	479	43	50	314	0	85	283	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.11	1.09	1.00	1.11	1.09	1.20	1.20	1.09	1.20	1.20
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	55.0	55.0	10.0	55.0	55.0	50.0	50.0		50.0	50.0	
Total Split (%)	8.7%	47.8%	47.8%	8.7%	47.8%	47.8%	43.5%	43.5%		43.5%	43.5%	
Maximum Green (s)	7.0	47.5	47.5	7.0	47.5	47.5	42.5	42.5		42.5	42.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	58.1	48.2	48.2	58.1	48.2	48.2	23.6	23.6		23.6	23.6	
Actuated g/C Ratio	0.61	0.51	0.51	0.61	0.51	0.51	0.25	0.25		0.25	0.25	
v/c Ratio	0.15	0.66	0.08	0.19	0.52	0.06	0.28	0.81		0.54	0.75	
Control Delay (s/veh)	8.9	24.0	3.3	9.4	20.3	1.8	32.7	46.7		44.9	43.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	8.9	24.0	3.3	9.4	20.3	1.8	32.7	46.7		44.9	43.7	
LOS	A	C	A	A	C	A	C	D		D	D	
Approach Delay (s/veh)		20.8			17.6			44.8			44.0	
Approach LOS		C			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 94.6			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 28.3		Intersection LOS: C	
Intersection Capacity Utilization 88.3%		ICU Level of Service E	
Analysis Period (min) 15			

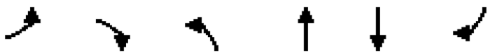
Splits and Phases: 4: Shantz Station Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	76	607	58	70	479	43	50	314	85	283
v/c Ratio	0.15	0.66	0.08	0.19	0.52	0.06	0.28	0.81	0.54	0.75
Control Delay (s/veh)	8.9	24.0	3.3	9.4	20.3	1.8	32.7	46.7	44.9	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.9	24.0	3.3	9.4	20.3	1.8	32.7	46.7	44.9	43.7
Queue Length 50th (m)	4.7	81.5	0.0	4.3	57.9	0.0	7.5	50.0	13.6	44.9
Queue Length 95th (m)	12.9	146.8	5.4	12.2	105.4	2.8	17.0	79.4	28.8	72.0
Internal Link Dist (m)		1105.1			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	503	921	756	378	930	729	329	692	285	668
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.66	0.08	0.19	0.52	0.06	0.15	0.45	0.30	0.42

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	133	23	21	217	192	70
Future Volume (vph)	133	23	21	217	192	70
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.980				0.964	
Flt Protected	0.959			0.996		
Satd. Flow (prot)	1659	0	0	1643	1568	0
Flt Permitted	0.959			0.996		
Satd. Flow (perm)	1659	0	0	1643	1568	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Confl. Peds. (#/hr)		1				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	133	23	21	217	192	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	0	0	238	262	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.5%		ICU Level of Service A	
Analysis Period (min) 15			

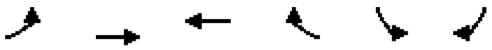
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	133	23	21	217	192	70
Future Vol, veh/h	133	23	21	217	192	70
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	133	23	21	217	192	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	486	228	262	0	-	0
Stage 1	227	-	-	-	-	-
Stage 2	259	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	544	816	1314	-	-	-
Stage 1	815	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	534	816	1314	-	-	-
Mov Cap-2 Maneuver	534	-	-	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	789	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.83	0.69	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	159	-	563	-	-
HCM Lane V/C Ratio	0.016	-	0.277	-	-
HCM Ctrl Dly (s/v)	7.8	0	13.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	34	60	55	16	36	79
Future Volume (vph)	34	60	55	16	36	79
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.970		0.907	
Flt Protected		0.982			0.985	
Satd. Flow (prot)	0	1570	1600	0	1577	0
Flt Permitted		0.982			0.985	
Satd. Flow (perm)	0	1570	1600	0	1577	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		713.1	152.8		136.7	
Travel Time (s)		51.3	11.0		9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	34	60	55	16	36	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	94	71	0	115	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	60	55	16	36	79
Future Vol, veh/h	34	60	55	16	36	79
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	5	0	0	0	0
Mvmt Flow	34	60	55	16	36	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	71	0	-	0	191	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	128	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1542	-	-	-	803	1007
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1542	-	-	-	784	1007
Mov Cap-2 Maneuver	-	-	-	-	784	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	903	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.67	0	9.44
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	651	-	-	-	925
HCM Lane V/C Ratio	0.022	-	-	-	0.124
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	670	30	25	544	71	56
Future Volume (vph)	670	30	25	544	71	56
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.940	
Flt Protected				0.998	0.973	
Satd. Flow (prot)	1565	0	0	1586	1614	0
Flt Permitted				0.998	0.973	
Satd. Flow (perm)	1565	0	0	1586	1614	0
Link Speed (k/h)	80			80	50	
Link Distance (m)	608.1			1129.1	121.8	
Travel Time (s)	27.4			50.8	8.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	4%	0%	0%
Adj. Flow (vph)	670	30	25	544	71	56
Shared Lane Traffic (%)						
Lane Group Flow (vph)	700	0	0	569	127	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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

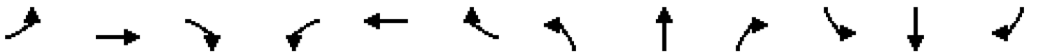
Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	670	30	25	544	71	56
Future Vol, veh/h	670	30	25	544	71	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	5	0	0	4	0	0
Mvmt Flow	670	30	25	544	71	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	700	0	1279	685
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	594	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	906	-	185	452
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	555	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	906	-	178	452
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	534	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.4	35.08
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	243	-	-	79	-
HCM Lane V/C Ratio	0.524	-	-	0.028	-
HCM Ctrl Dly (s/v)	35.1	-	-	9.1	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	2.8	-	-	0.1	-

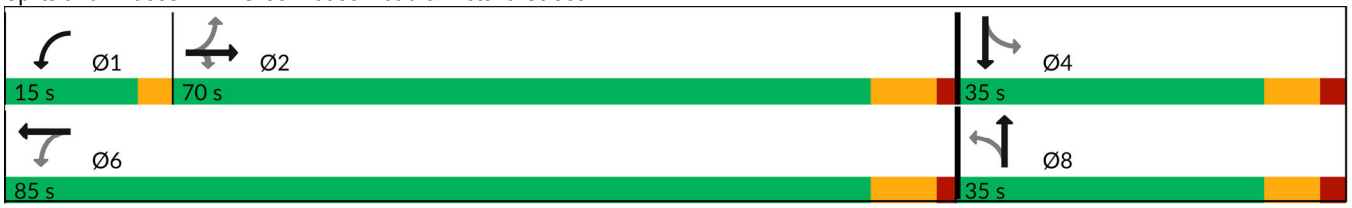


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	628	231	115	655	0	210	1	107	0	2	2
Future Volume (vph)	2	628	231	115	655	0	210	1	107	0	2	2
Ideal Flow (vphpl)	1775	1900	1750	1775	1650	1650	1775	1650	1650	1550	1550	1550
Storage Length (m)	135.0		135.0	140.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.851			0.932	
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1686	1845	1473	1686	1634	0	1686	1364	0	0	1445	0
Flt Permitted	0.390			0.220			0.755					
Satd. Flow (perm)	692	1845	1473	390	1634	0	1340	1364	0	0	1445	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			231					107			2	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		364.2			608.1			287.2			155.6	
Travel Time (s)		16.4			27.4			20.7			11.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	1%	0%	1%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	2	628	231	115	655	0	210	1	107	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	628	231	115	655	0	210	108	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.11	1.09	1.20	1.20	1.09	1.20	1.20	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2			2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru			Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0			10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6			0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA			NA	
Protected Phases		2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	27.5	27.5	27.5	10.0	27.5		17.3	17.3		17.3	17.3	
Total Split (s)	70.0	70.0	70.0	15.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	58.3%	58.3%	58.3%	12.5%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	62.5	62.5	62.5	12.0	77.5		27.7	27.7		27.7	27.7	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.6	1.6	1.6	0.0	1.6		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	7.5	7.5	7.5	3.0	7.5		7.3	7.3			7.3	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	34.3	34.3	34.3	47.7	42.8		18.1	18.1			18.1	
Actuated g/C Ratio	0.44	0.44	0.44	0.62	0.56		0.23	0.23			0.23	
v/c Ratio	0.01	0.77	0.30	0.30	0.72		0.67	0.27			0.01	
Control Delay (s/veh)	14.0	26.4	3.2	8.4	18.0		41.6	8.5			23.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay (s/veh)	14.0	26.4	3.2	8.4	18.0		41.6	8.5			23.5	
LOS	B	C	A	A	B		D	A			C	
Approach Delay (s/veh)		20.2			16.5			30.4			23.5	
Approach LOS		C			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 77.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay (s/veh): 20.4		Intersection LOS: C	
Intersection Capacity Utilization 94.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Greenhouse Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2	628	231	115	655	210	108	4
v/c Ratio	0.01	0.77	0.30	0.30	0.72	0.67	0.27	0.01
Control Delay (s/veh)	14.0	26.4	3.2	8.4	18.0	41.6	8.5	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.0	26.4	3.2	8.4	18.0	41.6	8.5	23.5
Queue Length 50th (m)	0.2	74.4	0.0	5.7	60.7	27.4	0.1	0.2
Queue Length 95th (m)	1.5	140.0	12.0	14.7	121.6	63.2	13.0	3.0
Internal Link Dist (m)		340.2			584.1		263.2	131.6
Turn Bay Length (m)	135.0		135.0	140.0		115.0		
Base Capacity (vph)	559	1490	1234	461	1495	526	600	568
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.42	0.19	0.25	0.44	0.40	0.18	0.01

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	36	52	36	38	32	51	19	52	45	15	169
Future Volume (vph)	159	36	52	36	38	32	51	19	52	45	15	169
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.959			0.942			0.900	
Flt Protected		0.969			0.983			0.980			0.990	
Satd. Flow (prot)	0	1343	0	0	1461	0	0	1431	0	0	1221	0
Flt Permitted		0.969			0.983			0.980			0.990	
Satd. Flow (perm)	0	1343	0	0	1461	0	0	1431	0	0	1221	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		153.2			713.1			150.6			504.1	
Travel Time (s)		13.8			51.3			10.8			36.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	29%	0%	0%	0%	0%	0%	0%	0%	29%	0%	10%
Adj. Flow (vph)	159	36	52	36	38	32	51	19	52	45	15	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	106	0	0	122	0	0	229	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.5%		ICU Level of Service A	
Analysis Period (min) 15			

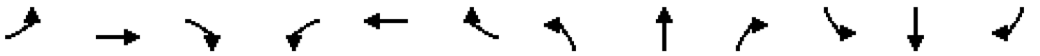
Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	159	36	52	36	38	32	51	19	52	45	15	169
Future Vol, veh/h	159	36	52	36	38	32	51	19	52	45	15	169
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	7	29	0	0	0	0	0	0	0	29	0	10
Mvmt Flow	159	36	52	36	38	32	51	19	52	45	15	169

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	330	363	100	270	421	45	184	0	0	71	0	0
Stage 1	190	190	-	147	147	-	-	-	-	-	-	-
Stage 2	140	173	-	123	274	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.79	6.2	7.1	6.5	6.2	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.79	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4.261	3.3	3.5	4	3.3	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	614	524	962	687	527	1031	1403	-	-	1374	-	-
Stage 1	801	695	-	860	779	-	-	-	-	-	-	-
Stage 2	851	707	-	886	687	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	511	486	962	560	488	1031	1403	-	-	1374	-	-
Mov Cap-2 Maneuver	511	486	-	560	488	-	-	-	-	-	-	-
Stage 1	771	669	-	828	750	-	-	-	-	-	-	-
Stage 2	753	680	-	763	661	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	16.32	12.11	3.2	1.51
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	656	-	-	562	612	299	-	-
HCM Lane V/C Ratio	0.036	-	-	0.439	0.173	0.033	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	16.3	12.1	7.7	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.2	0.6	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	58	2	0	2	63	321	1	2	349	21
Future Volume (vph)	15	0	58	2	0	2	63	321	1	2	349	21
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.893			0.932						0.992	
Flt Protected		0.990			0.976			0.992				
Satd. Flow (prot)	0	1288	0	0	1410	0	0	1512	0	0	1496	0
Flt Permitted		0.990			0.976			0.992				
Satd. Flow (perm)	0	1288	0	0	1410	0	0	1512	0	0	1496	0
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		890.3			177.3			237.7			966.2	
Travel Time (s)		40.1			8.0			10.7			43.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	8%	0%	0%	0%	0%	2%	0%	0%	3%	0%
Adj. Flow (vph)	15	0	58	2	0	2	63	321	1	2	349	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	4	0	0	385	0	0	372	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			

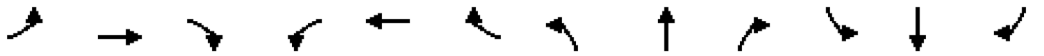
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	58	2	0	2	63	321	1	2	349	21
Future Vol, veh/h	15	0	58	2	0	2	63	321	1	2	349	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	8	0	0	0	0	2	0	0	3	0
Mvmt Flow	15	0	58	2	0	2	63	321	1	2	349	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	811	812	360	801	822	322	370	0	0	322	0	0
Stage 1	364	364	-	448	448	-	-	-	-	-	-	-
Stage 2	447	448	-	353	374	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.28	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.372	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	301	316	672	305	311	724	1200	-	-	1249	-	-
Stage 1	660	628	-	594	577	-	-	-	-	-	-	-
Stage 2	595	576	-	668	621	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	280	295	672	261	291	724	1200	-	-	1249	-	-
Mov Cap-2 Maneuver	280	295	-	261	291	-	-	-	-	-	-	-
Stage 1	658	627	-	556	540	-	-	-	-	-	-	-
Stage 2	555	539	-	609	620	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.02	14.49	1.34	0.04
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	294	-	-	522	383	10	-	-
HCM Lane V/C Ratio	0.053	-	-	0.14	0.01	0.002	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	13	14.5	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0	0	-	-



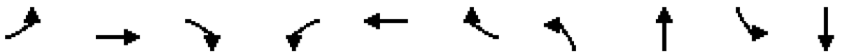
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	607	48	118	603	33	74	190	96	76	181	111
Future Volume (vph)	104	607	48	118	603	33	74	190	96	76	181	111
Ideal Flow (vphpl)	1775	1900	1750	1775	1900	1750	1775	1650	1650	1775	1650	1650
Storage Length (m)	90.0		90.0	90.0		100.0	85.0		0.0	80.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.950			0.943	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1653	1863	1488	1547	1881	1488	1653	1542	0	1686	1546	0
Flt Permitted	0.303			0.300			0.382			0.394		
Satd. Flow (perm)	527	1863	1488	489	1881	1488	665	1542	0	699	1546	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			71			71		23			28	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		1129.1			234.8			966.2			182.6	
Travel Time (s)		50.8			10.6			43.5			8.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	0%	9%	1%	0%	2%	1%	3%	0%	1%	0%
Adj. Flow (vph)	104	607	48	118	603	33	74	190	96	76	181	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	607	48	118	603	33	74	286	0	76	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.00	1.11	1.09	1.00	1.11	1.09	1.20	1.20	1.09	1.20	1.20
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	10.0	32.5	32.5	10.0	32.5	32.5	30.5	30.5		30.5	30.5	
Total Split (s)	10.0	61.0	61.0	10.0	61.0	61.0	44.0	44.0		44.0	44.0	
Total Split (%)	8.7%	53.0%	53.0%	8.7%	53.0%	53.0%	38.3%	38.3%		38.3%	38.3%	
Maximum Green (s)	7.0	53.5	53.5	7.0	53.5	53.5	36.5	36.5		36.5	36.5	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	5.9	5.9		5.9	5.9	
All-Red Time (s)	0.0	1.6	1.6	0.0	1.6	1.6	1.6	1.6		1.6	1.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	7.5	7.5	3.0	7.5	7.5	7.5	7.5		7.5	7.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)		18.0	18.0		18.0	18.0	16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effct Green (s)	65.3	53.7	53.7	65.3	53.7	53.7	22.6	22.6		22.6	22.6	
Actuated g/C Ratio	0.64	0.53	0.53	0.64	0.53	0.53	0.22	0.22		0.22	0.22	
v/c Ratio	0.25	0.62	0.06	0.30	0.61	0.04	0.50	0.79		0.49	0.80	
Control Delay (s/veh)	8.7	21.4	1.9	9.3	21.1	0.5	46.1	50.0		44.9	49.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	8.7	21.4	1.9	9.3	21.1	0.5	46.1	50.0		44.9	49.7	
LOS	A	C	A	A	C	A	D	D		D	D	
Approach Delay (s/veh)		18.4			18.4			49.2			48.7	
Approach LOS		B			B			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 101.5			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay (s/veh): 28.3		Intersection LOS: C	
Intersection Capacity Utilization 88.1%		ICU Level of Service E	
Analysis Period (min) 15			

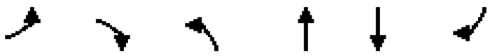
Splits and Phases: 4: Shantz Station Road & Victoria Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	104	607	48	118	603	33	74	286	76	292
v/c Ratio	0.25	0.62	0.06	0.30	0.61	0.04	0.50	0.79	0.49	0.80
Control Delay (s/veh)	8.7	21.4	1.9	9.3	21.1	0.5	46.1	50.0	44.9	49.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.7	21.4	1.9	9.3	21.1	0.5	46.1	50.0	44.9	49.7
Queue Length 50th (m)	6.2	77.8	0.0	7.2	76.8	0.0	12.6	48.4	12.9	48.8
Queue Length 95th (m)	15.8	137.5	3.4	17.7	135.5	0.8	26.6	76.5	26.7	77.3
Internal Link Dist (m)		1105.1			210.8			942.2		158.6
Turn Bay Length (m)	90.0		90.0	90.0		100.0	85.0		80.0	
Base Capacity (vph)	417	986	821	387	996	821	240	571	252	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.62	0.06	0.30	0.61	0.04	0.31	0.50	0.30	0.51

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	86	16	18	233	234	115
Future Volume (vph)	86	16	18	233	234	115
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.956	
Flt Protected	0.960			0.996		
Satd. Flow (prot)	1618	0	0	1599	1536	0
Flt Permitted	0.960			0.996		
Satd. Flow (perm)	1618	0	0	1599	1536	0
Link Speed (k/h)	40			50	50	
Link Distance (m)	129.7			504.1	287.2	
Travel Time (s)	11.7			36.3	20.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	3%	4%	0%
Adj. Flow (vph)	86	16	18	233	234	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	251	349	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	1.10	1.10	1.20	1.20	1.20	1.20
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

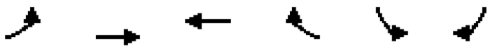
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	86	16	18	233	234	115
Future Vol, veh/h	86	16	18	233	234	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	3	4	0
Mvmt Flow	86	16	18	233	234	115

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	561	292	349	0	-	0
Stage 1	292	-	-	-	-	-
Stage 2	269	-	-	-	-	-
Critical Hdwy	6.43	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	487	752	1221	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	479	752	1221	-	-	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.86	0.57	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	129	-	508	-	-
HCM Lane V/C Ratio	0.015	-	0.201	-	-
HCM Ctrl Dly (s/v)	8	0	13.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	85	46	45	39	27	59
Future Volume (vph)	85	46	45	39	27	59
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.937		0.907	
Flt Protected		0.969			0.985	
Satd. Flow (prot)	0	1555	1546	0	1577	0
Flt Permitted		0.969			0.985	
Satd. Flow (perm)	0	1555	1546	0	1577	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		713.1	152.8		136.7	
Travel Time (s)		51.3	11.0		9.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	0%	0%	0%	0%
Adj. Flow (vph)	85	46	45	39	27	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	131	84	0	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	85	46	45	39	27	59
Future Vol, veh/h	85	46	45	39	27	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	0	0
Mvmt Flow	85	46	45	39	27	59

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	84	0	-	0	281	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	216	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1526	-	-	-	714	1005
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1526	-	-	-	673	1005
Mov Cap-2 Maneuver	-	-	-	-	673	-
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	825	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	4.87	0	9.59
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1168	-	-	-	870
HCM Lane V/C Ratio	0.056	-	-	-	0.099
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	659	76	59	718	52	42
Future Volume (vph)	659	76	59	718	52	42
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.986				0.940	
Flt Protected				0.996	0.973	
Satd. Flow (prot)	1584	0	0	1614	1614	0
Flt Permitted				0.996	0.973	
Satd. Flow (perm)	1584	0	0	1614	1614	0
Link Speed (k/h)	80			80	50	
Link Distance (m)	608.1			1129.1	121.8	
Travel Time (s)	27.4			50.8	8.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	0%	2%	0%	0%
Adj. Flow (vph)	659	76	59	718	52	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	735	0	0	777	94	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	1.20	1.20	1.20	1.20	1.10	1.10
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	659	76	59	718	52	42
Future Vol, veh/h	659	76	59	718	52	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	659	76	59	718	52	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	735	0	1533	697
Stage 1	-	-	-	-	697	-
Stage 2	-	-	-	-	836	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	879	-	130	444
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	429	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	879	-	115	444
Mov Cap-2 Maneuver	-	-	-	-	115	-
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	381	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.71	48.54
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	172	-	-	137	-
HCM Lane V/C Ratio	0.546	-	-	0.067	-
HCM Ctrl Dly (s/v)	48.5	-	-	9.4	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	2.8	-	-	0.2	-

Appendix L

Signal Warrants

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

Horizon Year: 2045 Total - w New Highway 7
Municipality: Region of Waterloo
Project number: 250847

Major Street: Victoria Street
Minor Street: Wambold Street
North/South?: N

Number of Approach Lanes: 1
Tee Intersection? Y
Flow Conditions: Free

PM Forecast Only? N

Warrant Results		
200% Satisfied	No	Case 1: Signal is undoubtedly warranted
100% Satisfied	No	Case 2: Signal might be warranted
		Case 3: Signal warrant is unlikely

	Major Street						Minor Street						
	Victoria Street						Wambold Street						
	Eastbound			Westbound			Northbound			Southbound			Peds
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Crossing
AM Peak Hour		670	30	25	544		71		56				
PM Peak Hour		659	76	59	718		52		42				
verage Hourly Volum	0	332	27	21	316	0	31	0	25	0	0	0	0

Warrant	AHV
1A - All	751
1B - Minor	55
2A - Major	695
2B - Cross	31

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average
1A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
		X				Volume
	All Approaches	480	720	600	900	751
					% Fulfilled	156.4%

	Approach Lanes	1		2 or more		Average
1B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
		X				Volume
	Minor Street Approaches	180	255	180	255	55
					% Fulfilled	30.7%

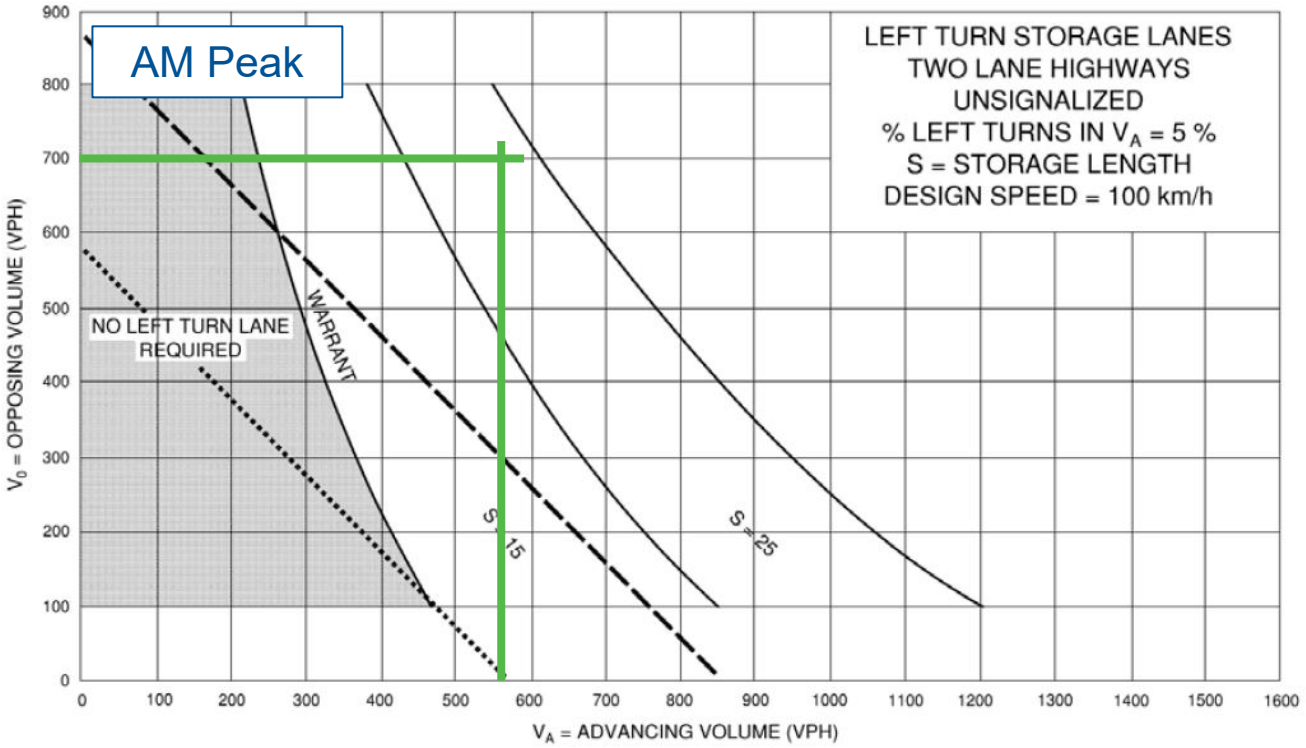
Warrant 2 - Delay To Cross Traffic

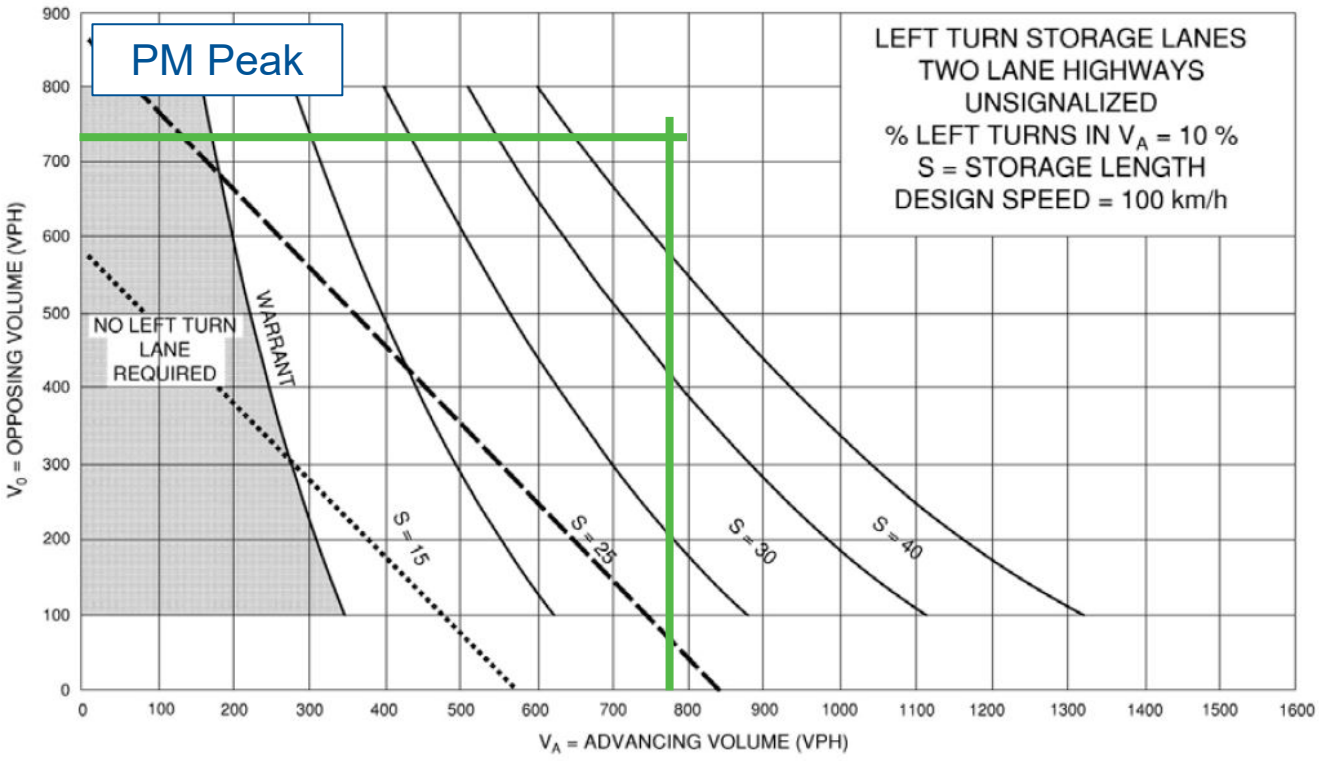
	Approach Lanes	1		2 or more		Average
2A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
		X				Volume
	Major Street Approaches	480	720	600	900	695
					% Fulfilled	144.8%

	Approach Lanes	1		2 or more		Average
2B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly
		X				Volume
	Traffic Crossing Major Street	50	75	50	75	31
					% Fulfilled	61.5%

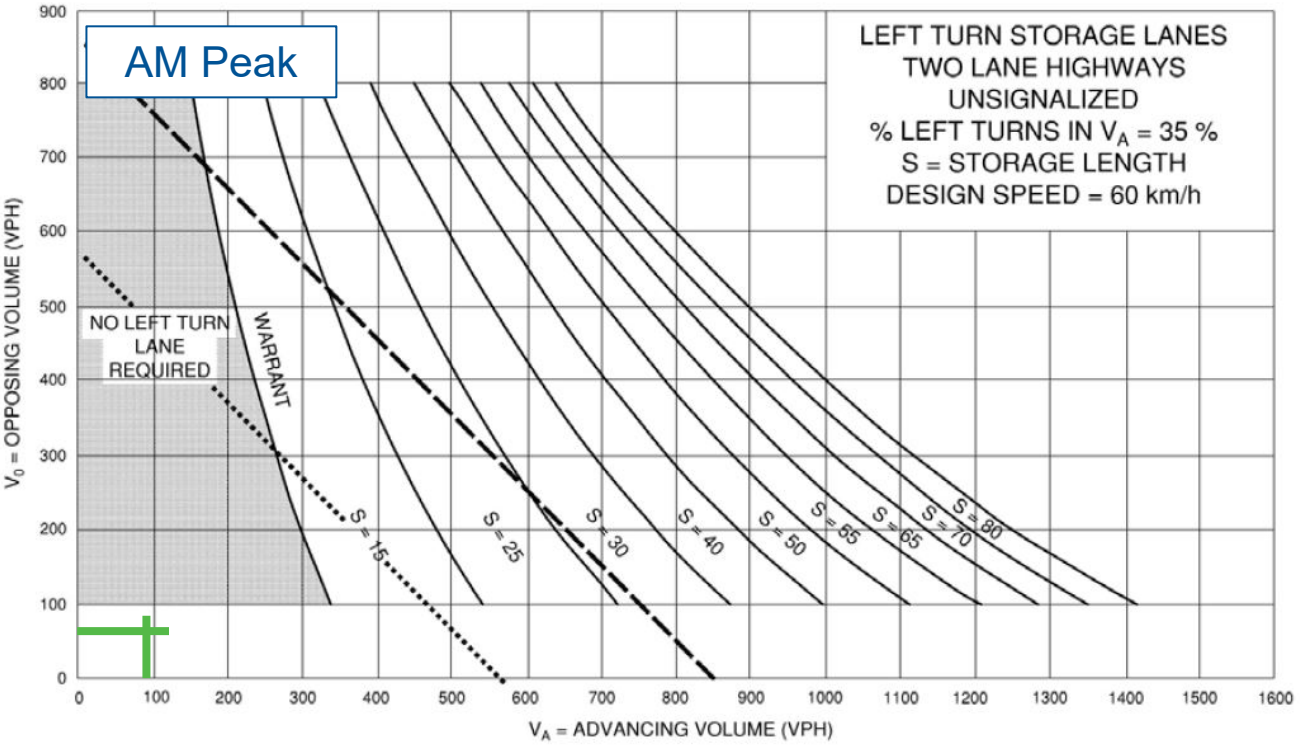
Appendix M

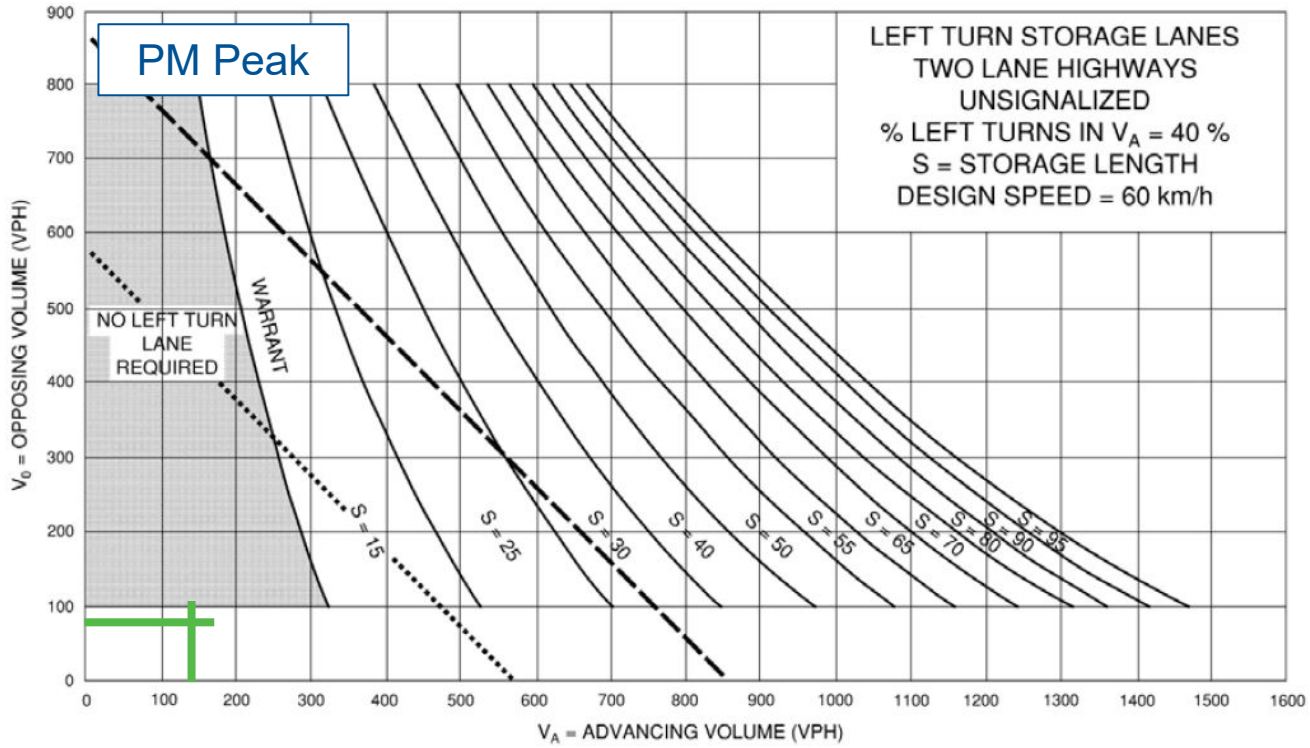
Left-Turn Lane Warrants





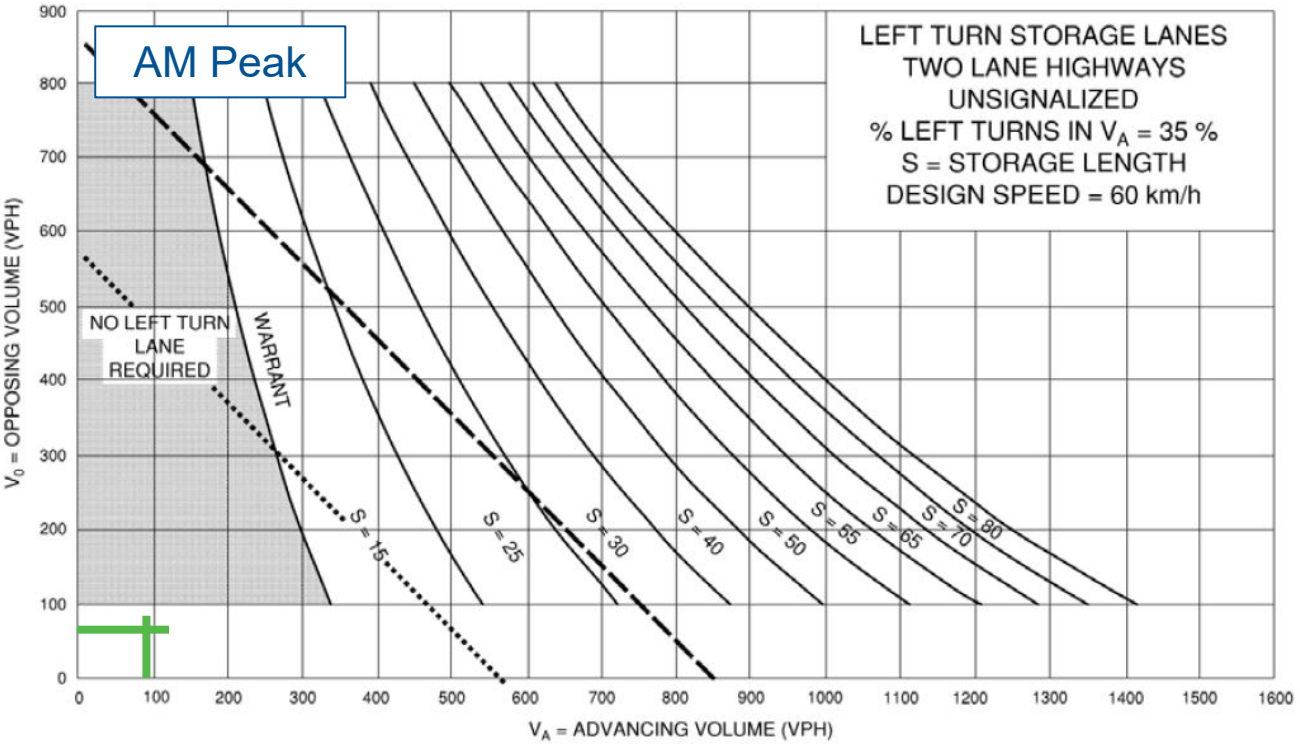
Westbound Left-Turn Lane Warrants
Victoria Street & Wambold Street
2040 Total Traffic – with New Highway 7

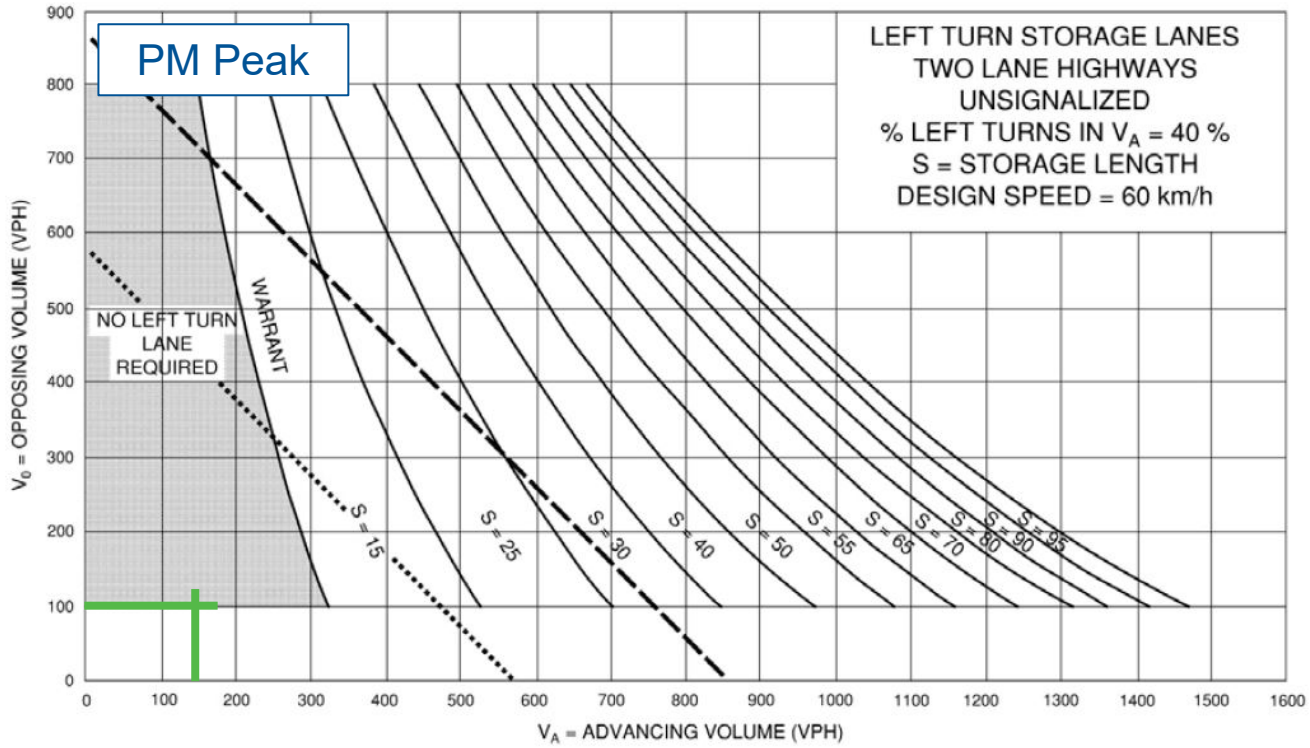




paradigm TRANSPORTATION SOLUTIONS LIMITED

Eastbound Left-Turn Lane Warrants
Kramp Road & Wambold Street
2040 Total Traffic – with New Highway 7


AM Peak
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 35 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
S = 80
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)


PM Peak
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
S = 80
S = 90
S = 95
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)