Glen Williams Estates, Halton Hills, ON, Transportation Impact Study

Paradigm Transportation Solutions Limited

August 2020

190618

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Project Summary

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Glen Williams Estates

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Transportation Impact Study

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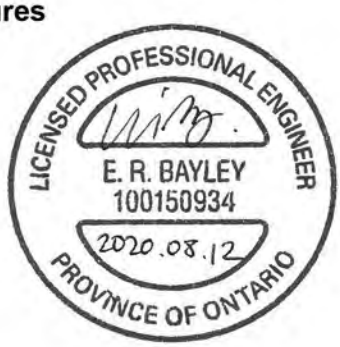

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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Study (TIS) for a proposed residential development, west of Confederation Street and south of Mountain Street in the Town of Halton Hills.

The purpose of this study is to determine the impacts of the development traffic on the surrounding road network and to identify any improvements necessary to accommodate this traffic.

Conclusions

This study evaluates the impacts of background traffic growth and projects the impacts of the development with the construction of 34 single family residential units. Access to the site is proposed via a new street connection (Street A) to Confederation Street located 53 metres south of Mountain Street.

Paradigm conducted a sight distance evaluation for the proposed roadway connection (Street A) in accordance with guidelines provided by TAC. The location of Street A provides sufficient stopping sight distance and intersection sight distance to/from the north and sufficient decision sight distance and intersection sight distance to to/from the south. Based on this, the location of Street A is supportable from a sight distance perspective.

With Street A proposed to be located south of Mountain Street, adequate intersection spacing should be maintained. TAC recommends a minimum intersection separation of 60 metres between four-legged intersections and 40 metres is acceptable between three-legged intersections along a local roadway. As Street A is spaced 53 metres from Mountain Street, the location will not result in in operational difficulties and will function acceptably as successive T intersections.

Full-build out of the development is projected to generate approximately 29 new vehicle trips during the weekday AM peak hour and 36 new vehicle trips during the weekday PM peak hour.

The traffic analysis conducted as part of this assessment indicates that development volumes will result in minor increases to the surrounding study area intersection volumes under peak conditions which should not be perceptible. Capacity analyses were conducted at key intersections, indicating that the transportation infrastructure currently provided remains adequate for accommodating traffic associated with the proposed development program.

A left turn lane warrant analysis was conducted at the unsignalized intersections and determined that a southbound left-turn lane along Confederation Street at Mountain Street and a northbound left-turn lane along Confederation Street at Street A is not warranted.

Recommendations

The analysis indicates that off-site traffic improvements are not required to support the application. It is recommended that the development proceed as planned.

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1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Study (TIS) for a residential development west of confederation street and south of Mountain Street in the Town of Halton Hills.

Figure 1.1 illustrates the location of the subject site.

1.2 Purpose and Scope

The purpose of this study is to determine the impacts of the development traffic on the surrounding road network and identify any improvements necessary to accommodate the increase in traffic generated by this development. The scope of this study is to:

- Forecast traffic from the proposed development using trip generation rates developed and assignment to the surrounding road network;
- Assess the impact of existing and future traffic conditions with and without the proposed development for five years from the date of the study (2025); and
- Recommend any improvements required to alleviate any operational or safety concerns (if required).

1.3 Study Area

Based on a review of the anticipated trip generation and trip distribution for the proposed development, a study area was established through consultation with the Town of Halton Hills. The project study area includes the following intersections:

- Confederation Street at Wildwood Road/Main Street (unsignalized);
- Confederation Street at Mountain Street (unsignalized); and
- One (1) new street connection (unsignalized).

Appendix A contains the terms of reference established for this study which has been carried out in general accordance with the Halton Region Traffic Impact Study Guideline (2015) document.

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Location of Subject Site

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Figure 1.1

2 Existing Conditions

The existing conditions evaluation consisted of an inventory of the traffic control; roadway and intersection geometry in the study area and the collection of peak period traffic volumes.

2.1 Roadway Characteristics

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

- **Confederation Street** is a north-south local under the jurisdiction of Town of Halton Hills with a two-lane rural cross-section. The posted speed limit in the study area is 50 kilometres per hour. Pedestrian and cycling facilities are not provided along this roadway within the study area.
- **Mountain Street** is an east-west local under the jurisdiction of the Town of Halton Hills with a basic two-lane rural cross-section. This roadway has an assumed speed limit of 50 km/h within the study area. Pedestrian and cycling facilities are not provided along this roadway within the study area.
- **Wildwood Road/Main Street** is an east-west collector under the jurisdiction of the Town of Halton Hills with a basic two-lane urban cross-section. This roadway has a posted speed limit of 40 km/h within the study area. Pedestrian sidewalks are provided along the north side of Main Street. No cycling facilities are provided within the study area.

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

2.2 Transit Network

Transit service is presently not provided within the Town of Halton Hills.

Existing Lane Configuration and Traffic Control

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Figure 2.1

2.3 Traffic Volumes

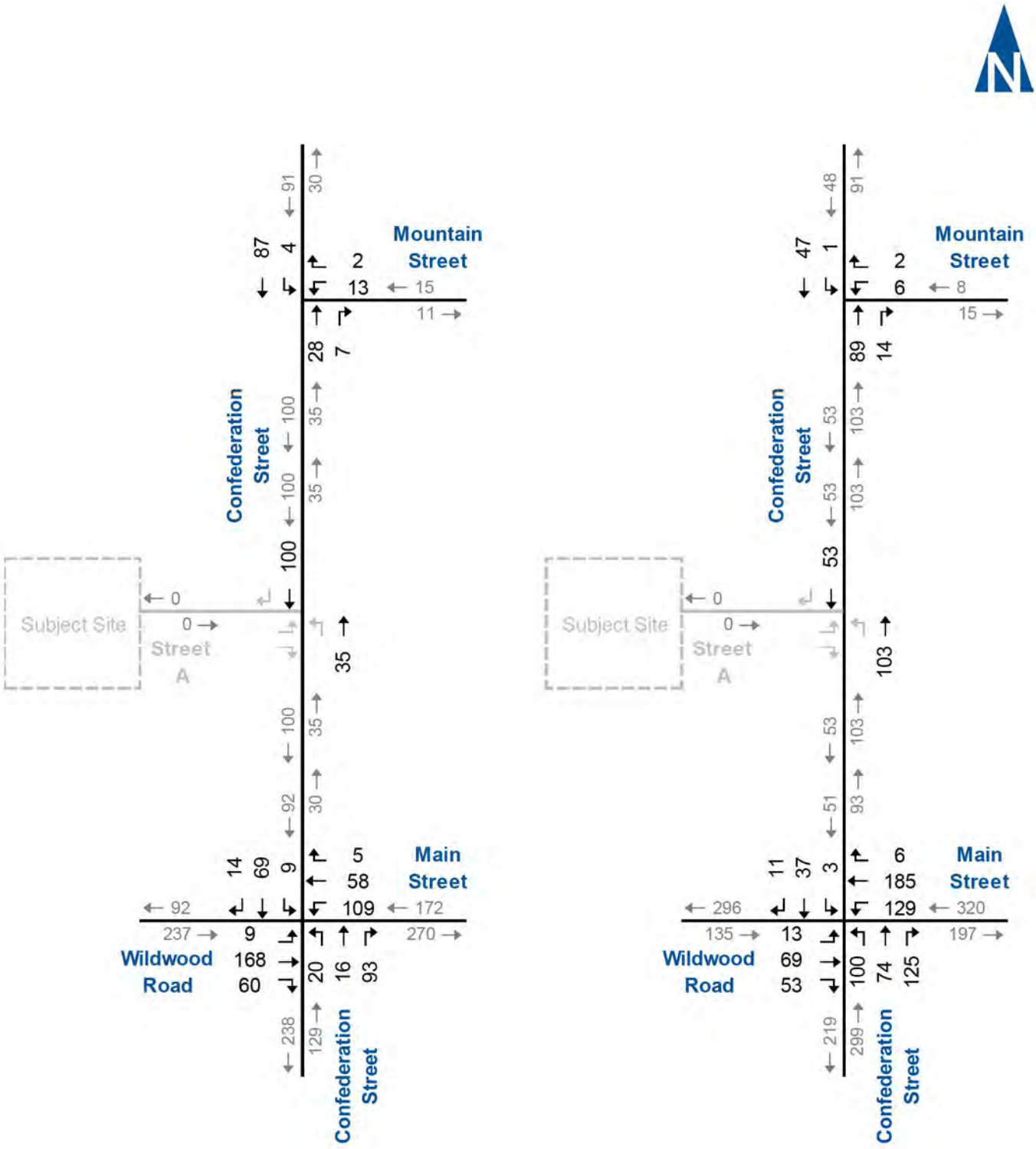
To assess intersection operations, turning movement counts are used to quantify the movement of vehicles. Existing traffic data at an intersection or on a road section forms the foundation for analysis. The counts are usually taken during peak periods to complete level of service analysis.

Current turning movement volumes for the peak hours were conducted as the municipal agencies did not have recent traffic data for the study area intersections. **Table 2.1** outlines the counts utilized for the traffic analysis. **Appendix B** contains the traffic data.

TABLE 2.1: TRAFFIC DATA

Intersection	Date	Conduced By
Confederation Street at Mounain Street	January 2020	Paradigm
Confederation Street at Main Street/Wildwood Road	January 2020	Paradigm

Figure 2.2 illustrates the base year turning movement traffic volumes.



Base Year Traffic Volumes

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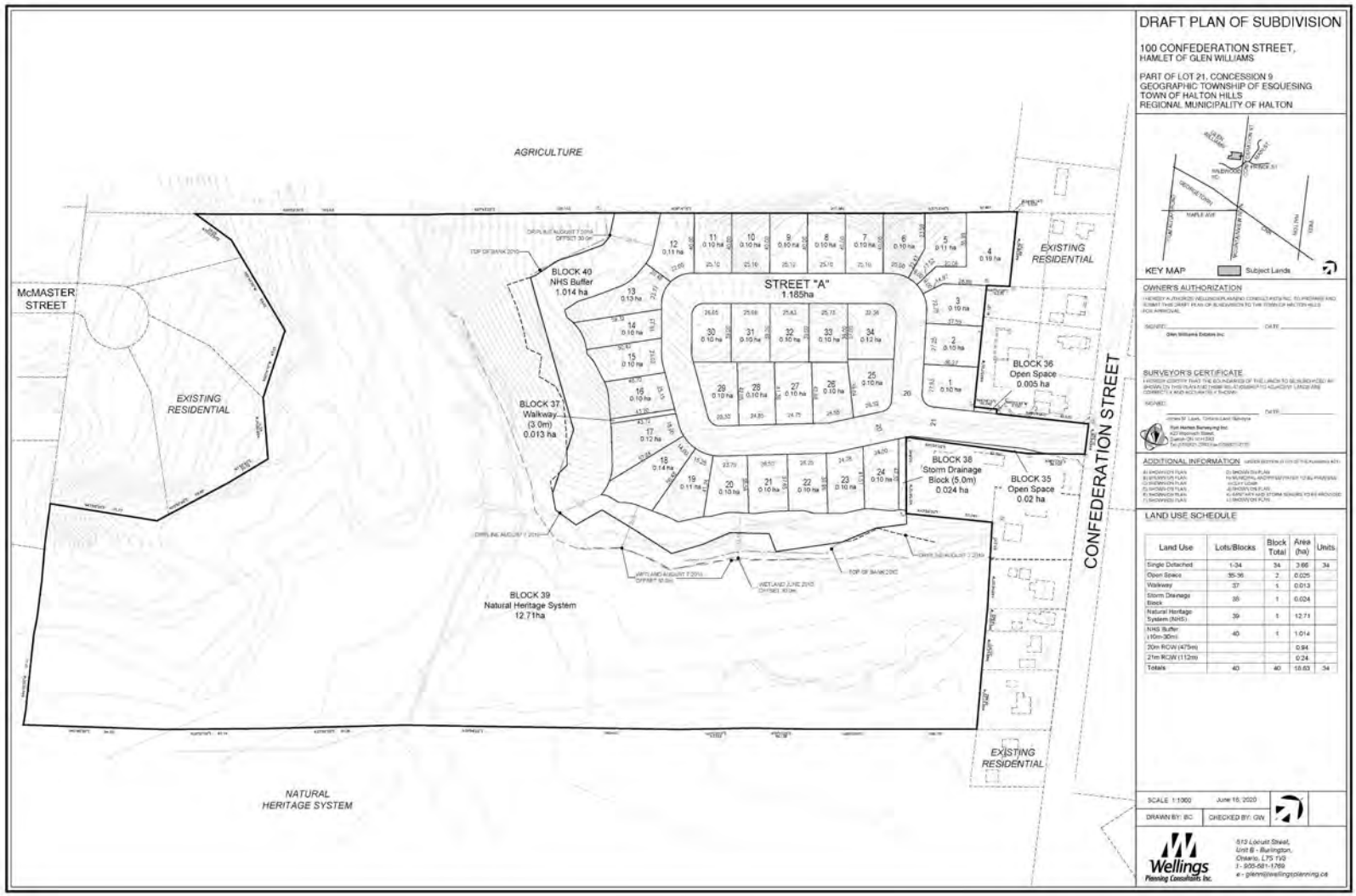
Figure 2.2

3 Development Concept

3.1 Development Description

The 16.64-hectare site is to be comprised of a residential development with a total of 34 units. Vehicular access is proposed via a new street connection (Street A) to Confederation Street located approximately 53 metres south of Mountain Street (centreline to centreline).

Figure 3.1 illustrates the site concept plan.



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Proposed Site Plan

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Figure 3.1

3.2 Street A Review

Careful consideration to maintain the mobility in this area and accommodate development traffic is essential and is a vital element to the success of the project. Access management and corridor planning is largely a balancing act where safety and congestion issues must be addressed in the context of land use visions, economic development goals, environmental resource preservation, and funding constraints.

The proposed street connection (Street A) to Confederation Street has been assessed to determine whether there are design issues and/or safety-related concerns that may be affected by the location, and whether an alternative location should be considered from a design perspective. The key design issues to consider with respect to the driveway location are discussed in the sections below.

3.2.1 Sight Distance

The section of Confederation Straight is located on an incline. For two-lane roadways, a design speed of 20 kilometres per hour over the posted and/or assumed speed is typically used.

Paradigm conducted a sight distance evaluation for the proposed roadway connections to Confederation Street in accordance with guidelines provided by the Transportation Association of Canada (TAC). Sight distance considerations for new municipal intersections are divided into; decision sight distance (DSD) and intersection sight distance (ISD).

- Decision Sight Distance (DSD) is the distance required for a vehicle approaching an intersection from either direction to perceive, react and select an appropriate speed and path, and initiate and complete the movement safely and efficiently to avoid the hazard. In this respect, DSD can be considered as the preferred visibility criterion for the safe operation of an unsignalized intersection.
- Intersection Sight Distance (ISD) is based on the time required for perception, reaction and completion of the desired critical exiting maneuver (typically, a left turn) once the driver on a minor street approach (or a driveway) decides to execute the maneuver. Calculations for ISD include the time to: (1) turn left and clear the near half of the intersection without conflicting with the vehicles approaching from the left; and (2) upon turning left, to accelerate to the operating speed on the roadway without causing approaching vehicles on the main road to unduly reduce their speed. In this context, ISD can be considered as a desirable visibility criterion for the safe operation of an unsignalized intersection.

Photographs of the sightline conditions are illustrated in **Appendix C**. The sightline calculations are provided in **Table 3.1**.

TABLE 3.1: SIGHT DISTANCE ASSESSMENT

Location	Sight Distance (m)					
	70 km/h Design Speed					
	SSD		DSD		ISD	
	TAC	Measured	TAC	Measured	TAC	Measured
Confederation Street at Street A						
To/From the North	105	147	200	147	130	130
To/From the South	105	325	200	325	185	325

Meets or Exceeds TAC Guideline
Does not meet TAC Guideline

The sight distance at Confederation Street at Street A meets and exceeds the intersection sight distance for both directions and meets the decision sight distance from the south. The proposed intersection however falls short of the decision sight distance from the north by 53 metres. To achieve sufficient sight distance, the intersection would need to be located approximately 53 metres to the south. However, given the development has direct frontage to Confederation Street where Street A is presently proposed, relocating the connection is not feasible.

An additional criterion that is used with sight lines constraints is the use of minimum stopping sight distance (SSD) in conjunction with intersection sight distance. This essentially involves the comparison of the available measurement to ensure that if the available decision sight distance is not sufficient to cause approaching vehicles on the main roadway to only reduce their speed (as in the case of decision sight distance), that it is at least adequate for the approaching vehicle to come to a stop at the new intersection, if necessary.

A review of the stopping sight distance for a 70 km/h design speed is noted be 105 metres as stipulated by TAC. The present location of Street A provides for sufficient stopping sight distance and intersection sight distance to/from the north and sufficient decision sight distance and intersection sight distance to to/from the south. Based on this, the location of Street A is supportable from a sight distance perspective.

3.2.2 Corner Clearance

With Street A proposed to be located south of Mountain Street, adequate intersection spacing should be maintained. The spacing of intersections along a road has a large impact on the operation, level of service, and capacity of the roadway.

The Transportation Association of Canada (TAC) Geometric Design Guide[1] recommends a minimum intersection separation of 60 metres between four-legged intersections and 40 metres is acceptable between three-legged

[1] Geometric Design Guide for Canadian Roads, Transportation Association of Canada, 2017

intersections along a local roadway. As Street A is spaced 53 metres from Mountain Street, the location will not result in in operational difficulties and will function acceptably as successive T intersections.

3.3 Development Trip Generation

Trip generation information is used to forecast the anticipated level of traffic activity because of the development. Trip generation for each land use type were summed to establish total site trip generation for the respective peak hours.

The rate at which any development generates traffic is dependent upon several factors such as size, location, and concentration of surrounding developments. To estimate the volume of traffic generated by components of the development, traffic projections were based on trip generation data published in the Institute for Transportation Engineer's (ITE) Trip Generation Manual, 10th Edition[2]. The following land uses (LUC) have been used:

- **LUC 210 – Single Family Detached** – Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

The estimated total trip generation for the proposed development is displayed in **Table 3.1** which indicates 29 and 36 new vehicle trips are forecast to be generated during the AM and PM peak hours, respectively.

TABLE 3.2: TRIP GENERATION

Use	Units	Trips	Weekday AM Peak				Weekday PM Peak			
			Rate	Enter	Exit	Total	Rate	Enter	Exit	Total
LUC 210 - Single-Family Detached Housing	34	Total	Eq.	7	22	29	Eq.	13	23	36
		Eq.	T = 0.71(X) + 4.80				Ln(T) = 0.96 Ln(X) + 0.20			

[2] Trip Generation Tenth Edition, Institute of Transportation Engineers, Washington D.C., 2017

3.4 Development Trip Distribution and Assignment

The directional distribution of traffic approaching and departing the development is a function of several variables: population densities, existing travel patterns, and the efficiency of the roadways leading to the site.

The trip distribution for the site was developed based on the 2016 Transportation Tomorrow Survey (TTS)[3] data for Georgetown. Based on the distribution of population within the study area, arrival and departure patterns for site-related traffic were estimated and if appropriate, were adjusted based on known local factors.

The trip distribution calculations are included in **Appendix D**. **Table 3.3** summarizes the estimated trip distribution for the development.

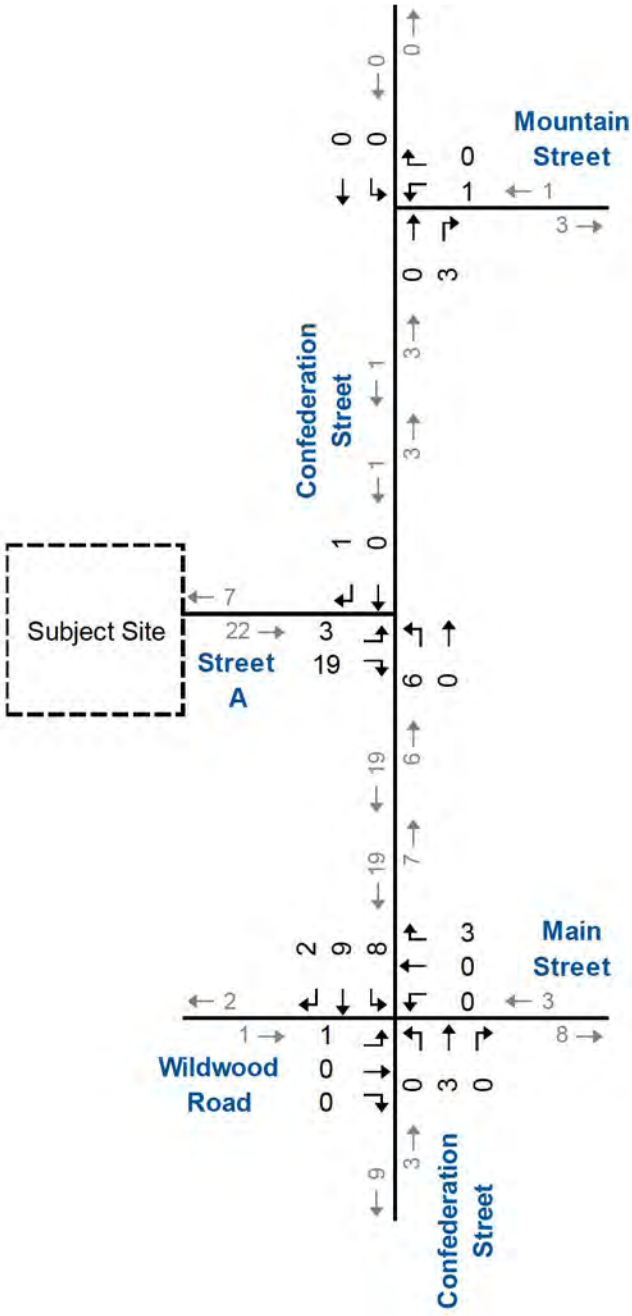
TABLE 3.3: TRIP DISTRIBUTION

Direction (To/From)	Travel Route	Percent Assigned To Route
North	Confederation Street	2%
South	Confederation Street	39%
East	Mountain Street Main Street	12% 36%
West	Wildwood Road	11%
Total		**100%**

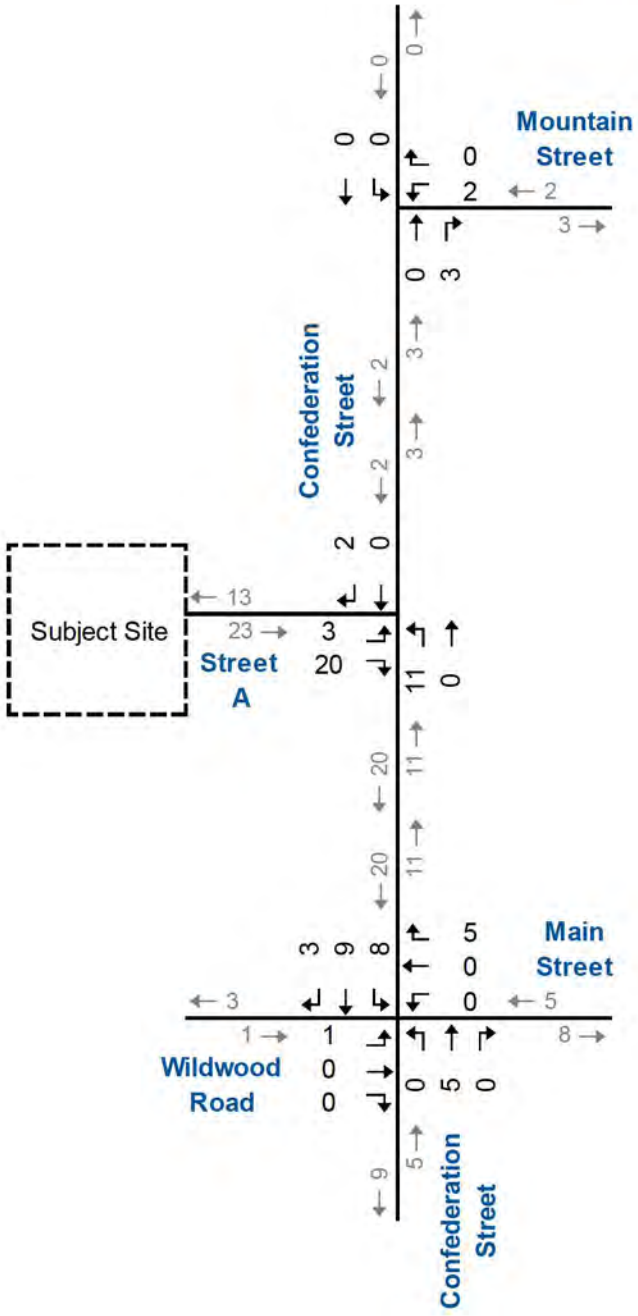
Using the trip generation data and the trip distribution the site traffic was assigned to the adjacent road network. **Figure 3.2** illustrates the projected site traffic.

[3] Transportation Tomorrow Survey (TTS), 2016, Summary by Traffic Zones, Data Management Group, University of Toronto.

Weekday AM Peak Hour



Weekday PM Peak Hour



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Site Generated Traffic Forecasts

4 Future Traffic Conditions

To be consistent with the terms of reference established with the Town of Halton Hills, a horizon year of 2025 (five years from the date of the study) has been used for traffic forecasting and analyses purposes.

4.1 Forecast Traffic Volumes

Traffic growth on area roadways is a function of the expected land development, economic activity, and changes in demographics. A frequently used procedure is to estimate an annual percentage increase and apply that increase to the study area traffic volumes. An alternative procedure is to identify estimated traffic generated by specific planned major developments that would be expected to affect the project study area roadways. For the purpose of this assessment, an annual percentage increase has been used.

4.1.1 General Growth

According to the Statistics Canada 2016 Community Profile1, the Community of Georgetown grew by 4.82% from year 2011 to 2016, or an average annual growth rate of 0.95%.

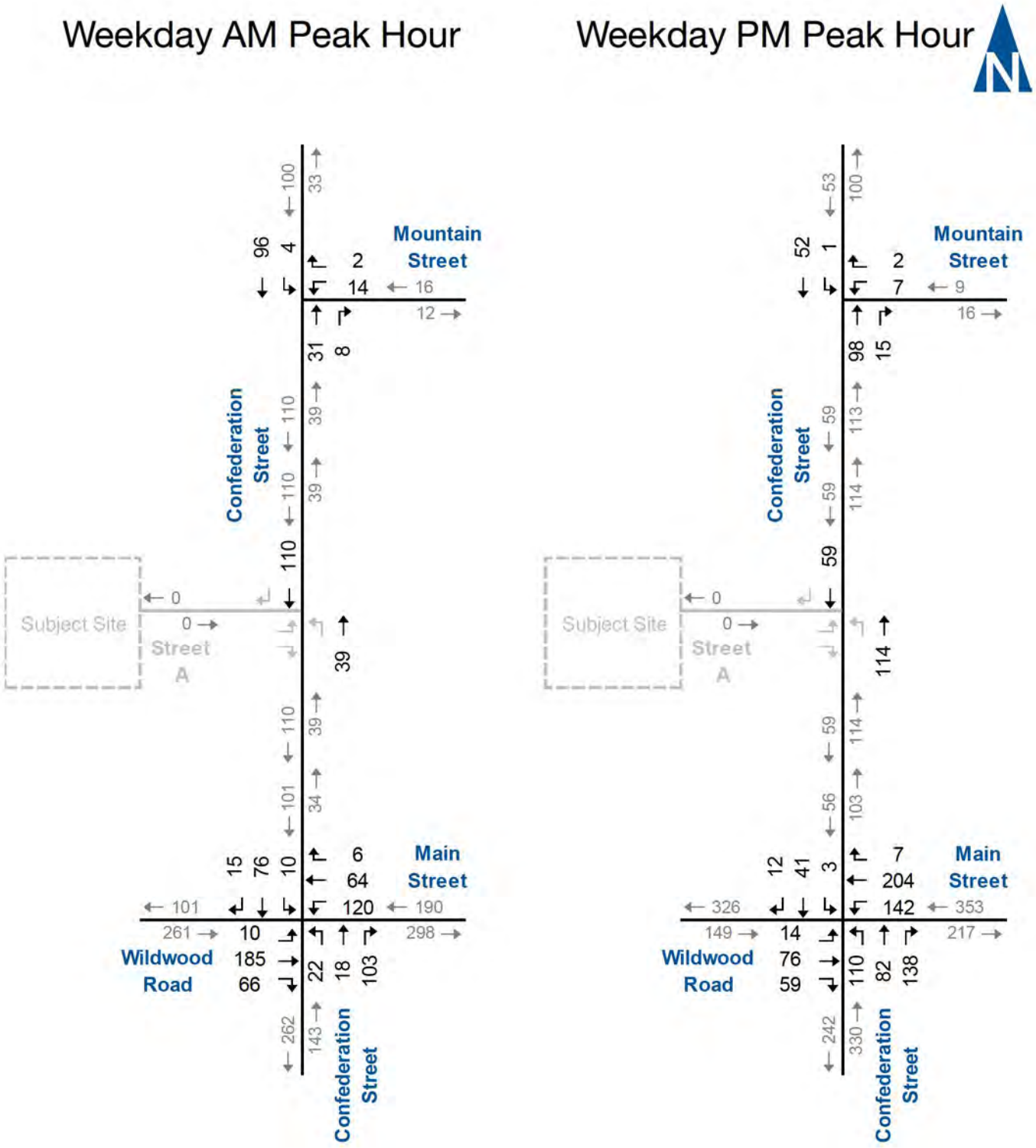
For the purposes of this study, a conservative traffic growth rate of 2% per annum was applied to existing counts to project general background growth for the study area roadways.

4.1.2 Background Traffic Growth

The non-site traffic increase (background traffic) represents generalized traffic growth in the Georgetown area. The background traffic projections for the 2025 horizon are illustrated in **Figure 4.1**.

4.1.3 Total Traffic Growth

The projected site-generated traffic volumes were added to the background projections to develop the total traffic projections. The total traffic projections for the 2025 horizon are illustrated in **Figure 4.2**.



2025 Background Traffic Forecasts

Glen Williams Estates, Transportation Impact Study, Town of Halton Hills
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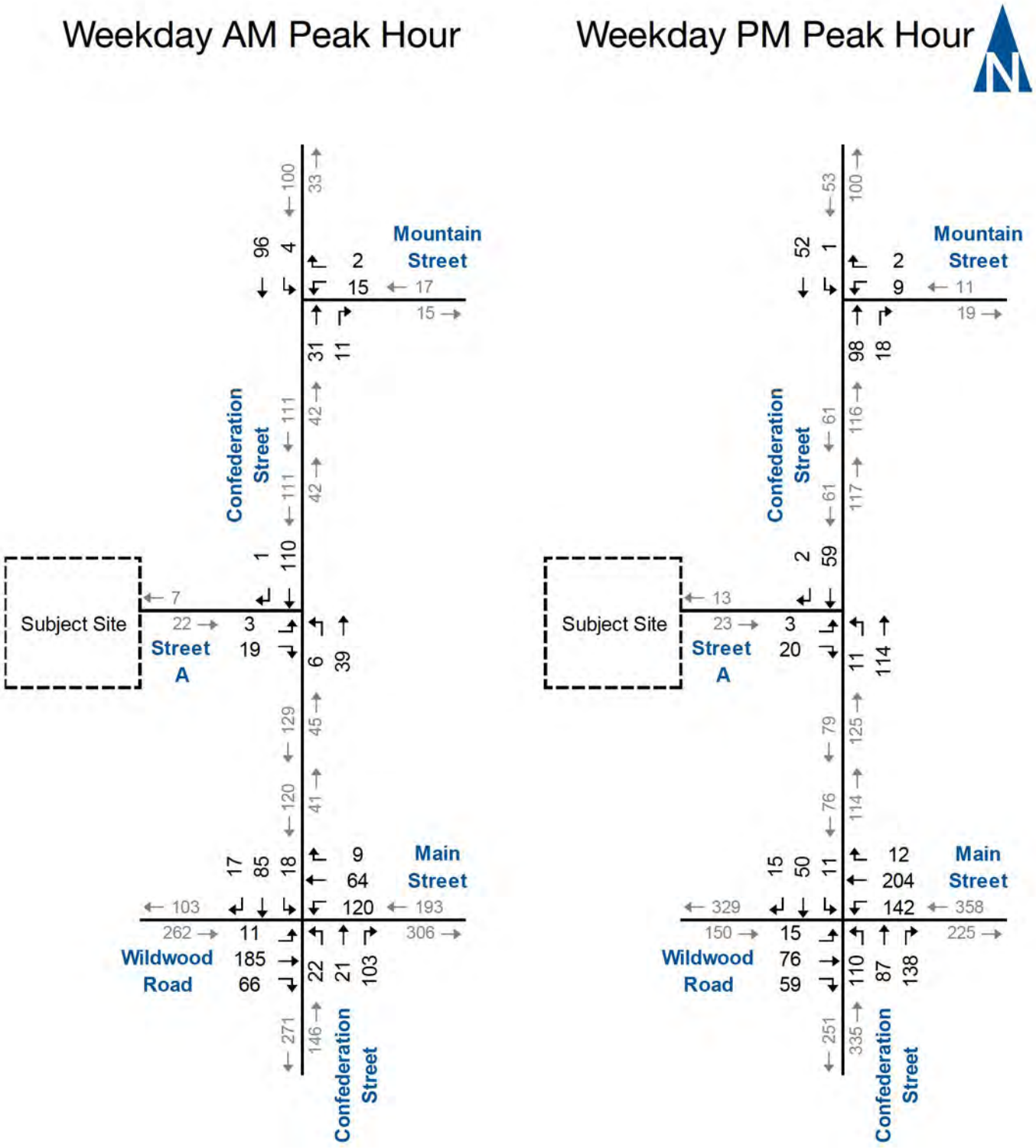
Figure 4.1



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2025 Total Traffic Forecasts

5 Analysis

Measuring existing traffic volumes and projecting future traffic volumes quantifies traffic within the study area. To assess quality of flow, roadway capacity analysis was conducted with respect to base year conditions and projected background and total conditions. Capacity analysis provides an indication of how well the roadway facilities serve the traffic demands placed on them. Calculated levels of service classify roadway operating conditions.

5.1 Intersection Capacity Analysis

Level of service (LOS) is the term used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure that provides an index to the operational qualities of a roadway segment or an intersection with designations that range from LOS A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions.

For unsignalized intersections, the analysis assumes that traffic on the mainline is not affected by traffic on the side streets. The level of service is only determined for left turns from the main street and all movements from the minor street.

The evaluation criteria used to analyze unsignalized intersections was completed utilizing Synchro 9.

Table 5.1 summarizes the capacity analyses for the study area intersections for base year and future horizons for the AM and PM peak hours, respectively. **Appendix E** includes the capacity analyses results.

5.1.1 Confederation Street at Main Street/Wildwood Road

Individual movements at the all-way stop intersection of Confederation Street at Main Street/Wildwood Road presently operates at LOS B or better under the Base year traffic conditions.

Under Background traffic conditions, the westbound and northbound approaches are projected to degrade to LOS C during the weekday PM peak hour. Similar operations are expected under the Total traffic conditions with only negligible increase in delay resulting from site-generated traffic volumes.

The future operations are still considered acceptable.

5.1.2 Confederation Street at Mountain Street

Individual movements at the unsignalized intersection of Confederation Street at Mountain Street presently operate at LOS A under the Base year traffic conditions. Similar levels of operation are expected under future Background and Total traffic conditions with only negligible increase in delay resulting from site-generated traffic volumes.

The future operations are still considered acceptable.

5.1.3 Confederation Street at Street A

As described previously, a single new roadway is proposed to be constructed to provide access to the development through Confederation Street. Under future conditions with the full-build out of the development, Street A is expected to operate at LOS A.

The future operations are considered acceptable.

TABLE 5.1: INTERSECTION OPERATIONS

Analysis Period	Intersection	Control Type	Horizon	Scenario	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	1. Confederation Street at Main Street/Wildwood Road	AWS	2020	Base	LOS	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
					Delay	10	10	10	10	10	10	6	10	9	9	9	9	9	9	9	9	10
					DU	0.34	0.34	0.34		0.25	0.25	0.00		0.19	0.19	0.19		0.15	0.15	0.15		
			2025	Background	LOS	B	B	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A
					Delay	11	11	11	11	10	10	6	10	9	9	9	9	10	10	10	10	10
					DU	0.38	0.38	0.38		0.29	0.01	0.01		0.22	0.22	0.22		0.17	0.17	0.17		
				Total	LOS	B	B	B	B	B	B	A	A	A	A	A	A	A	A	A	A	A
					Delay	11	11	11	11	11	11	6	10	10	10	10	10	10	10	10	10	10
					DU	0.39	0.39	0.39		0.29	0.29	0.01		0.22	0.22	0.22		0.20	0.20	0.20		
	2. Confederation Street at Mountain Street	TWSC	2020	Base	LOS					A		A	A		A	A	A	A	A		A	A
					Delay					9		9	9		0	0	0	0	0		0	1
					V/C					0.02		0.02			0.02	0.02		0.00	0.00			
			2025	Background	LOS					A		A	A		A	A	A	A	A		A	A
					Delay					9		9	9		0	0	0	0	0		0	1
					V/C					0.02		0.02			0.03	0.03		0.00	0.00			
				Total	LOS					A		A	A		A	A	A	A	A		A	A
					Delay					9		9	9		0	0	0	0	0		0	1
					V/C					0.02		0.02			0.03	0.03		0.00	0.00			
	4. Confederation Street at Street A	TWSC	2025	Total	LOS	A		A	A					A	A		A		A	A	A	A
					Delay	9		9	9					1	1		1		0	0	0	1
					V/C	0.03		0.03						0.00	0.00				0.07	0.07		
PM Peak Hour	1. Confederation Street at Main Street/Wildwood Road	AWS	2020	Base	LOS	A	A	A	A	B	B	A	B	B	B	B	B	A	A	A	A	B
					Delay	10	10	10	10	14	14	6	13	13	13	13	13	10	10	10	10	12
					DU	0.22	0.22	0.22		0.50	0.50	0.01		0.47	0.47	0.47		0.09	0.09	0.09		
			2025	Background	LOS	B	B	B	B	C	C	A	C	B	B	B	B	A	A	A	A	B
					Delay	11	11	11	11	16	16	6	16	14	14	14	14	10	10	10	10	14
					DU	0.25	0.25	0.25		0.57	0.57	0.01		0.54	0.54	0.54		0.10	0.10	0.10		
				Total	LOS	B	B	B	B	C	C	A	C	C	C	C	C	A	A	A	A	B
					Delay	11	11	11	11	16	16	6	16	15	15	15	15	10	10	10	10	14
					DU	0.26	0.26	0.26		0.59	0.59	0.01		0.55	0.55	0.55		0.14	0.14	0.14		
	2. Confederation Street at Mountain Street	TWSC	2020	Base	LOS					A		A	A		A	A	A	A	A		A	A
					Delay					9		9	9		0	0	0	0	0		0	1
					V/C					0.01		0.01			0.07	0.07		0.00	0.00			
			2025	Background	LOS					A		A	A		A	A	A	A	A		A	A
					Delay					9		9	9		0	0	0	0	0		0	1
					V/C					0.01		0.01			0.07	0.07		0.00	0.00			
				Total	LOS					A		A	A		A	A	A	A	A		A	A
					Delay					9		9	9		0	0	0	0	0		0	1
					V/C					0.01		0.01			0.07	0.07		0.00	0.00			
	4. Confederation Street at Street A	TWSC	2025	Total	LOS	A		A	A					A	A		A		A	A	A	A
					Delay	9		9	9					1	1		1		0	0	0	1
					V/C	0.03		0.03						0.01	0.01				0.04	0.04		

MOE - Measure of Effectiveness
LOS - Level of Service
DU - Degree Utilization
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio

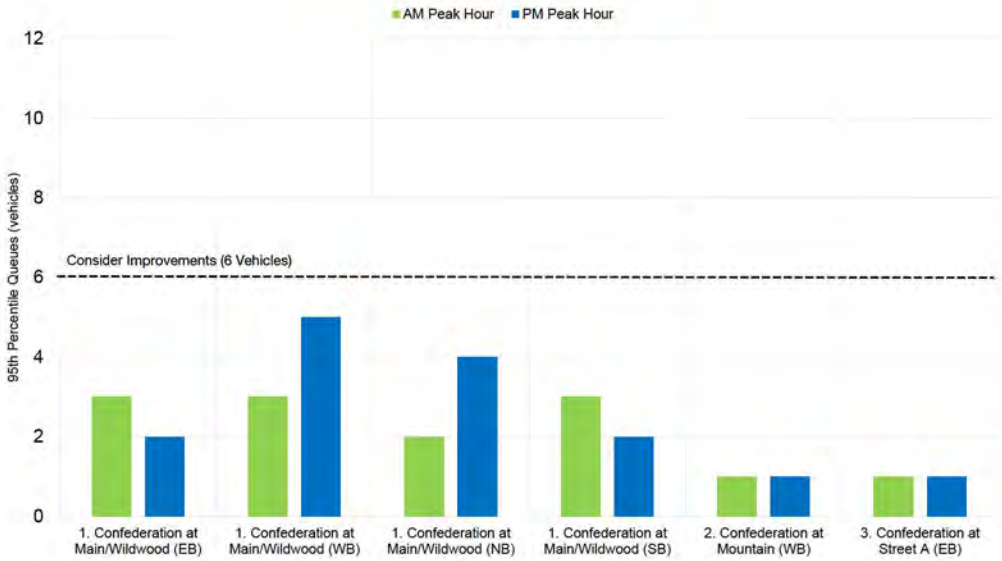
5.2 Queue Assessment

As part of this assessment, Paradigm completed a queue assessment of the unsignalized intersections within study area to determine the queue lengths for the stop-controlled movements. The queue estimates are an additional key metric to determine if improvements are necessary. Based on Paradigm's experience, stacking of five vehicles of less does not need improvements, between six to ten vehicles should consider improvements, and above ten vehicles generally require improvements.

SimTraffic was used rather than Synchro in this assessment as microscopic models, such as Sim Traffic, individually track each vehicle in the traffic system through the model and collect comprehensive operational measures of effectiveness for every vehicle during each 0.1 second of the simulation. Unlike Synchro, SimTraffic measures the full impact of queuing and blocking. Synchro is best used to determine level of service and delay at the macro level but is not ideal for assessments simulating real-world conditions.

The analysis consisted of ten (10) iterations of sixty (60) minute simulations to forecast the delay per vehicle in seconds. **Appendix F** provides the SimTraffic results. **Chart 5.2** provides a summary of the queue analysis for the unsignalized intersections within the study area under Total traffic conditions. Based on the queue assessment, mitigation measures are not warranted.

CHART 5.2: QUEUE ASSESSMENT



5.3 Left-Turn Lanes

The unsignalized intersections were assessed to determine if the existing and future traffic volumes warrant installation of a left turn lane along the major roadway.

The warrants for left-turn lanes follow the requirements in the Ministry of Transportation's (MTO) Geometric Design Standards[4]. For two-lane roadways, a design speed of 20 kilometres per hour over the posted and/or assumed speed limit has been utilized. The percentages of left-turning vehicles in the approaching volume were rounded to the nearest 5 percent, as nomographs are only provided for 5 percent increments.

Table 5.3 summarizes the results of the left-turn lane warrant analyses. The following is noted:

- A southbound left turn lane along Confederation Street at Mountain Street is not warranted under the 2025 total horizon.
- A northbound left turn lane along Confederation Street at Street A is not warranted under the 2025 total horizon.

TABLE 5.3: LEFT-TURN LANE ANALYSIS

Criteria	Confederation Street at Mountain Street		Confederation Street at Street A	
Approach Direction Design Speed	Southbound 70 km/h		Northbound 70 km/h	
Horizon	2025 Total		2025 Total	
Peak Hour	AM	PM	AM	PM
Advancing Volume	100	53	45	125
Opposing Volumes	42	116	111	61
Left Turning Traffic	4	1	6	11
% of Left Turning Traffic	4.0%	1.9%	13.3%	8.8%
Figure Used*	9A-10 (5%)	N/A (Less than 5%)	9A-11 (15%)	9A-10 (10%)
Warranted	**No**	**No**	**No**	**No**
Storage Length Required	n/a	n/a	n/a	n/a

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Road - June 2017

[4] MTO Design Supplement for TAC Geometric Design Guide for Canadian Road, 2017

5.4 Access Circulation Review

As requested by the Town of Halton Hills, a swept path analysis was conducted for the proposed internal street network.

The vehicle movements were examined using a CAD base file of the development plan dated 01 October 2019. The swept path analysis was conducted to examine the on-site maneuverability of typical design vehicles expected to use the site; Heavy Single Unit (HSU), Fire Truck and Passenger Vehicle. **Appendix G** provides the vehicle manoeuvring analysis, as well as the profile and dimensions of the design vehicles.

The AutoTURN analyses indicate that the design vehicles do not have any difficulty entering the development through the new street connection to Confederation Street nor any difficultly circumnavigating the internal roadway. The AutoTURN swept path analysis confirms the large design vehicles will function adequately.

6 Conclusions

6.1 Conclusions

This study evaluates the impacts of background traffic growth and projects the impacts of the development with the construction of 34 single family residential units. Access to the site is proposed via a new street connection (Street A) to Confederation Street located 53 metres south of Mountain Street.

Paradigm conducted a sight distance evaluation for the proposed roadway connection (Street A) in accordance with guidelines provided by TAC. The location of Street A provides sufficient stopping sight distance and intersection sight distance to/from the north and sufficient decision sight distance and intersection sight distance to to/from the south. Based on this, the location of Street A is supportable from a sight distance perspective.

With Street A proposed to be located south of Mountain Street, adequate intersection spacing should be maintained. TAC recommends a minimum intersection separation of 60 metres between four-legged intersections and 40 metres is acceptable between three-legged intersections along a local roadway. As Street A is spaced 53 metres from Mountain Street, the location will not result in in operational difficulties and will function acceptably as successive T intersections.

Full-build out of the development is projected to generate approximately 29 new vehicle trips during the weekday AM peak hour and 36 new vehicle trips during the weekday PM peak hour.

The traffic analysis conducted as part of this assessment indicates that development volumes will result in minor increases to the surrounding study area intersection volumes under peak conditions which should not be perceptible. Capacity analyses were conducted at key intersections, indicating that the transportation infrastructure currently provided remains adequate for accommodating traffic associated with the proposed development program.

A left turn lane warrant analysis was conducted at the unsignalized intersections and determined that a southbound left-turn lane along Confederation Street at Mountain Street and a northbound left-turn lane along Confederation Street at Street A is not warranted.

6.2 Recommendations

The analysis indicates that off-site traffic improvements are not required to support the application. It is recommended that the development proceed as planned.

Appendix A

Terms of Reference

Adam Makarewicz

From: Ivan Drewnitski <idrewnitski@haltonhills.ca>
Sent: 8-Jan-20 1:38 PM
To: Sarah Ahmed; Adam Makarewicz
Cc: Maureen Van Ravens; Tony Boutassis; Jeff Jelsma; Jeff Markowiak
Subject: RE: 190618 - 100-104 Confederation Street TIA, Halton Hills - Scope of Work

Hello,

As per our recent phone call, I'd like to confirm that the required drawing of a pavement marking and signage plan can be submitted as part of the Draft Plan of Subdivision Application.

Should you have any other questions, please do not hesitate to contact me.

Regards,

Ivan Drewnitski
Transportation Planner
Transportation & Public Works
Town of Halton Hills
T: 905-873-2601 *ext.* 2328
idrewnitski@haltonhills.ca

From: Ivan Drewnitski
Sent: December-17-19 11:05 AM
To: 'sahmed@ptsl.com'
Cc: Maureen Van Ravens; Tony Boutassis; Jeff Jelsma; 'amakarewicz@ptsl.com'
Subject: RE: 190618 - 100-104 Confederation Street TIA, Halton Hills - Scope of Work

Hello Sarah,

We have reviewed the proposed work plan and in general, we are in agreement with the proposed work plan of the Transportation Impact Assessment (TIA). However, based on our review of the proposed work plan, please see my additional comments below:

- As the Town does not currently have Transportation Impact Study (TIS) Guidelines, please follow the Region's TIS Guidelines for transportation impact studies within the Town of Halton Hills.
- A thorough review of the proposed site access to Confederation Street will be required. Ensure that all TAC standards are adhered to including, but not limited to, sightlines, intersection spacing, corner clearances, road alignments, etc.
- Pavement marking and signage plan, please refer to the Ontario Traffic Manual regarding the type and location of signs and pavement markings.
- Detailed recommendations regarding on-site/off-site roadway improvements, site access, pedestrian & vehicular site circulation is to be made.
- Please provide the synchro analysis electronically as part of the submission.
- The TIS study shall provide detailed assessment of internal circulation (PTAC, Waste Collection, Emergency Vehicles, etc). Provide AutoTurn drawings in the appendix to illustrate the feasibility of efficient turning manoeuvers.

- Note that traffic count data, Synchro analysis reports, TTS data and any other referenced data/source shall be appended to the TIS document.
- Further comments may be provided should site plan modification occur.

The TIS Report shall include:

- Site Plan and Map,
- Size & Number of Development Phases (if applicable)
- Existing Conditions (Study Area Intersections, Road Network, Pedestrian Routes, Cycling Routes, Transit Services),
- Existing Traffic Conditions (Site Operating Characteristics, Data Collection/Traffic Counts, Analysis Periods (5 years Ahead),
- Future Background Conditions (Horizon Years, Horizon Year Volumes)
- Background Traffic Demand – Existing (with TMC's < 2 years old),
- Background Traffic Demand - Forecast (with acceptable growth rates),
- Site Generated Traffic (Transit Modal Split, Trip Generation/Distribution/Assignment)
- Future Total Traffic Demand,
- Capacity Analysis (by Intersection, with LOS, Avg. Delay, V/C ratios),
- Traffic Impacts (Tables – Total Traffic with/without Mitigation),
- Access Considerations – Existing, Proposed, Geometrics (turn lanes, sight lines),
- Recommendations,
- Conclusions.

Should you have any questions, please feel free to contact me.

Regards,

Ivan Drewnitski
Transportation Planner
Transportation & Public Works
Town of Halton Hills
T: 905-873-2601 *ext.* 2328
idrewnitski@haltonhills.ca

From: Tony Boutassis
Sent: December-10-19 10:54 AM
To: Ivan Drewnitski
Cc: Maureen Van Ravens; Jeff Jelsma
Subject: FW: 190618 - 100-104 Confederation Street TIA, Halton Hills - Scope of Work

Hi Ivan,

Can you look into the below information request from Sarah Ahmed with regard to the Confederation St. property. They require specific information to be able to complete their TIA. Please copy me on the correspondence back to Sarah so I'm kept in the loop. Thanks!

Tony Boutassis, M.Pl., MCIP, RPP
Senior Planner – Development Review
Planning & Sustainability

Town of Halton Hills
1 Halton Hills Drive
Halton Hills, ON L7G 5G2

Phone: 905-873-2601 ext. 2338
Fax: 905-877-3524
Email: tonyb@haltonhills.ca

From: Partridge, Shelley [mailto:Shelley.Partridge@halton.ca]
Sent: Tuesday, December 10, 2019 10:41 AM
To: 'sahmed@ptsl.com'
Cc: Tony Boutassis; 'amakarewicz@ptsl.com'
Subject: FW: 190618 - 100-104 Confederation Street TIA, Halton Hills - Scope of Work

Good Morning Sarah:

Alex forwarded your message to me, as I am the Regional staff person working on this file, given that it falls within Halton Hills.

I appreciate you providing this information to me, but there is no need for Regional staff to review or approve the provided Scope of Work as the proposed development does not use a Regional Road for access and we don't have any Regional Roads within close proximity to the site.

I am copying this message to Town of Halton Hills Planning staff, so the appropriate staff at the Town can provide you with input on the Scope of Work and the data you are requesting.

Should any questions arise regarding Regional Roads as you proceed with your work, please don't hesitate to contact me.

Thanks so much,

Shelley

Shelley Partridge
Senior Planner
Planning Services
Legislative & Planning Services
Halton Region
905-825-6000, ext. 7180 | 1-866-442-5866

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From: Sarah Ahmed [mailto:sahmed@ptsl.com]
Sent: Tuesday, December 10, 2019 9:49 AM
To: Pasquini, Alexsandria <Alex.Pasquini@halton.ca>

Cc: Adam Makarewicz <amakarewicz@ptsl.com>
Subject: FW: 190618 - 100-104 Confederation Street TIA, Halton Hills - Scope of Work

Good Morning,

Paradigm Transportation Solutions Limited has been retained to prepare a Transportation Impact Assessment for the proposed development of the lands located on the west side of Confederation Street in the Town of Halton Hills, Region of Halton.

The property owner is proposing to develop the property as a 34-estate lot subdivision in the Hamlet of Glen Williams. A single point of access to the development is proposed off Confederation Street between 100 and 104 Confederation Street. The proposal represents a density of 7.1 units per net residential hectare and will require an Official Plan Amendment, Zoning By-law Amendment and a Draft Plan of Subdivision. Please see attached concept plan for reference.

In assessing the transportation impacts of the site, we intend to analyze the operation of the following existing intersections, as well as proposed site driveways, for the Weekday AM and PM peak hours subject to the Town of Halton Hills and Region of Halton concurrence:

- Confederation Street at Wildwood Road/Main Street (unsignalized);
- Confederation Street at Mountain Street (unsignalized); and
- Up to one (1) new street connection (unsignalized).

Traffic forecasts and analysis will be completed for one (1) planning horizon (five (5) years from the date the study is commissioned) and two (2) analysis periods (weekday AM and PM peak hours).

The following details our proposed work plan to complete the study:

- Task 1 – Data Collection: Can you please provide the available traffic count(s), background growth rate(s), relevant background reports, planned road improvements in the study area and information about any other development applications in the vicinity, if applicable. We will conduct eight (8) hour turning movement and classification counts (7:00 to 10:00 AM, 11:30 AM to 1:30 PM, and 4:00 to 7:00 PM) at the study area intersections in January 2020.

  Paradigm will conduct a site visit to observe current traffic conditions on roads in the study area. Roadway configuration and traffic control will be documented and other related features such as pedestrian, cycling facilities and transit stops will be noted.

- Task 2 – Traffic Forecasting and Analysis: We will prepare vehicle traffic forecasts for each planning horizon and analysis period. The components of the traffic forecasts will be as follows:

  - Existing (Base Year) – 2020 volumes will be derived from the traffic counts collected in Task 1;
  - Future Background Volumes for the remaining horizon year of five from the date of the study will be estimated by applying a growth rate to the Existing volumes and adding anticipated trips from nearby approves and in-stream developments. Growth rates and developments to include in the background traffic forecasts will be confirmed with the Town and Region, as outlined in Task 1;
  - Vehicle trips generated by the proposed development will be forecast based on the rates contained in the Institute of Transportation Engineers (ITE) *Trip Generation* (10th Edition) and/or as directed by the Town and/or Region. The trips will be distributed and assigned to the study area intersections based on existing traffic patterns and/or Transportation Tomorrow Survey (TTS) data. The site-generated traffic will be added to the Future

Background estimates to produce Future Total volumes for the future horizon year and analysis periods (weekday AM and PM peak hours)

- We will analyze the operation of the study area intersections for the Existing, Future Background, and Future Total traffic conditions for each horizon year and analysis using Synchro software. Volume-to-capacity (v/c) ratios, Levels-of-Service (LOS) and queuing will be assessed.

- Task 3 – Report Preparation: We will document the study methodologies, findings and conclusions in a report and will include appendices containing the detailed analysis results and any data collected.

  Based on the analysis results, we will identify any existing deficiencies, as well as the net impact of the proposed development on the study area road network. The need for road improvements (e.g., provision of auxiliary turn lanes) and/or modifications to traffic control devices (e.g., addition of traffic control signals) to address any deficiencies will be determined. An assessment of whether these measures are required due to non-site traffic (i.e. Existing or Future Background) or the increase in traffic resulting from the proposed development will be completed.

If you have any questions please let me know, and we look forward to receiving the requested information outlined above and any comments you may have on the above work plan.

Thank you,

Sarah Ahmed, Dipl. T
Transportation Consultant

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge ON N1R 8J8
p: 905.381.2229 x308
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e: sahmed@ptsl.com
w: www.ptsl.com

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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: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020

Turning Movement Data

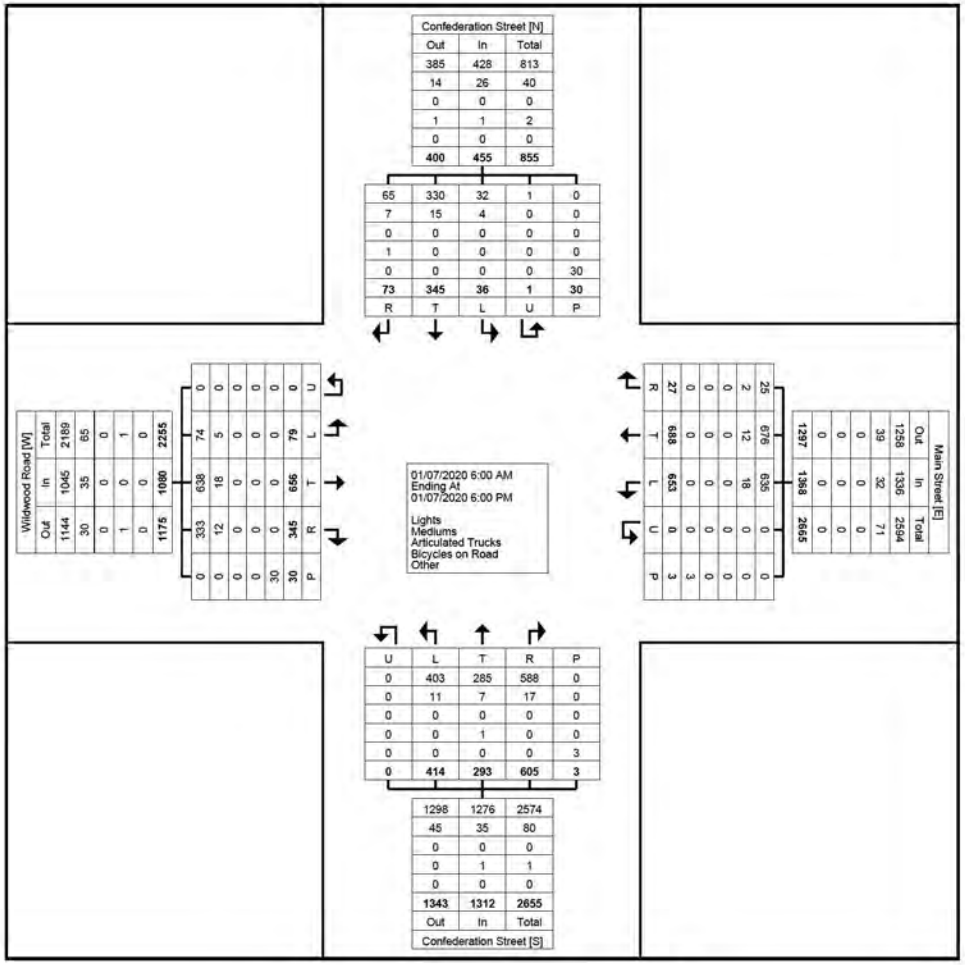
Start Time	Wildwood Road Eastbound						Main Street Westbound						Confederation Street Northbound						Confederation Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
6:00 AM	0	16	1	0	0	17	4	1	0	0	0	5	3	1	3	0	0	7	0	6	1	0	0	7	36
6:15 AM	2	26	8	0	1	36	7	4	0	0	0	11	2	0	6	0	0	8	1	4	0	0	0	5	60
6:30 AM	0	28	9	0	0	37	7	5	0	0	0	12	3	2	5	0	0	10	1	7	0	0	0	8	67
6:45 AM	0	36	9	0	0	45	8	7	0	0	0	15	6	1	7	0	0	14	3	6	0	0	0	9	83
Hourly Total	2	106	27	0	1	135	26	17	0	0	0	43	14	4	21	0	0	39	5	23	1	0	0	29	246
7:00 AM	0	33	7	0	1	40	20	5	0	0	0	25	1	3	10	0	0	14	4	12	0	0	1	16	95
7:15 AM	0	58	11	0	0	69	12	11	1	0	0	24	5	4	23	0	0	32	1	12	1	0	0	14	139
7:30 AM	1	49	8	0	0	58	18	13	0	0	0	31	6	4	22	0	0	32	2	12	2	0	0	16	137
7:45 AM	4	48	17	0	3	69	20	12	0	0	0	32	4	2	22	0	0	28	3	17	1	0	3	21	150
Hourly Total	5	188	43	0	4	236	70	41	1	0	0	112	16	13	77	0	0	106	10	53	4	0	4	67	521
8:00 AM	1	40	17	0	1	58	34	14	3	0	0	51	2	8	38	0	0	48	3	20	7	0	4	30	187
8:15 AM	3	31	18	0	3	52	37	19	2	0	0	58	8	2	11	0	0	21	1	20	4	0	4	25	156
8:30 AM	3	24	16	0	1	43	24	9	0	0	0	33	6	5	17	0	0	28	1	19	2	0	1	22	126
8:45 AM	1	21	26	0	1	48	18	12	0	0	0	30	9	5	19	0	1	33	0	20	5	0	1	25	136
Hourly Total	8	116	77	0	6	201	113	54	5	0	0	172	25	20	85	0	1	130	5	79	18	0	10	102	605
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	1	7	9	0	1	17	12	6	1	0	0	19	15	10	9	0	0	34	0	7	1	0	1	8	78
11:15 AM	2	11	4	0	1	17	12	2	0	0	0	14	6	6	12	0	0	24	0	8	4	0	1	12	67
11:30 AM	4	7	8	0	1	19	15	8	0	0	0	23	7	6	12	0	0	25	0	9	0	0	1	9	76
11:45 AM	0	2	11	0	0	13	14	8	0	0	0	22	10	4	17	0	0	31	2	6	1	0	0	9	75
Hourly Total	7	27	32	0	3	66	53	24	1	0	0	78	38	26	50	0	0	114	2	30	6	0	3	38	296
12:00 PM	4	0	8	0	1	12	14	5	0	0	0	19	15	10	25	0	0	50	0	10	3	0	2	13	94
12:15 PM	2	7	12	0	1	21	11	10	1	0	0	22	7	9	19	0	0	35	2	6	1	0	1	9	87
12:30 PM	5	4	5	0	0	14	16	5	0	0	0	21	13	8	16	0	0	37	2	9	2	0	0	13	85
12:45 PM	2	10	11	0	0	23	19	16	3	0	0	38	11	8	15	0	0	34	0	10	2	1	0	13	108
Hourly Total	13	21	36	0	2	70	60	36	4	0	0	100	46	35	75	0	0	156	4	35	8	1	3	48	374
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	11	9	0	0	21	26	33	0	0	1	59	20	11	13	0	0	44	1	16	2	0	0	19	143
3:15 PM	7	17	12	0	1	36	22	60	1	0	1	83	22	11	23	0	1	56	0	15	0	0	0	15	190
3:30 PM	7	10	15	0	0	32	15	34	2	0	0	51	26	9	24	0	0	59	2	7	2	0	0	11	153
3:45 PM	1	18	8	0	2	27	29	41	1	0	0	71	28	15	23	0	0	66	1	15	3	0	3	19	183
Hourly Total	16	56	44	0	3	116	92	168	4	0	2	264	96	46	83	0	1	225	4	53	7	0	3	64	669
4:00 PM	2	19	9	0	0	30	29	58	1	0	0	88	21	17	23	0	0	61	2	6	5	0	0	13	192
4:15 PM	3	16	10	0	0	29	32	45	1	0	0	78	28	18	33	0	0	79	2	8	7	0	0	17	203
4:30 PM	2	16	15	0	1	33	28	49	2	0	0	79	25	18	27	0	0	70	0	12	2	0	1	14	196

4:45 PM	5	20	15	0	1	40	28	51	2	0	0	81	22	16	34	0	0	72	1	9	0	0	1	10	203
Hourly Total	12	71	49	0	2	132	117	203	6	0	0	326	96	69	117	0	0	282	5	35	14	0	2	54	794
5:00 PM	3	17	13	0	4	33	41	40	1	0	0	82	25	22	31	0	0	78	0	8	2	0	2	10	203
5:15 PM	5	23	6	0	3	34	31	43	1	0	0	75	20	21	26	0	0	67	0	10	2	0	2	12	188
5:30 PM	5	15	9	0	2	29	23	35	1	0	1	59	21	20	20	0	1	61	1	14	7	0	1	22	171
5:45 PM	3	16	9	0	0	28	27	27	3	0	0	57	17	17	20	0	0	54	0	5	4	0	0	9	148
Hourly Total	16	71	37	0	9	124	122	145	6	0	1	273	83	80	97	0	1	260	1	37	15	0	5	53	710
Grand Total	79	656	345	0	30	1080	653	688	27	0	3	1368	414	293	605	0	3	1312	36	345	73	1	30	455	4215
Approach %	7.3	60.7	31.9	0.0	-	-	47.7	50.3	2.0	0.0	-	-	31.6	22.3	46.1	0.0	-	-	7.9	75.8	16.0	0.2	-	-	-
Total %	1.9	15.6	8.2	0.0	-	25.6	15.5	16.3	0.6	0.0	-	32.5	9.8	7.0	14.4	0.0	-	31.1	0.9	8.2	1.7	0.0	-	10.8	-
Lights	74	638	333	0	-	1045	635	676	25	0	-	1336	403	285	588	0	-	1276	32	330	65	1	-	428	4085
% Lights	93.7	97.3	96.5	-	-	96.8	97.2	98.3	92.6	-	-	97.7	97.3	97.3	97.2	-	-	97.3	88.9	95.7	89.0	100.0	-	94.1	96.9
Mediums	5	18	12	0	-	35	18	12	2	0	-	32	11	7	17	0	-	35	4	15	7	0	-	26	128
% Mediums	6.3	2.7	3.5	-	-	3.2	2.8	1.7	7.4	-	-	2.3	2.7	2.4	2.8	-	-	2.7	11.1	4.3	9.6	0.0	-	5.7	3.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	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	1	0	-	1	2
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.1	0.0	0.0	1.4	0.0	-	0.2	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	3.3	-	-
Pedestrians	-	-	-	-	30	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	29	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	96.7	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

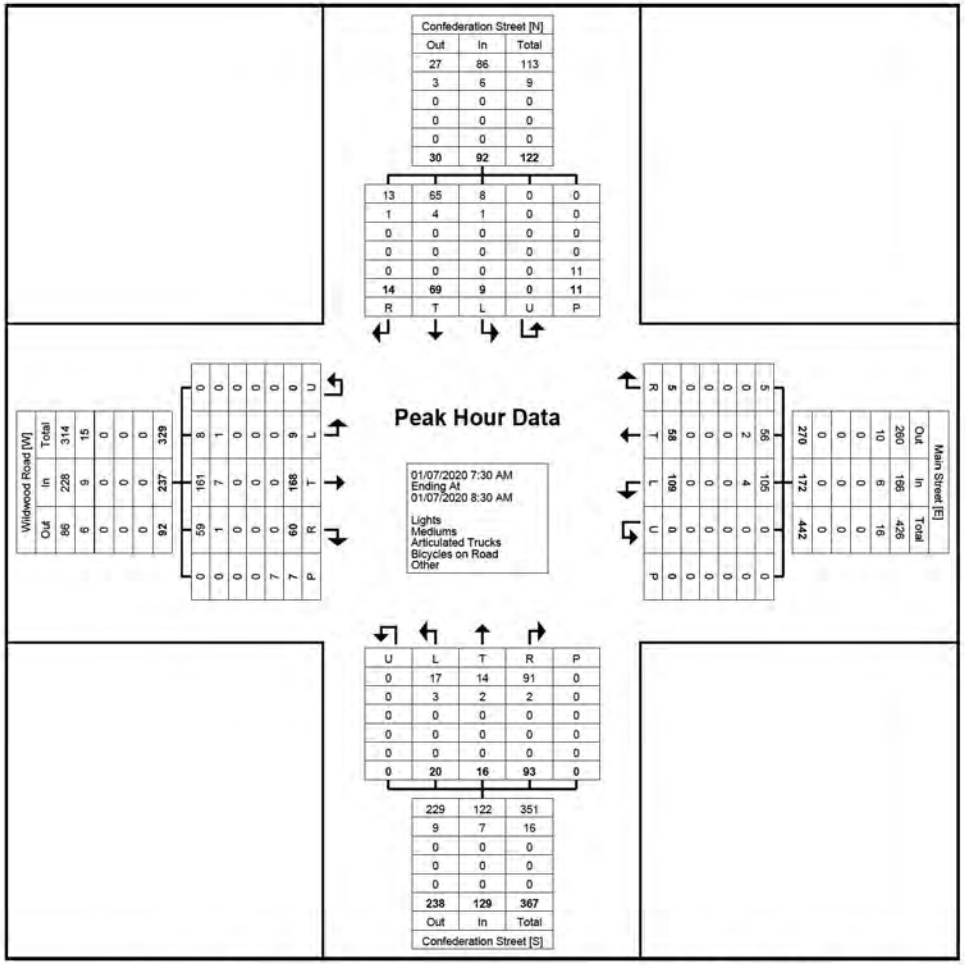
Count Name: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Wildwood Road Eastbound						Main Street Westbound						Confederation Street Northbound						Confederation Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	1	49	8	0	0	58	18	13	0	0	0	31	6	4	22	0	0	32	2	12	2	0	0	16	137
7:45 AM	4	48	17	0	3	69	20	12	0	0	0	32	4	2	22	0	0	28	3	17	1	0	3	21	150
8:00 AM	1	40	17	0	1	58	34	14	3	0	0	51	2	8	38	0	0	48	3	20	7	0	4	30	187
8:15 AM	3	31	18	0	3	52	37	19	2	0	0	58	8	2	11	0	0	21	1	20	4	0	4	25	156
Total	9	168	60	0	7	237	109	58	5	0	0	172	20	16	93	0	0	129	9	69	14	0	11	92	630
Approach %	3.8	70.9	25.3	0.0	-	-	63.4	33.7	2.9	0.0	-	-	15.5	12.4	72.1	0.0	-	-	9.8	75.0	15.2	0.0	-	-	-
Total %	1.4	26.7	9.5	0.0	-	37.6	17.3	9.2	0.8	0.0	-	27.3	3.2	2.5	14.8	0.0	-	20.5	1.4	11.0	2.2	0.0	-	14.6	-
PHF	0.563	0.857	0.833	0.000	-	0.859	0.736	0.763	0.417	0.000	-	0.741	0.625	0.500	0.612	0.000	-	0.672	0.750	0.863	0.500	0.000	-	0.767	0.842
Lights	8	161	59	0	-	228	105	56	5	0	-	166	17	14	91	0	-	122	8	65	13	0	-	86	602
% Lights	88.9	95.8	98.3	-	-	96.2	96.3	96.6	100.0	-	-	96.5	85.0	87.5	97.8	-	-	94.6	88.9	94.2	92.9	-	-	93.5	95.6
Mediums	1	7	1	0	-	9	4	2	0	0	-	6	3	2	2	0	-	7	1	4	1	0	-	6	28
% Mediums	11.1	4.2	1.7	-	-	3.8	3.7	3.4	0.0	-	-	3.5	15.0	12.5	2.2	-	-	5.4	11.1	5.8	7.1	-	-	6.5	4.4
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	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	11	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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



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

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Wildwood Road Eastbound						Main Street Westbound						Confederation Street Northbound						Confederation Street 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	
11:00 AM	1	7	9	0	1	17	12	6	1	0	0	19	15	10	9	0	0	34	0	7	1	0	1	8	78
11:15 AM	2	11	4	0	1	17	12	2	0	0	0	14	6	6	12	0	0	24	0	8	4	0	1	12	67
11:30 AM	4	7	8	0	1	19	15	8	0	0	0	23	7	6	12	0	0	25	0	9	0	0	1	9	76
11:45 AM	0	2	11	0	0	13	14	8	0	0	0	22	10	4	17	0	0	31	2	6	1	0	0	9	75
Total	7	27	32	0	3	66	53	24	1	0	0	78	38	26	50	0	0	114	2	30	6	0	3	38	296
Approach %	10.6	40.9	48.5	0.0	-	-	67.9	30.8	1.3	0.0	-	-	33.3	22.8	43.9	0.0	-	-	5.3	78.9	15.8	0.0	-	-	-
Total %	2.4	9.1	10.8	0.0	-	22.3	17.9	8.1	0.3	0.0	-	26.4	12.8	8.8	16.9	0.0	-	38.5	0.7	10.1	2.0	0.0	-	12.8	-
PHF	0.438	0.614	0.727	0.000	-	0.868	0.883	0.750	0.250	0.000	-	0.848	0.633	0.650	0.735	0.000	-	0.838	0.250	0.833	0.375	0.000	-	0.792	0.949
Lights	7	25	31	0	-	63	52	23	1	0	-	76	38	26	49	0	-	113	2	30	6	0	-	38	290
% Lights	100.0	92.6	96.9	-	-	95.5	98.1	95.8	100.0	-	-	97.4	100.0	100.0	98.0	-	-	99.1	100.0	100.0	100.0	-	-	100.0	98.0
Mediums	0	2	1	0	-	3	1	1	0	0	-	2	0	0	1	0	-	1	0	0	0	0	-	0	6
% Mediums	0.0	7.4	3.1	-	-	4.5	1.9	4.2	0.0	-	-	2.6	0.0	0.0	2.0	-	-	0.9	0.0	0.0	0.0	-	-	0.0	2.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	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	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	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: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020

Peak Hour Data

01/07/2020 11:00 AM
Ending At
01/07/2020 12:00 PM

Lights
Mediums
Articulated Trucks
Bicycles on Road
Other

Confederation Street [N]

Out	In	Total
34	38	72
0	0	0
0	0	0
0	0	0
0	0	0
34	**38**	**72**

R	T	L	U	P
6	30	2	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	3
6	**30**	**2**	**0**	**3**

Wildwood Road [W]

Out	In	Total
67	63	130
1	3	4
0	0	0
0	0	0
0	0	0
68	**66**	**134**

U	L	T	R	P
0	7	25	31	0
0	0	2	1	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	3
0	**7**	**27**	**32**	**3**

Main Street [E]

Out	In	Total
76	76	152
3	2	5
0	0	0
0	0	0
0	0	0
79	**78**	**157**

R	T	L	U	P
1	23	52	0	0
0	1	1	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	**24**	**53**	**0**	**0**

Confederation Street [S]

U	L	T	R	P
0	38	26	49	0
0	0	0	1	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	**38**	**26**	**50**	**0**

Out	In	Total
113	113	226
2	1	3
0	0	0
0	0	0
0	0	0
115	**114**	**229**

Turning Movement Peak Hour Data Plot (11:00 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020

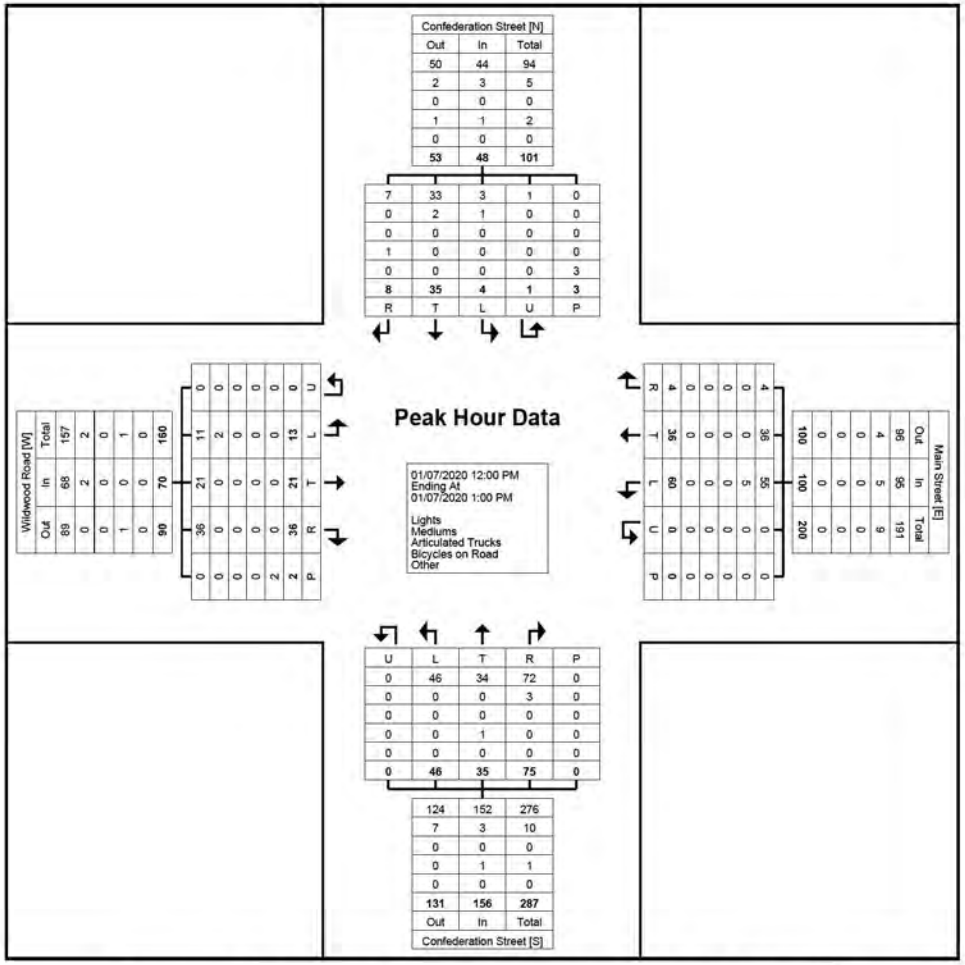
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Wildwood Road Eastbound						Main Street Westbound						Confederation Street Northbound						Confederation Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	4	0	8	0	1	12	14	5	0	0	0	19	15	10	25	0	0	50	0	10	3	0	2	13	94
12:15 PM	2	7	12	0	1	21	11	10	1	0	0	22	7	9	19	0	0	35	2	6	1	0	1	9	87
12:30 PM	5	4	5	0	0	14	16	5	0	0	0	21	13	8	16	0	0	37	2	9	2	0	0	13	85
12:45 PM	2	10	11	0	0	23	19	16	3	0	0	38	11	8	15	0	0	34	0	10	2	1	0	13	108
Total	13	21	36	0	2	70	60	36	4	0	0	100	46	35	75	0	0	156	4	35	8	1	3	48	374
Approach %	18.6	30.0	51.4	0.0	-	-	60.0	36.0	4.0	0.0	-	-	29.5	22.4	48.1	0.0	-	-	8.3	72.9	16.7	2.1	-	-	-
Total %	3.5	5.6	9.6	0.0	-	18.7	16.0	9.6	1.1	0.0	-	26.7	12.3	9.4	20.1	0.0	-	41.7	1.1	9.4	2.1	0.3	-	12.8	-
PHF	0.650	0.525	0.750	0.000	-	0.761	0.789	0.563	0.333	0.000	-	0.658	0.767	0.875	0.750	0.000	-	0.780	0.500	0.875	0.667	0.250	-	0.923	0.866
Lights	11	21	36	0	-	68	55	36	4	0	-	95	46	34	72	0	-	152	3	33	7	1	-	44	359
% Lights	84.6	100.0	100.0	-	-	97.1	91.7	100.0	100.0	-	-	95.0	100.0	97.1	96.0	-	-	97.4	75.0	94.3	87.5	100.0	-	91.7	96.0
Mediums	2	0	0	0	-	2	5	0	0	0	-	5	0	0	3	0	-	3	1	2	0	0	-	3	13
% Mediums	15.4	0.0	0.0	-	-	2.9	8.3	0.0	0.0	-	-	5.0	0.0	0.0	4.0	-	-	1.9	25.0	5.7	0.0	0.0	-	6.3	3.5
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	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	1	0	-	1	2
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	2.9	0.0	-	-	0.6	0.0	0.0	12.5	0.0	-	2.1	0.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	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: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020



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

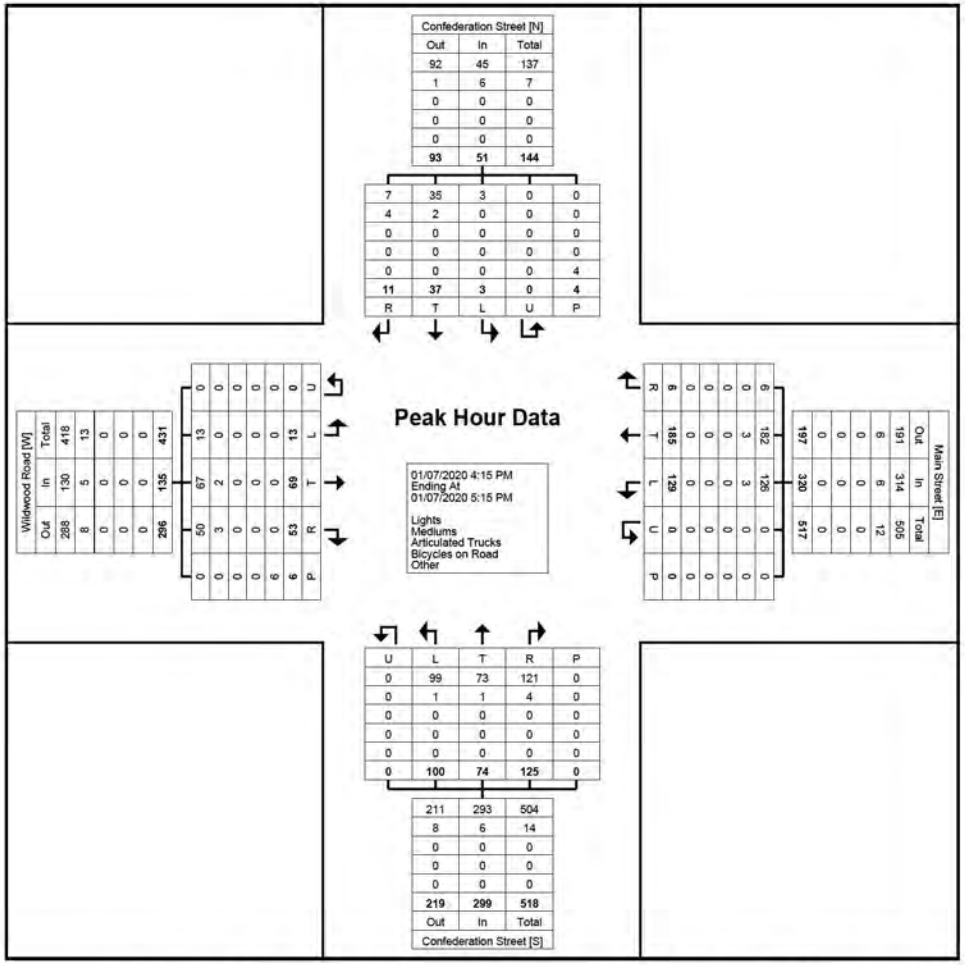
Count Name: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Wildwood Road Eastbound						Main Street Westbound						Confederation Street Northbound						Confederation Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:15 PM	3	16	10	0	0	29	32	45	1	0	0	78	28	18	33	0	0	79	2	8	7	0	0	17	203
4:30 PM	2	16	15	0	1	33	28	49	2	0	0	79	25	18	27	0	0	70	0	12	2	0	1	14	196
4:45 PM	5	20	15	0	1	40	28	51	2	0	0	81	22	16	34	0	0	72	1	9	0	0	1	10	203
5:00 PM	3	17	13	0	4	33	41	40	1	0	0	82	25	22	31	0	0	78	0	8	2	0	2	10	203
Total	13	69	53	0	6	135	129	185	6	0	0	320	100	74	125	0	0	299	3	37	11	0	4	51	805
Approach %	9.6	51.1	39.3	0.0	-	-	40.3	57.8	1.9	0.0	-	-	33.4	24.7	41.8	0.0	-	-	5.9	72.5	21.6	0.0	-	-	-
Total %	1.6	8.6	6.6	0.0	-	16.8	16.0	23.0	0.7	0.0	-	39.8	12.4	9.2	15.5	0.0	-	37.1	0.4	4.6	1.4	0.0	-	6.3	-
PHF	0.650	0.863	0.883	0.000	-	0.844	0.787	0.907	0.750	0.000	-	0.976	0.893	0.841	0.919	0.000	-	0.946	0.375	0.771	0.393	0.000	-	0.750	0.991
Lights	13	67	50	0	-	130	126	182	6	0	-	314	99	73	121	0	-	293	3	35	7	0	-	45	782
% Lights	100.0	97.1	94.3	-	-	96.3	97.7	98.4	100.0	-	-	98.1	99.0	98.6	96.8	-	-	98.0	100.0	94.6	63.6	-	-	88.2	97.1
Mediums	0	2	3	0	-	5	3	3	0	0	-	6	1	1	4	0	-	6	0	2	4	0	-	6	23
% Mediums	0.0	2.9	5.7	-	-	3.7	2.3	1.6	0.0	-	-	1.9	1.0	1.4	3.2	-	-	2.0	0.0	5.4	36.4	-	-	11.8	2.9
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	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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



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: Confederation Street & Wildwood Road/Main Street
Site Code:
Start Date: 01/07/2020

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Confederation Street & Mountain Street
Site Code:
Start Date: 01/07/2020

Turning Movement Data

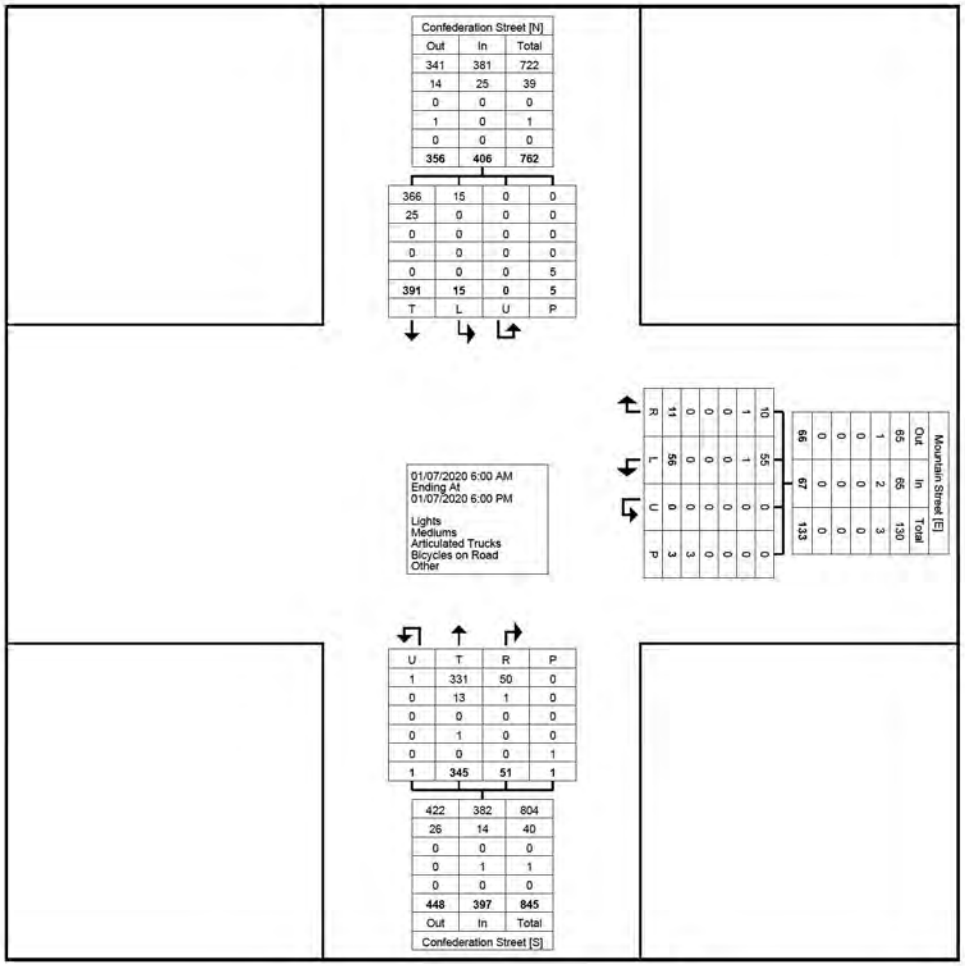
Start Time	Mountain Street Westbound					Confederation Street Northbound					Confederation Street Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
6:00 AM	0	0	0	0	0	1	0	0	0	1	0	7	0	0	7	8
6:15 AM	0	0	0	0	0	1	1	0	0	2	2	5	0	0	7	9
6:30 AM	3	0	0	0	3	3	0	0	0	3	0	5	0	0	5	11
6:45 AM	1	0	0	0	1	1	0	0	0	1	1	8	0	0	9	11
Hourly Total	4	0	0	0	4	6	1	0	0	7	3	25	0	0	28	39
7:00 AM	3	0	0	0	3	2	1	0	0	3	0	12	0	0	12	18
7:15 AM	1	0	0	0	1	5	0	0	0	5	1	11	0	0	12	18
7:30 AM	1	0	0	0	1	5	0	0	0	5	2	12	0	0	14	20
7:45 AM	3	0	0	0	3	2	3	0	0	5	0	22	0	0	22	30
Hourly Total	8	0	0	0	8	14	4	0	0	18	3	57	0	0	60	86
8:00 AM	5	0	0	0	5	9	3	1	0	13	0	28	0	1	28	46
8:15 AM	4	1	0	0	5	6	2	0	0	8	1	19	0	0	20	33
8:30 AM	0	0	0	0	0	6	2	0	0	8	2	21	0	1	23	31
8:45 AM	4	1	0	0	5	7	0	0	0	7	1	19	0	0	20	32
Hourly Total	13	2	0	0	15	28	7	1	0	36	4	87	0	2	91	142
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	1	0	0	0	1	11	1	0	0	12	0	6	0	0	6	19
11:15 AM	2	0	0	0	2	6	2	0	0	8	0	10	0	0	10	20
11:30 AM	1	0	0	0	1	8	0	0	0	8	1	9	0	0	10	19
11:45 AM	1	0	0	0	1	4	0	0	0	4	0	8	0	0	8	13
Hourly Total	5	0	0	0	5	29	3	0	0	32	1	33	0	0	34	71
12:00 PM	5	0	0	0	5	10	3	0	0	13	0	9	0	0	9	27
12:15 PM	0	0	0	0	0	12	0	0	0	12	0	7	0	0	7	19
12:30 PM	1	0	0	0	1	11	2	0	0	13	0	13	0	0	13	27
12:45 PM	1	1	0	0	2	11	1	0	0	12	0	11	0	0	11	25
Hourly Total	7	1	0	0	8	44	6	0	0	50	0	40	0	0	40	98
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	1	0	0	2	9	2	0	0	11	0	19	0	0	19	32
3:15 PM	1	0	0	0	1	16	3	0	0	19	1	14	0	2	15	35
3:30 PM	2	1	0	0	3	16	2	0	0	18	0	6	0	0	6	27
3:45 PM	5	0	0	0	5	18	1	0	0	19	1	16	0	1	17	41
Hourly Total	9	2	0	0	11	59	8	0	0	67	2	55	0	3	57	135
4:00 PM	1	0	0	1	1	17	2	0	0	19	1	9	0	0	10	30
4:15 PM	1	2	0	0	3	21	1	0	0	22	0	17	0	0	17	42
4:30 PM	1	0	0	0	1	19	4	0	0	23	0	12	0	0	12	36
4:45 PM	2	0	0	0	2	21	5	0	0	26	0	7	0	0	7	35

Hourly Total	5	2	0	1	7	78	12	0	0	90	1	45	0	0	46	143
5:00 PM	1	1	0	2	2	22	2	0	1	24	0	12	0	0	12	38
5:15 PM	1	1	0	0	2	24	3	0	0	27	0	10	0	0	10	39
5:30 PM	2	0	0	0	2	22	4	0	0	26	1	18	0	0	19	47
5:45 PM	1	2	0	0	3	19	1	0	0	20	0	9	0	0	9	32
Hourly Total	5	4	0	2	9	87	10	0	1	97	1	49	0	0	50	156
Grand Total	56	11	0	3	67	345	51	1	1	397	15	391	0	5	406	870
Approach %	83.6	16.4	0.0	-	-	86.9	12.8	0.3	-	-	3.7	96.3	0.0	-	-	-
Total %	6.4	1.3	0.0	-	7.7	39.7	5.9	0.1	-	45.6	1.7	44.9	0.0	-	46.7	-
Lights	55	10	0	-	65	331	50	1	-	382	15	366	0	-	381	828
% Lights	98.2	90.9	-	-	97.0	95.9	98.0	100.0	-	96.2	100.0	93.6	-	-	93.8	95.2
Mediums	1	1	0	-	2	13	1	0	-	14	0	25	0	-	25	41
% Mediums	1.8	9.1	-	-	3.0	3.8	2.0	0.0	-	3.5	0.0	6.4	-	-	6.2	4.7
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	-	-	0.0	0.3	0.0	0.0	-	0.3	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	3	-	-	-	-	1	-	-	-	-	5	-	-
% Pedestrians	-	-	-	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: Confederation Street & Mountain Street
Site Code:
Start Date: 01/07/2020



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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519-896-3163 cbowness@ptsl.com

Count Name: Confederation Street & Mountain Street
Site Code:
Start Date: 01/07/2020

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Mountain Street Westbound					Confederation Street Northbound					Confederation Street Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
8:00 AM	5	0	0	0	5	9	3	1	0	13	0	28	0	1	28	46
8:15 AM	4	1	0	0	5	6	2	0	0	8	1	19	0	0	20	33
8:30 AM	0	0	0	0	0	6	2	0	0	8	2	21	0	1	23	31
8:45 AM	4	1	0	0	5	7	0	0	0	7	1	19	0	0	20	32
Total	13	2	0	0	15	28	7	1	0	36	4	87	0	2	91	142
Approach %	86.7	13.3	0.0	-	-	77.8	19.4	2.8	-	-	4.4	95.6	0.0	-	-	-
Total %	9.2	1.4	0.0	-	10.6	19.7	4.9	0.7	-	25.4	2.8	61.3	0.0	-	64.1	-
PHF	0.650	0.500	0.000	-	0.750	0.778	0.583	0.250	-	0.692	0.500	0.777	0.000	-	0.813	0.772
Lights	13	2	0	-	15	23	7	1	-	31	4	79	0	-	83	129
% Lights	100.0	100.0	-	-	100.0	82.1	100.0	100.0	-	86.1	100.0	90.8	-	-	91.2	90.8
Mediums	0	0	0	-	0	5	0	0	-	5	0	8	0	-	8	13
% Mediums	0.0	0.0	-	-	0.0	17.9	0.0	0.0	-	13.9	0.0	9.2	-	-	8.8	9.2
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	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
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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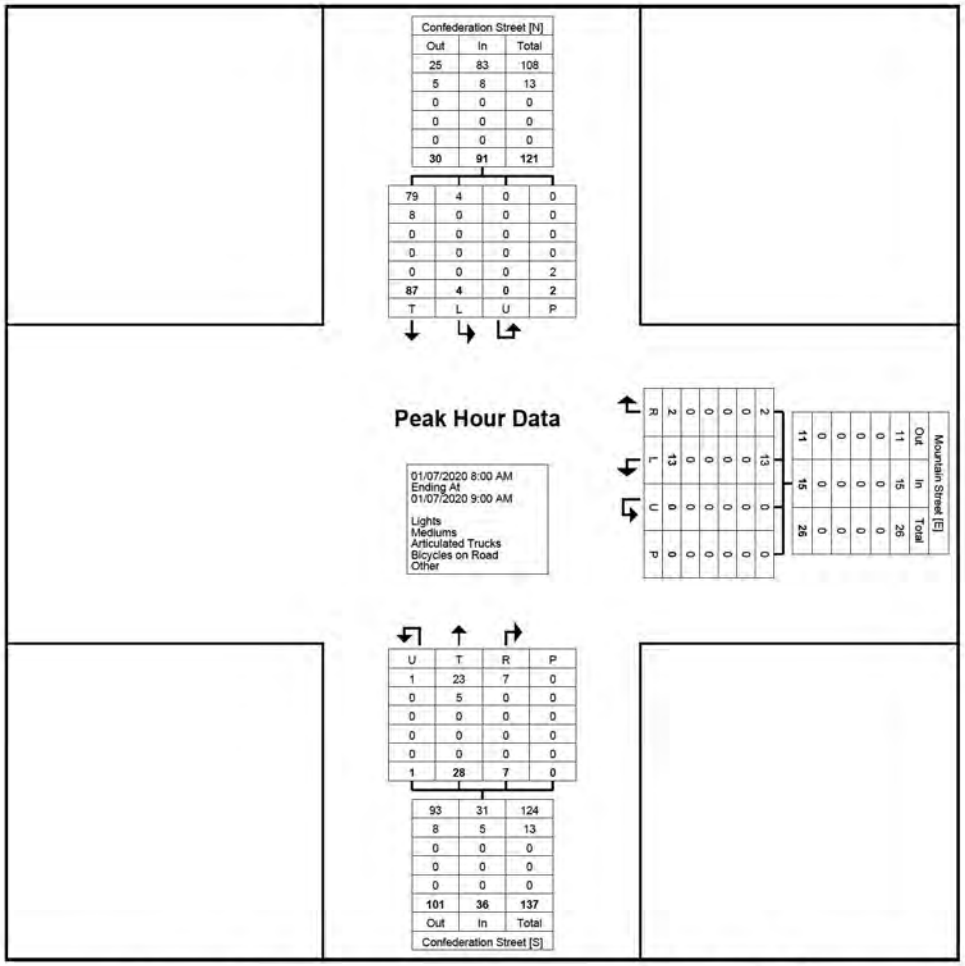

Turning Movement Peak Hour Data Plot (8:00 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Confederation Street & Mountain Street
Site Code:
Start Date: 01/07/2020

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Mountain Street Westbound					Confederation Street Northbound					Confederation Street Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
11:00 AM	1	0	0	0	1	11	1	0	0	12	0	6	0	0	6	19
11:15 AM	2	0	0	0	2	6	2	0	0	8	0	10	0	0	10	20
11:30 AM	1	0	0	0	1	8	0	0	0	8	1	9	0	0	10	19
11:45 AM	1	0	0	0	1	4	0	0	0	4	0	8	0	0	8	13
Total	5	0	0	0	5	29	3	0	0	32	1	33	0	0	34	71
Approach %	100.0	0.0	0.0	-	-	90.6	9.4	0.0	-	-	2.9	97.1	0.0	-	-	-
Total %	7.0	0.0	0.0	-	7.0	40.8	4.2	0.0	-	45.1	1.4	46.5	0.0	-	47.9	-
PHF	0.625	0.000	0.000	-	0.625	0.659	0.375	0.000	-	0.667	0.250	0.825	0.000	-	0.850	0.888
Lights	5	0	0	-	5	29	3	0	-	32	1	33	0	-	34	71
% Lights	100.0	-	-	-	100.0	100.0	100.0	-	-	100.0	100.0	100.0	-	-	100.0	100.0
Mediums	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Mediums	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
% 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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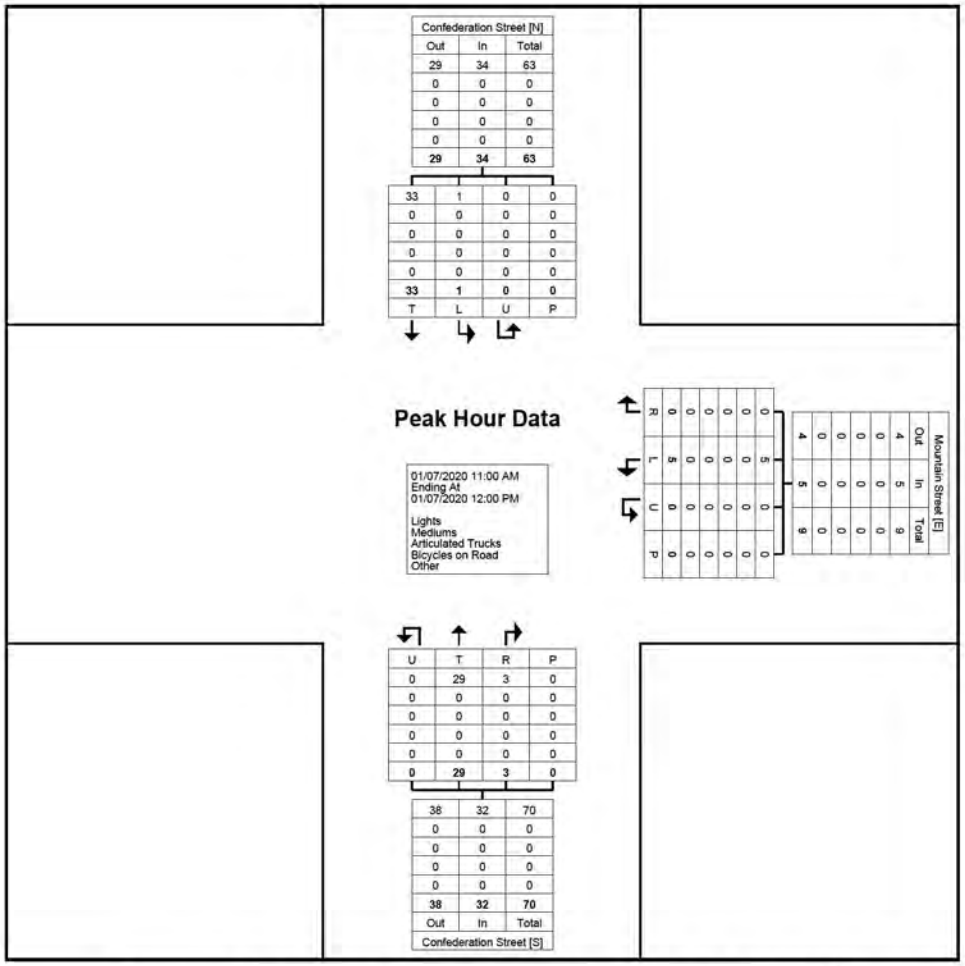
Start Date: 01/07/2020



Turning Movement Peak Hour Data Plot (11:00 AM)

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5A-150 Pinebush Rd

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519-896-3163 cbowness@ptsl.com

Count Name: Confederation Street & Mountain Street
Site Code:
Start Date: 01/07/2020

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Mountain Street Westbound					Confederation Street Northbound					Confederation Street Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
12:00 PM	5	0	0	0	5	10	3	0	0	13	0	9	0	0	9	27
12:15 PM	0	0	0	0	0	12	0	0	0	12	0	7	0	0	7	19
12:30 PM	1	0	0	0	1	11	2	0	0	13	0	13	0	0	13	27
12:45 PM	1	1	0	0	2	11	1	0	0	12	0	11	0	0	11	25
Total	7	1	0	0	8	44	6	0	0	50	0	40	0	0	40	98
Approach %	87.5	12.5	0.0	-	-	88.0	12.0	0.0	-	-	0.0	100.0	0.0	-	-	-
Total %	7.1	1.0	0.0	-	8.2	44.9	6.1	0.0	-	51.0	0.0	40.8	0.0	-	40.8	-
PHF	0.350	0.250	0.000	-	0.400	0.917	0.500	0.000	-	0.962	0.000	0.769	0.000	-	0.769	0.907
Lights	6	1	0	-	7	42	5	0	-	47	0	38	0	-	38	92
% Lights	85.7	100.0	-	-	87.5	95.5	83.3	-	-	94.0	-	95.0	-	-	95.0	93.9
Mediums	1	0	0	-	1	1	1	0	-	2	0	2	0	-	2	5
% Mediums	14.3	0.0	-	-	12.5	2.3	16.7	-	-	4.0	-	5.0	-	-	5.0	5.1
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	1	0	0	-	1	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	-	-	0.0	2.3	0.0	-	-	2.0	-	0.0	-	-	0.0	1.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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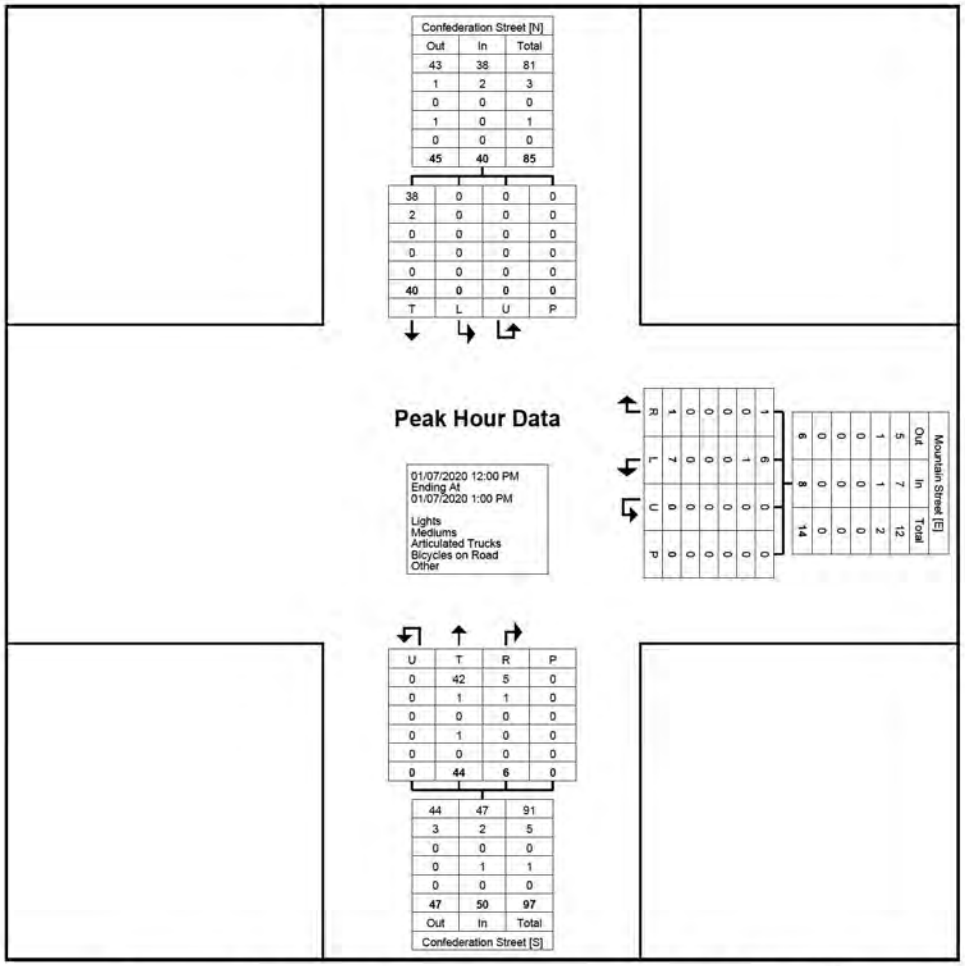

Turning Movement Peak Hour Data Plot (12:00 PM)

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5A-150 Pinebush Rd

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Count Name: Confederation Street & Mountain Street
Site Code:
Start Date: 01/07/2020

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Mountain Street Westbound					Confederation Street Northbound					Confederation Street Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
4:45 PM	2	0	0	0	2	21	5	0	0	26	0	7	0	0	7	35
5:00 PM	1	1	0	2	2	22	2	0	1	24	0	12	0	0	12	38
5:15 PM	1	1	0	0	2	24	3	0	0	27	0	10	0	0	10	39
5:30 PM	2	0	0	0	2	22	4	0	0	26	1	18	0	0	19	47
Total	6	2	0	2	8	89	14	0	1	103	1	47	0	0	48	159
Approach %	75.0	25.0	0.0	-	-	86.4	13.6	0.0	-	-	2.1	97.9	0.0	-	-	-
Total %	3.8	1.3	0.0	-	5.0	56.0	8.8	0.0	-	64.8	0.6	29.6	0.0	-	30.2	-
PHF	0.750	0.500	0.000	-	1.000	0.927	0.700	0.000	-	0.954	0.250	0.653	0.000	-	0.632	0.846
Lights	6	2	0	-	8	88	14	0	-	102	1	46	0	-	47	157
% Lights	100.0	100.0	-	-	100.0	98.9	100.0	-	-	99.0	100.0	97.9	-	-	97.9	98.7
Mediums	0	0	0	-	0	1	0	0	-	1	0	1	0	-	1	2
% Mediums	0.0	0.0	-	-	0.0	1.1	0.0	-	-	1.0	0.0	2.1	-	-	2.1	1.3
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	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	2	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

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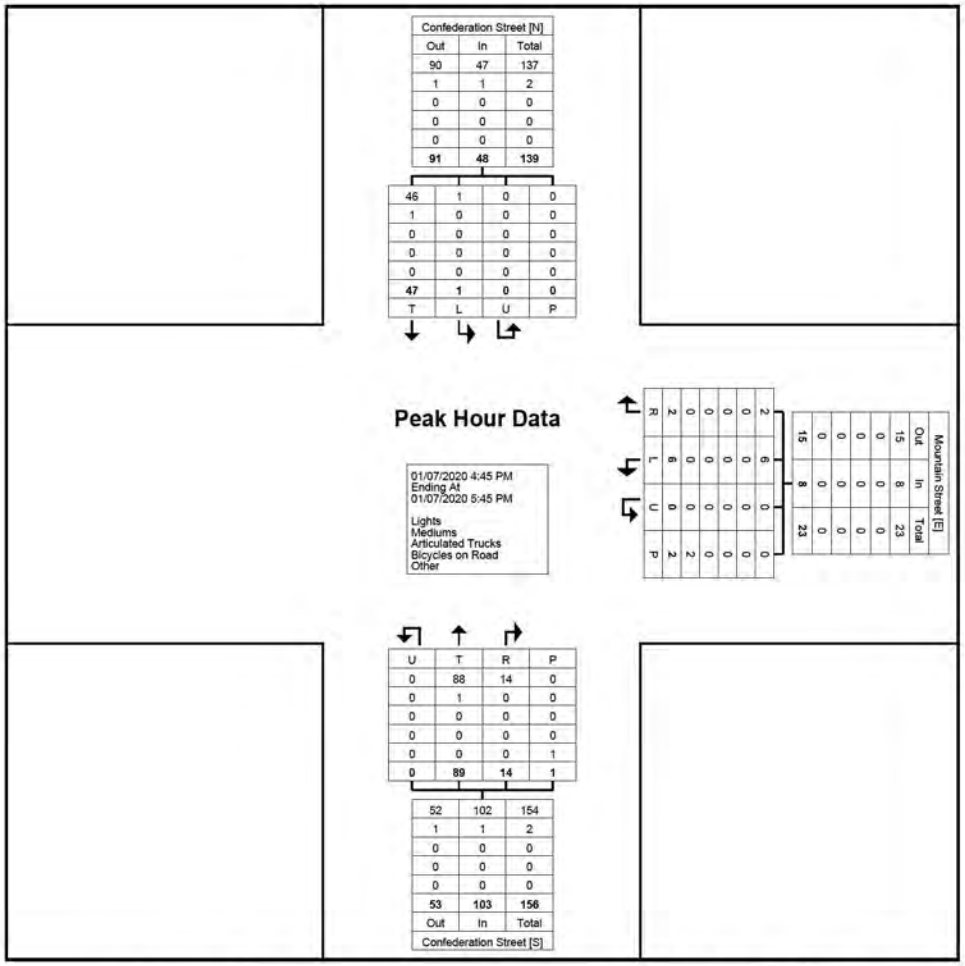

Turning Movement Peak Hour Data Plot (4:45 PM)

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5A-150 Pinebush Rd

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Count Name: Confederation Street & Mountain Street
Site Code:
Start Date: 01/07/2020

Appendix C

Sightline Field Sheets

Sight Distance Field Form

General Information	
Project:	Glen Williams Estates
Project Number:	190618
Jurisdiction:	Town of Halton Hills
Date:	January 8 2020
Time:	12:00pm
Weather:	Sunny
Notes:	
Intersection:	Confederation Street & Street A

Roadway Information	
Posted Speed (Major Road) (km/h):	50
Design Speed (Major Road) (km/h):	70
85th Percentile Speed (Major Road) (km/h)	-
Horizontal Curve (Yes or No):	No
Vertical Curve (Yes or No):	Yes
Major Road Pavement Width (m):	6.2
No. of Lanes (Major Road):	2
Minor Road Pavement Width (m):	7.0 (estimated)
No. of Lanes (Minor Road):	2
STOP Block Setback Distance (d) (m):	3.0 TAC

Sight Distance Information

Intersection Sight Distance Information: A (Driver's Eye) to D (Object Height)

Driver Eye Height (m)	1.08
Object Height (m)	1.30
Recommended ISD (m):	130
Field Measured (m):	130m
Notes:	It was garbage day today, Cans lined the road causing a visual obsticle. I'm sure you have abit longer distance for the view but i could not go past 130m because of the cans.

Intersection Sight Distance Information: A (Driver's Eye) to B (Object Height)

Driver Eye Height (m)	1.08
Object Height (m)	1.30
Recommended ISD (m):	185
Field Measured (m):	325m
Notes:	This distance brings you to the 4-way stop sign intersection on Confederation Street

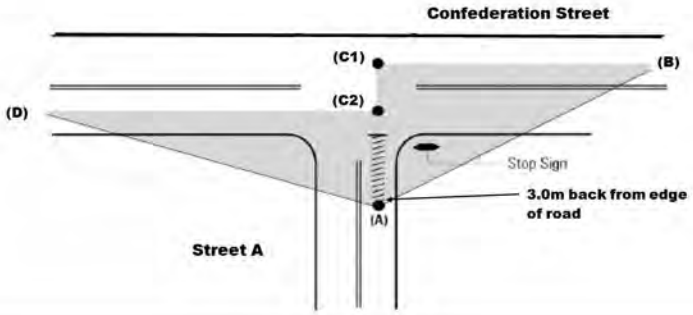
Decision Sight Distance Information: B (Driver's Eye) to C1 (Object Height)

Driver Eye Height (m)	1.08
Object Height (m)	0.60
Recommended DSD (m):	200
Field Measured (m):	325m
Notes:	This distance brings you to the 4-way stop sign intersection on Confederation Street

Decision Sight Distance Information: D (Driver's Eye) to C2 (Object Height)

Driver Eye Height (m)	1.08
Object Height (m)	0.60
Recommended DSD (m):	200
Field Measured (m):	147m
Notes:	

Visual Depiction




50

Appendix D

Trip Distribution Calculations

Tue Jan 21 2020 14:20:12 GMT-0500 (Eastern Standard Time) - Run Time: 2604ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of employment - pd_emp
Column: Planning district of household - pd_hhld

Filters:
2006 GTA zone of household - gta06_hhld In 4163

4164	4166	4162	4194	4161	4159	4160	4158	4157

Trip 2016
Table:

	Halton Hills		
PD 1 of Toronto	1955	4%	
PD 2 of Toronto	244	0%	
PD 3 of Toronto	101	0%	
PD 4 of Toronto	244	0%	
PD 5 of Toronto	30	0%	
PD 7 of Toronto	116	0%	
PD 8 of Toronto	1261	2%	
PD 9 of Toronto	1195	2%	
PD 10 of Toronto	1395	3%	
PD 11 of Toronto	179	0%	
PD 12 of Toronto	220	0%	
PD 16 of Toronto	71	0%	
Whitby	88	0%	
Newmarket	42	0%	
Aurora	26	0%	
Richmond Hill	45	0%	
Markham	97	0%	
Vaughan	1168	2%	
		5%	East Mountain Street
		10%	East Main Street
Caledon	1679	1%	East Mountain Street
		2%	East Main Street
Brampton	7691	4%	East Mountain Street
		10%	East Main Street
Mississauga	11542	21%	South Confederation Street
Halton Hills	18406	34%	Local Dist.
Barrie	307	2%	
	54936	100%	

LOCAL DIST.

		AM	PM			Halton Hills (34%)
North	Confederat	30	48	78	5%	2%
South	Confederat	238	299	537	38%	13%
East	Main Stree	270	320	590	41%	14%
West	Wildwood R	92	135	227	16%	5%
				1432		34%

Appendix E

Operational Capacity Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	168	60	109	58	5	20	16	93	9	69	14
Future Volume (vph)	9	168	60	109	58	5	20	16	93	9	69	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		25.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.966				0.850		0.903			0.980	
Flt Protected		0.998			0.968			0.992			0.995	
Satd. Flow (prot)	0	1765	0	0	1774	1615	0	1617	0	0	1737	0
Flt Permitted		0.998			0.968			0.992			0.995	
Satd. Flow (perm)	0	1765	0	0	1774	1615	0	1617	0	0	1737	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		177.7			198.0			280.3			375.4	
Travel Time (s)		12.8			14.3			20.2			27.0	
Confl. Peds. (#/hr)	11					11	7					7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	4%	2%	4%	3%	0%	15%	12%	2%	11%	6%	7%
Adj. Flow (vph)	10	183	65	118	63	5	22	17	101	10	75	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	258	0	0	181	5	0	140	0	0	100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	168	60	109	58	5	20	16	93	9	69	14
Future Volume (vph)	9	168	60	109	58	5	20	16	93	9	69	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	183	65	118	63	5	22	17	101	10	75	15

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	258	181	5	140	100
Volume Left (vph)	10	118	0	22	10
Volume Right (vph)	65	0	5	101	15
Hadj (s)	-0.08	0.19	-0.60	-0.31	0.04
Departure Headway (s)	4.7	5.0	3.2	4.8	5.2
Degree Utilization, x	0.34	0.25	0.00	0.19	0.15
Capacity (veh/h)	722	669	1121	677	619
Control Delay (s)	10.0	9.7	6.2	8.9	9.1
Approach Delay (s)	10.0	9.7		8.9	9.1
Approach LOS	B	A		A	A

Intersection Summary					
Delay		9.6			
Level of Service		A			
Intersection Capacity Utilization		45.2%	ICU Level of Service		A
Analysis Period (min)		15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	2	28	7	4	87
Future Volume (vph)	13	2	28	7	4	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.983		0.972			
Flt Protected	0.958					0.998
Satd. Flow (prot)	1789	0	1617	0	0	1745
Flt Permitted	0.958					0.998
Satd. Flow (perm)	1789	0	1617	0	0	1745
Link Speed (k/h)	50		50			50
Link Distance (m)	189.9		56.2			122.8
Travel Time (s)	13.7		4.0			8.8
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	9%
Adj. Flow (vph)	14	2	30	8	4	95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	38	0	0	99
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	13	2	28	7	4	87
Future Volume (Veh/h)	13	2	28	7	4	87
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	2	30	8	4	95
Pedestrians						2
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	137	36			38	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	137	36			38	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	859	1041			1585	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	38	99
Volume Left	14	0	4
Volume Right	2	8	0
cSH	878	1700	1585
Volume to Capacity	0.02	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.1
Control Delay (s)	9.2	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Configurations												
Traffic Volume (vph)	13	69	53	129	185	6	100	74	125	3	37	11
Future Volume (vph)	13	69	53	129	185	6	100	74	125	3	37	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		25.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.947				0.850		0.944			0.971	
Flt Protected		0.995			0.980			0.984			0.997	
Satd. Flow (prot)	0	1723	0	0	1825	1615	0	1733	0	0	1650	0
Flt Permitted		0.995			0.980			0.984			0.997	
Satd. Flow (perm)	0	1723	0	0	1825	1615	0	1733	0	0	1650	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		177.7			198.0			280.3			375.4	
Travel Time (s)		12.8			14.3			20.2			27.0	
Confl. Peds. (#/hr)	4					4	6					6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	6%	2%	2%	0%	1%	1%	3%	0%	5%	36%
Adj. Flow (vph)	14	75	58	140	201	7	109	80	136	3	40	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	147	0	0	341	7	0	325	0	0	55	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	58.2%	ICU Level of Service B	
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	69	53	129	185	6	100	74	125	3	37	11
Future Volume (vph)	13	69	53	129	185	6	100	74	125	3	37	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	75	58	140	201	7	109	80	136	3	40	12

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	147	341	7	325	55
Volume Left (vph)	14	140	0	109	3
Volume Right (vph)	58	0	7	136	12
Hadj (s)	-0.15	0.12	-0.60	-0.15	0.08
Departure Headway (s)	5.3	5.3	3.2	5.2	5.9
Degree Utilization, x	0.22	0.50	0.01	0.47	0.09
Capacity (veh/h)	609	643	1121	648	531
Control Delay (s)	9.8	13.5	6.2	12.6	9.5
Approach Delay (s)	9.8	13.4		12.6	9.5
Approach LOS	A	B		B	A

Intersection Summary				
Delay	12.3			
Level of Service	B			
Intersection Capacity Utilization	58.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	2	89	14	1	47
Future Volume (vph)	6	2	89	14	1	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.970		0.982			
Flt Protected	0.963					0.999
Satd. Flow (prot)	1775	0	1850	0	0	1862
Flt Permitted	0.963					0.999
Satd. Flow (perm)	1775	0	1850	0	0	1862
Link Speed (k/h)	50		50			50
Link Distance (m)	189.9		56.2			122.8
Travel Time (s)	13.7		4.0			8.8
Confl. Peds. (#/hr)	1			2	2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Adj. Flow (vph)	7	2	97	15	1	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	112	0	0	52
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Configurations						
Traffic Volume (veh/h)	6	2	89	14	1	47
Future Volume (Veh/h)	6	2	89	14	1	47
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	2	97	15	1	51
Pedestrians	2		1			
Lane Width (m)	3.6		3.6			
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	160	106			114	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160	106			114	
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	100			100	
cM capacity (veh/h)	832	952			1485	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	112	52
Volume Left	7	0	1
Volume Right	2	15	0
cSH	856	1700	1485
Volume to Capacity	0.01	0.07	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.2	0.0	0.1
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	0.1
Approach LOS	A		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	16.1%	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)	10	185	66	120	64	6	22	18	103	10	76	15
Future Volume (vph)	10	185	66	120	64	6	22	18	103	10	76	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		25.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.966				0.850		0.903			0.980	
Flt Protected		0.998			0.969			0.992			0.995	
Satd. Flow (prot)	0	1765	0	0	1776	1615	0	1617	0	0	1737	0
Flt Permitted		0.998			0.969			0.992			0.995	
Satd. Flow (perm)	0	1765	0	0	1776	1615	0	1617	0	0	1737	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		177.7			198.0			280.3			375.4	
Travel Time (s)		12.8			14.3			20.2			27.0	
Confl. Peds. (#/hr)	11					11	7					7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	4%	2%	4%	3%	0%	15%	12%	2%	11%	6%	7%
Adj. Flow (vph)	11	201	72	130	70	7	24	20	112	11	83	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	284	0	0	200	7	0	156	0	0	110	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.4%	ICU Level of Service A	
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	185	66	120	64	6	22	18	103	10	76	15
Future Volume (vph)	10	185	66	120	64	6	22	18	103	10	76	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	201	72	130	70	7	24	20	112	11	83	16

				NB 1	SB 1							
Volume Total (vph)	284	200	7	156	110							
Volume Left (vph)	11	130	0	24	11							
Volume Right (vph)	72	0	7	112	16							
Hadj (s)	-0.08	0.19	-0.60	-0.31	0.05							
Departure Headway (s)	4.8	5.2	3.2	5.0	5.4							
Degree Utilization, x	0.38	0.29	0.01	0.22	0.17							
Capacity (veh/h)	703	648	1121	642	594							
Control Delay (s)	10.7	10.3	6.2	9.4	9.5							
Approach Delay (s)	10.7	10.1		9.4	9.5							
Approach LOS	B	B		A	A							

Intersection Summary					
Delay	10.1				
Level of Service	B				
Intersection Capacity Utilization	48.4%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	2	31	8	4	96
Future Volume (vph)	14	2	31	8	4	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.984		0.972			
Flt Protected	0.958					0.998
Satd. Flow (prot)	1791	0	1617	0	0	1745
Flt Permitted	0.958					0.998
Satd. Flow (perm)	1791	0	1617	0	0	1745
Link Speed (k/h)	50		50			50
Link Distance (m)	189.9		56.2			122.8
Travel Time (s)	13.7		4.0			8.8
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	9%
Adj. Flow (vph)	15	2	34	9	4	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	43	0	0	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	2	31	8	4	96
Future Volume (Veh/h)	14	2	31	8	4	96
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	2	34	9	4	104
Pedestrians						2
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	150	40			43	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	150	40			43	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	844	1035			1579	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	43	108
Volume Left	15	0	4
Volume Right	2	9	0
cSH	863	1700	1579
Volume to Capacity	0.02	0.03	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.3	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	18.9%	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)	14	76	59	142	204	7	110	82	138	3	41	12
Future Volume (vph)	14	76	59	142	204	7	110	82	138	3	41	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		25.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.947				0.850		0.944			0.971	
Flt Protected		0.995			0.980			0.984			0.998	
Satd. Flow (prot)	0	1723	0	0	1825	1615	0	1733	0	0	1653	0
Flt Permitted		0.995			0.980			0.984			0.998	
Satd. Flow (perm)	0	1723	0	0	1825	1615	0	1733	0	0	1653	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		177.7			198.0			280.3			375.4	
Travel Time (s)		12.8			14.3			20.2			27.0	
Confl. Peds. (#/hr)	4					4	6					6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	6%	2%	2%	0%	1%	1%	3%	0%	5%	36%
Adj. Flow (vph)	15	83	64	154	222	8	120	89	150	3	45	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	162	0	0	376	8	0	359	0	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	62.5%	ICU Level of Service B	
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	76	59	142	204	7	110	82	138	3	41	12
Future Volume (vph)	14	76	59	142	204	7	110	82	138	3	41	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	83	64	154	222	8	120	89	150	3	45	13

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	162	376	8	359	61
Volume Left (vph)	15	154	0	120	3
Volume Right (vph)	64	0	8	150	13
Hadj (s)	-0.15	0.12	-0.60	-0.15	0.08
Departure Headway (s)	5.6	5.5	3.2	5.4	6.2
Degree Utilization, x	0.25	0.57	0.01	0.54	0.10
Capacity (veh/h)	576	622	1121	627	487
Control Delay (s)	10.5	15.7	6.2	14.4	9.9
Approach Delay (s)	10.5	15.5		14.4	9.9
Approach LOS	B	C		B	A

Intersection Summary			
Delay	13.9		
Level of Service	B		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	2	98	15	1	52
Future Volume (vph)	7	2	98	15	1	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.973		0.982			
Flt Protected	0.962					0.999
Satd. Flow (prot)	1778	0	1850	0	0	1862
Flt Permitted	0.962					0.999
Satd. Flow (perm)	1778	0	1850	0	0	1862
Link Speed (k/h)	50		50			50
Link Distance (m)	189.9		56.2			122.8
Travel Time (s)	13.7		4.0			8.8
Confl. Peds. (#/hr)	1			2	2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Adj. Flow (vph)	8	2	107	16	1	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	123	0	0	58
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	2	98	15	1	52
Future Volume (Veh/h)	7	2	98	15	1	52
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	2	107	16	1	57
Pedestrians	2		1			
Lane Width (m)	3.6		3.6			
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	177	117			125	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	177	117			125	
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	100			100	
cM capacity (veh/h)	815	939			1472	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	123	58
Volume Left	8	0	1
Volume Right	2	16	0
cSH	837	1700	1472
Volume to Capacity	0.01	0.07	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.4	0.0	0.1
Lane LOS	A		A
Approach Delay (s)	9.4	0.0	0.1
Approach LOS	A		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	16.6%	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)	11	185	66	120	64	9	22	21	103	18	85	17
Future Volume (vph)	11	185	66	120	64	9	22	21	103	18	85	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		25.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.966				0.850		0.905			0.981	
Flt Protected		0.998			0.969			0.993			0.992	
Satd. Flow (prot)	0	1765	0	0	1776	1615	0	1620	0	0	1730	0
Flt Permitted		0.998			0.969			0.993			0.992	
Satd. Flow (perm)	0	1765	0	0	1776	1615	0	1620	0	0	1730	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		177.7			198.0			280.3			375.4	
Travel Time (s)		12.8			14.3			20.2			27.0	
Confl. Peds. (#/hr)	11					11	7					7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	4%	2%	4%	3%	0%	15%	12%	2%	11%	6%	7%
Adj. Flow (vph)	12	201	72	130	70	10	24	23	112	20	92	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	285	0	0	200	10	0	159	0	0	130	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.0%	ICU Level of Service A	
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↱		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	11	185	66	120	64	9	22	21	103	18	85	17
Future Volume (vph)	11	185	66	120	64	9	22	21	103	18	85	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	201	72	130	70	10	24	23	112	20	92	18

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	285	200	10	159	130
Volume Left (vph)	12	130	0	24	20
Volume Right (vph)	72	0	10	112	18
Hadj (s)	-0.08	0.19	-0.60	-0.30	0.07
Departure Headway (s)	4.9	5.3	3.2	5.1	5.5
Degree Utilization, x	0.39	0.29	0.01	0.22	0.20
Capacity (veh/h)	690	634	1121	632	591
Control Delay (s)	11.0	10.5	6.2	9.5	9.8
Approach Delay (s)	11.0	10.3		9.5	9.8
Approach LOS	B	B		A	A

Intersection Summary				
Delay	10.3			
Level of Service	B			
Intersection Capacity Utilization	47.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	2	31	11	4	96
Future Volume (vph)	15	2	31	11	4	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.985		0.965			
Flt Protected	0.957					0.998
Satd. Flow (prot)	1791	0	1618	0	0	1745
Flt Permitted	0.957					0.998
Satd. Flow (perm)	1791	0	1618	0	0	1745
Link Speed (k/h)	50		50			50
Link Distance (m)	189.9		56.2			122.8
Travel Time (s)	13.7		4.0			8.8
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	18%	0%	0%	9%
Adj. Flow (vph)	16	2	34	12	4	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	46	0	0	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.9%	ICU Level of Service A	
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	2	31	11	4	96
Future Volume (Veh/h)	15	2	31	11	4	96
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	2	34	12	4	104
Pedestrians						2
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	152	42			46	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152	42			46	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	842	1033			1575	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	18	46	108
Volume Left	16	0	4
Volume Right	2	12	0
cSH	860	1700	1575
Volume to Capacity	0.02	0.03	0.00
Queue Length 95th (m)	0.5	0.0	0.1
Control Delay (s)	9.3	0.0	0.3
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	0.3
Approach LOS	A		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	19	6	39	110	1
Future Volume (vph)	3	19	6	39	110	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.999	
Flt Protected	0.994			0.993		
Satd. Flow (prot)	1633	0	0	1850	1861	0
Flt Permitted	0.994			0.993		
Satd. Flow (perm)	1633	0	0	1850	1861	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	159.3			375.4	56.2	
Travel Time (s)	11.5			27.0	4.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	21	7	42	120	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	0	49	121	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	19	6	39	110	1
Future Volume (Veh/h)	3	19	6	39	110	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	21	7	42	120	1
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	176	120	121			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176	120	121			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	809	931	1467			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	24	49	121
Volume Left	3	7	0
Volume Right	21	0	1
cSH	914	1467	1700
Volume to Capacity	0.03	0.00	0.07
Queue Length 95th (m)	0.6	0.1	0.0
Control Delay (s)	9.0	1.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	1.1	0.0
Approach LOS	A		

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	17.1%	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)	15	76	59	142	204	12	110	87	138	11	50	15
Future Volume (vph)	15	76	59	142	204	12	110	87	138	11	50	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		25.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.947				0.850		0.945			0.974	
Flt Protected		0.995			0.980			0.984			0.993	
Satd. Flow (prot)	0	1723	0	0	1825	1615	0	1735	0	0	1666	0
Flt Permitted		0.995			0.980			0.984			0.993	
Satd. Flow (perm)	0	1723	0	0	1825	1615	0	1735	0	0	1666	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		177.7			198.0			280.3			375.4	
Travel Time (s)		12.8			14.3			20.2			27.0	
Confl. Peds. (#/hr)	4					4	6					6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	6%	2%	2%	0%	1%	1%	3%	0%	5%	36%
Adj. Flow (vph)	16	83	64	154	222	13	120	95	150	12	54	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	0	0	376	13	0	365	0	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	62.8%	ICU Level of Service B	
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	15	76	59	142	204	12	110	87	138	11	50	15
Future Volume (vph)	15	76	59	142	204	12	110	87	138	11	50	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	83	64	154	222	13	120	95	150	12	54	16

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	163	376	13	365	82
Volume Left (vph)	16	154	0	120	12
Volume Right (vph)	64	0	13	150	16
Hadj (s)	-0.15	0.12	-0.60	-0.15	0.09
Departure Headway (s)	5.7	5.6	3.2	5.5	6.3
Degree Utilization, x	0.26	0.59	0.01	0.55	0.14
Capacity (veh/h)	559	609	1121	617	484
Control Delay (s)	10.7	16.2	6.2	15.0	10.3
Approach Delay (s)	10.7	15.9		15.0	10.3
Approach LOS	B	C		C	B

Intersection Summary				
Delay	14.3			
Level of Service	B			
Intersection Capacity Utilization	62.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Configurations						
Future Volume (vph)	9	2	98	18	1	52
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.977		0.979			
Satd. Flow (prot)	1782	0	1845	0	0	1862
Satd. Flow (perm)	1782	0	1845	0	0	1862
Link Distance (m)	189.9		56.2			122.8
Confl. Peds. (#/hr)	1			2	2	
Heavy Vehicles (%)	0%	0%	1%	0%	0%	2%
Shared Lane Traffic (%)						
Enter Blocked Intersection	No	No	No	No	No	No
Median Width(m)	3.6		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	16.7%	ICU Level of Service	A
Analysis Period (min)	15		

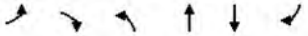
Lane Configurations						
Traffic Volume (veh/h)	9	2	98	18	1	52
Future Volume (Veh/h)	9	2	98	18	1	52
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	2	107	20	1	57
Pedestrians	2		1			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	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	179	119			129	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	179	119			129	
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	100			100	
cM capacity (veh/h)	813	937			1467	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	12	127	58
Volume Left	10	0	1
Volume Right	2	20	0
cSH	831	1700	1467
Volume to Capacity	0.01	0.07	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	9.4	0.0	0.1
Lane LOS	A		A
Approach Delay (s)	9.4	0.0	0.1
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	16.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Configurations						
Future Volume (vph)	3	20	11	114	59	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.994			0.996		
Flt Permitted	0.994			0.996		
Link Speed (k/h)	50			50	50	
Travel Time (s)	11.5			27.0	4.0	
Adj. Flow (vph)	3	22	12	124	64	2
Lane Group Flow (vph)	25	0	0	136	66	0
Lane Alignment	Left	Right	Left	Left	Left	Right
Link Offset(m)	0.0			0.0	0.0	
Two way Left Turn Lane						
Turning Speed (k/h)	25	15	25			15

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	20	11	114	59	2
Future Volume (Veh/h)	3	20	11	114	59	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	22	12	124	64	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	213	65	66			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	213	65	66			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	769	999	1536			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	25	136	66
Volume Left	3	12	0
Volume Right	22	0	2
cSH	964	1536	1700
Volume to Capacity	0.03	0.01	0.04
Queue Length 95th (m)	0.6	0.2	0.0
Control Delay (s)	8.8	0.7	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	0.7	0.0
Approach LOS	A		

Intersection Summary				
Average Delay		1.4		
Intersection Capacity Utilization		23.3%	ICU Level of Service	A
Analysis Period (min)		15		

Appendix F

SimTraffic Simulation

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:12	8:12	8:12	8:12	8:12	8:12	8:12
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	784	768	762	742	748	788	752
Vehs Exited	778	770	763	733	743	784	750
Starting Vehs	8	13	18	9	5	10	6
Ending Vehs	14	11	17	18	10	14	8
Travel Distance (km)	389	372	370	368	370	389	375
Travel Time (hr)	10.6	10.3	10.1	10.0	10.0	10.6	10.1
Total Delay (hr)	2.0	2.0	1.9	1.9	1.8	2.0	1.8
Total Stops	776	761	755	721	734	801	745
Fuel Used (l)	36.2	34.6	34.4	33.3	33.9	36.0	33.9

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:12	8:12	8:12	8:12
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	790	754	756	762
Vehs Exited	782	770	756	763
Starting Vehs	3	19	13	11
Ending Vehs	11	3	13	9
Travel Distance (km)	386	375	366	376
Travel Time (hr)	10.4	10.2	10.0	10.2
Total Delay (hr)	1.9	1.9	1.9	1.9
Total Stops	770	756	745	756
Fuel Used (l)	35.2	34.8	33.9	34.6

Interval #0 Information Seeding

Start Time	6:57
End Time	7:12
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:12
End Time	8:12
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	784	768	762	742	748	788	752
Vehs Exited	778	770	763	733	743	784	750
Starting Vehs	8	13	18	9	5	10	6
Ending Vehs	14	11	17	18	10	14	8
Travel Distance (km)	389	372	370	368	370	389	375
Travel Time (hr)	10.6	10.3	10.1	10.0	10.0	10.6	10.1
Total Delay (hr)	2.0	2.0	1.9	1.9	1.8	2.0	1.8
Total Stops	776	761	755	721	734	801	745
Fuel Used (l)	36.2	34.6	34.4	33.3	33.9	36.0	33.9

Interval #1 Information Recording

Start Time	7:12
End Time	8:12
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	790	754	756	762
Vehs Exited	782	770	756	763
Starting Vehs	3	19	13	11
Ending Vehs	11	3	13	9
Travel Distance (km)	386	375	366	376
Travel Time (hr)	10.4	10.2	10.0	10.2
Total Delay (hr)	1.9	1.9	1.9	1.9
Total Stops	770	756	745	756
Fuel Used (l)	35.2	34.8	33.9	34.6

Intersection: 1: Confederation Street & Wildwood Road/Main Street

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (m)	32.7	26.6	2.6	22.6	24.4
Average Queue (m)	15.1	13.3	0.1	7.1	11.7
95th Queue (m)	25.5	22.5	1.9	16.0	20.1
Link Distance (m)	160.0	184.4		262.6	356.1
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)			25.0		
Storage Blk Time (%)		0			
Queuing Penalty (veh)		0			

Intersection: 2: Confederation Street & Mountain Street

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	10.7	1.0	2.5
Average Queue (m)	3.6	0.0	0.1
95th Queue (m)	10.7	1.0	1.8
Link Distance (m)	181.0	35.9	116.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Confederation Street & Street A

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	10.4	3.7
Average Queue (m)	4.7	0.2
95th Queue (m)	11.9	2.7
Link Distance (m)	150.4	356.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	6:57	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:12	8:12	8:12	8:12	8:12	8:12	8:12
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	903	955	907	987	935	879	969
Vehs Exited	899	957	911	989	929	877	965
Starting Vehs	14	14	18	19	9	14	7
Ending Vehs	18	12	14	17	15	16	11
Travel Distance (km)	448	472	467	494	467	441	489
Travel Time (hr)	12.2	13.1	12.9	14.1	13.2	12.0	13.5
Total Delay (hr)	2.3	2.6	2.7	3.1	2.8	2.4	2.7
Total Stops	893	943	905	991	936	880	970
Fuel Used (l)	41.5	43.1	43.0	45.5	43.5	40.7	45.2

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	6:57	6:57	6:57	6:57
End Time	8:12	8:12	8:12	8:12
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	905	950	895	928
Vehs Exited	912	952	897	929
Starting Vehs	15	10	16	10
Ending Vehs	8	8	14	11
Travel Distance (km)	455	478	449	466
Travel Time (hr)	12.6	13.5	12.5	13.0
Total Delay (hr)	2.5	2.9	2.6	2.7
Total Stops	920	953	895	930
Fuel Used (l)	41.8	44.2	40.9	42.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:12
Total Time (min)	15

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:12
End Time	8:12
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	903	955	907	987	935	879	969
Vehs Exited	899	957	911	989	929	877	965
Starting Vehs	14	14	18	19	9	14	7
Ending Vehs	18	12	14	17	15	16	11
Travel Distance (km)	448	472	467	494	467	441	489
Travel Time (hr)	12.2	13.1	12.9	14.1	13.2	12.0	13.5
Total Delay (hr)	2.3	2.6	2.7	3.1	2.8	2.4	2.7
Total Stops	893	943	905	991	936	880	970
Fuel Used (l)	41.5	43.1	43.0	45.5	43.5	40.7	45.2

Interval #1 Information Recording

Start Time	7:12
End Time	8:12
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	905	950	895	928
Vehs Exited	912	952	897	929
Starting Vehs	15	10	16	10
Ending Vehs	8	8	14	11
Travel Distance (km)	455	478	449	466
Travel Time (hr)	12.6	13.5	12.5	13.0
Total Delay (hr)	2.5	2.9	2.6	2.7
Total Stops	920	953	895	930
Fuel Used (l)	41.8	44.2	40.9	42.9

Intersection: 1: Confederation Street & Wildwood Road/Main Street

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (m)	22.3	44.3	3.2	34.1	22.7
Average Queue (m)	11.2	19.3	0.1	12.9	9.9
95th Queue (m)	19.3	34.1	3.2	26.0	18.6
Link Distance (m)	160.0	184.4		262.6	356.1
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)			25.0		
Storage Blk Time (%)		3			
Queuing Penalty (veh)		0			

Intersection: 2: Confederation Street & Mountain Street

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.8
Average Queue (m)	2.4
95th Queue (m)	8.7
Link Distance (m)	181.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Confederation Street & Street A

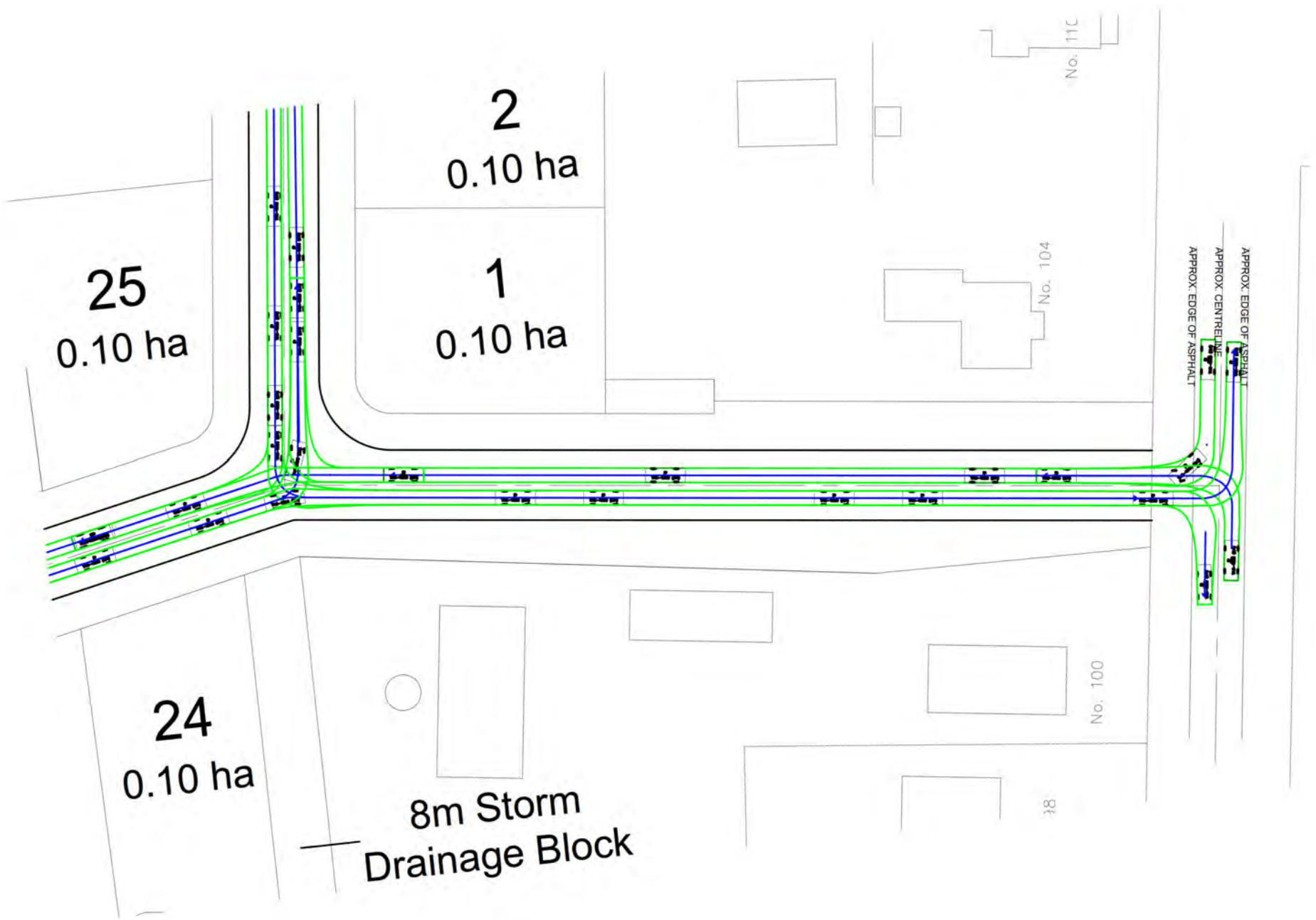
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	9.0	3.6
Average Queue (m)	4.5	0.2
95th Queue (m)	11.4	2.2
Link Distance (m)	150.4	356.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Appendix G

AutoTURN Analysis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24
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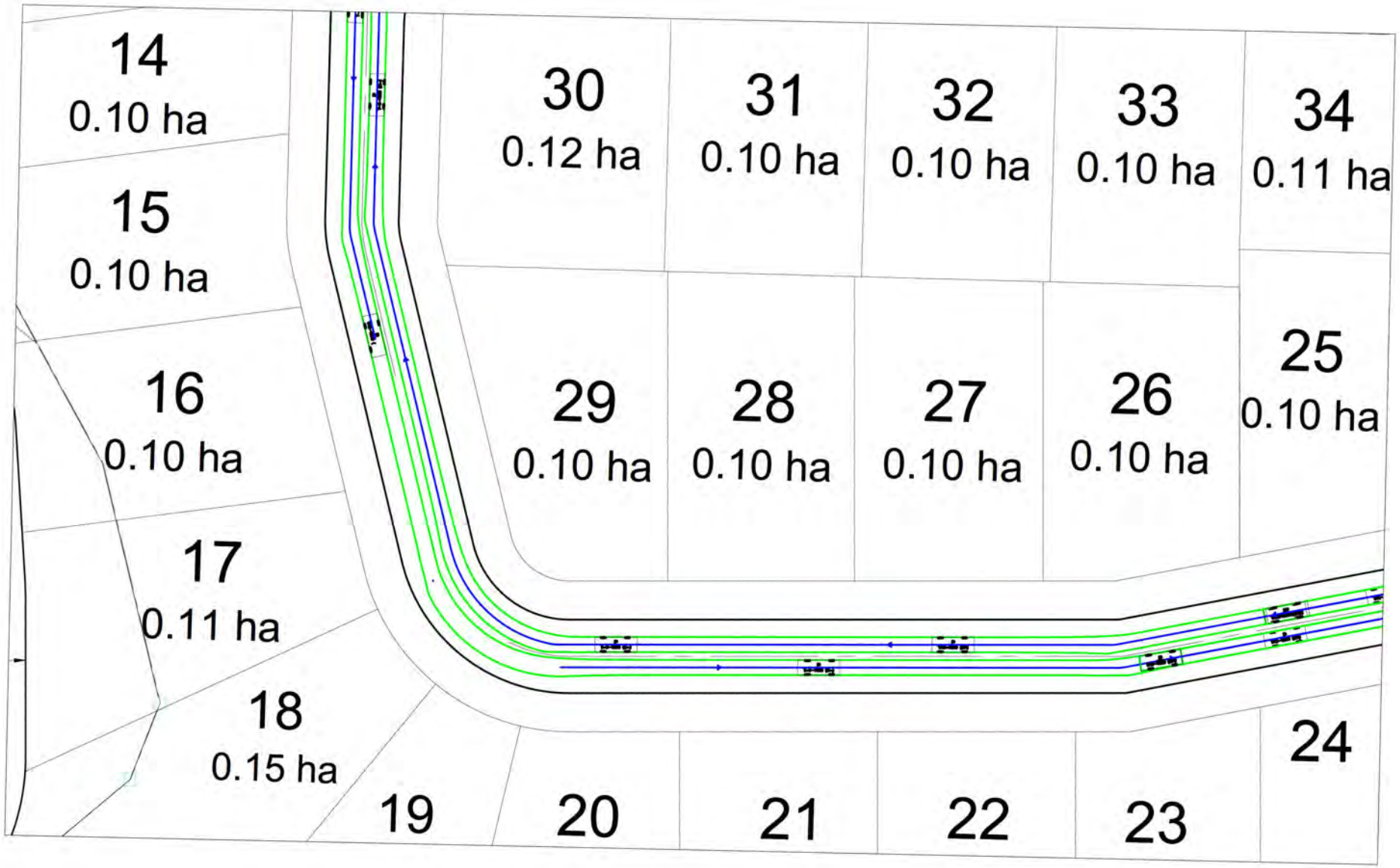
APPROX. CENTRELINE
APPROX. EDGE OF ASPHALT
8m Storm
Drainage Block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25
0.10 ha
26
0.10 ha
27
0.10 ha
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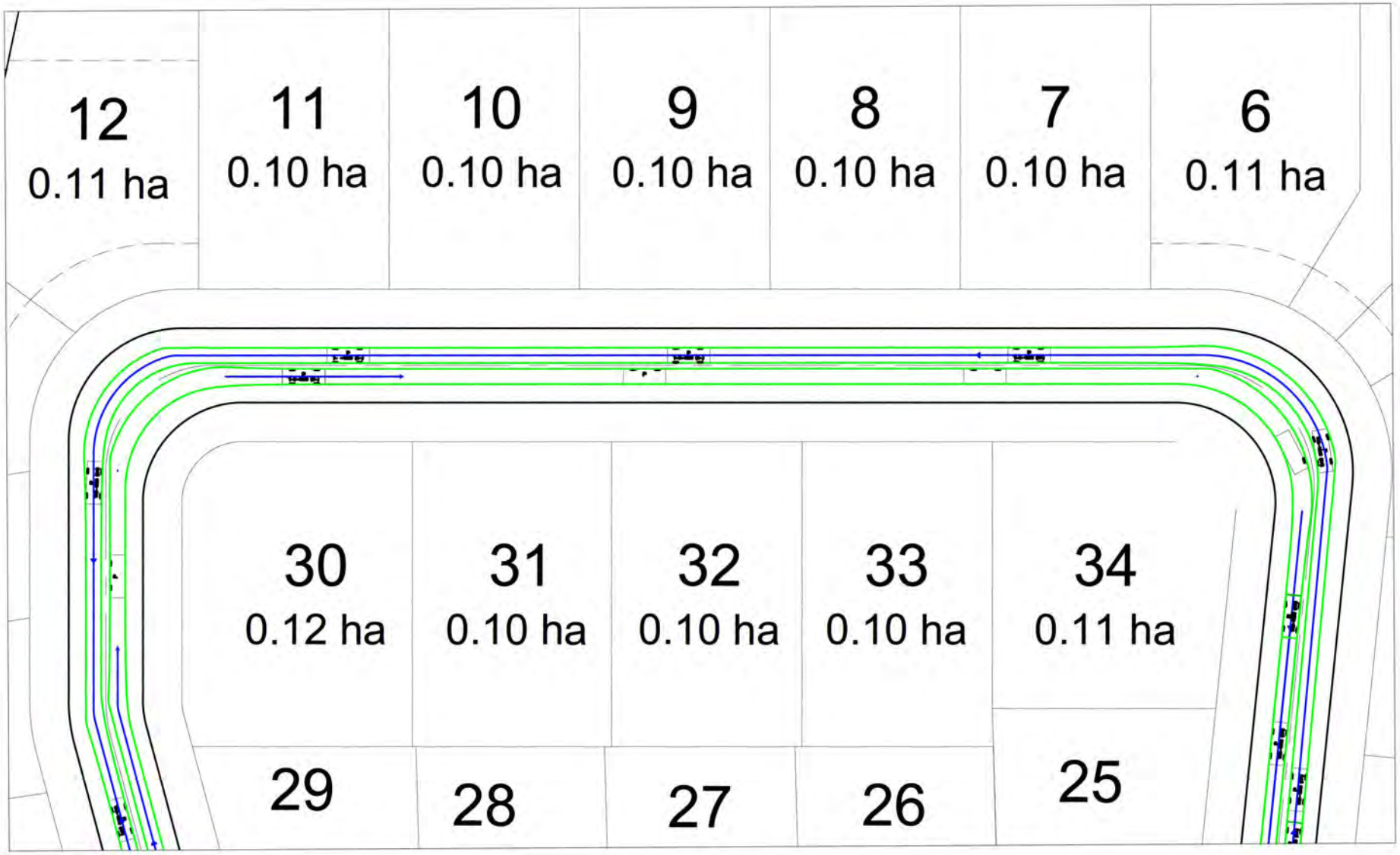
0.11 ha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30
0.12 ha
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32
0.10 ha
33
0.10 ha
34
0.11 ha
29
28
27
26
25


2
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1
0.10 ha
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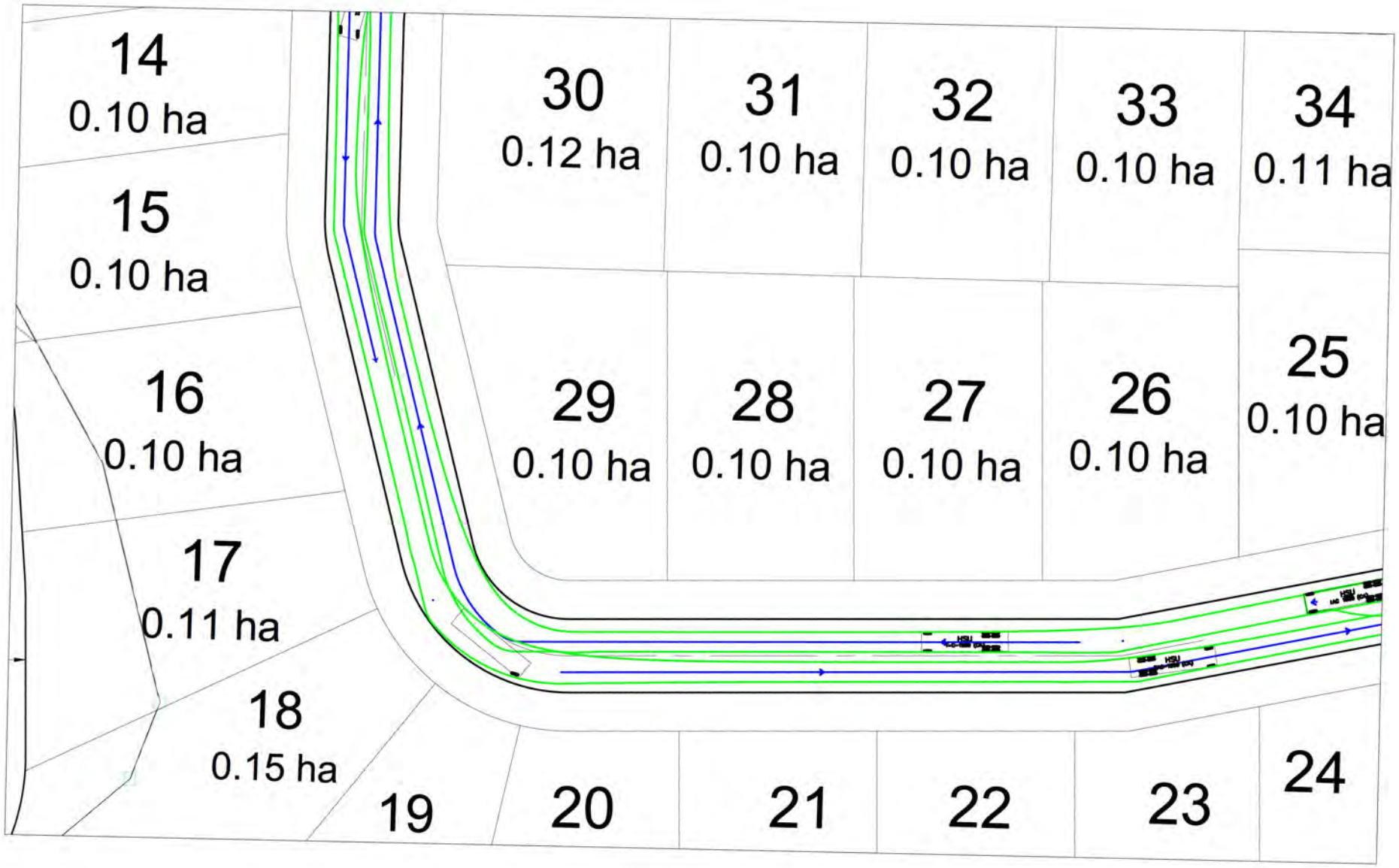
APPROX. EDGE OF ASPHALT
8m Storm
Drainage Block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17
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18
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19
20
21
22
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24
25
0.10 ha
26
0.10 ha
27
0.10 ha
28
0.10 ha
29
0.10 ha
30
0.12 ha
31
0.10 ha
32
0.10 ha
33
0.10 ha
34
0.11 ha


12
0.11 ha
11
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10
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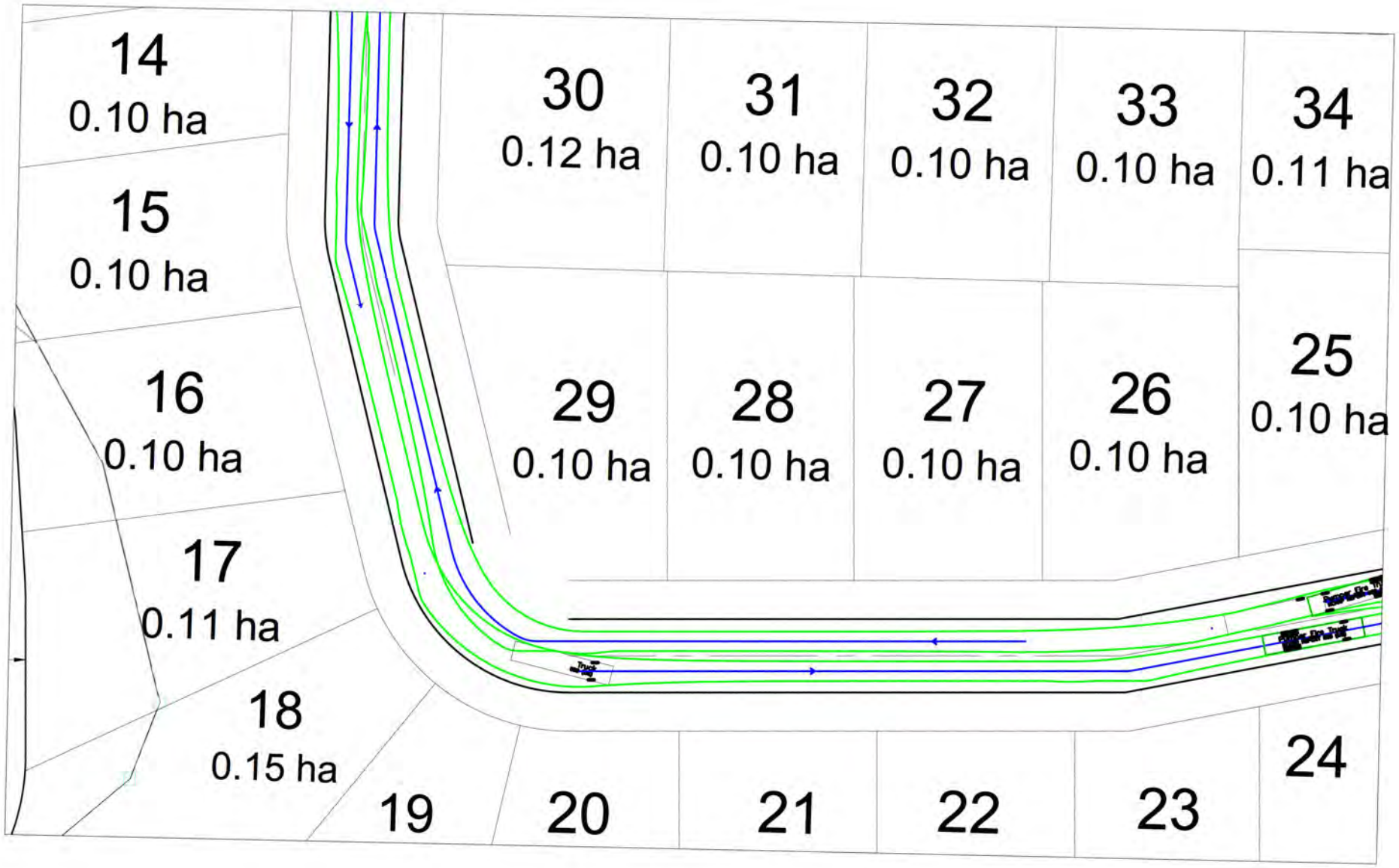
9
0.10 ha
8
0.10 ha
7
0.10 ha
6
0.11 ha
30
0.12 ha
31
0.10 ha
32
0.10 ha
33
0.10 ha
34
0.11 ha
29
28
27
26
25


2
0.10 ha
1
0.10 ha
25
0.10 ha
24
0.10 ha
No. 104
No. 100
APPROX. EDGE OF ASPHALT
APPROX. CENTRELINE
APPROX. EDGE OF ASPHALT
8m Storm
Drainage Block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26
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27
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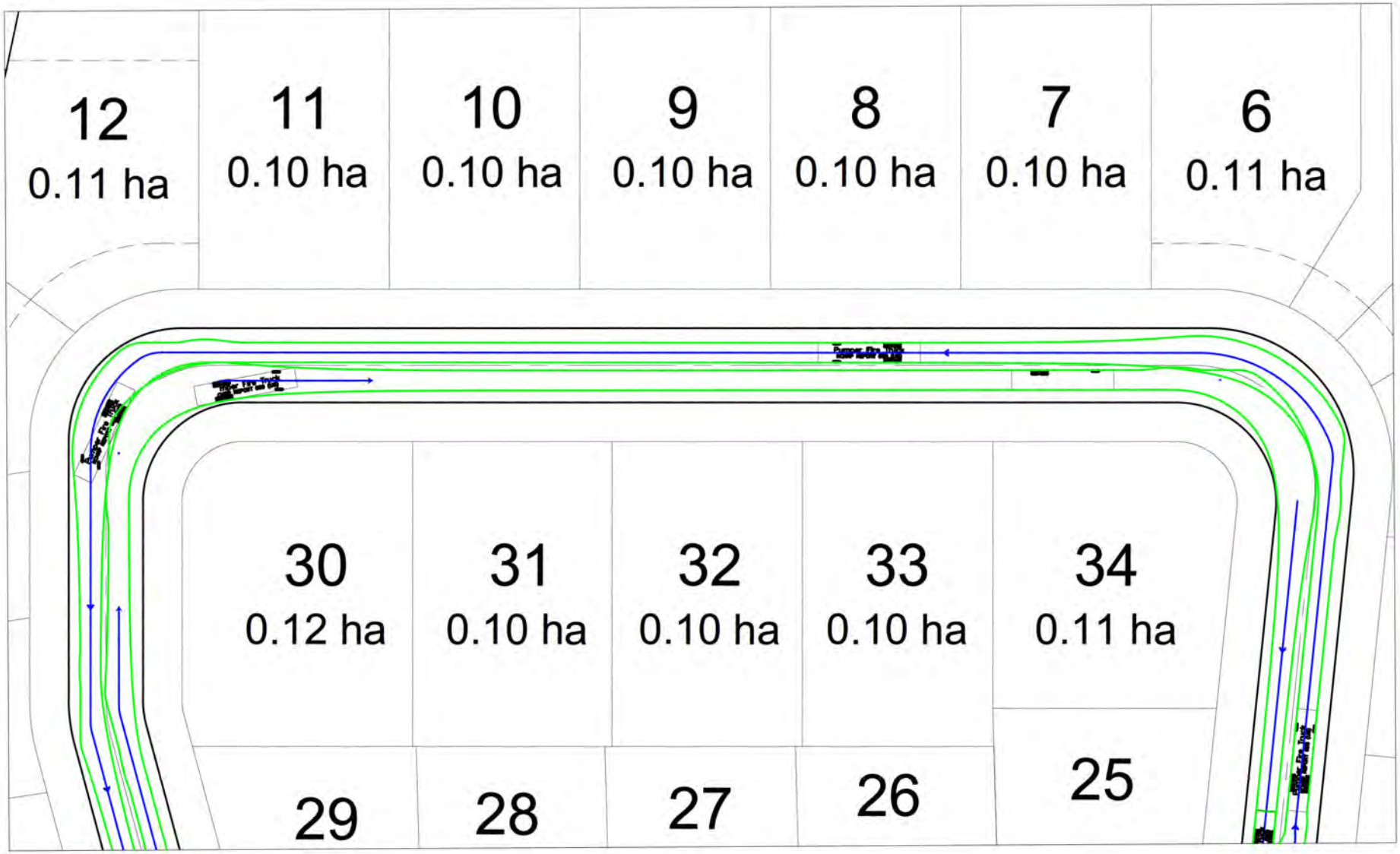
0.11 ha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0.10 ha
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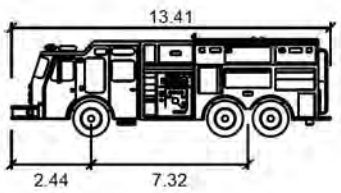
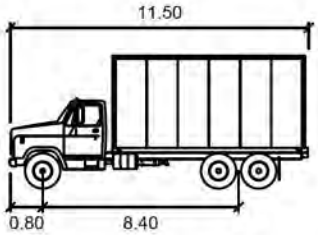
0.11 ha
29
28
27
26
25



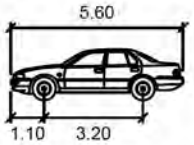
Pumper Fire Truck

	meters
Width	: 2.59
Track	: 2.59
Lock to Lock Time	: 6.0
Steering Angle	: 37.8



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9