130 Guelph Avenue, Cambridge, ON Proposed Mixed-Use Development

Transportation Impact and Parking Study

Paradigm Transportation Solutions Limited
2024-12
240126

Project Summary

Project Number:

240126

Date and Version:

2024-12
1.0.0

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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct this Transportation Impact Study (TIS) and Parking Study (PS) for a proposed mixed-use development located at 130 Guelph Avenue in the City of Cambridge, Region of Waterloo.

This report includes an analysis of existing traffic conditions, a description of the proposed development, traffic forecasts for a five-year horizon from the anticipated full build-out year (2026), assessment of traffic impacts with recommendations to accommodate the proposed development as appropriate, and a review of the proposed parking supply.

The findings, conclusions, and recommendations of this study are summarized below and outlined in further detail in the body of the report.

Proposed Development

The property owner proposes to redevelop the lands to include a six-storey building, with a total of 112 affordable rental apartment dwelling units and 663.6 SM (7,143 SF) GFA of commercial-retail space. The commercial-retail space is located on the basement level.

A total of 108 parking spaces and a car share space are proposed at grade, including six barrier-free parking spaces (two Type A spaces and four Type B spaces). This supply does not meet the municipal zoning requirements (Zoning By-law 150-85) as currently planned (i.e., 1.0 space per dwelling unit plus 1 space for each 4 dwelling units for visitors only, and 2.5 spaces per 100 SM of GLA of commercial space). **Section 7** details the parking justifications.

Vehicle access is proposed via a full-movement access connection with Guelph Avenue and with Sheffield Street, respectively. Both accesses are planned to operate unsignalized with the driveways operating under stop control.

It is anticipated full build-out and occupancy of the mixed-use development will occur by 2026.

Conclusions

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

- **Existing (2024) Traffic:** The study area intersections are currently operating at acceptable levels of service and within capacity during the weekday AM and PM peak hours. No major critical movements/intersections are identified;
- **Development Trip Generation:** With full development and occupancy of the subject site, the proposed mixed-use development is forecast to generate a total of 73 new AM peak hour trips and 99 new PM peak hour trips;
- **Background Traffic Conditions:** Without the proposed mixed-use development, the study area intersections and associated traffic movements are forecast to continue operating at acceptable levels of service and within capacity during the weekday AM and PM peak hours under the 2031 horizon year;
- **Total Traffic Conditions:** With full build-out of the proposed mixed-use development, the operations at the study area intersections are found to be similar to future background traffic conditions. All intersections and traffic movements are forecast to continue to operate at acceptable levels of service and within capacity during both AM and PM peak hours under the 2031 horizon year.

  No intersection geometric improvements or traffic control upgrades are warranted to accommodate the proposed development;
- **Transportation Demand Management (TDM) Plan:** A plan for the proposed development has been prepared and the following applicable TDM measures/initiatives have been identified which would be implemented by the applicant.
  - Front the proposed building to Guelph Avenue;
  - Provide internal sidewalks with connections to the existing sidewalk on Guelph Avenue and Sheffield Street;
  - Provide bicycle parking on-site to meet City requirements;
  - Access to multiple bus transit routes that provide good connectivity to the broader network and access to major destinations;
  - Provide transit information in common areas on-site;
  - Provide parking unbundled from the rent/cost of a unit;
  - Provide a carshare space/vehicle in a premium location on-site; and
  - Delegate a TDM coordinator, either an interested individual or property manager, to support all on-site TDM programs.

TDM Checklist: Based on the above strategies, the City's TDM checklist indicates that the development is TDM supportive; and

- **Parking Supply Review:** While the proposed vehicular parking supply (108 spaces plus a car share space) for the development does not satisfy the City's Zoning By-law requirements. It is determined and demonstrated that the proposed parking supply will be adequate in serving the anticipated parking demands of the development.

  Justification and rationale are provided through proxy site parking demand data, trends of requiring lower parking rates for affordable housing developments in other municipalities, City of Cambridge policy changes, surrounding site context, and the implementation of the proposed TDM measures/initiatives which would further reduce the on-site parking demands.

Recommendations

The recommendations of the study area are as follows:

- The City of Cambridge recognize the conclusions drawn above;
- That 12 short-term bicycle parking spaces be converted to long-term bicycle parking spaces on-site to meet the City requirements; and
- The proposed TDM Plan be implemented.

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1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct this Transportation Impact Study (TIS) and Parking Study (PS) for a proposed mixed-use development located at 130 Guelph Avenue in the City of Cambridge, Region of Waterloo.

Figure 1.1 illustrates the subject development location and associated study area.

The property owner proposes to construct a six-storey building, with a total of 112 affordable rental apartment dwelling units and 663.6 SM (7,143 SF) GFA of commercial-retail space.

1.2 Purpose and Scope

The purpose of this report is to identify and assess the potential traffic impact resulting from the proposed development and to review the adequacy of the proposed parking supply. The scope of the study, developed in consultation with City of Cambridge staff via e-mail in March 2024, includes:

- Assessment of the current traffic, alternative mode resources and site conditions within the study area;
- Estimates of background traffic growth for five-year horizon from the anticipated full build-out year (2026);
- Estimates of additional traffic generated by the subject site;
- Analyses of the impact of future traffic on the surrounding road network, including the following study area intersections:
  - Guelph Avenue and Scott Road/Baldwin Drive (signalized);
  - Guelph Avenue and Shaw Avenue (unsignalized);
  - Guelph Avenue and Fisher Mills Road (unsignalized);
  - Guelph Avenue and Sheffield Street (unsignalized);
  - Guelph Avenue and Queen Street (signalized);
  - Guelph Avenue and the Proposed Site Access (proposed unsignalized); and
  - Sheffield Street and the Proposed Site Access (proposed unsignalized).

- Evaluation of mitigation measures to accommodate the site-generated traffic in a satisfactory manner;
- Evaluation of proposed Transportation Demand Management (TDM) measures and recommendations on preferred measures; and
- Review of the proposed parking supply against the municipal Zoning By-law (ZBL) and determine the adequacy of the proposed parking supply.

This study has been prepared in accordance with the requirements detailed by the Region of Waterloo *Transportation Impact Study (TIS) Guidelines*[1] and Region of Waterloo *TIS requirements for Capacity Analysis, Roundabouts, Signal Warrants*[2].

This study has also been completed in accordance with direction provided by City staff during pre-study consultation. **Appendix A** contains the pre-study consultation material for reference.

1 Region of Waterloo, *Transportation Impact Study Guidelines*, July 2014.
2 Region of Waterloo, *TIS Requirements for Capacity Analysis, Roundabouts & Signal Warrants*, Revised April 2013.

Site Location and Study Area

Figure 1.1

2 Existing Conditions

2.1 Roads and Traffic Control

The characteristics of the roads near the subject site are described below. Reference has been made to the City of Cambridge *Transportation Master Plan* (May 2019)[3].

- **Guelph Avenue** is a north-south collector road with a two-lane cross section (one lane in each direction). The posted speed limit is 50 km/h; however, as the road approaching the intersection of Guelph Avenue and Fisher Mills Road, the posted speed limit transitions to 40 km/h.

  "No heavy trucks" signs are posted indicating heavy trucks are prohibited on Guelph Avenue within the study area.

  It is noted a rail line crosses Guelph Avenue approximately 15 metres south of Sheffield Street. Signage and flashing red lights are provided on the northbound and southbound approaches to the rail crossing;
- **Fisher Mills Road** is an east-west collector road with a two-lane cross section (one lane in each direction) and a posted speed limit of 40 km/h. On-street parking bay area (approximately 130 metres long) is provided on the south side of Fisher Mills Road in front of the Victoria Park.

  "No heavy trucks" signs are posted indicating heavy trucks are prohibited on Guelph Avenue within the study area;
- **Queen Street** is an east-west collector road with a two-lane cross section (one lane in each direction). No posted speed limit signage was observed within the study area; therefore, it is assumed the statutory limit of 50 km/h governs;
- **Sheffield Street** is an east-west local road with a two-lane cross section (one lane in each direction). No posted speed limit signage was observed within the study area; therefore, it is assumed the statutory limit of 50 km/h governs. On-street parking is provided on the south side of Sheffield Street;
- **Scott Road/Baldwin Drive** is an east-west local road with a two-lane cross section and a posted speed limit of 40 km/h. Scott Road provides direct accesses to the Silverheights Public School approximately 120 metres west of Guelph Avenue. Baldwin Drive provides direct accesses to the St. Gabriel Catholic Elementary School; and

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3 City of Cambridge, *Transportation Master Plan*, May 31, 2019, p11.

- **Shaw Avenue** is an east-west local road with a two-lane cross section. No posted speed limit signage was observed within the study area; therefore, it is assumed the statutory limit of 50 km/h governs.

It is noted at the signalized intersection of Guelph Avenue/Adam Street and Queen Street, the northbound right turns are prohibited, and the eastbound and westbound right turns are prohibited on red.

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

2.2 Transit

Grand River Transit (GRT) is the public transit operator within the City of Cambridge. Based on the Grand River Transit *System Map* (updated September 02, 2024)[4], the following GRT routes operate within close vicinity to the subject site.

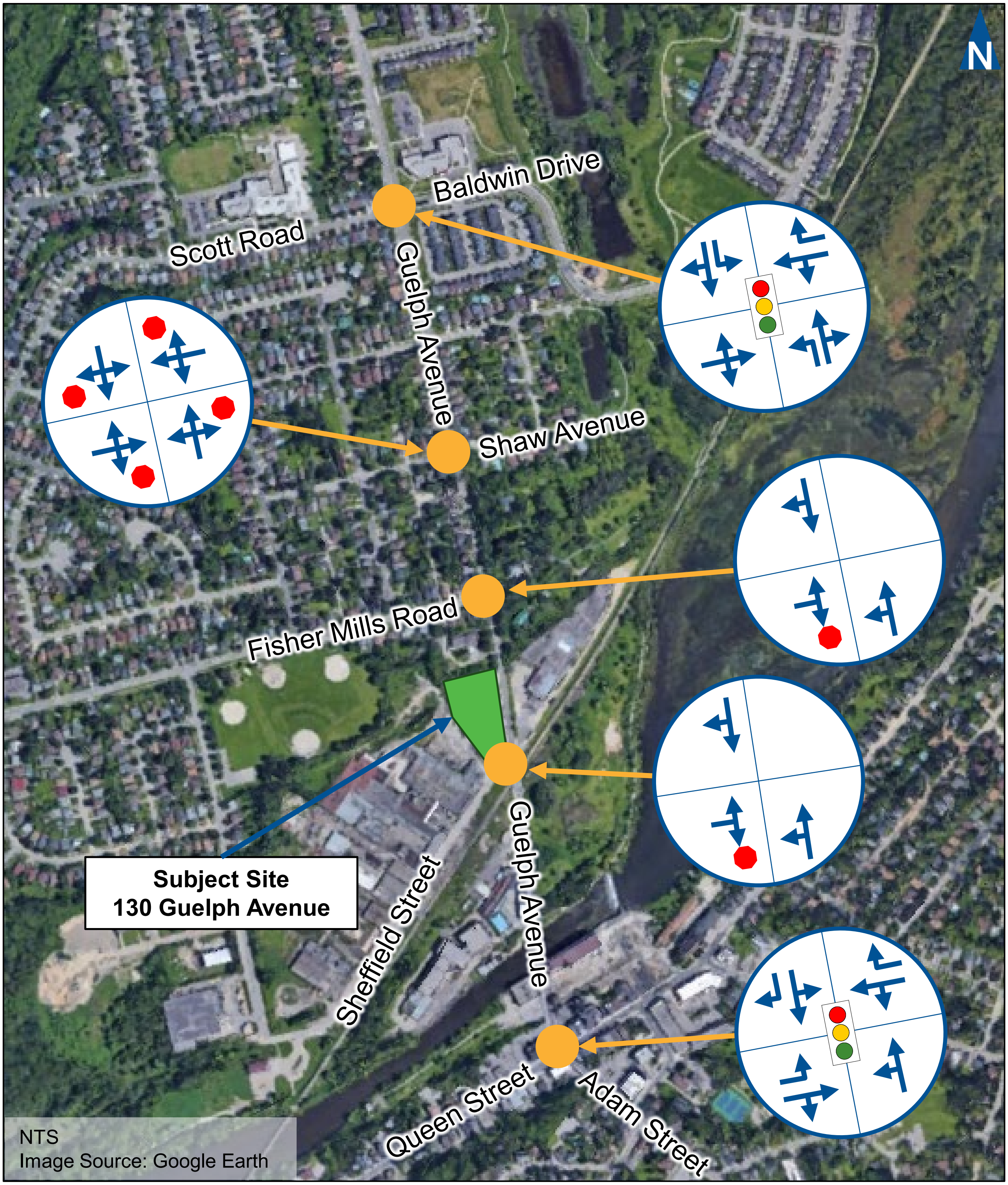
- **Route 51 (Hespeler)** travels along Hespeler Road, Guelph Avenue, and Queen Street with major stops at the Ainslie Terminal and Cambridge Centre Station. The route operates Monday to Sunday and statutory holidays with 30 to 60-minute headways; and
- **Route 203 (iXpress Maple Grove)** provides bus service between Cambridge Centre Station and Conestoga College Doon-Door 3 Monday to Sunday and statutory holidays with major stops at Franklin/Jamieson, Tannery/Queen, Fisher Mills/Scott, and Sportsworld Station. The route operates with 30 to 60-minute headways.

The nearest bus stops (#1300 and #1308) are located near the intersection of Guelph Avenue and Sheffield Street, with the stop #1308 located at doorstep of the subject building.

Both routes provide a connection to the 302 ION Bus route, which travels between the Ainslie Terminal in Cambridge and the Fairway ION Light Rail Transit (LRT) Station in Kitchener. This implies local and regional travel via transit is a viable option for the subject site.

Figure 2.2 illustrates the existing transit service.

4 2024 system map_09052024-web (grt.ca)



paradigm TRANSPORTATION SOLUTIONS LIMITED

Existing Lane Configurations and Traffic Control

Figure 2.1

Existing Transit Service

Figure 2.2

2.3 Active Transportation

2.3.1 Walking

Pedestrian travel within the study area is facilitated by sidewalks on both sides of the study area roads. The exceptions include no sidewalk is provided on the south side of Shaw Avenue east of Guelph Avenue, and the sidewalk on the east side of Guelph Avenue discontinued between Sheffield Street and Shaw Avenue.

The site is located close to Mill Run Trail which is approximately 430 metres southwest of the subject site.

At the unsignalized intersections, delineated crosswalks are provided at the west approaches at Guelph Avenue with Shaw Avenue, Fisher Mills Road, and Sheffield Street.

At the signalized intersections of Guelph Avenue with Scott Road/Baldwin Drive and Queen Street, delineated crosswalks, pedestrian push buttons, and pedestrian signal heads are provided across all intersection approaches. The exception includes no pedestrian push buttons are provided for the north and south pedestrian crossing at Guelph Avenue and Scott Road/Baldwin Drive.

The site is located near employment, retail, cultural and recreational opportunities, thus creating a range of walkable destinations for prospective tenants of the proposed development. The subject site has a Walk Score of 71[5] and is considered “Very Walkable”, which means most errands can be accomplished on foot. Walk Score is an online tool that assigns a numerical walkability score between 0 and 100. Walk Score ranks communities nationwide based on how many businesses, parks, theatres, schools, and other common destinations are within walking distance. This locational advantage of the site serves to reduce the need for vehicle trips.

2.3.2 Cycling

The following cycling facilities are provided within the study area:

- Baldwin Drive provides a dedicated bicycle lane on both sides of the roadway. However, the bicycle lanes dropped as they approach the intersection of Guelph Avenue and Scott Road/Baldwin Drive;
- Shared cycling space is marked with sharrows along Queen Street;

5 https://www.walkscore.com/score/130-guelph-ave-cambridge-on-canada

- Guelph Avenue provides a dedicated bicycle lane on both sides of the roadway north of Milton Avenue. South of Milton Avenue, Guelph Avenue is signed as a shared bike route, requiring cyclists to share the travelled roadway with motorists; and
- Sheffield Street provides a multi-use path (MUP) on the south side which connects to Mill Run Trail.

The Walk Score tool also provides a rating for cycling infrastructure. The subject site has a cycle score of 67 which is considered "Bikeable" and means that there is some bike infrastructure.

2.4 Traffic Volumes

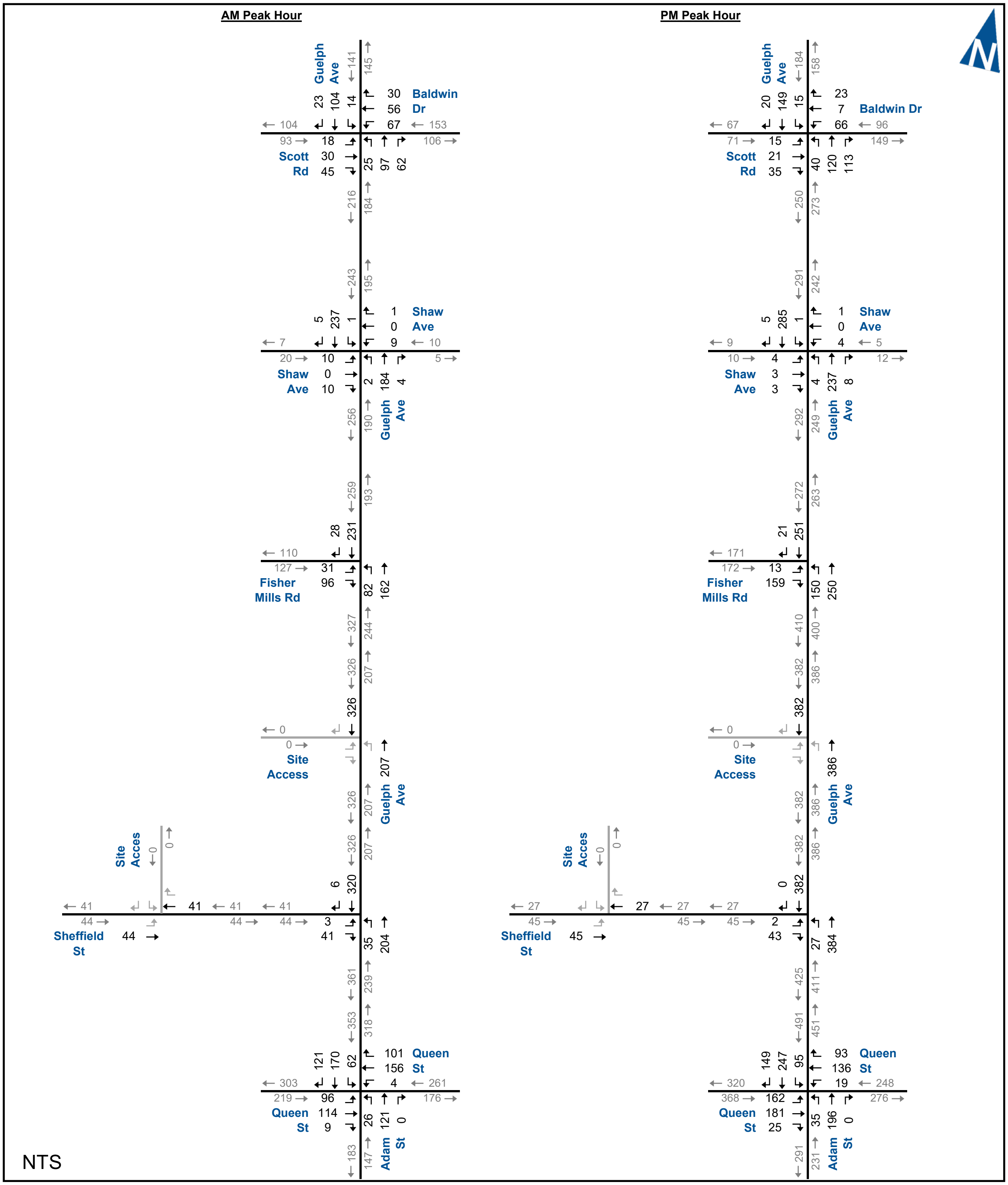
To assess intersection operations, turning movement counts (TMCs) are used to quantify the movement of vehicles, pedestrians, trucks, buses, and cyclists through an intersection. Existing traffic data at an intersection or on a road section forms the foundation for operational analysis. The counts are usually collected during peak periods to complete level of service (LOS) analysis under its worst-case operating conditions.

Paradigm collected TMCs at the study area intersections in 2024. **Table 2.1** summarizes the location and date of the traffic data. The data was counted in 15-minute intervals and vehicles were classified by type.

Figure 2.3 illustrates the existing (2024) weekday AM and PM peak hour traffic volumes. **Appendix B** contains the raw traffic data for reference.

TABLE 2.1: DATA COLLECTION

Intersection	Data Collection Date
Guelph Avenue and Scott Road/Baldwin Drive	Thursday, September 19, 2024
Guelph Avenue and Shaw Avenue	Thursday, May 23, 2024
Guelph Avenue and Fisher Mills Road	Thursday, April 4, 2024
Guelph Avenue and Sheffield Street	Thursday, April 4, 2024
Guelph Avenue and Queen Street	Thursday, April 4, 2024



Existing (2024) Traffic Volumes

2.5 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 seconds per vehicle. When the average delay exceeds 80 seconds for signalized intersections, 50 seconds for unsignalized intersections or when the volume-to-capacity (v/c) 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 Region of Waterloo *Transportation Impact Study Guidelines*[6] identifies the following criteria for critical intersections.

- Overall intersection LOS E or F (i.e. average control delay per vehicle greater than 55 seconds) for signalized intersections; and
- Overall intersection LOS E or F (i.e. average control delay per vehicle greater than 35 seconds) for unsignalized intersections.

The criteria for identifying individual critical movements are as follows.

- Average control delay for individual movements is greater than 55 seconds;
- Estimated 95th percentile queue length for an exclusive movement exceeds the available storage space;
- Estimated 95th percentile queue length for an individual movement will block an existing access; and
- Exclusive turning lanes are inaccessible because of queue lengths in adjacent through lanes.

To assess the existing peak hour conditions, a level of service analysis was conducted using Synchro software, which implements the methods of the Highway Capacity Manual. The analysis has been

6 Region of Waterloo, *Transportation Impact Study Guidelines*, July 22, 2014, p6 of PDF.

conducted in accordance with the Region's Transportation Impact Study Guidelines (July 2014). The key parameters used in the analysis include:

- Existing lane configurations;
- Heavy vehicle percentages as derived from existing traffic count data;
- Conflicting pedestrian volumes as derived from existing traffic count data;
- A peak hour factor (PHF) of 1.00 based on the Region of Waterloo *TIS requirements for Capacity Analysis, Roundabouts, Signal Warrants*[7];
- Saturation flow values settings based on the Region of Waterloo *TIS requirements for Capacity Analysis, Roundabouts, Signal Warrants*[8];
- Existing signal timing plans as obtained from Region of Waterloo, which are included for reference in **Appendix B**;
- Lost time adjustment of -2 seconds based on the Region of Waterloo *TIS requirements for Capacity Analysis, Roundabouts, Signal Warrants*[9]; and
- Synchro default values for all other inputs.

Table 2.2 summarizes the results of the existing automobile conditions, including the level of service (LOS), average vehicle delay, v/c ratio, and 95th percentile queues for the weekday AM and PM peak hours. Any movements identified as critical movements are highlighted within the results table. **Appendix C** contains the Synchro analysis outputs for reference.

The results of the operational analysis indicate the study area intersections are operating at acceptable levels of service and within capacity during the weekday AM and PM peak hours. The exceptions include the following critical movements at Guelph Avenue and Queen Street:

- The eastbound left-turn movement has a storage deficiency of 16 metres during the PM peak hour;

7 Region of Waterloo, *TIS Requirements for Capacity Analysis, Roundabouts & Signal Warrants*, Revised April 2013, p2.

8 Ibid., p1.

9 Ibid., p4.

- The westbound right-turn movement has a storage deficiency of 13 metres and 18 metres during the AM and PM peak hour, respectively; and
- The southbound right-turn movement has a storage deficiency of one metre during the PM peak hour.

The above spillback issues are not considered significant, as the 95th percentile queue lengths were observed to extend beyond the existing storage space by relatively low values. Additionally, the 95th percentile queue is the estimate for the 95th percentile worse case scenario. The scenario is not indicative of typical traffic conditions. All 50th percentile average queue lengths would be accommodated by the existing storage and taper length (assuming half of the taper length could be used for storage); therefore, they are not anticipated to block the adjacent travel lane.

TABLE 2.2: EXISTING (2024) 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	Guelph Avenue & Fisher Mills Road	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	12		>	**12**					<	3		**3**		0	>	**0**	
			V/C	0.19		>						<	0.06				0.15	>		
			Q	6		>						<	2				0	>		
	Guelph Avenue & Sheffield Street	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	11		>	**11**					<	1		**1**		0	>	**0**	
			V/C	0.07		>						<	0.03				0.19	>		
			Q	2		>						<	1				0	>		
	Guelph Avenue & Queen Street	TCS	LOS	A	A	>	**A**	<	B	B	**B**	<	C		**C**	<	C	C	**C**	**C**
			Delay	9	9	>	**9**	<	19	19	**19**	<	27		**27**	<	32	23	**29**	**22**
			V/C	0.15	0.15	>		<	0.26	0.19		<	0.36			<	0.59	0.10		**0.33**
			Q	13	18	>		<	33	23		<	37			<	58	13		
			Stor.	15	-	>		<	-	10		<	-			<	-	15		
			Avail.	2	-	>		<	-	-13		<	-			<	-	2		
	Guelph Avenue & Scott Road/Baldwin Drive	TCS	LOS	<	C	>	**C**	<	C	C	**C**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	<	22	>	**22**	<	25	21	**24**	3	4	>	**4**	3	4	>	**4**	**12**
			V/C	<	0.24	>		<	0.52	0.03		0.03	0.14	>		0.02	0.12	>		**0.22**
			Q	<	15	>		<	26	4		4	12	>		2	12	>		
			Stor.	<	-	>		<	-	35		30	-	>		21	-	>		
			Avail.	<	-	>		<	-	31		26	-	>		19	-	>		
	Guelph Avenue & Shaw Avenue	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	11	>	**11**	<	12	>	**12**	<	0	>	**0**	<	0	>	**0**	
			V/C	<	0.03	>		<	0.02	>		<	0	>		<	0	>		
			Q	<	0.8	>		<	0.5	>		<	0.0	>		<	0.0	>		
PM Peak Hour	Guelph Avenue & Fisher Mills Road	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	12		>	**12**					<	4		**4**		0	>	**0**	
			V/C	0.25		>						<	0.12				0.16	>		
			Q	8		>						<	3				0	>		
	Guelph Avenue & Sheffield Street	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	11		>	**11**					<	1		**1**		0	>	**0**	
			V/C	0.07		>						<	0.02				0.22	>		
			Q	2		>						<	1				0	>		
	Guelph Avenue & Queen Street	TCS	LOS	B	B	>	**B**	<	C	C	**C**	<	C		**C**	<	B	B	**B**	**C**
			Delay	19	18	>	**18**	<	32	30	**31**	<	26		**26**	<	19	14	**17**	**22**
			V/C	0.32	0.30	>		<	0.40	0.27		<	0.44			<	0.50	0.15		**0.43**
			Q	31	42	>		<	43	28		<	55			<	64	16		
			Stor.	15	-	>		<	-	10		<	-			<	-	15		
			Avail.	-16	-	>		<	-	-18		<	-			<	-	-1		
	Guelph Avenue & Scott Road/Baldwin Drive	TCS	LOS	<	C	>	**C**	<	C	C	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	23	>	**23**	<	24	22	**23**	3	4	>	**3**	3	3	>	**3**	**9**
			V/C	<	0.20	>		<	0.35	0.02		0.05	0.20	>		0.02	0.15	>		**0.23**
			Q	<	13	>		<	17	3		4	14	>		2	13	>		
			Stor.	<	-	>		<	-	35		30	-	>		21	-	>		
			Avail.	<	-	>		<	-	32		26	-	>		19	-	>		
	Guelph Avenue & Shaw Avenue	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	12	>	**12**	<	12	>	**12**	<	0	>	**0**	<	0	>	**0**	
			V/C	<	0.02	>		<	0.01	>		<	0	>		<	0	>		
			Q	<	0.5	>		<	0.2	>		<	0.1	>		<	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

3 Development Concept

3.1 Development Description

The subject site is located at 130 Guelph Avenue in the City of Cambridge, Region of Waterloo.

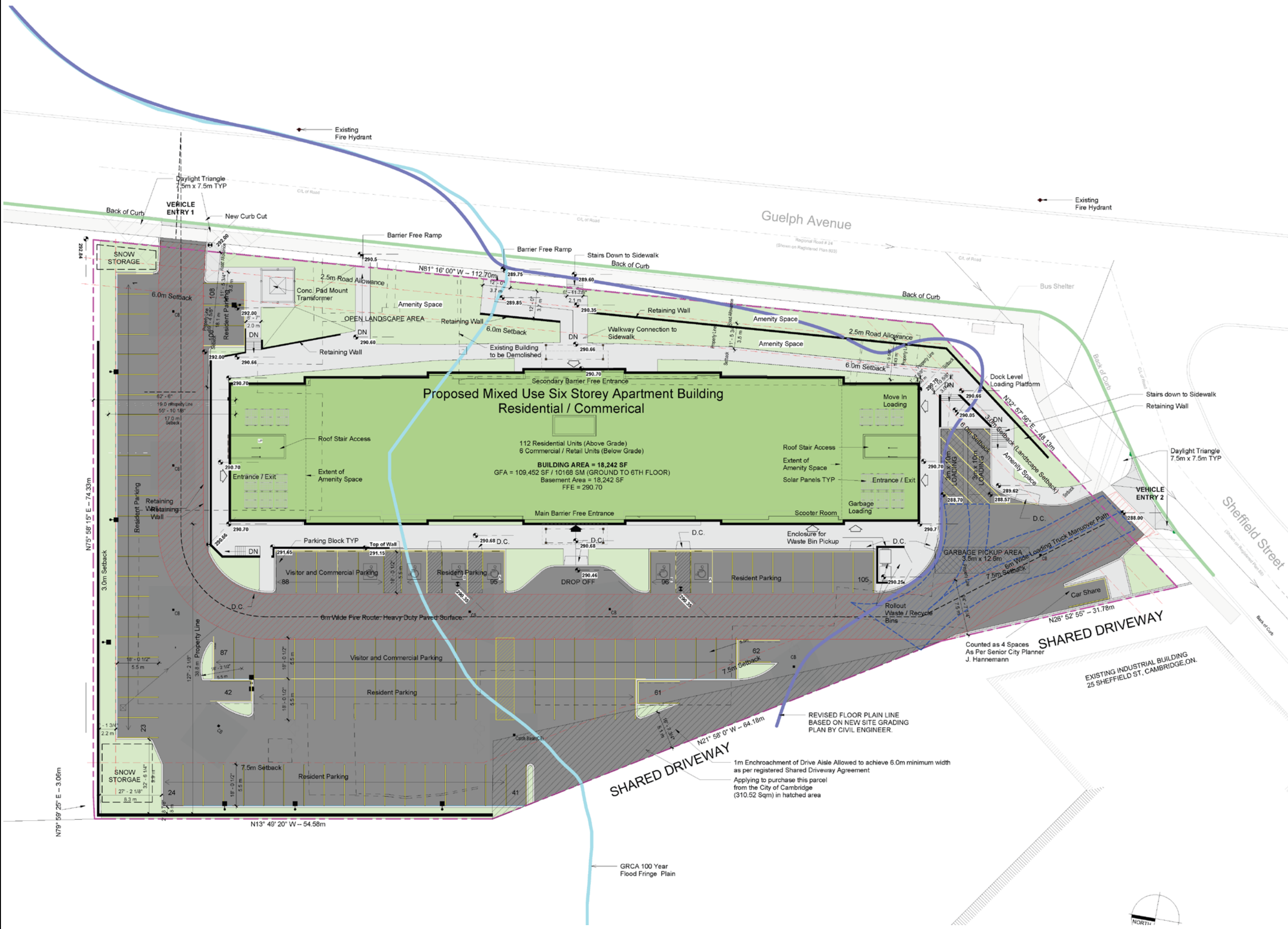
Currently there are empty establishments on the subject lands. The property owner proposes to redevelop the lands to include a six-storey building, with a total of 112 affordable rental apartment dwelling units and 663.6 SM (7,143 SF) GFA of commercial-retail space. The commercial-retail space is located on the basement level.

A total of 108 parking spaces and a car share space are proposed at grade, including six barrier-free parking spaces (two Type A spaces and four Type B spaces). This supply does not meet the municipal zoning requirements (Zoning By-law 150-85) as currently planned (i.e., 1.0 space per dwelling unit plus 1 space for each 4 dwelling units for visitors only, and 2.5 spaces per 100 SM of GLA of commercial space). **Section 7** details the parking justifications.

Vehicle access is proposed via a full-movement access connection with Guelph Avenue and with Sheffield Street, respectively. Both accesses are planned to operate unsignalized with the driveways operating under stop control.

It is anticipated full build-out and occupancy of the mixed-use development will occur by 2026.

Figure 3.1 illustrates the proposed development concept site plan.



NTS
Image Source: Site Plan by Two Row Architect (November 15, 2024)

Concept Site Plan

Figure 3.1

3.2 Development Trip Generation

The site trip generation is based on rates and equations for various land uses contained in the ITE *Trip Generation Manual* (11th Edition)[10]. The following Land Use Codes (LUC) have been used to estimate the peak hour traffic volumes generated by the proposed development.

- LUC 223 – Affordable Housing; and
- LUC 822 – Strip Retail Plaza (<40k).

Table 3.1 summarizes the forecast number of net new trips generated by the proposed development.

TABLE 3.1: SITE TRIP GENERATION

LUC	Units/GFA	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
223[1]	112 units	16	40	56	30	22	52
822[2]	7,143 SF	10	7	17	24	23	47
Total		***26***	***47***	***73***	***54***	***45***	***99***

1: AM peak hour trip rate = 0.50 per unit (29% In/71% Out); PM peak hour trip rate = 0.46 per unit (59% In/41% Out).
2: AM peak hour trip rate = 2.36 per 1,000 SF of GLA (60% In/40% Out); PM peak hour trip rate = 6.59 per 1,000 SF of GLA (50% In/50% Out).

For a conservative approach (i.e., errs on the high side), no trip reduction was applied to the estimated site trip generation to account for travel by transit or active transportation modes. Additionally, no vehicular trip reduction was applied to account for internal trips or pass-by trips. An internal trip is a trip that has both its origin and destination within the development site. These trips would not impact the external transportation network. Whereas pass-by trips represent intermediate stops at the subject site on a trip that is already on the road network. Commercial-retail land uses usually generate pass-by trips; however, for analysis purposes it was assumed all commercial trips are new trips.

Overall, the proposed development is conservatively estimated to generate approximately 73 AM peak hour and 99 PM peak hour vehicle trips at full build-out/occupancy.

3.3 Development Trip Distribution and Assignment

The directional distribution of traffic approaching and departing the subject lands is a function of several variables including population

[10] Institute of Transportation Engineers, *Trip Generation Manual (11th Edition)*, Washington, D.C. September 2021.

density, existing travel patterns, and efficiency of the roadways leading to the site.

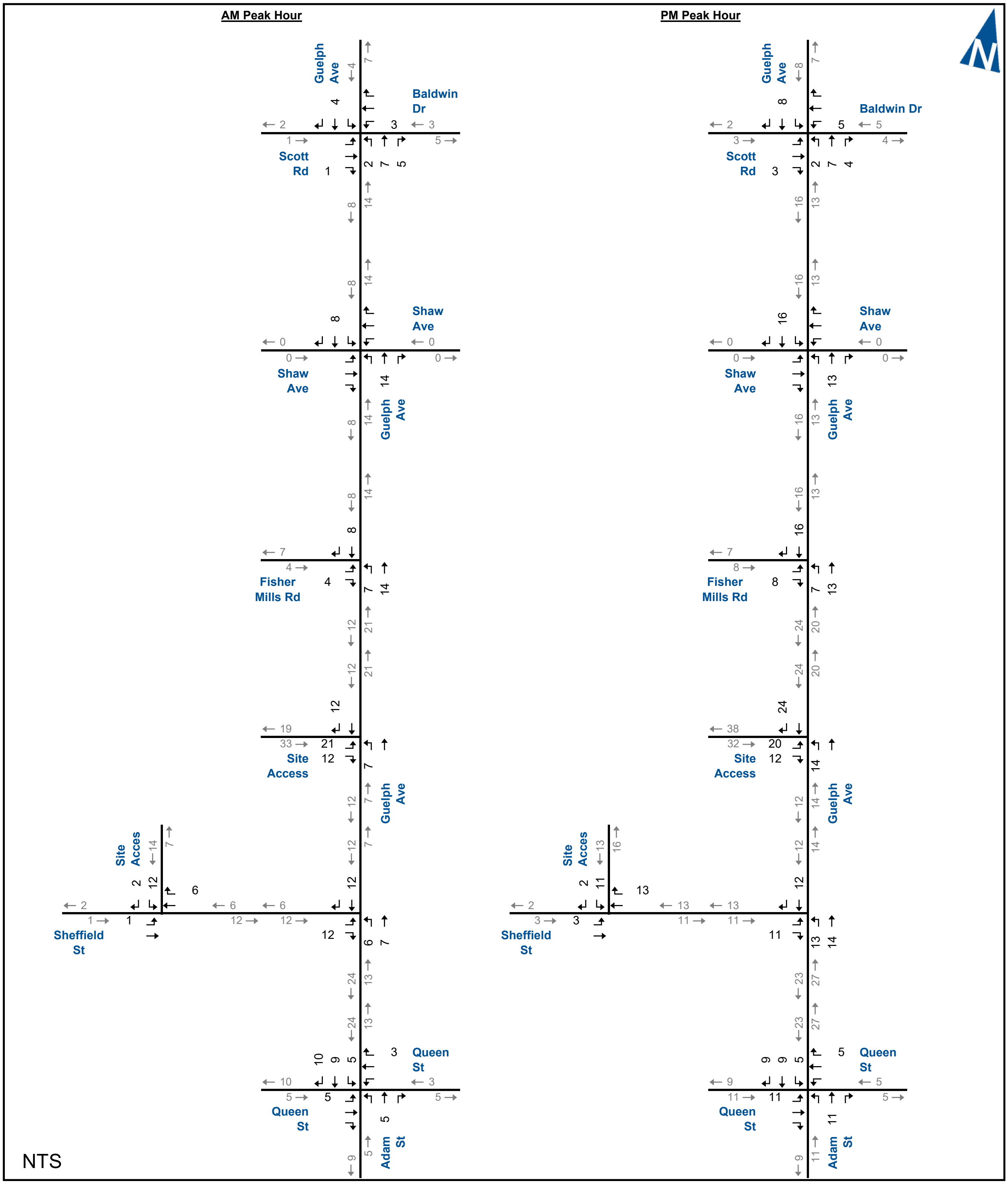
Trip distribution for traffic to and from the subject lands was estimated based on a review of the existing trip patterns documented in the turning movement count data. **Table 3.2** summarizes the estimated trip distribution.

TABLE 3.2: SITE TRIP DISTRIBUTION

To/From	Via	Percentage
North	Guelph Avenue	15%
South		20%
East	Queen Street	10%
	Baldwin Drive	10%
West	Scott Road	5%
	Fisher Mills Road	15%
	Sheffield Street	5%
	Queen Street	20%
Total		***100%***

The site trips were assigned to the transportation network in accordance with the noted trip distribution.

Figure 3.2 illustrates the trip assignments for the site-generated trips during the weekday AM and PM peak hours.



Site-Generated Traffic Forecasts

4 Forecasts

4.1 Future Background Traffic Forecasts

The future background traffic volumes comprise higher non-site traffic volumes due to the application of a growth factor and traffic generated by other area developments, if any.

4.1.1 Generalized Background Growth

To derive the 2031 generalized background traffic forecasts, a compound growth rate of 2.0% per annum was applied to the existing roadway traffic volumes. This growth rate has been confirmed by City staff during pre-study consultation.

4.1.2 Other Area Developments

As per direction provided by City staff during pre-study consultation, the following other area developments have been included in the background traffic forecasts.

- **155-171 Guelph Avenue**: a proposed residential development that includes a total of 23 single-detached dwelling houses and 137 townhouse units. The development is anticipated to generate 89 AM and 105 PM peak hour vehicular trips[11];
- **2-16 Queen Street West**: a proposed mixed-use development with a total of 60 apartment units and a ground floor commercial-retail space of 364 SM (3,918 SF). The development is anticipated to generate 25 AM and 43 PM peak hour vehicular trips[12];
- **215 Queen Street West**: a proposed mixed-use development with a total of 270 apartment units and a ground floor commercial-retail space of 952 SM (10,247 SF). The development is anticipated to generate 101 AM and 154 PM peak hour vehicular trips[13]; and
- **410 Queen Street West**: a proposed residential subdivision with approximately 2,000 apartment units and commercial

[11] Paradigm Transportation Solutions Limited, *155-171 Guelph Ave, Cambridge, Transportation Impact Study*, September 2024.
[12] Paradigm Transportation Solutions Limited, *2-16 Queen Street, Cambridge, Transportation Impact Study*, March 2020.
[13] Paradigm Transportation Solutions Limited, *215 Queen Street West, Cambridge, Transportation Impact Study*, February 2021.

blocks. The residential subdivision is anticipated to generate 540 AM and 640 PM peak hour vehicular trips.

The relevant site-generated traffic was extracted from their corresponding Traffic Impact Study reports and included within the background traffic forecasts. As the TIS for 410 Queen Street West was not available, vehicle trip generation for this development was estimated based on the development statistics using data from the ITE Trip Generation Manual (11th Edition). The site trips were assigned to the study area road network based on a review of existing traffic patterns.

Figure 4.1 illustrates the locations of the other area developments.

Appendix D contains the other area developments site-generated traffic forecasts.

The future generalized background growth was combined with the site traffic generated by the other area developments to determine the background traffic volumes for the future horizon year.

Figure 4.2 illustrates the 2031 background traffic forecasts for the weekday AM and PM peak hours.

4.2 Future Total Traffic Forecasts

The future weekday AM and PM peak hour background traffic forecasts were combined with the site traffic assignments to determine the total traffic forecasts for the 2031 horizon year.

Figure 4.3 illustrates the 2031 total traffic forecasts for the weekday AM and PM peak hours.

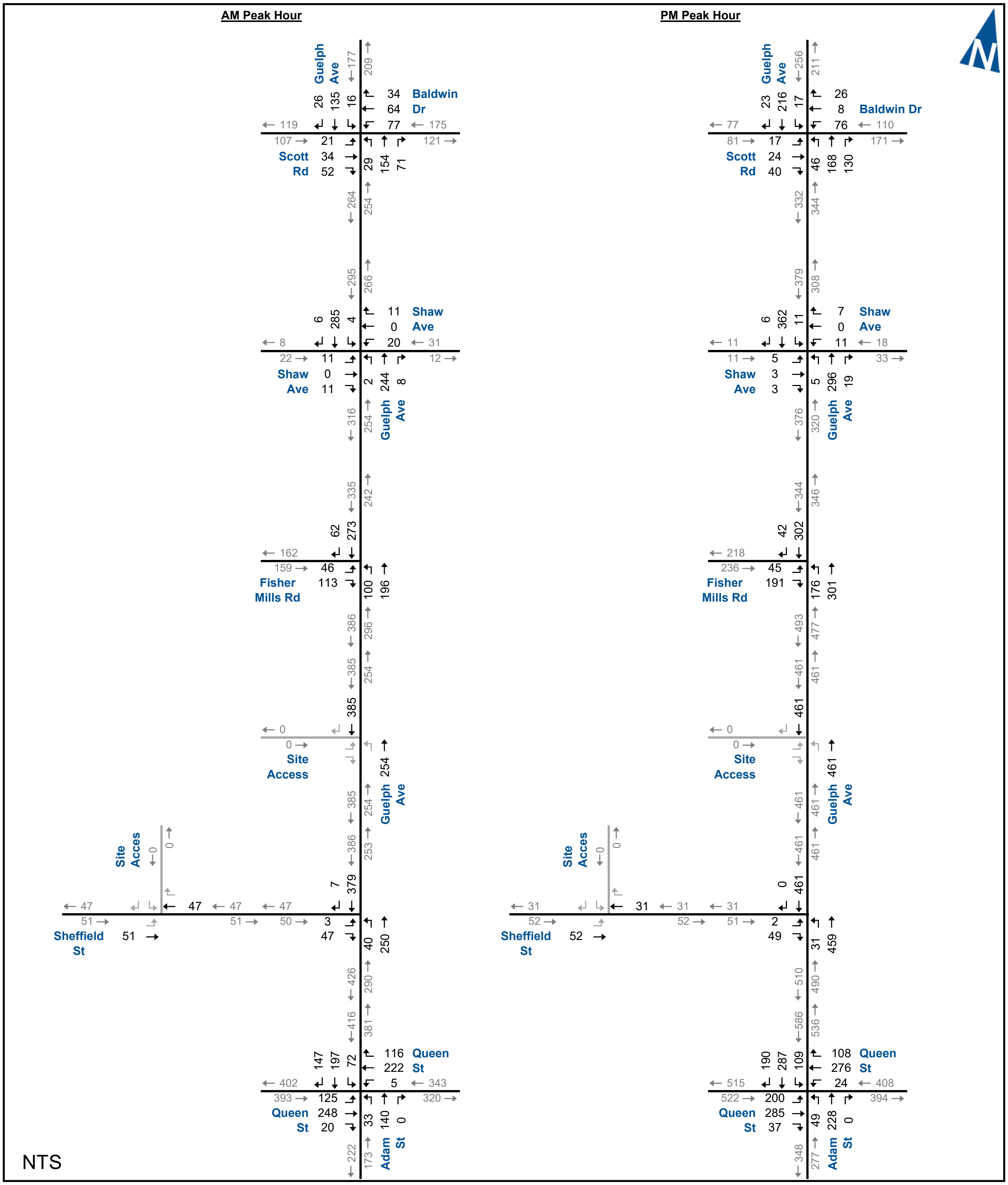
4.3 Future Road Network Improvements

Upon reviewing applicable documentation, there are no road network improvements proposed near the subject site under the 2031 horizon year; therefore, the existing road network and intersection lane configurations are used for all future operational analyses.

paradigm TRANSPORTATION SOLUTIONS LIMITED

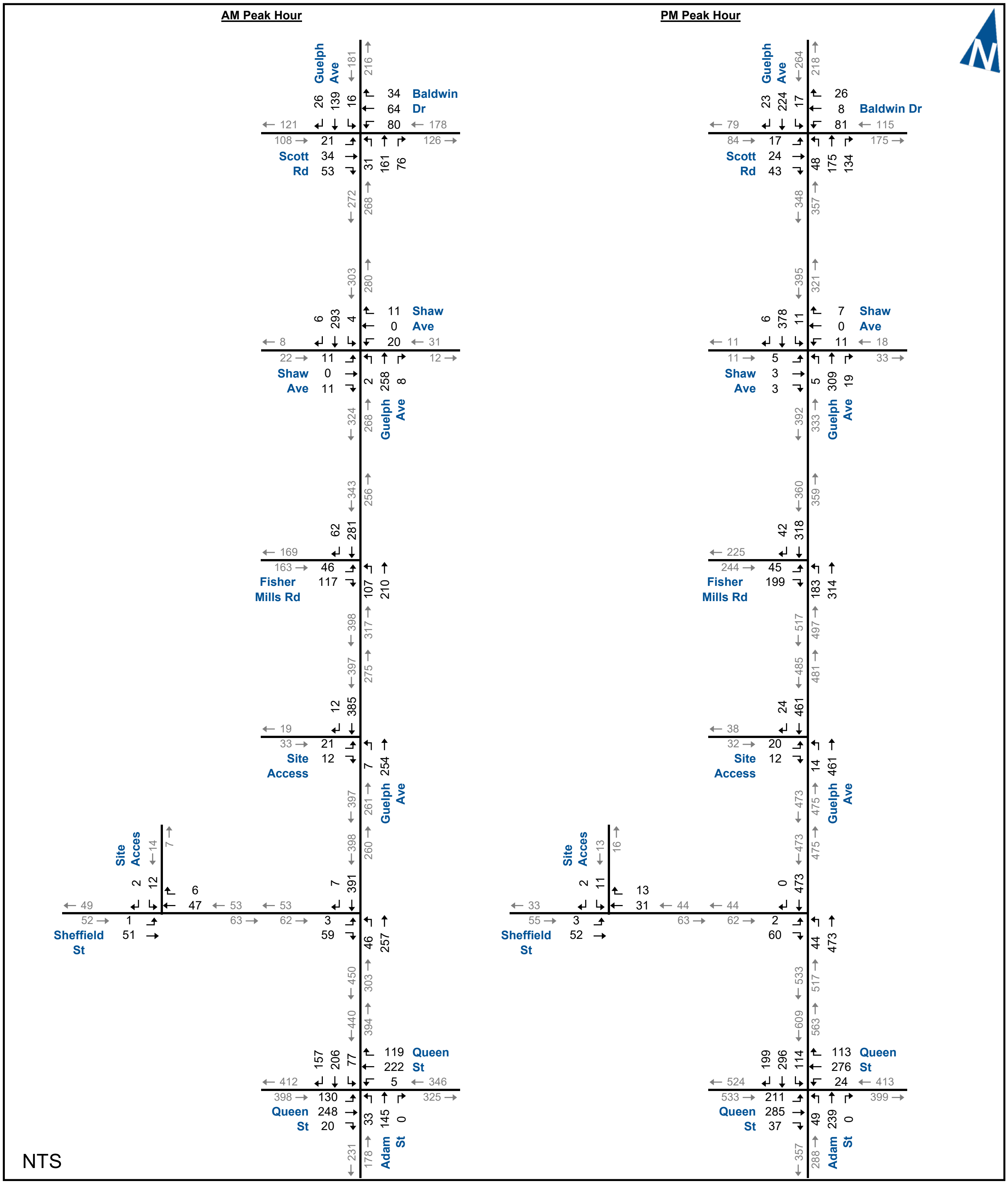
Other Area Developments Locations

Figure 4.1



2031 Background Traffic Forecasts

Figure 4.2



2031 Total Traffic Forecasts

5 Transportation Impact Assessment

5.1 Background Traffic Operations

To assess the automobile operating conditions for the weekday AM and PM peak hour background traffic forecasts, a level of service analysis was undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as the existing conditions.

Table 5.1 summarizes the results of the operational analysis for the 2031 background traffic conditions (without the proposed development). Any movements identified as critical movements are highlighted within the results table. **Appendix E** contains the Synchro analysis outputs for reference.

The results indicate the study area intersections are forecast to operate at similar levels of service as noted under the existing conditions, but slightly exacerbated accounting for background growth and site traffic contributions from the other area developments.

Under the 2031 background conditions (without the subject development), the study area intersections are forecast to continue operating at acceptable levels of service and within capacity.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified except for the eastbound left-turn, westbound and southbound right-turn movements at Guelph Avenue and Queen Street during the AM and/or PM peak hours. **Table 5.2** summarizes the storage deficiency issues at Guelph Avenue and Queen Street. Any spillback issues are highlighted in yellow.

Assuming half of the taper length can be used for storage, all 95th queue lengths could be accommodated by storage and taper, except for the westbound right-turn movement with a storage deficiency of up to 14 metres during the AM and PM peak hours, and the eastbound left-turn movement with a storage deficiency of 13 metres during the PM peak hour.

The 95th percentile queue is noted as having a five percent probability of occurring during the analysis period. All 50th percentile average queues would be accommodated by the existing storage and taper and is not anticipated to block the adjacent travel lane.

TABLE 5.1: 2031 BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Eastbound Left	Eastbound Through	Eastbound Right	Eastbound Approach	Westbound Left	Westbound Through	Westbound Right	Westbound Approach	Northbound Left	Northbound Through	Northbound Right	Northbound Approach	Southbound Left	Southbound Through	Southbound Right	Southbound Approach	Overall
AM Peak Hour	Guelph Avenue & Fisher Mills Road	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	14		>	**14**					<	3		**3**		0	>	**0**	
			V/C	0.28		>						<	0.08				0.2	>		
			Q	9		>						<	2				0	>		
	Guelph Avenue & Sheffield Street	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	11		>	**11**					<	2		**2**		0	>	**0**	
			V/C	0.08		>						<	0.04				0.23	>		
			Q	2		>						<	1				0	>		
	Guelph Avenue & Queen Street	TCS	LOS	A	B	>	**B**	<	C	B	**C**	<	C		**C**	<	D	C	**C**	**C**
			Delay	10	11	>	**10**	<	21	19	**20**	<	28		**28**	<	37	24	**33**	**22**
			V/C	0.21	0.32	>		<	0.37	0.22		<	0.44			<	0.70	0.16		**0.45**
			Q	17	38	>		<	46	26		<	43			<	75	18		
			Stor.	15	-	>		<	-	10		<	-			<	-	15		
			Avail.	-2	-	>		<	-	-16		<	-			<	-	-3		
	Guelph Avenue & Scott Road/Baldwin Drive	TCS	LOS	<	C	>	**C**	<	C	C	**C**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	<	22	>	**22**	<	26	21	**25**	4	4	>	**4**	3	4	>	**4**	**12**
			V/C	<	0.27	>		<	0.58	0.03		0.04	0.22	>		0.02	0.15	>		**0.3**
			Q	<	17	>		<	30	5		4	20	>		3	16	>		
			Stor.	<	-	>		<	-	35		30	-	>		21	-	>		
			Avail.	<	-	>		<	-	30		26	-	>		18	-	>		
	Guelph Avenue & Shaw Avenue	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	12	>	**12**	<	13	>	**13**	<	0	>	**0**	<	0	>	**0**	
			V/C	<	0.04	>		<	0.06	>		<	0	>		<	0	>		
			Q	<	1	>		<	2	>		<	0	>		<	0	>		
PM Peak Hour	Guelph Avenue & Fisher Mills Road	TWSC	LOS	C		>	**C**					<	A		**A**		A	>	**A**	
			Delay	18		>	**18**					<	4		**4**		0	>	**0**	
			V/C	0.46		>						<	0.15				0.2	>		
			Q	19		>						<	4				0	>		
	Guelph Avenue & Sheffield Street	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	12		>	**12**					<	1		**1**		0	>	**0**	
			V/C	0.09		>						<	0.03				0.27	>		
			Q	2		>						<	1				0	>		
	Guelph Avenue & Queen Street	TCS	LOS	C	C	>	**C**	<	D	C	**D**	<	C		**C**	<	C	B	**B**	**C**
			Delay	23	21	>	**22**	<	45	30	**41**	<	28		**28**	<	22	14	**19**	**26**
			V/C	0.50	0.47	>		<	0.76	0.32		<	0.55			<	0.61	0.20		**0.62**
			Q	38	67	>		<	92	32		<	67			<	76	22		
			Stor.	15	-	>		<	-	10		<	-			<	-	15		
			Avail.	-23	-	>		<	-	-22		<	-			<	-	-7		
	Guelph Avenue & Scott Road/Baldwin Drive	TCS	LOS	<	C	>	**C**	<	C	C	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	22	>	**22**	<	24	21	**23**	3	4	>	**4**	3	4	>	**4**	**8**
			V/C	<	0.22	>		<	0.40	0.02		0.06	0.27	>		0.02	0.21	>		**0.29**
			Q	<	14	>		<	19	4		5	22	>		3	20	>		
			Stor.	<	-	>		<	-	35		30	-	>		21	-	>		
			Avail.	<	-	>		<	-	31		25	-	>		18	-	>		
	Guelph Avenue & Shaw Avenue	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	15	>	**15**	<	14	>	**14**	<	0	>	**0**	<	0	>	**0**	
			V/C	<	0.03	>		<	0.04	>		<	0	>		<	0.01	>		
			Q	<	1	>		<	1	>		<	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

TABLE 5.2: 2031 BACKGROUND QUEUE DEFICIENCIES

Intersection	Movement	50th (m)	95th (m)	Storage (m)	Taper (m)	Available Storage and Taper (m)*
AM Peak Hour						
Guelph Avenue & Queen Street	EBL	9	17	15	20	**25**
	WBR	13	26 (-8)	10	15	**18**
	SBR	4	18	15	20	**25**
PM Peak Hour						
Guelph Avenue & Queen Street	EBL	23	38 (-13)	15	20	**25**
	WBR	17	32 (-14)	10	15	**18**
	SBR	9	22	15	20	**25**

**assumed half of taper length could be used for storage.*

5.2 Total Traffic Operations

To assess the automobile operating conditions for the weekday AM and PM peak hour total traffic forecasts, an operational analysis was undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as in the analysis of background conditions. The exception includes the inclusion and assessment of the proposed site access connections with Guelph Avenue and Sheffield Street.

Table 5.3 presents the results of the operational analysis for the 2031 total traffic conditions (with the proposed development). Any movements identified as critical movements are highlighted within the results table. **Appendix F** contains the Synchro analysis outputs for reference.

With the addition of site-generated traffic, the 2031 total traffic conditions are forecast to continue operating at acceptable levels of service and within capacity with no new operational issues as compared to background traffic operations.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. Similar spillback issues were found at Guelph Avenue and Queen Street during the AM and PM peak hours. **Table 5.4** summarizes the storage deficiency issues, which were highlighted in yellow.

The site access driveways on Guelph Avenue and Sheffield Street are forecast to operate at acceptable levels of service and all movements within capacity during the AM and PM peak hours under the 2031 horizon year.

TABLE 5.3: 2031 TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Overall
AM Peak Hour	Guelph Avenue & Fisher Mills Road	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	14		>	**14**					<	3		**3**		0	>	**0**	
			V/C	0.30		>						<	0.09				0.20	>		
			Q	10		>						<	2				0	>		
	Guelph Avenue & Sheffield Street	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	12		>	**12**					<	2		**2**		0	>	**0**	
			V/C	0.10		>						<	0.04				0.23	>		
			Q	3		>						<	1				0	>		
	Guelph Avenue & Queen Street	TCS	LOS	A	B	>	**B**	<	C	B	**C**	<	C		**C**	<	D	C	**C**	**C**
			Delay	10	11	>	**10**	<	21	19	**20**	<	29		**29**	<	40	24	**34**	**23**
			V/C	0.22	0.32	>		<	0.37	0.23		<	0.47			<	0.74	0.19		**0.47**
			Q	17	38	>		<	46	26		<	45			<	82	20		
			Stor.	15	-	>		<	-	10		<	-			<	-	15		
			Avail.	-2	-	>		<	-	-16		<	-			<	-	-5		
	Guelph Avenue & Site Access	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	13		>	**13**					<	0		**0**		0	>	**0**	
			V/C	0.07		>						<	0.01				0.23	>		
			Q	2		>						<	0				0	>		
	Sheffield Street & Site Access	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	
			Delay	<	0		**0**		0	>	**0**					9		>	**9**	
			V/C	<	0.00				0.03	>						0.02		>		
			Q	<	0				0	>						0		>		
	Guelph Avenue & Scott Road/Baldwin Drive	TCS	LOS	<	C	>	**C**	<	C	C	**C**	A	A	>	**A**	A	A	>	**A**	**B**
			Delay	<	22	>	**22**	<	27	21	**26**	4	4	>	**4**	4	4	>	**4**	**12**
			V/C	<	0.26	>		<	0.58	0.03		0.04	0.23	>		0.02	0.16	>		**0.31**
			Q	<	17	>		<	30	5		5	22	>		3	16	>		
			Stor.	<	-	>		<	-	35		30	-	>		21	-	>		
			Avail.	<	-	>		<	-	30		25	-	>		18	-	>		
	Guelph Avenue & Shaw Avenue	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	12	>	**12**	<	13	>	**13**	<	0	>	**0**	<	0	>	**0**	
			V/C	<	0.04	>		<	0.06	>		<	0.00	>		<	0.00	>		
			Q	<	1	>		<	2	>		<	0	>		<	0	>		
PM Peak Hour	Guelph Avenue & Fisher Mills Road	TWSC	LOS	C		>	**C**					<	A		**A**		A	>	**A**	
			Delay	19		>	**19**					<	4		**4**		0	>	**0**	
			V/C	0.49		>						<	0.15				0.21	>		
			Q	21		>						<	4				0	>		
	Guelph Avenue & Sheffield Street	TWSC	LOS	B		>	**B**					<	A		**A**		A	>	**A**	
			Delay	12		>	**12**					<	1		**1**		0	>	**0**	
			V/C	0.11		>						<	0.04				0.28	>		
			Q	3		>						<	1				0	>		
	Guelph Avenue & Queen Street	TCS	LOS	C	C	>	**C**	<	D	C	**D**	<	C		**C**	<	C	B	**B**	**C**
			Delay	23	21	>	**22**	<	45	31	**41**	<	29		**29**	<	23	15	**20**	**27**
			V/C	0.53	0.47	>		<	0.76	0.33		<	0.57			<	0.64	0.22		**0.63**
			Q	40	67	>		<	92	33		<	70			<	80	23		
			Stor.	15	-	>		<	-	10		<	-			<	-	15		
			Avail.	-25	-	>		<	-	-23		<	-			<	-	-8		
	Guelph Avenue & Site Access	TWSC	LOS	C		>	**C**					<	A		**A**		A	>	**A**	
			Delay	16		>	**16**					<	0		**0**		0	>	**0**	
			V/C	0.09		>						<	0.01				0.29	>		
			Q	2		>						<	0				0	>		
	Sheffield Street & Site Access	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	
			Delay	<	0		**0**		0	>	**0**					9		>	**9**	
			V/C	<	0.00				0.03	>						0.01		>		
			Q	<	0				0	>						0		>		
	Guelph Avenue & Scott Road/Baldwin Drive	TCS	LOS	<	C	>	**C**	<	C	C	**C**	A	A	>	**A**	A	A	>	**A**	**A**
			Delay	<	22	>	**22**	<	24	21	**24**	3	4	>	**4**	3	4	>	**4**	**9**
			V/C	<	0.22	>		<	0.42	0.02		0.07	0.28	>		0.02	0.22	>		**0.31**
			Q	<	14	>		<	20	4		6	23	>		3	21	>		
			Stor.	<	-	>		<	-	35		30	-	>		21	-	>		
			Avail.	<	-	>		<	-	31		24	-	>		18	-	>		
	Guelph Avenue & Shaw Avenue	TWSC	LOS	<	C	>	**C**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	
			Delay	<	15	>	**15**	<	14	>	**14**	<	0	>	**0**	<	0	>	**0**	
			V/C	<	0.03	>		<	0.04	>		<	0.00	>		<	0.01	>		
			Q	<	1	>		<	1	>		<	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

TABLE 5.4: 2031 TOTAL QUEUE DEFICIENCIES

Intersection	Movement	50th (m)	95th (m)	Storage (m)	Taper (m)	Available Storage and Taper (m)*
AM Peak Hour						
Guelph Avenue & Queen Street	EBL	9	17	15	20	**25**
	WBR	14	26 (-8)	10	15	**18**
	SBR	5	20	15	20	**25**
PM Peak Hour						
Guelph Avenue & Queen Street	EBL	24	40 (-15)	15	20	**25**
	WBR	17	33 (-15)	10	15	**18**
	SBR	9	23	15	20	**25**

**assumed half of taper length could be used for storage.*

5.3 Impact Assessment Summary

Based on the future traffic operational results documented in **Section 5.1** and **Section 5.2**, the incremental impact of the proposed development on the operations of the adjacent transportation network is considered minor.

Table 5.5 provides a summary of how traffic volumes are anticipated to increase with the subject development. The proposed development is anticipated to generate less than 100 vehicular trips (two-way) during each study peak hour. The additional traffic would be less than 10%.

Based on the operational analysis, no intersection geometric improvements or traffic control upgrades are required to accommodate the proposed development.

TABLE 5.5: TRAFFIC VOLUME INCREASE

Intersection	2031 Background vs. 2031 Total % Volume Increase (Total Entering)	
	AM Peak Hour	PM Peak Hour
Guelph Avenue and Scott Road/Baldwin Drive	3%	4%
Guelph Avenue and Shaw Avenue	4%	4%
Guelph Avenue and Fisher Mills Road	4%	4%
Guelph Avenue and Sheffield Street	5%	5%
Guelph Avenue and Queen Street	3%	3%

6 Transportation Demand Management

6.1 Overview

Transportation Demand Management (TDM) refers to policies and programs designed to manage the demands of the transportation network. In North America, TDM is primarily geared towards encouraging alternative transportation modes to the single-occupant vehicle (SOV), as opposed to the ongoing expansion of municipal roadway systems. Additionally, TDM also assists in reducing associated parking demands. TDM measures can include policy changes that support a balanced transportation network across all modes, as well as the development of infrastructure that encourages all modes of travel.

TDM polices and programs consider how people's choices of travel mode are affected by factors such as land use patterns, parking availability, parking costs, development design, the relative cost, convenience, and availability of alternate modes of transportation. Using polices and programs to make active and sustainable transportation more convenient, a TDM approach to transportation can deliver long-term environmental sustainability, improve public health, and build more human-scaled, livable cities.

However, TDM initiatives are not strictly confined to development design, and in many cases rely on the broader municipal transportation network to be successful. This means that TDM initiatives at the development level complement the municipal transportation network, and together provide meaningful transportation options for the end users of a development.

A comprehensive TDM plan has been developed for the proposed mixed-use development.

6.2 Proposed TDM Measures

TDM strategies are aimed at influencing land use patterns, development design, parking availability and cost, and/or the relative cost, convenience and availability of other travel modes to reduce reliance on motor vehicles for travel. These strategies can be divided into two categories:

- Pre-occupancy: measures implemented in the design and construction of the development; and
- Post-occupancy: measures implemented once the development is occupied and operational.

Measures taken pre-occupancy can influence how attractive, convenient, and safe travel modes other than SOV will be once the site is developed and occupied. At this stage, the site can be designed to better facilitate travel by walking, cycling, and transit, while ensuring sufficient vehicle parking is provided to meet but not exceed demand. The local municipality (City of Cambridge) also has greater influence on their implementation of post-occupancy measures.

Offering incentives after the development is completed also influences travel behaviour. Measures in this category include subsides to use transit, provision of trip-end facilities such as bicycle parking and repair stations, and information about where and how to use different travel modes.

The following sections outline the TDM measures proposed and planned for the site and are categorized into pre-occupancy and post-occupancy initiatives. The TDM measures identified are focused on tenants and visitors of the proposed development.

6.2.1 Planning and Design

The proposed development contains a six-storey building with a total of 112 affordable rental apartment dwelling units and 663.6 SM (7,143 SF) GFA of commercial-retail space.

The development is proposed to be located close to Guelph Avenue frontage with the secondary barrier-free entrance oriented towards the street to better support and promote TDM measures.

6.2.2 Cycling

As noted in **Section 2.3.2**, dedicated and shared cycling facilities are currently provided on all study area roadways, except for Scott Road, Shaw Avenue, and Fisher Mills Road.

Regarding future cycling facilities, Fisher Mills Road is part of the planned bike network by 2041 based on the City's *Transportation Master Plan* (May 2019)[14].

City of Cambridge *Cycling Master Plan*[15] also outlines the following minimum bicycle parking requirements for different uses.

- Multi-unit residential buildings with six or more dwelling units:

[14] City of Cambridge, *Transportation Master Plan, Exhibit 5.8: 2041 Active Transportation Network*, May 31, 2019, p58.
[15] City of Cambridge, *Bike Your City Cycling Master Plan*, March 2020, p42.

   - 0.30 long-term bicycle parking spaces per dwelling unit (34 spaces); and
   - 0.05 short-term bicycle parking spaces per dwelling unit to a maximum of 12 spaces or a minimum of two spaces (six spaces).
- General uses:
   - 5% of required motor vehicle parking for the first 5,000 SM, 1.5% thereafter for both short-term and long-term parking (one short-term space and one long-term space).

Short-term bicycle parking consists of bicycle racks located in public areas, generally located in convenient locations and as close to destinations as possible (less than 15 metres from the intended building entrance or no further than the nearest motor vehicle parking space, whichever is closer).

Long-term bicycle parking consists of lockers, bicycle rooms, bicycle cages full-service stations or secure areas. This type of parking is generally geared towards users that need to park a bicycle for a longer period of time.

The promotion of cycling will likely be achieved through the provision of required bicycle parking facilities and amenities such as bicycle repair stations. The current site plan indicates a provision of 72 bicycle parking stalls, including 50 short-term spaces and 22 long-term spaces. The proposed short-term bicycle parking supply exceeds the City requirements, while the long-term bicycle parking supply is theoretically deficient by 12 spaces. It is recommended required long-term bicycle parking spaces be provided on-site to further encourage use of cycling.

6.2.3 Walking

As stated in **Section 2.3.1**, pedestrian travel within the study area is facilitated by sidewalks on both sides of the study area roads. The exceptions include no sidewalk is provided on the south side of Shaw Avenue east of Guelph Avenue, and the sidewalk on the east side of Guelph Avenue discontinued between Sheffield Street and Shaw Avenue.

Regarding future pedestrian facilities, based on the City's *Transportation Master Plan* (May 2019)[16], Sheffield Street is part of the planned trail network by 2041.

The overall municipal pedestrian network is relatively well-connected and continuous and appropriate connections from the proposed development to the external network are proposed.

6.2.4 Transit

As stated in **Section 2.2**, two local public transit service routes (i.e., Route 51 and 203) are available around the study area. These transit routes provide opportunities for both local and inter-regional travel.

The nearest bus stops (#1300 and #1308) are located near the intersection of Guelph Avenue and Sheffield Street, with the stop #1308 located at doorstep of the subject building. Both bus stops include a paved waiting pad area with a shelter/seating.

Transit usage can be further promoted through marketing efforts through the provision of transit informational packages containing route maps, schedules, identifying routes to key locations within the City including hospitals, other institutions, recreational facilities, etc., and other applicable information to building tenants or posted within the common building areas for tenants and visitors to be informed.

Consideration may also be given towards providing monthly transit passes or other forms of transit subsidies to tenants for a limited time period as a means of attracting transit users and/or encourage automobile drivers to consider transit.

6.2.5 Parking Management

TDM measures aim to reduce automobile ownership and private vehicle trips, thereby reducing the need for an oversupply of parking with the intent of encouraging the use of other forms of transportation; however, parking supply should not be reduced to a point in which significant parking issues are created.

Managing parking supply helps to reduce the undesirable impacts of parking demand on local and regional traffic levels and can result in positive impacts on community livability and design.

With this type of development, there are opportunities to reduce vehicular parking requirements. As previously noted, the subject site is

[16] City of Cambridge, *Transportation Master Plan, Exhibit 5.8: 2041 Active Transportation Network*, May 31, 2019, p58.

well-served by transit options readily available and accessible for building tenants and their visitors. However, it is recognized that leveraging use and the transition from personal vehicle use to transit may result in a transition period.

A reduced parking provision in comparison to the municipal Zoning By-law requirement is proposed. Further justification regarding the adequacy of the parking supply has been discussed in **Section 7**.

It is planned that parking spaces will be unbundled from the rent/cost of a unit. That is, separating the cost of parking from the cost of renting a unit. This will make the often overlooked cost of owning and driving a vehicle visible, and will encourage tenants to use more sustainable modes of transportation. Additionally, renting a dwelling unit will be more attractive to prospective tenants who do not own or who plan not to own a vehicle.

6.2.6 Carshare

Car sharing refers to automobile rental services intended to substitute for private vehicle ownership. It makes occasional use of a vehicle affordable while providing an incentive to minimize driving and rely on alternative travel options as much as possible.

By providing this type of mode share on-site, lower automobile ownership rates and parking requirements can be further obtained. Tenants of the building could choose to use walking, transit or cycling as their primary mode of travel and use car share as the secondary mode of travel.

The availability of a car share space in a premium location on-site would allow tenants of the subject site and surrounding community who normally would not need a vehicle for their daily activities to be comfortable with the decision to not own a vehicle.

A car share space is provided close to the Sheffield Street driveway.

6.2.7 TDM Coordinator

The property owner is recommended to delegate an interested individual or require the property manager to act as a coordinator for the TDM measures. The TDM coordinator should provide information for the carshare program and administer access to the secured bicycle parking and shower/storage facilities. It is expected that a representative from the City of Cambridge or Region of Waterloo will be available to assist the TDM coordinator to help get the programs started during the early stages of operations.

6.2.8 Wayfinding and Travel Planning

Increasing awareness of sustainable transportation opportunities for tenants and visitors of the development should be considered by the developer. New tenants should be provided with a welcome package that outlines the available transit routes and active transportation options. A travel plan will engage and educate tenants on the available sustainable modes of travel and how to overcome obstacles that maybe perceived. Wayfinding signage could also be considered in the lobbies or near main entrances to direct tenants and visitors to nearby transit routes and schedules, bicycle routes, and pedestrian walkways.

General education of all modes of transportation, including their benefits and how to make the best use of them, are a key component to TDM success. The strategies require cooperation and coordination with several partners, including transit providers, building owners, area municipalities as well as tenants and visitors.

By educating about sustainable modes of travel as well as providing travel demand management tools and incentives, TDM can be further integrated within the development to promote all modes of transportation.

6.3 TDM Checklist

The City of Cambridge developed a TDM checklist to assist in assessing whether developments are planned in such a manner to support the overall objectives of the City to increase transit use and to reduce single-occupant vehicle (SOV) travel. It is noted that the TDM checklist is not designed for residential properties but can provide general guidance on TDM strategies and level of support.

Appendix G contains the TDM checklist and outlines the following existing and proposed TDM measures:

- The proposed mixed-use building entrances are oriented to public space;
- Continuous sidewalks are provided along both sides of all adjacent public streets;
- Pedestrian walkways are provided on-site to link the building with the public street sidewalk system;
- Provision of long-term and short-term bicycle parking spaces on-site;
- Provision of public transit information in common areas on-site;

- No more than the minimum required vehicular parking spaces are provided;
- The building owner/occupant agrees to charge for parking as an unbundled cost to occupants;
- Provision of a car share space on-site; and
- The development includes mixed uses on-site or located within 400 metres.

The City's TDM checklist indicates that the development is considered TDM supportive with a score of 30 out of 65.

7 Parking Study

7.1 Development Characteristics

The subject development is proposed to provide the following parking supply:

- A total of 78 resident parking spaces;
- A total of 30 parking spaces shared by visitors and commercial-retail use; and
- A car share parking space.

Overall, the parking supply is provided at a blended rate of 0.97 space per dwelling unit, further broken down to resident supply provided at 0.70 spaces/unit, and shared visitor/commercial parking supply provided at 0.27 spaces/unit.

7.2 Zoning By-law Parking Requirements

The proposed vehicular parking spaces for the subject site have been verified against the City of Cambridge *Zoning By-Law (ZBL) 150-85* [17].

The ZBL does not provide requirements for an affordable housing land use; therefore, the affordable housing units are subject to the multiple dwelling parking requirements. The following municipal vehicular parking requirements are referenced:

- 1.0 resident parking space per dwelling unit, and 0.25 visitor parking spaces per dwelling unit; and
- For the commercial land use, the municipal parking requirement is 2.5 spaces per 100 SM of GFA.

Table 7.1 summarizes the required vehicular parking for the subject site in comparison to the proposed parking supply.

[17] City of Cambridge, *Zoning By-law 150-85,* January 2012, Section 2.2.1.

TABLE 7.1: REQUIRED AND PROVIDED PARKING (ZBL 150-85)

Land Use	By-law Requirement	Spaces Required	Spaces Proposed	Surplus/ Deficit
112 dwelling units (resident)	1.0 resident space/unit	112	78	-34
112 dwelling units (visitor)	0.25 visitor space/unit	28	30 + a car share space (shared)	-14
663.6 SM of commercial space	2.5 spaces per 100 SM of GFA	17		
Total		***157***	***109***	***-48***

The proposed development would have a theoretical parking deficiency of 48 spaces, including 34 resident parking spaces and 14 visitor/commercial parking spaces, according to ZBL 150-85.

The subsequent sections provide parking justification for the proposed parking supply. For simplicity, it was considered the municipal residential visitor component requirement (0.25 spaces/unit) is met and satisfied, while the commercial-retail parking supply is deficient by 14 spaces.

7.3 Rationale and Justification for Commercial-Retail Component Parking Supply

For the proposed 663.6 SM (7,143 SF) GFA of commercial-retail space, any generated parking demand would be accommodated via shared use of the residential visitor parking supply. The following rationale is provided in support:

- The proposed commercial-retail space will be an ancillary use for the residential component of the building and the surrounding neighbourhood and community.

  No vehicular parking demands would be generated by the building tenants, and it is anticipated any demand from the adjacent neighbourhood and community would likely be generated in the form of walking or cycling trips to the commercial-retail space;
- The proposed commercial-retail space is not anticipated to be a destination location;

- The ZBL requires the provision of 17 parking spaces for the commercial-retail land use. A total of 31 visitor/commercial parking spaces (including a car share space) are proposed to serve the site. It is rationalized shared use of these spaces will be adequate given the anticipated time of use of the spaces.

  The current site plan indicates the commercial-retail parking hours would be 8:00 AM – 6:00 PM, whereas residential visitor parking demands would be 6:00 PM – 8:00 AM. This implies anticipated commercial and visitor parking demands would not overlap, and the 31 proposed parking spaces would exceed the minimum parking requirements for commercial and visitor uses, respectively; and
- Under the worst-case scenario where residential visitor parking spaces are occupied, there are free public parking spaces provided on the south side of Sheffield Street for up to three hours Monday to Sunday[18]. It is anticipated any potential parking spillover could be accommodated by the public parking spaces, which are located close to the site access on Sheffield Street.

In summary, based upon the rationale and justification provided above, the provision of no dedicated parking for the 663.6 SM (7,143 SF) GFA of commercial-retail space in our professional opinion can be supported based upon its ancillary nature resulting in limited parking demand. Any parking demand generated would be considered minor and be accommodated by the shared used of residential visitor parking spaces on-site given the majority of these spaces would be unoccupied during business hours.

7.4 Rationale and Justification for Residential Component Parking Supply

The proposed resident component results in a theoretical deficiency of 34 spaces. The proposed parking rate of 0.70 spaces per unit for residents is appropriate given the nature of the residential building (affordable housing).

The rationale for the approval of a reduced resident parking rate is considered appropriate based on the following considerations:

- Proxy site parking demand data;
- ITE parking estimated demand;

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18 https://www.cambridge.ca/en/learn-about/resources/parking-resources/Hespeler-Map.pdf

- Affordable housing parking trends;
- Unit ownership;
- Policy change; and
- Site context and Transportation Demand Management (TDM) initiatives.

7.4.1 Proxy Site Parking Demand Data

Affordable housing parking utilization surveys and data provided by the Region of Waterloo have been reviewed to confirm the adequacy of the proposed parking supply. The proxy affordable housing developments are located in the City of Cambridge, City of Kitchener, and City of Waterloo.

Table 7.2 summarizes the observed parking rates of tenants at these developments. **Appendix H** contains the provided parking survey data for reference.

TABLE 7.2: AFFORDABLE HOUSING PROXY SITES

Location	Units	Parking Supply	Observed Demand by Tenants
175 Hespeler Road, Cambridge	34	19 spaces (0.56 spaces/unit)	11 spaces (0.32 spaces/unit)
26 Ainslie Street South, Cambridge	66	32 spaces (0.48 spaces/unit)	23 spaces (0.35 spaces/unit)
1103-1109 King Street East, Cambridge	20	28 (1.40 spaces/unit)	7 (0.35 spaces/unit)
25 Linnwood Avenue, Cambridge	31	27 (0.87 spaces/unit)	21 (0.68 spaces/unit)
365 Linden Drive, Kitchener	24	24 (1.00 space/unit)	10 (0.42 spaces/unit)
108 Sydney Street South, Kitchener	22	17 (0.77 spaces/unit)	4 (0.18 spaces/unit)
430 Connaught Street, Kitchener	16	19 (1.19 spaces/unit)	6 (0.38 spaces/unit)
544 Bridgeport Road, Kitchener	48	57 (1.19 spaces/unit)	22 (0.46 spaces/unit)
18 Guelph Street, Kitchener	13	9 (0.69 spaces/unit)	4 (0.31 spaces/unit)
184 Erb Street East, Waterloo	28	26 (0.93 spaces/unit)	7 (0.25 spaces/unit)

These developments have an observed maximum parking demand of 0.18 to 0.68 spaces per apartment unit. It is noted these rates do not account for visitors or staff parking on-site.

The parking survey data indicates affordable housing developments require significantly fewer parking spaces than the non-affordable units, and the observed maximum parking demand is significantly lower than the municipal parking requirement (i.e., 1.0 resident space per dwelling unit).

The proposed resident parking rate of 0.70 spaces per apartment unit (excluding visitor parking) exceeds the peak overall demand rates derived from the proxy site survey data.

7.4.2 ITE Parking Estimated Demand

The Institute of Transportation Engineers (ITE) *Parking Generation (5th Edition)*[19] provides data on parking utilization surveys across the USA and Canada of peak parking demands for different land uses.

The land use code (LUC) 223 – Affordable Housing was investigated to best estimate the potential peak parking demands for the residential component. The peak parking demand was observed to be 0.32 to 1.66 per unit, based on a total of 30 studies. These rates account for visitor parking on-site.

The proposed blended rate of 0.97 spaces per dwelling unit (including visitor parking) would fall within this range.

7.4.3 Affordable Housing Parking Trends

<u>City of Mississauga</u>

In 2005, the City of Mississauga released the *Parking Guidelines for Public and Private Non-Profit Housing Report*[20]. This study concluded that fewer parking spaces were needed for residents and visitors than the ZBL required for certain non-profit housing providers and specific built forms.

Further in 2020, the City initiated a parking regulations study and in 2021 prepared draft parking regulation policies for consultation[21]. Through this review, a reduced parking rate for affordable housing was supported and policy direction was to introduce parking requirements

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19 Institute of Transportation Engineers, *Parking Generation, 5th ed.*, (Washington, DC: ITE, 2019).

20 City of Mississauga, *Parking Guidelines for Public and Private Non-Profit Housing – Report on Comments*, October 11, 2005.

21 City of Mississauga, *Parking Regulations Study*, May 2021.

within the ZBL for affordable housing. This included recommendations for parking rates at 50% lower than the conventional housing category in Precinct 1 and 30% less in all other precincts, and a rate of 0.10 spaces per unit for assisted/alternative housing.

Following this study, the City of Mississauga updated the parking requirements within their ZBL in June 2022[22] to reduce rates for residential uses for affordable housing.

Specifically, for public authority dwelling unit or dwelling unit provided by a non-profit housing provider in a rental apartment, the resident parking requirement varies between 0.40 to 0.70 spaces per unit, depending on the location of the development within the City. The proposed resident parking rate of 0.70 spaces per unit (excluding visitor parking) would fall within this range.

<u>City of Toronto</u>

The City of Toronto *Zoning By-law 569-2013*[23] provides parking requirements for the Assisted Housing land use which is described as "a dwelling unit operated by a non-profit organization or private sector organization in cooperation with the City of Toronto", and Alternative Housing land use which is described as "a dwelling unit or bedsitting room owned and operated by or on behalf of the City of Toronto, or by a non-profit agency in cooperation with the City of Toronto or a private sector organization in cooperation with the City of Toronto".

In December 2021, the City of Toronto passed an amendment[24] to Zoning By-Law 569-2013[25] to update parking requirements. This amendment was based on a recommendation made in November 2021[26] to eliminate minimum parking requirements for new developments to discourage auto dependency and prioritize the use of active transportation and transit modes.

The amendment removed most minimum parking requirements for new developments, except for visitor and accessible parking, and allows for maximum parking requirements instead. The November 2021 recommendation also acknowledges that "housing affordability is a significant challenge" with high costs of constructing and maintaining

[22] City of Mississauga, *Zoning By-Law 0225-2007*, June 2022.
[23] City of Toronto, *Zoning By-Law 569-2013*, July 2023.
[24] City of Toronto, *By-Law 89-2022*, December 2021.
[25] City of Toronto, *Zoning By-Law 569-2013*, July 2023.
[26] City of Toronto, *Report for Action Recommended Parking Requirements for New Development*, November 2021.

parking, and “minimum parking requirements limits households’ ability to avoid those costs”.

Depending on the location of the development within the City, the following maximum resident parking rates are required:

- **Assisted housing or a mixed-use building**:
  - 0.30 - 0.80 spaces per bachelor unit up to 45 SM;
  - 0.50 - 0.90 spaces per one-bedroom unit;
  - 0.80 - 1.00 spaces per two-bedroom unit; and
  - 1.00 - 1.20 spaces per three-bedroom unit.
- **Alternative Housing:** 0.50 spaces per unit.

The proposed resident parking rate of 0.70 spaces per unit (excluding visitor parking) would fall within the range of maximum parking rates for Assisted Housing or a mixed-use building.

7.4.4 Unit Ownership

The City of Toronto[27] and City of Vancouver[28] have completed a review of the effect of housing types on parking demand. Both documents concluded that parking demand and auto-ownership is lower for rental households compared to owners (condo style units), especially in urban locations where convenient higher-order transit and active transportation modes are available.

The City of Vancouver study indicated that in purpose-built market rental sites, the vehicle parking demand range is 0.58 to 0.72 vehicles per apartment unit. The proposed resident parking rate of 0.70 spaces per unit falls within this range.

7.4.5 Policy Changes

The City’s *Transportation Master Plan* (TMP)[29] and *Official Plan* (OP)[30] promote the use of alternative modes and ultimately recognize that the supply of parking and location of the development can influence travel mode choice. The following policies apply to the subject development and location within the City.

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27 ibid.

28 Metropolitan Planning, Environment and Parks, *The Metro Vancouver Apartment Parking Study*, September 2012.

29 City of Cambridge, *Moving Cambridge Transportation Master Plan*, May 2019.

30 City of Cambridge, *Official Plan*, September 2018.

The main objective of the City's TMP is to prioritize travel choice including walking, cycling, transit and auto, and reduce single occupant vehicle trips. This is achievable by coordinating road improvements with other initiatives to help facilitate the use of alternative travel modes.

The City's OP indicates that the City will look at enhancing facilities for pedestrians and cyclists and encourage alternative modes, and outlines the importance of affordable housing. The OP outlines that "reduced parking may be considered through the development review process including transportation demand management measures". The City encourages developments to implement measures, such as walking, cycling, transit, carpooling, carsharing and flexible working hours, where feasible. A comprehensive transportation demand management plan may be considered a component in justifying a reduction in the required amount of parking for a development.

The Region's Transportation Master Plan also encourages the use of alternative modes of transportation and outlines mode share targets within the Region.

An objective of the Region's *Transportation Master Plan*[31] is to encourage and promote the use of alternative modes of transportation to reduce vehicle dependency and single occupancy vehicle trips. In coordination with this objective, mode share targets (transit, walking and cycling) of 20.4% and 26.8% have been identified for 2031 and 2041, respectively[32]. This is a 6.9% and 13.3% increase, respectively, from a 2016 mode share of 13.5%. In comparison, the City of Cambridge TMP outlines a 5% mode share as of 2011 for the City specifically[33].

An increase in mode share has a direct correlation to a reduction in vehicle dependency and therefore a reduction in parking demand.

7.4.6 Site Context and Transportation Demand Management (TDM)

It is assumed parking spaces will be unbundled from the rent/cost of a unit. Prospective tenants of the proposed development who do not own a private automobile or do not plan on owning one would be attracted to the site by close proximity, availability, and frequency of public transit service.

31 Region of Waterloo, *Moving Forward 2018 Transportation Master Plan*, June 2019.
32 Ibid., p4-4.
33 City of Cambridge, *Moving Cambridge Transportation Master Plan*, May 2019, p29.

Other factors that will assist in maintaining lower parking demands, and have previously been described or discussed in this study, include:

- The subject site is currently well served by public transit with transit stops situated at doorstep of the subject building;
- The availability of a continuous and well-connected pedestrian network on public streets. The subject site is located within walking distance to many complementary land uses that provide retail and commercial goods and services as well as employment opportunities;
- Given the availability of transit and close proximity to many complementary land uses, prospective tenants may not own a vehicle or opt to forego their vehicle based upon the available parking provisions;
- The provision of on-site long-term and short-term bicycle parking which encourages and promotes alternatives to the automobile; and
- TDM measures as outlined in **Section 6** also discourage single-occupant vehicle trips and lessen demand for vehicle parking on-site.

7.5 Summary

Based on the information presented above, a parking supply of 108 spaces and a car share space is provided, at a blended rate of 0.97 spaces/unit. It is further broken down to resident supply provided at 0.70 spaces/unit, and shared visitor/commercial parking supply provided at 0.27 spaces/unit.

The provision of no dedicated parking for the commercial-retail space is supported based upon its ancillary nature resulting in limited parking demand. Any parking demand generated would be considered minor and be accommodated by the shared used of residential visitor parking spaces on-site given the majority of these spaces would be unoccupied during business hours.

The proposed reduced resident parking supply (0.70 spaces per unit) is determined to be sufficient for the proposed development based on the nature of the subject building (affordable housing), proxy site parking demand data, affordable housing parking trends, unit ownership impact on parking demand, policy changes, and site context and TDM measures/initiatives which would further reduce the on-site parking demands.

8 Conclusions and Recommendations

8.1 Conclusions

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

- **Existing (2024) Traffic:** The study area intersections are currently operating at acceptable levels of service and within capacity during the weekday AM and PM peak hours. No major critical movements/intersections are identified;
- **Development Trip Generation:** With full development and occupancy of the subject site, the proposed mixed-use development is forecast to generate a total of 73 new AM peak hour trips and 99 new PM peak hour trips;
- **Background Traffic Conditions:** Without the proposed mixed-use development, the study area intersections and associated traffic movements are forecast to continue operating at acceptable levels of service and within capacity during the weekday AM and PM peak hours under the 2031 horizon year;
- **Total Traffic Conditions:** With full build-out of the proposed mixed-use development, the operations at the study area intersections are found to be similar to future background traffic conditions. All intersections and traffic movements are forecast to continue to operate at acceptable levels of service and within capacity during both AM and PM peak hours under the 2031 horizon year.

  No intersection geometric improvements or traffic control upgrades are warranted to accommodate the proposed development;
- **Transportation Demand Management (TDM) Plan:** A plan for the proposed development has been prepared and the following applicable TDM measures/initiatives have been identified which would be implemented by the applicant.
  - Front the proposed building to Guelph Avenue;
  - Provide internal sidewalks with connections to the existing sidewalk on Guelph Avenue and Sheffield Street;
  - Provide bicycle parking on-site to meet City requirements;
  - Access to multiple bus transit routes that provide good connectivity to the broader network and access to major destinations;
  - Provide transit information in common areas on-site;

- Provide parking unbundled from the rent/cost of a unit;
- Provide a carshare space/vehicle in a premium location on-site; and
- Delegate a TDM coordinator, either an interested individual or property manager, to support all on-site TDM programs.

TDM Checklist: Based on the above strategies, the City's TDM checklist indicates that the development is TDM supportive; and

- **Parking Supply Review:** While the proposed vehicular parking supply (108 spaces plus a car share space) for the development does not satisfy the City's Zoning By-law requirements. It is determined and demonstrated that the proposed parking supply will be adequate in serving the anticipated parking demands of the development.

  Justification and rationale are provided through proxy site parking demand data, trends of requiring lower parking rates for affordable housing developments in other municipalities, City of Cambridge policy changes, surrounding site context, and the implementation of the proposed TDM measures/initiatives which would further reduce the on-site parking demands.

8.2 Recommendations

The recommendations of the study area are as follows:

- The City of Cambridge recognize the conclusions drawn above;
- That 12 short-term bicycle parking spaces be converted to long-term bicycle parking spaces on-site to meet the City requirements; and
- The proposed TDM Plan be implemented.

Appendix A

Pre-Study Consultation

From:	Wenting Li
To:	Shannon Noonan
Cc:	Erica Bayley
Subject:	RE: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of Reference
Date:	October 9, 2024 9:40:00 AM
Attachments:	image001.png image004.png

Morning Shannon,

Thanks, we will revise our analysis and report based on your comments.

I was wondering if you could provide the TIS for 410 Queen Street West for us to include in our background traffic.

The client is looking for our report next week, so we would like to get the information as soon as possible.

Thank you for your help on this matter.

Regards,

Wenting Li, M.A.Sc., P.Eng.
Transportation Engineer
(She/Her)

paradigm TRANSPORTATION SOLUTIONS LIMITED

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From: Shannon Noonan <NoonanS@cambridge.ca>
Sent: October 4, 2024 1:29 PM
To: Erica Bayley <ebayley@ptsl.com>; Wenting Li <wli@ptsl.com>
Subject: RE: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of Reference

Hi Erica,

Paradigm is also preparing a TIS for 151-171 Guelph Avenue so the scope will be very similar to it.

Please include Guelph Ave at Scott Road and Shaw Avenue in the study area intersections. A 2% growth rate should be used, and background developments include 151-171 Guelph Ave, 215 Queen Street, 2-16 Queen Street W and 410

Queen Street. There are no future road improvements in the area.

Any question, let me know.

Thanks,
Shannon

Shannon Noonan (she/her) | C.E.T
Manager of Transportation Engineering
Community Development - Engineering & Transportation Services
P: (519) 621-0740,4607
www.cambridge.ca

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From: Erica Bayley <ebayley@ptsl.com>
Sent: Wednesday, September 25, 2024 4:16 PM
To: Brittany Papiez-Lopata <papiezlopatb@cambridge.ca>
Cc: Wenting Li <wli@ptsl.com>
Subject: Re: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of Reference

Hi Brittany - I'm sure it doesn't surprise you that I got your email wrong the first time... Hoping this makes it to you!

Erica Bayley, P.Eng.

Senior Project Manager, Associate

(She/Her)

Paradigm Transportation Solutions Limited

p: 519.896.3163 x202

m: 519.635.5349

From: Erica Bayley <ebayley@ptsl.com>
Sent: September 25, 2024 4:12 PM
To: papiezloptb@cambridge.ca <papiezloptb@cambridge.ca>
Cc: Wenting Li <wli@ptsl.com>
Subject: Fw: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of Reference

Hi Brittany,

If you scroll right to the bottom of this chain, you'll see we sent our TOR for the TIS on March 28th. We are looking for confirmation that what we have noted is appropriate.

We have since added a parking study per request of Jaqueline Hannemann.

Erica Bayley, P.Eng.

Senior Project Manager, Associate

(She/Her)

Paradigm Transportation Solutions Limited

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From: Wenting Li <wli@ptsl.com>
Sent: May 27, 2024 10:37 AM
To: Mohamed Juuda <juudam@cambridge.ca>
Cc: Erica Bayley <ebayley@ptsl.com>
Subject: RE: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of Reference

Hello Mohamed,

Hope all is well.

I am following up on the proposed TIS Terms of Reference for a proposed mixed-use development at 130 Guelph Avenue in the City of Cambridge.

Can you please advise when we may receive comments?

Thank you, your assistance is greatly appreciated.

Regards,

Wenting Li, M.A.Sc., P.Eng.

Transportation Engineer

(She/Her)

5A-150 Pinebush Road, Cambridge ON, N1R 8J8

p: 416.479.9684 x508

m: 647.850.9180

e: wli@ptsl.com

w: www.ptsl.com

From: Wenting Li
Sent: Thursday, May 9, 2024 8:48 AM
To: Mohamed Juuda <juudam@cambridge.ca>
Cc: Erica Bayley <ebayley@ptsl.com>
Subject: RE: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of

Reference

Good Morning Mohamed,

Hope all is well.

I am following up on the proposed TIS Terms of Reference for a proposed mixed-use development at 130 Guelph Avenue in the City of Cambridge.

If you could kindly advise on the status that would be great. Thank you very much.

Regards,

Wenting Li, M.A.Sc., P.Eng.

Transportation Engineer

(She/Her)

5A-150 Pinebush Road, Cambridge ON, N1R 8J8

p: 416.479.9684 x508

m: 647.850.9180

e: wli@ptsl.com

w: www.ptsl.com

From: Melissa Lachance <lachancem@cambridge.ca>
Sent: Monday, April 22, 2024 10:17 AM
To: Wenting Li <wli@ptsl.com>
Cc: Erica Bayley <ebayley@ptsl.com>; Mohamed Juuda <juudam@cambridge.ca>

Subject: Re: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of Reference

Hi Wenting,

I am returning to office from an unexpected absence, I appreciate your patience with my response.

I am forwarding this email to my college Mohammed Juuda as this location will be reviewed by him.

Warm Regards,

Melissa Lachance

Transportation Engineering Technologist

Engineering & Transportation Services

Community Development

T: 519-623-1340 ext. 4077

www.cambridge.ca

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CANADA
PEOPLE • PLACE • PROSPERITY

City Hall • 50 Dickson St • Cambridge ON • N1R 5W8

From: Wenting Li <wli@ptsl.com>
Sent: April 8, 2024 10:12 AM
To: Melissa Lachance <lachancem@cambridge.ca>
Cc: Erica Bayley <ebayley@ptsl.com>; Jason Leach <LeachJ@cambridge.ca>

Subject: RE: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of Reference

This Message Is From an External Sender

This message came from outside your organization.

Good Morning Melissa,

Just following up on the proposed Terms of Reference for a proposed mixed-use development at 130 Guelph Avenue in Cambridge.

If you could kindly advise on the status that would be great. Thank you very much.

Regards,

Wenting Li, M.A.Sc., P.Eng.

Transportation Engineer

(She/Her)

5A-150 Pinebush Road, Cambridge ON, N1R 8J8

p: 416.479.9684 x508

m: 647.850.9180

e: wli@ptsl.com

w: www.ptsl.com

From: Wenting Li
Sent: Thursday, March 28, 2024 8:54 AM
To: Melissa Lachance <lachancem@cambridge.ca>
Cc: Erica Bayley <ebayley@ptsl.com>
Subject: 130 Guelph Avenue, Cambridge - Transportation Impact Study - Proposed Terms of Reference

Hello Melissa,

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct a Transportation Impact Study (TIS) for a proposed mixed-use development at 130 Guelph Avenue in the City of Cambridge.

The property owner proposes to construct a six-storey, 118-unit mixed-use building containing affordable rental housing, commercial retail spaces, and professional office space. A total of 108 parking spaces are provided, including four barrier-free parking spaces (two Type A and two Type B). Vehicle access is proposed via all-moves accesses to Guelph Avenue and Sheffield Street. A preliminary concept plan is attached.

We'd like to conduct our study based on the following scope, subject to your comments:

Proposed Terms of Reference

Study Area Intersections:

- Guelph Avenue and Fisher Mills Road (unsignalized);
- Guelph Avenue and Sheffield Street (unsignalized);
- Guelph Avenue and Queen Street (signalized);
- Proposed Driveway and Guelph Avenue; and
- Proposed Driveway and Sheffield Street.

Analysis Periods:

Weekday AM peak hour

Weekday PM peak hour

Turning Movement Count Data:

To be collected by Paradigm in April 2024

Horizon Year

Base year (2024)

Five-years from the full buildout

Analysis

Synchro 11, HCM 2000 analysis

Background Traffic

Background traffic annual growth rate: 2% per annum or provide historical AADT data. **Please confirm**.

Other approved developments to be included in background forecasts. **Please confirm and provide relevant TIS reports or site statistics.**

Future Road Improvements:

Please confirm

Trip Generation

ITE Trip Generation Data 11th Edition. Trip equations or rates for land use code (LUC) 221 – Multifamily Housing (Mid-Rise), 822 – Strip Retail Plaza (<40k), and 712 – Small Office Building will be applied. Internal trip capture and pass-by trips will be considered.

Site Traffic Distribution

Existing traffic patterns

Report

- We will document the study methodologies, findings, and conclusions in a report with appendices containing the detailed analysis results and any data collected.

Thank you for reviewing the proposed terms of reference and providing information where available. If there are any questions, please do not hesitate to contact me.

Regards,

Wenting Li, M.A.Sc., P.Eng.

Transportation Engineer

(She/Her)

5A-150 Pinebush Road, Cambridge ON, N1R 8J8

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Appendix B

Traffic Data

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Fisher Mills Road & Guelph Avenue
Site Code: 240126
Start Date: 04/04/2024
Page No: 1

Turning Movement Data

Start Time	Fisher Mills Road Eastbound					Guelph Avenue Northbound					Guelph Avenue Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	2	11	0	1	13	14	21	0	0	35	33	0	0	0	33	81
7:15 AM	5	16	1	2	22	19	14	0	0	33	34	1	0	0	35	90
7:30 AM	2	25	0	1	27	26	26	0	0	52	67	5	0	0	72	151
7:45 AM	3	24	0	0	27	26	34	0	0	60	63	10	0	0	73	160
Hourly Total	12	76	1	4	89	85	95	0	0	180	197	16	0	0	213	482
8:00 AM	4	30	0	0	34	17	40	0	0	57	62	5	0	0	67	158
8:15 AM	2	19	0	0	21	25	42	0	0	67	45	0	0	0	45	133
8:30 AM	5	29	0	1	34	21	46	0	0	67	46	8	0	0	54	155
8:45 AM	12	26	0	0	38	21	42	0	2	63	62	7	0	0	69	170
Hourly Total	23	104	0	1	127	84	170	0	2	254	215	20	0	0	235	616
9:00 AM	12	22	0	5	34	15	32	0	2	47	78	13	0	0	91	172
9:15 AM	2	16	0	3	18	23	31	0	0	54	33	3	0	0	36	108
9:30 AM	2	15	0	4	17	14	31	0	0	45	38	7	0	0	45	107
9:45 AM	1	17	0	2	18	10	23	0	0	33	28	1	0	0	29	80
Hourly Total	17	70	0	14	87	62	117	0	2	179	177	24	0	0	201	467
10:00 AM	2	20	0	2	22	15	24	0	0	39	36	2	0	0	38	99
10:15 AM	2	20	0	0	22	17	23	0	0	40	36	2	0	0	38	100
10:30 AM	4	15	0	3	19	14	20	0	0	34	37	1	0	0	38	91
10:45 AM	2	17	0	4	19	16	36	0	0	52	28	4	0	0	32	103
Hourly Total	10	72	0	9	82	62	103	0	0	165	137	9	0	0	146	393
11:00 AM	1	22	0	2	23	13	27	0	0	40	35	3	0	0	38	101
11:15 AM	2	12	0	4	14	20	31	0	0	51	35	7	0	0	42	107
11:30 AM	3	20	0	0	23	27	32	0	0	59	33	2	0	0	35	117
11:45 AM	3	23	0	3	26	31	35	0	0	66	38	4	0	0	42	134
Hourly Total	9	77	0	9	86	91	125	0	0	216	141	16	0	0	157	459
12:00 PM	3	22	0	0	25	5	30	0	0	35	33	4	0	0	37	97
12:15 PM	4	21	0	4	25	18	30	0	0	48	38	4	0	0	42	115
12:30 PM	3	24	0	0	27	19	37	0	0	56	29	6	0	0	35	118
12:45 PM	2	21	0	0	23	17	29	0	0	46	35	0	0	0	35	104
Hourly Total	12	88	0	4	100	59	126	0	0	185	135	14	0	0	149	434
1:00 PM	1	21	0	1	22	20	31	0	0	51	30	4	0	0	34	107
1:15 PM	3	13	0	1	16	32	32	0	0	64	32	1	0	0	33	113
1:30 PM	3	28	0	1	31	27	28	0	0	55	36	6	0	0	42	128
1:45 PM	1	14	0	1	15	18	38	0	0	56	35	3	0	0	38	109
Hourly Total	8	76	0	4	84	97	129	0	0	226	133	14	0	0	147	457
2:00 PM	4	31	0	1	35	15	35	0	0	50	34	2	0	0	36	121

2:15 PM	1	25	0	0	26	27	50	0	0	77	41	1	0	0	42	145
2:30 PM	5	35	0	1	40	31	51	0	0	82	40	2	0	0	42	164
2:45 PM	5	31	0	4	36	25	54	0	0	79	39	4	0	0	43	158
Hourly Total	15	122	0	6	137	98	190	0	0	288	154	9	0	0	163	588
3:00 PM	6	34	0	1	40	25	75	0	0	100	43	4	0	0	47	187
3:15 PM	7	51	0	4	58	23	57	0	0	80	56	5	0	0	61	199
3:30 PM	9	37	0	4	46	26	59	0	0	85	57	8	0	0	65	196
3:45 PM	5	33	0	6	38	30	51	0	0	81	50	13	0	0	63	182
Hourly Total	27	155	0	15	182	104	242	0	0	346	206	30	0	0	236	764
4:00 PM	3	35	0	0	38	28	65	0	0	93	51	4	0	0	55	186
4:15 PM	4	53	0	4	57	34	48	0	0	82	56	5	0	0	61	200
4:30 PM	1	33	0	1	34	40	59	0	0	99	57	4	0	0	61	194
4:45 PM	5	42	0	0	47	46	53	0	0	99	63	5	0	0	68	214
Hourly Total	13	163	0	5	176	148	225	0	0	373	227	18	0	0	245	794
5:00 PM	3	45	0	0	48	29	72	0	0	101	63	5	0	0	68	217
5:15 PM	2	33	0	1	35	40	64	0	0	104	66	5	0	0	71	210
5:30 PM	3	39	0	0	42	35	61	0	0	96	59	6	0	0	65	203
5:45 PM	2	31	0	3	33	24	55	0	0	79	48	4	0	0	52	164
Hourly Total	10	148	0	4	158	128	252	0	0	380	236	20	0	0	256	794
6:00 PM	3	30	0	1	33	31	57	0	0	88	60	1	0	0	61	182
6:15 PM	3	33	0	2	36	27	62	0	0	89	52	4	0	0	56	181
6:30 PM	5	21	0	1	26	21	50	0	0	71	36	2	0	0	38	135
6:45 PM	2	15	0	3	17	19	44	0	0	63	40	2	0	0	42	122
Hourly Total	13	99	0	7	112	98	213	0	0	311	188	9	0	0	197	620
Grand Total	169	1250	1	82	1420	1116	1987	0	4	3103	2146	199	0	0	2345	6868
Approach %	11.9	88.0	0.1	-	-	36.0	64.0	0.0	-	-	91.5	8.5	0.0	-	-	-
Total %	2.5	18.2	0.0	-	20.7	16.2	28.9	0.0	-	45.2	31.2	2.9	0.0	-	34.1	-
Motorcycles	0	4	0	-	4	1	1	0	-	2	1	0	0	-	1	7
% Motorcycles	0.0	0.3	0.0	-	0.3	0.1	0.1	-	-	0.1	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	164	1191	1	-	1356	1050	1947	0	-	2997	2073	187	0	-	2260	6613
% Cars & Light Goods	97.0	95.3	100.0	-	95.5	94.1	98.0	-	-	96.6	96.6	94.0	-	-	96.4	96.3
Buses	3	34	0	-	37	54	21	0	-	75	49	6	0	-	55	167
% Buses	1.8	2.7	0.0	-	2.6	4.8	1.1	-	-	2.4	2.3	3.0	-	-	2.3	2.4
Single-Unit Trucks	2	20	0	-	22	11	17	0	-	28	21	4	0	-	25	75
% Single-Unit Trucks	1.2	1.6	0.0	-	1.5	1.0	0.9	-	-	0.9	1.0	2.0	-	-	1.1	1.1
Articulated Trucks	0	1	0	-	1	0	1	0	-	1	1	1	0	-	2	4
% Articulated Trucks	0.0	0.1	0.0	-	0.1	0.0	0.1	-	-	0.0	0.0	0.5	-	-	0.1	0.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	1	1	0	-	2	2
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	0.5	-	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	1.2	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	81	-	-	-	-	4	-	-	-	-	0	-	-
% Pedestrians	-	-	-	98.8	-	-	-	-	100.0	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Fisher Mills Road & Guelph Avenue
Site Code: 240126
Start Date: 04/04/2024
Page No: 3

Guelph Avenue [N]

Out	In	Total
1	1	2
2111	2260	4371
24	55	79
19	25	44
1	4	5
2156	**2345**	**4501**

R	T	U	P
0	1	0	0
187	2073	0	0
6	49	0	0
4	21	0	0
2	2	0	0
199	**2146**	**0**	**0**

Fisher Mills Road [W]

Out	In	Total
1	4	5
1238	1356	2594
60	37	97
15	22	37
2	1	3
1316	**1420**	**2736**

U	L	R	P
0	0	4	0
1	164	1191	0
0	3	34	0
0	2	20	0
0	0	1	82
1	**169**	**1250**	**82**

04/04/2024 7:00 AM
Ending At
04/04/2024 7:00 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

U	L	T	P
0	1	1	0
0	1050	1947	0
0	54	21	0
0	11	17	0
0	0	1	4
0	**1116**	**1987**	**4**

Out	In	Total
5	2	7
3264	2997	6261
83	75	158
41	28	69
3	1	4
3396	**3103**	**6499**

Guelph Avenue [S]

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: Fisher Mills Road & Guelph Avenue
Site Code: 240126
Start Date: 04/04/2024

Turning Movement Peak Hour Data (8:15 AM)

Start Time	Fisher Mills Road Eastbound					Guelph Avenue Northbound					Guelph Avenue Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
8:15 AM	2	19	0	0	21	25	42	0	0	67	45	0	0	0	45	133
8:30 AM	5	29	0	1	34	21	46	0	0	67	46	8	0	0	54	155
8:45 AM	12	26	0	0	38	21	42	0	2	63	62	7	0	0	69	170
9:00 AM	12	22	0	5	34	15	32	0	2	47	78	13	0	0	91	172
Total	31	96	0	6	127	82	162	0	4	244	231	28	0	0	259	630
Approach %	24.4	75.6	0.0	-	-	33.6	66.4	0.0	-	-	89.2	10.8	0.0	-	-	-
Total %	4.9	15.2	0.0	-	20.2	13.0	25.7	0.0	-	38.7	36.7	4.4	0.0	-	41.1	-
PHF	0.646	0.828	0.000	-	0.836	0.820	0.880	0.000	-	0.910	0.740	0.538	0.000	-	0.712	0.916
Motorcycles	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Motorcycles	0.0	1.0	-	-	0.8	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.2
Cars & Light Goods	31	89	0	-	120	76	157	0	-	233	225	26	0	-	251	604
% Cars & Light Goods	100.0	92.7	-	-	94.5	92.7	96.9	-	-	95.5	97.4	92.9	-	-	96.9	95.9
Buses	0	4	0	-	4	6	2	0	-	8	6	1	0	-	7	19
% Buses	0.0	4.2	-	-	3.1	7.3	1.2	-	-	3.3	2.6	3.6	-	-	2.7	3.0
Single-Unit Trucks	0	2	0	-	2	0	3	0	-	3	0	0	0	-	0	5
% Single-Unit Trucks	0.0	2.1	-	-	1.6	0.0	1.9	-	-	1.2	0.0	0.0	-	-	0.0	0.8
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
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	3.6	-	-	0.4	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	6	-	-	-	-	4	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Fisher Mills Road & Guelph Avenue
Site Code: 240126
Start Date: 04/04/2024
Page No: 5

Peak Hour Data

04/04/2024 8:15 AM
Ending At
04/04/2024 9:15 AM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

Out	In	Total
0	0	0
188	251	439
2	7	9
3	0	3
0	1	1
193	**259**	**452**

R	T	U	P
0	0	0	0
26	225	0	0
1	6	0	0
0	0	0	0
1	0	0	0
28	**231**	**0**	**0**

Fisher Mills Road [W]

Out	In	Total
0	1	1
102	120	222
7	4	11
0	2	2
1	0	1
110	**127**	**237**

U	L	R	P
0	0	1	0
0	31	89	0
0	0	4	0
0	0	2	0
0	0	0	6
0	**31**	**96**	**6**

Guelph Avenue [S]

U	L	T	P
0	0	0	0
0	76	157	0
0	6	2	0
0	0	3	0
0	0	0	4
0	**82**	**162**	**4**

Out	In	Total
1	0	1
314	233	547
10	8	18
2	3	5
0	0	0
327	**244**	**571**

Turning Movement Peak Hour Data Plot (8:15 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Fisher Mills Road & Guelph Avenue
Site Code: 240126
Start Date: 04/04/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Fisher Mills Road Eastbound					Guelph Avenue Northbound					Guelph Avenue Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
4:45 PM	5	42	0	0	47	46	53	0	0	99	63	5	0	0	68	214
5:00 PM	3	45	0	0	48	29	72	0	0	101	63	5	0	0	68	217
5:15 PM	2	33	0	1	35	40	64	0	0	104	66	5	0	0	71	210
5:30 PM	3	39	0	0	42	35	61	0	0	96	59	6	0	0	65	203
Total	13	159	0	1	172	150	250	0	0	400	251	21	0	0	272	844
Approach %	7.6	92.4	0.0	-	-	37.5	62.5	0.0	-	-	92.3	7.7	0.0	-	-	-
Total %	1.5	18.8	0.0	-	20.4	17.8	29.6	0.0	-	47.4	29.7	2.5	0.0	-	32.2	-
PHF	0.650	0.883	0.000	-	0.896	0.815	0.868	0.000	-	0.962	0.951	0.875	0.000	-	0.958	0.972
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	13	155	0	-	168	146	249	0	-	395	246	21	0	-	267	830
% Cars & Light Goods	100.0	97.5	-	-	97.7	97.3	99.6	-	-	98.8	98.0	100.0	-	-	98.2	98.3
Buses	0	3	0	-	3	4	0	0	-	4	3	0	0	-	3	10
% Buses	0.0	1.9	-	-	1.7	2.7	0.0	-	-	1.0	1.2	0.0	-	-	1.1	1.2
Single-Unit Trucks	0	1	0	-	1	0	1	0	-	1	2	0	0	-	2	4
% Single-Unit Trucks	0.0	0.6	-	-	0.6	0.0	0.4	-	-	0.3	0.8	0.0	-	-	0.7	0.5
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
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	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: Fisher Mills Road & Guelph Avenue
Site Code: 240126
Start Date: 04/04/2024
Page No: 7

Peak Hour Data

04/04/2024 4:45 PM
Ending At
04/04/2024 5:45 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

Out	In	Total
0	0	0
262	267	529
0	3	3
1	2	3
0	0	0
263	**272**	**535**

R	T	U	P
0	0	0	0
21	246	0	0
0	3	0	0
0	2	0	0
0	0	0	0
21	**251**	**0**	**0**

Fisher Mills Road [W]

Out	In	Total
0	0	0
167	168	335
4	3	7
0	1	1
0	0	0
171	**172**	**343**

U	L	R	P
0	0	0	0
0	13	155	0
0	0	3	0
0	0	1	0
0	0	0	1
0	**13**	**159**	**1**

U	L	T	P
0	0	0	0
0	146	249	0
0	4	0	0
0	0	1	0
0	0	0	0
0	**150**	**250**	**0**

Guelph Avenue [S]

Out	In	Total
0	0	0
401	395	796
6	4	10
3	1	4
0	0	0
410	**400**	**810**

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: Guelph Avenue & Queen Street
Site Code: 240126
Start Date: 04/04/2024
Page No: 1

Turning Movement Data

Start Time	Queen Street Eastbound						Queen Street Westbound						Adam Street Northbound						Guelph Avenue 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
7:00 AM	13	17	2	0	1	32	0	14	10	0	0	24	3	21	1	0	1	25	4	27	13	0	0	44	125
7:15 AM	12	16	2	0	1	30	1	25	12	0	0	38	5	18	0	0	0	23	5	33	19	0	1	57	148
7:30 AM	12	18	1	0	0	31	0	33	19	0	1	52	5	18	0	0	0	23	13	56	28	0	0	97	203
7:45 AM	15	39	1	0	0	55	2	60	22	0	4	84	5	35	0	0	0	40	5	55	34	0	3	94	273
Hourly Total	52	90	6	0	2	148	3	132	63	0	5	198	18	92	1	0	1	111	27	171	94	0	4	292	749
8:00 AM	21	29	4	0	1	54	1	39	19	0	0	59	7	28	0	0	2	35	19	44	36	0	1	99	247
8:15 AM	26	21	2	0	0	49	0	36	25	0	1	61	6	26	0	0	2	32	11	42	26	0	1	79	221
8:30 AM	17	35	1	0	0	53	0	33	26	0	1	59	5	40	0	0	0	45	14	36	27	0	1	77	234
8:45 AM	32	29	2	0	1	63	3	48	31	0	2	82	8	27	0	0	0	35	18	48	32	0	1	98	278
Hourly Total	96	114	9	0	2	219	4	156	101	0	4	261	26	121	0	0	4	147	62	170	121	0	4	353	980
9:00 AM	23	21	4	0	0	48	1	34	17	0	1	52	3	22	0	0	4	25	9	47	36	0	2	92	217
9:15 AM	30	23	5	0	0	58	2	29	18	0	0	49	1	22	1	0	1	24	8	27	32	0	0	67	198
9:30 AM	20	15	5	0	2	40	0	27	9	0	0	36	6	21	2	0	1	29	9	31	22	0	5	62	167
9:45 AM	18	22	5	0	1	45	0	20	9	0	3	29	4	18	0	0	1	22	9	28	24	0	2	61	157
Hourly Total	91	81	19	0	3	191	3	110	53	0	4	166	14	83	3	0	7	100	35	133	114	0	9	282	739
10:00 AM	19	24	9	0	0	52	1	22	9	0	2	32	7	21	2	0	0	30	8	29	30	0	3	67	181
10:15 AM	19	19	2	0	0	40	2	21	8	0	2	31	3	18	0	0	4	21	16	31	18	0	0	65	157
10:30 AM	17	19	5	0	0	41	0	25	15	0	5	40	10	16	0	0	5	26	11	33	22	0	1	66	173
10:45 AM	31	23	4	0	2	58	2	26	10	0	6	38	5	27	0	0	2	32	10	27	25	0	1	62	190
Hourly Total	86	85	20	0	2	191	5	94	42	0	15	141	25	82	2	0	11	109	45	120	95	0	5	260	701
11:00 AM	18	25	3	0	0	46	1	16	5	0	4	22	13	25	1	0	1	39	7	34	27	0	0	68	175
11:15 AM	26	35	9	0	2	70	0	22	12	0	2	34	6	25	0	0	3	31	7	29	20	0	2	56	191
11:30 AM	30	30	0	0	0	60	3	26	16	0	1	45	2	27	1	0	0	30	5	29	27	0	0	61	196
11:45 AM	25	28	8	0	4	61	0	26	17	0	9	43	8	37	1	0	6	46	8	34	34	0	2	76	226
Hourly Total	99	118	20	0	6	237	4	90	50	0	16	144	29	114	3	0	10	146	27	126	108	0	4	261	788
12:00 PM	26	27	5	0	3	58	3	27	7	0	5	37	8	21	0	0	3	29	8	27	30	0	11	65	189
12:15 PM	30	34	5	0	1	69	0	24	9	0	2	33	6	32	0	0	4	38	10	36	25	0	11	71	211
12:30 PM	21	30	12	0	3	63	1	22	14	0	0	37	7	31	0	0	1	38	11	25	30	0	2	66	204
12:45 PM	32	44	12	0	3	88	3	37	6	0	2	46	5	18	1	0	4	24	5	40	19	0	4	64	222
Hourly Total	109	135	34	0	10	278	7	110	36	0	9	153	26	102	1	0	12	129	34	128	104	0	28	266	826
1:00 PM	20	33	8	0	11	61	2	28	11	0	3	41	9	34	0	0	12	43	12	26	26	0	7	64	209
1:15 PM	27	26	6	0	3	59	3	23	18	0	2	44	6	20	0	0	2	26	8	31	15	0	1	54	183
1:30 PM	21	37	14	0	1	72	2	28	12	0	1	42	5	24	0	0	0	29	8	47	19	0	1	74	217
1:45 PM	21	37	6	0	4	64	1	30	12	0	1	43	6	27	0	0	4	33	6	32	20	0	2	58	198
Hourly Total	89	133	34	0	19	256	8	109	53	0	7	170	26	105	0	0	18	131	34	136	80	0	11	250	807

2:00 PM	20	30	3	0	0	53	1	29	9	0	2	39	4	37	1	0	1	42	14	40	34	0	1	88	222
2:15 PM	37	43	8	0	2	88	1	39	15	0	0	55	6	35	1	0	2	42	10	39	21	0	0	70	255
2:30 PM	42	42	7	0	2	91	0	23	14	0	4	37	6	37	0	0	1	43	22	44	34	0	3	100	271
2:45 PM	41	48	5	0	2	94	0	24	13	0	2	37	10	38	1	0	1	49	15	42	29	0	6	86	266
Hourly Total	140	163	23	0	6	326	2	115	51	0	8	168	26	147	3	0	5	176	61	165	118	0	10	344	1014
3:00 PM	42	49	6	0	0	97	0	23	19	0	3	42	10	56	0	0	3	66	23	47	27	0	1	97	302
3:15 PM	32	35	13	0	0	80	0	37	24	0	4	61	7	45	3	0	4	55	26	53	31	0	5	110	306
3:30 PM	32	39	5	0	0	76	0	34	24	0	3	58	6	36	0	0	0	42	18	57	31	0	7	106	282
3:45 PM	36	44	11	0	1	91	4	27	26	0	3	57	7	40	1	0	5	48	20	51	35	0	3	106	302
Hourly Total	142	167	35	0	1	344	4	121	93	0	13	218	30	177	4	0	12	211	87	208	124	0	16	419	1192
4:00 PM	41	51	9	0	1	101	0	43	21	0	2	64	8	46	0	0	1	54	23	41	27	0	7	91	310
4:15 PM	38	37	7	0	2	82	4	28	24	0	3	56	11	38	0	0	3	49	32	52	35	0	2	119	306
4:30 PM	42	44	1	0	0	87	4	40	24	0	2	68	2	59	0	0	0	61	18	53	40	0	5	111	327
4:45 PM	38	57	7	0	1	102	3	32	26	0	2	61	16	53	0	0	11	69	22	60	33	0	5	115	347
Hourly Total	159	189	24	0	4	372	11	143	95	0	9	249	37	196	0	0	15	233	95	206	135	0	19	436	1290
5:00 PM	44	43	10	0	1	97	8	36	19	0	1	63	6	46	0	0	2	52	23	82	41	0	3	146	358
5:15 PM	40	44	8	0	1	92	1	25	30	0	2	56	6	45	0	0	12	51	14	47	30	0	0	91	290
5:30 PM	38	65	8	0	0	111	0	30	22	0	2	52	6	52	0	0	1	58	25	65	27	0	2	117	338
5:45 PM	40	39	7	0	5	86	2	35	11	0	5	48	13	51	0	0	6	64	21	48	28	0	2	97	295
Hourly Total	162	191	33	0	7	386	11	126	82	0	10	219	31	194	0	0	21	225	83	242	126	0	7	451	1281
6:00 PM	37	48	6	0	4	91	0	41	22	0	6	63	3	39	0	0	4	42	17	47	42	0	5	106	302
6:15 PM	40	42	13	0	2	95	2	32	13	0	1	47	5	37	2	0	3	44	17	47	37	0	4	101	287
6:30 PM	23	25	6	0	0	54	8	33	18	0	1	59	6	40	0	0	2	46	8	32	29	0	0	69	228
6:45 PM	28	28	4	0	3	60	1	35	14	0	2	50	7	37	0	0	1	44	9	33	15	0	0	57	211
Hourly Total	128	143	29	0	9	300	11	141	67	0	10	219	21	153	2	0	10	176	51	159	123	0	9	333	1028
Grand Total	1353	1609	286	0	71	3248	73	1447	786	0	110	2306	309	1566	19	0	126	1894	641	1964	1342	0	126	3947	11395
Approach %	41.7	49.5	8.8	0.0	-	-	3.2	62.7	34.1	0.0	-	-	16.3	82.7	1.0	0.0	-	-	16.2	49.8	34.0	0.0	-	-	-
Total %	11.9	14.1	2.5	0.0	-	28.5	0.6	12.7	6.9	0.0	-	20.2	2.7	13.7	0.2	0.0	-	16.6	5.6	17.2	11.8	0.0	-	34.6	-
Motorcycles	3	2	0	0	-	5	0	0	0	0	-	0	0	0	0	0	-	0	1	2	1	0	-	4	9
% Motorcycles	0.2	0.1	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2	0.1	0.1	-	-	0.1	0.1
Cars & Light Goods	1297	1581	280	0	-	3158	70	1436	737	0	-	2243	302	1528	19	0	-	1849	628	1887	1280	0	-	3795	11045
% Cars & Light Goods	95.9	98.3	97.9	-	-	97.2	95.9	99.2	93.8	-	-	97.3	97.7	97.6	100.0	-	-	97.6	98.0	96.1	95.4	-	-	96.1	96.9
Buses	28	11	0	0	-	39	0	3	33	0	-	36	2	16	0	0	-	18	3	50	25	0	-	78	171
% Buses	2.1	0.7	0.0	-	-	1.2	0.0	0.2	4.2	-	-	1.6	0.6	1.0	0.0	-	-	1.0	0.5	2.5	1.9	-	-	2.0	1.5
Single-Unit Trucks	13	13	6	0	-	32	3	7	14	0	-	24	5	20	0	0	-	25	9	24	25	0	-	58	139
% Single-Unit Trucks	1.0	0.8	2.1	-	-	1.0	4.1	0.5	1.8	-	-	1.0	1.6	1.3	0.0	-	-	1.3	1.4	1.2	1.9	-	-	1.5	1.2
Articulated Trucks	12	1	0	0	-	13	0	0	0	0	-	0	0	1	0	0	-	1	0	0	11	0	-	11	25
% Articulated Trucks	0.9	0.1	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.8	-	-	0.3	0.2
Bicycles on Road	0	1	0	0	-	1	0	1	2	0	-	3	0	1	0	0	-	1	0	1	0	0	-	1	6
% Bicycles on Road	0.0	0.1	0.0	-	-	0.0	0.0	0.1	0.3	-	-	0.1	0.0	0.1	0.0	-	-	0.1	0.0	0.1	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	2.7	-	-	-	-	-	2.4	-	-	-	-	-	1.6	-	-
Pedestrians	-	-	-	-	71	-	-	-	-	-	107	-	-	-	-	-	123	-	-	-	-	-	124	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	97.3	-	-	-	-	-	97.6	-	-	-	-	-	98.4	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Queen Street
Site Code: 240126
Start Date: 04/04/2024
Page No: 3

04/04/2024 7:00 AM
Ending At
04/04/2024 7:00 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

	Out	In	Total
Motorcycles	3	4	7
Cars & Light Goods	3562	3795	7357
Buses	77	78	155
Single-Unit Trucks	47	58	105
Other	16	12	28
Total	**3705**	**3947**	**7652**

	R	T	L	U	P
Motorcycles	1	2	1	0	0
Cars & Light Goods	1280	1887	628	0	0
Buses	25	50	3	0	0
Single-Unit Trucks	25	24	9	0	0
Other	11	1	0	0	126
Total	**1342**	**1964**	**641**	**0**	**126**

Queen Street [W]

	Out	In	Total
Motorcycles	1	5	6
Cars & Light Goods	3018	3158	6176
Buses	30	39	69
Single-Unit Trucks	37	32	69
Other	12	14	26
Total	**3098**	**3248**	**6346**

	U	L	T	R	P
Motorcycles	0	3	2	0	0
Cars & Light Goods	0	1297	1581	280	0
Buses	0	28	11	0	0
Single-Unit Trucks	0	13	13	6	0
Other	0	12	2	0	71
Total	**0**	**1353**	**1609**	**286**	**71**

Queen Street [E]

	Out	In	Total
Motorcycles	3	0	3
Cars & Light Goods	2228	2243	4471
Buses	14	36	50
Single-Unit Trucks	22	24	46
Other	2	3	5
Total	**2269**	**2306**	**4575**

	R	T	L	U	P
Motorcycles	0	0	0	0	0
Cars & Light Goods	737	1436	70	0	0
Buses	33	3	0	0	0
Single-Unit Trucks	14	7	3	0	0
Other	2	1	0	0	110
Total	**786**	**1447**	**73**	**0**	**110**

	U	L	T	R	P
Motorcycles	0	0	0	0	0
Cars & Light Goods	0	302	1528	19	0
Buses	0	2	16	0	0
Single-Unit Trucks	0	5	20	0	0
Other	0	0	2	0	126
Total	**0**	**309**	**1566**	**19**	**126**

	Out	In	Total
Motorcycles	2	0	2
Cars & Light Goods	2237	1849	4086
Buses	50	18	68
Single-Unit Trucks	33	25	58
Other	1	2	3
Total	**2323**	**1894**	**4217**

Adam Street [S]

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: Guelph Avenue & Queen Street
Site Code: 240126
Start Date: 04/04/2024

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Queen Street Eastbound						Queen Street Westbound						Adam Street Northbound						Guelph Avenue 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
8:00 AM	21	29	4	0	1	54	1	39	19	0	0	59	7	28	0	0	2	35	19	44	36	0	1	99	247
8:15 AM	26	21	2	0	0	49	0	36	25	0	1	61	6	26	0	0	2	32	11	42	26	0	1	79	221
8:30 AM	17	35	1	0	0	53	0	33	26	0	1	59	5	40	0	0	0	45	14	36	27	0	1	77	234
8:45 AM	32	29	2	0	1	63	3	48	31	0	2	82	8	27	0	0	0	35	18	48	32	0	1	98	278
Total	96	114	9	0	2	219	4	156	101	0	4	261	26	121	0	0	4	147	62	170	121	0	4	353	980
Approach %	43.8	52.1	4.1	0.0	-	-	1.5	59.8	38.7	0.0	-	-	17.7	82.3	0.0	0.0	-	-	17.6	48.2	34.3	0.0	-	-	-
Total %	9.8	11.6	0.9	0.0	-	22.3	0.4	15.9	10.3	0.0	-	26.6	2.7	12.3	0.0	0.0	-	15.0	6.3	17.3	12.3	0.0	-	36.0	-
PHF	0.750	0.814	0.563	0.000	-	0.869	0.333	0.813	0.815	0.000	-	0.796	0.813	0.756	0.000	0.000	-	0.817	0.816	0.885	0.840	0.000	-	0.891	0.881
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% 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	0.6	0.0	-	-	0.3	0.1
Cars & Light Goods	90	103	9	0	-	202	4	156	97	0	-	257	25	115	0	0	-	140	61	163	116	0	-	340	939
% Cars & Light Goods	93.8	90.4	100.0	-	-	92.2	100.0	100.0	96.0	-	-	98.5	96.2	95.0	-	-	-	95.2	98.4	95.9	95.9	-	-	96.3	95.8
Buses	3	8	0	0	-	11	0	0	4	0	-	4	0	3	0	0	-	3	1	4	2	0	-	7	25
% Buses	3.1	7.0	0.0	-	-	5.0	0.0	0.0	4.0	-	-	1.5	0.0	2.5	-	-	-	2.0	1.6	2.4	1.7	-	-	2.0	2.6
Single-Unit Trucks	0	2	0	0	-	2	0	0	0	0	-	0	1	3	0	0	-	4	0	2	1	0	-	3	9
% Single-Unit Trucks	0.0	1.8	0.0	-	-	0.9	0.0	0.0	0.0	-	-	0.0	3.8	2.5	-	-	-	2.7	0.0	1.2	0.8	-	-	0.8	0.9
Articulated Trucks	3	1	0	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	0	0	2	0	-	2	6
% Articulated Trucks	3.1	0.9	0.0	-	-	1.8	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	1.7	-	-	0.6	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	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Queen Street
Site Code: 240126
Start Date: 04/04/2024

Peak Hour Data

04/04/2024 8:00 AM
Ending At
04/04/2024 9:00 AM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

Out	In	Total
0	1	1
302	340	642
10	7	17
3	3	6
3	2	5
318	**353**	**671**

R	T	L	U	P
0	1	0	0	0
116	163	61	0	0
2	4	1	0	0
1	2	0	0	0
2	0	0	0	4
121	**170**	**62**	**0**	**4**

Queen Street [W]

Out	In	Total
0	0	0
297	202	499
2	11	13
2	2	4
2	4	6
303	**219**	**522**

U	L	T	R	P
0	0	0	0	0
0	90	103	9	0
0	3	8	0	0
0	0	2	0	0
0	3	1	0	2
0	**96**	**114**	**9**	**2**

Queen Street [E]

Out	In	Total
0	0	0
164	257	421
9	4	13
2	0	2
1	0	1
176	**261**	**437**

R	T	L	U	P
0	0	0	0	0
97	156	4	0	0
4	0	0	0	0
0	0	0	0	0
0	0	0	0	4
101	**156**	**4**	**0**	**4**

U	L	T	R	P
0	0	0	0	0
0	25	115	0	0
0	0	3	0	0
0	1	3	0	0
0	0	0	0	4
0	**26**	**121**	**0**	**4**

Adam Street [S]

Out	In	Total
1	0	1
176	140	316
4	3	7
2	4	6
0	0	0
183	**147**	**330**

Turning Movement Peak Hour Data Plot (8:00 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Queen Street
Site Code: 240126
Start Date: 04/04/2024

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Queen Street Eastbound						Queen Street Westbound						Adam Street Northbound						Guelph Avenue 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
4:15 PM	38	37	7	0	2	82	4	28	24	0	3	56	11	38	0	0	3	49	32	52	35	0	2	119	306
4:30 PM	42	44	1	0	0	87	4	40	24	0	2	68	2	59	0	0	0	61	18	53	40	0	5	111	327
4:45 PM	38	57	7	0	1	102	3	32	26	0	2	61	16	53	0	0	11	69	22	60	33	0	5	115	347
5:00 PM	44	43	10	0	1	97	8	36	19	0	1	63	6	46	0	0	2	52	23	82	41	0	3	146	358
Total	162	181	25	0	4	368	19	136	93	0	8	248	35	196	0	0	16	231	95	247	149	0	15	491	1338
Approach %	44.0	49.2	6.8	0.0	-	-	7.7	54.8	37.5	0.0	-	-	15.2	84.8	0.0	0.0	-	-	19.3	50.3	30.3	0.0	-	-	-
Total %	12.1	13.5	1.9	0.0	-	27.5	1.4	10.2	7.0	0.0	-	18.5	2.6	14.6	0.0	0.0	-	17.3	7.1	18.5	11.1	0.0	-	36.7	-
PHF	0.920	0.794	0.625	0.000	-	0.902	0.594	0.850	0.894	0.000	-	0.912	0.547	0.831	0.000	0.000	-	0.837	0.742	0.753	0.909	0.000	-	0.841	0.934
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	-	-	0.0	0.0
Cars & Light Goods	160	181	23	0	-	364	18	135	88	0	-	241	35	195	0	0	-	230	95	243	145	0	-	483	1318
% Cars & Light Goods	98.8	100.0	92.0	-	-	98.9	94.7	99.3	94.6	-	-	97.2	100.0	99.5	-	-	-	99.6	100.0	98.4	97.3	-	-	98.4	98.5
Buses	2	0	0	0	-	2	0	0	4	0	-	4	0	0	0	0	-	0	0	2	4	0	-	6	12
% Buses	1.2	0.0	0.0	-	-	0.5	0.0	0.0	4.3	-	-	1.6	0.0	0.0	-	-	-	0.0	0.0	0.8	2.7	-	-	1.2	0.9
Single-Unit Trucks	0	0	2	0	-	2	1	1	1	0	-	3	0	0	0	0	-	0	0	2	0	0	-	2	7
% Single-Unit Trucks	0.0	0.0	8.0	-	-	0.5	5.3	0.7	1.1	-	-	1.2	0.0	0.0	-	-	-	0.0	0.0	0.8	0.0	-	-	0.4	0.5
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	-	-	-	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	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	0.0	0.5	-	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	12.5	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	7	-	-	-	-	-	16	-	-	-	-	-	15	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	87.5	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Queen Street
Site Code: 240126
Start Date: 04/04/2024

Peak Hour Data

04/04/2024 4:15 PM
Ending At
04/04/2024 5:15 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

Out	In	Total
0	0	0
443	483	926
6	6	12
1	2	3
1	0	1
451	**491**	**942**

R	T	L	U	P
0	0	0	0	0
145	243	95	0	0
4	2	0	0	0
0	2	0	0	0
0	0	0	0	15
149	**247**	**95**	**0**	**15**

Queen Street [W]

Out	In	Total
0	0	0
315	364	679
4	2	6
1	2	3
0	0	0
320	**368**	**688**

U	L	T	R	P
0	0	0	0	0
0	160	181	23	0
0	2	0	0	0
0	0	0	2	0
0	0	0	0	4
0	**162**	**181**	**25**	**4**

Queen Street [E]

Out	In	Total
0	0	0
276	241	517
0	4	4
0	3	3
0	0	0
276	**248**	**524**

R	T	L	U	P
0	0	0	0	0
88	135	18	0	0
4	0	0	0	0
1	1	1	0	0
0	0	0	0	8
93	**136**	**19**	**0**	**8**

U	L	T	R	P
0	0	0	0	0
0	35	195	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	16
0	**35**	**196**	**0**	**16**

Out	In	Total
0	0	0
284	230	514
2	0	2
5	0	5
0	1	1
291	**231**	**522**

Adam Street [S]

Turning Movement Peak Hour Data Plot (4:15 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Scott Road
Site Code: 240184
Start Date: 09/19/2024
Page No: 1

Turning Movement Data

Start Time	Scott Road Eastbound						Baldwin Drive Westbound						Guelph Avenue Northbound						Guelph Avenue 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
7:00 AM	0	0	8	0	0	8	9	0	1	0	0	10	3	15	6	0	0	24	2	14	0	0	1	16	58
7:15 AM	2	0	4	0	1	6	13	0	2	0	1	15	3	18	6	0	1	27	1	11	2	0	0	14	62
7:30 AM	1	1	11	0	0	13	27	2	4	0	1	33	10	23	5	0	2	38	0	22	3	0	0	25	109
7:45 AM	5	0	8	0	0	13	31	1	3	0	0	35	5	16	5	0	0	26	0	30	4	0	0	34	108
Hourly Total	8	1	31	0	1	40	80	3	10	0	2	93	21	72	22	0	3	115	3	77	9	0	1	89	337
8:00 AM	2	1	3	0	1	6	25	2	1	0	4	28	9	27	12	0	0	48	3	23	2	0	0	28	110
8:15 AM	1	1	12	0	0	14	15	13	1	0	0	29	10	21	17	0	0	48	2	23	6	0	15	31	122
8:30 AM	2	11	6	0	12	19	16	32	5	0	16	53	10	25	13	0	6	48	1	15	10	0	43	26	146
8:45 AM	9	14	18	0	6	41	18	10	11	0	8	39	5	29	12	0	2	46	5	28	2	0	21	35	161
Hourly Total	14	27	39	0	19	80	74	57	18	0	28	149	34	102	54	0	8	190	11	89	20	0	79	120	539
9:00 AM	6	4	9	0	0	19	18	1	13	0	17	32	0	22	20	0	2	42	6	38	5	0	55	49	142
9:15 AM	2	0	5	0	3	7	19	0	5	0	2	24	1	20	19	0	0	40	2	26	2	0	2	30	101
9:30 AM	0	1	4	0	2	5	15	1	1	0	2	17	4	13	7	0	1	24	0	17	2	0	0	19	65
9:45 AM	3	3	3	0	2	9	20	1	2	0	0	23	2	16	6	0	1	24	0	12	3	0	0	15	71
Hourly Total	11	8	21	0	7	40	72	3	21	0	21	96	7	71	52	0	4	130	8	93	12	0	57	113	379
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	0	1	4	0	1	5	12	1	0	0	0	13	6	17	19	0	1	42	1	27	0	0	0	28	88
12:15 PM	0	2	5	0	1	7	15	1	4	0	0	20	6	19	8	0	0	33	2	24	0	0	0	26	86
12:30 PM	1	3	5	0	2	9	23	0	2	0	0	25	3	19	16	0	1	38	2	24	2	0	1	28	100
12:45 PM	0	0	2	0	1	2	16	1	0	0	2	17	4	17	17	0	2	38	1	22	1	0	3	24	81
Hourly Total	1	6	16	0	5	23	66	3	6	0	2	75	19	72	60	0	4	151	6	97	3	0	4	106	355
1:00 PM	0	4	3	0	1	7	17	1	1	0	3	19	8	15	14	0	3	37	1	13	1	0	2	15	78
1:15 PM	1	0	2	0	0	3	6	2	2	0	0	10	8	20	14	0	1	42	2	18	0	0	0	20	75
1:30 PM	0	1	3	0	1	4	15	0	1	0	0	16	2	16	6	0	1	24	1	8	1	0	0	10	54
1:45 PM	0	0	6	0	1	6	13	1	4	0	1	18	3	16	15	0	0	34	1	19	0	0	1	20	78
Hourly Total	1	5	14	0	3	20	51	4	8	0	4	63	21	67	49	0	5	137	5	58	2	0	3	65	285
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	6	14	9	0	9	29	16	8	3	0	26	27	7	24	18	0	2	49	3	22	4	0	81	29	134
3:15 PM	8	5	15	0	6	28	10	2	4	0	4	16	6	33	19	0	6	58	3	25	4	0	19	32	134
3:30 PM	6	4	7	0	0	17	25	1	6	0	22	32	5	27	22	0	7	54	6	40	2	0	84	48	151
3:45 PM	4	2	7	0	0	13	19	4	8	0	11	31	12	32	25	0	5	69	3	47	4	0	18	54	167
Hourly Total	24	25	38	0	15	87	70	15	21	0	63	106	30	116	84	0	20	230	15	134	14	0	202	163	586
4:00 PM	1	2	10	0	1	13	13	2	2	0	1	17	6	33	21	0	0	60	5	27	5	0	1	37	127
4:15 PM	1	0	12	0	3	13	17	0	1	0	2	18	14	30	28	0	2	72	2	39	7	0	4	48	151
4:30 PM	2	5	9	0	0	16	21	4	2	0	0	27	13	24	26	0	0	63	0	36	5	0	5	41	147

4:45 PM	3	3	13	0	2	19	26	4	1	0	0	31	11	30	24	0	0	65	2	46	10	0	2	58	173
Hourly Total	7	10	44	0	6	61	77	10	6	0	3	93	44	117	99	0	2	260	9	148	27	0	12	184	598
5:00 PM	3	4	8	0	4	15	11	1	4	0	9	16	12	24	23	0	3	59	4	24	6	0	14	34	124
5:15 PM	4	10	10	0	1	24	15	2	10	0	8	27	7	34	31	0	5	72	5	35	2	0	22	42	165
5:30 PM	5	4	4	0	13	13	14	0	8	0	10	22	10	32	35	0	0	77	4	44	2	0	34	50	162
5:45 PM	4	5	6	0	4	15	29	2	9	0	22	40	10	29	28	0	7	67	8	33	3	0	22	44	166
Hourly Total	16	23	28	0	22	67	69	5	31	0	49	105	39	119	117	0	15	275	21	136	13	0	92	170	617
Grand Total	82	105	231	0	78	418	559	100	121	0	172	780	215	736	537	0	61	1488	78	832	100	0	450	1010	3696
Approach %	19.6	25.1	55.3	0.0	-	-	71.7	12.8	15.5	0.0	-	-	14.4	49.5	36.1	0.0	-	-	7.7	82.4	9.9	0.0	-	-	-
Total %	2.2	2.8	6.3	0.0	-	11.3	15.1	2.7	3.3	0.0	-	21.1	5.8	19.9	14.5	0.0	-	40.3	2.1	22.5	2.7	0.0	-	27.3	-
Motorcycles	2	0	0	0	-	2	0	1	0	0	-	1	2	4	0	0	-	6	1	5	1	0	-	7	16
% Motorcycles	2.4	0.0	0.0	-	-	0.5	0.0	1.0	0.0	-	-	0.1	0.9	0.5	0.0	-	-	0.4	1.3	0.6	1.0	-	-	0.7	0.4
Cars & Light Goods	79	101	228	0	-	408	535	88	109	0	-	732	207	706	524	0	-	1437	74	796	94	0	-	964	3541
% Cars & Light Goods	96.3	96.2	98.7	-	-	97.6	95.7	88.0	90.1	-	-	93.8	96.3	95.9	97.6	-	-	96.6	94.9	95.7	94.0	-	-	95.4	95.8
Buses	1	3	1	0	-	5	20	5	4	0	-	29	5	17	5	0	-	27	0	23	3	0	-	26	87
% Buses	1.2	2.9	0.4	-	-	1.2	3.6	5.0	3.3	-	-	3.7	2.3	2.3	0.9	-	-	1.8	0.0	2.8	3.0	-	-	2.6	2.4
Single-Unit Trucks	0	0	2	0	-	2	2	1	6	0	-	9	1	8	8	0	-	17	3	6	2	0	-	11	39
% Single-Unit Trucks	0.0	0.0	0.9	-	-	0.5	0.4	1.0	5.0	-	-	1.2	0.5	1.1	1.5	-	-	1.1	3.8	0.7	2.0	-	-	1.1	1.1
Articulated Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.2	0.0	0.0	-	-	0.1	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	1	0	0	-	1	1	5	2	0	-	8	0	0	0	0	-	0	0	2	0	0	-	2	11
% Bicycles on Road	0.0	1.0	0.0	-	-	0.2	0.2	5.0	1.7	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.3
Bicycles on Crosswalk	-	-	-	-	9	-	-	-	-	-	10	-	-	-	-	-	7	-	-	-	-	-	45	-	-
% Bicycles on Crosswalk	-	-	-	-	11.5	-	-	-	-	-	5.8	-	-	-	-	-	11.5	-	-	-	-	-	10.0	-	-
Pedestrians	-	-	-	-	69	-	-	-	-	-	162	-	-	-	-	-	54	-	-	-	-	-	405	-	-
% Pedestrians	-	-	-	-	88.5	-	-	-	-	-	94.2	-	-	-	-	-	88.5	-	-	-	-	-	90.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Scott Road
Site Code: 240184
Start Date: 09/19/2024
Page No: 3

Guelph Avenue [N]

Out	In	Total
6	7	13
894	964	1858
22	26	48
14	11	25
3	2	5
939	**1010**	**1949**

R	T	L	U	P
1	5	1	0	0
94	796	74	0	0
3	23	0	0	0
2	6	3	0	0
0	2	0	0	450
100	**832**	**78**	**0**	**450**

Scott Road [W]

Out	In	Total
4	2	6
389	408	797
13	5	18
4	2	6
5	1	6
415	**418**	**833**

U	L	T	R	P
0	2	0	0	0
0	79	101	228	0
0	1	3	1	0
0	0	0	2	0
0	0	1	0	78
0	**82**	**105**	**231**	**78**

09/19/2024 7:00 AM
Ending At
09/19/2024 6:00 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Baldwin Drive [E]

Out	In	Total
1	1	2
699	732	1431
8	29	37
11	9	20
1	9	10
720	**780**	**1500**

R	T	L	U	P
0	1	0	0	0
109	88	535	0	0
4	5	20	0	0
6	1	2	0	0
2	5	2	0	172
121	**100**	**559**	**0**	**172**

U	L	T	R	P
0	2	4	0	0
0	207	706	524	0
0	5	17	5	0
0	1	8	8	0
0	0	1	0	61
0	**215**	**736**	**537**	**61**

Guelph Avenue [S]

Out	In	Total
5	6	11
1559	1437	2996
44	27	71
10	17	27
4	1	5
1622	**1488**	**3110**

Turning Movement Data Plot

paradigm

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Scott Road
Site Code: 240184
Start Date: 09/19/2024

Turning Movement Peak Hour Data (8:15 AM)

Start Time	Scott Road Eastbound						Baldwin Drive Westbound						Guelph Avenue Northbound						Guelph Avenue 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
8:15 AM	1	1	12	0	0	14	15	13	1	0	0	29	10	21	17	0	0	48	2	23	6	0	15	31	122
8:30 AM	2	11	6	0	12	19	16	32	5	0	16	53	10	25	13	0	6	48	1	15	10	0	43	26	146
8:45 AM	9	14	18	0	6	41	18	10	11	0	8	39	5	29	12	0	2	46	5	28	2	0	21	35	161
9:00 AM	6	4	9	0	0	19	18	1	13	0	17	32	0	22	20	0	2	42	6	38	5	0	55	49	142
Total	18	30	45	0	18	93	67	56	30	0	41	153	25	97	62	0	10	184	14	104	23	0	134	141	571
Approach %	19.4	32.3	48.4	0.0	-	-	43.8	36.6	19.6	0.0	-	-	13.6	52.7	33.7	0.0	-	-	9.9	73.8	16.3	0.0	-	-	-
Total %	3.2	5.3	7.9	0.0	-	16.3	11.7	9.8	5.3	0.0	-	26.8	4.4	17.0	10.9	0.0	-	32.2	2.5	18.2	4.0	0.0	-	24.7	-
PHF	0.500	0.536	0.625	0.000	-	0.567	0.931	0.438	0.577	0.000	-	0.722	0.625	0.836	0.775	0.000	-	0.958	0.583	0.684	0.575	0.000	-	0.719	0.887
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1
% 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	4.3	-	-	0.7	0.2
Cars & Light Goods	18	29	45	0	-	92	65	51	27	0	-	143	24	90	61	0	-	175	13	100	21	0	-	134	544
% Cars & Light Goods	100.0	96.7	100.0	-	-	98.9	97.0	91.1	90.0	-	-	93.5	96.0	92.8	98.4	-	-	95.1	92.9	96.2	91.3	-	-	95.0	95.3
Buses	0	1	0	0	-	1	2	3	2	0	-	7	1	6	0	0	-	7	0	4	1	0	-	5	20
% Buses	0.0	3.3	0.0	-	-	1.1	3.0	5.4	6.7	-	-	4.6	4.0	6.2	0.0	-	-	3.8	0.0	3.8	4.3	-	-	3.5	3.5
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	1	0	-	1	1	0	0	0	-	1	3
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	3.3	-	-	0.7	0.0	0.0	1.6	-	-	0.5	7.1	0.0	0.0	-	-	0.7	0.5
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.0	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Road	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	3.6	0.0	-	-	1.3	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.4
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	13	-	-
% Bicycles on Crosswalk	-	-	-	-	5.6	-	-	-	-	-	4.9	-	-	-	-	-	10.0	-	-	-	-	-	9.7	-	-
Pedestrians	-	-	-	-	17	-	-	-	-	-	39	-	-	-	-	-	9	-	-	-	-	-	121	-	-
% Pedestrians	-	-	-	-	94.4	-	-	-	-	-	95.1	-	-	-	-	-	90.0	-	-	-	-	-	90.3	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Scott Road
Site Code: 240184
Start Date: 09/19/2024
Page No: 5

Peak Hour Data

09/19/2024 8:15 AM
Ending At
09/19/2024 9:15 AM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

Out	In	Total
0	1	1
135	134	269
8	5	13
1	1	2
1	0	1
145	**141**	**286**

R	T	L	U	P
1	0	0	0	0
21	100	13	0	0
1	4	0	0	0
0	0	1	0	0
0	0	0	0	134
23	**104**	**14**	**0**	**134**

Scott Road [W]

Out	In	Total
1	0	1
96	92	188
5	1	6
0	0	0
2	0	2
104	**93**	**197**

U	L	T	R	P
0	0	0	0	0
0	18	29	45	0
0	0	1	0	0
0	0	0	0	0
0	0	0	0	18
0	**18**	**30**	**45**	**18**

Baldwin Drive [E]

Out	In	Total
0	0	0
103	143	246
1	7	8
2	1	3
0	2	2
106	**153**	**259**

P	U	L	T	R
0	0	0	0	0
0	0	65	51	27
0	0	2	3	2
0	0	0	0	1
41	0	0	2	0
41	**0**	**67**	**56**	**30**

Guelph Avenue [S]

U	L	T	R	P
0	0	0	0	0
0	24	90	61	0
0	1	6	0	0
0	0	0	1	0
0	0	1	0	10
0	**25**	**97**	**62**	**10**

Out	In	Total
0	0	0
210	175	385
6	7	13
0	1	1
0	1	1
216	**184**	**400**

Turning Movement Peak Hour Data Plot (8:15 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Scott Road
Site Code: 240184
Start Date: 09/19/2024

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Scott Road Eastbound						Baldwin Drive Westbound						Guelph Avenue Northbound						Guelph Avenue 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
12:00 PM	0	1	4	0	1	5	12	1	0	0	0	13	6	17	19	0	1	42	1	27	0	0	0	28	88
12:15 PM	0	2	5	0	1	7	15	1	4	0	0	20	6	19	8	0	0	33	2	24	0	0	0	26	86
12:30 PM	1	3	5	0	2	9	23	0	2	0	0	25	3	19	16	0	1	38	2	24	2	0	1	28	100
12:45 PM	0	0	2	0	1	2	16	1	0	0	2	17	4	17	17	0	2	38	1	22	1	0	3	24	81
Total	1	6	16	0	5	23	66	3	6	0	2	75	19	72	60	0	4	151	6	97	3	0	4	106	355
Approach %	4.3	26.1	69.6	0.0	-	-	88.0	4.0	8.0	0.0	-	-	12.6	47.7	39.7	0.0	-	-	5.7	91.5	2.8	0.0	-	-	-
Total %	0.3	1.7	4.5	0.0	-	6.5	18.6	0.8	1.7	0.0	-	21.1	5.4	20.3	16.9	0.0	-	42.5	1.7	27.3	0.8	0.0	-	29.9	-
PHF	0.250	0.500	0.800	0.000	-	0.639	0.717	0.750	0.375	0.000	-	0.750	0.792	0.947	0.789	0.000	-	0.899	0.750	0.898	0.375	0.000	-	0.946	0.888
Motorcycles	1	0	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	3
% Motorcycles	100.0	0.0	0.0	-	-	4.3	0.0	33.3	0.0	-	-	1.3	0.0	0.0	0.0	-	-	0.0	0.0	1.0	0.0	-	-	0.9	0.8
Cars & Light Goods	0	4	16	0	-	20	63	1	5	0	-	69	18	71	57	0	-	146	6	94	3	0	-	103	338
% Cars & Light Goods	0.0	66.7	100.0	-	-	87.0	95.5	33.3	83.3	-	-	92.0	94.7	98.6	95.0	-	-	96.7	100.0	96.9	100.0	-	-	97.2	95.2
Buses	0	1	0	0	-	1	2	1	0	0	-	3	1	0	2	0	-	3	0	0	0	0	-	0	7
% Buses	0.0	16.7	0.0	-	-	4.3	3.0	33.3	0.0	-	-	4.0	5.3	0.0	3.3	-	-	2.0	0.0	0.0	0.0	-	-	0.0	2.0
Single-Unit Trucks	0	0	0	0	-	0	1	0	1	0	-	2	0	1	1	0	-	2	0	1	0	0	-	1	5
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	1.5	0.0	16.7	-	-	2.7	0.0	1.4	1.7	-	-	1.3	0.0	1.0	0.0	-	-	0.9	1.4
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	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	2
% Bicycles on Road	0.0	16.7	0.0	-	-	4.3	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.0	0.0	-	-	0.9	0.6
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	20.0	-	-	-	-	-	0.0	-	-	-	-	-	25.0	-	-	-	-	-	25.0	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	80.0	-	-	-	-	-	100.0	-	-	-	-	-	75.0	-	-	-	-	-	75.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Scott Road
Site Code: 240184
Start Date: 09/19/2024
Page No: 7

Peak Hour Data

09/19/2024 12:00 PM
Ending At
09/19/2024 1:00 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

Out	In	Total
1	1	2
76	103	179
0	0	0
2	1	3
0	1	1
79	**106**	**185**

R	T	L	U	P
0	1	0	0	0
3	94	6	0	0
0	0	0	0	0
0	1	0	0	0
0	1	0	0	4
3	**97**	**6**	**0**	**4**

Scott Road [W]

Out	In	Total
1	1	2
22	20	42
2	1	3
0	0	0
0	1	1
25	**23**	**48**

U	L	T	R	P
0	1	0	0	0
0	0	4	16	0
0	0	1	0	0
0	0	0	0	0
0	0	1	0	5
0	**1**	**6**	**16**	**5**

Baldwin Drive [E]

Out	In	Total
0	1	1
67	69	136
3	3	6
1	2	3
1	0	1
72	**75**	**147**

R	T	L	U	P
0	1	0	0	0
5	1	63	0	0
0	1	2	0	0
1	0	1	0	0
0	0	0	0	2
6	**3**	**66**	**0**	**2**

Guelph Avenue [S]

U	L	T	R	P
0	0	0	0	0
0	18	71	57	0
0	1	0	2	0
0	0	1	1	0
0	0	0	0	4
0	**19**	**72**	**60**	**4**

Out	In	Total
1	0	1
173	146	319
2	3	5
2	2	4
1	0	1
179	**151**	**330**

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: Guelph Avenue & Scott Road
Site Code: 240184
Start Date: 09/19/2024

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Scott Road Eastbound						Baldwin Drive Westbound						Guelph Avenue Northbound						Guelph Avenue 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
4:45 PM	3	3	13	0	2	19	26	4	1	0	0	31	11	30	24	0	0	65	2	46	10	0	2	58	173
5:00 PM	3	4	8	0	4	15	11	1	4	0	9	16	12	24	23	0	3	59	4	24	6	0	14	34	124
5:15 PM	4	10	10	0	1	24	15	2	10	0	8	27	7	34	31	0	5	72	5	35	2	0	22	42	165
5:30 PM	5	4	4	0	13	13	14	0	8	0	10	22	10	32	35	0	0	77	4	44	2	0	34	50	162
Total	15	21	35	0	20	71	66	7	23	0	27	96	40	120	113	0	8	273	15	149	20	0	72	184	624
Approach %	21.1	29.6	49.3	0.0	-	-	68.8	7.3	24.0	0.0	-	-	14.7	44.0	41.4	0.0	-	-	8.2	81.0	10.9	0.0	-	-	-
Total %	2.4	3.4	5.6	0.0	-	11.4	10.6	1.1	3.7	0.0	-	15.4	6.4	19.2	18.1	0.0	-	43.8	2.4	23.9	3.2	0.0	-	29.5	-
PHF	0.750	0.525	0.673	0.000	-	0.740	0.635	0.438	0.575	0.000	-	0.774	0.833	0.882	0.807	0.000	-	0.886	0.750	0.810	0.500	0.000	-	0.793	0.902
Motorcycles	1	0	0	0	-	1	0	0	0	0	-	0	0	2	0	0	-	2	0	1	0	0	-	1	4
% Motorcycles	6.7	0.0	0.0	-	-	1.4	0.0	0.0	0.0	-	-	0.0	0.0	1.7	0.0	-	-	0.7	0.0	0.7	0.0	-	-	0.5	0.6
Cars & Light Goods	14	21	35	0	-	70	63	7	22	0	-	92	40	118	113	0	-	271	15	147	20	0	-	182	615
% Cars & Light Goods	93.3	100.0	100.0	-	-	98.6	95.5	100.0	95.7	-	-	95.8	100.0	98.3	100.0	-	-	99.3	100.0	98.7	100.0	-	-	98.9	98.6
Buses	0	0	0	0	-	0	2	0	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Buses	0.0	0.0	0.0	-	-	0.0	3.0	0.0	0.0	-	-	2.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	2
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	4.3	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	-	-	0.5	0.3
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	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	1.5	0.0	0.0	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	12	-	-
% Bicycles on Crosswalk	-	-	-	-	10.0	-	-	-	-	-	11.1	-	-	-	-	-	0.0	-	-	-	-	-	16.7	-	-
Pedestrians	-	-	-	-	18	-	-	-	-	-	24	-	-	-	-	-	8	-	-	-	-	-	60	-	-
% Pedestrians	-	-	-	-	90.0	-	-	-	-	-	88.9	-	-	-	-	-	100.0	-	-	-	-	-	83.3	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Scott Road
Site Code: 240184
Start Date: 09/19/2024
Page No: 9

Guelph Avenue [N]

Out	In	Total
3	1	4
154	182	336
0	0	0
1	1	2
0	0	0
158	**184**	**342**

R	T	L	U	P
0	1	0	0	0
20	147	15	0	0
0	0	0	0	0
0	1	0	0	0
0	0	0	0	72
20	**149**	**15**	**0**	**72**

Scott Road [W]

Out	In	Total
0	1	1
67	70	137
0	0	0
0	0	0
0	0	0
67	**71**	**138**

U	L	T	R	P
0	1	0	0	0
0	14	21	35	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	20
0	**15**	**21**	**35**	**20**

Peak Hour Data

09/19/2024 4:45 PM
Ending At
09/19/2024 5:45 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Baldwin Drive [E]

Out	In	Total
0	0	0
149	92	241
0	2	2
0	1	1
0	1	1
149	**96**	**245**

R	T	L	U	P
0	0	0	0	0
22	7	63	0	0
0	0	2	0	0
1	0	0	0	0
0	0	1	0	27
23	**7**	**66**	**0**	**27**

U	L	T	R	P
0	0	2	0	0
0	40	118	113	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	8
0	**40**	**120**	**113**	**8**

Out	In	Total
1	2	3
245	271	516
2	0	2
1	0	1
1	0	1
250	**273**	**523**

Guelph Avenue [S]

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: Guelph Avenue & Shaw Avenue
Site Code: 240184
Start Date: 05/23/2024
Page No: 1

Turning Movement Data

Start Time	Shaw Avenue Eastbound						Shaw Avenue Westbound						Guelph Avenue Northbound						Guelph Avenue 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	3	0	0	0	1	3	1	0	0	0	0	1	0	28	0	0	0	28	0	32	0	0	0	32	64
7:15 AM	0	0	1	0	1	1	1	0	0	0	0	1	1	23	0	0	0	24	0	36	0	0	1	36	62
7:30 AM	2	0	1	0	2	3	4	2	1	0	0	7	1	38	0	0	1	39	0	67	0	0	0	67	116
7:45 AM	4	0	1	0	1	5	1	0	0	0	0	1	1	31	0	0	0	32	0	69	1	0	1	70	108
Hourly Total	9	0	3	0	5	12	7	2	1	0	0	10	3	120	0	0	1	123	0	204	1	0	2	205	350
8:00 AM	2	0	1	0	2	3	1	0	0	0	0	1	0	40	1	0	2	41	0	50	1	0	0	51	96
8:15 AM	2	0	3	0	4	5	1	0	1	0	0	2	1	39	2	0	0	42	0	51	0	0	2	51	100
8:30 AM	1	0	5	0	4	6	5	0	0	0	0	5	0	57	1	0	0	58	1	46	2	0	0	49	118
8:45 AM	3	0	1	0	4	4	1	0	0	0	1	1	0	46	0	0	1	46	0	54	0	0	1	54	105
Hourly Total	8	0	10	0	14	18	8	0	1	0	1	9	1	182	4	0	3	187	1	201	3	0	3	205	419
9:00 AM	4	0	2	0	1	6	3	0	1	0	0	4	2	42	2	0	0	46	0	77	2	0	0	79	135
9:15 AM	2	0	2	0	4	4	0	0	0	0	1	0	0	39	1	0	1	40	0	60	1	0	1	61	105
9:30 AM	0	0	1	0	4	1	1	1	1	0	0	3	1	20	1	0	1	22	0	34	0	0	0	34	60
9:45 AM	0	1	2	0	2	3	1	0	0	0	0	1	1	33	2	0	0	36	0	37	1	0	0	38	78
Hourly Total	6	1	7	0	11	14	5	1	2	0	1	8	4	134	6	0	2	144	0	208	4	0	1	212	378
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	0	2	1	0	1	3	0	0	0	0	0	0	0	41	0	0	0	41	0	50	1	0	1	51	95
12:15 PM	1	0	1	0	3	2	0	0	0	0	0	0	0	41	2	0	0	43	0	38	0	0	1	38	83
12:30 PM	1	1	1	0	4	3	2	0	0	0	2	2	0	45	0	0	1	45	0	26	0	0	1	26	76
12:45 PM	1	0	1	0	3	2	2	0	0	0	0	2	1	54	0	0	1	55	0	41	0	0	2	41	100
Hourly Total	3	3	4	0	11	10	4	0	0	0	2	4	1	181	2	0	2	184	0	155	1	0	5	156	354
1:00 PM	0	1	0	0	3	1	3	0	0	0	0	3	3	39	1	0	2	43	0	40	1	0	0	41	88
1:15 PM	1	0	2	0	0	3	2	0	0	0	0	2	0	51	0	0	0	51	0	39	0	0	0	39	95
1:30 PM	0	0	1	0	3	1	2	0	0	0	2	2	1	31	3	0	0	35	0	39	0	0	0	39	77
1:45 PM	1	0	1	0	2	2	1	0	2	0	0	3	1	35	2	0	0	38	1	46	1	0	0	48	91
Hourly Total	2	1	4	0	8	7	8	0	2	0	2	10	5	156	6	0	2	167	1	164	2	0	0	167	351
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	4	0	2	0	0	6	0	0	0	0	0	0	2	56	0	0	1	58	0	54	0	0	1	54	118
3:15 PM	3	1	2	0	5	6	2	0	0	0	0	2	1	62	1	0	0	64	1	50	1	0	1	52	124
3:30 PM	0	2	2	0	3	4	2	0	0	0	0	2	2	70	2	0	0	74	0	82	0	0	2	82	162
3:45 PM	2	1	0	0	11	3	0	0	0	0	0	0	0	57	0	0	0	57	1	72	3	0	1	76	136
Hourly Total	9	4	6	0	19	19	4	0	0	0	0	4	5	245	3	0	1	253	2	258	4	0	5	264	540
4:00 PM	1	0	0	0	2	1	2	0	0	0	0	2	2	50	3	0	0	55	0	66	1	0	0	67	125
4:15 PM	1	0	1	0	1	2	0	0	1	0	0	1	0	60	3	0	0	63	0	65	1	0	1	66	132
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	50	4	0	0	56	0	68	1	0	2	69	125

4:45 PM	2	1	1	0	4	4	0	1	0	0	0	1	1	64	0	0	1	65	0	74	0	0	0	74	144
Hourly Total	4	1	2	0	7	7	2	1	1	0	0	4	5	224	10	0	1	239	0	273	3	0	3	276	526
5:00 PM	0	0	2	0	8	2	0	0	1	0	1	1	4	53	1	0	0	58	0	65	3	0	1	68	129
5:15 PM	0	1	1	0	1	2	0	0	0	0	0	0	2	64	0	1	2	67	0	69	3	0	0	72	141
5:30 PM	3	2	2	0	4	7	2	0	0	0	0	2	3	55	0	0	0	58	1	63	4	0	0	68	135
5:45 PM	1	1	2	0	1	4	2	0	1	0	0	3	1	48	3	0	0	52	0	69	0	0	0	69	128
Hourly Total	4	4	7	0	14	15	4	0	2	0	1	6	10	220	4	1	2	235	1	266	10	0	1	277	533
Grand Total	45	14	43	0	89	102	42	4	9	0	7	55	34	1462	35	1	14	1532	5	1729	28	0	20	1762	3451
Approach %	44.1	13.7	42.2	0.0	-	-	76.4	7.3	16.4	0.0	-	-	2.2	95.4	2.3	0.1	-	-	0.3	98.1	1.6	0.0	-	-	-
Total %	1.3	0.4	1.2	0.0	-	3.0	1.2	0.1	0.3	0.0	-	1.6	1.0	42.4	1.0	0.0	-	44.4	0.1	50.1	0.8	0.0	-	51.1	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	1	9	0	0	-	10	0	6	0	0	-	6	16
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	2.9	0.6	0.0	0.0	-	0.7	0.0	0.3	0.0	-	-	0.3	0.5
Cars & Light Goods	44	13	41	0	-	98	40	4	9	0	-	53	31	1422	34	1	-	1488	5	1676	24	0	-	1705	3344
% Cars & Light Goods	97.8	92.9	95.3	-	-	96.1	95.2	100.0	100.0	-	-	96.4	91.2	97.3	97.1	100.0	-	97.1	100.0	96.9	85.7	-	-	96.8	96.9
Buses	1	0	0	0	-	1	0	0	0	0	-	0	0	16	0	0	-	16	0	37	0	0	-	37	54
% Buses	2.2	0.0	0.0	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.0	1.1	0.0	0.0	-	1.0	0.0	2.1	0.0	-	-	2.1	1.6
Single-Unit Trucks	0	0	2	0	-	2	1	0	0	0	-	1	0	13	1	0	-	14	0	6	1	0	-	7	24
% Single-Unit Trucks	0.0	0.0	4.7	-	-	2.0	2.4	0.0	0.0	-	-	1.8	0.0	0.9	2.9	0.0	-	0.9	0.0	0.3	3.6	-	-	0.4	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	1	0	-	3	3
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	3.6	-	-	0.2	0.1
Bicycles on Road	0	1	0	0	-	1	1	0	0	0	-	1	2	2	0	0	-	4	0	2	2	0	-	4	10
% Bicycles on Road	0.0	7.1	0.0	-	-	1.0	2.4	0.0	0.0	-	-	1.8	5.9	0.1	0.0	0.0	-	0.3	0.0	0.1	7.1	-	-	0.2	0.3
Bicycles on Crosswalk	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	7.9	-	-	-	-	-	0.0	-	-	-	-	-	21.4	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	82	-	-	-	-	-	7	-	-	-	-	-	11	-	-	-	-	-	20	-	-
% Pedestrians	-	-	-	-	92.1	-	-	-	-	-	100.0	-	-	-	-	-	78.6	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Shaw Avenue
Site Code: 240184
Start Date: 05/23/2024
Page No: 3

05/23/2024 7:00 AM
Ending At
05/23/2024 6:00 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

	Out	In	Total
Motorcycles	9	6	15
Cars & Light Goods	1475	1705	3180
Buses	17	37	54
Single-Unit Trucks	13	7	20
Other	2	7	9
Total	**1516**	**1762**	**3278**

	R	T	L	U	P
Motorcycles	0	6	0	0	0
Cars & Light Goods	24	1676	5	0	0
Buses	0	37	0	0	0
Single-Unit Trucks	1	6	0	0	0
Other	3	4	0	0	20
Total	**28**	**1729**	**5**	**0**	**20**

Shaw Avenue [W]

	Out	In	Total
Motorcycles	1	0	1
Cars & Light Goods	59	98	157
Buses	0	1	1
Single-Unit Trucks	1	2	3
Other	5	1	6
Total	**66**	**102**	**168**

	U	L	T	R	P
Motorcycles	0	0	0	0	0
Cars & Light Goods	0	44	13	41	0
Buses	0	1	0	0	0
Single-Unit Trucks	0	0	0	2	0
Other	0	0	1	0	89
Total	**0**	**45**	**14**	**43**	**89**

Shaw Avenue [E]

	Out	In	Total
Motorcycles	0	0	0
Cars & Light Goods	52	53	105
Buses	0	0	0
Single-Unit Trucks	1	1	2
Other	1	1	2
Total	**54**	**55**	**109**

	R	T	L	U	P
Motorcycles	0	0	0	0	0
Cars & Light Goods	9	4	40	0	0
Buses	0	0	0	0	0
Single-Unit Trucks	0	0	1	0	0
Other	0	0	1	0	7
Total	**9**	**4**	**42**	**0**	**7**

Guelph Avenue [S]

	U	L	T	R	P
Motorcycles	0	1	9	0	0
Cars & Light Goods	1	31	1422	34	0
Buses	0	0	16	0	0
Single-Unit Trucks	0	0	13	1	0
Other	0	2	2	0	14
Total	**1**	**34**	**1462**	**35**	**14**

	Out	In	Total
Motorcycles	6	10	16
Cars & Light Goods	1758	1488	3246
Buses	37	16	53
Single-Unit Trucks	9	14	23
Other	5	4	9
Total	**1815**	**1532**	**3347**

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: Guelph Avenue & Shaw Avenue
Site Code: 240184
Start Date: 05/23/2024

Turning Movement Peak Hour Data (8:30 AM)

Start Time	Shaw Avenue Eastbound						Shaw Avenue Westbound						Guelph Avenue Northbound						Guelph Avenue 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
8:30 AM	1	0	5	0	4	6	5	0	0	0	0	5	0	57	1	0	0	58	1	46	2	0	0	49	118
8:45 AM	3	0	1	0	4	4	1	0	0	0	1	1	0	46	0	0	1	46	0	54	0	0	1	54	105
9:00 AM	4	0	2	0	1	6	3	0	1	0	0	4	2	42	2	0	0	46	0	77	2	0	0	79	135
9:15 AM	2	0	2	0	4	4	0	0	0	0	1	0	0	39	1	0	1	40	0	60	1	0	1	61	105
Total	10	0	10	0	13	20	9	0	1	0	2	10	2	184	4	0	2	190	1	237	5	0	2	243	463
Approach %	50.0	0.0	50.0	0.0	-	-	90.0	0.0	10.0	0.0	-	-	1.1	96.8	2.1	0.0	-	-	0.4	97.5	2.1	0.0	-	-	-
Total %	2.2	0.0	2.2	0.0	-	4.3	1.9	0.0	0.2	0.0	-	2.2	0.4	39.7	0.9	0.0	-	41.0	0.2	51.2	1.1	0.0	-	52.5	-
PHF	0.625	0.000	0.500	0.000	-	0.833	0.450	0.000	0.250	0.000	-	0.500	0.250	0.807	0.500	0.000	-	0.819	0.250	0.769	0.625	0.000	-	0.769	0.857
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	0.0
Cars & Light Goods	10	0	10	0	-	20	8	0	1	0	-	9	2	179	3	0	-	184	1	228	4	0	-	233	446
% Cars & Light Goods	100.0	-	100.0	-	-	100.0	88.9	-	100.0	-	-	90.0	100.0	97.3	75.0	-	-	96.8	100.0	96.2	80.0	-	-	95.9	96.3
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	4	0	0	-	4	6
% Buses	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	1.1	0.0	-	-	1.1	0.0	1.7	0.0	-	-	1.6	1.3
Single-Unit Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	3	1	0	-	4	0	4	1	0	-	5	10
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	11.1	-	0.0	-	-	10.0	0.0	1.6	25.0	-	-	2.1	0.0	1.7	20.0	-	-	2.1	2.2
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	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	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	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	13	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Shaw Avenue
Site Code: 240184
Start Date: 05/23/2024
Page No: 5

Peak Hour Data

05/23/2024 8:30 AM
Ending At
05/23/2024 9:30 AM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]		
Out	In	Total
0	0	0
190	233	423
2	4	6
3	5	8
0	1	1
195	**243**	**438**

R	T	L	U	P
0	0	0	0	0
4	228	1	0	0
0	4	0	0	0
1	4	0	0	0
0	1	0	0	2
5	**237**	**1**	**0**	**2**

Shaw Avenue [W]		
Out	In	Total
0	0	0
6	20	26
0	0	0
1	0	1
0	0	0
7	**20**	**27**

U	L	T	R	P
0	0	0	0	0
0	10	0	10	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	13
0	**10**	**0**	**10**	**13**

R	T	L	U	P
0	0	0	0	0
1	0	8	0	0
0	0	0	0	0
0	0	1	0	0
0	0	0	0	2
1	**0**	**9**	**0**	**2**

Shaw Avenue [E]		
Out	In	Total
0	0	0
4	9	13
0	0	0
1	1	2
0	0	0
5	**10**	**15**

U	L	T	R	P
0	0	0	0	0
0	2	179	3	0
0	0	2	0	0
0	0	3	1	0
0	0	0	0	2
0	**2**	**184**	**4**	**2**

Out	In	Total
0	0	0
246	184	430
4	2	6
5	4	9
1	0	1
256	**190**	**446**
Out	In	Total
Guelph Avenue [S]		

Turning Movement Peak Hour Data Plot (8:30 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Shaw Avenue
Site Code: 240184
Start Date: 05/23/2024
Page No: 6

Turning Movement Peak Hour Data (12:45 PM)

Start Time	Shaw Avenue Eastbound						Shaw Avenue Westbound						Guelph Avenue Northbound						Guelph Avenue 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
12:45 PM	1	0	1	0	3	2	2	0	0	0	0	2	1	54	0	0	1	55	0	41	0	0	2	41	100
1:00 PM	0	1	0	0	3	1	3	0	0	0	0	3	3	39	1	0	2	43	0	40	1	0	0	41	88
1:15 PM	1	0	2	0	0	3	2	0	0	0	0	2	0	51	0	0	0	51	0	39	0	0	0	39	95
1:30 PM	0	0	1	0	3	1	2	0	0	0	2	2	1	31	3	0	0	35	0	39	0	0	0	39	77
Total	2	1	4	0	9	7	9	0	0	0	2	9	5	175	4	0	3	184	0	159	1	0	2	160	360
Approach %	28.6	14.3	57.1	0.0	-	-	100.0	0.0	0.0	0.0	-	-	2.7	95.1	2.2	0.0	-	-	0.0	99.4	0.6	0.0	-	-	-
Total %	0.6	0.3	1.1	0.0	-	1.9	2.5	0.0	0.0	0.0	-	2.5	1.4	48.6	1.1	0.0	-	51.1	0.0	44.2	0.3	0.0	-	44.4	-
PHF	0.500	0.250	0.500	0.000	-	0.583	0.750	0.000	0.000	0.000	-	0.750	0.417	0.810	0.333	0.000	-	0.836	0.000	0.970	0.250	0.000	-	0.976	0.900
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	1	0	0	-	1	3
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	-	0.0	0.0	1.1	0.0	-	-	1.1	-	0.6	0.0	-	-	0.6	0.8
Cars & Light Goods	2	1	3	0	-	6	8	0	0	0	-	8	5	168	4	0	-	177	0	152	1	0	-	153	344
% Cars & Light Goods	100.0	100.0	75.0	-	-	85.7	88.9	-	-	-	-	88.9	100.0	96.0	100.0	-	-	96.2	-	95.6	100.0	-	-	95.6	95.6
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	4	0	0	-	4	6
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	-	0.0	0.0	1.1	0.0	-	-	1.1	-	2.5	0.0	-	-	2.5	1.7
Single-Unit Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	3	0	0	-	3	0	1	0	0	-	1	5
% Single-Unit Trucks	0.0	0.0	25.0	-	-	14.3	0.0	-	-	-	-	0.0	0.0	1.7	0.0	-	-	1.6	-	0.6	0.0	-	-	0.6	1.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	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	-	0.6	0.0	-	-	0.6	0.3
Bicycles on Road	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	11.1	-	-	-	-	11.1	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	9	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Shaw Avenue
Site Code: 240184
Start Date: 05/23/2024
Page No: 7

Peak Hour Data

05/23/2024 12:45 PM
Ending At
05/23/2024 1:45 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

Out	In	Total
2	1	3
170	153	323
2	4	6
3	1	4
0	1	1
177	**160**	**337**

R	T	L	U	P
0	1	0	0	0
1	152	0	0	0
0	4	0	0	0
0	1	0	0	0
0	1	0	0	2
1	**159**	**0**	**0**	**2**

Shaw Avenue [W]

Out	In	Total
0	0	0
6	6	12
0	0	0
0	1	1
0	0	0
6	**7**	**13**

U	L	T	R	P
0	0	0	0	0
0	2	1	3	0
0	0	0	0	0
0	0	0	1	0
0	0	0	0	9
0	**2**	**1**	**4**	**9**

Shaw Avenue [E]

Out	In	Total
0	0	0
5	8	13
0	0	0
0	0	0
0	1	1
5	**9**	**14**

R	T	L	U	P
0	0	0	0	0
0	0	8	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	2
0	**0**	**9**	**0**	**2**

U	L	T	R	P
0	0	2	0	0
0	5	168	4	0
0	0	2	0	0
0	0	3	0	0
0	0	0	0	3
0	**5**	**175**	**4**	**3**

Out	In	Total
1	2	3
163	177	340
4	2	6
2	3	5
2	0	2
172	**184**	**356**

Guelph Avenue [S]

Turning Movement Peak Hour Data Plot (12:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Shaw Avenue
Site Code: 240184
Start Date: 05/23/2024

Turning Movement Peak Hour Data (3:30 PM)

Start Time	Shaw Avenue Eastbound						Shaw Avenue Westbound						Guelph Avenue Northbound						Guelph Avenue 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
3:30 PM	0	2	2	0	3	4	2	0	0	0	0	2	2	70	2	0	0	74	0	82	0	0	2	82	162
3:45 PM	2	1	0	0	11	3	0	0	0	0	0	0	0	57	0	0	0	57	1	72	3	0	1	76	136
4:00 PM	1	0	0	0	2	1	2	0	0	0	0	2	2	50	3	0	0	55	0	66	1	0	0	67	125
4:15 PM	1	0	1	0	1	2	0	0	1	0	0	1	0	60	3	0	0	63	0	65	1	0	1	66	132
Total	4	3	3	0	17	10	4	0	1	0	0	5	4	237	8	0	0	249	1	285	5	0	4	291	555
Approach %	40.0	30.0	30.0	0.0	-	-	80.0	0.0	20.0	0.0	-	-	1.6	95.2	3.2	0.0	-	-	0.3	97.9	1.7	0.0	-	-	-
Total %	0.7	0.5	0.5	0.0	-	1.8	0.7	0.0	0.2	0.0	-	0.9	0.7	42.7	1.4	0.0	-	44.9	0.2	51.4	0.9	0.0	-	52.4	-
PHF	0.500	0.375	0.375	0.000	-	0.625	0.500	0.000	0.250	0.000	-	0.625	0.500	0.846	0.667	0.000	-	0.841	0.250	0.869	0.417	0.000	-	0.887	0.856
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% 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	0.4	0.0	-	-	0.3	0.2
Cars & Light Goods	4	2	3	0	-	9	4	0	1	0	-	5	4	234	8	0	-	246	1	278	5	0	-	284	544
% Cars & Light Goods	100.0	66.7	100.0	-	-	90.0	100.0	-	100.0	-	-	100.0	100.0	98.7	100.0	-	-	98.8	100.0	97.5	100.0	-	-	97.6	98.0
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	6	0	0	-	6	8
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.8	0.0	-	-	0.8	0.0	2.1	0.0	-	-	2.1	1.4
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.2
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	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	33.3	0.0	-	-	10.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	23.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	13	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	76.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Shaw Avenue
Site Code: 240184
Start Date: 05/23/2024
Page No: 9

Peak Hour Data

05/23/2024 3:30 PM
Ending At
05/23/2024 4:30 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

Guelph Avenue [N]

Out	In	Total
0	1	1
239	284	523
2	6	8
1	0	1
0	0	0
242	**291**	**533**

R	T	L	U	P
0	1	0	0	0
5	278	1	0	0
0	6	0	0	0
0	0	0	0	0
0	0	0	0	4
5	**285**	**1**	**0**	**4**

Shaw Avenue [W]

Out	In	Total
0	0	0
9	9	18
0	0	0
0	0	0
0	1	1
9	**10**	**19**

U	L	T	R	P
0	0	0	0	0
0	4	2	3	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	17
0	**4**	**3**	**3**	**17**

Shaw Avenue [E]

Out	In	Total
0	0	0
11	5	16
0	0	0
0	0	0
1	0	1
12	**5**	**17**

R	T	L	U	P
0	0	0	0	0
1	0	4	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	**0**	**4**	**0**	**0**

U	L	T	R	P
0	0	0	0	0
0	4	234	8	0
0	0	2	0	0
0	0	1	0	0
0	0	0	0	0
0	**4**	**237**	**8**	**0**

Out	In	Total
1	0	1
285	246	531
6	2	8
0	1	1
0	0	0
292	**249**	**541**

Guelph Avenue [S]

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: Guelph Avenue & Sheffield Street
Site Code: 240126
Start Date: 04/04/2024

Turning Movement Data

Start Time	Sheffield Street Eastbound					Guelph Avenue Northbound					Guelph Avenue 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	0	6	0	0	6	6	56	0	0	62	91	0	0	0	91	159
7:15 AM	0	9	0	0	9	11	66	0	0	77	66	1	0	0	67	153
7:30 AM	0	14	0	2	14	3	48	0	0	51	77	1	0	1	78	143
7:45 AM	0	11	0	0	11	13	41	0	0	54	82	1	0	0	83	148
Hourly Total	0	40	0	2	40	33	211	0	0	244	316	3	0	1	319	603
8:00 AM	3	7	0	4	10	8	49	0	0	57	95	3	0	2	98	165
8:15 AM	0	8	0	1	8	11	54	0	0	65	49	1	0	0	50	123
8:30 AM	0	8	0	1	8	7	44	0	0	51	57	0	0	1	57	116
8:45 AM	1	8	0	0	9	8	35	0	0	43	45	1	0	0	46	98
Hourly Total	4	31	0	6	35	34	182	0	0	216	246	5	0	3	251	502
9:00 AM	0	7	0	2	7	8	39	0	1	47	56	1	0	0	57	111
9:15 AM	0	8	0	1	8	4	39	0	1	43	54	2	0	1	56	107
9:30 AM	0	6	0	0	6	4	36	0	0	40	54	0	0	0	54	100
9:45 AM	1	12	0	3	13	7	53	0	0	60	43	3	0	0	46	119
Hourly Total	1	33	0	6	34	23	167	0	2	190	207	6	0	1	213	437
10:00 AM	0	6	0	4	6	4	38	0	0	42	57	0	0	0	57	105
10:15 AM	0	8	0	0	8	4	56	0	0	60	45	0	0	0	45	113
10:30 AM	2	9	0	2	11	6	60	0	0	66	52	1	0	0	53	130
10:45 AM	1	10	0	2	11	10	68	0	0	78	62	0	0	1	62	151
Hourly Total	3	33	0	8	36	24	222	0	0	246	216	1	0	1	217	499
11:00 AM	2	8	0	3	10	6	33	0	1	39	52	1	0	1	53	102
11:15 AM	0	5	0	1	5	9	52	0	0	61	57	1	0	0	58	124
11:30 AM	1	8	0	0	9	9	56	0	0	65	53	1	0	0	54	128
11:45 AM	2	10	0	0	12	6	44	0	0	50	50	1	0	0	51	113
Hourly Total	5	31	0	4	36	30	185	0	1	215	212	4	0	1	216	467
12:00 PM	0	9	0	1	9	7	51	0	0	58	53	1	0	2	54	121
12:15 PM	0	7	0	1	7	8	62	0	0	70	43	3	0	0	46	123
12:30 PM	2	3	0	1	5	2	55	0	0	57	63	0	0	0	63	125
12:45 PM	1	5	0	1	6	5	51	0	0	56	49	0	0	1	49	111
Hourly Total	3	24	0	4	27	22	219	0	0	241	208	4	0	3	212	480
1:00 PM	1	11	0	2	12	6	50	0	0	56	65	1	0	0	66	134
1:15 PM	0	4	0	0	4	10	77	0	1	87	64	1	0	0	65	156
1:30 PM	1	13	0	0	14	5	82	0	0	87	73	0	0	2	73	174
1:45 PM	2	8	0	2	10	9	81	0	0	90	67	0	0	1	67	167
Hourly Total	4	36	0	4	40	30	290	0	1	320	269	2	0	3	271	631
2:00 PM	2	14	0	1	16	15	94	0	0	109	79	0	0	0	79	204

2:15 PM	0	19	0	3	19	12	79	0	0	91	105	1	0	0	106	216
2:30 PM	0	9	0	5	9	10	79	0	0	89	95	1	0	0	96	194
2:45 PM	0	14	0	2	14	8	84	0	0	92	82	0	0	3	82	188
Hourly Total	2	56	0	11	58	45	336	0	0	381	361	2	0	3	363	802
3:00 PM	0	17	0	0	17	10	93	0	0	103	83	1	0	0	84	204
3:15 PM	1	16	0	1	17	14	80	0	0	94	113	2	0	0	115	226
3:30 PM	0	12	0	1	12	13	107	0	0	120	87	2	0	0	89	221
3:45 PM	0	7	0	1	7	6	106	0	0	112	104	3	0	0	107	226
Hourly Total	1	52	0	3	53	43	386	0	0	429	387	8	0	0	395	877
4:00 PM	0	19	0	0	19	6	99	0	0	105	107	0	0	0	107	231
4:15 PM	0	3	0	0	3	4	108	0	0	112	96	0	0	1	96	211
4:30 PM	1	12	0	0	13	9	93	0	0	102	97	0	0	0	97	212
4:45 PM	1	9	0	6	10	8	84	0	0	92	82	0	0	0	82	184
Hourly Total	2	43	0	6	45	27	384	0	0	411	382	0	0	1	382	838
5:00 PM	0	11	0	1	11	9	90	0	0	99	89	0	0	0	89	199
5:15 PM	0	5	0	5	5	5	86	0	1	91	90	4	0	0	94	190
5:30 PM	1	6	0	0	7	7	73	0	0	80	60	0	0	0	60	147
5:45 PM	0	6	0	1	6	9	67	0	0	76	52	0	0	0	52	134
Hourly Total	1	28	0	7	29	30	316	0	1	346	291	4	0	0	295	670
6:00 PM	2	9	0	0	11	9	63	0	0	72	56	0	0	0	56	139
6:15 PM	0	7	0	0	7	6	64	0	0	70	61	2	0	0	63	140
6:30 PM	1	9	0	1	10	5	62	0	0	67	48	0	0	0	48	125
6:45 PM	1	11	0	1	12	2	51	0	0	53	44	0	0	0	44	109
Hourly Total	4	36	0	2	40	22	240	0	0	262	209	2	0	0	211	513
Grand Total	30	443	0	63	473	363	3138	0	5	3501	3304	41	0	17	3345	7319
Approach %	6.3	93.7	0.0	-	-	10.4	89.6	0.0	-	-	98.8	1.2	0.0	-	-	-
Total %	0.4	6.1	0.0	-	6.5	5.0	42.9	0.0	-	47.8	45.1	0.6	0.0	-	45.7	-
Motorcycles	0	1	0	-	1	0	2	0	-	2	3	2	0	-	5	8
% Motorcycles	0.0	0.2	-	-	0.2	0.0	0.1	-	-	0.1	0.1	4.9	-	-	0.1	0.1
Cars & Light Goods	25	417	0	-	442	333	3046	0	-	3379	3187	34	0	-	3221	7042
% Cars & Light Goods	83.3	94.1	-	-	93.4	91.7	97.1	-	-	96.5	96.5	82.9	-	-	96.3	96.2
Buses	1	1	0	-	2	3	69	0	-	72	74	2	0	-	76	150
% Buses	3.3	0.2	-	-	0.4	0.8	2.2	-	-	2.1	2.2	4.9	-	-	2.3	2.0
Single-Unit Trucks	4	13	0	-	17	15	20	0	-	35	39	2	0	-	41	93
% Single-Unit Trucks	13.3	2.9	-	-	3.6	4.1	0.6	-	-	1.0	1.2	4.9	-	-	1.2	1.3
Articulated Trucks	0	10	0	-	10	12	1	0	-	13	0	1	0	-	1	24
% Articulated Trucks	0.0	2.3	-	-	2.1	3.3	0.0	-	-	0.4	0.0	2.4	-	-	0.0	0.3
Bicycles on Road	0	1	0	-	1	0	0	0	-	0	1	0	0	-	1	2
% Bicycles on Road	0.0	0.2	-	-	0.2	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	20.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	63	-	-	-	-	4	-	-	-	-	17	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	80.0	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Sheffield Street
Site Code: 240126
Start Date: 04/04/2024
Page No: 3

Guelph Avenue [N]

Out	In	Total
2	5	7
3071	3221	6292
70	76	146
24	41	65
1	2	3
3168	**3345**	**6513**

R	T	U	P
2	3	0	0
34	3187	0	0
2	74	0	0
2	39	0	0
1	1	0	17
41	**3304**	**0**	**17**

Sheffield Street [W]

Out	In	Total
2	1	3
367	442	809
5	2	7
17	17	34
13	11	24
404	**473**	**877**

U	L	R	P
0	0	1	0
0	25	417	0
0	1	1	0
0	4	13	0
0	0	11	63
0	**30**	**443**	**63**

04/04/2024 7:00 AM
Ending At
04/04/2024 7:00 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

U	L	T	P
0	0	2	0
0	333	3046	0
0	3	69	0
0	15	20	0
0	12	1	5
0	**363**	**3138**	**5**

Out	In	Total
4	2	6
3604	3379	6983
75	72	147
52	35	87
12	13	25
3747	**3501**	**7248**

Guelph Avenue [S]

Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Sheffield Street Eastbound					Guelph Avenue Northbound					Guelph Avenue Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:15 AM	0	9	0	0	9	11	66	0	0	77	66	1	0	0	67	153
7:30 AM	0	14	0	2	14	3	48	0	0	51	77	1	0	1	78	143
7:45 AM	0	11	0	0	11	13	41	0	0	54	82	1	0	0	83	148
8:00 AM	3	7	0	4	10	8	49	0	0	57	95	3	0	2	98	165
Total	3	41	0	6	44	35	204	0	0	239	320	6	0	3	326	609
Approach %	6.8	93.2	0.0	-	-	14.6	85.4	0.0	-	-	98.2	1.8	0.0	-	-	-
Total %	0.5	6.7	0.0	-	7.2	5.7	33.5	0.0	-	39.2	52.5	1.0	0.0	-	53.5	-
PHF	0.250	0.732	0.000	-	0.786	0.673	0.773	0.000	-	0.776	0.842	0.500	0.000	-	0.832	0.923
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	3	38	0	-	41	31	196	0	-	227	309	5	0	-	314	582
% Cars & Light Goods	100.0	92.7	-	-	93.2	88.6	96.1	-	-	95.0	96.6	83.3	-	-	96.3	95.6
Buses	0	0	0	-	0	0	7	0	-	7	9	1	0	-	10	17
% Buses	0.0	0.0	-	-	0.0	0.0	3.4	-	-	2.9	2.8	16.7	-	-	3.1	2.8
Single-Unit Trucks	0	1	0	-	1	1	1	0	-	2	2	0	0	-	2	5
% Single-Unit Trucks	0.0	2.4	-	-	2.3	2.9	0.5	-	-	0.8	0.6	0.0	-	-	0.6	0.8
Articulated Trucks	0	2	0	-	2	3	0	0	-	3	0	0	0	-	0	5
% Articulated Trucks	0.0	4.9	-	-	4.5	8.6	0.0	-	-	1.3	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	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	6	-	-	-	-	0	-	-	-	-	3	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Sheffield Street
Site Code: 240126
Start Date: 04/04/2024
Page No: 5

Guelph Avenue [N]

Out	In	Total
0	0	0
199	314	513
7	10	17
1	2	3
0	0	0
207	**326**	**533**

R	T	U	P
0	0	0	0
5	309	0	0
1	9	0	0
0	2	0	0
0	0	0	3
6	**320**	**0**	**3**

Sheffield Street [W]

Out	In	Total
0	0	0
36	41	77
1	0	1
1	1	2
3	2	5
41	**44**	**85**

U	L	R	P
0	0	0	0
0	3	38	0
0	0	0	0
0	0	1	0
0	0	2	6
0	**3**	**41**	**6**

Peak Hour Data

04/04/2024 7:15 AM
Ending At
04/04/2024 8:15 AM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

U	L	T	P
0	0	0	0
0	31	196	0
0	0	7	0
0	1	1	0
0	3	0	0
0	**35**	**204**	**0**

Out	In	Total
0	0	0
347	227	574
9	7	16
3	2	5
2	3	5
361	**239**	**600**

Guelph Avenue [S]

Turning Movement Peak Hour Data Plot (7:15 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Sheffield Street
Site Code: 240126
Start Date: 04/04/2024

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Sheffield Street Eastbound					Guelph Avenue Northbound					Guelph Avenue 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	0	19	0	0	19	6	99	0	0	105	107	0	0	0	107	231
4:15 PM	0	3	0	0	3	4	108	0	0	112	96	0	0	1	96	211
4:30 PM	1	12	0	0	13	9	93	0	0	102	97	0	0	0	97	212
4:45 PM	1	9	0	6	10	8	84	0	0	92	82	0	0	0	82	184
Total	2	43	0	6	45	27	384	0	0	411	382	0	0	1	382	838
Approach %	4.4	95.6	0.0	-	-	6.6	93.4	0.0	-	-	100.0	0.0	0.0	-	-	-
Total %	0.2	5.1	0.0	-	5.4	3.2	45.8	0.0	-	49.0	45.6	0.0	0.0	-	45.6	-
PHF	0.500	0.566	0.000	-	0.592	0.750	0.889	0.000	-	0.917	0.893	0.000	0.000	-	0.893	0.907
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
Cars & Light Goods	2	43	0	-	45	27	380	0	-	407	377	0	0	-	377	829
% Cars & Light Goods	100.0	100.0	-	-	100.0	100.0	99.0	-	-	99.0	98.7	-	-	-	98.7	98.9
Buses	0	0	0	-	0	0	4	0	-	4	4	0	0	-	4	8
% Buses	0.0	0.0	-	-	0.0	0.0	1.0	-	-	1.0	1.0	-	-	-	1.0	1.0
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	-	-	0.0	0.3	-	-	-	0.3	0.1
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	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	6	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

paradigm

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Guelph Avenue & Sheffield Street
Site Code: 240126
Start Date: 04/04/2024

Guelph Avenue [N]

Out	In	Total
0	0	0
382	377	759
4	4	8
0	1	1
0	0	0
386	**382**	**768**

R	T	U	P
0	0	0	0
0	377	0	0
0	4	0	0
0	1	0	0
0	0	0	1
0	**382**	**0**	**1**

Sheffield Street [W]

Out	In	Total
0	0	0
27	45	72
0	0	0
0	0	0
0	0	0
27	**45**	**72**

U	L	R	P
0	0	0	0
0	2	43	0
0	0	0	0
0	0	0	0
0	0	0	6
0	**2**	**43**	**6**

Peak Hour Data

04/04/2024 4:00 PM
Ending At
04/04/2024 5:00 PM

Motorcycles
Cars & Light Goods
Buses
Single-Unit Trucks
Other

U	L	T	P
0	0	0	0
0	27	380	0
0	0	4	0
0	0	0	0
0	0	0	0
0	**27**	**384**	**0**

Out	In	Total
0	0	0
420	407	827
4	4	8
1	0	1
0	0	0
425	**411**	**836**

Guelph Avenue [S]

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

CURRENT TRAFFIC SIGNAL TIMING

INT # **942** **QUEEN STREET @ Guelph Avenue/Adam Street** T08-50/ **37C**

Date Prepared: **March 27, 2024**

Mode of Control **Fixed Time**

Left Info	**Actuated**	**EB** LT	-	**Queen Street**
	Non-actuated	**SB** LT	-	**Guelph Avenue**

Max 1 (LPI Timing Plan 2) 7:00 - 9:30 Monday-Friday

Queen Street						
EBL Green Arrow	Min	5.0	seconds			
	Ext	3.0	seconds			
	Max	12.0	seconds			
EBL Amber Arrow		3.0	seconds			
All Red		1.0	seconds			
Green		30.0	seconds			
Amber		4.0	seconds	Walk	18.0	seconds
All Red		2.0	seconds	FDW	12.0	seconds
Guelph Avenue/Adam Street						
Green		22.0	seconds	LPI	5.0	seconds
Amber		4.0	seconds	Walk	8.0	seconds
All Red		2.0	seconds	FDW	9.0	seconds

Max 1 (LPI Timing Plan 3) 9:30 - 14:30 & 19:00 - 21:00 Monday-Friday

Queen Street					
Green	30.0	seconds	LPI	5.0	seconds
Amber	4.0	seconds	Walk	13.0	seconds
All Red	2.0	seconds	FDW	12.0	seconds
Guelph Avenue/Adam Street					
Green	25.0	seconds	LPI	5.0	seconds
Amber	4.0	seconds	Walk	11.0	seconds
All Red	2.0	seconds	FDW	9.0	seconds
TOTAL	67.0	seconds			

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

<u>Max 1 (Timing Plan 1)</u> 14:30 - 19:00 Monday-Friday

Queen Street

EBL Green Arrow	Min	5.0	seconds			
	Ext	3.0	seconds			
	Max	12.0	seconds			
EBL Amber Arrow		3.0	seconds			
All Red		1.0	seconds			
Green		22.0	seconds			
Amber		4.0	seconds	Walk	10.0	seconds
All Red		2.0	seconds	FDW	12.0	seconds

Guelph Avenue/Adam Street

SBL Green Arrow	8.0	seconds			
SBL Amber Arrow	3.0	seconds			
All Red	1.0	seconds			
Green	31.0	seconds			
Amber	4.0	seconds	Walk	22.0	seconds
All Red	2.0	seconds	FDW	9.0	seconds

<u>Max 2 (LPI Timing Plan 3)</u> 8:30 - 20:00 Saturday, 9:00 - 19:00 Sunday

Queen Street

Green	35.0	seconds	LPI	5.0	seconds
Amber	4.0	seconds	Walk	18.0	seconds
All Red	2.0	seconds	FDW	12.0	seconds

Guelph Avenue/Adam Street

Green	30.0	seconds	LPI	5.0	seconds
Amber	4.0	seconds	Walk	16.0	seconds
All Red	2.0	seconds	FDW	9.0	seconds
TOTAL	77.0	seconds			

<u>Max 2 (Timing Plan 1)</u> All Other Times

Queen Street

Green	25.0	seconds			
Amber	4.0	seconds	Walk	13.0	seconds
All Red	2.0	seconds	FDW	12.0	seconds

Guelph Avenue/Adam Street

Green	20.0	seconds			
Amber	4.0	seconds	Walk	11.0	seconds
All Red	2.0	seconds	FDW	9.0	seconds
TOTAL	57.0	seconds			

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Region of Waterloo

CURRENT TRAFFIC SIGNAL TIMING

INT # **986** **GUELPH AVENUE @ Scott Road/Baldwin Drive** T08-50/ **131C**

Date Prepared: **September 26, 2024**

Mode of Control **Semi-Actuated**

Max 1 All Other Times

GUELPH AVENUE

Green		36.0	seconds			
Amber		4.0	seconds	Walk	16.0	seconds
All Red		2.0	seconds	FDW	20.0	seconds

Scott Road/Baldwin Drive

				Pedestrian Call		
Green	Min	8.0	seconds	Green/Walk	10.0	seconds
	Ext	3.0	seconds	Green/FDW	14.0	seconds
	Max	24.0	seconds	Green/SDW	FALSE	seconds
Amber		4.0	seconds	Amber	4.0	seconds
All Red		2.0	seconds	All Red	2.0	seconds
TOTAL		72.0	seconds			

Max 1 (TP2)(LPI) LPI: 8:00-9:15, 10:45-11:30 & 15:00-16:00 Monday-Friday (Sept to June)

GUELPH AVENUE

Green		38.0	seconds			
Amber		4.0	seconds	Walk	18.0	seconds
All Red		2.0	seconds	FDW	20.0	seconds

Scott Road/Baldwin Drive

				Pedestrian Call		
Green	Min	8.0	seconds	Green/Walk	10.0	seconds
	Ext	3.0	seconds	Green/FDW	14.0	seconds
	Max	32.0	seconds	Green/SDW	8.0	seconds
Amber		4.0	seconds	Amber	4.0	seconds
All Red		2.0	seconds	All Red	2.0	seconds
TOTAL		82.0	seconds			

Min=Minimum Time
Ext=Extension Time
Max=Maximum Time

This signal timing cannot be presented as evidence in a court of law.

Appendix C

Existing (2024) Traffic Operations Outputs

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	96	82	162	231	28
Future Volume (vph)	31	96	82	162	231	28
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.898				0.985	
Flt Protected	0.988			0.983		
Satd. Flow (prot)	1481	0	0	1537	1559	0
Flt Permitted	0.988			0.983		
Satd. Flow (perm)	1481	0	0	1537	1559	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	271.6			177.0	188.9	
Travel Time (s)	19.6			12.7	13.6	
Confl. Peds. (#/hr)		4	6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	6%	7%	3%	3%	4%
Adj. Flow (vph)	31	96	82	162	231	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	0	0	244	259	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	96	82	162	231	28
Future Volume (Veh/h)	31	96	82	162	231	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	31	96	82	162	231	28
Pedestrians	6			4		
Lane Width (m)	3.5			3.5		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	577	255	265			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	577	255	265			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	93	87	94			
cM capacity (veh/h)	448	768	1264			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	127	244	259
Volume Left	31	82	0
Volume Right	96	0	28
cSH	654	1264	1700
Volume to Capacity	0.19	0.06	0.15
Queue Length 95th (m)	5.7	1.7	0.0
Control Delay (s)	11.8	3.1	0.0
Lane LOS	B	A	
Approach Delay (s)	11.8	3.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	41	35	204	320	6
Future Volume (vph)	3	41	35	204	320	6
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.874				0.998	
Flt Protected	0.997			0.993		
Satd. Flow (prot)	1428	0	0	1541	1577	0
Flt Permitted	0.997			0.993		
Satd. Flow (perm)	1428	0	0	1541	1577	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.8			393.8	62.6	
Travel Time (s)	3.0			28.4	4.5	
Confl. Peds. (#/hr)	3		6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	7%	12%	4%	3%	17%
Adj. Flow (vph)	3	41	35	204	320	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	0	239	326	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 47.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	41	35	204	320	6
Future Volume (Veh/h)	3	41	35	204	320	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	41	35	204	320	6
Pedestrians	6				3	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				394		
pX, platoon unblocked						
vC, conflicting volume	606	329	332			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	606	329	332			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	99	94	97			
cM capacity (veh/h)	446	698	1168			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	44	239	326
Volume Left	3	35	0
Volume Right	41	0	6
cSH	672	1168	1700
Volume to Capacity	0.07	0.03	0.19
Queue Length 95th (m)	1.7	0.7	0.0
Control Delay (s)	10.7	1.4	0.0
Lane LOS	B	A	
Approach Delay (s)	10.7	1.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

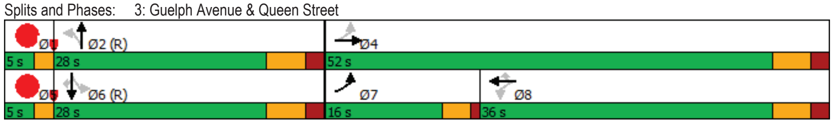
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	114	9	4	156	101	26	121	0	62	170	121
Future Volume (vph)	96	114	9	4	156	101	26	121	0	62	170	121
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Storage Length (m)	15.0		0.0	0.0		10.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	20.0			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
Ped Bike Factor	1.00	1.00			1.00	0.97		1.00			1.00	0.98
Frt		0.989				0.850						0.850
Flt Protected	0.950				0.999			0.991			0.987	
Satd. Flow (prot)	1573	1474	0	0	1630	1414	0	1543	0	0	1557	1414
Flt Permitted	0.594				0.995			0.920			0.893	
Satd. Flow (perm)	979	1474	0	0	1623	1378	0	1431	0	0	1406	1379
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												116
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.7			122.7			131.1			393.8	
Travel Time (s)		14.1			8.8			9.4			28.4	
Confl. Peds. (#/hr)	4		4	4		4	2		4	4		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 (%)	6%	10%	0%	0%	0%	4%	4%	5%	0%	2%	4%	4%
Adj. Flow (vph)	96	114	9	4	156	101	26	121	0	62	170	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	123	0	0	160	101	0	147	0	0	232	121
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)		3.5			3.5			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	1.11	1.21	1.01	1.01	1.21	1.13	1.01	1.21	1.01	1.01	1.21	1.13
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Minimum Split (s)	11.0	36.0		36.0	36.0	36.0	23.0	23.0		25.0	25.0	25.0
Total Split (s)	16.0	52.0		36.0	36.0	36.0	28.0	28.0		28.0	28.0	28.0
Total Split (%)	18.8%	61.2%		42.4%	42.4%	42.4%	32.9%	32.9%		32.9%	32.9%	32.9%
Maximum Green (s)	12.0	46.0		30.0	30.0	30.0	22.0	22.0		22.0	22.0	22.0
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0		-2.0			-2.0	-2.0
Total Lost Time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag		Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		18.0		18.0	18.0	18.0	8.0	8.0		8.0	8.0	8.0
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	9.0	9.0		9.0	9.0	9.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0		0	0	0

Lane Group	Ø1	Ø5
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Turn Type		
Protected Phases	1	5
Permitted Phases		
Minimum Split (s)	9.5	9.5
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	50.0	48.0			32.0	32.0		24.0			24.0	24.0
Actuated g/C Ratio	0.59	0.56			0.38	0.38		0.28			0.28	0.28
v/c Ratio	0.14	0.15			0.26	0.19		0.36			0.59	0.26
Control Delay	8.3	9.4			19.8	19.1		27.6			33.3	6.9
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	8.3	9.4			19.8	19.1		27.6			33.3	6.9
LOS	A	A			B	B		C			C	A
Approach Delay		8.9			19.6			27.6			24.3	
Approach LOS		A			B			C			C	

Intersection Summary
Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Pretimed
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 91.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Guelph Avenue & Queen Street



Lane Group	Ø1	Ø5
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	96	123	160	101	147	232	121
v/c Ratio	0.14	0.15	0.26	0.19	0.36	0.59	0.26
Control Delay	8.3	9.4	19.8	19.1	27.6	33.3	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	9.4	19.8	19.1	27.6	33.3	6.9
Queue Length 50th (m)	6.6	9.3	18.6	11.4	20.0	34.0	0.6
Queue Length 95th (m)	13.2	17.7	33.2	22.8	36.8	58.3	13.1
Internal Link Dist (m)		171.7	98.7		107.1	369.8	
Turn Bay Length (m)	15.0			10.0			15.0
Base Capacity (vph)	673	832	611	518	404	396	472
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	0.14	0.15	0.26	0.19	0.36	0.59	0.26

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	114	9	4	156	101	26	121	0	62	170	121
Future Volume (vph)	96	114	9	4	156	101	26	121	0	62	170	121
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Total Lost time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.99	1.00
Satd. Flow (prot)	1569	1474			1629	1378		1542			1553	1379
Flt Permitted	0.59	1.00			1.00	1.00		0.92			0.89	1.00
Satd. Flow (perm)	982	1474			1623	1378		1431			1405	1379
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	96	114	9	4	156	101	26	121	0	62	170	121
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	83
Lane Group Flow (vph)	96	123	0	0	160	101	0	147	0	0	232	38
Confl. Peds. (#/hr)	4		4	4		4	2		4	4		2
Heavy Vehicles (%)	6%	10%	0%	0%	0%	4%	4%	5%	0%	2%	4%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	46.0	46.0			30.0	30.0		22.0			22.0	22.0
Effective Green, g (s)	48.0	48.0			32.0	32.0		24.0			24.0	24.0
Actuated g/C Ratio	0.56	0.56			0.38	0.38		0.28			0.28	0.28
Clearance Time (s)	4.0	6.0			6.0	6.0		6.0			6.0	6.0
Lane Grp Cap (vph)	651	832			611	518		404			396	389
v/s Ratio Prot	0.02	c0.08										
v/s Ratio Perm	0.06				c0.10	0.07		0.10			c0.17	0.03
v/c Ratio	0.15	0.15			0.26	0.19		0.36			0.59	0.10
Uniform Delay, d1	8.6	8.8			18.3	17.8		24.4			26.2	22.5
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	0.5	0.4			1.0	0.8		2.5			6.2	0.5
Delay (s)	9.1	9.2			19.4	18.7		26.9			32.4	23.0
Level of Service	A	A			B	B		C			C	C
Approach Delay (s)		9.1			19.1			26.9			29.2	
Approach LOS		A			B			C			C	

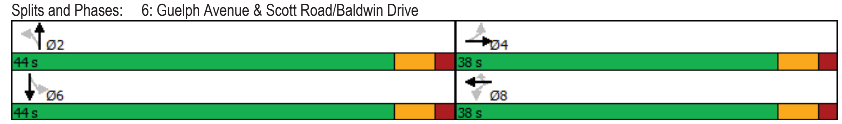
Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	30	45	67	56	30	25	97	62	14	104	23
Future Volume (vph)	18	30	45	67	56	30	25	97	62	14	104	23
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Storage Length (m)	0.0		0.0	0.0		35.0	30.0		0.0	21.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			60.0			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
Ped Bike Factor		0.95			0.99	0.76	0.98	0.98		0.96	0.99	
Frt		0.935				0.850		0.942			0.973	
Flt Protected		0.990			0.973		0.950			0.950		
Satd. Flow (prot)	0	1380	0	0	1528	1337	1603	1427	0	1558	1516	0
Flt Permitted		0.921			0.823		0.676			0.656		
Satd. Flow (perm)	0	1236	0	0	1282	1011	1122	1427	0	1038	1516	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45				40		55			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		267.5			129.0			346.4			206.5	
Travel Time (s)		19.3			9.3			24.9			14.9	
Confl. Peds. (#/hr)	134		10	10		134	18		41	41		18
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%	0%	3%	5%	10%	4%	7%	2%	7%	4%	4%
Adj. Flow (vph)	18	30	45	67	56	30	25	97	62	14	104	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	0	0	123	30	25	159	0	14	127	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			3.5			3.5	
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											Yes	
Headway Factor	1.01	1.31	1.01	1.01	1.21	1.13	1.11	1.21	1.01	1.11	1.21	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		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	
Detector 1 Position(m)	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	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	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	38.0	38.0		38.0	38.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	44.0	44.0		44.0	44.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	44.0	44.0		44.0	44.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%	46.3%	53.7%	53.7%		53.7%	53.7%	
Maximum Green (s)	32.0	32.0		32.0	32.0	32.0	38.0	38.0		38.0	38.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag												
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	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	18.0	18.0		18.0	18.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		13.4			13.4	13.4	44.1	44.1		44.1	44.1	
Actuated g/C Ratio		0.22			0.22	0.22	0.71	0.71		0.71	0.71	
v/c Ratio		0.31			0.44	0.12	0.03	0.15		0.02	0.12	
Control Delay		14.6			26.0	6.7	4.8	3.7		4.9	4.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		14.6			26.0	6.7	4.8	3.7		4.9	4.4	
LOS		B			C	A	A	A		A	A	
Approach Delay		14.6			22.2			3.9			4.5	
Approach LOS		B			C			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 82	
Actuated Cycle Length: 61.7	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 10.7	Intersection LOS: B
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Guelph Avenue & Scott Road/Baldwin Drive



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	93	123	30	25	159	14	127
v/c Ratio	0.31	0.44	0.12	0.03	0.15	0.02	0.12
Control Delay	14.6	26.0	6.7	4.8	3.7	4.9	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	26.0	6.7	4.8	3.7	4.9	4.4
Queue Length 50th (m)	4.7	12.7	0.0	0.9	3.8	0.5	3.9
Queue Length 95th (m)	15.2	26.5	4.5	3.7	12.1	2.5	11.5
Internal Link Dist (m)	243.5	105.0			322.4		182.5
Turn Bay Length (m)			35.0	30.0		21.0	
Base Capacity (vph)	702	707	576	801	1034	741	1088
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	0.13	0.17	0.05	0.03	0.15	0.02	0.12

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	30	45	67	56	30	25	97	62	14	104	23
Future Volume (vph)	18	30	45	67	56	30	25	97	62	14	104	23
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			1.00	0.81	1.00	0.98		1.00	0.99	
Flpb, ped/bikes		0.97			0.99	1.00	0.99	1.00		0.97	1.00	
Frt		0.93			1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1343			1519	1080	1583	1432		1516	1517	
Flt Permitted		0.92			0.82	1.00	0.68	1.00		0.66	1.00	
Satd. Flow (perm)		1250			1284	1080	1126	1432		1047	1517	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	30	45	67	56	30	25	97	62	14	104	23
RTOR Reduction (vph)	0	37	0	0	0	24	0	17	0	0	6	0
Lane Group Flow (vph)	0	56	0	0	123	6	25	142	0	14	121	0
Confl. Peds. (#/hr)	134		10	10		134	18		41	41		18
Heavy Vehicles (%)	0%	3%	0%	3%	5%	10%	4%	7%	2%	7%	4%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		9.7			9.7	9.7	41.2	41.2		41.2	41.2	
Effective Green, g (s)		11.7			11.7	11.7	43.2	43.2		43.2	43.2	
Actuated g/C Ratio		0.19			0.19	0.19	0.69	0.69		0.69	0.69	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		232			238	200	773	983		719	1041	
v/s Ratio Prot								c0.10			0.08	
v/s Ratio Perm		0.05			c0.10	0.01	0.02			0.01		
v/c Ratio		0.24			0.52	0.03	0.03	0.14		0.02	0.12	
Uniform Delay, d1		21.8			23.1	20.9	3.2	3.4		3.1	3.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			1.9	0.1	0.1	0.3		0.0	0.2	
Delay (s)		22.4			24.9	21.0	3.2	3.7		3.2	3.6	
Level of Service		C			C	C	A	A		A	A	
Approach Delay (s)		22.4			24.2			3.7			3.5	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	10	9	0	1	2	184	4	1	237	5
Future Volume (vph)	10	0	10	9	0	1	2	184	4	1	237	5
Ideal Flow (vphpl)	1900	1550	1900	1900	1550	1900	1900	1550	1900	1900	1550	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.932			0.986			0.997			0.997	
Flt Protected		0.976			0.957			0.999				
Satd. Flow (prot)	0	1394	0	0	1316	0	0	1476	0	0	1479	0
Flt Permitted		0.976			0.957			0.999				
Satd. Flow (perm)	0	1394	0	0	1316	0	0	1476	0	0	1479	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		71.8			86.6			188.9			346.4	
Travel Time (s)		5.2			6.2			13.6			24.9	
Confl. Peds. (#/hr)	2		2	2		2	13		2	2		13
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%	0%	11%	0%	0%	0%	3%	25%	0%	3%	20%
Adj. Flow (vph)	10	0	10	9	0	1	2	184	4	1	237	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	10	0	0	190	0	0	243	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			3.5			3.5	
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	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 27.1% ICU Level of Service A

Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	10	9	0	1	2	184	4	1	237	5
Future Volume (Veh/h)	10	0	10	9	0	1	2	184	4	1	237	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	10	0	10	9	0	1	2	184	4	1	237	5
Pedestrians		13			2			2			2	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											346	
pX, platoon unblocked												
vC, conflicting volume	448	448	254	446	449	190	255			190		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	448	448	254	446	449	190	255			190		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	98	100	100	100			100		
cM capacity (veh/h)	512	501	779	494	501	854	1308			1394		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	10	190	243
Volume Left	10	9	2	1
Volume Right	10	1	4	5
cSH	618	516	1308	1394
Volume to Capacity	0.03	0.02	0.00	0.00
Queue Length 95th (m)	0.8	0.5	0.0	0.0
Control Delay (s)	11.0	12.1	0.1	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	11.0	12.1	0.1	0.0
Approach LOS	B	B		

Intersection Summary

Average Delay	0.8		
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	159	150	250	251	21
Future Volume (vph)	13	159	150	250	251	21
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.875				0.990	
Flt Protected	0.996			0.982		
Satd. Flow (prot)	1480	0	0	1584	1586	0
Flt Permitted	0.996			0.982		
Satd. Flow (perm)	1480	0	0	1584	1586	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	271.6			177.0	188.9	
Travel Time (s)	19.6			12.7	13.6	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%
Adj. Flow (vph)	13	159	150	250	251	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	172	0	0	400	272	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 62.7%		ICU Level of Service B
Analysis Period (min) 15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	159	150	250	251	21
Future Volume (Veh/h)	13	159	150	250	251	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	159	150	250	251	21
Pedestrians	1					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	812	262	273			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	812	262	273			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	79	88			
cM capacity (veh/h)	310	773	1283			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	172	400	272
Volume Left	13	150	0
Volume Right	159	0	21
cSH	695	1283	1700
Volume to Capacity	0.25	0.12	0.16
Queue Length 95th (m)	7.8	3.2	0.0
Control Delay (s)	11.9	3.8	0.0
Lane LOS	B	A	
Approach Delay (s)	11.9	3.8	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	43	27	384	382	0
Future Volume (vph)	2	43	27	384	382	0
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.871					
Flt Protected	0.998			0.997		
Satd. Flow (prot)	1517	0	0	1612	1616	0
Flt Permitted	0.998			0.997		
Satd. Flow (perm)	1517	0	0	1612	1616	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.8			393.8	62.6	
Travel Time (s)	3.0			28.4	4.5	
Confl. Peds. (#/hr)	1		6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	2	43	27	384	382	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	0	411	382	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 58.8%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	43	27	384	382	0
Future Volume (Veh/h)	2	43	27	384	382	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	43	27	384	382	0
Pedestrians	6				1	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				394		
pX, platoon unblocked						
vC, conflicting volume	827	388	388			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	827	388	388			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	93	98			
cM capacity (veh/h)	334	661	1176			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	45	411	382
Volume Left	2	27	0
Volume Right	43	0	0
cSH	634	1176	1700
Volume to Capacity	0.07	0.02	0.22
Queue Length 95th (m)	1.8	0.6	0.0
Control Delay (s)	11.1	0.8	0.0
Lane LOS	B	A	
Approach Delay (s)	11.1	0.8	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

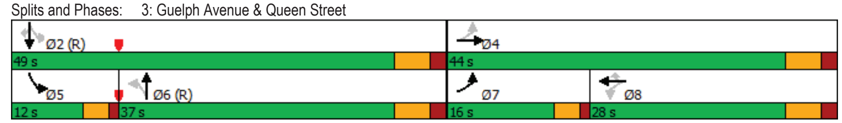
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	181	25	19	136	93	35	196	0	95	247	149
Future Volume (vph)	162	181	25	19	136	93	35	196	0	95	247	149
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Storage Length (m)	15.0		0.0	0.0		10.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	20.0			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
Ped Bike Factor	0.98	0.99			1.00	0.95		1.00			1.00	0.97
Frt		0.982				0.850						0.850
Flt Protected	0.950				0.994			0.992			0.986	
Satd. Flow (prot)	1651	1577	0	0	1598	1401	0	1619	0	0	1586	1428
Flt Permitted	0.545				0.949			0.911			0.846	
Satd. Flow (perm)	925	1577	0	0	1521	1329	0	1486	0	0	1358	1391
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												94
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.7			122.7			131.1			393.8	
Travel Time (s)		14.1			8.8			9.4			28.4	
Confl. Peds. (#/hr)	15		16	16		15	4		8	8		4
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 (%)	1%	0%	8%	5%	1%	5%	0%	0%	0%	0%	2%	3%
Adj. Flow (vph)	162	181	25	19	136	93	35	196	0	95	247	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	206	0	0	155	93	0	231	0	0	342	149
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)		3.5			3.5			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	1.11	1.21	1.01	1.01	1.21	1.13	1.01	1.21	1.01	1.01	1.21	1.13
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8		8	6			2		2
Minimum Split (s)	11.0	36.0		28.0	28.0	28.0	37.0	37.0		9.5	37.0	37.0
Total Split (s)	16.0	44.0		28.0	28.0	28.0	37.0	37.0		12.0	49.0	49.0
Total Split (%)	17.2%	47.3%		30.1%	30.1%	30.1%	39.8%	39.8%		12.9%	52.7%	52.7%
Maximum Green (s)	12.0	38.0		22.0	22.0	22.0	31.0	31.0		8.0	43.0	43.0
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0		-2.0			-2.0	-2.0
Total Lost Time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?												
Walk Time (s)		10.0		10.0	10.0	10.0	22.0	22.0			22.0	22.0
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	9.0	9.0			9.0	9.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	42.0	40.0			24.0	24.0		33.0			45.0	45.0
Actuated g/C Ratio	0.45	0.43			0.26	0.26		0.35			0.48	0.48
v/c Ratio	0.31	0.30			0.40	0.27		0.44			0.51	0.21
Control Delay	17.3	18.9			32.1	30.2		26.2			19.2	6.4
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	17.3	18.9			32.1	30.2		26.2			19.2	6.4
LOS	B	B			C	C		C			B	A
Approach Delay		18.2			31.4			26.2			15.3	
Approach LOS		B			C			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 93
Actuated Cycle Length: 93
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 90
Control Type: Pretimed
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 21.0 Intersection LOS: C
Intersection Capacity Utilization 92.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Guelph Avenue & Queen Street



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	162	206	155	93	231	342	149
v/c Ratio	0.31	0.30	0.40	0.27	0.44	0.51	0.21
Control Delay	17.3	18.9	32.1	30.2	26.2	19.2	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	18.9	32.1	30.2	26.2	19.2	6.4
Queue Length 50th (m)	18.0	24.7	24.2	14.0	32.8	40.7	5.4
Queue Length 95th (m)	31.3	41.6	42.7	27.9	54.6	63.9	16.1
Internal Link Dist (m)		171.7	98.7		107.1	369.8	
Turn Bay Length (m)	15.0			10.0			15.0
Base Capacity (vph)	527	678	392	342	527	676	721
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	0.31	0.30	0.40	0.27	0.44	0.51	0.21

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	181	25	19	136	93	35	196	0	95	247	149
Future Volume (vph)	162	181	25	19	136	93	35	196	0	95	247	149
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Total Lost time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99			1.00	0.95		1.00			1.00	0.97
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.98			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00			0.99	1.00		0.99			0.99	1.00
Satd. Flow (prot)	1631	1576			1593	1329		1618			1584	1391
Flt Permitted	0.54	1.00			0.95	1.00		0.91			0.85	1.00
Satd. Flow (perm)	935	1576			1521	1329		1485			1359	1391
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	162	181	25	19	136	93	35	196	0	95	247	149
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	49
Lane Group Flow (vph)	162	206	0	0	155	93	0	231	0	0	342	100
Confl. Peds. (#/hr)	15		16	16		15	4		8	8		4
Heavy Vehicles (%)	1%	0%	8%	5%	1%	5%	0%	0%	0%	0%	2%	3%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8		8	6			2		2
Actuated Green, G (s)	38.0	38.0			22.0	22.0		31.0			43.0	43.0
Effective Green, g (s)	40.0	40.0			24.0	24.0		33.0			45.0	45.0
Actuated g/C Ratio	0.43	0.43			0.26	0.26		0.35			0.48	0.48
Clearance Time (s)	4.0	6.0			6.0	6.0		6.0			6.0	6.0
Lane Grp Cap (vph)	506	677			392	342		526			681	673
v/s Ratio Prot	c0.05	0.13									c0.05	
v/s Ratio Perm	0.09				c0.10	0.07		0.16			0.19	0.07
v/c Ratio	0.32	0.30			0.40	0.27		0.44			0.50	0.15
Uniform Delay, d1	16.9	17.4			28.5	27.5		22.9			16.4	13.4
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	1.7	1.2			3.0	2.0		2.7			2.6	0.5
Delay (s)	18.6	18.5			31.5	29.5		25.6			19.0	13.8
Level of Service	B	B			C	C		C			B	B
Approach Delay (s)		18.5			30.7			25.6			17.4	
Approach LOS		B			C			C			B	

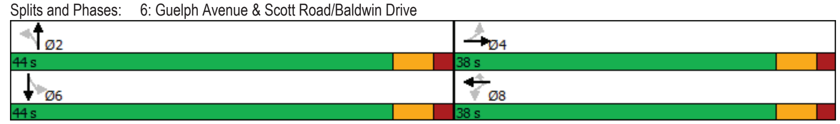
Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	21	35	66	7	23	40	120	113	15	149	20
Future Volume (vph)	15	21	35	66	7	23	40	120	113	15	149	20
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Storage Length (m)	0.0		0.0	0.0		35.0	30.0		0.0	21.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			60.0			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
Ped Bike Factor		0.96			0.99	0.86	0.98	0.98		0.98	1.00	
Frt		0.933				0.850		0.927			0.982	
Flt Protected		0.990			0.957		0.950			0.950		
Satd. Flow (prot)	0	1392	0	0	1520	1414	1668	1477	0	1668	1581	0
Flt Permitted		0.921			0.807		0.650			0.613		
Satd. Flow (perm)	0	1265	0	0	1268	1216	1122	1477	0	1054	1581	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35				40		81			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		267.5			129.0			346.4			206.5	
Travel Time (s)		19.3			9.3			24.9			14.9	
Confl. Peds. (#/hr)	72		8	8		72	20		27	27		20
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%	0%	3%	0%	4%	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	15	21	35	66	7	23	40	120	113	15	149	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	71	0	0	73	23	40	233	0	15	169	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			3.5			3.5	
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											Yes	
Headway Factor	1.01	1.31	1.01	1.01	1.21	1.13	1.11	1.21	1.01	1.11	1.21	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		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	
Detector 1 Position(m)	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	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	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	38.0	38.0		38.0	38.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	44.0	44.0		44.0	44.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	44.0	44.0		44.0	44.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%	46.3%	53.7%	53.7%		53.7%	53.7%	
Maximum Green (s)	32.0	32.0		32.0	32.0	32.0	38.0	38.0		38.0	38.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag												
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	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	18.0	18.0		18.0	18.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		11.6			11.6	11.6	44.5	44.5		44.5	44.5	
Actuated g/C Ratio		0.19			0.19	0.19	0.74	0.74		0.74	0.74	
v/c Ratio		0.26			0.30	0.09	0.05	0.21		0.02	0.14	
Control Delay		14.8			24.1	5.0	4.0	3.2		3.9	3.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		14.8			24.1	5.0	4.0	3.2		3.9	3.9	
LOS		B			C	A	A	A		A	A	
Approach Delay		14.8			19.5			3.3			3.9	
Approach LOS		B			B			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 82	
Actuated Cycle Length: 60.4	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.30	
Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 70.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Guelph Avenue & Scott Road/Baldwin Drive



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	73	23	40	233	15	169
v/c Ratio	0.26	0.30	0.09	0.05	0.21	0.02	0.14
Control Delay	14.8	24.1	5.0	4.0	3.2	3.9	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	24.1	5.0	4.0	3.2	3.9	3.9
Queue Length 50th (m)	3.5	7.2	0.0	1.2	4.9	0.4	5.0
Queue Length 95th (m)	12.7	17.2	3.4	4.4	14.1	2.3	13.1
Internal Link Dist (m)	243.5	105.0			322.4		182.5
Turn Bay Length (m)			35.0	30.0		21.0	
Base Capacity (vph)	728	714	702	825	1108	775	1166
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	0.10	0.10	0.03	0.05	0.21	0.02	0.14

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	21	35	66	7	23	40	120	113	15	149	20
Future Volume (vph)	15	21	35	66	7	23	40	120	113	15	149	20
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00	0.89	1.00	0.98		1.00	1.00	
Flpb, ped/bikes		0.98			0.99	1.00	0.99	1.00		0.98	1.00	
Frt		0.93			1.00	0.85	1.00	0.93		1.00	0.98	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1370			1507	1258	1646	1483		1641	1582	
Flt Permitted		0.92			0.81	1.00	0.65	1.00		0.61	1.00	
Satd. Flow (perm)		1276			1271	1258	1127	1483		1060	1582	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	21	35	66	7	23	40	120	113	15	149	20
RTOR Reduction (vph)	0	29	0	0	0	19	0	24	0	0	4	0
Lane Group Flow (vph)	0	42	0	0	73	4	40	209	0	15	165	0
Confl. Peds. (#/hr)	72		8	8		72	20		27	27		20
Heavy Vehicles (%)	0%	0%	0%	3%	0%	4%	0%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.0			8.0	8.0	41.6	41.6		41.6	41.6	
Effective Green, g (s)		10.0			10.0	10.0	43.6	43.6		43.6	43.6	
Actuated g/C Ratio		0.16			0.16	0.16	0.71	0.71		0.71	0.71	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		207			206	204	797	1049		750	1119	
v/s Ratio Prot								c0.14			0.10	
v/s Ratio Perm		0.03			c0.06	0.00	0.04			0.01		
v/c Ratio		0.20			0.35	0.02	0.05	0.20		0.02	0.15	
Uniform Delay, d1		22.3			22.9	21.7	2.7	3.1		2.7	2.9	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			1.1	0.0	0.1	0.4		0.0	0.3	
Delay (s)		22.8			24.0	21.7	2.8	3.5		2.7	3.2	
Level of Service		C			C	C	A	A		A	A	
Approach Delay (s)		22.8			23.4			3.4			3.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	3	3	4	0	1	4	237	8	1	285	5
Future Volume (vph)	4	3	3	4	0	1	4	237	8	1	285	5
Ideal Flow (vphpl)	1900	1550	1900	1900	1550	1900	1900	1550	1900	1900	1550	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.959			0.973			0.996			0.998	
Flt Protected		0.980			0.962			0.999				
Satd. Flow (prot)	0	1441	0	0	1435	0	0	1511	0	0	1500	0
Flt Permitted		0.980			0.962			0.999				
Satd. Flow (perm)	0	1441	0	0	1435	0	0	1511	0	0	1500	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		71.8			86.6			188.9			346.4	
Travel Time (s)		5.2			6.2			13.6			24.9	
Confl. Peds. (#/hr)	4					4	17					17
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%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Adj. Flow (vph)	4	3	3	4	0	1	4	237	8	1	285	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	10	0	0	5	0	0	249	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			3.5			3.5	
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	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 30.7%		ICU Level of Service A
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	3	3	4	0	1	4	237	8	1	285	5
Future Volume (Veh/h)	4	3	3	4	0	1	4	237	8	1	285	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	3	3	4	0	1	4	237	8	1	285	5
Pedestrians		17									4	
Lane Width (m)		3.5									3.5	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		1									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											346	
pX, platoon unblocked												
vC, conflicting volume	560	560	304	543	558	245	307			245		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	560	560	304	543	558	245	307			245		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	99	100	100	100			100		
cM capacity (veh/h)	428	432	730	443	433	796	1248			1333		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	5	249	291
Volume Left	4	4	4	1
Volume Right	3	1	8	5
cSH	490	486	1248	1333
Volume to Capacity	0.02	0.01	0.00	0.00
Queue Length 95th (m)	0.5	0.2	0.1	0.0
Control Delay (s)	12.5	12.5	0.2	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	12.5	12.5	0.2	0.0
Approach LOS	B	B		

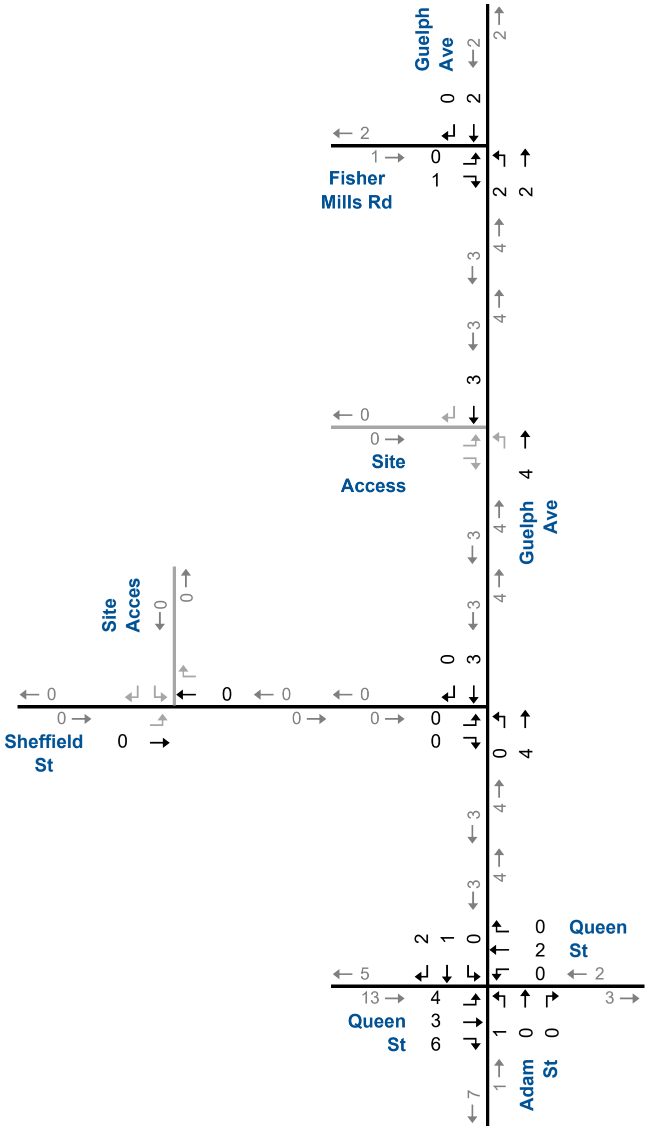
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	30.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

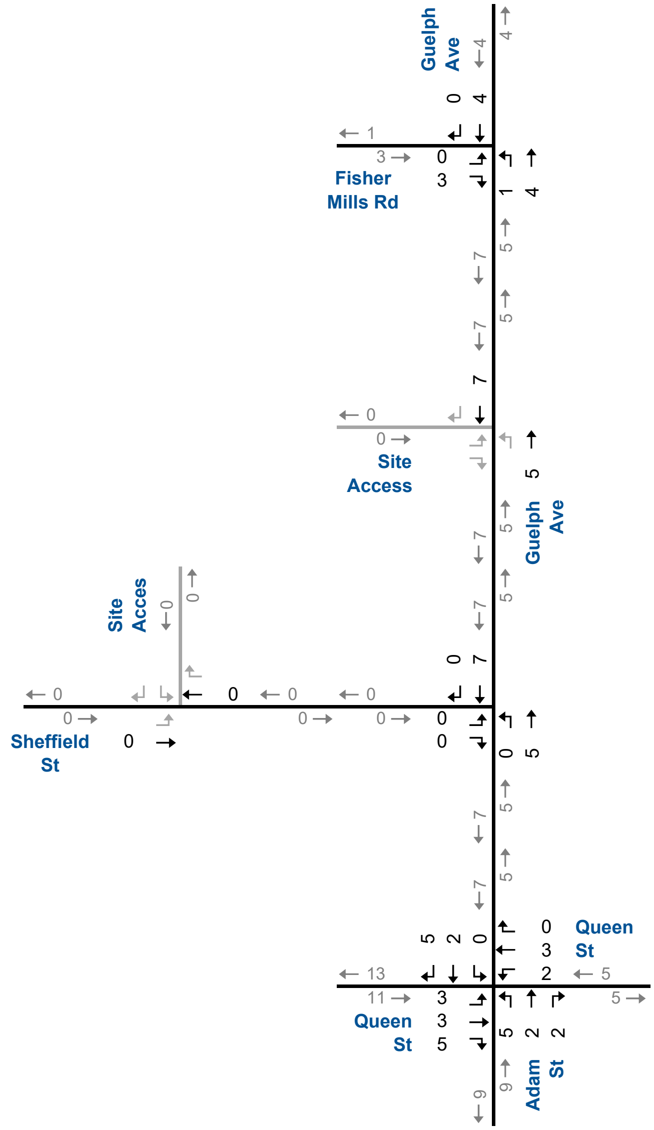
Other Area Developments Site Traffic

Background Development - 2-16 Queen Street West

AM Peak Hour

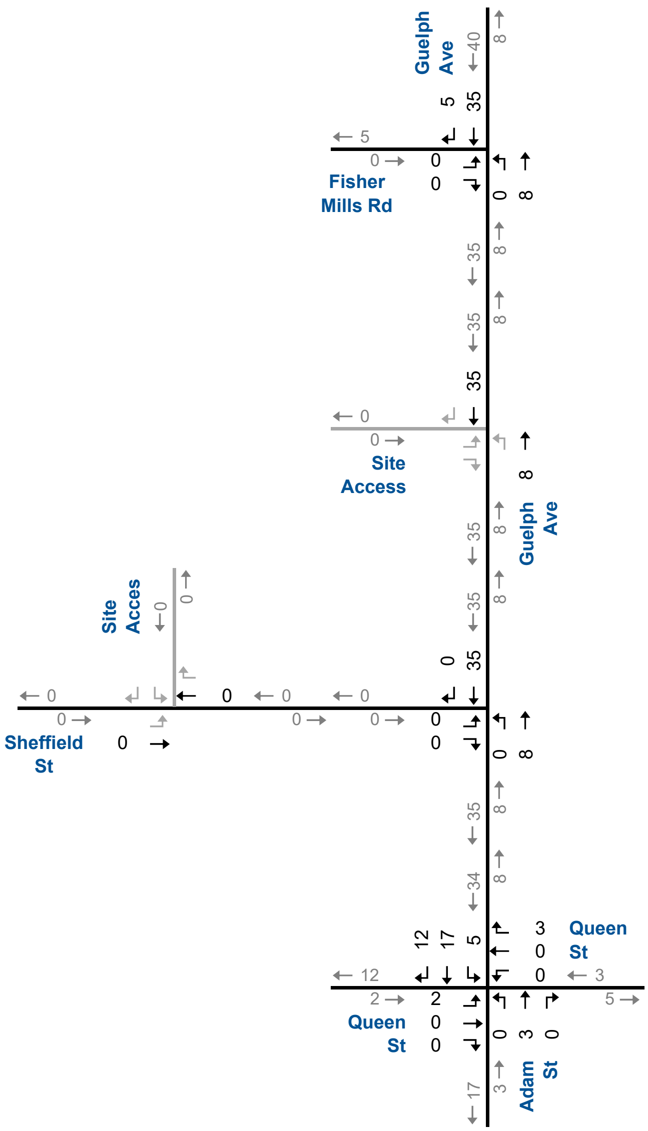


PM Peak Hour

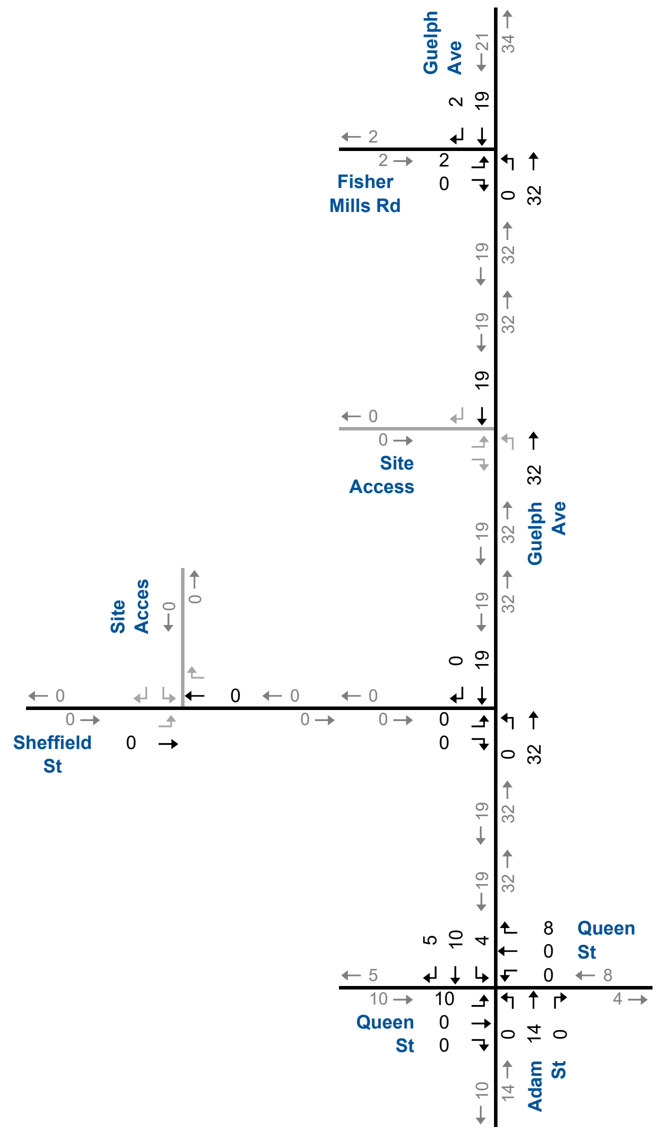


Background Development - 155-171 Guelph Ave

AM Peak Hour

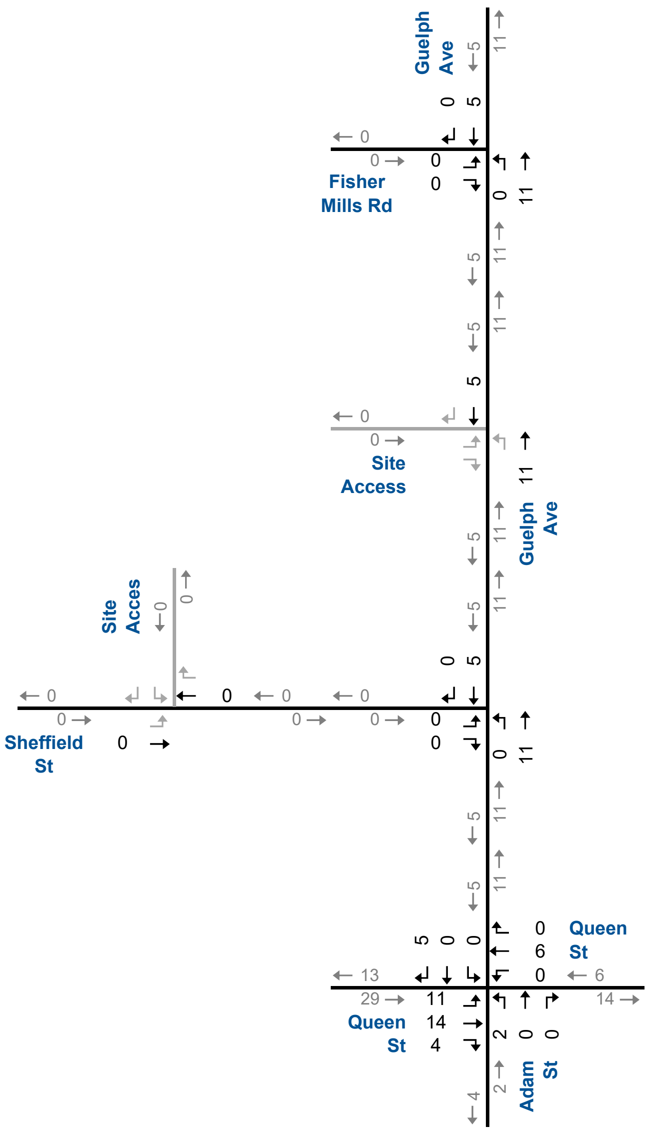


PM Peak Hour

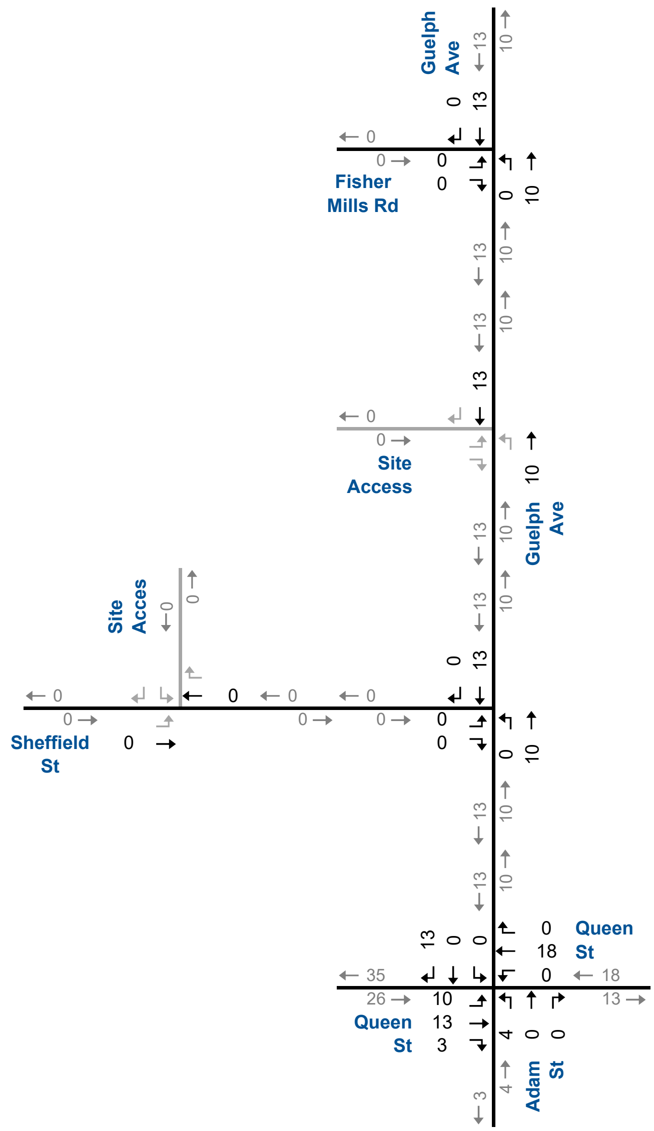


Background Development - 215 Queen Street West

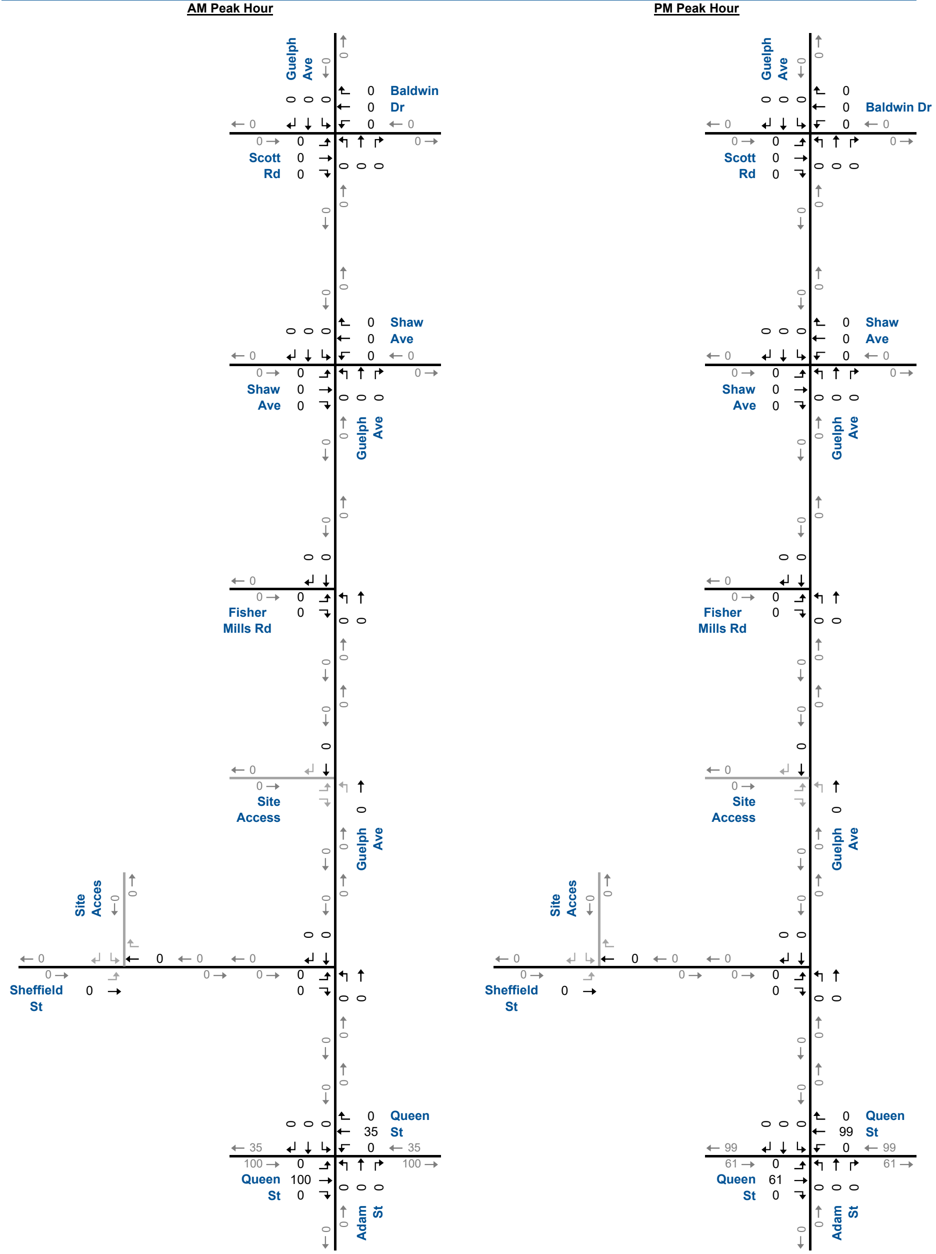
AM Peak Hour



PM Peak Hour



Background Development - 410 Queen St W



Trip Gen		AM Peak Hour			PM Peak Hour			AM Peak Hour		PM Peak Hour	
		In	Out	Total	In	Out	Total	In	Out	In	Out
LUC 222	2000	140	400	540	397	243	640	26%	74%	62%	38%
Trip rate		0.27			0.32						

Trip Distribution: based on existing travel patterns and 410 Queen St W TIS (Paradigm, 2005) (045520)

North	25%
South	25%
East	25%
West	25%

Trip Assignment	AM Peak Hour		PM Peak Hour		
	In	Out	In	Out	
North	35	100	99	61	
South	35	100	99	61	
East	35	100	99	61	Note: assigned to study area intersection (Queen St and Guelph Ave)
West	35	100	99	61	

Appendix E

2031 Background Traffic Operations Outputs

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	113	100	196	273	62
Future Volume (vph)	46	113	100	196	273	62
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.904				0.975	
Flt Protected	0.986			0.983		
Satd. Flow (prot)	1492	0	0	1537	1542	0
Flt Permitted	0.986			0.983		
Satd. Flow (perm)	1492	0	0	1537	1542	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	271.6			177.0	188.9	
Travel Time (s)	19.6			12.7	13.6	
Confl. Peds. (#/hr)		4	6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	6%	7%	3%	3%	4%
Adj. Flow (vph)	46	113	100	196	273	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	0	0	296	335	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 60.1%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	113	100	196	273	62
Future Volume (Veh/h)	46	113	100	196	273	62
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	46	113	100	196	273	62
Pedestrians	6			4		
Lane Width (m)	3.5			3.5		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	706	314	341			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	706	314	341			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	88	84	92			
cM capacity (veh/h)	369	711	1185			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	159	296	335
Volume Left	46	100	0
Volume Right	113	0	62
cSH	561	1185	1700
Volume to Capacity	0.28	0.08	0.20
Queue Length 95th (m)	9.3	2.2	0.0
Control Delay (s)	13.9	3.3	0.0
Lane LOS	B	A	
Approach Delay (s)	13.9	3.3	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	47	40	250	379	7
Future Volume (vph)	3	47	40	250	379	7
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.873				0.998	
Flt Protected	0.997			0.993		
Satd. Flow (prot)	1425	0	0	1542	1577	0
Flt Permitted	0.997			0.993		
Satd. Flow (perm)	1425	0	0	1542	1577	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.8			393.8	62.6	
Travel Time (s)	3.0			28.4	4.5	
Confl. Peds. (#/hr)	3		6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	7%	12%	4%	3%	17%
Adj. Flow (vph)	3	47	40	250	379	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	0	290	386	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 54.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	47	40	250	379	7
Future Volume (Veh/h)	3	47	40	250	379	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	47	40	250	379	7
Pedestrians	6				3	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				394		
pX, platoon unblocked						
vC, conflicting volume	722	388	392			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722	388	392			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	99	93	96			
cM capacity (veh/h)	380	646	1109			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	50	290	386
Volume Left	3	40	0
Volume Right	47	0	7
cSH	620	1109	1700
Volume to Capacity	0.08	0.04	0.23
Queue Length 95th (m)	2.1	0.9	0.0
Control Delay (s)	11.3	1.5	0.0
Lane LOS	B	A	
Approach Delay (s)	11.3	1.5	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	248	20	5	222	116	33	140	0	72	197	147
Future Volume (vph)	125	248	20	5	222	116	33	140	0	72	197	147
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Storage Length (m)	15.0		0.0	0.0		10.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	20.0			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
Ped Bike Factor	1.00	1.00			1.00	0.97		1.00			1.00	0.98
Frt		0.989				0.850						0.850
Flt Protected	0.950				0.999			0.991			0.987	
Satd. Flow (prot)	1573	1474	0	0	1630	1414	0	1543	0	0	1557	1414
Flt Permitted	0.514				0.993			0.895			0.868	
Satd. Flow (perm)	848	1474	0	0	1620	1378	0	1393	0	0	1367	1379
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												116
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.7			122.7			131.1			393.8	
Travel Time (s)		14.1			8.8			9.4			28.4	
Confl. Peds. (#/hr)	4		4	4		4	2		4	4		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 (%)	6%	10%	0%	0%	0%	4%	4%	5%	0%	2%	4%	4%
Adj. Flow (vph)	125	248	20	5	222	116	33	140	0	72	197	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	268	0	0	227	116	0	173	0	0	269	147
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)		3.5			3.5			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	1.11	1.21	1.01	1.01	1.21	1.13	1.01	1.21	1.01	1.01	1.21	1.13
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Minimum Split (s)	11.0	36.0		36.0	36.0	36.0	23.0	23.0		25.0	25.0	25.0
Total Split (s)	16.0	52.0		36.0	36.0	36.0	28.0	28.0		28.0	28.0	28.0
Total Split (%)	18.8%	61.2%		42.4%	42.4%	42.4%	32.9%	32.9%		32.9%	32.9%	32.9%
Maximum Green (s)	12.0	46.0		30.0	30.0	30.0	22.0	22.0		22.0	22.0	22.0
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0		-2.0			-2.0	-2.0
Total Lost Time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag		Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		18.0		18.0	18.0	18.0	8.0	8.0		8.0	8.0	8.0
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	9.0	9.0		9.0	9.0	9.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0		0	0	0

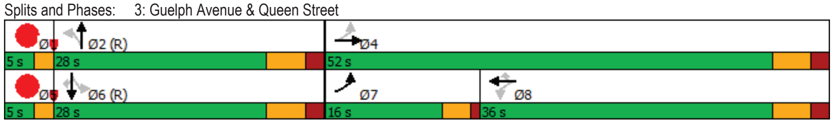
Lane Group	Ø1	Ø5
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Turn Type		
Protected Phases	1	5
Permitted Phases		
Minimum Split (s)	9.5	9.5
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	50.0	48.0			32.0	32.0		24.0			24.0	24.0
Actuated g/C Ratio	0.59	0.56			0.38	0.38		0.28			0.28	0.28
v/c Ratio	0.20	0.32			0.37	0.22		0.44			0.70	0.31
Control Delay	8.8	11.2			21.5	19.5		29.3			38.6	9.3
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	8.8	11.2			21.5	19.5		29.3			38.6	9.3
LOS	A	B			C	B		C			D	A
Approach Delay		10.4			20.8			29.3			28.3	
Approach LOS		B			C			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Pretimed
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 94.0% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Guelph Avenue & Queen Street



Lane Group	Ø1	Ø5
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	125	268	227	116	173	269	147
v/c Ratio	0.20	0.32	0.37	0.22	0.44	0.70	0.31
Control Delay	8.8	11.2	21.5	19.5	29.3	38.6	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	11.2	21.5	19.5	29.3	38.6	9.3
Queue Length 50th (m)	8.8	22.6	27.6	13.3	24.2	40.9	3.9
Queue Length 95th (m)	16.6	37.7	46.5	25.6	43.4	#74.9	18.0
Internal Link Dist (m)		171.7	98.7		107.1	369.8	
Turn Bay Length (m)	15.0			10.0			15.0
Base Capacity (vph)	618	832	609	518	393	385	472
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	0.20	0.32	0.37	0.22	0.44	0.70	0.31

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	248	20	5	222	116	33	140	0	72	197	147
Future Volume (vph)	125	248	20	5	222	116	33	140	0	72	197	147
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Total Lost time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.99	1.00
Satd. Flow (prot)	1570	1474			1630	1378		1541			1554	1379
Flt Permitted	0.51	1.00			0.99	1.00		0.90			0.87	1.00
Satd. Flow (perm)	850	1474			1621	1378		1393			1367	1379
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	125	248	20	5	222	116	33	140	0	72	197	147
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	83
Lane Group Flow (vph)	125	268	0	0	227	116	0	173	0	0	269	64
Confl. Peds. (#/hr)	4		4	4		4	2		4	4		2
Heavy Vehicles (%)	6%	10%	0%	0%	0%	4%	4%	5%	0%	2%	4%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	46.0	46.0			30.0	30.0		22.0			22.0	22.0
Effective Green, g (s)	48.0	48.0			32.0	32.0		24.0			24.0	24.0
Actuated g/C Ratio	0.56	0.56			0.38	0.38		0.28			0.28	0.28
Clearance Time (s)	4.0	6.0			6.0	6.0		6.0			6.0	6.0
Lane Grp Cap (vph)	598	832			610	518		393			385	389
v/s Ratio Prot	0.03	c0.18										
v/s Ratio Perm	0.08				c0.14	0.08		0.12			c0.20	0.05
v/c Ratio	0.21	0.32			0.37	0.22		0.44			0.70	0.16
Uniform Delay, d1	9.0	9.8			19.2	18.0		25.0			27.3	23.0
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	0.8	1.0			1.7	1.0		3.6			10.1	0.9
Delay (s)	9.8	10.9			21.0	19.0		28.5			37.4	23.9
Level of Service	A	B			C	B		C			D	C
Approach Delay (s)		10.5			20.3			28.5			32.6	
Approach LOS		B			C			C			C	

Intersection Summary

HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

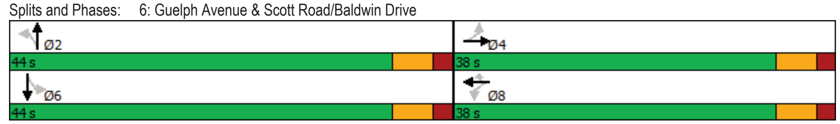
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	34	52	77	64	34	29	154	71	16	135	26
Future Volume (vph)	21	34	52	77	64	34	29	154	71	16	135	26
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Storage Length (m)	0.0		0.0	0.0		35.0	30.0		0.0	21.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			60.0			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
Ped Bike Factor		0.95			0.99	0.76	0.98	0.98		0.97	0.99	
Frt		0.934				0.850		0.953			0.976	
Flt Protected		0.990			0.973		0.950			0.950		
Satd. Flow (prot)	0	1379	0	0	1528	1337	1603	1446	0	1558	1522	0
Flt Permitted		0.917			0.799		0.655			0.618		
Satd. Flow (perm)	0	1230	0	0	1245	1011	1088	1446	0	982	1522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52				40		40			17	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		267.5			129.0			346.4			206.5	
Travel Time (s)		19.3			9.3			24.9			14.9	
Confl. Peds. (#/hr)	134		10	10		134	18		41	41		18
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%	0%	3%	5%	10%	4%	7%	2%	7%	4%	4%
Adj. Flow (vph)	21	34	52	77	64	34	29	154	71	16	135	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	107	0	0	141	34	29	225	0	16	161	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			3.5			3.5	
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											Yes	
Headway Factor	1.01	1.31	1.01	1.01	1.21	1.13	1.11	1.21	1.01	1.11	1.21	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		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	
Detector 1 Position(m)	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	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	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	38.0	38.0		38.0	38.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	44.0	44.0		44.0	44.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	44.0	44.0		44.0	44.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%	46.3%	53.7%	53.7%		53.7%	53.7%	
Maximum Green (s)	32.0	32.0		32.0	32.0	32.0	38.0	38.0		38.0	38.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag												
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	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	18.0	18.0		18.0	18.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		14.3			14.3	14.3	44.2	44.2		44.2	44.2	
Actuated g/C Ratio		0.23			0.23	0.23	0.70	0.70		0.70	0.70	
v/c Ratio		0.33			0.50	0.13	0.04	0.22		0.02	0.15	
Control Delay		14.5			27.1	7.2	5.3	5.0		5.4	5.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		14.5			27.1	7.2	5.3	5.0		5.4	5.1	
LOS		B			C	A	A	A		A	A	
Approach Delay		14.5			23.2			5.1			5.1	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 62.7
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 10.9 Intersection LOS: B
Intersection Capacity Utilization 73.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: Guelph Avenue & Scott Road/Baldwin Drive



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	141	34	29	225	16	161
v/c Ratio	0.33	0.50	0.13	0.04	0.22	0.02	0.15
Control Delay	14.5	27.1	7.2	5.3	5.0	5.4	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	27.1	7.2	5.3	5.0	5.4	5.1
Queue Length 50th (m)	5.4	14.8	0.0	1.1	7.6	0.6	5.7
Queue Length 95th (m)	16.7	30.0	5.3	4.5	20.4	3.0	15.6
Internal Link Dist (m)	243.5	105.0			322.4		182.5
Turn Bay Length (m)			35.0	30.0		21.0	
Base Capacity (vph)	692	677	568	766	1030	691	1077
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	0.15	0.21	0.06	0.04	0.22	0.02	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	34	52	77	64	34	29	154	71	16	135	26
Future Volume (vph)	21	34	52	77	64	34	29	154	71	16	135	26
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			1.00	0.81	1.00	0.98		1.00	0.99	
Flpb, ped/bikes		0.97			0.99	1.00	0.99	1.00		0.97	1.00	
Frt		0.93			1.00	0.85	1.00	0.95		1.00	0.98	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1343			1519	1077	1584	1449		1519	1522	
Flt Permitted		0.92			0.80	1.00	0.66	1.00		0.62	1.00	
Satd. Flow (perm)		1244			1247	1077	1092	1449		988	1522	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	34	52	77	64	34	29	154	71	16	135	26
RTOR Reduction (vph)	0	42	0	0	0	27	0	13	0	0	5	0
Lane Group Flow (vph)	0	65	0	0	141	7	29	212	0	16	156	0
Confl. Peds. (#/hr)	134		10	10		134	18		41	41		18
Heavy Vehicles (%)	0%	3%	0%	3%	5%	10%	4%	7%	2%	7%	4%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		10.6			10.6	10.6	41.3	41.3		41.3	41.3	
Effective Green, g (s)		12.6			12.6	12.6	43.3	43.3		43.3	43.3	
Actuated g/C Ratio		0.20			0.20	0.20	0.68	0.68		0.68	0.68	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		245			245	212	739	981		669	1031	
v/s Ratio Prot								c0.15			0.10	
v/s Ratio Perm		0.05			c0.11	0.01	0.03			0.02		
v/c Ratio		0.27			0.58	0.03	0.04	0.22		0.02	0.15	
Uniform Delay, d1		21.7			23.2	20.7	3.4	3.9		3.4	3.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			3.3	0.1	0.1	0.5		0.1	0.3	
Delay (s)		22.3			26.5	20.8	3.5	4.4		3.4	4.0	
Level of Service		C			C	C	A	A		A	A	
Approach Delay (s)		22.3			25.4			4.3			4.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	11	20	0	11	2	244	8	4	285	6
Future Volume (vph)	11	0	11	20	0	11	2	244	8	4	285	6
Ideal Flow (vphpl)	1900	1550	1900	1900	1550	1900	1900	1550	1900	1900	1550	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.932			0.952			0.996			0.997	
Flt Protected		0.976			0.969						0.999	
Satd. Flow (prot)	0	1394	0	0	1320	0	0	1473	0	0	1478	0
Flt Permitted		0.976			0.969						0.999	
Satd. Flow (perm)	0	1394	0	0	1320	0	0	1473	0	0	1478	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		71.8			86.6			188.9			346.4	
Travel Time (s)		5.2			6.2			13.6			24.9	
Confl. Peds. (#/hr)	2		2	2		2	13		2	2		13
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%	0%	11%	0%	0%	0%	3%	25%	0%	3%	20%
Adj. Flow (vph)	11	0	11	20	0	11	2	244	8	4	285	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	31	0	0	254	0	0	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)		0.0			0.0			3.5			3.5	
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	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Sign Control		Stop			Stop			Free			Free	

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 32.7%		ICU Level of Service A
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	11	20	0	11	2	244	8	4	285	6
Future Volume (Veh/h)	11	0	11	20	0	11	2	244	8	4	285	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	11	0	11	20	0	11	2	244	8	4	285	6
Pedestrians		13			2			2			2	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											346	
pX, platoon unblocked												
vC, conflicting volume	574	567	303	563	566	252	304			254		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	574	567	303	563	566	252	304			254		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	98	95	100	99	100			100		
cM capacity (veh/h)	416	429	732	411	429	789	1255			1321		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	31	254	295
Volume Left	11	20	2	4
Volume Right	11	11	8	6
cSH	531	495	1255	1321
Volume to Capacity	0.04	0.06	0.00	0.00
Queue Length 95th (m)	1.0	1.6	0.0	0.1
Control Delay (s)	12.1	12.8	0.1	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	12.1	12.8	0.1	0.1
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	45	191	176	301	302	42
Future Volume (vph)	45	191	176	301	302	42
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.891				0.984	
Flt Protected	0.991			0.982		
Satd. Flow (prot)	1505	0	0	1585	1578	0
Flt Permitted	0.991			0.982		
Satd. Flow (perm)	1505	0	0	1585	1578	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	271.6			177.0	188.9	
Travel Time (s)	19.6			12.7	13.6	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%
Adj. Flow (vph)	45	191	176	301	302	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	236	0	0	477	344	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 76.1%		ICU Level of Service D
Analysis Period (min) 15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	191	176	301	302	42
Future Volume (Veh/h)	45	191	176	301	302	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	45	191	176	301	302	42
Pedestrians	1					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	977	324	345			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	977	324	345			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	73	85			
cM capacity (veh/h)	239	714	1207			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	236	477	344
Volume Left	45	176	0
Volume Right	191	0	42
cSH	518	1207	1700
Volume to Capacity	0.46	0.15	0.20
Queue Length 95th (m)	18.8	4.1	0.0
Control Delay (s)	17.6	4.1	0.0
Lane LOS	C	A	
Approach Delay (s)	17.6	4.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	49	31	459	461	0
Future Volume (vph)	2	49	31	459	461	0
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.870					
Flt Protected	0.998			0.997		
Satd. Flow (prot)	1515	0	0	1612	1616	0
Flt Permitted	0.998			0.997		
Satd. Flow (perm)	1515	0	0	1612	1616	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.8			393.8	62.6	
Travel Time (s)	3.0			28.4	4.5	
Confl. Peds. (#/hr)	1		6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	2	49	31	459	461	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	0	0	490	461	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	49	31	459	461	0
Future Volume (Veh/h)	2	49	31	459	461	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	49	31	459	461	0
Pedestrians	6				1	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				394		
pX, platoon unblocked						
vC, conflicting volume	989	467	467			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	989	467	467			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	92	97			
cM capacity (veh/h)	267	597	1100			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	51	490	461
Volume Left	2	31	0
Volume Right	49	0	0
cSH	569	1100	1700
Volume to Capacity	0.09	0.03	0.27
Queue Length 95th (m)	2.4	0.7	0.0
Control Delay (s)	11.9	0.8	0.0
Lane LOS	B	A	
Approach Delay (s)	11.9	0.8	0.0
Approach LOS	B		

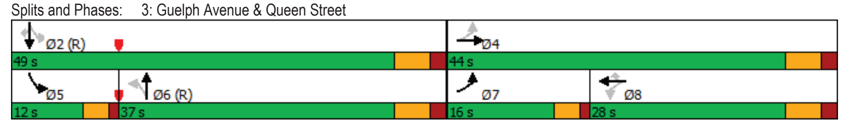
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	285	37	24	276	108	49	228	0	109	287	190
Future Volume (vph)	200	285	37	24	276	108	49	228	0	109	287	190
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Storage Length (m)	15.0		0.0	0.0		10.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	20.0			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
Ped Bike Factor	0.98	0.99			1.00	0.95		1.00			1.00	0.97
Frt		0.983				0.850						0.850
Flt Protected	0.950				0.996			0.991			0.986	
Satd. Flow (prot)	1651	1580	0	0	1604	1401	0	1617	0	0	1586	1428
Flt Permitted	0.315				0.953			0.876			0.800	
Satd. Flow (perm)	539	1580	0	0	1532	1329	0	1428	0	0	1284	1391
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												103
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.7			122.7			131.1			393.8	
Travel Time (s)		14.1			8.8			9.4			28.4	
Confl. Peds. (#/hr)	15		16	16		15	4		8	8		4
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 (%)	1%	0%	8%	5%	1%	5%	0%	0%	0%	0%	2%	3%
Adj. Flow (vph)	200	285	37	24	276	108	49	228	0	109	287	190
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	322	0	0	300	108	0	277	0	0	396	190
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)		3.5			3.5			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	1.11	1.21	1.01	1.01	1.21	1.13	1.01	1.21	1.01	1.01	1.21	1.13
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8		8	6			2		2
Minimum Split (s)	11.0	36.0		28.0	28.0	28.0	37.0	37.0		9.5	37.0	37.0
Total Split (s)	16.0	44.0		28.0	28.0	28.0	37.0	37.0		12.0	49.0	49.0
Total Split (%)	17.2%	47.3%		30.1%	30.1%	30.1%	39.8%	39.8%		12.9%	52.7%	52.7%
Maximum Green (s)	12.0	38.0		22.0	22.0	22.0	31.0	31.0		8.0	43.0	43.0
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0		-2.0			-2.0	-2.0
Total Lost Time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?												
Walk Time (s)		10.0		10.0	10.0	10.0	22.0	22.0			22.0	22.0
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	9.0	9.0			9.0	9.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	42.0	40.0			24.0	24.0		33.0			45.0	45.0
Actuated g/C Ratio	0.45	0.43			0.26	0.26		0.35			0.48	0.48
v/c Ratio	0.49	0.47			0.76	0.32		0.55			0.61	0.26
Control Delay	20.4	21.9			46.0	31.0		29.0			22.0	7.6
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	20.4	21.9			46.0	31.0		29.0			22.0	7.6
LOS	C	C			D	C		C			C	A
Approach Delay		21.3			42.0			29.0			17.3	
Approach LOS		C			D			C			B	

Intersection Summary	
Area Type: Other	
Cycle Length: 93	
Actuated Cycle Length: 93	
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 25.9	Intersection LOS: C
Intersection Capacity Utilization 103.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Guelph Avenue & Queen Street



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	200	322	300	108	277	396	190
v/c Ratio	0.49	0.47	0.76	0.32	0.55	0.61	0.26
Control Delay	20.4	21.9	46.0	31.0	29.0	22.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	21.9	46.0	31.0	29.0	22.0	7.6
Queue Length 50th (m)	22.8	42.3	52.3	16.5	41.3	49.3	8.7
Queue Length 95th (m)	38.3	66.8	#91.6	31.6	67.2	76.5	21.5
Internal Link Dist (m)		171.7	98.7		107.1	369.8	
Turn Bay Length (m)	15.0			10.0			15.0
Base Capacity (vph)	410	679	395	342	506	647	726
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	0.49	0.47	0.76	0.32	0.55	0.61	0.26

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	285	37	24	276	108	49	228	0	109	287	190
Future Volume (vph)	200	285	37	24	276	108	49	228	0	109	287	190
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Total Lost time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99			1.00	0.95		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.98			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.99	1.00
Satd. Flow (prot)	1644	1579			1601	1329		1616			1584	1391
Flt Permitted	0.32	1.00			0.95	1.00		0.88			0.80	1.00
Satd. Flow (perm)	545	1579			1532	1329		1429			1284	1391
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	285	37	24	276	108	49	228	0	109	287	190
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	53
Lane Group Flow (vph)	200	322	0	0	300	108	0	277	0	0	396	137
Confl. Peds. (#/hr)	15		16	16		15	4		8	8		4
Heavy Vehicles (%)	1%	0%	8%	5%	1%	5%	0%	0%	0%	0%	2%	3%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8		8	6			2		2
Actuated Green, G (s)	38.0	38.0			22.0	22.0		31.0			43.0	43.0
Effective Green, g (s)	40.0	40.0			24.0	24.0		33.0			45.0	45.0
Actuated g/C Ratio	0.43	0.43			0.26	0.26		0.35			0.48	0.48
Clearance Time (s)	4.0	6.0			6.0	6.0		6.0			6.0	6.0
Lane Grp Cap (vph)	399	679			395	342		507			653	673
v/s Ratio Prot	c0.08	0.20									c0.07	
v/s Ratio Perm	0.14				c0.20	0.08		c0.19			0.23	0.10
v/c Ratio	0.50	0.47			0.76	0.32		0.55			0.61	0.20
Uniform Delay, d1	18.1	19.0			31.8	27.9		24.0			17.5	13.7
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.4	2.4			12.9	2.4		4.2			4.2	0.7
Delay (s)	22.6	21.3			44.7	30.3		28.2			21.7	14.4
Level of Service	C	C			D	C		C			C	B
Approach Delay (s)		21.8			40.9			28.2			19.3	
Approach LOS		C			D			C			B	

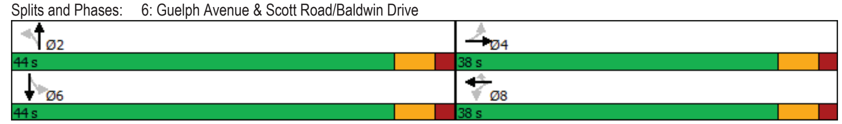
Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	103.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	24	40	76	8	26	46	168	130	17	216	23
Future Volume (vph)	17	24	40	76	8	26	46	168	130	17	216	23
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Storage Length (m)	0.0		0.0	0.0		35.0	30.0		0.0	21.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			60.0			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
Ped Bike Factor		0.96			0.99	0.86	0.99	0.98		0.98	1.00	
Frt		0.933				0.850		0.935			0.986	
Flt Protected		0.990			0.957		0.950			0.950		
Satd. Flow (prot)	0	1392	0	0	1520	1414	1668	1493	0	1668	1588	0
Flt Permitted		0.920			0.782		0.610			0.578		
Satd. Flow (perm)	0	1264	0	0	1229	1216	1055	1493	0	996	1588	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40				40		66			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		267.5			129.0			346.4			206.5	
Travel Time (s)		19.3			9.3			24.9			14.9	
Confl. Peds. (#/hr)	72		8	8		72	20		27	27		20
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%	0%	3%	0%	4%	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	17	24	40	76	8	26	46	168	130	17	216	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	84	26	46	298	0	17	239	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			3.5			3.5	
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											Yes	
Headway Factor	1.01	1.31	1.01	1.01	1.21	1.13	1.11	1.21	1.01	1.11	1.21	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		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	
Detector 1 Position(m)	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	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	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	38.0	38.0		38.0	38.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	44.0	44.0		44.0	44.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	44.0	44.0		44.0	44.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%	46.3%	53.7%	53.7%		53.7%	53.7%	
Maximum Green (s)	32.0	32.0		32.0	32.0	32.0	38.0	38.0		38.0	38.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag												
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	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	18.0	18.0		18.0	18.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		12.1			12.1	12.1	44.0	44.0		44.0	44.0	
Actuated g/C Ratio		0.20			0.20	0.20	0.73	0.73		0.73	0.73	
v/c Ratio		0.28			0.34	0.09	0.06	0.27		0.02	0.21	
Control Delay		14.7			24.6	5.8	4.4	4.2		4.3	4.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		14.7			24.6	5.8	4.4	4.2		4.3	4.6	
LOS		B			C	A	A	A		A	A	
Approach Delay		14.7			20.1			4.2			4.5	
Approach LOS		B			C			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 82	
Actuated Cycle Length: 60.4	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.34	
Intersection Signal Delay: 7.6	Intersection LOS: A
Intersection Capacity Utilization 70.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Guelph Avenue & Scott Road/Baldwin Drive



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	84	26	46	298	17	239
v/c Ratio	0.28	0.34	0.09	0.06	0.27	0.02	0.21
Control Delay	14.7	24.6	5.8	4.4	4.2	4.3	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	24.6	5.8	4.4	4.2	4.3	4.6
Queue Length 50th (m)	4.0	8.4	0.0	1.5	8.2	0.5	8.1
Queue Length 95th (m)	13.9	19.3	3.9	5.3	21.6	2.6	19.9
Internal Link Dist (m)	243.5	105.0			322.4		182.5
Turn Bay Length (m)			35.0	30.0		21.0	
Base Capacity (vph)	730	693	703	768	1104	724	1158
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	0.11	0.12	0.04	0.06	0.27	0.02	0.21

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	24	40	76	8	26	46	168	130	17	216	23
Future Volume (vph)	17	24	40	76	8	26	46	168	130	17	216	23
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00	0.89	1.00	0.98		1.00	1.00	
Flpb, ped/bikes		0.98			0.99	1.00	0.99	1.00		0.99	1.00	
Frt		0.93			1.00	0.85	1.00	0.93		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1371			1507	1258	1648	1497		1643	1588	
Flt Permitted		0.92			0.78	1.00	0.61	1.00		0.58	1.00	
Satd. Flow (perm)		1274			1233	1258	1058	1497		1000	1588	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	17	24	40	76	8	26	46	168	130	17	216	23
RTOR Reduction (vph)	0	33	0	0	0	22	0	20	0	0	3	0
Lane Group Flow (vph)	0	48	0	0	84	4	46	278	0	17	236	0
Confl. Peds. (#/hr)	72		8	8		72	20		27	27		20
Heavy Vehicles (%)	0%	0%	0%	3%	0%	4%	0%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.5			8.5	8.5	41.1	41.1		41.1	41.1	
Effective Green, g (s)		10.5			10.5	10.5	43.1	43.1		43.1	43.1	
Actuated g/C Ratio		0.17			0.17	0.17	0.70	0.70		0.70	0.70	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		217			210	214	740	1047		699	1111	
v/s Ratio Prot								c0.19			0.15	
v/s Ratio Perm		0.04			c0.07	0.00	0.04			0.02		
v/c Ratio		0.22			0.40	0.02	0.06	0.27		0.02	0.21	
Uniform Delay, d1		22.0			22.7	21.3	2.9	3.4		2.8	3.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			1.3	0.0	0.2	0.6		0.1	0.4	
Delay (s)		22.5			24.0	21.3	3.1	4.0		2.9	3.7	
Level of Service		C			C	C	A	A		A	A	
Approach Delay (s)		22.5			23.4			3.9			3.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	5	3	3	11	0	7	5	296	19	11	362	6
Future Volume (vph)	5	3	3	11	0	7	5	296	19	11	362	6
Ideal Flow (vphpl)	1900	1550	1900	1900	1550	1900	1900	1550	1900	1900	1550	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.963			0.947			0.992			0.998	
Flt Protected		0.978			0.970			0.999			0.999	
Satd. Flow (prot)	0	1444	0	0	1408	0	0	1505	0	0	1500	0
Flt Permitted		0.978			0.970			0.999			0.999	
Satd. Flow (perm)	0	1444	0	0	1408	0	0	1505	0	0	1500	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		71.8			86.6			188.9			346.4	
Travel Time (s)		5.2			6.2			13.6			24.9	
Confl. Peds. (#/hr)	4					4	17					17
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%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Adj. Flow (vph)	5	3	3	11	0	7	5	296	19	11	362	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	18	0	0	320	0	0	379	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			3.5			3.5	
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	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 42.6% ICU Level of Service A

Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	5	3	3	11	0	7	5	296	19	11	362	6
Future Volume (Veh/h)	5	3	3	11	0	7	5	296	19	11	362	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	5	3	3	11	0	7	5	296	19	11	362	6
Pedestrians		17									4	
Lane Width (m)		3.5									3.5	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		1									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											346	
pX, platoon unblocked												
vC, conflicting volume	730	729	382	707	722	310	385			315		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	730	729	382	707	722	310	385			315		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	100	97	100	99	100			99		
cM capacity (veh/h)	324	343	660	342	346	733	1168			1257		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	18	320	379
Volume Left	5	11	5	11
Volume Right	3	7	19	6
cSH	383	431	1168	1257
Volume to Capacity	0.03	0.04	0.00	0.01
Queue Length 95th (m)	0.7	1.0	0.1	0.2
Control Delay (s)	14.7	13.7	0.2	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	14.7	13.7	0.2	0.3
Approach LOS	B	B		

Intersection Summary

Average Delay	0.8		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix F

2031 Total Traffic Operations Outputs

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	117	107	210	281	62
Future Volume (vph)	46	117	107	210	281	62
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.903				0.976	
Flt Protected	0.986			0.983		
Satd. Flow (prot)	1490	0	0	1537	1543	0
Flt Permitted	0.986			0.983		
Satd. Flow (perm)	1490	0	0	1537	1543	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	271.6			177.0	188.9	
Travel Time (s)	19.6			12.7	13.6	
Confl. Peds. (#/hr)		4	6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	6%	7%	3%	3%	4%
Adj. Flow (vph)	46	117	107	210	281	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	163	0	0	317	343	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	117	107	210	281	62
Future Volume (Veh/h)	46	117	107	210	281	62
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	46	117	107	210	281	62
Pedestrians	6			4		
Lane Width (m)	3.5			3.5		
Walking Speed (m/s)	1.2			1.2		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	742	322	349			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	742	322	349			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	87	83	91			
cM capacity (veh/h)	349	704	1177			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	163	317	343
Volume Left	46	107	0
Volume Right	117	0	62
cSH	547	1177	1700
Volume to Capacity	0.30	0.09	0.20
Queue Length 95th (m)	9.9	2.4	0.0
Control Delay (s)	14.3	3.4	0.0
Lane LOS	B	A	
Approach Delay (s)	14.3	3.4	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	59	46	257	391	7
Future Volume (vph)	3	59	46	257	391	7
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.872				0.998	
Flt Protected	0.998			0.992		
Satd. Flow (prot)	1424	0	0	1538	1577	0
Flt Permitted	0.998			0.992		
Satd. Flow (perm)	1424	0	0	1538	1577	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.8			393.8	62.6	
Travel Time (s)	3.0			28.4	4.5	
Confl. Peds. (#/hr)	3		6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	7%	12%	4%	3%	17%
Adj. Flow (vph)	3	59	46	257	391	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	0	0	303	398	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	59	46	257	391	7
Future Volume (Veh/h)	3	59	46	257	391	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	59	46	257	391	7
Pedestrians	6				3	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				394		
pX, platoon unblocked						
vC, conflicting volume	752	400	404			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	752	400	404			
tC, single (s)	6.4	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.3			
p0 queue free %	99	91	96			
cM capacity (veh/h)	362	636	1097			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	62	303	398
Volume Left	3	46	0
Volume Right	59	0	7
cSH	613	1097	1700
Volume to Capacity	0.10	0.04	0.23
Queue Length 95th (m)	2.7	1.0	0.0
Control Delay (s)	11.5	1.6	0.0
Lane LOS	B	A	
Approach Delay (s)	11.5	1.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	248	20	5	222	119	33	145	0	77	206	157
Future Volume (vph)	130	248	20	5	222	119	33	145	0	77	206	157
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Storage Length (m)	15.0		0.0	0.0		10.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	20.0			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
Ped Bike Factor	1.00	1.00			1.00	0.97		1.00			1.00	0.98
Frt		0.989				0.850						0.850
Flt Protected	0.950				0.999			0.991			0.987	
Satd. Flow (prot)	1573	1474	0	0	1630	1414	0	1543	0	0	1557	1414
Flt Permitted	0.514				0.993			0.871			0.856	
Satd. Flow (perm)	848	1474	0	0	1620	1378	0	1355	0	0	1348	1379
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												116
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.7			122.7			131.1			393.8	
Travel Time (s)		14.1			8.8			9.4			28.4	
Confl. Peds. (#/hr)	4		4	4		4	2		4	4		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 (%)	6%	10%	0%	0%	0%	4%	4%	5%	0%	2%	4%	4%
Adj. Flow (vph)	130	248	20	5	222	119	33	145	0	77	206	157
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	268	0	0	227	119	0	178	0	0	283	157
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)		3.5			3.5			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	1.11	1.21	1.01	1.01	1.21	1.13	1.01	1.21	1.01	1.01	1.21	1.13
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Minimum Split (s)	11.0	36.0		36.0	36.0	36.0	23.0	23.0		25.0	25.0	25.0
Total Split (s)	16.0	52.0		36.0	36.0	36.0	28.0	28.0		28.0	28.0	28.0
Total Split (%)	18.8%	61.2%		42.4%	42.4%	42.4%	32.9%	32.9%		32.9%	32.9%	32.9%
Maximum Green (s)	12.0	46.0		30.0	30.0	30.0	22.0	22.0		22.0	22.0	22.0
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0		-2.0			-2.0	-2.0
Total Lost Time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag		Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		18.0		18.0	18.0	18.0	8.0	8.0		8.0	8.0	8.0
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	9.0	9.0		9.0	9.0	9.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0		0	0	0

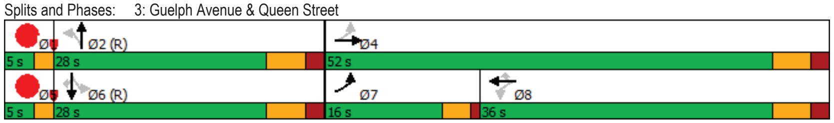
Lane Group	Ø1	Ø5
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Turn Type		
Protected Phases	1	5
Permitted Phases		
Minimum Split (s)	9.5	9.5
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	50.0	48.0			32.0	32.0		24.0			24.0	24.0
Actuated g/C Ratio	0.59	0.56			0.38	0.38		0.28			0.28	0.28
v/c Ratio	0.21	0.32			0.37	0.23		0.47			0.74	0.33
Control Delay	8.8	11.2			21.5	19.6		30.0			41.7	10.2
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	8.8	11.2			21.5	19.6		30.0			41.7	10.2
LOS	A	B			C	B		C			D	B
Approach Delay		10.4			20.8			30.0			30.5	
Approach LOS		B			C			C			C	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Pretimed
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 94.9% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Guelph Avenue & Queen Street



Lane Group	Ø1	Ø5
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	130	268	227	119	178	283	157
v/c Ratio	0.21	0.32	0.37	0.23	0.47	0.74	0.33
Control Delay	8.8	11.2	21.5	19.6	30.0	41.7	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	11.2	21.5	19.6	30.0	41.7	10.2
Queue Length 50th (m)	9.2	22.6	27.6	13.6	25.1	43.8	5.2
Queue Length 95th (m)	17.1	37.7	46.5	26.2	44.9	#81.7	20.1
Internal Link Dist (m)		171.7	98.7		107.1	369.8	
Turn Bay Length (m)	15.0			10.0			15.0
Base Capacity (vph)	618	832	609	518	382	380	472
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	0.21	0.32	0.37	0.23	0.47	0.74	0.33

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	248	20	5	222	119	33	145	0	77	206	157
Future Volume (vph)	130	248	20	5	222	119	33	145	0	77	206	157
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Total Lost time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.99			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.99	1.00
Satd. Flow (prot)	1570	1474			1630	1378		1542			1553	1379
Flt Permitted	0.51	1.00			0.99	1.00		0.87			0.86	1.00
Satd. Flow (perm)	850	1474			1621	1378		1355			1348	1379
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	130	248	20	5	222	119	33	145	0	77	206	157
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	83
Lane Group Flow (vph)	130	268	0	0	227	119	0	178	0	0	283	74
Confl. Peds. (#/hr)	4		4	4		4	2		4	4		2
Heavy Vehicles (%)	6%	10%	0%	0%	0%	4%	4%	5%	0%	2%	4%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	46.0	46.0			30.0	30.0		22.0			22.0	22.0
Effective Green, g (s)	48.0	48.0			32.0	32.0		24.0			24.0	24.0
Actuated g/C Ratio	0.56	0.56			0.38	0.38		0.28			0.28	0.28
Clearance Time (s)	4.0	6.0			6.0	6.0		6.0			6.0	6.0
Lane Grp Cap (vph)	598	832			610	518		382			380	389
v/s Ratio Prot	0.04	c0.18										
v/s Ratio Perm	0.09				c0.14	0.09		0.13			c0.21	0.05
v/c Ratio	0.22	0.32			0.37	0.23		0.47			0.74	0.19
Uniform Delay, d1	9.0	9.8			19.2	18.1		25.2			27.7	23.1
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	0.8	1.0			1.7	1.0		4.0			12.5	1.1
Delay (s)	9.8	10.9			21.0	19.1		29.2			40.2	24.2
Level of Service	A	B			C	B		C			D	C
Approach Delay (s)		10.5			20.3			29.2			34.5	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	12	7	254	385	12
Future Volume (vph)	21	12	7	254	385	12
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.951				0.996	
Flt Protected	0.969			0.999		
Satd. Flow (prot)	1577	0	0	1598	1593	0
Flt Permitted	0.969			0.999		
Satd. Flow (perm)	1577	0	0	1598	1593	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	28.0			62.6	177.0	
Travel Time (s)	2.0			4.5	12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	12	7	254	385	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	261	397	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.2%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	12	7	254	385	12
Future Volume (Veh/h)	21	12	7	254	385	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	12	7	254	385	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	659	391	397			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	659	391	397			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	99			
cM capacity (veh/h)	426	658	1162			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	33	261	397
Volume Left	21	7	0
Volume Right	12	0	12
cSH	489	1162	1700
Volume to Capacity	0.07	0.01	0.23
Queue Length 95th (m)	1.7	0.1	0.0
Control Delay (s)	12.9	0.3	0.0
Lane LOS	B	A	
Approach Delay (s)	12.9	0.3	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	51	47	6	12	2
Future Volume (vph)	1	51	47	6	12	2
Ideal Flow (vphpl)	1900	1650	1650	1900	1765	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.985		0.981	
Flt Protected		0.999			0.959	
Satd. Flow (prot)	0	1598	1576	0	1610	0
Flt Permitted		0.999			0.959	
Satd. Flow (perm)	0	1598	1576	0	1610	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		351.6	41.8		52.5	
Travel Time (s)		25.3	3.0		3.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	51	47	6	12	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	52	53	0	14	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		3.5	
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	1.01	1.21	1.21	1.01	1.12	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 14.0% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	51	47	6	12	2
Future Volume (Veh/h)	1	51	47	6	12	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	51	47	6	12	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	53				103	50
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	53				103	50
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1553				895	1018

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	52	53	14
Volume Left	1	0	12
Volume Right	0	6	2
cSH	1553	1700	910
Volume to Capacity	0.00	0.03	0.02
Queue Length 95th (m)	0.0	0.0	0.4
Control Delay (s)	0.1	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	14.0%	ICU Level of Service	A
Analysis Period (min)	15		

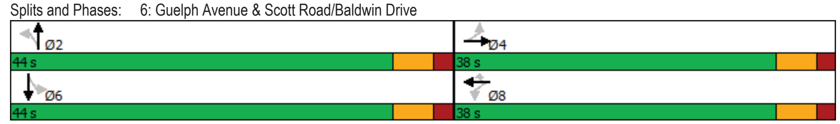
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	34	53	80	64	34	31	161	76	16	139	26
Future Volume (vph)	21	34	53	80	64	34	31	161	76	16	139	26
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Storage Length (m)	0.0		0.0	0.0		35.0	30.0		0.0	21.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			60.0			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
Ped Bike Factor		0.95			0.99	0.76	0.98	0.98		0.97	0.99	
Frt		0.934				0.850		0.952			0.976	
Flt Protected		0.990			0.973		0.950			0.950		
Satd. Flow (prot)	0	1379	0	0	1528	1337	1603	1444	0	1558	1522	0
Flt Permitted		0.918			0.795		0.653			0.611		
Satd. Flow (perm)	0	1232	0	0	1239	1011	1085	1444	0	971	1522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53				40		40			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		267.5			129.0			346.4			206.5	
Travel Time (s)		19.3			9.3			24.9			14.9	
Confl. Peds. (#/hr)	134		10	10		134	18		41	41		18
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%	0%	3%	5%	10%	4%	7%	2%	7%	4%	4%
Adj. Flow (vph)	21	34	53	80	64	34	31	161	76	16	139	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	0	0	144	34	31	237	0	16	165	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			3.5			3.5	
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											Yes	
Headway Factor	1.01	1.31	1.01	1.01	1.21	1.13	1.11	1.21	1.01	1.11	1.21	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		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	
Detector 1 Position(m)	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	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	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	38.0	38.0		38.0	38.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	44.0	44.0		44.0	44.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	44.0	44.0		44.0	44.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%	46.3%	53.7%	53.7%		53.7%	53.7%	
Maximum Green (s)	32.0	32.0		32.0	32.0	32.0	38.0	38.0		38.0	38.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag												
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	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	18.0	18.0		18.0	18.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		14.5			14.5	14.5	44.2	44.2		44.2	44.2	
Actuated g/C Ratio		0.23			0.23	0.23	0.70	0.70		0.70	0.70	
v/c Ratio		0.33			0.50	0.13	0.04	0.23		0.02	0.15	
Control Delay		14.2			27.3	7.1	5.5	5.2		5.5	5.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		14.2			27.3	7.1	5.5	5.2		5.5	5.2	
LOS		B			C	A	A	A		A	A	
Approach Delay		14.3			23.4			5.3			5.2	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 62.9
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 11.0 Intersection LOS: B
Intersection Capacity Utilization 73.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6: Guelph Avenue & Scott Road/Baldwin Drive



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	144	34	31	237	16	165
v/c Ratio	0.33	0.50	0.13	0.04	0.23	0.02	0.15
Control Delay	14.2	27.3	7.1	5.5	5.2	5.5	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	27.3	7.1	5.5	5.2	5.5	5.2
Queue Length 50th (m)	5.4	15.2	0.0	1.2	8.3	0.6	6.0
Queue Length 95th (m)	16.7	30.4	5.3	4.7	22.1	3.1	16.3
Internal Link Dist (m)	243.5	105.0			322.4		182.5
Turn Bay Length (m)			35.0	30.0		21.0	
Base Capacity (vph)	692	672	566	762	1026	682	1073
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	0.16	0.21	0.06	0.04	0.23	0.02	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	34	53	80	64	34	31	161	76	16	139	26
Future Volume (vph)	21	34	53	80	64	34	31	161	76	16	139	26
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			1.00	0.80	1.00	0.98		1.00	0.99	
Flpb, ped/bikes		0.97			0.99	1.00	0.99	1.00		0.98	1.00	
Frt		0.93			1.00	0.85	1.00	0.95		1.00	0.98	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1342			1519	1076	1584	1448		1520	1523	
Flt Permitted		0.92			0.79	1.00	0.65	1.00		0.61	1.00	
Satd. Flow (perm)		1244			1240	1076	1088	1448		978	1523	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	34	53	80	64	34	31	161	76	16	139	26
RTOR Reduction (vph)	0	42	0	0	0	27	0	13	0	0	5	0
Lane Group Flow (vph)	0	66	0	0	144	7	31	224	0	16	160	0
Confl. Peds. (#/hr)	134		10	10		134	18		41	41		18
Heavy Vehicles (%)	0%	3%	0%	3%	5%	10%	4%	7%	2%	7%	4%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		10.8			10.8	10.8	41.3	41.3		41.3	41.3	
Effective Green, g (s)		12.8			12.8	12.8	43.3	43.3		43.3	43.3	
Actuated g/C Ratio		0.20			0.20	0.20	0.68	0.68		0.68	0.68	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		248			247	214	734	978		660	1028	
v/s Ratio Prot								c0.15			0.10	
v/s Ratio Perm		0.05			c0.12	0.01	0.03			0.02		
v/c Ratio		0.26			0.58	0.03	0.04	0.23		0.02	0.16	
Uniform Delay, d1		21.7			23.2	20.7	3.5	4.0		3.4	3.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			3.5	0.1	0.1	0.5		0.1	0.3	
Delay (s)		22.2			26.7	20.7	3.6	4.5		3.5	4.1	
Level of Service		C			C	C	A	A		A	A	
Approach Delay (s)		22.2			25.6			4.4			4.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	11	20	0	11	2	258	8	4	293	6
Future Volume (vph)	11	0	11	20	0	11	2	258	8	4	293	6
Ideal Flow (vphpl)	1900	1550	1900	1900	1550	1900	1900	1550	1900	1900	1550	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.932			0.952			0.996			0.997	
Flt Protected		0.976			0.969						0.999	
Satd. Flow (prot)	0	1394	0	0	1320	0	0	1473	0	0	1478	0
Flt Permitted		0.976			0.969						0.999	
Satd. Flow (perm)	0	1394	0	0	1320	0	0	1473	0	0	1478	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		71.8			86.6			188.9			346.4	
Travel Time (s)		5.2			6.2			13.6			24.9	
Confl. Peds. (#/hr)	2		2	2		2	13		2	2		13
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%	0%	11%	0%	0%	0%	3%	25%	0%	3%	20%
Adj. Flow (vph)	11	0	11	20	0	11	2	258	8	4	293	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	31	0	0	268	0	0	303	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			3.5			3.5	
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	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01
Turning Speed (k/h)	100		100	100		100	100		100	100		100
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 33.2% ICU Level of Service A

Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	11	20	0	11	2	258	8	4	293	6
Future Volume (Veh/h)	11	0	11	20	0	11	2	258	8	4	293	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	11	0	11	20	0	11	2	258	8	4	293	6
Pedestrians		13			2			2			2	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											346	
pX, platoon unblocked												
vC, conflicting volume	596	589	311	585	588	266	312			268		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	596	589	311	585	588	266	312			268		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	98	95	100	99	100			100		
cM capacity (veh/h)	402	416	725	397	417	775	1247			1305		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	31	268	303
Volume Left	11	20	2	4
Volume Right	11	11	8	6
cSH	517	480	1247	1305
Volume to Capacity	0.04	0.06	0.00	0.00
Queue Length 95th (m)	1.1	1.7	0.0	0.1
Control Delay (s)	12.3	13.0	0.1	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	12.3	13.0	0.1	0.1
Approach LOS	B	B		

Intersection Summary

Average Delay	1.2		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	45	199	183	314	318	42
Future Volume (vph)	45	199	183	314	318	42
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.890				0.984	
Flt Protected	0.991			0.982		
Satd. Flow (prot)	1503	0	0	1585	1578	0
Flt Permitted	0.991			0.982		
Satd. Flow (perm)	1503	0	0	1585	1578	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	271.6			177.0	188.9	
Travel Time (s)	19.6			12.7	13.6	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	3%	3%	0%	2%	0%
Adj. Flow (vph)	45	199	183	314	318	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	244	0	0	497	360	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	199	183	314	318	42
Future Volume (Veh/h)	45	199	183	314	318	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	45	199	183	314	318	42
Pedestrians	1					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1020	340	361			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1020	340	361			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	72	85			
cM capacity (veh/h)	224	700	1191			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	244	497	360
Volume Left	45	183	0
Volume Right	199	0	42
cSH	502	1191	1700
Volume to Capacity	0.49	0.15	0.21
Queue Length 95th (m)	21.0	4.3	0.0
Control Delay (s)	18.7	4.2	0.0
Lane LOS	C	A	
Approach Delay (s)	18.7	4.2	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	60	44	473	473	0
Future Volume (vph)	2	60	44	473	473	0
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.869					
Flt Protected	0.998			0.996		
Satd. Flow (prot)	1514	0	0	1610	1616	0
Flt Permitted	0.998			0.996		
Satd. Flow (perm)	1514	0	0	1610	1616	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	41.8			393.8	62.6	
Travel Time (s)	3.0			28.4	4.5	
Confl. Peds. (#/hr)	1		6			6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	2	60	44	473	473	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	0	0	517	473	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary		
Area Type:	Other	
Control Type: Unsignalized		
Intersection Capacity Utilization 74.2%		ICU Level of Service D
Analysis Period (min) 15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	60	44	473	473	0
Future Volume (Veh/h)	2	60	44	473	473	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	60	44	473	473	0
Pedestrians	6				1	
Lane Width (m)	3.5				3.5	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				394		
pX, platoon unblocked						
vC, conflicting volume	1041	479	479			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1041	479	479			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	90	96			
cM capacity (veh/h)	245	588	1089			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	62	517	473
Volume Left	2	44	0
Volume Right	60	0	0
cSH	562	1089	1700
Volume to Capacity	0.11	0.04	0.28
Queue Length 95th (m)	3.0	1.0	0.0
Control Delay (s)	12.2	1.2	0.0
Lane LOS	B	A	
Approach Delay (s)	12.2	1.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

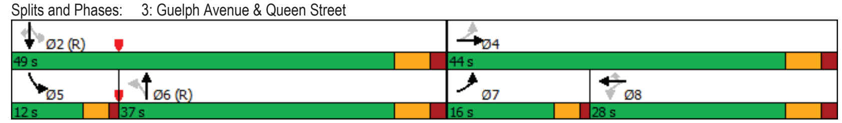
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	285	37	24	276	113	49	239	0	114	296	199
Future Volume (vph)	211	285	37	24	276	113	49	239	0	114	296	199
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Storage Length (m)	15.0		0.0	0.0		10.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	20.0			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
Ped Bike Factor	0.98	0.99			1.00	0.95		1.00			1.00	0.97
Frt		0.983				0.850						0.850
Flt Protected	0.950				0.996			0.992			0.986	
Satd. Flow (prot)	1651	1580	0	0	1604	1401	0	1619	0	0	1586	1428
Flt Permitted	0.315				0.953			0.878			0.783	
Satd. Flow (perm)	539	1580	0	0	1532	1329	0	1432	0	0	1257	1391
Right Turn on Red			No			No			No			Yes
Satd. Flow (RTOR)												105
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		195.7			122.7			131.1			393.8	
Travel Time (s)		14.1			8.8			9.4			28.4	
Confl. Peds. (#/hr)	15		16	16		15	4		8	8		4
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 (%)	1%	0%	8%	5%	1%	5%	0%	0%	0%	0%	2%	3%
Adj. Flow (vph)	211	285	37	24	276	113	49	239	0	114	296	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	322	0	0	300	113	0	288	0	0	410	199
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)		3.5			3.5			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	1.11	1.21	1.01	1.01	1.21	1.13	1.01	1.21	1.01	1.01	1.21	1.13
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8		8	6			2		2
Minimum Split (s)	11.0	36.0		28.0	28.0	28.0	37.0	37.0		9.5	37.0	37.0
Total Split (s)	16.0	44.0		28.0	28.0	28.0	37.0	37.0		12.0	49.0	49.0
Total Split (%)	17.2%	47.3%		30.1%	30.1%	30.1%	39.8%	39.8%		12.9%	52.7%	52.7%
Maximum Green (s)	12.0	38.0		22.0	22.0	22.0	31.0	31.0		8.0	43.0	43.0
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0		-2.0			-2.0	-2.0
Total Lost Time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?												
Walk Time (s)		10.0		10.0	10.0	10.0	22.0	22.0			22.0	22.0
Flash Dont Walk (s)		12.0		12.0	12.0	12.0	9.0	9.0			9.0	9.0
Pedestrian Calls (#/hr)		0		0	0	0	0	0			0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)	42.0	40.0			24.0	24.0		33.0			45.0	45.0
Actuated g/C Ratio	0.45	0.43			0.26	0.26		0.35			0.48	0.48
v/c Ratio	0.51	0.47			0.76	0.33		0.57			0.64	0.27
Control Delay	21.0	21.9			46.0	31.3		29.5			23.0	7.8
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	21.0	21.9			46.0	31.3		29.5			23.0	7.8
LOS	C	C			D	C		C			C	A
Approach Delay		21.5			42.0			29.5			18.1	
Approach LOS		C			D			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 93
Actuated Cycle Length: 93
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 90
Control Type: Pretimed
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 26.2 Intersection LOS: C
Intersection Capacity Utilization 103.4% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 3: Guelph Avenue & Queen Street



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	211	322	300	113	288	410	199
v/c Ratio	0.51	0.47	0.76	0.33	0.57	0.64	0.27
Control Delay	21.0	21.9	46.0	31.3	29.5	23.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	21.9	46.0	31.3	29.5	23.0	7.8
Queue Length 50th (m)	24.2	42.3	52.3	17.3	43.3	51.6	9.4
Queue Length 95th (m)	40.4	66.8	#91.6	33.0	70.4	79.8	22.7
Internal Link Dist (m)		171.7	98.7		107.1	369.8	
Turn Bay Length (m)	15.0			10.0			15.0
Base Capacity (vph)	410	679	395	342	508	636	727
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	0.51	0.47	0.76	0.33	0.57	0.64	0.27

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	285	37	24	276	113	49	239	0	114	296	199
Future Volume (vph)	211	285	37	24	276	113	49	239	0	114	296	199
Ideal Flow (vphpl)	1775	1650	1900	1900	1650	1750	1900	1650	1900	1900	1650	1750
Total Lost time (s)	2.0	4.0			4.0	4.0		4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99			1.00	0.95		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	0.98			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.99	1.00
Satd. Flow (prot)	1644	1579			1601	1329		1617			1584	1391
Flt Permitted	0.32	1.00			0.95	1.00		0.88			0.78	1.00
Satd. Flow (perm)	545	1579			1532	1329		1431			1258	1391
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	211	285	37	24	276	113	49	239	0	114	296	199
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	54
Lane Group Flow (vph)	211	322	0	0	300	113	0	288	0	0	410	145
Confl. Peds. (#/hr)	15		16	16		15	4		8	8		4
Heavy Vehicles (%)	1%	0%	8%	5%	1%	5%	0%	0%	0%	0%	2%	3%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			6		5	2	
Permitted Phases	4			8		8	6			2		2
Actuated Green, G (s)	38.0	38.0			22.0	22.0		31.0			43.0	43.0
Effective Green, g (s)	40.0	40.0			24.0	24.0		33.0			45.0	45.0
Actuated g/C Ratio	0.43	0.43			0.26	0.26		0.35			0.48	0.48
Clearance Time (s)	4.0	6.0			6.0	6.0		6.0			6.0	6.0
Lane Grp Cap (vph)	399	679			395	342		507			643	673
v/s Ratio Prot	c0.08	0.20									c0.07	
v/s Ratio Perm	0.15				c0.20	0.09		c0.20			0.24	0.10
v/c Ratio	0.53	0.47			0.76	0.33		0.57			0.64	0.22
Uniform Delay, d1	18.3	19.0			31.8	28.0		24.2			17.9	13.8
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2	4.9	2.4			12.9	2.6		4.6			4.8	0.7
Delay (s)	23.2	21.3			44.7	30.6		28.8			22.7	14.6
Level of Service	C	C			D	C		C			C	B
Approach Delay (s)		22.1			40.8			28.8			20.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	103.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	12	14	461	461	24
Future Volume (vph)	20	12	14	461	461	24
Ideal Flow (vphpl)	1765	1900	1900	1650	1650	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.993	
Flt Protected	0.970			0.999		
Satd. Flow (prot)	1575	0	0	1598	1588	0
Flt Permitted	0.970			0.999		
Satd. Flow (perm)	1575	0	0	1598	1588	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	28.0			62.6	177.0	
Travel Time (s)	2.0			4.5	12.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	12	14	461	461	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	0	475	485	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
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	1.12	1.01	1.01	1.21	1.21	1.01
Turning Speed (k/h)	100	100	100			100
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	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	12	14	461	461	24
Future Volume (Veh/h)	20	12	14	461	461	24
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	20	12	14	461	461	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	962	473	485			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	962	473	485			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	98	99			
cM capacity (veh/h)	280	591	1078			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	32	475	485
Volume Left	20	14	0
Volume Right	12	0	24
cSH	349	1078	1700
Volume to Capacity	0.09	0.01	0.29
Queue Length 95th (m)	2.4	0.3	0.0
Control Delay (s)	16.4	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	16.4	0.4	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	52	31	13	11	2
Future Volume (vph)	3	52	31	13	11	2
Ideal Flow (vphpl)	1900	1650	1650	1900	1765	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.960		0.979	
Flt Protected		0.997			0.959	
Satd. Flow (prot)	0	1595	1536	0	1607	0
Flt Permitted		0.997			0.959	
Satd. Flow (perm)	0	1595	1536	0	1607	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		351.6	41.8		52.5	
Travel Time (s)		25.3	3.0		3.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	52	31	13	11	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	55	44	0	13	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		3.5	
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	1.01	1.21	1.21	1.01	1.12	1.01
Turning Speed (k/h)	100			100	100	100
Sign Control		Free	Free		Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 16.0% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	52	31	13	11	2
Future Volume (Veh/h)	3	52	31	13	11	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	52	31	13	11	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	44				96	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				96	38
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1564				902	1035

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	55	44	13
Volume Left	3	0	11
Volume Right	0	13	2
cSH	1564	1700	920
Volume to Capacity	0.00	0.03	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.4	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.4	0.0	9.0
Approach LOS			A

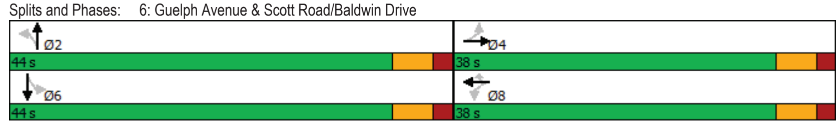
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	24	43	81	8	26	48	175	134	17	224	23
Future Volume (vph)	17	24	43	81	8	26	48	175	134	17	224	23
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Storage Length (m)	0.0		0.0	0.0		35.0	30.0		0.0	21.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			60.0			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
Ped Bike Factor		0.96			0.99	0.86	0.99	0.98		0.98	1.00	
Frt		0.931				0.850		0.935			0.986	
Flt Protected		0.990			0.956		0.950			0.950		
Satd. Flow (prot)	0	1389	0	0	1518	1414	1668	1493	0	1668	1588	0
Flt Permitted		0.922			0.773		0.606			0.572		
Satd. Flow (perm)	0	1265	0	0	1214	1216	1048	1493	0	986	1588	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43				40		66			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		267.5			129.0			346.4			206.5	
Travel Time (s)		19.3			9.3			24.9			14.9	
Confl. Peds. (#/hr)	72		8	8		72	20		27	27		20
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%	0%	3%	0%	4%	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	17	24	43	81	8	26	48	175	134	17	224	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	0	89	26	48	309	0	17	247	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			3.5			3.5	
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											Yes	
Headway Factor	1.01	1.31	1.01	1.01	1.21	1.13	1.11	1.21	1.01	1.11	1.21	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		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	
Detector 1 Position(m)	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	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	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	38.0	38.0		38.0	38.0	
Minimum Split (s)	30.0	30.0		30.0	30.0	30.0	44.0	44.0		44.0	44.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	44.0	44.0		44.0	44.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%	46.3%	53.7%	53.7%		53.7%	53.7%	
Maximum Green (s)	32.0	32.0		32.0	32.0	32.0	38.0	38.0		38.0	38.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag												
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	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	10.0	10.0		10.0	10.0	10.0	18.0	18.0		18.0	18.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0	14.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		12.4			12.4	12.4	43.9	43.9		43.9	43.9	
Actuated g/C Ratio		0.20			0.20	0.20	0.72	0.72		0.72	0.72	
v/c Ratio		0.29			0.36	0.09	0.06	0.28		0.02	0.21	
Control Delay		14.3			24.9	5.6	4.5	4.4		4.4	4.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		14.3			24.9	5.6	4.5	4.4		4.4	4.7	
LOS		B			C	A	A	A		A	A	
Approach Delay		14.3			20.5			4.4			4.7	
Approach LOS		B			C			A			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 82	
Actuated Cycle Length: 60.6	
Natural Cycle: 75	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.36	
Intersection Signal Delay: 7.8	Intersection LOS: A
Intersection Capacity Utilization 70.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Guelph Avenue & Scott Road/Baldwin Drive



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	84	89	26	48	309	17	247
v/c Ratio	0.29	0.36	0.09	0.06	0.28	0.02	0.21
Control Delay	14.3	24.9	5.6	4.5	4.4	4.4	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	24.9	5.6	4.5	4.4	4.4	4.7
Queue Length 50th (m)	4.0	9.0	0.0	1.6	9.0	0.5	8.7
Queue Length 95th (m)	14.0	20.4	3.9	5.6	23.3	2.7	21.1
Internal Link Dist (m)	243.5	105.0			322.4		182.5
Turn Bay Length (m)			35.0	30.0		21.0	
Base Capacity (vph)	729	681	700	759	1100	714	1153
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	0.12	0.13	0.04	0.06	0.28	0.02	0.21

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	24	43	81	8	26	48	175	134	17	224	23
Future Volume (vph)	17	24	43	81	8	26	48	175	134	17	224	23
Ideal Flow (vphpl)	1900	1550	1900	1900	1650	1750	1775	1650	1900	1775	1650	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			1.00	0.89	1.00	0.98		1.00	1.00	
Flpb, ped/bikes		0.98			0.99	1.00	0.99	1.00		0.99	1.00	
Frt		0.93			1.00	0.85	1.00	0.93		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1368			1507	1258	1648	1498		1644	1589	
Flt Permitted		0.92			0.77	1.00	0.61	1.00		0.57	1.00	
Satd. Flow (perm)		1274			1218	1258	1051	1498		990	1589	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	17	24	43	81	8	26	48	175	134	17	224	23
RTOR Reduction (vph)	0	36	0	0	0	21	0	20	0	0	3	0
Lane Group Flow (vph)	0	48	0	0	89	5	48	289	0	17	244	0
Confl. Peds. (#/hr)	72		8	8		72	20		27	27		20
Heavy Vehicles (%)	0%	0%	0%	3%	0%	4%	0%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.7			8.7	8.7	41.1	41.1		41.1	41.1	
Effective Green, g (s)		10.7			10.7	10.7	43.1	43.1		43.1	43.1	
Actuated g/C Ratio		0.17			0.17	0.17	0.70	0.70		0.70	0.70	
Clearance Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		220			210	217	732	1044		690	1108	
v/s Ratio Prot								c0.19			0.15	
v/s Ratio Perm		0.04			c0.07	0.00	0.05			0.02		
v/c Ratio		0.22			0.42	0.02	0.07	0.28		0.02	0.22	
Uniform Delay, d1		22.0			22.8	21.2	3.0	3.5		2.9	3.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			1.4	0.0	0.2	0.7		0.1	0.5	
Delay (s)		22.5			24.2	21.2	3.1	4.2		2.9	3.8	
Level of Service		C			C	C	A	A		A	A	
Approach Delay (s)		22.5			23.5			4.0			3.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	61.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	3	11	0	7	5	309	19	11	378	6
Future Volume (vph)	5	3	3	11	0	7	5	309	19	11	378	6
Ideal Flow (vphpl)	1900	1550	1900	1900	1550	1900	1900	1550	1900	1900	1550	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.963			0.947			0.992			0.998	
Flt Protected		0.978			0.970			0.999			0.999	
Satd. Flow (prot)	0	1444	0	0	1408	0	0	1505	0	0	1499	0
Flt Permitted		0.978			0.970			0.999			0.999	
Satd. Flow (perm)	0	1444	0	0	1408	0	0	1505	0	0	1499	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		71.8			86.6			188.9			346.4	
Travel Time (s)		5.2			6.2			13.6			24.9	
Confl. Peds. (#/hr)	4					4	17					17
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%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Adj. Flow (vph)	5	3	3	11	0	7	5	309	19	11	378	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	18	0	0	333	0	0	395	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			3.5			3.5	
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	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01	1.01	1.31	1.01
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 43.7%		ICU Level of Service A
Analysis Period (min) 15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	3	3	11	0	7	5	309	19	11	378	6
Future Volume (Veh/h)	5	3	3	11	0	7	5	309	19	11	378	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	5	3	3	11	0	7	5	309	19	11	378	6
Pedestrians		17									4	
Lane Width (m)		3.5									3.5	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		1									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											346	
pX, platoon unblocked												
vC, conflicting volume	760	758	398	736	752	322	401			328		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	760	758	398	736	752	322	401			328		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	100	97	100	99	100			99		
cM capacity (veh/h)	310	330	647	327	333	721	1153			1243		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	18	333	395
Volume Left	5	11	5	11
Volume Right	3	7	19	6
cSH	368	415	1153	1243
Volume to Capacity	0.03	0.04	0.00	0.01
Queue Length 95th (m)	0.7	1.1	0.1	0.2
Control Delay (s)	15.1	14.1	0.2	0.3
Lane LOS	C	B	A	A
Approach Delay (s)	15.1	14.1	0.2	0.3
Approach LOS	C	B		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix G

City of Cambridge TDM Checklist

FORM 1: TDM CHECKLIST

Site Address: 130 Guelph Avenue

Site Context: Affordable Housing (rental), Mixed-use (Residential and Commercial)

Date: October 2024

ZBL Parking Requirement: 1.25 space per unit and 2.5 spaces per 100 SM of GFA

Applicable Parking Reduction: ______________________________

The Transportation Demand Management (TDM) Checklist and Parking Management Worksheet are not designed for residential properties, but can be used to inform mixed-use developments.

TABLE A		**Site Access**		
In creating an environment that supports pedestrian and cycling activity, the public realm must be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s). These facilities and features should encourage walking and cycling.				
Points		**Features**	**Yes**	**N/A**
A1	**2**	Development incorporates functional building entrances that are oriented to public space or to locations where pedestrians and transit users arrive from such as a street, square, park or plaza.	**2**	
A2	**1**	External to site: Continuous sidewalks (1.5m min. width) are provided along both sides of all adjacent public streets (over and above requirement) Internal to site: Pedestrian walkways (1.5m min width) are provided through large parking areas to link the building with the public street sidewalk system (over and above requirement)	**1**	
A3	**3**	Non-residential: development provides secure bike storage for 4% of the building occupants.	**3**	
A4	**4**	Shower and change facilities for employees provided on-site consistent with LEED requirements.		
A5	**2**	Provision of active uses at-grade along street frontages.		
Category Max =	10	**Total Points Applicable =** 10	**Score =**	6

TABLE B		**Public Transportation Access**		
The availability and proximity of convenient public transit service with direct pedestrian linkages to the building will provide viable travel options for employees, visitors and residents.				
Points		**Features**	**Yes**	**N/A**
B1	**1**	Bus shelters with seating are provided at the transit stop immediately adjacent to the development in consultation with Grand Rapid Transit (GRT) or transportation provider	**X**	
B2	**1**	Information regarding public transit routes, schedules and fares are provided in an accessible and visible location on site and in adjacent bus stops	**X**	
B3a	**5**	Located within 800m of a Rapid Transit Station		
B3b	**3**	Located within 600 m of a bus service with headways of 15 min or less or is located in a designated mixed use corridor or node. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.**		
B3c	**1**	Located within 400 m of a bus service with headways of 15 min to 30 min. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.**		
Category Max =	5	**Total Points Applicable =** 5	**Score =**	2

TABLE C		**Parking**		
Vehicle parking facilities can affect the character, travel mode and cost of a development. Reducing parking supply to match expected demand can a have a positive influence on the selection of alternative travel modes.				
Points		**Features**	**Yes**	**N/A**
C1	**24**	Utilizes reduced parking supply consistent with the TDM Parking Management Worksheet or includes allowances for shared parking in mixed use zones. **Note: Points are awarded for either C1 or C2 only. Please choose whichever applies** after consulting with the Area Municipal planning authority**.**		
C2	**15**	Provides no more than the minimum number of parking spaces, as required by applicable Zoning By-Law. **Note: Points are awarded for either C1 or C2 only. Please choose whichever applies.**	**X**	
C3	**10**	Implements paid parking on part or all of the site (e.g. parking permits, paid parking zones near main entrances)		
C4	**3**	Provides priority parking for carpooling/vanpooling participants equivalent to 5% of employee spaces		
C5	**5**	Commercial Uses: Provide car-share spaces equivalent to 2% of building occupants		

FORM 1: TDM CHECKLIST

C6	**3**	Parking is not located on major street frontage or between a road right of way and the building facade.		
C7	**5**	25% to 50% of parking is located underground or in a structure		
C8	**10**	50% to 75% of parking is located underground or in a structure		
C9	**15**	75% of parking or more is located underground or in a structure		
C10	**3**	Parking spaces provided off-site on a lot within 300 metres of the lot containing such use.		
Category Max =	25	**Total Points Applicable =** 25	**Score =**	15

TABLE D	**Trip Reduction Incentives**			
A formal TDM plan will identify specific initiatives that will be initiated in order to encourage reduced single occupant vehicle travel.				
Points		**Features**	**Yes**	**N/A**
D1	**2**	The building owner/occupant will provide a ride matching service for car/vanpooling		
D2	**2**	The building owner/occupant will provide emergency ride home options		
D3	**5**	The building owner/occupant will provide subsidized transit passes for all occupants for a period of two years		
D4	**5**	The building owner/occupant agrees to charge for parking as an unbundled cost to occupants	**5**	
D5	**2**	The building owner/occupant agrees to provide reduced cost for users of car/van pool, bicycle, moped/motorcycle spaces		
D6	**10**	The building owner/occupant has prepared a TDM plan that targets a 10% reduction in peak hour trips using forecast trip generation with status quo travel characteristics		
D7	**5**	The employer has provided flexible working hours, telework or shift work arrangements.		
D8	**14**	The development agrees to join Travelwise (TMA) that provides the same services outlined under items D1, D2, D6		
D9	**2**	The development includes mixed uses (i.e. retail, commercial or food services, daycares, or other complementary uses) on-site or located within 400 metres.	**2**	
Category Max =	25	**Total Points Applicable =** 25	**Score =**	7

TABLE E	**Checklist Summary**			
For each item, a "Yes" answer is equivalent to the points as indicated in the section. N/A sections should be explained in an attachment to this table. The score for each section is reflected as a percentage and calculated by dividing the points by the "Total Applicable".				
Category	**Minimum Requirement**	**Total Applicable**	**Points Scored**	**Comments**
Pedestrian & Cyclist Orientation	24	10	6	
Public Transit Access		5	2	
Parking		25	15	
SUB-TOTAL		**40**	**23**	
Trip Reduction Incentives		*25*	7	
OVERALL TOTAL	***65***	***65***	**30**	

TABLE F	**Scoring Summary**		
FINAL SCORE	**RATING**		
50 - 65	****		**TDM SUPPORTIVE DEVELOPMENT**
40 -49	***		
30 - 39	**	**X**	
24 - 29	*		
0 - 23			Non-TDM Supportive Development

Appendix H

Parking Demand Data

Provider	Address	Year Completed	Units	Total Parking Spaces Provided	Parking Spaces Used by Tenants	Parking Space Use per Unit	Units by number of bedrooms				
							1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms	5 bedrooms
Heartwood Place	26 Ainslie St. S., Cambridge	2010	66	34	14	21.2%	40	19	7	0	0
Cambridge Kiwanis	365 Linden Dr., Kitchener	2014	24	24	10	41.7%	20	3	0	0	0
Heartwood Place	1103-1109 King St E., Cambridge	2017	20	28	7	35.0%	15		0	0	0
Home Concept	175 Hespeler Rd., Cambridge	2018	34	19	10	29.4%	30	4	0	0	0
KW Habilitation	108 Sydney St. S., Kitchener	2018	22	17	4	18.2%	14	8	0	0	0
Maxwell	184 Erb St. E., Waterloo	2018	28	26	7	25.0%	24	4	1	0	0
KHI	430 Connaught Street, Kitchener	2018	16	19	6	37.5%	16		0	0	0
25 Linnwood	25 Linnwood Ave., Cambridge	2020	31	27	21	67.7%	25	6	0	0	0
Bridgeport at Lancaster	544 Bridgeport Road, Kitchener	2021	48	57	22	45.8%	40	8	0	0	0
Maxwell - Guelph	18 Guelph Street, Kitchener	2021	13	9	4	30.8%	10	2	0	0	1
Total			**302**	**260**	**105**	**34.8%**					