

Appendix A

Ainley Traffic Analysis

To: **The Town of Whitchurch-Stouffville**

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Ref: **Town of Whitchurch-Stouffville – Edward Street EA
Traffic Analysis**

File: **117145**

This Traffic analysis is prepared in conjunction with a Schedule C Municipal Class Environmental Assessment for Edward Street between Millard Street and Main Street (inclusive).

The overall purpose of the **Traffic Analysis** is to assess the transportation needs of the subject length of road under existing 2018 conditions and future traffic projections for the horizon years of 2021 and 2031. 2021 horizon was required as per the RFP. 2031 horizon was addressed to consider the longer term transportation needs. It is proposed that Edward Street will be extended to Millard Street.

1. Existing Traffic Volumes

Intersection turning movement traffic count data were collected on Thursday, March 1, 2018 from 7:00 to 9:00 and 16:00 to 18:00 for the following intersections:

- Edward Street & Main Street
- Edward Street & Second Street
- Edward Street & Rupert Avenue
- Edward Street & Harold Avenue
- Edward Street & Millard Street
- Millard Street & Ninth Line
- Ninth Line & Main Street

The Town has provided weeklong ATR (Automatic Traffic Recorder) data collected from February 27, 2018 to March 5, 2018 for the area roads including the following locations:

- Edward Street north of Main Street
- Main Street east of Edward Street
- Main Street west of Edward Street
- Main Street east of Ninth Line
- Main Street west of Ninth Line
- Ninth Line north of Main Street
- Millard Street east of Bayberry Street

A review the traffic count data indicates:

- AM peak hour occurs on Edward Street from 7:00 to 8:30, PM peak hour occurs from 17:00 to 18:00, typical commuter peak hours.
- The 2018 AM Peak hour traffic volume on Edward Street north of Main Street is higher than the 2017 average AM peak hour traffic volume at the location whereas the 2018 PM peak hour traffic volume is slightly lower than the 2017 one. Overall, the 2018 traffic volume is higher than the 2017 traffic volume.
- A higher eastbound right-turn volume on Harold Ave at Edward Street during the AM peak hour and a higher northbound left turn volumes at the intersection during the PM peak hour indicate that currently some people from the north travel to/from the GO Station Parking Lot on Edward Street via Harold Ave.
- Pedestrian volumes are in the order of 0 to 23 persons per hour during the peak hours with the highest volume occurs during the AM peak hour crossing Edward Street at Main Street.

Traffic volumes on Schell Street at Edward Street and on the Parking lot entrance north of Rupert Avenue at Edward Street were estimated based on the existing traffic count and development level in the area.

Given the commuter traffic pattern on Edward Street, no seasonal variation factor was applied. The resulting 2018 peak hour traffic volumes are shown in Figure 1 (attached at the end of this memo). While it is recognized that there are a number of private commercial and residential access points along Edward Street, most are relatively minor and thus need not be explicitly addressed from an operational perspective.

2. Speed Limit & Existing 2018 Lane Configuration

No speed limit is posted on the sections Edward Street, Main Street and Millard Street. A 50 km/h speed limit is assumed on all roads in the study area.

As per the Town's Official Plan, Main Street is an arterial road whereas Millard Street is a collector road. Edward Street, Bramble Crescent and all other interesting streets are local roads. Two lanes with one lane in each direction are on all area roads.

The intersection of Millard Street with Bramble Crescent is a 4-leg intersection with an all-way stop control on each approach. Most intersections on Edward Street are "T" intersections with stop control on minor streets except for the Harold Avenue intersection which is an all-way stop controlled intersection. Each approach has a single shared lane with no left/right turn lanes/tapers provided. Harold Avenue intersection and Rupert Avenue intersection have a private entrance on the westbound approach to form the 4th leg.

A sidewalk is provided on the west side of Edward Street, on the north side of Millard Street, and on both sides of Main Street. A parking lane is on both sides of Main Street except for the location near the train track.

3. Highway Capacity Manual Methodology

The Highway Capacity Manual (HCM) methodology for determination of level of service (LOS), delay, and volume to capacity (v/c) ratio was applied to the study area intersections. The HCM defines six levels of service, ranging from A to F. LOS A represents the best operating conditions and LOS F the worst.

For a signalized intersection and automobile mode, LOS is characterized by control delay and/or v/c ratio for an intersection or its lane groups. Delay quantifies the increase in travel time due to traffic signal control. The v/c ratio quantifies the degree to which a phase's capacity is utilized by a lane group. The LOS thresholds established for the automobile mode at a signalized intersection are as follows:

Control Delay (s/veh)	LOS by v/c Ratio	
	≤ 1.0	> 1
0-10	A	F
>10 – 20	B	F
> 20 – 35	C	F
> 35 – 55	D	F
> 55 – 80	E	F
> 80	F	F

It is noted that for approach-based and intersection wide assessments, LOS is defined solely by control delay in HCM 2010 version.

On the other hand, the LOS thresholds established for the automobile mode at an unsignalized intersection are as follows:

Control Delay (s/veh)	LOS by v/c Ratio	
	≤ 1.0	> 1
0-10	A	F
>10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

It is noted that the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major street approaches or for the intersection as a whole in HCM 2010 version.

4. Existing Intersection Operations

The methodology applied was consistent with the *Highway Capacity Manual 2010* method for unsignalized intersections as employed in the software program Synchro 10. The analysis is based on the 2018 traffic volumes, the existing intersection configuration and control.

Table 1 summarizes the results of the analysis. The corresponding detailed worksheets are included in Appendix B.

Table 1 – 2018 Intersection Operations – Do Nothing

Legend: EB = eastbound, WB = westbound, NB = northbound, SB = southbound, T = through, L = left, R = right.

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Millard St & Bramble	NB	all-way	9.0	A	0.02	8.2	A	0.02

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Cres	EB	stop	8.7	A	0.21	11.1	B	0.50
	WB		12.4	B	0.51	8.9	A	0.27
	SB		8.1	A	0.01	8.3	A	0.01
Edward St & Main St	EBL	free	9.0	A	0.03	8.8	A	0.02
	SB	stop	17.9	C	0.19	19.5	C	0.14
Edward St & Schell St	WB	stop	8.6	A	0.01	8.6	A	0.00
	SBL	free	0	A	-	0	A	-
Edward St & Rupert Ave	NBL	free	7.3	A	0.00	7.4	A	0.01
	EB	stop	8.8	A	0.03	8.8	A	0.02
	WB		8.9	A	0.00	8.9	A	0.00
	SBL	free	7.3	A	0.00	0	A	-
Edward St & GO Parking Lot Entrance	WB	stop	8.9	A	0.01	8.8	A	0.06
	SBL	free	7.3	A	0.01	7.3	A	0.00
Edward St & Second St	NBL	free	7.3	A	0.01	7.3	A	0.00
	EB	stop	8.8	A	0.01	8.8	A	0.00
Edward St & Harold Ave	NB	all-way stop	7.1	A	0.01	7.2	A	0.04
	EB		6.6	A	0.05	6.6	A	0.01
	WB		6.4	A	0.00	7.2	A	0.00
	SB		7.6	A	0.02	6.7	A	0.01

Given the relatively low volumes on Edward Street, all intersections are operating acceptably. No improvements are required from a traffic operation perspective.

The need for a left turn lane at the area key intersections was reviewed. Based on TAC (Transportation Association of Canada) Geometric Design Guide for Canadian Roads MTO Design Supplement, a design speed of 60 km/h, a 15 m eastbound left turn lane storage length is warranted on Main Street at Edward Street.

5. Projected Growth

In developing future traffic projections, consideration has been given to general background growth in addition to specific development growth. Based on the Town's Official Plan, for the Stouffville Secondary Plan area, population will grow at a rate of 3.11% per annum from 25,900 persons in 2011 to 47,825 persons by 2031 whereas employment will grow at a rate of 3.24% per year from 7,545 jobs in 2011 to 14,275 jobs by 2031. An annual general background growth rate of 3.24% was applied.

Although no specific developments are known at this time, the Town would like to include a development at the old school site at the north end of Edward Street given that the land is currently vacant and will be developed sooner or later. The Community of Stouffville Secondary Plan identifies the area as Activity Node Area. The York Region District School Board indicated that potentially a new school could be built on the site if there is a need in the future. If a school is not built, residential use would be the potential use. As per the Town's Official Plan, both institutional and residential uses are

permitted in an Activity Node Area. Therefore both institutional and residential uses have been considered.

For the institutional use, it is assumed that a secondary school with a similar size building as the Stouffville District Secondary School (two storeys approximately 150,000 GFA in total) will be built.

For the residential use, given the limited development information, the following has been assumed:

- The land size is approximately 6.72 acres ($27,200 \text{ m}^2 = 160 \text{ m} \times 170 \text{ m}$)
- Road area approximately 1.48 acre ($6,000 \text{ m}^2 = 300 \text{ m} \times 20 \text{ m}$)
- The rest of the area 50 low density / 50 medium density split $((6.72 - 1.48)/2 = 2.62 \text{ acres} = 1.06 \text{ hectares each})$
- Low density 15 units per hectare
- Medium density 30 unit per hectare

Trips generated by the institution use or the residential use have been specifically estimated, given the size and type of developments, corresponding trip rates as per the *ITE Trip Generation Manual 10th Edition*. The following have been employed:

- Secondary school – trip rates based on the average rates from “high school” (ITE land use code 530);
- Low density units – trip rates based on the average rate from “single family detached housing” (ITE land use code 210);
- Medium density units – trip rates based on the average rate from “multifamily housing (low-rise)” (ITE land use code 220).

Trip rates are presented in Table 2 whereas trip estimates are provided in Table 3.

Table 2 – Development Trip Generation Rates (Rounded)

Land Use	unit	Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
High school	1000 ft ² GFA	2.40	0.98	3.38	0.52	0.45	0.97
Single family detached housing	Dwelling unit	0.19	0.56	0.74	0.62	0.37	0.99
Multifamily housing (low-rise)	Dwelling unit	0.11	0.41	0.46	0.35	0.22	0.56

Table 3 – Development Trip Generation Estimates (Rounded)

Development	Land Use	Size	Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Institutional	High school	150	362	148	509	79	67	146
Residential	Single family	15	3	8	11	9	5	15
	Multifamily (low-rise)	30	3	11	14	11	6	17
	Total		6	19	25	20	12	32

As shown in Table 3, institutional use would generate a lot more trips than residential use. Therefore, institutional use was selected for traffic analysis purposes. In total, the high school is expected to generate 509 and 146 trips in the AM and PM peak hour respectively (both inbound and outbound trips).

With the high school development, the extension of Edward Street is warranted. In addition, Edward Street should be upgraded to a collector road from a local road.

Accesses would be provided on Edward Street. Given that the existing Stouffville District Secondary School is located at the south-west part of the Community, It is assumed that the new high school would serve mainly the north and east parts of the Town. The trip distribution is as follows:

- 30% to/from the northwest via Millard Street
- 50% to/from the northeast via Millard Street
- 20% to/from the southeast via Main Street

The resulting traffic volumes attributed to the above noted development are presented in Figure 2 (attached at the end of this memo).

6. Future Traffic Volumes with Existing Road System

Estimates of future traffic volumes for the years 2021 and 2031 have been determined based on the following:

- 2018 traffic volumes; and
- consideration for the 2021 and 2031 horizon year background growth rates.

The resulting future traffic projections are provided in Figures 3 and 4 (attached at the end of this memo) for the 2021 and 2031 horizon respectively. The peak hour volumes are provided, reflective of weekday conditions.

7. Future 2021 & 2031 Operations with Existing Road System

The operations of the key study area intersections were investigated based upon the existing configurations and the 2021 and 2031 traffic projections previously presented. The intent of this is to determine if improvements are required beyond the existing intersection configurations and to gauge the appropriate timing. Given the higher traffic volumes on Main Street, a peak hour factor (PHF) of 0.95 has been applied on Main Street. PHF is the ratio of total hourly volume to the peak 15 minute flow rate. Lower PHF values signify greater variability of flow, while higher values signify less flow variation within the hour. The results of the 2021 and 2031 analyses are presented in Tables 4 and 5 respectively whereas the corresponding worksheets are provided in Appendix B.

Table 4 – 2021 Intersection Operations (Do Nothing) – Existing Road Network

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Millard St & Bramble Cres	NB	all-way stop	9.1	A	0.02	8.3	A	0.02
	EB		8.9	A	0.24	12.0	B	0.55
	WB		13.5	B	0.57	9.3	A	0.30
	SB		8.2	A	0.01	8.5	A	0.01
Edward St & Main St	EBL	free	9.1	A	0.03	8.9	A	0.02
	SB	stop	19.5	C	0.22	21.4	C	0.17
Edward St & Schell St	WB	stop	8.6	A	0.01	8.6	A	0.00

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
	SBL	free	0	A	-	0	A	-
Edward St & Rupert Ave	NBL	free	7.3	A	0.00	7.4	A	0.01
	EB	stop	8.9	A	0.03	8.9	A	0.02
	WB		9.0	A	0.00	8.9	A	0.00
	SBL	free	7.3	A	0.00	0	A	-
Edward St & GO Parking Lot Entrance	WB	stop	9.0	A	0.01	8.8	A	0.07
	SBL	free	7.3	A	0.01	7.3	A	0.00
Edward St & Second St	NBL	free	7.4	A	0.01	7.3	A	0.00
	EB	stop	8.8	A	0.01	8.8	A	0.00
Edward St & Harold Ave	NB	all-way stop	7.1	A	0.01	7.3	A	0.04
	EB		6.6	A	0.05	6.6	A	0.01
	WB		6.4	A	0.00	7.2	A	0.00
	SB		7.6	A	0.02	6.7	A	0.01

Despite the increase in traffic volumes, all intersections will continue to operate acceptably. No improvements are required from a traffic operation perspective.

The need for a left turn lane at the area key intersections was reviewed. Based on TAC (Transportation Association of Canada) Geometric Design Guide for Canadian Roads MTO Design Supplement, a design speed of 60 km/h, a 25 m eastbound left turn lane storage length is warranted on Main Street at Edward Street.

Table 5 – 2031 Intersection Operations (Do Nothing) – Existing Road Network

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Millard St & Bramble Cres	NB	all-way stop	9.8	A	0.02	9.0	A	0.03
	EB		10.2	B	0.35	21.1	C	0.78
	WB		24.4	C	0.79	11.1	B	0.43
	SB		8.9	A	0.01	9.1	A	0.01
Edward St & Main St	EBL	free	10.2	B	0.06	9.9	A	0.04
	SB	stop	41.1	E	0.50	51.9	F	0.45
Edward St & Schell St	WB	stop	8.6	A	0.02	8.6	A	0.01
	SBL	free	0	A	-	0	A	-
Edward St & Rupert Ave	NBL	free	7.4	A	0.00	7.4	A	0.01
	EB	stop	9.0	A	0.04	9.0	A	0.03
	WB		9.1	A	0.01	9.0	A	0.01
	SBL	free	7.3	A	0.00	0	A	-
Edward St & GO Parking Lot Entrance	WB	stop	9.2	A	0.01	9.0	A	0.10
	SBL	free	7.4	A	0.02	7.3	A	0.00

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Edward St & Second St	NBL	free	7.4	A	0.01	7.4	A	0.00
	EB	stop	9.0	A	0.01	9.0	A	0.01
Edward St & Harold Ave	NB	all-way stop	7.2	A	0.02	7.4	A	0.06
	EB		6.7	A	0.07	6.7	A	0.02
	WB		6.5	A	0.00	7.3	A	0.00
	SB		7.7	A	0.03	6.8	A	0.01

Given the increase in traffic volumes, a poor level of service F occurs on the southbound approach of the intersection of Edward Street at Main Street during the PM peak hour. Therefore, improvements to the intersection should be considered.

Should an eastbound left turn lane is provided on Main Street at Edward Street, the southbound approach would operate acceptably at a level of service E with a delay of 48 seconds during the PM peak hour in the 2031 horizon.

All other intersections operate acceptably.

8. Proposed Road Connection and Traffic Volumes

Although it is not identified in the Town's Transportation Master Plan, it is proposed that Edward Street be extended to Bramble Crescent to provide a direct access to downtown/Main Street and the GO Station for the residents from the north. After the connection, traffic volumes currently traveling from the north to the GO Station Parking Lot via Ninth Line and Harold Avenue would travel via Edward Street and Millard Street assuming 50/50 split to/from Millard Street. Traffic volumes on Harold Avenue and Ninth Line have been reduced accordingly as a result of the new connection.

People from the north of Millard Street travelling to/from Main Street east of Ninth Line, currently have to use Ninth Line. Once Edward Street is extended, they could travel via Edward Street instead. It is assumed that 25% of the southbound left-turn vehicles on Ninth Line at Main Street and 25% of the westbound right turn vehicles at the intersection would travel via Edward Street to/from Main Street with a 30/70 split to/from west/east on Main Street. Traffic volumes on Main Street, Ninth Line and Millard Street have been reduced accordingly.

The resulting 2021 and 2031 traffic volumes (without the high school development) are illustrated in Figures 5 and 6 (attached at the end of this memo) respectively.

To include the high school development, the traffic volumes generated by it was combined with the 2031 traffic volumes. The resulting 2031 total traffic volumes are illustrated in Figure 7 (attached at the end of this memo).

9. Future 2021 & 2031 Operations with Future Road Connection

Given extension of Edward Street, it is recommended that the all-way stop control at the intersection of Edward Street at Harold Avenue be changed to stop controlled on Harold Avenue with no control on Edward Street.

The operations of the intersections on Edward Street were investigated based on the noted above improvement. An eastbound left turn lane on Main Street at Edward Street has been assumed for the 2031 horizon. Stop control on the High School entrance at Edward Street has also been assumed for the 2031 horizon with the High School development. The results of the 2021 and 2031 (without/with the high school development) analyses for the future road network are presented in Tables 6, 7 and 8 respectively whereas the corresponding worksheets are provided in Appendix B.

Table 6 – 2021 Intersection Operations – with Future Road Connection without High School Development

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Millard St & Bramble Cres	NB	all-way stop	9.4	A	0.04	8.7	A	0.08
	EB		9.1	A	0.26	12.5	B	0.55
	WB		14.2	B	0.58	9.6	A	0.31
	SB		8.3	A	0.01	8.6	A	0.01
Edward St & Main St	EBL	free	9.2	A	0.04	8.9	A	0.03
	SB	stop	22.4	C	0.31	24.9	C	0.24
Edward St & Schell St	WB	stop	8.9	A	0.02	8.8	A	0.01
	SBL	free	0	A	-	0	A	-
Edward St & Rupert Ave	NBL	free	7.4	A	0.00	7.4	A	0.01
	EB	stop	9.0	A	0.03	9.0	A	0.02
	WB		9.1	A	0.00	9.1	A	0.00
	SBL	free	7.3	A	0.00	0	A	-
Edward St & GO Parking Lot Entrance	WB	stop	9.2	A	0.01	9.0	A	0.07
	SBL	free	7.4	A	0.01	7.3	A	0.00
Edward St & Second St	NBL	free	7.4	A	0.01	7.4	A	0.00
	EB	stop	8.9	A	0.01	8.9	A	0.00
Edward St & Harold Ave	NBL	free	7.3	A	0.00	7.3	A	0.01
	EB	stop	8.8	A	0.04	8.6	A	0.01
	WB		9.3	A	0.00	9.1	A	0.00
	SBL	free	0	A	-	0	A	-

Despite the increase in traffic volumes, all intersections will continue to operate acceptably. No improvements are required from a traffic operation perspective.

The need for a left turn lane at the area key intersections was reviewed. Based on TAC (Transportation Association of Canada) Geometric Design Guide for Canadian Roads MTO Design Supplement, a design speed of 60 km/h, a 25 m eastbound left turn lane storage length is warranted on Main Street at Edward Street.

Table 7 – 2031 Intersection Operations – with Future Road Connection without High School Development

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Millard St & Bramble Cres	NB	all-way stop	10.1	B	0.06	9.0	A	0.03
	EB		10.6	B	0.37	21.1	C	0.78
	WB		26.2	D	0.81	11.1	B	0.43
	SB		9.0	A	0.01	9.1	A	0.01
Edward St & Main St	EBL	free	10.3	B	0.07	9.9	A	0.05
	SB	stop	61.0	F	0.70	75.2	F	0.64
Edward St & Schell St	WB	stop	9.0	A	0.02	9.0	A	0.01
	SBL	free	0	A	-	0	A	-
Edward St & Rupert Ave	NBL	free	7.4	A	0.00	7.5	A	0.01
	EB	stop	9.2	A	0.04	9.2	A	0.03
	WB		9.4	A	0.01	9.3	A	0.01
	SBL	free	7.3	A	0.00	0	A	-
Edward St & GO Parking Lot Entrance	WB	stop	9.4	A	0.01	9.3	A	0.10
	SBL	free	7.4	A	0.02	7.3	A	0.00
Edward St & Second St	NBL	free	7.5	A	0.01	7.4	A	0.00
	EB	stop	9.2	A	0.02	9.1	A	0.01
Edward St & Harold Ave	NBL	free	7.4	A	0.00	7.3	A	0.01
	EB	stop	9.0	A	0.05	8.7	A	0.01
	WB		9.4	A	0.00	9.3	A	0.00
	SBL	free	0	A	-	0	A	-

As indicated in Table 7, all of the intersections operate acceptably except for the intersection of Edward Street at Main Street where a poor level of service F occurs during both the AM and PM peak hours. Improvements to the intersection should be considered.

The need for a traffic signal at the intersection of Edward Street at Main Street was reviewed based on MTO signal warrant criteria and 2031 traffic volumes. A traffic signal is not warranted. It is recommend that the Town to monitor traffic volumes at the intersection.

Table 8 – 2031 Intersection Operations – with Future Road Connection and High School Development

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Millard St & Bramble Cres	NB	all-way stop	14.0	B	0.34	11.0	B	0.23
	EB		16.2	C	0.62	33.5	D	0.88
	WB		152.9	F	1.25	14.4	B	0.55
	SB		10.6	B	0.02	9.9	A	0.02

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
Edward St & Main St	EBL	free	10.7	B	0.07	10.0	A	0.05
	SB	stop	139.2	F	1.03	128.7	F	0.87
Edward St & Schell St	WB	stop	9.7	A	0.03	9.1	A	0.01
	SBL	free	7.7	A	0.00	7.4	A	0.00
Edward St & Rupert Ave	NBL	free	7.5	A	0.00	7.5	A	0.01
	EB	stop	9.6	A	0.05	9.3	A	0.04
	WB		10.1	B	0.01	9.4	A	0.01
	SBL	free	7.5	A	0.00	0	A	-
Edward St & GO Parking Lot Entrance	WB	stop	10.1	B	0.02	9.4	A	0.11
	SBL	free	7.6	A	0.02	7.4	A	0.00
Edward St & Second St	NBL	free	7.5	A	0.01	7.5	A	0.00
	EB	stop	9.5	A	0.02	9.3	A	0.01
Edward St & Harold Ave	NBL	free	7.4	A	0.00	7.3	A	0.01
	EB	stop	9.2	A	0.05	8.8	A	0.01
	WB		9.9	A	0.00	9.5	A	0.00
	SBL	free	0	A	-	0	A	-
Edward St & High School entrance	WB	stop	12.1	B	0.24	9.3	A	0.08
	SBL	free	8.1	A	0.21	7.5	A	0.05

As indicated in Table 8, all of the intersections operate acceptably except for the intersection of Edward Street at Main Street and Millard Street at Bramble Crescent where a poor level of service F occurs during the AM peak hour (PM peak hour as well for the intersection of Edward Street at Main Street). Improvements to the intersections should be considered.

The need for a traffic signal at the intersections of Edward Street at Main Street and Millard Street at Bramble Crescent was reviewed based on MTO signal warrant criteria and 2031 traffic volumes with the High School Development. A traffic signal is not warranted at both locations.

Although a traffic signal is not warranted at the intersection of Edward Street/Main Street, given the long delay on the southbound approach, a traffic signal is recommended along with an eastbound left turn lane and a southbound left turn lane if possible.

For the intersection of Millard Street with Bramble Crescent, given that volume is over capacity on the westbound approach, it is recommended that the all-way stop be converted to two-way stop with stop controlled on Bramble Crescent the northbound and southbound approaches. In this case, a 40 m westbound left turn lane storage length is warranted based on the MTO left turn lane warrant criteria and the 2031 traffic volumes with the High School development. Although a level of service F would occur on the northbound approach, the delay would be 106.5 seconds during the AM peak hour. The need for a traffic signal could be determined through traffic volume monitoring and public consultation.

10. Queue Length Analysis

To determine the recommended eastbound left turn lane length on Main Street at Edward Street and to review the critical queue lengths for the proposed Edward Street extension scenario, queue lengths were reviewed for the ultimate 2031 horizon with and without the High School development. The following improvements have been assumed:

2031 horizon without the High school development:

- an eastbound left turn lane on Main Street at Edward Street

2031 horizon with the High school development:

- convert the all-way stop intersection of Millard Street at Bramble Crescent to stop controlled on Bramble Crescent the northbound and southbound approaches with a westbound left turn lane
- signalized the intersection of Main Street at Edward Street with an eastbound left turn lane

The 95th percentile queues were derived from the Synchro reports (assuming 7.5m per vehicle) for the without the High School Development scenario and are presented in Table 9.

Table 9 – 2031 95th Percentile Queue Lengths & Turn Lane Storage Lengths (with Edward Street Extension without the High School Development)

Intersection		Control	95 th Percentile Queue (m)		Turn Lane/through Lane Length (m)	
			AM	PM	Ex./Available Space	Recommended /Comment
Main St & Edward St	EBL	free	1.5	0.8	15 ¹	15
	SB	stop	32.3	24.8	30 ²	acceptable
Millard St & Bramble Cres	NB	all-way stop	1.5	3	220	acceptable
	EB		12.8	61.5	200	acceptable
	WB		66	18	70	acceptable
	SB		0	0	150	acceptable

1. A 15 m left turn lane can be obtained through pavement marking. The current No Parking area on the eastbound parking lane would allow for the through traffic.
2. The space is between Main Street and the Parking Lot entrance south of Second Street

As indicated in Table 9, all queue lengths can be accommodated within the road network with the Edward Street extension assuming an eastbound left turn lane on Main Street at Edward Street.

The 95th percentile queues were derived from the SimTraffic report based on an average of 5 runs (60 min duration each) for the High School Development scenario and are presented in Table 10.

Table 10 – 2031 95th Percentile Queue Lengths & Turn Lane Storage Lengths (with Edward Street Extension with the High School Development)

Intersection		Control	95 th Percentile Queue (m)		Turn Lane/through Lane Length (m)	
			AM	PM	Ex./Available Space	Recommended /Comment
Main St & Edward St	EBL	signal	25.5	27.2	60 ¹	25
	SB		36.2	24.8	30 ²	acceptable
Millard St & Bramble Cres	NB	stop	47.9	24.0	> 100	acceptable
	EB	free	8.6	61.5	200	acceptable
	WBL		31.7	13.8	70	30
	SB	stop	7.0	7.8	150	acceptable

1. The 60 m space can be obtained through removal of the existing eastbound parking lane.

2. The space is between Main Street and the Parking Lot entrance south of Second Street

Based on the queue length analysis, a 30 m westbound left turn lane on Millard Street at Bramble Crescent and a 25 m eastbound left turn lane on Main Street at Edward Street are sufficient to accommodate the 2031 95th percentile queue lengths.

11. Active Transportation

It is identified in the Town's Transportation Master Plan, a heritage walkway and an on-road signed bike route will be on Edward Street between Millard Street and Main Street.

Currently pedestrians walking northbound/southbound through Edward Street on the west side are in the order of 3 to 13 persons per hour during the peak hour and 0 to 4 persons per hour on the east side. A sidewalk is provided on the west side of Edward Street. Despite the relatively low pedestrian traffic volumes on the east side, for a safety reason a sidewalk should also be provided on the east side. Pedestrian traffic may increase in the future.

Bicycle traffic on northbound/southbound of Edward Street is currently in the order of 0 to 1 bike per hour during the peak hour. Given the relatively low traffic volumes on Edward Street without the High School development, it is anticipated that both vehicles and bicycles can share the one lane in each direction pavement width on Edward Street.

With the High School development, given the significant increase in traffic volumes, on-road bike lanes on Edward Street are recommended to facilitate bicyclists.

12. Transit

Bus services in the Town are provided by York Region Transit YRT/Viva. There are currently two routes that go through the Town. Route 15 starts from Millard Street at Automall Boulevard, goes through Millard Street eastbound and southbound, Main Street westbound, and Stouffville Road to Yonge Street. Route 15 stops at Edward Street/Millard Street and the GO Station on Main Street weekday during rush hours. Route 15 operates approximately from 6:00 to 10:00 and from 15:00 to 19:00 in a 70 minutes interval (weekend hours are slightly shorter from 7:00 or 8:00 to 9:45 or 10:45 and from 15:00 to 17:45).

Route 9 basically goes along Ninth Line between Millard Street and 14th Avenue in Box Grove including an east loop and a west loop approximately along Main Street, Hoover Park Drive, Highway 48 and 10th Line. Route 9 runs from 6:00 to 21:00 in an approximately 43-minute interval. Route 9 has a stop at the GO Station on Main Street.

There are currently 9 trains leaving Lincolnville Station to Union Station in downtown Toronto from 5:15 to 10:14 and 9 trains arriving Lincolnville Station from Union Station from 16:24 to 23:43 weekdays excluding holidays. GO buses available all day and weekends.

Given the existing and projected traffic volumes on Edward Street and the current bus stops on Millard Street and Main Street north and south of Edward Street, additional transit service or stops to serve Edward Street is not required. This should be confirmed through public consultation.

13. Conclusion

In conclusion, under the Edward Street extension conditions, the following maybe considered:

2021 horizon:

- Add a 15m eastbound left turn lane on Main Street at Edward Street through pavement marking;
- Sidewalks on both sides of Edward Street; and
- On-road signed bicycle route on Edward Street.

2031 horizon without the High School development:

- Monitor traffic at the intersection of Main Street with Edward Street and assess the need for a traffic signal in the 2031 horizon.

2031 horizon with the High School development:

- Convert the all-way stop control to two-way stop control on the north and south approach at the intersection of Millard Street with Bramble Crescent;
- Add a 30 m westbound left turn lane on Millard Street at Bramble Crescent;
- Add a traffic signal at the intersection of Edward Street with Main Street;
- Extend the eastbound left turn lane on Main Street at Edward Street to 25 m through partially removal of the eastbound parking lane on Main Street west of Edward Street; and
- Add on-road bike lanes on Edward Street.

S:\117145\Traffic\Report\MEMO_Edward St_Traffic_Analysis_rev.doc

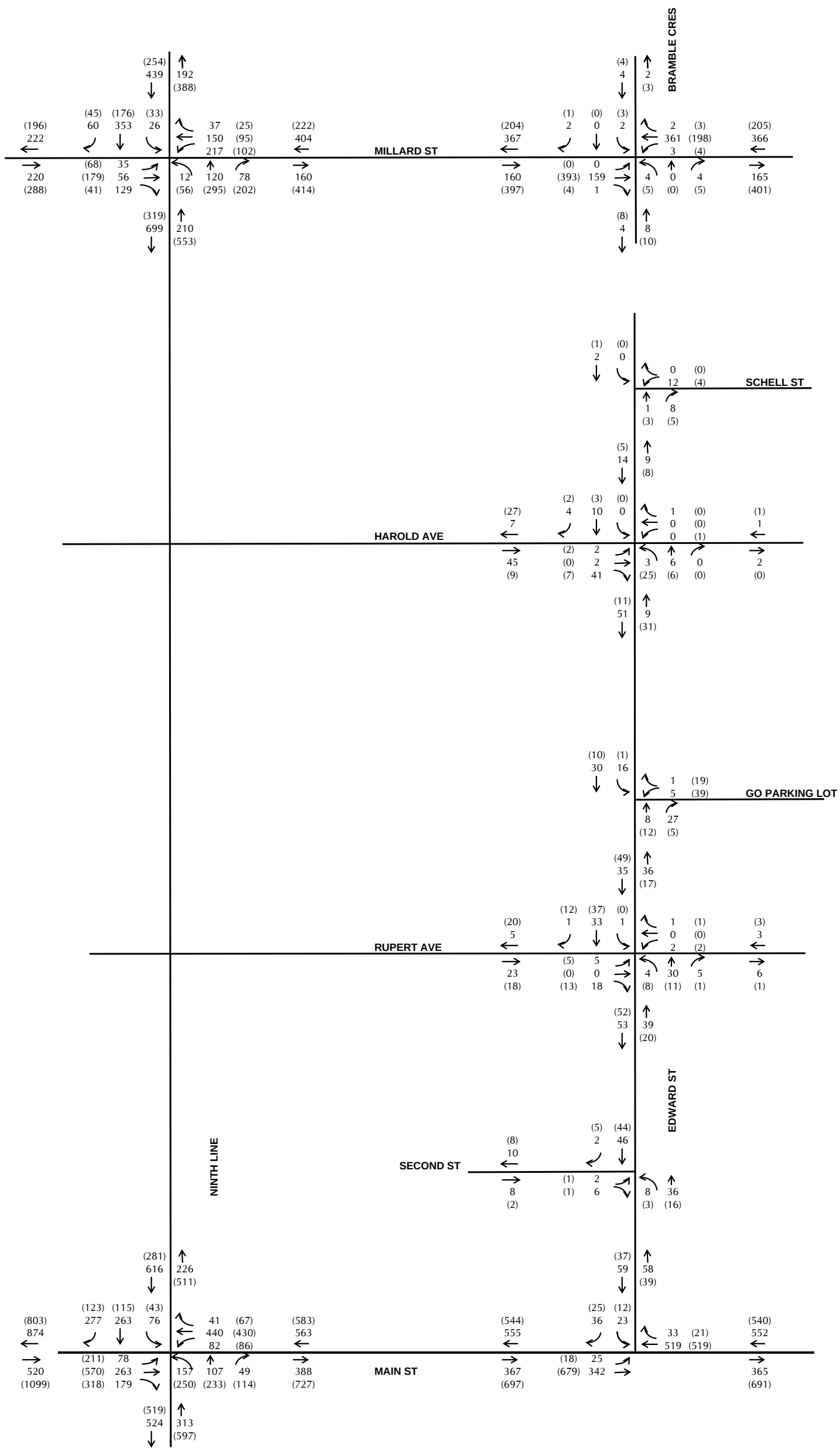
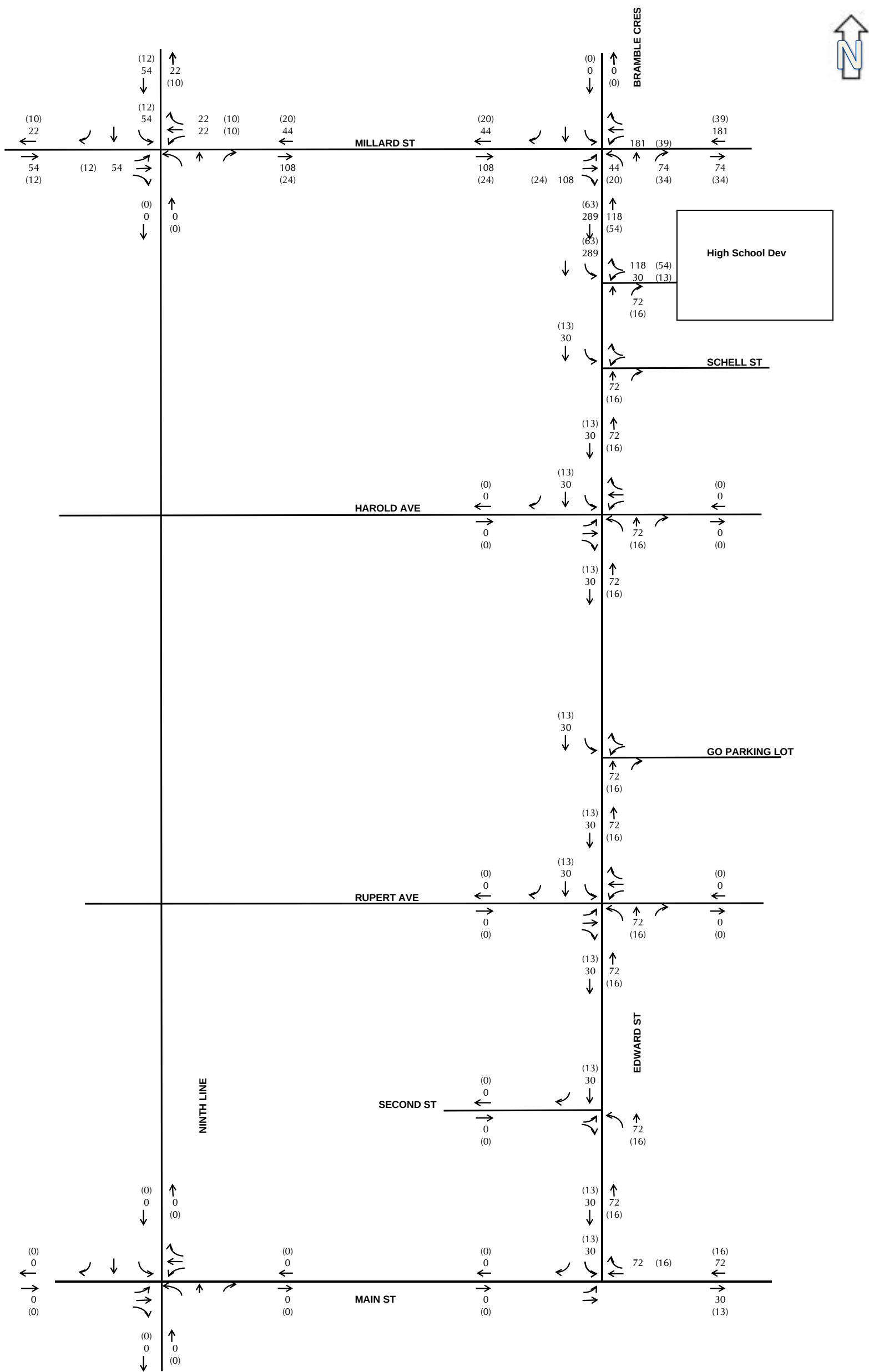


Figure 1
Existing 2018 Traffic Volumes
Edward Street EA
Town of Whitchurch-Stouffville

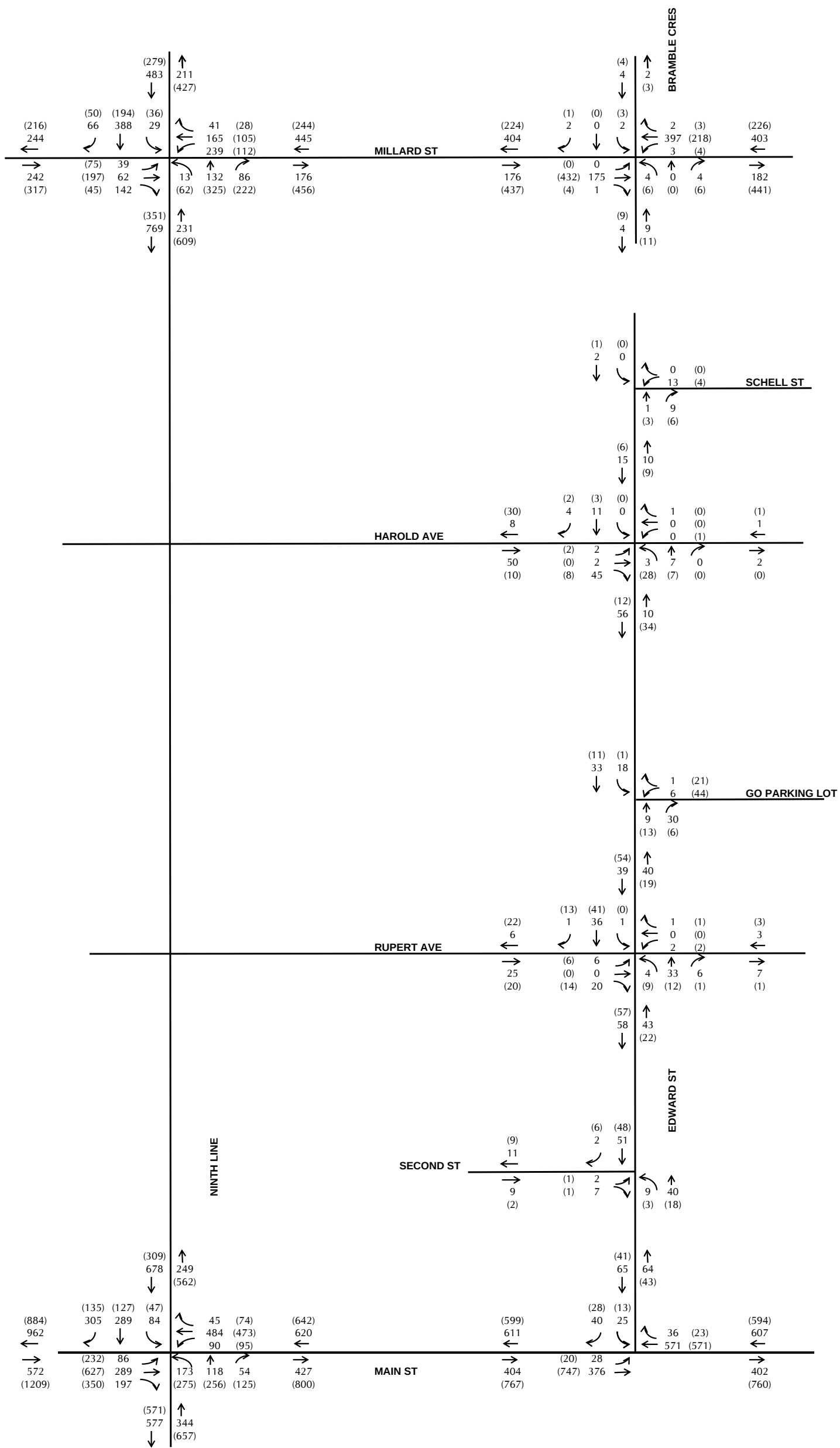




100 (100) AM (PM) Peak Hour

Figure 2
High School Development Generated Traffic Volumes
Edward Street EA
Town of Whitchurch-Stouffville

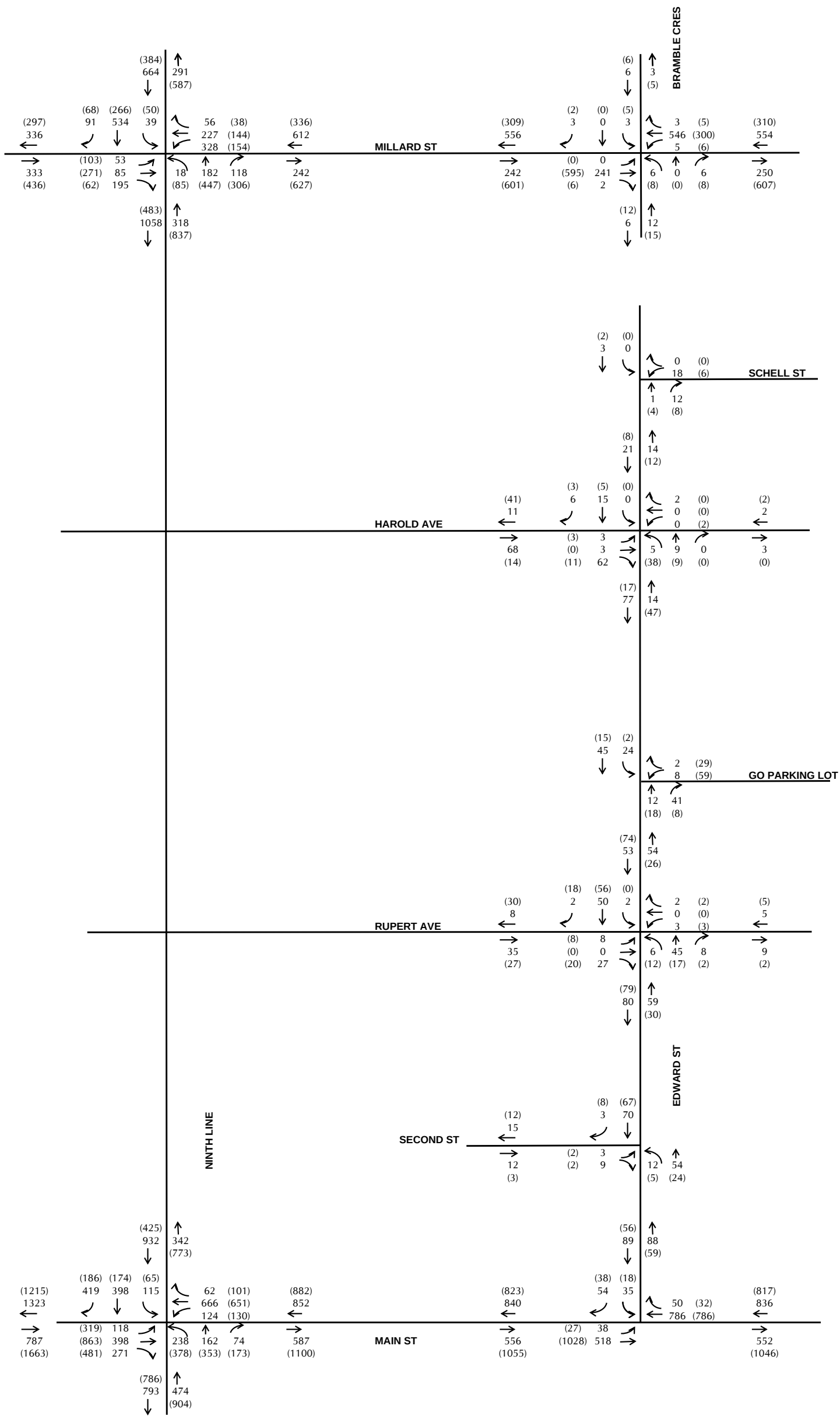




100 (100) AM (PM) Peak Hour

Figure 3
Future 2021 Traffic Volumes with the Existing Road System
Edward Street EA
Town of Whitchurch-Stouffville

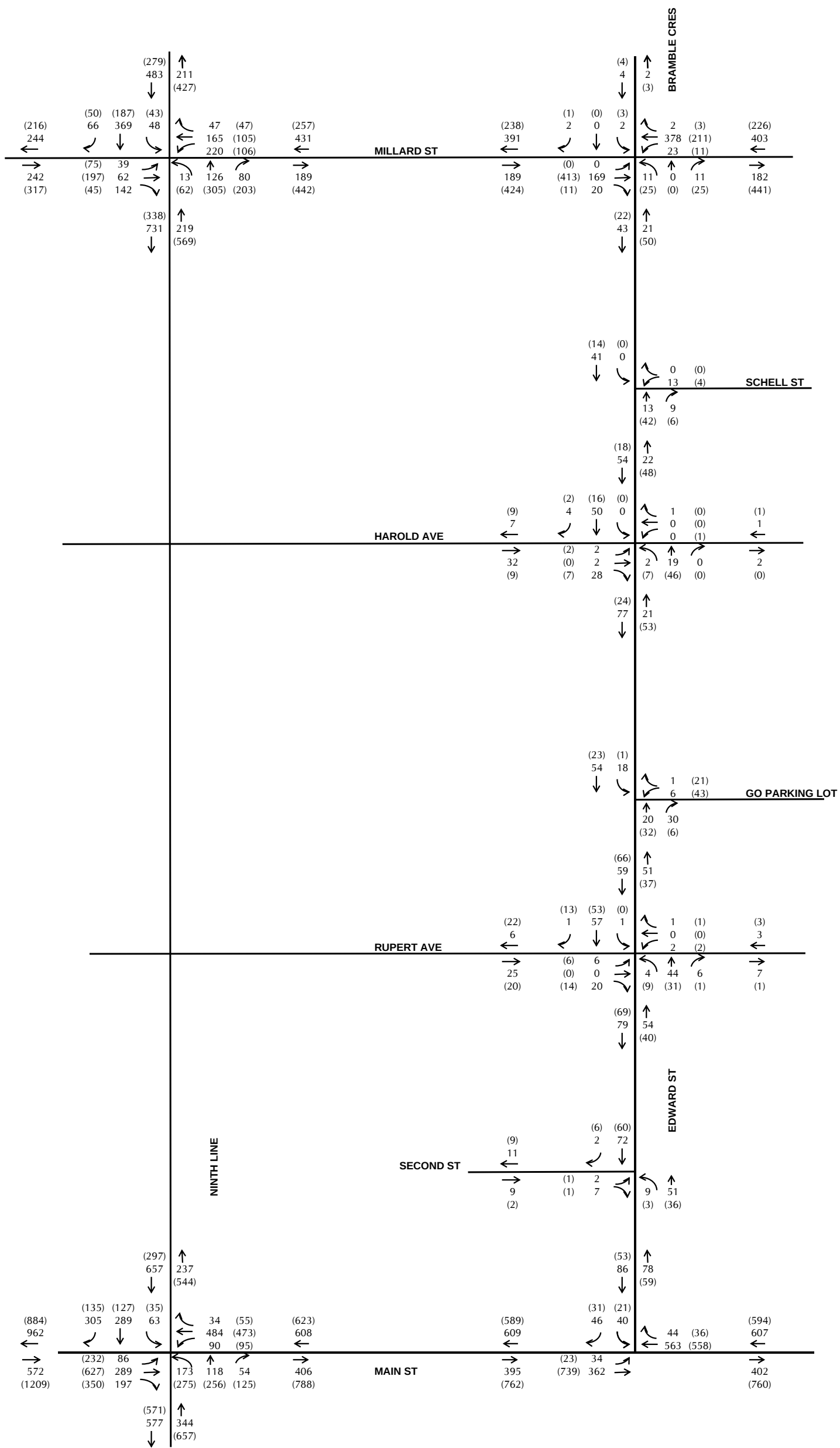




100 (100) AM (PM) Peak Hour

Figure 4
Future 2031 Traffic Volumes with the Existing Road System
Edward Street EA
Town of Whitchurch-Stouffville

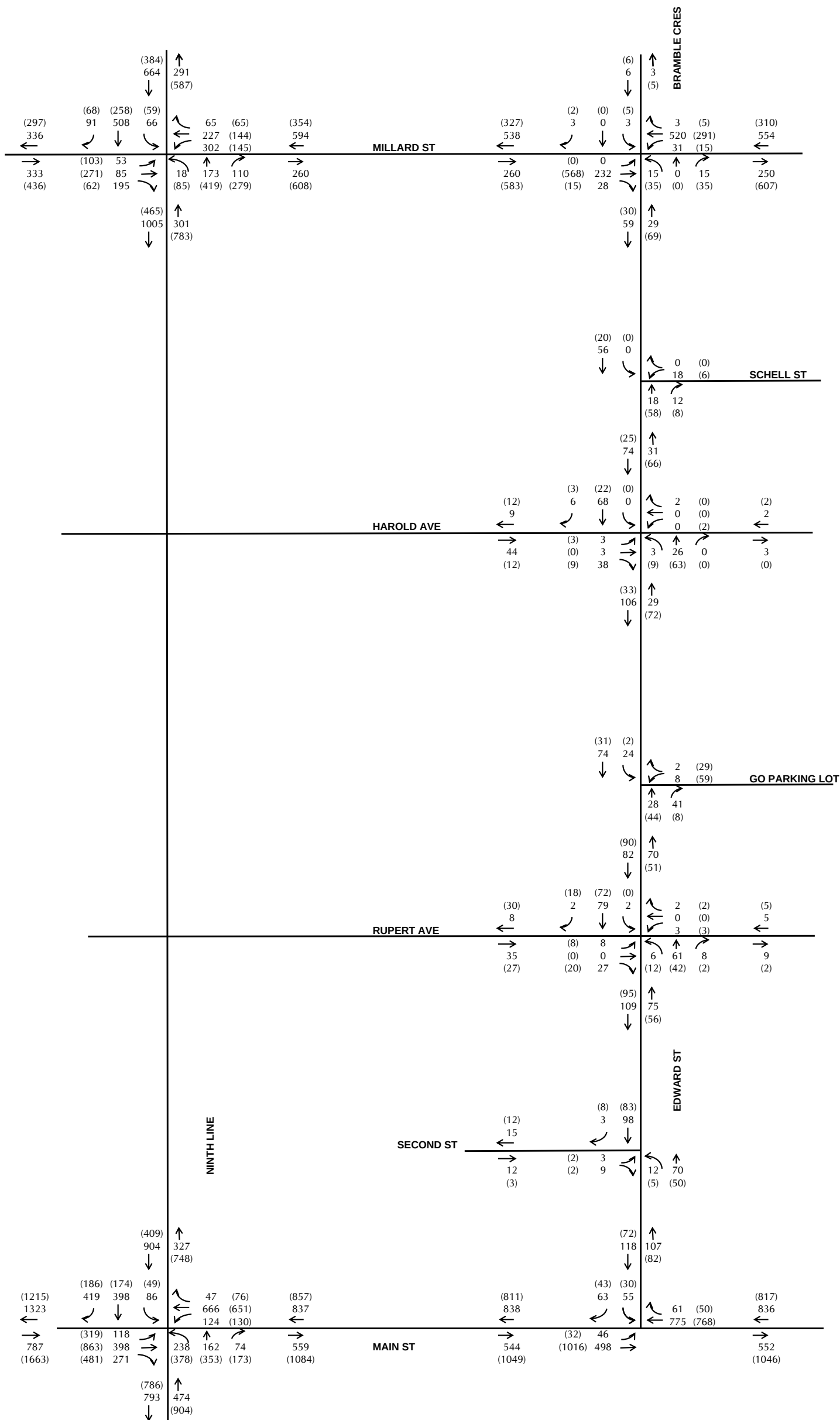




100 (100) AM (PM) Peak Hour

Figure 5
2021 Traffic Volumes with the Future Road System
Edward Street EA
Town of Whitchurch-Stouffville

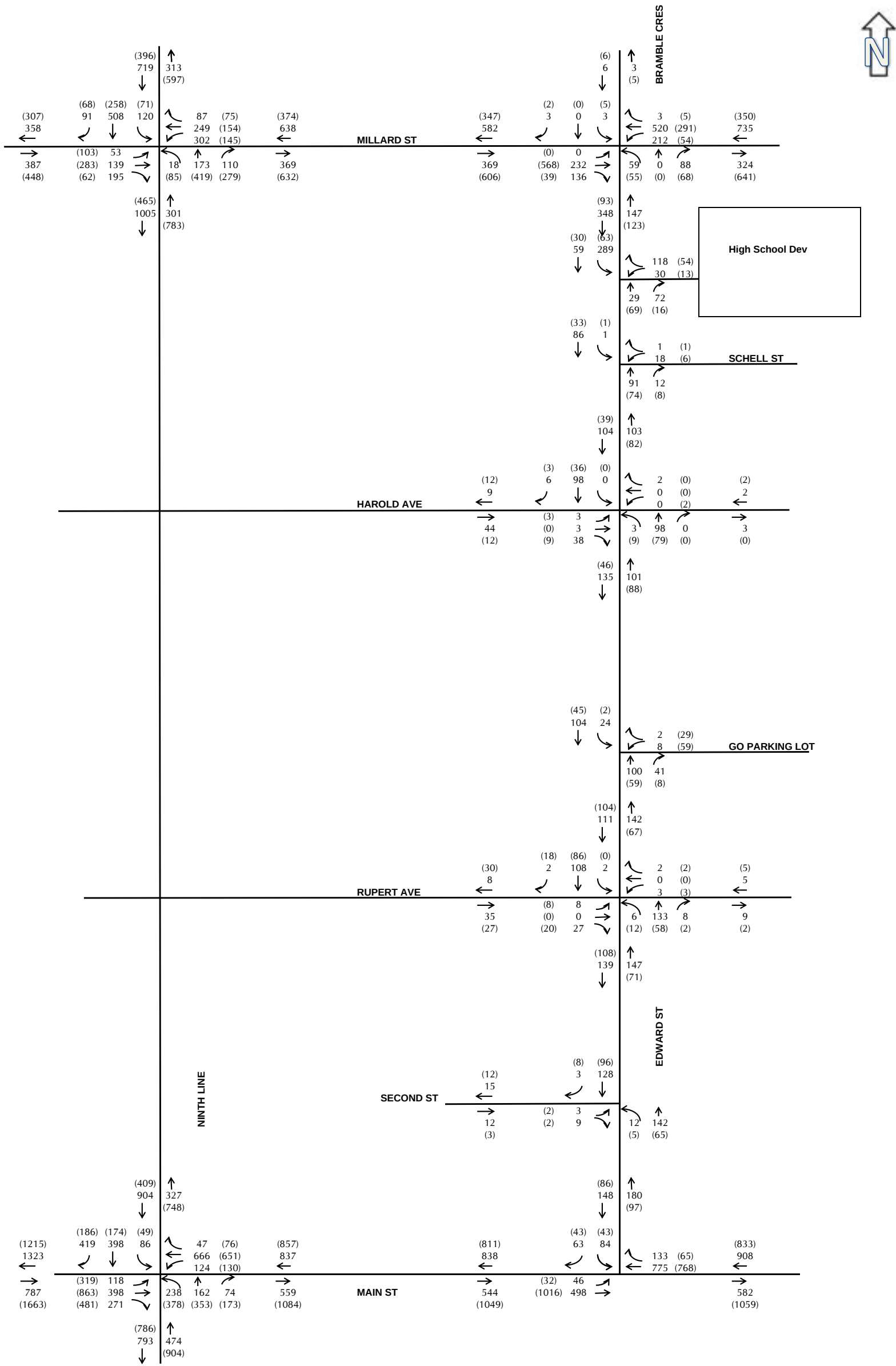




100 (100) AM (PM) Peak Hour

Figure 6
2031 Traffic Volumes with the Future Road System without High School Development
Edward Street EA
Town of Whitchurch-Stouffville





100 (100) AM (PM) Peak Hour

Figure 7
2031 Traffic Volumes with the Future Road System and High School Development
Edward Street EA
Town of Whitchurch-Stouffville



APPENDIX A

Traffic Counts

Accu-Traffic Inc.

Morning Peak Diagram		Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00
Municipality: Whitchurch-Stouffville Site #: 1803400001 Intersection: Millard St & Bramble Cres TFR File #: 1 Count date: 1-Mar-18		Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **		Major Road: Millard St runs W/E	

North Leg Total: 6 North Entering: 4 North Peds: 18 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Cars</td><td>2</td><td>0</td><td>2</td><td style="border-left: 1px solid black;">4</td></tr> <tr><td>Totals</td><td>2</td><td>0</td><td>2</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	2	0	2	4	Totals	2	0	2		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>2</td></tr> <tr><td>Totals</td><td>2</td></tr> </table>	Heavys	0	Trucks	0	Cars	2	Totals	2	East Leg Total: 531 East Entering: 366 East Peds: 2 Peds Cross:
Heavys	0	0	0	0																											
Trucks	0	0	0	0																											
Cars	2	0	2	4																											
Totals	2	0	2																												
Heavys	0																														
Trucks	0																														
Cars	2																														
Totals	2																														

Heavys	Trucks	Cars	Totals
10	1	356	367

Bramble Cres

Cars	Trucks	Heavys	Totals
2	0	0	2
352	1	8	361
2	0	1	3
356	1	9	

Millard St

W N
 S E

Millard St

Heavys	Trucks	Cars	Totals
0	0	0	0
7	1	151	159
0	0	1	1
7	1	152	

Bramble Cres

Cars	Trucks	Heavys	Totals
156	1	8	165

Peds Cross: West Peds: 5 West Entering: 160 West Leg Total: 527	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>3</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>1</td></tr> <tr><td>Totals</td><td>4</td></tr> </table>	Cars	3	Trucks	0	Heavys	1	Totals	4	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>2</td><td>0</td><td>3</td><td style="border-left: 1px solid black;">5</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Heavys</td><td>2</td><td>0</td><td>1</td><td style="border-left: 1px solid black;">3</td></tr> <tr><td>Totals</td><td>4</td><td>0</td><td>4</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	2	0	3	5	Trucks	0	0	0	0	Heavys	2	0	1	3	Totals	4	0	4		Peds Cross: South Peds: 1 South Entering: 8 South Leg Total: 12
Cars	3																														
Trucks	0																														
Heavys	1																														
Totals	4																														
Cars	2	0	3	5																											
Trucks	0	0	0	0																											
Heavys	2	0	1	3																											
Totals	4	0	4																												

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Whitchurch-Stouffville Site #: 1803400001 Intersection: Millard St & Bramble Cres TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Millard St runs W/E	

North Leg Total: 7 North Entering: 4 North Peds: 9 Peds Cross:	<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>1</td><td>0</td><td>3</td><td>4</td></tr> <tr><td>Totals</td><td>1</td><td>0</td><td>3</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	1	0	3	4	Totals	1	0	3		<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>3</td></tr> <tr><td>Totals</td><td>3</td></tr> </table>	Heavys	0	Trucks	0	Cars	3	Totals	3	East Leg Total: 606 East Entering: 205 East Peds: 1 Peds Cross:
Heavys	0	0	0	0																											
Trucks	0	0	0	0																											
Cars	1	0	3	4																											
Totals	1	0	3																												
Heavys	0																														
Trucks	0																														
Cars	3																														
Totals	3																														

Heavys	Trucks	Cars	Totals
1	1	202	204

Millard St

N
S
E
W

Bramble Cres

Cars	Trucks	Heavys	Totals
3	0	0	3
196	1	1	198
4	0	0	4
203	1	1	

Millard St

Heavys Trucks Cars Totals 0 0 0 0 1 0 392 393 1 0 3 4 2 0 395			Peds Cross: West Peds: 4 West Entering: 397 West Leg Total: 601
---	--	--	--

<table style="margin: auto;"> <tr><td>Cars</td><td>7</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>1</td></tr> <tr><td>Totals</td><td>8</td></tr> </table>	Cars	7	Trucks	0	Heavys	1	Totals	8		<table style="margin: auto;"> <tr><td>Cars</td><td>5</td><td>0</td><td>5</td><td>10</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Totals</td><td>5</td><td>0</td><td>5</td><td></td></tr> </table>	Cars	5	0	5	10	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	5	0	5		Peds Cross: South Peds: 0 South Entering: 10 South Leg Total: 18
Cars	7																														
Trucks	0																														
Heavys	1																														
Totals	8																														
Cars	5	0	5	10																											
Trucks	0	0	0	0																											
Heavys	0	0	0	0																											
Totals	5	0	5																												

Comments

Accu-Traffic Inc.

Total Count Diagram

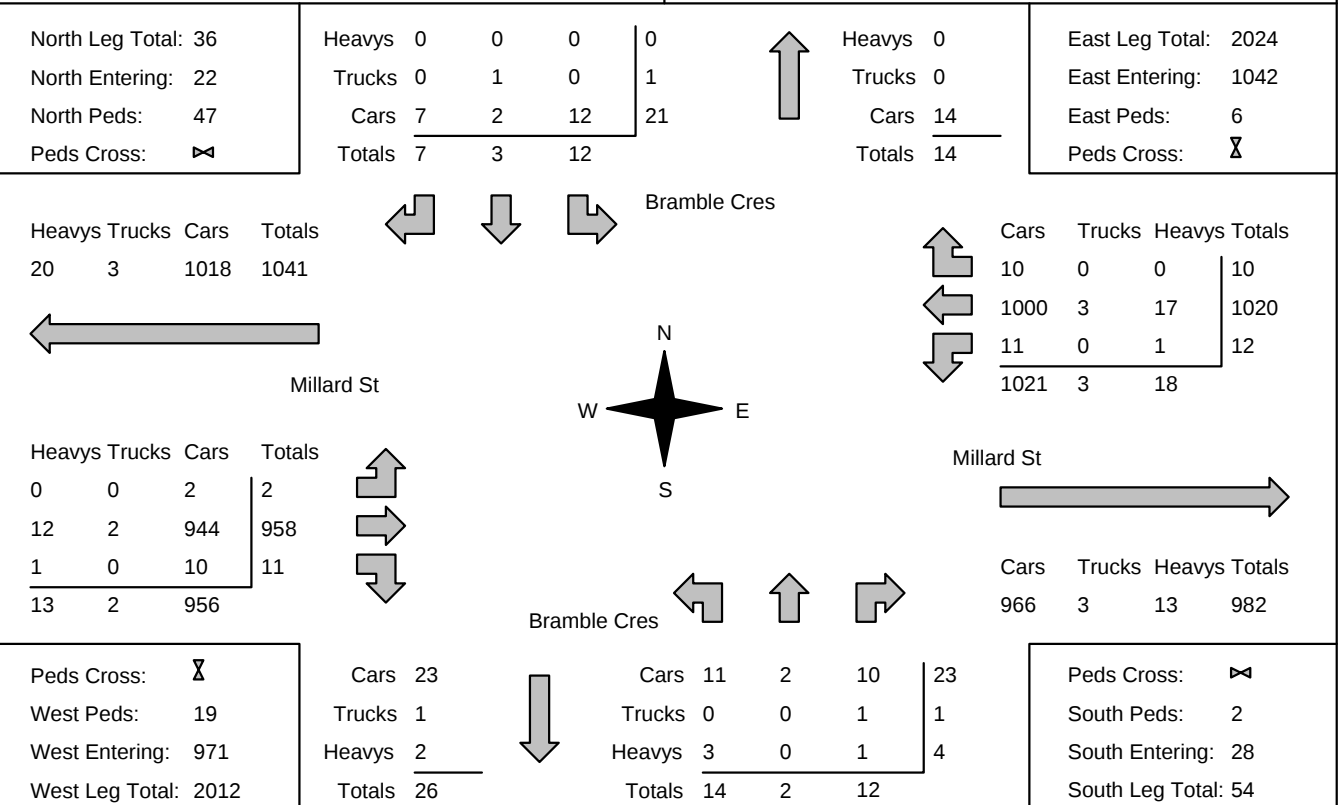
Municipality: Whitchurch-Stouffville
Site #: 1803400001
Intersection: Millard St & Bramble Cres
TFR File #: 1
Count date: 1-Mar-18

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Millard St runs W/E



Comments

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Millard St & Bramble Cres						Count Date: 1-Mar-18		Municipality: Whitchurch-Stouffville				
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	1	1	2	4	6	9	8:00:00	2	0	3	5	1
9:00:00	4	0	2	6	20	11	9:00:00	3	0	2	5	1
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	4	2	2	8	10	18	17:00:00	6	2	2	10	0
18:00:00	3	0	1	4	11	12	18:00:00	3	0	5	8	0
						</						

[illegible]

[illegible]

[illegible]

[illegible]

Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 7:00:00 To: 8:00:00
Municipality: Whitchurch-Stouffville Site #: 1803400002 Intersection: Edward St & Harold Ave TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Edward St runs N/S	

North Leg Total: 23 North Entering: 14 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>3</td><td>0</td><td style="border-left: 1px solid black;">3</td></tr> <tr><td>Trucks</td><td>0</td><td>1</td><td>0</td><td style="border-left: 1px solid black;">1</td></tr> <tr><td>Cars</td><td>4</td><td>6</td><td>0</td><td style="border-left: 1px solid black;">10</td></tr> <tr><td>Totals</td><td>4</td><td>10</td><td>0</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	3	0	3	Trucks	0	1	0	1	Cars	4	6	0	10	Totals	4	10	0		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>1</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Cars</td><td>7</td></tr> <tr><td>Totals</td><td>9</td></tr> </table>	Heavys	1	Trucks	1	Cars	7	Totals	9	East Leg Total: 3 East Entering: 1 East Peds: 0 Peds Cross:
Heavys	0	3	0	3																											
Trucks	0	1	0	1																											
Cars	4	6	0	10																											
Totals	4	10	0																												
Heavys	1																														
Trucks	1																														
Cars	7																														
Totals	9																														

Heavys	Trucks	Cars	Totals
0	0	7	7

Edward St

Cars	Trucks	Heavys	Totals
0	1	0	1
0	0	0	0
0	0	0	0
0	1	0	

Harold Ave

N
S
E
W

driveway

Heavys	Trucks	Cars	Totals
0	0	2	2
0	0	2	2
0	0	41	41
0	0	45	

Edward St

Cars	3	5	0	8
Trucks	0	0	0	0
Heavys	0	1	0	1
Totals	3	6	0	

Peds Cross: West Peds: 3 West Entering: 45 West Leg Total: 52	Cars 47 Trucks 1 Heavys 3 Totals 51	Peds Cross: South Peds: 0 South Entering: 9 South Leg Total: 60
--	--	--

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 17:00:00 To: 18:00:00
Municipality: Whitchurch-Stouffville Site #: 1803400002 Intersection: Edward St & Harold Ave TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Edward St runs N/S	

North Leg Total: 13 North Entering: 5 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">5</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;"></td> </tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	2	3	0	5	Totals	2	3	0		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 2px;">Heavys</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Trucks</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Cars</td> <td style="padding: 2px;">8</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 2px;">Totals</td> <td style="padding: 2px;">8</td> </tr> </table>	Heavys	0	Trucks	0	Cars	8	Totals	8	East Leg Total: 1 East Entering: 1 East Peds: 4 Peds Cross:
Heavys	0	0	0	0																											
Trucks	0	0	0	0																											
Cars	2	3	0	5																											
Totals	2	3	0																												
Heavys	0																														
Trucks	0																														
Cars	8																														
Totals	8																														

Heavys	Trucks	Cars	Totals
0	0	27	27

Edward St

Cars	Trucks	Heavys	Totals
0	0	0	0
0	0	0	0
1	0	0	1
1	0	0	

Heavys	Trucks	Cars	Totals
0	0	2	2
0	0	0	0
0	0	7	7
0	0	9	

Harold Ave

Cars	Trucks	Heavys	Totals
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Cars	Trucks	Heavys	Totals
11	0	0	11
0	0	0	0
0	0	0	0
0	0	0	0

Edward St

Cars	Trucks	Heavys	Totals
25	0	0	25
6	0	0	6
0	0	0	0
0	0	0	0

Peds Cross:
 West Peds: 7
 West Entering: 9
 West Leg Total: 36

driveway

Peds Cross:
 South Peds: 0
 South Entering: 31
 South Leg Total: 42

Comments

Accu-Traffic Inc.

Total Count Diagram

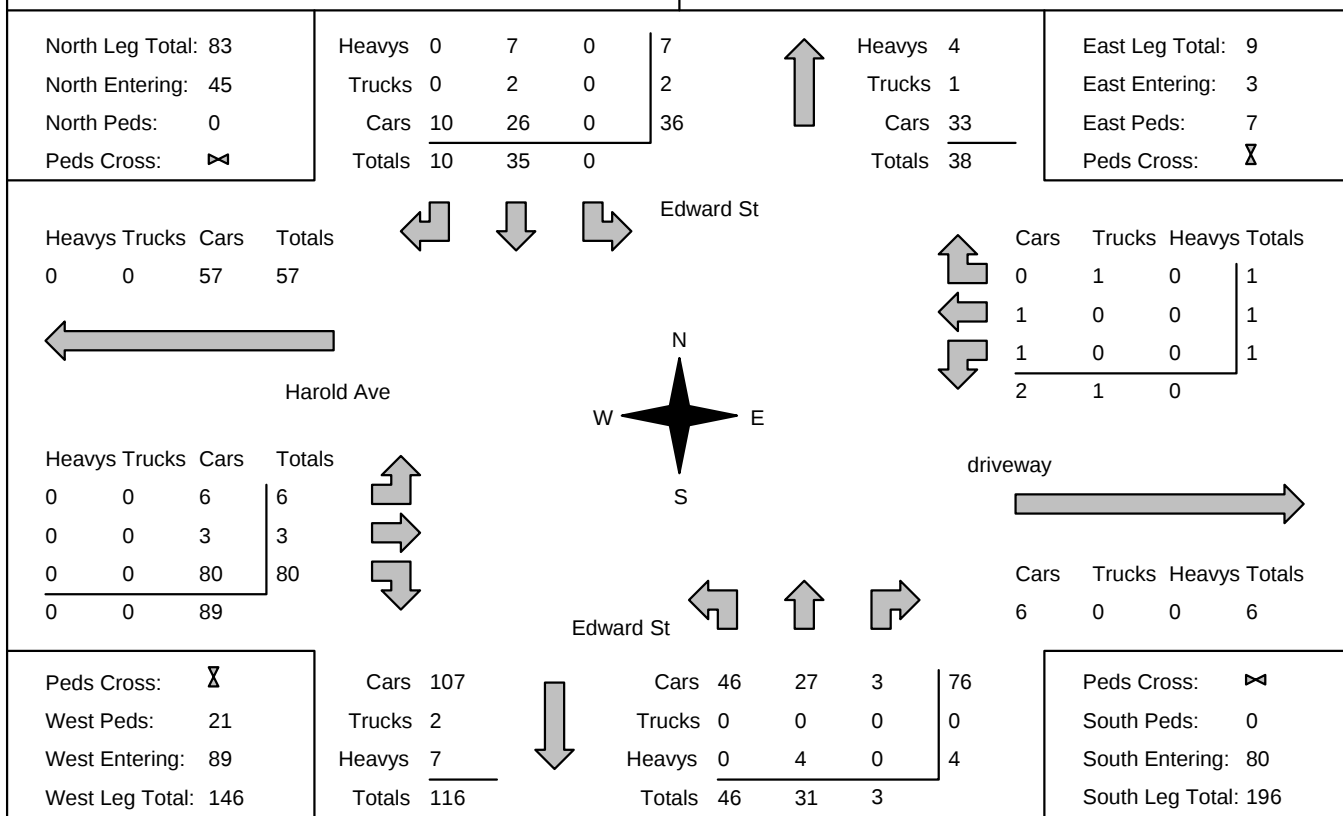
Municipality: Whitchurch-Stouffville
Site #: 1803400002
Intersection: Edward St & Harold Ave
TFR File #: 1
Count date: 1-Mar-18

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Edward St runs N/S



Comments

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Edward St & Harold Ave					Count Date: 1-Mar-18			Municipality: Whitchurch-Stouffville				
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	10	4	14	0	23	8:00:00	3	6	0	9	0
9:00:00	0	15	2	17	0	40	9:00:00	7	15	1	23	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	7	2	9	0	26	17:00:00	11	4	2	17	0
18:00:00	0	3	2	5	0	36	18:00:00	25	6	0	31	0
</												

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Accu-Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Whitchurch-Stouffville

Site #: 1803400003

Intersection: Edward St & Rupert Ave

TFR File #: 1

Count date: 1-Mar-18

Weather conditions:

Person counted:

Person prepared:

Person checked:

** Non-Signalized Intersection **

Major Road: Edward St runs N/S

North Leg Total: 71

North Entering: 35

North Peds: 0

Peds Cross: 

Heavys	0	2	0	2
Trucks	0	1	0	1
Cars	1	30	1	32
Totals	1	33	1	



Heavys 1

Trucks 0

Cars 35

Totals 36

East Leg Total: 9

East Entering: 3

East Peds: 0

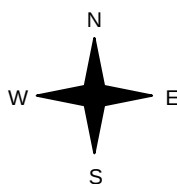
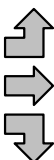
Peds Cross: 

Heavys	0	0	5	5
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Rupert Ave

Heavys	0	0	5	5
Trucks	0	0	0	0
Cars	1	0	17	18
Totals	1	0	22	



Edward St

Cars	1	0	0	1
Trucks	0	0	0	0
Heavys	2	0	0	2
Totals	3	0	0	

driveway



Cars	6	0	0	6
------	---	---	---	---

Peds Cross: 

West Peds: 13

West Entering: 23

West Leg Total: 28

Cars	49
Trucks	1
Heavys	3
Totals	53



Cars	4	29	5	38
Trucks	0	0	0	0
Heavys	0	1	0	1
Totals	4	30	5	

Peds Cross: 

South Peds: 1

South Entering: 39

South Leg Total: 92

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 17:00:00 To: 18:00:00
Municipality: Whitchurch-Stouffville Site #: 1803400003 Intersection: Edward St & Rupert Ave TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Edward St runs N/S	

North Leg Total: 66 North Entering: 49 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>12</td><td>37</td><td>0</td><td>49</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>12</td><td>37</td><td>0</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	12	37	0	49	Totals	12	37	0			<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>17</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>17</td></tr> </table>	Heavys	0	Trucks	0	Cars	17	Totals	17	East Leg Total: 4 East Entering: 3 East Peds: 3 Peds Cross:
Heavys	0	0	0	0																												
Trucks	0	0	0	0																												
Cars	12	37	0	49																												
Totals	12	37	0																													
Heavys	0																															
Trucks	0																															
Cars	17																															
Totals	17																															

Heavys	Trucks	Cars	Totals
0	0	20	20

Edward St

W N E S

Cars	Trucks	Heavys	Totals
1	0	0	1
0	0	0	0
2	0	0	2
3	0	0	

Rupert Ave

Heavys	Trucks	Cars	Totals
0	0	5	5
0	0	0	0
0	0	13	13
0	0	18	

Edward St

driveway

Cars	Trucks	Heavys	Totals
1	0	0	1

Peds Cross: West Peds: 12 West Entering: 18 West Leg Total: 38	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>52</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>52</td></tr> </table>	Cars	52	Trucks	0	Heavys	0	Totals	52		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>8</td><td>11</td><td>1</td><td>20</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>8</td><td>11</td><td>1</td><td></td></tr> </table>	Cars	8	11	1	20	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	8	11	1		Peds Cross: South Peds: 0 South Entering: 20 South Leg Total: 72
Cars	52																															
Trucks	0																															
Heavys	0																															
Totals	52																															
Cars	8	11	1	20																												
Trucks	0	0	0	0																												
Heavys	0	0	0	0																												
Totals	8	11	1																													

Comments

Accu-Traffic Inc.

Total Count Diagram

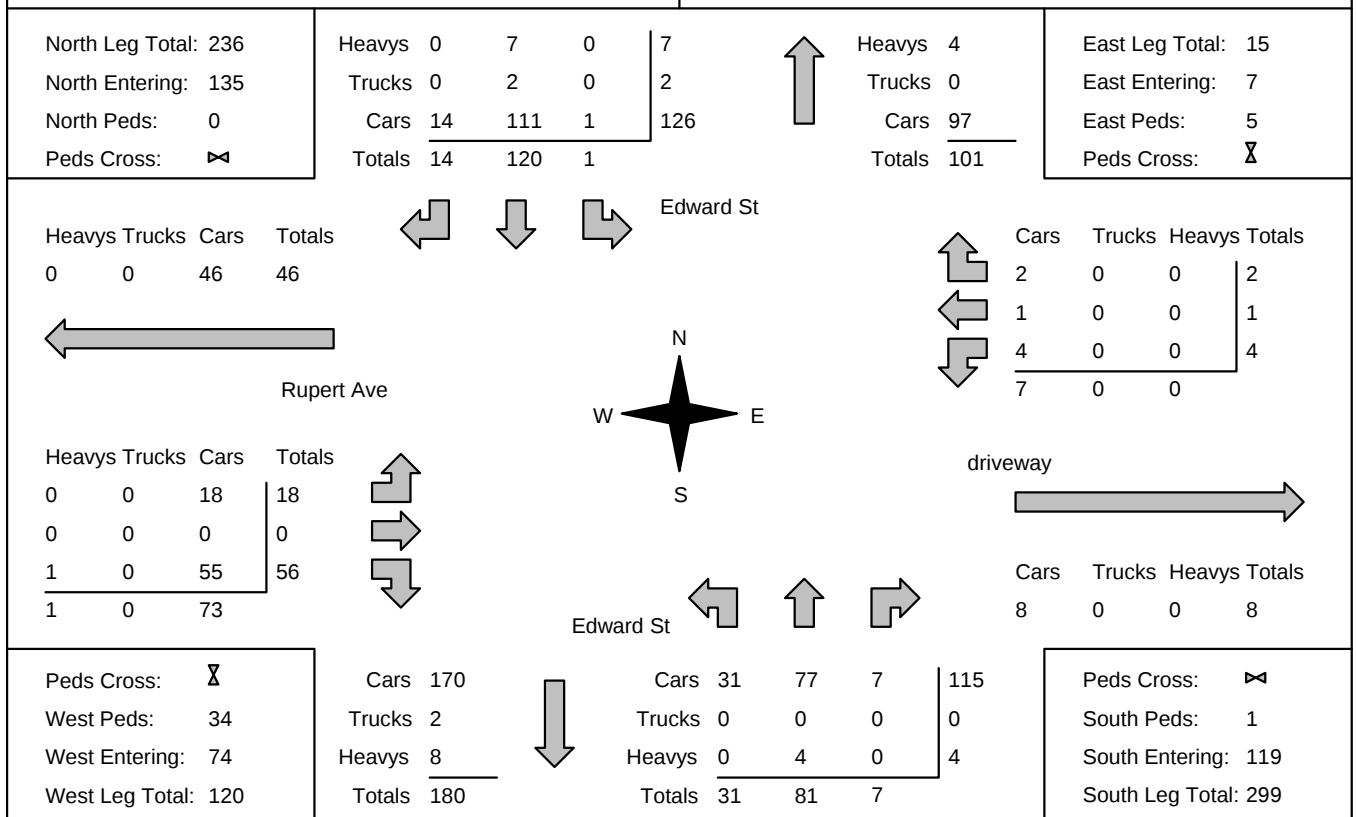
Municipality: Whitchurch-Stouffville
Site #: 1803400003
Intersection: Edward St & Rupert Ave
TFR File #: 1
Count date: 1-Mar-18

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Edward St runs N/S



Comments

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Edward St & Rupert Ave						Count Date: 1-Mar-18		Municipality: Whitchurch-Stouffville				
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	1	29	2	32	0	70	8:00:00	3	33	2	38	0
9:00:00	0	31	0	31	0	68	9:00:00	7	27	3	37	1
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	23	0	23	0	47	17:00:00	13	10	1	24	0
18:00:00	0	37	12	49	0	69	18:00:00	8	11	1	20	0

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Accu-Traffic Inc.

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Whitchurch-Stouffville

Site #: 1803400004

Intersection: Edward St & Second St

TFR File #: 1

Count date: 1-Mar-18

Weather conditions:

Person counted:

Person prepared:

Person checked:

** Non-Signalized Intersection **

Major Road: Edward St runs N/S

North Leg Total: 86

North Entering: 48

North Peds: 2

Peds Cross: 

Heavys	0	2	2
Trucks	0	1	1
Cars	2	43	45
Totals	2	46	

Heavys	1
Trucks	1
Cars	36
Totals	38

Heavys	Trucks	Cars	Totals
0	0	10	10



Second St

Heavys	Trucks	Cars	Totals
0	0	2	2

0	0	6	6
0	0	8	

Peds Cross: 

West Peds: 8

West Entering: 8

West Leg Total: 18

Cars	49
Trucks	1
Heavys	2
Totals	52

Cars	8	34	42
Trucks	0	1	1
Heavys	0	1	1
Totals	8	36	

Peds Cross: 

South Peds: 1

South Entering: 44

South Leg Total: 96

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 17:00:00 To: 18:00:00
Municipality: Whitchurch-Stouffville Site #: 1803400004 Intersection: Edward St & Second St TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Edward St runs N/S	

North Leg Total: 66 North Entering: 49 North Peds: 4 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td rowspan="4" style="text-align: center; vertical-align: middle; padding: 0 10px;"> </td> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">5</td> <td style="text-align: right;">44</td> <td style="text-align: right;">49</td> <td style="text-align: right;">Cars</td> <td style="text-align: right;">17</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">5</td> <td style="text-align: right;">44</td> <td></td> <td style="text-align: right;">Totals</td> <td style="text-align: right;">17</td> </tr> </table>	Heavys	0	0	0		Heavys	0	Trucks	0	0	0	Trucks	0	Cars	5	44	49	Cars	17	Totals	5	44		Totals	17	
Heavys	0	0	0		Heavys		0																				
Trucks	0	0	0		Trucks		0																				
Cars	5	44	49		Cars		17																				
Totals	5	44			Totals	17																					

Heavys	0	Trucks	0	Cars	8	Totals	8
--------	---	--------	---	------	---	--------	---

Edward St

Heavys	0	Trucks	0	Cars	1	Totals	1
--------	---	--------	---	------	---	--------	---

Second St

0	0	1	1
0	0	1	1
0	0	2	

Edward St

Cars	45	Trucks	0	Heavys	0	Totals	45
------	----	--------	---	--------	---	--------	----

Cars	3	16	19
Trucks	0	0	0
Heavys	0	0	0
Totals	3	16	

Peds Cross:	
West Peds:	8
West Entering:	2
West Leg Total:	10

Peds Cross:	
South Peds:	3
South Entering:	19
South Leg Total:	64

Comments

Accu-Traffic Inc.

Total Count Diagram

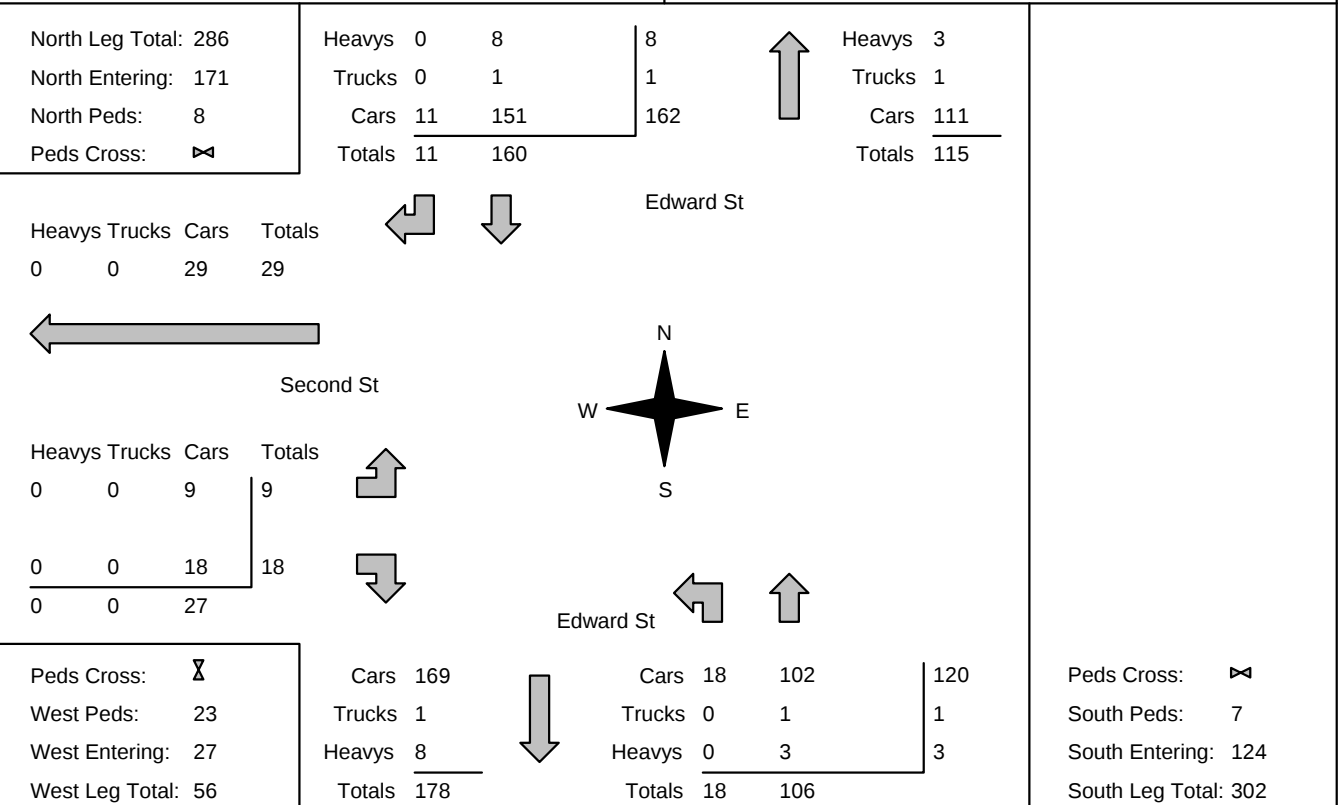
Municipality: Whitchurch-Stouffville
Site #: 1803400004
Intersection: Edward St & Second St
TFR File #: 1
Count date: 1-Mar-18

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Edward St runs N/S



Comments

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Edward St & Second St					Count Date: 1-Mar-18			Municipality: Whitchurch-Stouffville				
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	43	2	45	1	83	8:00:00	3	35	0	38	2
9:00:00	0	44	2	46	1	88	9:00:00	7	35	0	42	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	29	2	31	2	56	17:00:00	5	20	0	25	2
18:00:00	0	44	5	49	4	68	18:00:00	3	16	0	19	3

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Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 1803400005 Intersection: Main St & Edward St TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Main St runs W/E	

North Leg Total: 117 North Entering: 59 North Peds: 23 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Heavys 2</td> <td style="width: 33%;">1</td> <td style="width: 33%;">3</td> </tr> <tr> <td>Trucks 0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Cars 34</td> <td>22</td> <td>56</td> </tr> <tr> <td style="border-top: 1px solid black;">Totals 36</td> <td style="border-top: 1px solid black;">23</td> <td></td> </tr> </table>	Heavys 2	1	3	Trucks 0	0	0	Cars 34	22	56	Totals 36	23		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Heavys 1</td> <td style="width: 33%;"></td> <td style="width: 33%;"></td> </tr> <tr> <td>Trucks 0</td> <td></td> <td></td> </tr> <tr> <td>Cars 57</td> <td></td> <td></td> </tr> <tr> <td style="border-top: 1px solid black;">Totals 58</td> <td></td> <td></td> </tr> </table>	Heavys 1			Trucks 0			Cars 57			Totals 58			East Leg Total: 917 East Entering: 552 East Peds: 0 Peds Cross:
Heavys 2	1	3																									
Trucks 0	0	0																									
Cars 34	22	56																									
Totals 36	23																										
Heavys 1																											
Trucks 0																											
Cars 57																											
Totals 58																											

Heavys	Trucks	Cars	Totals
6	5	544	555

Main St

Heavys	Trucks	Cars	Totals
1	0	24	25
7	1	334	342
8	1	358	



Edward St

Cars	Trucks	Heavys	Totals
33	0	0	33
510	5	4	519
543	5	4	

Main St

Cars	Trucks	Heavys	Totals
356	1	8	365

Peds Cross: West Peds: 1 West Entering: 367 West Leg Total: 922	
--	--

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram

Specified Period

From: 16:00:00

To: 18:00:00

One Hour Peak

From: 16:00:00

To: 17:00:00

Municipality: Whitchurch-Stouffville

Site #: 1803400005

Intersection: Main St & Edward St

TFR File #: 1

Count date: 1-Mar-18

Weather conditions:

Person counted:

Person prepared:

Person checked:

** Non-Signalized Intersection **

Major Road: Main St runs W/E

North Leg Total: 76

North Entering: 37

North Peds: 13

Peds Cross: $\times$

Heavys	1	0	1
Trucks	0	0	0
Cars	24	12	36
Totals	25	12	

Heavys 1

Trucks 0

Cars 38

Totals 39

East Leg Total: 1231

East Entering: 540

East Peds: 1

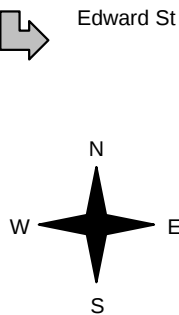
Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
3	0	541	544

←

Main St

Heavys	Trucks	Cars	Totals
0	0	18	18
6	1	672	679
6	1	690	



Cars	Trucks	Heavys	Totals
20	0	1	21
517	0	2	519
537	0	3	

Main St



Cars	Trucks	Heavys	Totals
684	1	6	691

Peds Cross: $\times$

West Peds: 1

West Entering: 697

West Leg Total: 1241

Comments

Accu-Traffic Inc.

Total Count Diagram

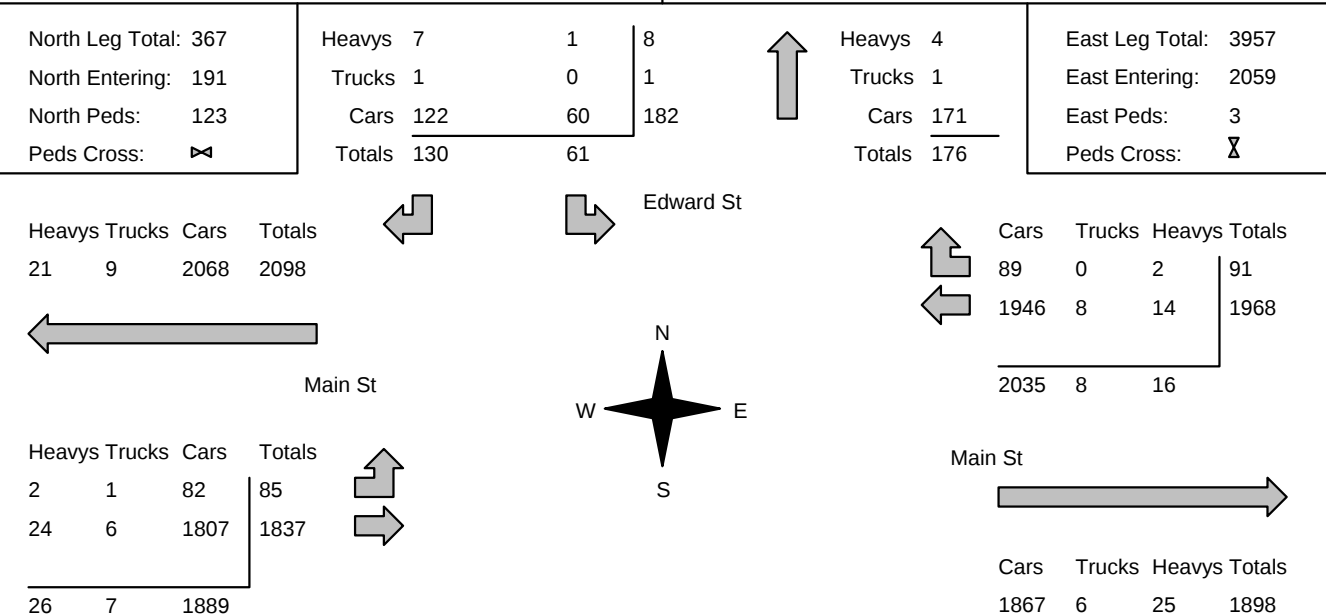
Municipality: Whitchurch-Stouffville
Site #: 1803400005
Intersection: Main St & Edward St
TFR File #: 1
Count date: 1-Mar-18

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Main St runs W/E



Peds Cross: 8
West Peds: 4
West Entering: 1922
West Leg Total: 4020

Comments

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Main St & Edward St						Count Date: 1-Mar-18		Municipality: Whitchurch-Stouffville					
North Approach Totals						North/South Total Approaches	South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	6	0	37	43	60	43	8:00:00	0	0	0	0	0	
9:00:00	23	0	36	59	23	59	9:00:00	0	0	0	0	0	
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0	
17:00:00	12	0	25	37	13	37	17:00:00	0	0	0	0	0	
18:00:00	20	0	32	52	27	52	18:00:00	0	0	0	0	0	
						</							

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Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00
Municipality: Whitchurch-Stouffville Site #: 1803400006 Intersection: Ninth Ln & Millard St TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **	Major Road: Ninth Ln runs N/S	

North Leg Total: 631 North Entering: 439 North Peds: 4 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">4</td> <td style="text-align: right;">4</td> <td style="text-align: right;">2</td> <td style="border-left: 1px solid black; text-align: right;">10</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> <td style="text-align: right;">3</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">3</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">56</td> <td style="text-align: right;">346</td> <td style="text-align: right;">24</td> <td style="border-left: 1px solid black; text-align: right;">426</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">60</td> <td style="text-align: right;">353</td> <td style="text-align: right;">26</td> <td style="border-left: 1px solid black;"></td> </tr> </table>	Heavys	4	4	2	10	Trucks	0	3	0	3	Cars	56	346	24	426	Totals	60	353	26		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">10</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">2</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">180</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">192</td> </tr> </table>	Heavys	10	Trucks	2	Cars	180	Totals	192	East Leg Total: 564 East Entering: 404 East Peds: 69 Peds Cross:
Heavys	4	4	2	10																											
Trucks	0	3	0	3																											
Cars	56	346	24	426																											
Totals	60	353	26																												
Heavys	10																														
Trucks	2																														
Cars	180																														
Totals	192																														

Heavys	5	0	Cars	217	Totals	222
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N
S
E
W

Cars	37	0	0	37
Trucks	149	0	1	150
Heavys	207	1	9	217
Totals	393	1	10	

Heavys	5	0	Cars	30	Totals	35
Trucks	3	1	Cars	52	Totals	56
Heavys	3	0	Cars	126	Totals	129
Totals	11	1	Cars	208	Totals	

N
S
E
W

Cars	152	1	7	160
Trucks	12	113	76	201
Heavys	0	2	0	2
Totals	12	120	78	

Peds Cross:
 West Peds: 7
 West Entering: 220
 West Leg Total: 442

N
S
E
W

Peds Cross:
 South Peds: 117
 South Entering: 210
 South Leg Total: 909

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Whitchurch-Stouffville Site #: 1803400006 Intersection: Ninth Ln & Millard St TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **	Major Road: Ninth Ln runs N/S	

North Leg Total: 642 North Entering: 254 North Peds: 7 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>3</td><td>0</td><td>3</td></tr> <tr><td>Trucks</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Cars</td><td>45</td><td>171</td><td>33</td><td>249</td></tr> <tr><td>Totals</td><td>45</td><td>176</td><td>33</td><td></td></tr> </table>	Heavys	0	3	0	3	Trucks	0	2	0	2	Cars	45	171	33	249	Totals	45	176	33		<table style="width: 100%; border-collapse: collapse;"> <tr><td>Heavys</td><td>2</td></tr> <tr><td>Trucks</td><td>2</td></tr> <tr><td>Cars</td><td>384</td></tr> <tr><td>Totals</td><td>388</td></tr> </table>	Heavys	2	Trucks	2	Cars	384	Totals	388	East Leg Total: 636 East Entering: 222 East Peds: 7 Peds Cross:
Heavys	0	3	0	3																											
Trucks	0	2	0	2																											
Cars	45	171	33	249																											
Totals	45	176	33																												
Heavys	2																														
Trucks	2																														
Cars	384																														
Totals	388																														

Heavys	Trucks	Cars	Totals
1	1	194	196

Millard St

Ninth Ln

Millard St

Heavys	Trucks	Cars	Totals
0	0	68	68
0	0	179	179
1	1	39	41
1	1	286	

N
S
E
W

Cars	Trucks	Heavys	Totals
25	0	0	25
94	0	1	95
102	0	0	102
221	0	1	

Cars	Trucks	Heavys	Totals
413	0	1	414

Ninth Ln

Peds Cross: West Peds: 3 West Entering: 288 West Leg Total: 484	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>312</td></tr> <tr><td>Trucks</td><td>3</td></tr> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Totals</td><td>319</td></tr> </table>	Cars	312	Trucks	3	Heavys	4	Totals	319	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Cars</td><td>55</td><td>291</td><td>201</td><td>547</td></tr> <tr><td>Trucks</td><td>1</td><td>2</td><td>0</td><td>3</td></tr> <tr><td>Heavys</td><td>0</td><td>2</td><td>1</td><td>3</td></tr> <tr><td>Totals</td><td>56</td><td>295</td><td>202</td><td></td></tr> </table>	Cars	55	291	201	547	Trucks	1	2	0	3	Heavys	0	2	1	3	Totals	56	295	202		Peds Cross: South Peds: 2 South Entering: 553 South Leg Total: 872
Cars	312																														
Trucks	3																														
Heavys	4																														
Totals	319																														
Cars	55	291	201	547																											
Trucks	1	2	0	3																											
Heavys	0	2	1	3																											
Totals	56	295	202																												

Comments

Accu-Traffic Inc.

Total Count Diagram

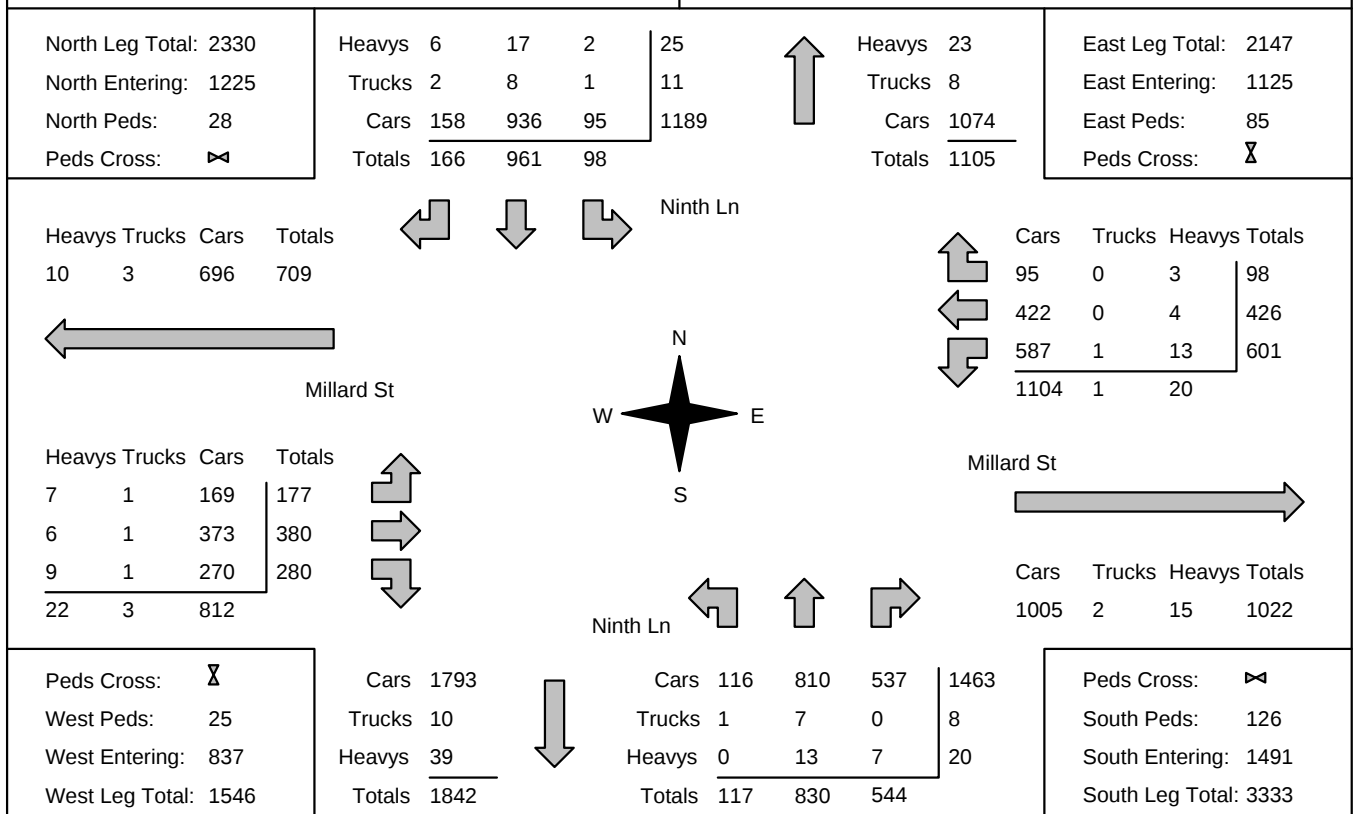
Municipality: Whitchurch-Stouffville
Site #: 1803400006
Intersection: Ninth Ln & Millard St
TFR File #: 1
Count date: 1-Mar-18

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Ninth Ln runs N/S



Comments

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Ninth Ln & Millard St					Count Date: 1-Mar-18		Municipality: Whitchurch-Stouffville					
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	15	279	48	342	1	500	8:00:00	9	86	63	158	15
9:00:00	21	330	39	390	8	616	9:00:00	12	133	81	226	106
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	30	174	39	243	15	771	17:00:00	44	306	178	528	3
18:00:00	32	178	40	250	4	829	18:00:00	52	305	222	579	2

[illegible]

[illegible]

[illegible]

[illegible]

Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: Whitchurch-Stouffville Site #: 1803400007 Intersection: Main St & Ninth Ln TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **	Major Road: Main St runs W/E	

North Leg Total: 842 North Entering: 616 North Peds: 14 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">10</td> <td style="text-align: right;">7</td> <td style="text-align: right;">4</td> <td style="border-left: 1px solid black; text-align: right;">21</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">1</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">267</td> <td style="text-align: right;">255</td> <td style="text-align: right;">72</td> <td style="border-left: 1px solid black; text-align: right;">594</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">277</td> <td style="text-align: right;">263</td> <td style="text-align: right;">76</td> <td style="border-left: 1px solid black;"></td> </tr> </table>	Heavys	10	7	4	21	Trucks	0	1	0	1	Cars	267	255	72	594	Totals	277	263	76		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">7</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">4</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">215</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">226</td> </tr> </table>	Heavys	7	Trucks	4	Cars	215	Totals	226	East Leg Total: 951 East Entering: 563 East Peds: 7 Peds Cross:
Heavys	10	7	4	21																											
Trucks	0	1	0	1																											
Cars	267	255	72	594																											
Totals	277	263	76																												
Heavys	7																														
Trucks	4																														
Cars	215																														
Totals	226																														

Heavys	Trucks	Cars	Totals
14	5	855	874

Main St

Main St

Ninth Ln

Main St

Main St

Main St

Main St

Heavys	Trucks	Cars	Totals
2	3	73	78
2	1	260	263
4	0	175	179
8	4	508	

Main St

Main St

Ninth Ln

Main St

Main St

Main St

Main St

Peds Cross: West Peds: 4 West Entering: 520 West Leg Total: 1394	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">511</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">1</td> </tr> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">12</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">524</td> </tr> </table>	Cars	511	Trucks	1	Heavys	12	Totals	524	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: right;">157</td> <td style="text-align: right;">104</td> <td style="text-align: right;">48</td> <td style="border-left: 1px solid black; text-align: right;">309</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: right;">0</td> <td style="text-align: right;">1</td> <td style="text-align: right;">0</td> <td style="border-left: 1px solid black; text-align: right;">1</td> </tr> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: right;">0</td> <td style="text-align: right;">2</td> <td style="text-align: right;">1</td> <td style="border-left: 1px solid black; text-align: right;">3</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: right;">157</td> <td style="text-align: right;">107</td> <td style="text-align: right;">49</td> <td style="border-left: 1px solid black;"></td> </tr> </table>	Cars	157	104	48	309	Trucks	0	1	0	1	Heavys	0	2	1	3	Totals	157	107	49		Peds Cross: South Peds: 7 South Entering: 313 South Leg Total: 837
Cars	511																														
Trucks	1																														
Heavys	12																														
Totals	524																														
Cars	157	104	48	309																											
Trucks	0	1	0	1																											
Heavys	0	2	1	3																											
Totals	157	107	49																												

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 18:00:00	One Hour Peak From: 16:45:00 To: 17:45:00
Municipality: Whitchurch-Stouffville Site #: 1803400007 Intersection: Main St & Ninth Ln TFR File #: 1 Count date: 1-Mar-18	Weather conditions: Person counted: Person prepared: Person checked:	
** Signalized Intersection **	Major Road: Main St runs W/E	

North Leg Total: 792 North Entering: 281 North Peds: 11 Peds Cross:	<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td><td>3</td><td>1</td><td>4</td></tr> <tr><td>Trucks</td><td>0</td><td>3</td><td>0</td><td>3</td></tr> <tr><td>Cars</td><td>123</td><td>109</td><td>42</td><td>274</td></tr> <tr><td>Totals</td><td>123</td><td>115</td><td>43</td><td></td></tr> </table>	Heavys	0	3	1	4	Trucks	0	3	0	3	Cars	123	109	42	274	Totals	123	115	43		<table style="margin: auto;"> <tr><td>Heavys</td><td>4</td></tr> <tr><td>Trucks</td><td>2</td></tr> <tr><td>Cars</td><td>505</td></tr> <tr><td>Totals</td><td>511</td></tr> </table>	Heavys	4	Trucks	2	Cars	505	Totals	511	East Leg Total: 1310 East Entering: 583 East Peds: 3 Peds Cross:
Heavys	0	3	1	4																											
Trucks	0	3	0	3																											
Cars	123	109	42	274																											
Totals	123	115	43																												
Heavys	4																														
Trucks	2																														
Cars	505																														
Totals	511																														

Heavys	Trucks	Cars	Totals
3	1	799	803

Ninth Ln

Cars	Trucks	Heavys	Totals
67	0	0	67
426	1	3	430
86	0	0	86
579	1	3	

Main St

Heavys	Trucks	Cars	Totals
2	0	209	211
0	1	569	570
2	2	314	318
4	3	1092	

Ninth Ln

Cars	Trucks	Heavys	Totals
725	1	1	727

Main St

Peds Cross: West Peds: 4 West Entering: 1099 West Leg Total: 1902	<table style="margin: auto;"> <tr><td>Cars</td><td>509</td></tr> <tr><td>Trucks</td><td>5</td></tr> <tr><td>Heavys</td><td>5</td></tr> <tr><td>Totals</td><td>519</td></tr> </table>	Cars	509	Trucks	5	Heavys	5	Totals	519	<table style="margin: auto;"> <tr><td>Cars</td><td>250</td><td>229</td><td>114</td><td>593</td></tr> <tr><td>Trucks</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Heavys</td><td>0</td><td>2</td><td>0</td><td>2</td></tr> <tr><td>Totals</td><td>250</td><td>233</td><td>114</td><td></td></tr> </table>	Cars	250	229	114	593	Trucks	0	2	0	2	Heavys	0	2	0	2	Totals	250	233	114		Peds Cross: South Peds: 8 South Entering: 597 South Leg Total: 1116
Cars	509																														
Trucks	5																														
Heavys	5																														
Totals	519																														
Cars	250	229	114	593																											
Trucks	0	2	0	2																											
Heavys	0	2	0	2																											
Totals	250	233	114																												

Comments

Accu-Traffic Inc.

Total Count Diagram

Municipality: Whitchurch-Stouffville

Site #: 1803400007

Intersection: Main St & Ninth Ln

TFR File #: 1

Count date: 1-Mar-18

Weather conditions:

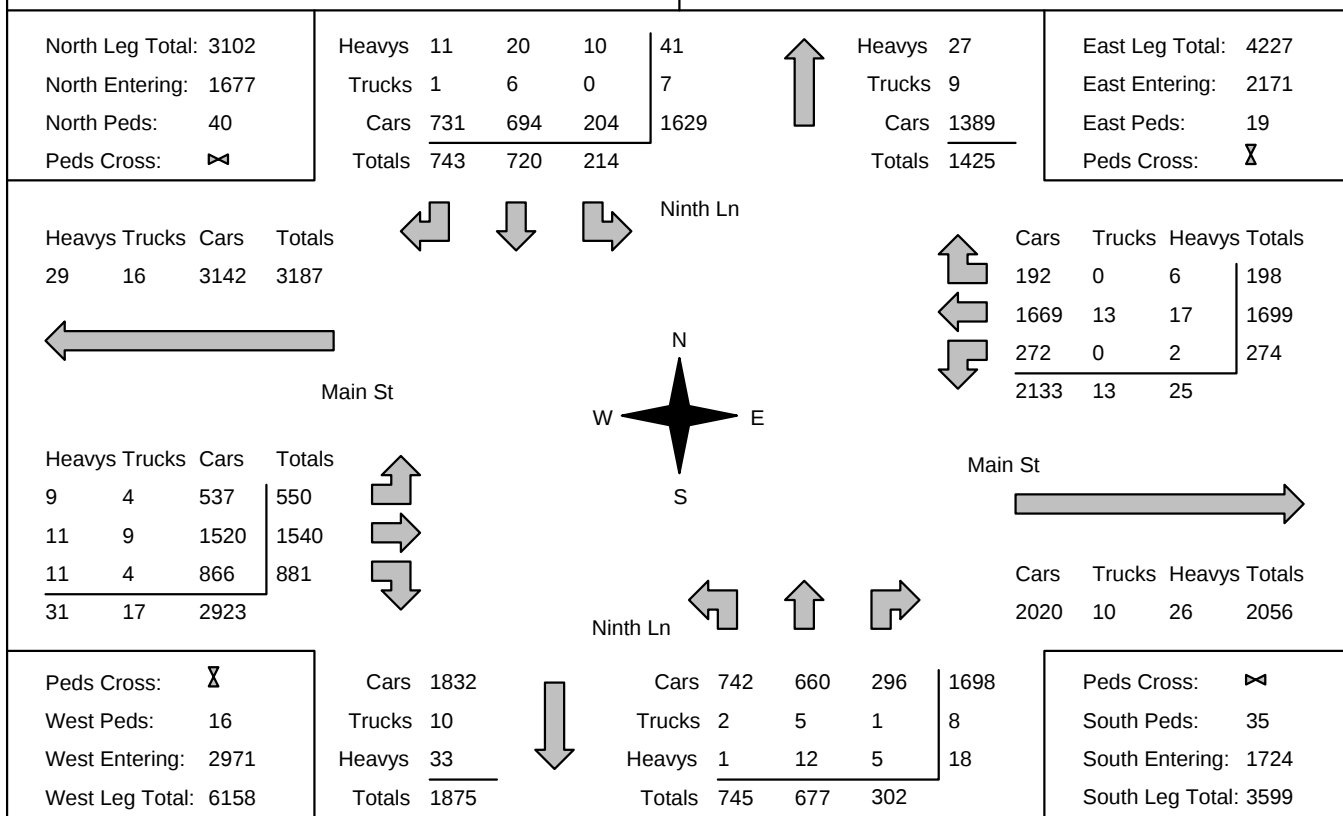
Person counted:

Person prepared:

Person checked:

**** Signalized Intersection ****

Major Road: Main St runs W/E



Comments

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Main St & Ninth Ln						Count Date: 1-Mar-18		Municipality: Whitchurch-Stouffville				
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	36	233	210	479	3	766	8:00:00	138	99	50	287	4
9:00:00	76	263	277	616	14	929	9:00:00	157	107	49	313	7
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	53	109	135	297	11	868	17:00:00	233	248	90	571	16
18:00:00	49	115	121	285	12	838	18:00:00	217	223	113	553	8

[illegible]

[illegible]

[illegible]

[illegible]

APPENDIX B

Operational Analyses

Existing 2018 Traffic Volumes

Intersection

Int Delay, s/veh 1.3

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 25 342 519 33 23 36

Future Vol, veh/h 25 342 519 33 23 36

Conflicting Peds, #/hr 23 0 0 23 1 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 4 2 2 0 4 6

Mvmt Flow 27 372 564 36 25 39

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 623 0 - 0 1032 605

Stage 1 - - - - 605 -

Stage 2 - - - - 427 -

Critical Hdwy 4.14 - - - 6.44 6.26

Critical Hdwy Stg 1 - - - - 5.44 -

Critical Hdwy Stg 2 - - - - 5.44 -

Follow-up Hdwy 2.236 - - - 3.536 3.354

Pot Cap-1 Maneuver 948 - - - 256 490

Stage 1 - - - - 541 -

Stage 2 - - - - 654 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 930 - - - 237 480

Mov Cap-2 Maneuver - - - - 237 -

Stage 1 - - - - 511 -

Stage 2 - - - - 642 -

Approach EB WB SB

HCM Control Delay, s 0.6 0 17.9

HCM LOS C

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 930 - - - 343

HCM Lane V/C Ratio 0.029 - - - 0.187

HCM Control Delay (s) 9 0 - - 17.9

HCM Lane LOS A A - - C

HCM 95th %tile Q(veh) 0.1 - - - 0.7

Intersection

Int Delay, s/veh 4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	0	1	8	0	2
Future Vol, veh/h	12	0	1	8	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	0	1	9	0	2

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	8	6	0
Stage 1	6	-	-
Stage 2	2	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	1013	1077	-
Stage 1	1017	-	-
Stage 2	1021	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1013	1077	-
Mov Cap-2 Maneuver	1013	-	-
Stage 1	1017	-	-
Stage 2	1021	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1013	1610
HCM Lane V/C Ratio	-	-	0.013	-
HCM Control Delay (s)	-	-	8.6	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	18	2	0	1	4	30	5	1	33	1
Future Vol, veh/h	5	0	18	2	0	1	4	30	5	1	33	1
Conflicting Peds, #/hr	0	0	1	1	0	0	13	0	0	0	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	0	0	0	0	3	0	0	10	0
Mvmt Flow	5	0	20	2	0	1	4	33	5	1	36	1
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	96	98	51	94	96	36	50	0	0	38	0	0
Stage 1	52	52	-	44	44	-	-	-	-	-	-	-
Stage 2	44	46	-	50	52	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	891	796	1009	894	798	1042	1570	-	-	1585	-	-
Stage 1	966	856	-	975	862	-	-	-	-	-	-	-
Stage 2	975	861	-	968	856	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	878	784	997	873	786	1042	1553	-	-	1585	-	-
Mov Cap-2 Maneuver	878	784	-	873	786	-	-	-	-	-	-	-
Stage 1	952	846	-	972	859	-	-	-	-	-	-	-
Stage 2	971	858	-	947	846	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	8.8		8.9			0.8			0.2			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1553	-	-	968	923	1585	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.026	0.004	0.001	-	-				
HCM Control Delay (s)	7.3	0	-	8.8	8.9	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	1	8	27	16	30
Future Vol, veh/h	5	1	8	27	16	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1	9	29	17	33
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	91	24	0	0	38	0
Stage 1	24	-	-	-	-	-
Stage 2	67	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	909	1052	-	-	1572	-
Stage 1	999	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	899	1052	-	-	1572	-
Mov Cap-2 Maneuver	899	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.9	0		2.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	921	1572	-	
HCM Lane V/C Ratio	-	-	0.007	0.011	-	
HCM Control Delay (s)	-	-	8.9	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	6	8	36	46	2
Future Vol, veh/h	2	6	8	36	46	2
Conflicting Peds, #/hr	2	1	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	6	0
Mvmt Flow	2	7	9	39	50	2
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	118	60	60	0	-	0
Stage 1	59	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	883	1011	1556	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	865	1003	1545	-	-	-
Mov Cap-2 Maneuver	865	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	962	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.8	1.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1545	-	965	-	-	
HCM Lane V/C Ratio	0.006	-	0.009	-	-	
HCM Control Delay (s)	7.3	0	8.8	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	159	1	3	361	2	4	0	4	2	0	2
Future Vol, veh/h	0	159	1	3	361	2	4	0	4	2	0	2
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	5	0	33	2	0	50	2	25	0	0	0
Mvmt Flow	0	173	1	3	392	2	4	0	4	2	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	12.4	9	8.1
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	1%	50%
Vol Thru, %	0%	99%	99%	0%
Vol Right, %	50%	1%	1%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	160	366	4
LT Vol	4	0	3	2
Through Vol	0	159	361	0
RT Vol	4	1	2	2
Lane Flow Rate	9	174	398	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.014	0.215	0.51	0.006
Departure Headway (Hd)	5.899	4.448	4.614	5.048
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	609	812	776	712
Service Time	3.911	2.45	2.681	3.06
HCM Lane V/C Ratio	0.015	0.214	0.513	0.006
HCM Control Delay	9	8.7	12.4	8.1
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0	0.8	2.9	0

Intersection	
Intersection Delay, s/veh	6.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	2	41	0	0	1	3	6	0	0	10	4
Future Vol, veh/h	2	2	41	0	0	1	3	6	0	0	10	4
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	0	0	0	0	100	0	17	0	0	40	0
Mvmt Flow	2	2	45	0	0	1	3	7	0	0	11	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	6.6	6.4	7.1	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	4%	0%	0%
Vol Thru, %	67%	4%	0%	71%
Vol Right, %	0%	91%	100%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	45	1	14
LT Vol	3	2	0	0
Through Vol	6	2	0	10
RT Vol	0	41	1	4
Lane Flow Rate	10	49	1	15
Geometry Grp	1	1	1	1
Degree of Util (X)	0.011	0.046	0.001	0.019
Departure Headway (Hd)	4.065	3.408	3.381	4.503
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	884	1053	1060	798
Service Time	2.075	1.421	1.397	2.51
HCM Lane V/C Ratio	0.011	0.047	0.001	0.019
HCM Control Delay	7.1	6.6	6.4	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.1	0	0.1

Intersection

Int Delay, s/veh 0.7

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 18 679 519 21 12 25

Future Vol, veh/h 18 679 519 21 12 25

Conflicting Peds, #/hr 13 0 0 13 1 1

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 0 0 0 5 0 4

Mvmt Flow 20 738 564 23 13 27

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 600 0 - 0 1368 590

Stage 1 - - - - 589 -

Stage 2 - - - - 779 -

Critical Hdwy 4.1 - - - 6.4 6.24

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy 2.2 - - - 3.5 3.336

Pot Cap-1 Maneuver 987 - - - 163 504

Stage 1 - - - - 558 -

Stage 2 - - - - 456 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 976 - - - 154 498

Mov Cap-2 Maneuver - - - - 154 -

Stage 1 - - - - 532 -

Stage 2 - - - - 451 -

Approach EB WB SB

HCM Control Delay, s 0.2 0 19.5

HCM LOS C

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 976 - - - 289

HCM Lane V/C Ratio 0.02 - - - 0.139

HCM Control Delay (s) 8.8 0 - - 19.5

HCM Lane LOS A A - - C

HCM 95th %tile Q(veh) 0.1 - - - 0.5

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	0	3	5	0	1
Future Vol, veh/h	4	0	3	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	3	5	0	1
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	7	6	0	0	8	0
Stage 1	6	-	-	-	-	-
Stage 2	1	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	1014	1077	-	-	1612	-
Stage 1	1017	-	-	-	-	-
Stage 2	1022	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	1014	1077	-	-	1612	-
Mov Cap-2 Maneuver	1014	-	-	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1022	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.6	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 1014	1612	-		
HCM Lane V/C Ratio	-	- 0.004	-	-		
HCM Control Delay (s)	-	- 8.6	0	-		
HCM Lane LOS	-	- A	A	-		
HCM 95th %tile Q(veh)	-	- 0	0	-		

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	13	2	0	1	8	11	1	0	37	12
Future Vol, veh/h	5	0	13	2	0	1	8	11	1	0	37	12
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	3	3	0	12
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	0	14	2	0	1	9	12	1	0	40	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	90	93	59	88	99	16	65	0	0	16	0	0
Stage 1	59	59	-	34	34	-	-	-	-	-	-	-
Stage 2	31	34	-	54	65	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	900	801	1012	902	795	1069	1550	-	-	1615	-	-
Stage 1	958	850	-	987	871	-	-	-	-	-	-	-
Stage 2	991	871	-	963	845	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	886	786	1002	883	780	1066	1534	-	-	1611	-	-
Mov Cap-2 Maneuver	886	786	-	883	780	-	-	-	-	-	-	-
Stage 1	943	842	-	978	863	-	-	-	-	-	-	-
Stage 2	984	863	-	949	837	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	8.8		8.9		2.9		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1534	-	-	967	937	1611	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.02	0.003	-	-	-				
HCM Control Delay (s)	7.4	0	-	8.8	8.9	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	19	12	5	1	10
Future Vol, veh/h	39	19	12	5	1	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	21	13	5	1	11

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	29	16	0
Stage 1	16	-	-
Stage 2	13	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	986	1063	-
Stage 1	1007	-	-
Stage 2	1010	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	985	1063	-
Mov Cap-2 Maneuver	985	-	-
Stage 1	1006	-	-
Stage 2	1010	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1009	1599
HCM Lane V/C Ratio	-	-	0.062	0.001
HCM Control Delay (s)	-	-	8.8	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	3	16	44	5
Future Vol, veh/h	1	1	3	16	44	5
Conflicting Peds, #/hr	4	2	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	1	3	17	48	5

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	86	61	61
Stage 1	59	-	-
Stage 2	27	-	-
Critical Hdwy	6.4	6.2	4.1
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	920	1010	1555
Stage 1	969	-	-
Stage 2	1001	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	905	1001	1544
Mov Cap-2 Maneuver	905	-	-
Stage 1	960	-	-
Stage 2	994	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1544	-	951	-	-
HCM Lane V/C Ratio	0.002	-	0.002	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	393	4	4	198	3	5	0	5	3	0	1
Future Vol, veh/h	0	393	4	4	198	3	5	0	5	3	0	1
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	0	25	0	1	0	0	0	0	0	0	0
Mvmt Flow	0	427	4	4	215	3	5	0	5	3	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.1	8.9	8.2	8.3
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	2%	75%
Vol Thru, %	0%	99%	97%	0%
Vol Right, %	50%	1%	1%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	397	205	4
LT Vol	5	0	4	3
Through Vol	0	393	198	0
RT Vol	5	4	3	1
Lane Flow Rate	11	432	223	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.015	0.49	0.269	0.006
Departure Headway (Hd)	5.092	4.087	4.346	5.305
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	706	872	831	677
Service Time	3.102	2.161	2.349	3.316
HCM Lane V/C Ratio	0.016	0.495	0.268	0.006
HCM Control Delay	8.2	11.1	8.9	8.3
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0	2.7	1.1	0

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	7	1	0	0	25	6	0	0	3	2
Future Vol, veh/h	2	0	7	1	0	0	25	6	0	0	3	2
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	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	8	1	0	0	27	7	0	0	3	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	6.6	7.2	7.2	6.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	81%	22%	100%	0%
Vol Thru, %	19%	0%	0%	60%
Vol Right, %	0%	78%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	9	1	5
LT Vol	25	2	1	0
Through Vol	6	0	0	3
RT Vol	0	7	0	2
Lane Flow Rate	34	10	1	5
Geometry Grp	1	1	1	1
Degree of Util (X)	0.038	0.01	0.001	0.006
Departure Headway (Hd)	4.085	3.547	4.176	3.705
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	881	1010	858	970
Service Time	2.088	1.564	2.195	1.713
HCM Lane V/C Ratio	0.039	0.01	0.001	0.005
HCM Control Delay	7.2	6.6	7.2	6.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0

2021 Traffic Volumes – Existing Road Network

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	376	571	36	25	40
Future Vol, veh/h	28	376	571	36	25	40
Conflicting Peds, #/hr	23	0	0	23	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	4	2	2	0	4	6
Mvmt Flow	30	396	601	39	27	43
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	663	0	-	0	1101	644
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	457	-
Critical Hdwy	4.14	-	-	-	6.44	6.26
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.354
Pot Cap-1 Maneuver	916	-	-	-	232	466
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	633	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	898	-	-	-	214	457
Mov Cap-2 Maneuver	-	-	-	-	214	-
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	621	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		19.5		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	898	-	-	-	318	
HCM Lane V/C Ratio	0.034	-	-	-	0.222	
HCM Control Delay (s)	9.1	0	-	-	19.5	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8	

Intersection						
Int Delay, s/veh	4.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	0	1	9	0	2
Future Vol, veh/h	13	0	1	9	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	1	10	0	2

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	8	6	0
Stage 1	6	-	-
Stage 2	2	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	1013	1077	-
Stage 1	1017	-	-
Stage 2	1021	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1013	1077	-
Mov Cap-2 Maneuver	1013	-	-
Stage 1	1017	-	-
Stage 2	1021	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1013	1608
HCM Lane V/C Ratio	-	-	0.014	-
HCM Control Delay (s)	-	-	8.6	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 2010 TWSC
15: Edward St & Rupert Ave/Driveway

12/16/2019

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	20	2	0	1	4	33	6	1	36	1
Future Vol, veh/h	6	0	20	2	0	1	4	33	6	1	36	1
Conflicting Peds, #/hr	0	0	1	1	0	0	13	0	0	0	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	0	0	0	0	3	0	0	10	0
Mvmt Flow	7	0	22	2	0	1	4	36	7	1	39	1
Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	103	106	54	102	103	40	53	0	0	43	0	0
Stage 1	55	55	-	48	48	-	-	-	-	-	-	-
Stage 2	48	51	-	54	55	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	882	788	1005	884	791	1037	1566	-	-	1579	-	-
Stage 1	962	853	-	971	859	-	-	-	-	-	-	-
Stage 2	971	856	-	963	853	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	869	776	993	861	779	1037	1549	-	-	1579	-	-
Mov Cap-2 Maneuver	869	776	-	861	779	-	-	-	-	-	-	-
Stage 1	949	843	-	968	856	-	-	-	-	-	-	-
Stage 2	967	853	-	940	843	-	-	-	-	-	-	-
Approach	EB		WB		NB			SB				
HCM Control Delay, s	8.9		9		0.7			0.2				
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1549	-	-	961	913	1579	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.029	0.004	0.001	-	-				
HCM Control Delay (s)	7.3	0	-	8.9	9	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	1	9	30	18	33
Future Vol, veh/h	6	1	9	30	18	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	1	10	33	20	36

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	103	27	0
Stage 1	27	-	-
Stage 2	76	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	895	1048	-
Stage 1	996	-	-
Stage 2	947	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	883	1048	-
Mov Cap-2 Maneuver	883	-	-
Stage 1	983	-	-
Stage 2	947	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	903	1566
HCM Lane V/C Ratio	-	-	0.008	0.012
HCM Control Delay (s)	-	-	9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	7	9	40	51	2
Future Vol, veh/h	2	7	9	40	51	2
Conflicting Peds, #/hr	2	1	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	6	0
Mvmt Flow	2	8	10	43	55	2
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	129	65	65	0	-	0
Stage 1	64	-	-	-	-	-
Stage 2	65	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	870	1005	1550	-	-	-
Stage 1	964	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	852	997	1540	-	-	-
Mov Cap-2 Maneuver	852	-	-	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.8	1.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1540	-	961	-	-	
HCM Lane V/C Ratio	0.006	-	0.01	-	-	
HCM Control Delay (s)	7.4	0	8.8	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection												
Intersection Delay, s/veh	12											
Intersection LOS	B											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	175	1	3	397	2	4	0	4	2	0	2
Future Vol, veh/h	0	175	1	3	397	2	4	0	4	2	0	2
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	5	0	33	2	0	50	2	25	0	0	0
Mvmt Flow	0	190	1	3	432	2	4	0	4	2	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	13.5	9.1	8.2
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	1%	50%
Vol Thru, %	0%	99%	99%	0%
Vol Right, %	50%	1%	0%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	176	402	4
LT Vol	4	0	3	2
Through Vol	0	175	397	0
RT Vol	4	1	2	2
Lane Flow Rate	9	191	437	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.015	0.239	0.561	0.006
Departure Headway (Hd)	6.028	4.493	4.626	5.177
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	596	803	773	693
Service Time	4.042	2.495	2.703	3.192
HCM Lane V/C Ratio	0.015	0.238	0.565	0.006
HCM Control Delay	9.1	8.9	13.5	8.2
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0	0.9	3.5	0

Intersection	
Intersection Delay, s/veh	6.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	2	45	0	0	1	3	7	0	0	11	4
Future Vol, veh/h	2	2	45	0	0	1	3	7	0	0	11	4
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	0	0	0	0	100	0	17	0	0	40	0
Mvmt Flow	2	2	49	0	0	1	3	8	0	0	12	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	6.6	6.4	7.1	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	4%	0%	0%
Vol Thru, %	70%	4%	0%	73%
Vol Right, %	0%	92%	100%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	49	1	15
LT Vol	3	2	0	0
Through Vol	7	2	0	11
RT Vol	0	45	1	4
Lane Flow Rate	11	53	1	16
Geometry Grp	1	1	1	1
Degree of Util (X)	0.012	0.05	0.001	0.02
Departure Headway (Hd)	4.066	3.405	3.386	4.523
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	883	1054	1058	795
Service Time	2.077	1.42	1.404	2.531
HCM Lane V/C Ratio	0.012	0.05	0.001	0.02
HCM Control Delay	7.1	6.6	6.4	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0	0.1

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	747	571	23	13	28
Future Vol, veh/h	20	747	571	23	13	28
Conflicting Peds, #/hr	13	0	0	13	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	0	0	0	5	0	4
Mvmt Flow	22	786	601	25	14	30

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	639	0	0	1458	628
Stage 1	-	-	-	627	-
Stage 2	-	-	-	831	-
Critical Hdwy	4.1	-	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	3.5	3.336
Pot Cap-1 Maneuver	955	-	-	144	479
Stage 1	-	-	-	536	-
Stage 2	-	-	-	431	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	944	-	-	135	473
Mov Cap-2 Maneuver	-	-	-	135	-
Stage 1	-	-	-	508	-
Stage 2	-	-	-	426	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	944	-	-	-	264
HCM Lane V/C Ratio	0.023	-	-	-	0.169
HCM Control Delay (s)	8.9	0	-	-	21.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection

Int Delay, s/veh 2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	0	3	6	0	1
Future Vol, veh/h	4	0	3	6	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	3	7	0	1

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	8	7	0
Stage 1	7	-	-
Stage 2	1	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	1013	1075	-
Stage 1	1016	-	-
Stage 2	1022	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1013	1075	-
Mov Cap-2 Maneuver	1013	-	-
Stage 1	1016	-	-
Stage 2	1022	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1013	1610
HCM Lane V/C Ratio	-	-	0.004	-
HCM Control Delay (s)	-	-	8.6	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	14	2	0	1	9	12	1	0	41	13
Future Vol, veh/h	6	0	14	2	0	1	9	12	1	0	41	13
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	3	3	0	12
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	0	15	2	0	1	10	13	1	0	45	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	98	101	64	97	108	17	71	0	0	17	0	0
Stage 1	64	64	-	37	37	-	-	-	-	-	-	-
Stage 2	34	37	-	60	71	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	889	793	1006	890	786	1068	1542	-	-	1613	-	-
Stage 1	952	846	-	984	868	-	-	-	-	-	-	-
Stage 2	987	868	-	957	840	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	875	777	996	870	770	1065	1526	-	-	1609	-	-
Mov Cap-2 Maneuver	875	777	-	870	770	-	-	-	-	-	-	-
Stage 1	936	838	-	974	859	-	-	-	-	-	-	-
Stage 2	979	859	-	942	832	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	8.9		8.9		3		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1526	-	-	956	927	1609	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.023	0.004	-	-	-				
HCM Control Delay (s)	7.4	0	-	8.9	8.9	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	21	13	6	1	11
Future Vol, veh/h	43	21	13	6	1	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	23	14	7	1	12

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	32	18	0
Stage 1	18	-	-
Stage 2	14	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	982	1061	-
Stage 1	1005	-	-
Stage 2	1009	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	981	1061	-
Mov Cap-2 Maneuver	981	-	-
Stage 1	1004	-	-
Stage 2	1009	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1006	1595
HCM Lane V/C Ratio	-	-	0.069	0.001
HCM Control Delay (s)	-	-	8.8	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	3	18	48	6
Future Vol, veh/h	1	1	3	18	48	6
Conflicting Peds, #/hr	4	2	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	1	3	20	52	7

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	94	66	67	0	-	0
Stage 1	64	-	-	-	-	-
Stage 2	30	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	911	1003	1547	-	-	-
Stage 1	964	-	-	-	-	-
Stage 2	998	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	896	995	1537	-	-	-
Mov Cap-2 Maneuver	896	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	991	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1537	-	943	-	-
HCM Lane V/C Ratio	0.002	-	0.002	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	432	4	4	218	3	6	0	6	3	0	1
Future Vol, veh/h	0	432	4	4	218	3	6	0	6	3	0	1
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	0	25	0	1	0	0	0	0	0	0	0
Mvmt Flow	0	470	4	4	237	3	7	0	7	3	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12	9.3	8.3	8.5
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	2%	75%
Vol Thru, %	0%	99%	97%	0%
Vol Right, %	50%	1%	1%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	436	225	4
LT Vol	6	0	4	3
Through Vol	0	432	218	0
RT Vol	6	4	3	1
Lane Flow Rate	13	474	245	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.019	0.541	0.299	0.007
Departure Headway (Hd)	5.227	4.108	4.399	5.446
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	687	863	822	659
Service Time	3.241	2.198	2.403	3.46
HCM Lane V/C Ratio	0.019	0.549	0.298	0.006
HCM Control Delay	8.3	12	9.3	8.5
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	3.3	1.3	0

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	8	1	0	0	28	7	0	0	3	2
Future Vol, veh/h	2	0	8	1	0	0	28	7	0	0	3	2
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	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	9	1	0	0	30	8	0	0	3	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	6.6	7.2	7.3	6.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	80%	20%	100%	0%
Vol Thru, %	20%	0%	0%	60%
Vol Right, %	0%	80%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	10	1	5
LT Vol	28	2	1	0
Through Vol	7	0	0	3
RT Vol	0	8	0	2
Lane Flow Rate	38	11	1	5
Geometry Grp	1	1	1	1
Degree of Util (X)	0.043	0.011	0.001	0.006
Departure Headway (Hd)	4.086	3.537	4.185	3.71
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	881	1013	856	968
Service Time	2.089	1.556	2.205	1.719
HCM Lane V/C Ratio	0.043	0.011	0.001	0.005
HCM Control Delay	7.3	6.6	7.2	6.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0

2031 Traffic Volumes – Existing Road Network

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	38	518	786	50	35	54
Future Vol, veh/h	38	518	786	50	35	54
Conflicting Peds, #/hr	23	0	0	23	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	4	2	2	0	4	6
Mvmt Flow	41	545	827	54	38	59

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	904	0	0 1505 877
Stage 1	-	-	- 877 -
Stage 2	-	-	- 628 -
Critical Hdwy	4.14	-	- 6.44 6.26
Critical Hdwy Stg 1	-	-	- 5.44 -
Critical Hdwy Stg 2	-	-	- 5.44 -
Follow-up Hdwy	2.236	-	- 3.536 3.354
Pot Cap-1 Maneuver	744	-	- 132 342
Stage 1	-	-	- 404 -
Stage 2	-	-	- 528 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	730	-	- 117 335
Mov Cap-2 Maneuver	-	-	- 117 -
Stage 1	-	-	- 364 -
Stage 2	-	-	- 518 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	41.1
HCM LOS	E		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	730	-	-	-	193
HCM Lane V/C Ratio	0.057	-	-	-	0.501
HCM Control Delay (s)	10.2	0	-	-	41.1
HCM Lane LOS	B	A	-	-	E
HCM 95th %tile Q(veh)	0.2	-	-	-	2.5

Intersection

Int Delay, s/veh 4.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	0	1	12	0	3
Future Vol, veh/h	18	0	1	12	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	0	1	13	0	3

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	11	8	0
Stage 1	8	-	-
Stage 2	3	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	1009	1074	-
Stage 1	1015	-	-
Stage 2	1020	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1009	1074	-
Mov Cap-2 Maneuver	1009	-	-
Stage 1	1015	-	-
Stage 2	1020	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1009	1604
HCM Lane V/C Ratio	-	-	0.019	-
HCM Control Delay (s)	-	-	8.6	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	27	3	0	2	6	45	8	2	50	2
Future Vol, veh/h	8	0	27	3	0	2	6	45	8	2	50	2
Conflicting Peds, #/hr	0	0	1	1	0	0	13	0	0	0	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	0	0	0	0	3	0	0	10	0
Mvmt Flow	9	0	29	3	0	2	7	49	9	2	54	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	141	144	69	143	141	54	69	0	0	58	0	0
Stage 1	72	72	-	68	68	-	-	-	-	-	-	-
Stage 2	69	72	-	75	73	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	833	751	986	831	754	1019	1545	-	-	1559	-	-
Stage 1	943	839	-	947	842	-	-	-	-	-	-	-
Stage 2	946	839	-	939	838	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	818	738	974	802	741	1019	1528	-	-	1559	-	-
Mov Cap-2 Maneuver	818	738	-	802	741	-	-	-	-	-	-	-
Stage 1	928	829	-	942	838	-	-	-	-	-	-	-
Stage 2	939	835	-	909	828	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9		9.1		0.7		0.3					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1528	-	-	933	877	1559	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.041	0.006	0.001	-	-				
HCM Control Delay (s)	7.4	0	-	9	9.1	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	2	12	41	24	45
Future Vol, veh/h	8	2	12	41	24	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	2	13	45	26	49

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	137	36	0
Stage 1	36	-	-
Stage 2	101	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	856	1037	-
Stage 1	986	-	-
Stage 2	923	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	841	1037	-
Mov Cap-2 Maneuver	841	-	-
Stage 1	969	-	-
Stage 2	923	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	2.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	874	1546
HCM Lane V/C Ratio	-	-	0.012	0.017
HCM Control Delay (s)	-	-	9.2	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	9	12	54	70	3
Future Vol, veh/h	3	9	12	54	70	3
Conflicting Peds, #/hr	2	1	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	6	0
Mvmt Flow	3	10	13	59	76	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	173	87	87	0	-	0
Stage 1	86	-	-	-	-	-
Stage 2	87	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	822	977	1522	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	941	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	803	970	1512	-	-	-
Mov Cap-2 Maneuver	803	-	-	-	-	-
Stage 1	927	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9	1.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1512	-	922	-	-	
HCM Lane V/C Ratio	0.009	-	0.014	-	-	
HCM Control Delay (s)	7.4	0	9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	241	2	5	546	3	6	0	6	3	0	3
Future Vol, veh/h	0	241	2	5	546	3	6	0	6	3	0	3
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	5	0	33	2	0	50	2	25	0	0	0
Mvmt Flow	0	262	2	5	593	3	7	0	7	3	0	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.2	24.4	9.8	8.9
HCM LOS	B	C	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	1%	50%
Vol Thru, %	0%	99%	99%	0%
Vol Right, %	50%	1%	1%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	243	554	6
LT Vol	6	0	5	3
Through Vol	0	241	546	0
RT Vol	6	2	3	3
Lane Flow Rate	13	264	602	7
Geometry Grp	1	1	1	1
Degree of Util (X)	0.024	0.345	0.803	0.01
Departure Headway (Hd)	6.58	4.705	4.8	5.734
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	542	766	759	622
Service Time	4.638	2.728	2.82	3.793
HCM Lane V/C Ratio	0.024	0.345	0.793	0.011
HCM Control Delay	9.8	10.2	24.4	8.9
HCM Lane LOS	A	B	C	A
HCM 95th-tile Q	0.1	1.5	8.4	0

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	3	62	0	0	2	5	9	0	0	15	6
Future Vol, veh/h	3	3	62	0	0	2	5	9	0	0	15	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	0	0	0	0	100	0	17	0	0	40	0
Mvmt Flow	3	3	67	0	0	2	5	10	0	0	16	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	6.7	6.5	7.2	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	36%	4%	0%	0%
Vol Thru, %	64%	4%	0%	71%
Vol Right, %	0%	91%	100%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	14	68	2	21
LT Vol	5	3	0	0
Through Vol	9	3	0	15
RT Vol	0	62	2	6
Lane Flow Rate	15	74	2	23
Geometry Grp	1	1	1	1
Degree of Util (X)	0.017	0.07	0.002	0.029
Departure Headway (Hd)	4.122	3.43	3.422	4.554
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	870	1044	1044	789
Service Time	2.138	1.453	1.449	2.565
HCM Lane V/C Ratio	0.017	0.071	0.002	0.029
HCM Control Delay	7.2	6.7	6.5	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0	0.1

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
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Lane Configurations

Traffic Vol, veh/h	27	1028	786	32	18	38
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Future Vol, veh/h	27	1028	786	32	18	38
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Conflicting Peds, #/hr	13	0	0	13	1	1
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Sign Control	Free	Free	Free	Free	Stop	Stop
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RT Channelized	-	None	-	None	-	None
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Storage Length	-	-	-	-	0	-
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Veh in Median Storage, #	-	0	0	-	0	-
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Grade, %	-	0	0	-	0	-
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Peak Hour Factor	92	95	95	92	92	92
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Heavy Vehicles, %	0	0	0	5	0	4
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Mvmt Flow	29	1082	827	35	20	41
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Major/Minor	Major1	Major2	Minor2
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Conflicting Flow All	875	0	0	1999	859
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Stage 1	-	-	-	858	-
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Stage 2	-	-	-	1141	-
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Critical Hdwy	4.1	-	-	6.4	6.24
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Critical Hdwy Stg 1	-	-	-	5.4	-
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Critical Hdwy Stg 2	-	-	-	5.4	-
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Follow-up Hdwy	2.2	-	-	3.5	3.336
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Pot Cap-1 Maneuver	780	-	-	67	353
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Stage 1	-	-	-	419	-
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Stage 2	-	-	-	307	-
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Platoon blocked, %	-	-	-	-	-
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Mov Cap-1 Maneuver	771	-	-	59	349
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Mov Cap-2 Maneuver	-	-	-	59	-
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Stage 1	-	-	-	375	-
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Stage 2	-	-	-	304	-
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Approach	EB	WB	SB
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HCM Control Delay, s	0.3	0	51.9
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HCM LOS			F
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Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
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Capacity (veh/h)	771	-	-	-	135
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HCM Lane V/C Ratio	0.038	-	-	-	0.451
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HCM Control Delay (s)	9.9	0	-	-	51.9
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HCM Lane LOS	A	A	-	-	F
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HCM 95th %tile Q(veh)	0.1	-	-	-	2
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Intersection

Int Delay, s/veh 2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	0	4	8	0	2
Future Vol, veh/h	6	0	4	8	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	0	4	9	0	2

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	11	9	0
Stage 1	9	-	-
Stage 2	2	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	1009	1073	-
Stage 1	1014	-	-
Stage 2	1021	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1009	1073	-
Mov Cap-2 Maneuver	1009	-	-
Stage 1	1014	-	-
Stage 2	1021	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1009	1606
HCM Lane V/C Ratio	-	-	0.006	-
HCM Control Delay (s)	-	-	8.6	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	20	3	0	2	12	17	2	0	56	18
Future Vol, veh/h	8	0	20	3	0	2	12	17	2	0	56	18
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	3	3	0	12
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	0	22	3	0	2	13	18	2	0	61	20
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	129	132	83	130	141	22	93	0	0	23	0	0
Stage 1	83	83	-	48	48	-	-	-	-	-	-	-
Stage 2	46	49	-	82	93	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	849	762	982	847	754	1061	1514	-	-	1605	-	-
Stage 1	930	830	-	971	859	-	-	-	-	-	-	-
Stage 2	973	858	-	931	822	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	833	745	972	820	737	1058	1499	-	-	1601	-	-
Mov Cap-2 Maneuver	833	745	-	820	737	-	-	-	-	-	-	-
Stage 1	912	822	-	959	849	-	-	-	-	-	-	-
Stage 2	962	848	-	910	814	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9		9			2.9			0			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1499	-	-	928	901	1601	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.033	0.006	-	-	-				
HCM Control Delay (s)	7.4	0	-	9	9	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	6.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	29	18	8	2	15
Future Vol, veh/h	59	29	18	8	2	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	32	20	9	2	16
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	45	25	0	0	29	0
Stage 1	25	-	-	-	-	-
Stage 2	20	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	965	1051	-	-	1584	-
Stage 1	998	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	964	1051	-	-	1584	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9	0	0.9			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	991	1584	-	
HCM Lane V/C Ratio	-	-	0.097	0.001	-	
HCM Control Delay (s)	-	-	9	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	5	24	67	8
Future Vol, veh/h	2	2	5	24	67	8
Conflicting Peds, #/hr	4	2	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	2	5	26	73	9

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	126	88	90
Stage 1	86	-	-
Stage 2	40	-	-
Critical Hdwy	6.4	6.2	4.1
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	874	976	1518
Stage 1	942	-	-
Stage 2	988	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	859	968	1508
Mov Cap-2 Maneuver	859	-	-
Stage 1	933	-	-
Stage 2	981	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1508	-	910	-	-
HCM Lane V/C Ratio	0.004	-	0.005	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	17.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	595	6	6	300	5	8	0	8	5	0	2
Future Vol, veh/h	0	595	6	6	300	5	8	0	8	5	0	2
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	0	25	0	1	0	0	0	0	0	0	0
Mvmt Flow	0	647	7	7	326	5	9	0	9	5	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	21.1	11.1	9	9.1
HCM LOS	C	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	2%	71%
Vol Thru, %	0%	99%	96%	0%
Vol Right, %	50%	1%	2%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	601	311	7
LT Vol	8	0	6	5
Through Vol	0	595	300	0
RT Vol	8	6	5	2
Lane Flow Rate	17	653	338	8
Geometry Grp	1	1	1	1
Degree of Util (X)	0.028	0.784	0.433	0.013
Departure Headway (Hd)	5.803	4.322	4.614	6
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	614	836	781	593
Service Time	3.869	2.342	2.641	4.069
HCM Lane V/C Ratio	0.028	0.781	0.433	0.013
HCM Control Delay	9	21.1	11.1	9.1
HCM Lane LOS	A	C	B	A
HCM 95th-tile Q	0.1	8	2.2	0

Intersection

Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	11	2	0	0	38	9	0	0	5	3
Future Vol, veh/h	3	0	11	2	0	0	38	9	0	0	5	3
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	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	0	12	2	0	0	41	10	0	0	5	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	6.7	7.3	7.4	6.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	81%	21%	100%	0%
Vol Thru, %	19%	0%	0%	62%
Vol Right, %	0%	79%	0%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	14	2	8
LT Vol	38	3	2	0
Through Vol	9	0	0	5
RT Vol	0	11	0	3
Lane Flow Rate	51	15	2	9
Geometry Grp	1	1	1	1
Degree of Util (X)	0.058	0.015	0.003	0.009
Departure Headway (Hd)	4.1	3.576	4.216	3.744
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	878	999	848	958
Service Time	2.105	1.604	2.244	1.759
HCM Lane V/C Ratio	0.058	0.015	0.002	0.009
HCM Control Delay	7.4	6.7	7.3	6.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0	0	0

2021 Traffic Volumes – Future Road Connection

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	362	563	44	40	46
Future Vol, veh/h	34	362	563	44	40	46
Conflicting Peds, #/hr	23	0	0	23	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	4	2	2	0	4	6
Mvmt Flow	37	381	593	48	43	50
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	664	0	-	0	1096	640
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	456	-
Critical Hdwy	4.14	-	-	-	6.44	6.26
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.354
Pot Cap-1 Maneuver	916	-	-	-	234	468
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	634	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	898	-	-	-	213	459
Mov Cap-2 Maneuver	-	-	-	-	213	-
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	622	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		22.4		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	898	-	-	-	299	
HCM Lane V/C Ratio	0.041	-	-	-	0.313	
HCM Control Delay (s)	9.2	0	-	-	22.4	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3	

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	0	13	9	0	41
Future Vol, veh/h	13	0	13	9	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	14	10	0	45

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	64	19	0
Stage 1	19	-	-
Stage 2	45	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	942	1059	-
Stage 1	1004	-	-
Stage 2	977	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	942	1059	-
Mov Cap-2 Maneuver	942	-	-
Stage 1	1004	-	-
Stage 2	977	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	942	1591
HCM Lane V/C Ratio	-	-	0.015	-
HCM Control Delay (s)	-	-	8.9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	2	28	0	0	1	2	19	0	0	50	4
Future Vol, veh/h	2	2	28	0	0	1	2	19	0	0	50	4
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	100	0	17	0	0	40	0
Mvmt Flow	2	2	30	0	0	1	2	21	0	0	54	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	85	84	59	97	86	21	61	0	0	21	0	0
Stage 1	59	59	-	25	25	-	-	-	-	-	-	-
Stage 2	26	25	-	72	61	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	906	810	1012	890	808	832	1555	-	-	1608	-	-
Stage 1	958	850	-	998	878	-	-	-	-	-	-	-
Stage 2	997	878	-	943	848	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	901	807	1009	861	805	832	1551	-	-	1608	-	-
Mov Cap-2 Maneuver	901	807	-	861	805	-	-	-	-	-	-	-
Stage 1	954	847	-	997	877	-	-	-	-	-	-	-
Stage 2	995	877	-	912	845	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.8		9.3		0.7		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1551	-	-	986 832	1608	-	-
HCM Lane V/C Ratio	0.001	-	-	0.035 0.001	-	-	-
HCM Control Delay (s)	7.3	0	-	8.8 9.3	0	-	-
HCM Lane LOS	A	A	-	A A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0	0	-	-

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	20	2	0	1	4	44	6	1	57	1
Future Vol, veh/h	6	0	20	2	0	1	4	44	6	1	57	1
Conflicting Peds, #/hr	0	0	1	1	0	0	13	0	0	0	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	0	0	0	0	3	0	0	10	0
Mvmt Flow	7	0	22	2	0	1	4	48	7	1	62	1
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	138	141	77	137	138	52	76	0	0	55	0	0
Stage 1	78	78	-	60	60	-	-	-	-	-	-	-
Stage 2	60	63	-	77	78	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	837	754	976	838	757	1021	1536	-	-	1563	-	-
Stage 1	936	834	-	957	849	-	-	-	-	-	-	-
Stage 2	957	846	-	937	834	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	824	743	964	816	746	1021	1519	-	-	1563	-	-
Mov Cap-2 Maneuver	824	743	-	816	746	-	-	-	-	-	-	-
Stage 1	923	824	-	954	846	-	-	-	-	-	-	-
Stage 2	953	843	-	914	824	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9		9.1			0.5			0.1			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1519	-	-	928	875	1563	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.03	0.004	0.001	-	-				
HCM Control Delay (s)	7.4	0	-	9	9.1	7.3	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	1	20	30	18	54
Future Vol, veh/h	6	1	20	30	18	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	1	22	33	20	59
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	138	39	0	0	55	0
Stage 1	39	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	855	1033	-	-	1550	-
Stage 1	983	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	844	1033	-	-	1550	-
Mov Cap-2 Maneuver	844	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.2	0		1.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	867	1550	-	
HCM Lane V/C Ratio	-	-	0.009	0.013	-	
HCM Control Delay (s)	-	-	9.2	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	7	9	51	72	2
Future Vol, veh/h	2	7	9	51	72	2
Conflicting Peds, #/hr	2	1	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	6	0
Mvmt Flow	2	8	10	55	78	2
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	164	88	88	0	-	0
Stage 1	87	-	-	-	-	-
Stage 2	77	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	831	976	1520	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	814	969	1510	-	-	-
Mov Cap-2 Maneuver	814	-	-	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	944	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	1.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1510	-	930	-	-	
HCM Lane V/C Ratio	0.006	-	0.011	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	169	20	23	378	2	11	0	11	2	0	2
Future Vol, veh/h	0	169	20	23	378	2	11	0	11	2	0	2
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	5	0	33	2	0	50	2	25	0	0	0
Mvmt Flow	0	184	22	25	411	2	12	0	12	2	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	14.2	9.4	8.3
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	6%	50%
Vol Thru, %	0%	89%	94%	0%
Vol Right, %	50%	11%	0%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	189	403	4
LT Vol	11	0	23	2
Through Vol	0	169	378	0
RT Vol	11	20	2	2
Lane Flow Rate	24	205	438	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.256	0.582	0.006
Departure Headway (Hd)	6.066	4.49	4.779	5.245
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	590	801	758	681
Service Time	4.107	2.508	2.779	3.29
HCM Lane V/C Ratio	0.041	0.256	0.578	0.006
HCM Control Delay	9.4	9.1	14.2	8.3
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.1	1	3.8	0

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	739	558	36	21	31
Future Vol, veh/h	23	739	558	36	21	31
Conflicting Peds, #/hr	13	0	0	13	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	0	0	0	5	0	4
Mvmt Flow	25	778	587	39	23	34
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	639	0	-	0	1449	621
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	829	-
Critical Hdwy	4.1	-	-	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.336
Pot Cap-1 Maneuver	955	-	-	-	146	484
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	944	-	-	-	136	478
Mov Cap-2 Maneuver	-	-	-	-	136	-
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	427	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		24.9		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	944	-	-	-	237	
HCM Lane V/C Ratio	0.026	-	-	-	0.238	
HCM Control Delay (s)	8.9	0	-	-	24.9	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9	

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	0	42	6	0	14
Future Vol, veh/h	4	0	42	6	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	0	46	7	0	15
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	65	50	0	0	53	0
Stage 1	50	-	-	-	-	-
Stage 2	15	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	941	1018	-	-	1553	-
Stage 1	972	-	-	-	-	-
Stage 2	1008	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	941	1018	-	-	1553	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	1008	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.8	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	941	1553	-	
HCM Lane V/C Ratio	-	-	0.005	-	-	
HCM Control Delay (s)	-	-	8.8	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	7	1	0	0	7	46	0	0	16	2
Future Vol, veh/h	2	0	7	1	0	0	7	46	0	0	16	2
Conflicting Peds, #/hr	0	0	0	0	0	0	7	0	4	4	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	8	1	0	0	8	50	0	0	17	2
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	91	95	25	92	96	54	26	0	0	54	0	0
Stage 1	25	25	-	70	70	-	-	-	-	-	-	-
Stage 2	66	70	-	22	26	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	898	799	1057	897	798	1019	1601	-	-	1564	-	-
Stage 1	998	878	-	945	841	-	-	-	-	-	-	-
Stage 2	950	841	-	1002	878	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	889	788	1051	884	787	1016	1592	-	-	1559	-	-
Mov Cap-2 Maneuver	889	788	-	884	787	-	-	-	-	-	-	-
Stage 1	987	873	-	937	834	-	-	-	-	-	-	-
Stage 2	945	834	-	995	873	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	8.6		9.1			1			0			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1592	-	-	1010	884	1559	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.01	0.001	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.6	9.1	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-				

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	14	2	0	1	9	31	1	0	53	13
Future Vol, veh/h	6	0	14	2	0	1	9	31	1	0	53	13
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	3	3	0	12
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	0	15	2	0	1	10	34	1	0	58	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	132	135	77	131	142	38	84	0	0	38	0	0
Stage 1	77	77	-	58	58	-	-	-	-	-	-	-
Stage 2	55	58	-	73	84	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	845	760	990	846	753	1040	1526	-	-	1585	-	-
Stage 1	937	835	-	959	851	-	-	-	-	-	-	-
Stage 2	962	851	-	942	829	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	831	745	980	827	738	1037	1510	-	-	1581	-	-
Mov Cap-2 Maneuver	831	745	-	827	738	-	-	-	-	-	-	-
Stage 1	921	827	-	949	842	-	-	-	-	-	-	-
Stage 2	954	842	-	927	821	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9		9.1		1.6		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1510	-	-	930	887	1581	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.023	0.004	-	-	-				
HCM Control Delay (s)	7.4	0	-	9	9.1	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	4.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	21	32	6	1	23
Future Vol, veh/h	43	21	32	6	1	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	23	35	7	1	25

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	66	39	0
Stage 1	39	-	-
Stage 2	27	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	939	1033	-
Stage 1	983	-	-
Stage 2	996	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	938	1033	-
Mov Cap-2 Maneuver	938	-	-
Stage 1	982	-	-
Stage 2	996	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	967	1567
HCM Lane V/C Ratio	-	-	0.072	0.001
HCM Control Delay (s)	-	-	9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	3	36	60	6
Future Vol, veh/h	1	1	3	36	60	6
Conflicting Peds, #/hr	4	2	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	1	3	39	65	7
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	126	79	80	0	-	0
Stage 1	77	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	874	987	1531	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	860	979	1521	-	-	-
Mov Cap-2 Maneuver	860	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	8.9	0.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1521	-	916	-	-	
HCM Lane V/C Ratio	0.002	-	0.002	-	-	
HCM Control Delay (s)	7.4	0	8.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	413	11	11	211	3	25	0	25	3	0	1
Future Vol, veh/h	0	413	11	11	211	3	25	0	25	3	0	1
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	0	25	0	1	0	0	0	0	0	0	0
Mvmt Flow	0	449	12	12	229	3	27	0	27	3	0	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.5	9.6	8.7	8.6
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	5%	75%
Vol Thru, %	0%	97%	94%	0%
Vol Right, %	50%	3%	1%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	424	225	4
LT Vol	25	0	11	3
Through Vol	0	413	211	0
RT Vol	25	11	3	1
Lane Flow Rate	54	461	245	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.079	0.55	0.307	0.007
Departure Headway (Hd)	5.223	4.298	4.522	5.517
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	684	839	795	646
Service Time	3.27	2.32	2.549	3.571
HCM Lane V/C Ratio	0.079	0.549	0.308	0.006
HCM Control Delay	8.7	12.5	9.6	8.6
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.3	3.4	1.3	0

2031 Traffic Volumes – Future Road Connection Without the High School Development

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	498	775	61	55	63
Future Vol, veh/h	46	498	775	61	55	63
Conflicting Peds, #/hr	23	0	0	23	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	4	2	2	0	4	6
Mvmt Flow	50	524	816	66	60	68
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	905	0	-	0	1497	872
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	625	-
Critical Hdwy	4.14	-	-	-	6.44	6.26
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.236	-	-	-	3.536	3.354
Pot Cap-1 Maneuver	743	-	-	-	134	344
Stage 1	-	-	-	-	406	-
Stage 2	-	-	-	-	530	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	729	-	-	-	120	337
Mov Cap-2 Maneuver	-	-	-	-	120	-
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	520	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		61		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	729	-	-	-	183	
HCM Lane V/C Ratio	0.069	-	-	-	0.701	
HCM Control Delay (s)	10.3	-	-	-	61	
HCM Lane LOS	B	-	-	-	F	
HCM 95th %tile Q(veh)	0.2	-	-	-	4.3	

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	0	18	12	0	56
Future Vol, veh/h	18	0	18	12	0	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	0	20	13	0	61

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	88	27	0
Stage 1	27	-	-
Stage 2	61	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	913	1048	-
Stage 1	996	-	-
Stage 2	962	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	913	1048	-
Mov Cap-2 Maneuver	913	-	-
Stage 1	996	-	-
Stage 2	962	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	913	1579
HCM Lane V/C Ratio	-	-	0.021	-
HCM Control Delay (s)	-	-	9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection															
Int Delay, s/veh	2.9														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations		↕			↕			↕			↕				
Traffic Vol, veh/h	3	3	38	0	0	2	3	26	0	0	68	6			
Future Vol, veh/h	3	3	38	0	0	2	3	26	0	0	68	6			
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3			
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free			
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None			
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-			
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-			
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-			
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92			
Heavy Vehicles, %	0	0	0	0	0	100	0	17	0	0	40	0			
Mvmt Flow	3	3	41	0	0	2	3	28	0	0	74	7			
Major/Minor	Minor2			Minor1			Major1			Major2					
Conflicting Flow All	116	115	81	134	118	28	84	0	0	28	0	0			
Stage 1	81	81	-	34	34	-	-	-	-	-	-	-			
Stage 2	35	34	-	100	84	-	-	-	-	-	-	-			
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	7.2	4.1	-	-	4.1	-	-			
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-			
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-			
Follow-up Hdwy	3.5	4	3.3	3.5	4	4.2	2.2	-	-	2.2	-	-			
Pot Cap-1 Maneuver	865	779	985	842	776	824	1526	-	-	1599	-	-			
Stage 1	932	832	-	987	871	-	-	-	-	-	-	-			
Stage 2	986	871	-	911	829	-	-	-	-	-	-	-			
Platoon blocked, %								-	-	-	-	-			
Mov Cap-1 Maneuver	859	775	982	802	772	824	1522	-	-	1599	-	-			
Mov Cap-2 Maneuver	859	775	-	802	772	-	-	-	-	-	-	-			
Stage 1	927	830	-	985	869	-	-	-	-	-	-	-			
Stage 2	981	869	-	869	827	-	-	-	-	-	-	-			
Approach	EB			WB			NB			SB					
HCM Control Delay, s	9			9.4			0.8			0					
HCM LOS	A			A											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR								
Capacity (veh/h)	1522	-	-	955	824	1599	-	-							
HCM Lane V/C Ratio	0.002	-	-	0.05	0.003	-	-	-							
HCM Control Delay (s)	7.4	0	-	9	9.4	0	-	-							
HCM Lane LOS	A	A	-	A	A	A	-	-							
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-							

Intersection															
Int Delay, s/veh	2.2														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations		↕			↕			↕			↕				
Traffic Vol, veh/h	8	0	27	3	0	2	6	61	8	2	79	2			
Future Vol, veh/h	8	0	27	3	0	2	6	61	8	2	79	2			
Conflicting Peds, #/hr	0	0	1	1	0	0	13	0	0	0	0	13			
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free			
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None			
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-			
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-			
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-			
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92			
Heavy Vehicles, %	0	0	5	0	0	0	0	3	0	0	10	0			
Mvmt Flow	9	0	29	3	0	2	7	66	9	2	86	2			
Major/Minor	Minor2			Minor1			Major1			Major2					
Conflicting Flow All	190	193	101	192	190	71	101	0	0	75	0	0			
Stage 1	104	104	-	85	85	-	-	-	-	-	-	-			
Stage 2	86	89	-	107	105	-	-	-	-	-	-	-			
Critical Hdwy	7.1	6.5	6.25	7.1	6.5	6.2	4.1	-	-	4.1	-	-			
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-			
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-			
Follow-up Hdwy	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-			
Pot Cap-1 Maneuver	774	706	946	772	708	997	1504	-	-	1537	-	-			
Stage 1	907	813	-	928	828	-	-	-	-	-	-	-			
Stage 2	927	825	-	903	812	-	-	-	-	-	-	-			
Platoon blocked, %								-	-	-	-	-			
Mov Cap-1 Maneuver	760	694	935	743	696	997	1487	-	-	1537	-	-			
Mov Cap-2 Maneuver	760	694	-	743	696	-	-	-	-	-	-	-			
Stage 1	892	803	-	923	824	-	-	-	-	-	-	-			
Stage 2	920	821	-	873	802	-	-	-	-	-	-	-			
Approach	EB			WB			NB			SB					
HCM Control Delay, s	9.2			9.4			0.6			0.2					
HCM LOS	A			A											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR								
Capacity (veh/h)	1487	-	-	888	827	1537	-	-							
HCM Lane V/C Ratio	0.004	-	-	0.043	0.007	0.001	-	-							
HCM Control Delay (s)	7.4	0	-	9.2	9.4	7.3	0	-							
HCM Lane LOS	A	A	-	A	A	A	A	-							
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-							

Intersection

Int Delay, s/veh 1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	2	28	41	24	74
Future Vol, veh/h	8	2	28	41	24	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	2	30	45	26	80

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	185	53	0
Stage 1	53	-	-
Stage 2	132	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	804	1014	-
Stage 1	970	-	-
Stage 2	894	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	790	1014	-
Mov Cap-2 Maneuver	790	-	-
Stage 1	953	-	-
Stage 2	894	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	827	1524
HCM Lane V/C Ratio	-	-	0.013	0.017
HCM Control Delay (s)	-	-	9.4	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0.1

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	9	12	70	98	3
Future Vol, veh/h	3	9	12	70	98	3
Conflicting Peds, #/hr	2	1	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	6	0
Mvmt Flow	3	10	13	76	107	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	221	118	118	0	-	0
Stage 1	117	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	772	939	1483	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	754	932	1473	-	-	-
Mov Cap-2 Maneuver	754	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.2	1.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1473	-	880	-	-	
HCM Lane V/C Ratio	0.009	-	0.015	-	-	
HCM Control Delay (s)	7.5	0	9.2	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection	
Intersection Delay, s/veh	20.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	232	28	31	520	3	15	0	15	3	0	3
Future Vol, veh/h	0	232	28	31	520	3	15	0	15	3	0	3
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	5	0	33	2	0	50	2	25	0	0	0
Mvmt Flow	0	252	30	34	565	3	16	0	16	3	0	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.6	26.2	10.1	9
HCM LOS	B	D	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	6%	50%
Vol Thru, %	0%	89%	94%	0%
Vol Right, %	50%	11%	1%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	30	260	554	6
LT Vol	15	0	31	3
Through Vol	0	232	520	0
RT Vol	15	28	3	3
Lane Flow Rate	33	283	602	7
Geometry Grp	1	1	1	1
Degree of Util (X)	0.06	0.371	0.819	0.011
Departure Headway (Hd)	6.628	4.728	4.895	5.833
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	537	760	741	609
Service Time	4.704	2.767	2.931	3.917
HCM Lane V/C Ratio	0.061	0.372	0.812	0.011
HCM Control Delay	10.1	10.6	26.2	9
HCM Lane LOS	B	B	D	A
HCM 95th-tile Q	0.2	1.7	8.8	0

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	32	1016	768	50	30	43
Future Vol, veh/h	32	1016	768	50	30	43
Conflicting Peds, #/hr	13	0	0	13	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	0	0	0	5	0	4
Mvmt Flow	35	1069	808	54	33	47

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	875	0	0 1988 849
Stage 1	-	-	- 848 -
Stage 2	-	-	- 1140 -
Critical Hdwy	4.1	-	- 6.4 6.24
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.336
Pot Cap-1 Maneuver	780	-	- 68 358
Stage 1	-	-	- 423 -
Stage 2	-	-	- 308 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	771	-	- 64 354
Mov Cap-2 Maneuver	-	-	- 64 -
Stage 1	-	-	- 399 -
Stage 2	-	-	- 305 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	75.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	771	-	-	-	124
HCM Lane V/C Ratio	0.045	-	-	-	0.64
HCM Control Delay (s)	9.9	-	-	-	75.2
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	3.3

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	0	58	8	0	20
Future Vol, veh/h	6	0	58	8	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	0	63	9	0	22
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	90	68	0	0	72	0
Stage 1	68	-	-	-	-	-
Stage 2	22	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	910	995	-	-	1528	-
Stage 1	955	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	910	995	-	-	1528	-
Mov Cap-2 Maneuver	910	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	910	1528	-	
HCM Lane V/C Ratio	-	-	0.007	-	-	
HCM Control Delay (s)	-	-	9	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection														
Int Delay, s/veh	1.7													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↔			↔			↔			↔			
Traffic Vol, veh/h	3	0	9	2	0	0	9	63	0	0	22	3		
Future Vol, veh/h	3	0	9	2	0	0	9	63	0	0	22	3		
Conflicting Peds, #/hr	0	0	0	0	0	0	7	0	4	4	0	7		
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free		
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None		
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-		
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-		
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-		
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92		
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0		
Mvmt Flow	3	0	10	2	0	0	10	68	0	0	24	3		
Major/Minor	Minor2		Minor1		Major1		Major2							
Conflicting Flow All	121	125	33	123	126	72	34	0	0	72	0	0		
Stage 1	33	33	-	92	92	-	-	-	-	-	-	-		
Stage 2	88	92	-	31	34	-	-	-	-	-	-	-		
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-		
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-		
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-		
Pot Cap-1 Maneuver	859	769	1046	856	768	996	1591	-	-	1541	-	-		
Stage 1	988	872	-	920	823	-	-	-	-	-	-	-		
Stage 2	925	823	-	991	871	-	-	-	-	-	-	-		
Platoon blocked, %								-	-	-	-	-		
Mov Cap-1 Maneuver	850	757	1040	841	756	993	1582	-	-	1536	-	-		
Mov Cap-2 Maneuver	850	757	-	841	756	-	-	-	-	-	-	-		
Stage 1	975	867	-	911	815	-	-	-	-	-	-	-		
Stage 2	919	815	-	982	866	-	-	-	-	-	-	-		
Approach	EB		WB		NB		SB							
HCM Control Delay, s	8.7		9.3		0.9		0							
HCM LOS	A		A											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR							
Capacity (veh/h)	1582	-	-	985	841	1536	-	-						
HCM Lane V/C Ratio	0.006	-	-	0.013	0.003	-	-	-						
HCM Control Delay (s)	7.3	0	-	8.7	9.3	0	-	-						
HCM Lane LOS	A	A	-	A	A	A	-	-						
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-						

HCM 2010 TWSC
15: Edward St & Rupert Ave/Driveway

12/16/2019

Intersection															
Int Delay, s/veh	2.2														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations		↕			↕			↕			↕				
Traffic Vol, veh/h	8	0	20	3	0	2	12	42	2	0	72	18			
Future Vol, veh/h	8	0	20	3	0	2	12	42	2	0	72	18			
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	3	3	0	12			
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free			
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None			
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-			
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-			
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-			
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92			
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0			
Mvmt Flow	9	0	22	3	0	2	13	46	2	0	78	20			
Major/Minor	Minor2			Minor1			Major1			Major2					
Conflicting Flow All	174	177	100	175	186	50	110	0	0	51	0	0			
Stage 1	100	100	-	76	76	-	-	-	-	-	-	-			
Stage 2	74	77	-	99	110	-	-	-	-	-	-	-			
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-			
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-			
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-			
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-			
Pot Cap-1 Maneuver	793	720	961	792	712	1024	1493	-	-	1568	-	-			
Stage 1	911	816	-	938	836	-	-	-	-	-	-	-			
Stage 2	940	835	-	912	808	-	-	-	-	-	-	-			
Platoon blocked, %								-	-	-	-	-			
Mov Cap-1 Maneuver	778	704	951	767	696	1021	1478	-	-	1564	-	-			
Mov Cap-2 Maneuver	778	704	-	767	696	-	-	-	-	-	-	-			
Stage 1	894	808	-	927	826	-	-	-	-	-	-	-			
Stage 2	930	825	-	891	800	-	-	-	-	-	-	-			
Approach	EB			WB			NB			SB					
HCM Control Delay, s	9.2			9.3			1.6			0					
HCM LOS	A			A											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR								
Capacity (veh/h)	1478	-	-	894	852	1564	-	-							
HCM Lane V/C Ratio	0.009	-	-	0.034	0.006	-	-	-							
HCM Control Delay (s)	7.5	0	-	9.2	9.3	0	-	-							
HCM Lane LOS	A	A	-	A	A	A	-	-							
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-							

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	29	44	8	2	31
Future Vol, veh/h	59	29	44	8	2	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	32	48	9	2	34

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	91	53	0
Stage 1	53	-	-
Stage 2	38	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	909	1014	-
Stage 1	970	-	-
Stage 2	984	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	908	1014	-
Mov Cap-2 Maneuver	908	-	-
Stage 1	969	-	-
Stage 2	984	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	940	1547
HCM Lane V/C Ratio	-	-	0.102	0.001
HCM Control Delay (s)	-	-	9.3	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	5	50	83	8
Future Vol, veh/h	2	2	5	50	83	8
Conflicting Peds, #/hr	4	2	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	2	5	54	90	9

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	171	105	107
Stage 1	103	-	-
Stage 2	68	-	-
Critical Hdwy	6.4	6.2	4.1
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	824	955	1497
Stage 1	926	-	-
Stage 2	960	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	810	947	1487
Mov Cap-2 Maneuver	810	-	-
Stage 1	917	-	-
Stage 2	953	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1487	-	873	-	-
HCM Lane V/C Ratio	0.004	-	0.005	-	-
HCM Control Delay (s)	7.4	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	18.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	568	15	15	291	5	35	0	35	5	0	2
Future Vol, veh/h	0	568	15	15	291	5	35	0	35	5	0	2
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	0	25	0	1	0	0	0	0	0	0	0
Mvmt Flow	0	617	16	16	316	5	38	0	38	5	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	22.6	11.8	9.8	9.4
HCM LOS	C	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	5%	71%
Vol Thru, %	0%	97%	94%	0%
Vol Right, %	50%	3%	2%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	583	311	7
LT Vol	35	0	15	5
Through Vol	0	568	291	0
RT Vol	35	15	5	2
Lane Flow Rate	76	634	338	8
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.793	0.452	0.013
Departure Headway (Hd)	5.911	4.505	4.812	6.275
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	610	798	744	573
Service Time	3.911	2.558	2.879	4.279
HCM Lane V/C Ratio	0.125	0.794	0.454	0.014
HCM Control Delay	9.8	22.6	11.8	9.4
HCM Lane LOS	A	C	B	A
HCM 95th-tile Q	0.4	8.2	2.4	0

2031 Traffic Volumes – Future Road Connection With the High School Development

Intersection						
Int Delay, s/veh	6.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	118	29	72	289	59
Future Vol, veh/h	30	118	29	72	289	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	128	32	78	314	64
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	763	71	0	0	110	0
Stage 1	71	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	372	991	-	-	1480	-
Stage 1	952	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	290	991	-	-	1480	-
Mov Cap-2 Maneuver	290	-	-	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12.1	0		6.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	665	1480	-	
HCM Lane V/C Ratio	-	-	0.242	0.212	-	
HCM Control Delay (s)	-	-	12.1	8.1	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.9	0.8	-	

Intersection						
Int Delay, s/veh	13.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	498	775	133	84	63
Future Vol, veh/h	46	498	775	133	84	63
Conflicting Peds, #/hr	23	0	0	23	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	4	2	2	0	4	6
Mvmt Flow	50	524	816	145	91	68

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	984	0	0 1537 912
Stage 1	-	-	- 912 -
Stage 2	-	-	- 625 -
Critical Hdwy	4.14	-	- 6.44 6.26
Critical Hdwy Stg 1	-	-	- 5.44 -
Critical Hdwy Stg 2	-	-	- 5.44 -
Follow-up Hdwy	2.236	-	- 3.536 3.354
Pot Cap-1 Maneuver	694	-	- 126 326
Stage 1	-	-	- 388 -
Stage 2	-	-	- 530 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	680	-	- 112 320
Mov Cap-2 Maneuver	-	-	- 112 -
Stage 1	-	-	- 352 -
Stage 2	-	-	- 520 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	139.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	680	-	-	-	155
HCM Lane V/C Ratio	0.074	-	-	-	1.031
HCM Control Delay (s)	10.7	-	-	-	139.2
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	8

Intersection

Int Delay, s/veh 0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	1	91	12	1	86
Future Vol, veh/h	18	1	91	12	1	86
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	1	99	13	1	93

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	201	106	0
Stage 1	106	-	-
Stage 2	95	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	788	948	-
Stage 1	918	-	-
Stage 2	929	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	787	948	-
Mov Cap-2 Maneuver	787	-	-
Stage 1	917	-	-
Stage 2	929	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	794	1478
HCM Lane V/C Ratio	-	-	0.026	0.001
HCM Control Delay (s)	-	-	9.7	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	3	38	0	0	2	3	98	0	0	98	6
Future Vol, veh/h	3	3	38	0	0	2	3	98	0	0	98	6
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	100	0	17	0	0	40	0
Mvmt Flow	3	3	41	0	0	2	3	107	0	0	107	7
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	228	227	114	246	230	107	117	0	0	107	0	0
Stage 1	114	114	-	113	113	-	-	-	-	-	-	-
Stage 2	114	113	-	133	117	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	7.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	4.2	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	731	676	944	712	673	736	1484	-	-	1497	-	-
Stage 1	896	805	-	897	806	-	-	-	-	-	-	-
Stage 2	896	806	-	875	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	726	673	942	677	670	736	1480	-	-	1497	-	-
Mov Cap-2 Maneuver	726	673	-	677	670	-	-	-	-	-	-	-
Stage 1	892	803	-	895	804	-	-	-	-	-	-	-
Stage 2	892	804	-	833	801	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.2		9.9			0.2			0			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1480	-	-	899	736	1497	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.053	0.003	-	-	-				
HCM Control Delay (s)	7.4	0	-	9.2	9.9	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-				

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	8	0	27	3	0	2	6	133	8	2	108	2
Future Vol, veh/h	8	0	27	3	0	2	6	133	8	2	108	2
Conflicting Peds, #/hr	0	0	1	1	0	0	13	0	0	0	0	13
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	5	0	0	0	0	3	0	0	10	0
Mvmt Flow	9	0	29	3	0	2	7	145	9	2	117	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	300	303	132	302	300	150	132	0	0	154	0	0
Stage 1	135	135	-	164	164	-	-	-	-	-	-	-
Stage 2	165	168	-	138	136	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.25	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.345	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	656	613	909	654	616	902	1466	-	-	1439	-	-
Stage 1	873	789	-	843	766	-	-	-	-	-	-	-
Stage 2	842	763	-	870	788	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	644	603	898	629	606	902	1450	-	-	1439	-	-
Mov Cap-2 Maneuver	644	603	-	629	606	-	-	-	-	-	-	-
Stage 1	859	780	-	839	762	-	-	-	-	-	-	-
Stage 2	836	759	-	840	779	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.6		10.1		0.3		0.1	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1450	-	-	824	716	1439	-
HCM Lane V/C Ratio	0.004	-	-	0.046	0.008	0.002	-
HCM Control Delay (s)	7.5	0	-	9.6	10.1	7.5	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	2	100	41	24	104
Future Vol, veh/h	8	2	100	41	24	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	2	109	45	26	113
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	297	132	0	0	154	0
Stage 1	132	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	694	917	-	-	1426	-
Stage 1	894	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	681	917	-	-	1426	-
Mov Cap-2 Maneuver	681	-	-	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.1	0		1.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	718	1426	-	
HCM Lane V/C Ratio	-	-	0.015	0.018	-	
HCM Control Delay (s)	-	-	10.1	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0	0.1	-	

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	9	12	142	128	3
Future Vol, veh/h	3	9	12	142	128	3
Conflicting Peds, #/hr	2	1	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	6	0
Mvmt Flow	3	10	13	154	139	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	331	150	150	0	-	0
Stage 1	149	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	668	902	1444	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	652	895	1434	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.5	0.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1434	-	819	-	-	
HCM Lane V/C Ratio	0.009	-	0.016	-	-	
HCM Control Delay (s)	7.5	0	9.5	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection	
Intersection Delay, s/veh	95.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	232	136	212	520	3	59	0	88	3	0	3
Future Vol, veh/h	0	232	136	212	520	3	59	0	88	3	0	3
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	5	0	33	2	0	50	2	25	0	0	0
Mvmt Flow	0	252	148	230	565	3	64	0	96	3	0	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.2	152.9	14	10.6
HCM LOS	C	F	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	40%	0%	29%	50%
Vol Thru, %	0%	63%	71%	0%
Vol Right, %	60%	37%	0%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	147	368	735	6
LT Vol	59	0	212	3
Through Vol	0	232	520	0
RT Vol	88	136	3	3
Lane Flow Rate	160	400	799	7
Geometry Grp	1	1	1	1
Degree of Util (X)	0.311	0.582	1.27	0.013
Departure Headway (Hd)	7.639	5.635	5.723	7.543
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	473	644	639	477
Service Time	5.639	3.635	3.725	5.543
HCM Lane V/C Ratio	0.338	0.621	1.25	0.015
HCM Control Delay	14	16.2	152.9	10.6
HCM Lane LOS	B	C	F	B
HCM 95th-tile Q	1.3	3.8	30.9	0

Intersection						
Int Delay, s/veh	4.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	54	69	16	63	30
Future Vol, veh/h	13	54	69	16	63	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	59	75	17	68	33
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	253	84	0	0	92	0
Stage 1	84	-	-	-	-	-
Stage 2	169	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	736	975	-	-	1503	-
Stage 1	939	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	702	975	-	-	1503	-
Mov Cap-2 Maneuver	702	-	-	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.3	0		5.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	907	1503	-	
HCM Lane V/C Ratio	-	-	0.08	0.046	-	
HCM Control Delay (s)	-	-	9.3	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-	

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	32	1016	768	65	43	43
Future Vol, veh/h	32	1016	768	65	43	43
Conflicting Peds, #/hr	13	0	0	13	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	95	95	92	92	92
Heavy Vehicles, %	0	0	0	5	0	4
Mvmt Flow	35	1069	808	71	47	47
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	892	0	-	0	1997	858
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	1140	-
Critical Hdwy	4.1	-	-	-	6.4	6.24
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.336
Pot Cap-1 Maneuver	769	-	-	-	67	354
Stage 1	-	-	-	-	419	-
Stage 2	-	-	-	-	308	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	761	-	-	-	63	350
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	396	-
Stage 2	-	-	-	-	305	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		128.7		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	761	-	-	-	107	
HCM Lane V/C Ratio	0.046	-	-	-	0.874	
HCM Control Delay (s)	10	-	-	-	128.7	
HCM Lane LOS	A	-	-	-	F	
HCM 95th %tile Q(veh)	0.1	-	-	-	5.1	

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	1	74	8	1	33
Future Vol, veh/h	6	1	74	8	1	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	1	80	9	1	36

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	123	85	0
Stage 1	85	-	-
Stage 2	38	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	872	974	-
Stage 1	938	-	-
Stage 2	984	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	871	974	-
Mov Cap-2 Maneuver	871	-	-
Stage 1	937	-	-
Stage 2	984	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	884	1506
HCM Lane V/C Ratio	-	-	0.009	0.001
HCM Control Delay (s)	-	-	9.1	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 2010 TWSC
12: Edward St & Harold Ave/Driveway

12/17/2019

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	9	2	0	0	9	79	0	0	36	3
Future Vol, veh/h	3	0	9	2	0	0	9	79	0	0	36	3
Conflicting Peds, #/hr	0	0	0	0	0	0	7	0	4	4	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	0	10	2	0	0	10	86	0	0	39	3
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	154	158	48	156	159	90	49	0	0	90	0	0
Stage 1	48	48	-	110	110	-	-	-	-	-	-	-
Stage 2	106	110	-	46	49	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	817	738	1027	815	737	973	1571	-	-	1518	-	-
Stage 1	971	859	-	900	808	-	-	-	-	-	-	-
Stage 2	905	808	-	973	858	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	808	726	1021	800	725	970	1562	-	-	1513	-	-
Mov Cap-2 Maneuver	808	726	-	800	725	-	-	-	-	-	-	-
Stage 1	958	854	-	891	800	-	-	-	-	-	-	-
Stage 2	899	800	-	964	853	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	8.8		9.5		0.7		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1562	-	-	958	800	1513	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.014	0.003	-	-	-				
HCM Control Delay (s)	7.3	0	-	8.8	9.5	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-				

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	20	3	0	2	12	58	2	0	86	18
Future Vol, veh/h	8	0	20	3	0	2	12	58	2	0	86	18
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	3	3	0	12
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	0	22	3	0	2	13	63	2	0	93	20
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	206	209	115	207	218	67	125	0	0	68	0	0
Stage 1	115	115	-	93	93	-	-	-	-	-	-	-
Stage 2	91	94	-	114	125	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	756	692	943	755	684	1002	1474	-	-	1546	-	-
Stage 1	895	804	-	919	822	-	-	-	-	-	-	-
Stage 2	921	821	-	896	796	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	742	677	933	731	669	999	1459	-	-	1542	-	-
Mov Cap-2 Maneuver	742	677	-	731	669	-	-	-	-	-	-	-
Stage 1	878	796	-	908	812	-	-	-	-	-	-	-
Stage 2	911	811	-	875	788	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9.3		9.4		1.2		0					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1459	-	-	869	819	1542	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.035	0.007	-	-	-				
HCM Control Delay (s)	7.5	0	-	9.3	9.4	0	-	-				
HCM Lane LOS	A	A	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	29	59	8	2	45
Future Vol, veh/h	59	29	59	8	2	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	32	64	9	2	49
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	122	69	0	0	73	0
Stage 1	69	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	873	994	-	-	1527	-
Stage 1	954	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	872	994	-	-	1527	-
Mov Cap-2 Maneuver	872	-	-	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.4	0		0.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	909	1527	-	
HCM Lane V/C Ratio	-	-	0.105	0.001	-	
HCM Control Delay (s)	-	-	9.4	7.4	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	5	65	96	8
Future Vol, veh/h	2	2	5	65	96	8
Conflicting Peds, #/hr	4	2	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	2	5	71	104	9

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	202	119	121	0	-	0
Stage 1	117	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	791	938	1479	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	777	930	1469	-	-	-
Mov Cap-2 Maneuver	777	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	936	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	847	-	-
HCM Lane V/C Ratio	0.004	-	0.005	-	-
HCM Control Delay (s)	7.5	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	24.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	568	39	54	291	5	55	0	68	5	0	2
Future Vol, veh/h	0	568	39	54	291	5	55	0	68	5	0	2
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	0	25	0	1	0	0	0	0	0	0	0
Mvmt Flow	0	617	42	59	316	5	60	0	74	5	0	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	33.5	14.4	11	9.9
HCM LOS	D	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	0%	15%	71%
Vol Thru, %	0%	94%	83%	0%
Vol Right, %	55%	6%	1%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	607	350	7
LT Vol	55	0	54	5
Through Vol	0	568	291	0
RT Vol	68	39	5	2
Lane Flow Rate	134	660	380	8
Geometry Grp	1	1	1	1
Degree of Util (X)	0.227	0.889	0.549	0.014
Departure Headway (Hd)	6.109	4.848	5.194	6.719
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	587	752	692	530
Service Time	4.161	2.848	3.229	4.79
HCM Lane V/C Ratio	0.228	0.878	0.549	0.015
HCM Control Delay	11	33.5	14.4	9.9
HCM Lane LOS	B	D	B	A
HCM 95th-tile Q	0.9	11.4	3.4	0

APPENDIX C

Signal Warrants

TRAFFIC SIGNAL WARRANT

Analyst Lilly Chen
Agency or Company Ainley Group
Analysis Period 2031

Jurisdiction/Date Whitchurch-Stouffville 18 March 2018
East-West Street Main St
North-South Street Edward St

Flow Conditions
T Intersection

Major Street
Approach Lanes per Direction
Hours of Traffic Volume Data

Other Notes existing road configuration

Hour Ending	Hour 1 AM Peak	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8 PM Peak	AM + PM 4
MAJOR STREET									
Eastbound right thru	498							0	0
left	46							1016	379
Westbound right	61							32	20
thru	775							50	28
left								768	386
								0	0
MINOR STREET									
Northbound right thru									0
left									0
Southbound right	63							43	27
thru									0
left	55							30	21
PEDESTRIANS									
crossing MAJOR street	1							2	1
delayed pedestrians	1							2	1
crossing MINOR street	23							13	9
APPROACH VOLUMES									
major	1380							1866	812
minor	118							73	48
TOTAL	1498							1939	859
CROSSING VOLUMES									
TOTAL	56							32	22
note 1	55							30	
note 2	0							0	
note 3	0							0	
3a	no							no	
3b	yes							yes	
note 4	1							2	1
note 5	1							2	1

NOTES

Traffic crossing MAJOR street defined as:

- note 1: Left turns from both minor street approaches
- note 2: The heaviest through volume from the minor street
- note 3: 50% of the heavier left turn movement from the major street when both of the following are met:
 - 3a: the left turn volume > 120
 - 3b: the left turn volume + opposing volume > 720
- note 4: Pedestrians crossing the major street
- note 5: Pedestrians experiencing delays of 10 seconds or more in crossing the major street

ACCIDENT HISTORY

Reportable accidents over the past 36 months susceptible to correction by a traffic signal.

-

TRAFFIC SIGNAL WARRANT

JUSTIFICATION 1 - MINIMUM VEHICLE VOLUME													
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance			
		AM Peak	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	PM Peak				
1A	TOTAL TRAFFIC VOLUME ENTERING INTERSECTION (vph) (2 way Total)	859	859	859	859	859	859	859	859	100%	80% +	Average Compliance	
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)												
		100%	100%	100%	100%	100%	100%	100%	100%	8	8	100%	
1B	TRAFFIC VOLUME ON MINOR STREET	48	48	48	48	48	48	48	48	100%	80% +	Average Compliance	
	COMPLIANCE % $\frac{VOL \times 100}{170}$ OR $\frac{VOL \times 100}{255}$ (full intersection) (tee intersection)												
		19%	19%	19%	19%	19%	19%	19%	19%	0	0	19%	
(RESTRICTED FLOW)		BOTH 1A AND 1B 100% FULFILLED EACH OF 8 HOURS										NO	
SIGNAL JUSTIFICATION 1:		LESSER OF 1A OR 1B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO	
JUSTIFICATION 2 - DELAY TO CROSS TRAFFIC													
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance			
		Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8				
2A	MAIN ROAD TRAFFIC VOLUME (vph) (2 way Total)	812	812	812	812	812	812	812	812	100%	80% +	Average Compliance	
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)												
		100%	100%	100%	100%	100%	100%	100%	100%	8	8	100%	
2B	CROSSING TRAFFIC VOLUME (vph) (2 way Total)	22	22	22	22	22	22	22	22	100%	80% +	Average Compliance	
	COMPLIANCE % $\frac{VOL \times 100}{75}$												
		29%	29%	29%	29%	29%	29%	29%	29%	0	0	29%	
(RESTRICTED FLOW)		BOTH 2A AND 2B 100% FULFILLED EACH OF 8 HOURS										NO	
SIGNAL JUSTIFICATION 2:		LESSER OF 2A OR 2B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO	
JUSTIFICATION 3 - VOLUME/DELAY COMBINATION JUSTIFICATION													
JUSTIFICATION SATISFIED 80% OR MORE										Two Justifications Satisfied 80% or more			
Justification - Minimum Vehicle Volume										NO			
Justification - Delay to Cross Traffic										NO			
JUSTIFICATION 4 - MINIMUM FOUR-HOUR VEHICLE VOLUME													
JUSTIFICATION 5 - COLLISION EXPERIENCE													
A. Reportable collisions over 36 consecutive months susceptible to correction by a traffic signal.										Warrant Value	Number of Collisions	% Fulfillment	
										15	-	-	
B. Adequate trial of less restrictive remedies has failed to reduce collision frequency.										☐ YES	☒ NO	0%	
SIGNAL JUSTIFICATION 5:										BOTH OF 3A, 3B FULFILLED TO 100%? ☐ NO			
										BOTH OF 3A, 3B FULFILLED TO 80%? ☐ NO			
JUSTIFICATION 6 - PEDESTRIAN VOLUME AND DELAY													
6A PED VOLUME	NET 8 HOUR PEDESTRIAN VOLUME AT CROSSING				3				NET 8 HOUR VEHICULAR VOLUME ON STREET BEING CROSSED				6874
	8 Hr Veh. Vol.		Net 8 Hour Pedestrian Volume										
	< 1440		< 200		200 - 275		276 - 475		476 - 1000		> 1000		
	1440 - 2600												
	2601 - 7000		Not Justified										
	> 7000												
6B PED DELAY	NET 8 HOUR VOLUME OF TOTAL PEDESTRIANS				3				NET 8 HOUR VOLUME OF DELAYED PEDESTRIANS				3
	Net Total 8 Hour Vol. of Total		Net Total 8 Hour Volume of Delayed Pedestrians										
	< 200		< 75		75 - 130						> 130		
	200 - 300		Not Justified										
	> 300												
SIGNAL JUSTIFICATION 6:										BOTH JUSTIFICATION 5A AND JUSTIFICATION 5B FULFILLED? ☐ NO			
JUSTIFICATION SUMMARY													
OVERALL										AT LEAST ONE JUSTIFICATION (1 - 5) MET? ☐ NO			

TRAFFIC SIGNAL WARRANT

Analyst Lilly Chen
Agency or Company Ainley Group
Analysis Period 2031 with High School

Jurisdiction/Date Whitchurch-Stouffville 11 April 2018
East-West Street Main St
North-South Street Edward St

Flow Conditions
T Intersection

Major Street
Approach Lanes per Direction
Hours of Traffic Volume Data

Other Notes existing road configuration

Hour Ending	Hour 1 AM Peak	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8 PM Peak	AM + PM 4
MAJOR STREET									
Eastbound right thru	498							0	0
left	46							1016	379
Westbound right thru	133							32	20
left	775							65	50
								768	386
								0	0
MINOR STREET									
Northbound right thru									0
left									0
Southbound right thru	63							43	27
left	84							43	0
									32
PEDESTRIANS									
crossing MAJOR street	1							2	1
delayed pedestrians	1							2	1
crossing MINOR street	23							13	9
APPROACH VOLUMES									
major	1452							1881	833
minor	147							86	58
TOTAL	1599							1967	892
CROSSING VOLUMES									
TOTAL	85							45	33
note 1	84							43	
note 2	0							0	
note 3	0							0	
3a no								0	
3b yes								no	
note 4	1							yes	
note 5	1							2	1
								2	1

NOTES

Traffic crossing MAJOR street defined as:

- note 1: Left turns from both minor street approaches
- note 2: The heaviest through volume from the minor street
- note 3: 50% of the heavier left turn movement from the major street when both of the following are met:
 - 3a: the left turn volume > 120
 - 3b: the left turn volume + opposing volume > 720
- note 4: Pedestrians crossing the major street
- note 5: Pedestrians experiencing delays of 10 seconds or more in crossing the major street

ACCIDENT HISTORY

Reportable accidents over the past 36 months susceptible to correction by a traffic signal.

-

TRAFFIC SIGNAL WARRANT

JUSTIFICATION 1 - MINIMUM VEHICLE VOLUME													
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance			
		AM Peak	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	PM Peak				
1A	TOTAL TRAFFIC VOLUME ENTERING INTERSECTION (vph) (2 way Total)	892	892	892	892	892	892	892	892	100%	80% +	Average Compliance	
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)	100%	100%	100%	100%	100%	100%	100%	100%	8	8	100%	
	TRAFFIC VOLUME ON MINOR STREET	58	58	58	58	58	58	58	58	100%	80% +	Average Compliance	
1B	COMPLIANCE % $\frac{VOL \times 100}{170}$ OR $\frac{VOL \times 100}{255}$ (full intersection) (tee intersection)	23%	23%	23%	23%	23%	23%	23%	23%	0	0	23%	
(RESTRICTED FLOW)		BOTH 1A AND 1B 100% FULFILLED EACH OF 8 HOURS										NO	
SIGNAL JUSTIFICATION 1:		LESSER OF 1A OR 1B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO	
JUSTIFICATION 2 - DELAY TO CROSS TRAFFIC													
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance			
		Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8				
2A	MAIN ROAD TRAFFIC VOLUME (vph) (2 way Total)	833	833	833	833	833	833	833	833	100%	80% +	Average Compliance	
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)	100%	100%	100%	100%	100%	100%	100%	100%	8	8	100%	
	CROSSING TRAFFIC VOLUME (vph) (2 way Total)	33	33	33	33	33	33	33	33	100%	80% +	Average Compliance	
2B	COMPLIANCE % $\frac{VOL \times 100}{75}$	43%	43%	43%	43%	43%	43%	43%	43%	0	0	43%	
(RESTRICTED FLOW)		BOTH 2A AND 2B 100% FULFILLED EACH OF 8 HOURS										NO	
SIGNAL JUSTIFICATION 2:		LESSER OF 2A OR 2B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO	
JUSTIFICATION 3 - VOLUME/DELAY COMBINATION JUSTIFICATION													
JUSTIFICATION SATISFIED 80% OR MORE										Two Justifications Satisfied 80% or more			
Justification - Minimum Vehicle Volume										NO			
Justification - Delay to Cross Traffic										NO			
JUSTIFICATION 4 - MINIMUM FOUR-HOUR VEHICLE VOLUME													
JUSTIFICATION 5 - COLLISION EXPERIENCE													
A. Reportable collisions over 36 consecutive months susceptible to correction by a traffic signal.										Warrant Value	Number of Collisions	% Fulfillment	
										15	-	-	
B. Adequate trial of less restrictive remedies has failed to reduce collision frequency.										☐ YES	☒ NO	0%	
SIGNAL JUSTIFICATION 5:										BOTH OF 3A, 3B FULFILLED TO 100%?			
										☐ NO			
										BOTH OF 3A, 3B FULFILLED TO 80%?			
										NO			
JUSTIFICATION 6 - PEDESTRIAN VOLUME AND DELAY													
6A PED VOLUME	NET 8 HOUR PEDESTRIAN VOLUME AT CROSSING				3				NET 8 HOUR VEHICULAR VOLUME ON STREET BEING CROSSED				7132
	8 Hr Veh. Vol.		Net 8 Hour Pedestrian Volume										
	< 1440		< 200		200 - 275		276 - 475		476 - 1000		> 1000		
	1440 - 2600												
	2601 - 7000												
	> 7000		Not Justified										
6B PED DELAY	NET 8 HOUR VOLUME OF TOTAL PEDESTRIANS				3				NET 8 HOUR VOLUME OF DELAYED PEDESTRIANS				3
	Net Total 8 Hour Vol. of Total		Net Total 8 Hour Volume of Delayed Pedestrians										
	< 200		< 75		75 - 130						> 130		
	200 - 300		Not Justified										
	> 300												
SIGNAL JUSTIFICATION 6:										BOTH JUSTIFICATION 5A AND JUSTIFICATION 5B			NO
JUSTIFICATION SUMMARY													
OVERALL										AT LEAST ONE JUSTIFICATION (1 - 5) MET?			NO

TRAFFIC SIGNAL WARRANT

Analyst Lilly Chen
Agency or Company Ainley Group
Analysis Period 2031 with High School

Jurisdiction/Date Whitchurch-Stouffville 11 April 2018
East-West Street Millard St
North-South Street Bramble Cres

Flow Conditions
T Intersection

Major Street
Approach Lanes per Direction
Hours of Traffic Volume Data

Other Notes existing road configuration

Hour Ending	Hour 1 AM Peak	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8 PM Peak	AM + PM 4
MAJOR STREET									
Eastbound right	136							39	44
thru	232							568	200
left	0							0	0
Westbound right	3							5	2
thru	520							291	203
left	212							54	67
MINOR STREET									
Northbound right	88							68	39
thru	0							0	0
left	55							55	28
Southbound right	3							2	1
thru	0							0	0
left	3							5	2
PEDESTRIANS									
crossing MAJOR street	1							2	1
delayed pedestrians	1							2	1
crossing MINOR street	23							13	9
APPROACH VOLUMES									
major	1103							957	515
minor	149							130	70
TOTAL	1252							1087	585
CROSSING VOLUMES									
TOTAL	59							62	30
note 1	58							60	
note 2	0							0	
note 3	0							0	
3a yes								no	
3b no								no	
note 4	1							2	1
note 5	1							2	1

NOTES

Traffic crossing MAJOR street defined as:

- note 1: Left turns from both minor street approaches
- note 2: The heaviest through volume from the minor street
- note 3: 50% of the heavier left turn movement from the major street when both of the following are met:
 - 3a: the left turn volume > 120
 - 3b: the left turn volume + opposing volume > 720
- note 4: Pedestrians crossing the major street
- note 5: Pedestrians experiencing delays of 10 seconds or more in crossing the major street

ACCIDENT HISTORY

Reportable accidents over the past 36 months susceptible to correction by a traffic signal.

-

TRAFFIC SIGNAL WARRANT

JUSTIFICATION 1 - MINIMUM VEHICLE VOLUME													
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance			
		AM Peak	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	PM Peak				
1A	TOTAL TRAFFIC VOLUME ENTERING INTERSECTION (vph) (2 way Total)	585	585	585	585	585	585	585	585	100%	80% +	Average Compliance	
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)	81%	81%	81%	81%	81%	81%	81%	81%	0	8	81%	
	TRAFFIC VOLUME ON MINOR STREET	70	70	70	70	70	70	70	70	100%	80% +	Average Compliance	
1B	COMPLIANCE % $\frac{VOL \times 100}{170}$ OR $\frac{VOL \times 100}{255}$ (full intersection) (tee intersection)	41%	41%	41%	41%	41%	41%	41%	41%	0	0	41%	
(RESTRICTED FLOW)		BOTH 1A AND 1B 100% FULFILLED EACH OF 8 HOURS										NO	
SIGNAL JUSTIFICATION 1:		LESSER OF 1A OR 1B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO	
JUSTIFICATION 2 - DELAY TO CROSS TRAFFIC													
JUSTIFICATION	GUIDANCE	HOUR ENDING								No. of hours with compliance			
		Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8				
2A	MAIN ROAD TRAFFIC VOLUME (vph) (2 way Total)	515	515	515	515	515	515	515	515	100%	80% +	Average Compliance	
	COMPLIANCE % $\frac{VOL \times 100}{720}$ OR $\frac{VOL \times 100}{900}$ (1 lane approach on main road) (2 or more lane approach on main road)	72%	72%	72%	72%	72%	72%	72%	72%	0	0	72%	
	CROSSING TRAFFIC VOLUME (vph) (2 way Total)	30	30	30	30	30	30	30	30	100%	80% +	Average Compliance	
2B	COMPLIANCE % $\frac{VOL \times 100}{75}$	40%	40%	40%	40%	40%	40%	40%	40%	0	0	40%	
(RESTRICTED FLOW)		BOTH 2A AND 2B 100% FULFILLED EACH OF 8 HOURS										NO	
SIGNAL JUSTIFICATION 2:		LESSER OF 2A OR 2B AT LEAST 80% FULFILLED EACH OF 8 HOURS										NO	
JUSTIFICATION 3 - VOLUME/DELAY COMBINATION JUSTIFICATION													
JUSTIFICATION SATISFIED 80% OR MORE										Two Justifications Satisfied 80% or more			
Justification - Minimum Vehicle Volume										NO			
Justification - Delay to Cross Traffic										NO			
JUSTIFICATION 4 - MINIMUM FOUR-HOUR VEHICLE VOLUME													
JUSTIFICATION 5 - COLLISION EXPERIENCE													
A. Reportable collisions over 36 consecutive months susceptible to correction by a traffic signal.										Warrant Value	Number of Collisions	% Fulfillment	
										15	-	-	
B. Adequate trial of less restrictive remedies has failed to reduce collision frequency.										☐ YES	☒ NO	0%	
SIGNAL JUSTIFICATION 5:										BOTH OF 3A, 3B FULFILLED TO 100%?			
										☐ NO			
										BOTH OF 3A, 3B FULFILLED TO 80%?			
										NO			
JUSTIFICATION 6 - PEDESTRIAN VOLUME AND DELAY													
6A PED VOLUME	NET 8 HOUR PEDESTRIAN VOLUME AT CROSSING				3				NET 8 HOUR VEHICULAR VOLUME ON STREET BEING CROSSED				4678
	8 Hr Veh. Vol.		Net 8 Hour Pedestrian Volume										
	< 1440		< 200		200 - 275		276 - 475		476 - 1000		> 1000		
	1440 - 2600												
	2601 - 7000		Not Justified										
6B PED DELAY	NET 8 HOUR VOLUME OF TOTAL PEDESTRIANS				3				NET 8 HOUR VOLUME OF DELAYED PEDESTRIANS				3
	Net Total 8 Hour Vol. of Total		Net Total 8 Hour Volume of Delayed Pedestrians										
	< 200		< 75		75 - 130						> 130		
	200 - 300		Not Justified										
	> 300												
SIGNAL JUSTIFICATION 6:										BOTH JUSTIFICATION 5A AND JUSTIFICATION 5B			NO
JUSTIFICATION SUMMARY													
OVERALL										AT LEAST ONE JUSTIFICATION (1 - 5) MET?			NO

Appendix B

Stage 1 Archaeological Assessment

**Ministry of Heritage, Sport, Tourism, Culture
Industries**

Archaeology Program Unit
Programs and Services Branch
Heritage, Tourism and Culture Division
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Toronto ON M7A 0A7
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**Ministère des Industries du patrimoine, du sport, du
tourisme et de la culture**

Unité des programme d'archéologie
Direction des programmes et des services
Division du patrimoine, du tourisme et de la culture
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Feb 23, 2020

Jessica Lytle (P1066)
ASI Archaeological and Cultural Heritage Services
200 - 2321 Fairview Burlington ON L7R 2E3

**RE: Review and Entry into the Ontario Public Register of Archaeological Reports:
Archaeological Assessment Report Entitled, "STAGE 1 ARCHAEOLOGICAL
ASSESSMENT EDWARD STREET EXTENSION PART OF LOTS 1-2, CONCESSION 9
AND LOT 35, CONCESSION 9 (FORMER TOWNSHIPS OF WHITCHURCH AND
MARKHAM, COUNTY OF YORK) TOWN OF WHITCHURCH-STOUFFVILLE
REGIONAL MUNICIPALITY OF YORK, ONTARIO", Dated May 22, 2018, Filed with
MTCS Toronto Office on Apr 26, 2019, MTCS Project Information Form Number
P1066-0071-2018, MTCS File Number 0008381**

Dear Ms. Lytle:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18.¹ This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 *Standards and Guidelines for Consultant Archaeologists* set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the assessment/mitigation of the study area as depicted in Figure 13 of the above titled report and recommends the following:

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, prior to any proposed impacts to the property;
2. Parts of the Study Area have been previously assessed and do not require further archaeological assessment;
3. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance. These lands do not require further archaeological assessment; and,

4. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

Heather Kerr
Archaeology Review Officer

cc. Archaeology Licensing Officer
Tony Bosco, Ainley Group
Haqing Xu, Town of Whitchurch-Stouffville

¹ *In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.*

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT
EDWARD STREET EXTENSION
PART OF LOTS 1-2, CONCESSION 9
AND LOT 35, CONCESSION 9
(FORMER TOWNSHIPS OF WHITCHURCH AND MARKHAM, COUNTY OF YORK)
TOWN OF WHITCHURCH-STOUFFVILLE
REGIONAL MUNICIPALITY OF YORK, ONTARIO**

ORIGINAL REPORT

Prepared for:

Ainley Group
195 County Court Boulevard, Suite 300
Brampton, ON, L6W 4P7

Archaeological Licence #P1066 (Lytle)
Ministry of Tourism, Culture and Sport PIF# P1066-0071-2018
ASI File: 17EA-171

22 May 2018



**Stage 1 Archaeological Assessment
Edward Street Extension
Part of Lots 1-2, Concession 9
and Part of Lot 35, Concession 9
(Former Townships of Whitchurch and Markham, County of York)
Town of Whitchurch-Stouffville
Regional Municipality of York, Ontario**

EXECUTIVE SUMMARY

ASI was contracted by Ainley Group to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Edward Street Extension in the Town of Whitchurch-Stouffville, Regional Municipality of York. This project involves the proposed road corridor improvements and extension of Edward Street between Main Street and Millard Street, to enhance traffic operations, improve pavement condition, promote active transportation (walking, cycling, etc.), and provide additional direct access and continuity to Stouffville's downtown businesses.

The Stage 1 background study determined that two previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 assessment, if impacted, prior to development

In light of these results, the following recommendations are made:

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, prior to any proposed impacts to the property;
2. Parts of the Study Area have been previously assessed and do not require further archaeological assessment;
3. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance. These lands do not require further archaeological assessment; and,
4. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.



PROJECT PERSONNEL

<i>Senior Project Manager:</i>	Lisa Merritt, MSc. (P094) <i>Partner / Director</i> <i>Environmental Assessment Division</i>
<i>Project Coordinator:</i>	Sarah Jagelewski, Hon. BA (R405) <i>Archaeologist / Assistant Manager</i> <i>Environmental Assessment Division</i>
<i>Project Director (Licensee):</i>	Jessica Lytle, MSc (P1066) <i>Archaeologist / Project Manager</i> <i>Environmental Assessment Division</i>
<i>Project Manager:</i>	Eliza Brandy, MA (R1109) <i>Archaeologist / Project Manager</i> <i>Environmental Assessment Division</i>
<i>Field Director:</i>	Peter Carruthers, MA (P163) <i>Senior Associate</i>
<i>Report Preparation:</i>	Eliza Brandy
<i>Graphics:</i>	Jonas Fernandez, MSc (R281) <i>Archaeologist / Assistant Manager - Fleet & Geomatics Specialist</i> <i>Operations Division</i>
<i>Report Reviewer:</i>	Lisa Merritt



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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by Ainley Group to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Edward Street Extension in the Town of Whitchurch-Stouffville, Regional Municipality of York (Figure 1). This project involves the proposed road corridor improvements and extension of Edward Street between Main Street and Millard Street, to enhance traffic operations, improve pavement condition, promote active transportation (walking, cycling, etc.), and provide additional direct access and continuity to Stouffville's downtown businesses.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2017) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Tourism, Culture and Sport (MTCS 2011).

In the S & G, Section 1, the objectives of a Stage 1 archaeological assessment are discussed as follows:

- To provide information about the history, current land conditions, geography, and previous archaeological fieldwork of the Study Area;
- To evaluate in detail the archaeological potential of the Study Area that can be used, if necessary, to support recommendations for Stage 2 archaeological assessment for all or parts of the Study Area; and,
- To recommend appropriate strategies for Stage 2 archaeological assessment, if necessary.

This report describes the Stage 1 archaeological assessment that was conducted for this project and is organized as follows: Section 1.0 summarizes the background study that was conducted to provide the historical and archaeological contexts for the project Study Area; Section 2.0 addresses the field methods used for the property inspection that was undertaken to document its general environment, current land use history and conditions of the Study Area; Section 3.0 analyses the characteristics of the project Study Area and evaluates its archaeological potential; Section 4.0 provides recommendations; and the remaining sections contain other report information that is required by the S & G, e.g., advice on compliance with legislation, works cited, mapping and photo-documentation.

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act*, RSO (Ministry of the Environment 1990 as amended 2010) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the Municipal Engineers' Association document *Municipal Class Environmental Assessment* (2000 as amended in 2007, 2011 and 2015).

The *Archaeological Management Plan for the Region of York* (ASI 2013) was also consulted.

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by Ainley Group on March 28, 2018.



1.2 Historical Context

The purpose of this section, according to the S & G, Section 7.5.7, Standard 1, is to describe the past and present land use and the settlement history and any other relevant historical information pertaining to the Study Area. A summary is first presented of the current understanding of the Indigenous land use of the Study Area. This is then followed by a review of the historical Euro-Canadian settlement history.

1.2.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (BP) (Ferris 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 BP, the environment had progressively warmed (Edwards and Fritz 1988) and populations now occupied less extensive territories (Ellis and Deller 1990).

Between approximately 10,000-5,500 BP, the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 BP; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 BP and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Ellis et al. 1990, 2009; Brown 1995:13).

Between 3,000-2,500 BP, populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. Exchange and interaction networks broaden at this time (Spence et al. 1990:136, 138) and by approximately 2,000 BP, evidence exists for macro-band camps, focusing on the seasonal harvesting of resources (Spence et al. 1990:155, 164). It is also during this period that maize was first introduced into southern Ontario, though it would have only supplemented people's diet (Birch and Williamson 2013:13–15). Bands likely retreated to interior camps during the winter. It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From approximately 1,000 BP until approximately 300 BP, lifeways became more similar to that described in early historical documents. During the Early Iroquoian phase (AD 1000-1300), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson 1990:317). By the second quarter of the first millennium BP, during the Middle Iroquoian phase (AD 1300-1450), this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). In the Late Iroquoian phase (AD 1450-1649) this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. By AD 1600, the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the



traditional enmity between the Haudenosaunee¹ and the Huron-Wendat (and their Algonkian allies such as the Nipissing and Odawa) led to the dispersal of the Huron-Wendat.

Ancestral Huron- Wendat settlement of the Rouge River drainage is documented from the late fourteenth century (The Hamlin Site - Mayer, Pihl, Poulton and Associates Inc. 1988) until the early fifteenth century (The Milroy Site - Kapches 1981). No Ancestral Huron- Wendat settlement has been documented in the Rouge River drainage post-dating the early fifteenth century. The population is believed to have relocated east to the Duffins Creek drainage (or elsewhere) where the Draper-Spang-Mantle sequence was documented (Birch 2012; Birch and Williamson 2013). The Duffins Creek watershed has a well-documented settlement sequence, with documented Ancestral Huron- Wendat occupation from the twelfth century (Boys Site - Reid 1975) until the early sixteenth century (Mantle Site - Birch and Williamson 2013). By the mid-sixteenth century the Duffins Creek population had likely migrated north to the upper Rouge River watershed and the East Holland River watershed (Birch and Williamson 2013: 30).

After the dispersal, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario, including Teiaiagon, near the mouth of the Humber River; and Ganestiquiagon, near the mouth of the Rouge River. Their locations near the mouths of the Humber and Rouge Rivers, two branches of the Toronto Carrying Place, strategically linked these settlements with the upper Great Lakes through Lake Simcoe. The west branch of the Carrying Place followed the Humber River valley northward over the drainage divide, skirting the west end of the Oak Ridges Moraine, to the East Branch of the Holland River. Another trail followed the Don River watershed.

When the Senecas established Teiaiagon at the mouth of the Humber, they were in command of the traffic across the peninsula to Lake Simcoe and the Georgian Bay. Later, Mississauga and earliest European presence along the north shore, was therefore also largely defined by the area's strategic importance for accessing and controlling long established economic networks. Prior to the arrival of the Seneca, these economic networks would have been used by indigenous groups for thousands of years. While the trail played an important part during the fur trade, people would also travel the trail in order to exploit the resources available to them across south-central Ontario, including the various spawning runs, such as the salmon coming up from Lake Ontario or herring or lake trout in Lake Simcoe.

Due, in large part, to increased military pressure from the French upon their homelands south of Lake Ontario, the Haudenosaunee abandoned their north shore frontier settlements by the late 1680s, although they did not relinquish their interest in the resources of the area, as they continued to claim the north shore as part of their traditional hunting territory. The territory was immediately occupied or re-occupied by Anishinaabek groups, including the Mississauga, Ojibwa (or Chippewa) and Odawa, who, in the early seventeenth century, occupied the vast area extending from the east shore of Georgian Bay, and the north shore of Lake Huron, to the northeast shore of Lake Superior and into the upper peninsula of Michigan. Individual bands were politically autonomous and numbered several hundred people. Nevertheless, they shared common cultural traditions and relations with one another and the land. These groups were highly mobile, with a subsistence economy based on hunting, fishing, gathering of wild plants, and garden farming. Their movement southward also brought them into conflict with the Haudenosaunee.

¹ The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian-speaking groups - the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.



Peace was achieved between the Haudenosaunee and the Anishinaabek Nations in August of 1701 when representatives of more than twenty Anishinaabek Nations assembled in Montreal to participate in peace negotiations (Johnston 2004:10). During these negotiations captives were exchanged and the Iroquois and Anishinaabek agreed to live together in peace. Peace between these nations was confirmed again at council held at Lake Superior when the Iroquois delivered a wampum belt to the Anishinaabek Nations.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases to the north of Lake Ontario in the early nineteenth century, the Crown acknowledged the Mississaugas as the owners of the lands between Georgian Bay and Lake Simcoe and entered into negotiations for additional tracts of land as the need arose to facilitate European settlement.

The eighteenth century saw the ethnogenesis in Ontario of the Métis, when Métis people began to identify as a separate group, rather than as extensions of their typically maternal First Nations and paternal European ancestry (Métis National Council n.d.). Living in both Euro-Canadian and Indigenous societies, the Métis acted as agents and subagents in the fur trade but also as surveyors and interpreters. Métis populations were predominantly located north and west of Lake Superior, however, communities were located throughout Ontario (MNC n.d.; Stone and Chaput 1978:607,608). During the early nineteenth century, many Métis families moved towards locales around southern Lake Huron and Georgian Bay, including Kincardine, Owen Sound, Penetanguishene, and Parry Sound (MNC n.d.). By the mid-twentieth century, Indigenous communities, including the Métis, began to advance their rights within Ontario and across Canada, and in 1982, the Métis were federally recognized as one of the distinct Indigenous peoples in Canada. Recent decisions by the Supreme Court of Canada (Supreme Court of Canada 2003, 2016) have reaffirmed that Métis people have full rights as one of the Indigenous people of Canada under subsection 91(24) of the Constitution Act, 1867.

In October and November of 1923, the governments of Canada and Ontario, chaired by A.S. Williams, signed treaties with the Chippewa and Mississauga for three large tracts of land in central Ontario and the northern shore of Lake Ontario which had never been included in previous treaties (Department of Indigenous and Northern Affairs 2013). Part of the Williams Treaties area includes lands originally negotiated under the Rice Lake Treaty, Treaty No. 20, signed on November 5, 1818 between the Chippewas and the Crown (Department of Indigenous and Northern Affairs 2016). The Williams Treaties First Nations are comprised of the Mississaugas of Alderville First Nation, Curve Lake First Nation, Hiawatha First Nation, Scugog Island First Nation and the Chippewas of Beausoleil First Nation, Georgina Island First Nation and the Rama First Nation (Williams Treaties First Nations 2017).

The Study Area is along the eastern boundary of the traditional territory of the Mississaugas of the New Credit First Nation (MNCFN) and is within the active Rouge River Valley Tract Claim, filed in 2015 by MNCFN (Fullerton and Mississauga of the New Credit First Nation).

1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the County of York in part of Lots 1-2, Concession 9, Former Township of Whitchurch, and part of Lot 35, Concession 9, Former Township of Markham.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads,



railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 m of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).

Township of Whitchurch

The Township of Whitchurch was originally surveyed by John Stegman, who surveyed from the first to fourth Concessions, completing it in 1802 (Miles & Co. 1878). The Township was named in honour of the village of Whitchurch, Herefordshire in England, where Elizabeth Simcoe, wife of Upper Canada Lieutenant Governor Sir John Graves Simcoe, was born. The township was bounded by present day Stouffville Road to the south, Yonge Street to the west, Davis Drive to the north and Durham Regional Road 30 to the east. Within the Township of Whitchurch, several villages of varying sizes had developed by the end of the nineteenth century, including Newmarket, Aurora, and Stouffville. A number of crossroad communities also began to grow by this time, including Bethesda, Lemonville, Bloomington, White Rose, Petchville, Ballantrae, Vivian, and Pine Orchard. Many of the early settlers in Whitchurch were Quakers, who were lured to the area with the promise of land grants and also the ability to practice their faith in peace, and United Empire Loyalists (Miles & Co. 1878).

Markham Township

The land within Markham Township was first settled by German families from New York State, who arrived around 1790, before the township had been surveyed. At this time, York was just a hamlet and Yonge Street did not exist, although its line had been established. As more settlers began to arrive, Governor Simcoe encouraged United Empire Loyalists to take up land alongside English immigrants who also came in increasing numbers. Markham Township was then partially surveyed in 1794, being the third in the county to be marked, Yonge Street became the base of the township and each concession, of which there were ten, contained 35 lots, making the township an almost perfect square. The township's many rivers and tributaries soon supported water-powered mills, and a number of historic communities were established around these sites. Such hamlets include German Mills, Almira, Buttonville, Cedar Grove and Unionville. By 1857, the lumber industry had managed to clear most of the township of trees and the land was then under cultivation. Improved transportation routes such as Yonge Street and increased populations led to the expansion of such villages as Markham, Thornhill and Unionville, and the establishment of more specialized industries, such as tanneries, wagon works, and furniture factories (Mika and Mika 1981).



The arrival of the Toronto and Nipissing Railway in 1871, with stations in Unionville and Markham, brought additional growth and prosperity to the township. The Village of Markham itself, which was incorporated in 1873, had a population of 1,100 in 1891. Increased contact with Toronto brought about by the rail line and other transportation and communication improvements however, diminished the industrial role of the villages within the Township of Markham by the turn of the century. The township returned to its agricultural roots and relied on such industries until after World War II (Mika and Mika 1981).

Village of Stouffville

In 1805 Pennsylvania Mennonite Abraham Stouffer and his wife Elizabeth (née Reesor, of the prominent Markham family) purchased land adjacent to the west branch of Duffins Creek, along the township line between Markham and Whitchurch Townships. Stouffer dammed the creek for a mill pond to support a sawmill on the east side of the creek and a grist mill which burned down and was rebuilt on the south side of the township line. By 1846, the settlement had grown and was called Stouffville or Stouffersville with a post office, shops, taverns, crafts people, and mills, and a population of about 70 people. In 1852, the village plot was surveyed along Stouffville Road between Ninth and Tenth Lines. By 1864, the population had reached approximately 700 people. The Toronto & Nipissing Railway was built through the village in 1871. Edward Wheeler had purchased Stouffer's mills and house and operated a sawmill with steam power. Wheeler arranged for a rail spur to be built to his mills on both sides of Main Street along the creek. Stouffville was incorporated as a village in 1877, at which time it had six churches, one public school, two flour mills and two sash and door mills (Miles & Co. 1878:17; Brown 2010; Smith 1846:177; Whitchurch-Stouffville Historical Society 1995a).

Railways

The Toronto & Nipissing Railway (T&NR) was chartered in 1868 to connect Toronto to Lake Nipissing. The railway opened officially at Uxbridge in 1871 and connected to Coboconk in 1872. The T&NR connect to Toronto via the Grand Trunk Railway (GTR) right-of-way (ROW) departing at Scarborough Junction. By 1873 the T&NR operated 12 locomotives. The T&NR met its down-fall by the re-gauging of many railways in the 1870's. Unable to afford the expense of re-gauging its railway to follow suit of neighbouring railways the T&NR was sold to the Midland Railway in 1881, leased by the GTR in 1884 and later absorbed into the Canadian National Railway (Clarke 2007; Cooper 2014). The line is currently used by the GO Transit Stouffville line, and the section of track between Stouffville and Uxbridge operates part time as the York-Durham Heritage Railway.

Lots 1, 2, and 35, Concession 9

The 1817 plan of Whitchurch Township illustrates that the crown patent for Lot 1 was first granted to Russell Hoag and Lot 2 was granted to Abraham Stouffer (Figure 2), while the crown patent for Lot 35 in Markham Township was granted to John Williams (unknown 1817; Stegman 1929 reprint). In 1805, Stouffer purchased the lots from Hoag and Williams. Christian Stouffer inherited the house and mills in the 1840s, operating the business until he sold in 1847 to Edward Wheeler. The neighbourhood west of the railway experienced a building boom in the 1880s, with warehouses, lumber yards, a foundry, and feed mills, and the streets were severed into lots with buildings constructed along Main Street. The Study Area along Edward Street is the site of multiple companies since the late nineteenth century, beginning with the Park Brothers' sash and door factory and planning mill in 1878 (33 Edward Street), later owned by the Cook brothers, Samuel George, Jacob Heise, the Canadian Bee Supply and Honey Co., and Wes Schell. Alex Fleury and Co. Built a factory in 1866 to manufacture agricultural implements (47 Edward



Street), and it was later owned by Crown Brass and Steel. The Todd Block is a line of stores between Albert and Edward Streets on Main Street built in 1889 replacing previous structures, including a fire station and William B. Brown's carriage works in 1878. Joseph Todd was a merchant and operated the grain elevator at the railway station and built a wagon weigh-scale in the ground in front of the store. Todd also built two houses on the south side of Main Street around this time. The Stouffville District Secondary School at the current northern terminus of Edward Street was open from 1954 to 2007 and was reopened on Hoover Park Drive, while the former school building was demolished in 2010 (York Region News 2007, 2010; Diggin Roots Blog 2014; Whitchurch-Stouffville Historical Society 1995b, 1995a, 1997; Town of Whitchurch-Stouffville 2015).

1.2.3 Historical Map Review

The 1860 *Map of the County of York* (Tremaine 1860) and the 1878 *Historical Atlas of the County of York* (Miles & Co. 1878) were examined to determine the presence of historic features within the Study Area during the nineteenth century (Figures 2-5).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historic mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.

Table 1: Nineteenth-century property owner(s) and historical features(s) within or adjacent to the Study Area

		<i>1860 Map of the County of York Township of Whitchurch</i>		<i>1878</i>	
Con #	Lot #	Property Owner(s)	Historical Feature(s)	Property Owner(s)	Historical Feature(s)
9 west 1/2	1	Edward Wheeler	House, mill pond	Edward Wheeler	Farmstead, mill pond, T&NR
	2	Village of Stouffville Abraham Stouffer Sen.	Town lots House, mill pond	Village of Stouffville Simeon Stouffer	Town lots Farmstead, mill pond, T&NR
<i>Township of Markham</i>					
35		Estate of Lake Abr. Stoufer	None	Village of Stouffville	Town lots, tavern, T&NR
		Edw. Wheeler	Grist Mill		
		Village of Stouffville	Town lots		

The patent plan illustrates that the lots were granted to Abraham Stouffer Junior and Russell Hoag.



According to the 1860 map, the village of Stouffville was established along what is now Main Street, with town lots indicated on the north and south sides of the road. Lot 1 contained the mill pond for the grist mill in Lot 35. Two structures are illustrated within the Study Area associated with the Stouffer and Wheler properties. Wheler's grist mill is shown adjacent to the Study Area south of the road on the creek.

The 1878 atlas illustrates that the T&NP was constructed along the southern edge of the Study Area. The Wheler and Stouffer farmsteads are also shown within the Study Area. The detailed plan of Stouffville village illustrates that the southern part of Edward Street was historically surveyed, as well as Main Street, Second Street, and Albert Street. The plan also shows that the T&NR ran between the Study Area and the creek and mill pond, with a spur south to the Wheler mill. The Study Area contains village lots, a tavern on the northwest corner of Main Street and Edward Street, and part of the railway station grounds.

1.2.4 Twentieth-Century Mapping Review

The 1910 Goad's Fire Insurance Map of Stouffville (Goad 1910), the 1930 and 1994 National Topographic System Markham Sheets (Department of National Defence 1930; Department of Energy, Mines and Resources 1994), and the 1954 aerial photography of Stouffville (University of Toronto 1954), were examined to determine the extent and nature of development and land uses within the Study Area (Figures 6-8).

The 1910 fire insurance map illustrates many nineteenth-century structures were still present into the early twentieth century, including the structures at Edward Street along Main Street, the mill and factories adjacent to the railway, houses along Second Street and Edward Street south of Harold Avenue.

The 1930 map illustrates that the Study Area remained within the village of Stouffville, surrounded by a rural agricultural landscape adjacent to the railway. The mill pond was no longer present. The village had expanded on the west side of the railway to include William and Charles Streets north of Main Street, as well as Rupert and Harold Avenues to connect the neighbourhood to Ninth Line. Albert Street was extended to its current terminus north of Harold Avenue. Edward Street had seven houses fronting the west side of the street, and two structures in the railway grounds on the east side (what are now 33 and 47 Edward Street). One structure adjacent to the north end of the Study Area may be the Stouffer farmstead.

The 1954 aerial illustrates that the Study Area remained within the village of Stouffville surrounded by a rural agricultural landscape and that Edward Street had not been extended north of Harold Avenue in the mid-twentieth century.

The 1994 map indicates that Millard Street and the adjacent residential development had been construction, with a right-of-way (ROW) connecting south from Millard Street to Edward Street at Harold Avenue. The map illustrates the Study Area included the school to the east of the ROW.

A review of available Google satellite imagery shows that in 2005 the Study Area contained the former school building



1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MTCS through “Ontario’s Past Portal”; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

A Stage 1 property inspection was conducted on April 24, 2018 that noted the Study Area is located along Edward Street from Main Street to Millard Street in the historic centre of Stouffville. The proposed road extension runs through the Stouffville School Board property with the former school site to the east and a track field to the west. Between Main Street and Harold Avenue is the historic alignment of Edward Street with adjacent historic heritage residential, commercial and industrial structures. North of Harold Avenue and along Millard Street the street is lined with twentieth-century residential houses on graded yards. Edward Street currently has buried utilities and a narrow sidewalk on the west side. Main and Millard Streets are two lane roads.

1.3.2 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow and Warner 1990:Figure 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include: elevated topography (eskers, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource



areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Study Area is located on drumlinized till plains within the South Slope physiographic regions of southern Ontario. The South Slope physiographic region (Chapman and Putnam 1984:172–174) is the southern slope of the Oak Ridges Moraine. The South Slope meets the Moraine at heights of approximately 300 metres above sea level, and descends southward toward Lake Ontario, ending, in some areas, at elevations below 150 metres above sea level. Numerous streams descend the South Slope, having cut deep valleys in the till. In the vicinity of the study area, the South Slope is ground moraine of limited relief.

Figure 11 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by fine-textured glaciolacustrine deposits of silt and clay, and clay- to silt-textured till (Ontario Geological Survey 2010). Soils in the Study Area consist of Milliken loam, a grey-brown podzolic with imperfect drainage (Figure 12).

The Study Area is located adjacent to Stouffville Creek within the West Duffins and is also part of the Little Rouge River subwatersheds.

The Rouge River has its headwaters on the Oak Ridges Moraine and drains an area of 336 square kilometers, of which 40% is rural, 35% is urban, and 24% is forest or wetland, in the Regions of York and Durham, the Cities of Toronto and Pickering, and the Towns of Markham, Richmond Hill, and Whitchurch-Stouffville (TRCA n.d.). As a result of historical Euro-Canadian forest clearance and agriculture, it is likely that the Rouge River and its tributaries have been substantially altered since the fifteenth and sixteenth centuries. Deforestation has likely resulted in larger volumes of water flowing into the streams as surface run-off, increasing both the temperature of the watercourses and their sediment content. In addition, the removal of the forest cover has permitted solar radiation to further warm the waters. These and other modern alterations are also likely to have resulted in increased rates of waterflow, which, concomitantly, have exacerbated erosion and degradation of the water table. Therefore, it is probable that stream levels in the area of the subject property were both higher and slower prior to land clearance. The watershed contains protected areas such as the Greenbelt and Rouge National Urban Park.

The Duffins Creek watershed covers an area of 287 square kilometers, including an east and a west branch of the main creek. Its headwaters are in the Oak Ridges Moraine and the watershed transits the South Slope, Peel Plain, and Iroquois Plain physiographic regions and meets its confluence with Lake Ontario at Squires Beach in Pickering, Ontario. The watershed falls within the municipalities of Durham, York, Ajax, Markham, Pickering, Uxbridge, and Whitchurch-Stouffville. Approximately 40% of the watershed has natural cover (Toronto and Region Conservation Authority 2013). In the seventeenth and eighteenth centuries, the French referred to Duffins Creek as the *Riviere au Saumon* due to the large spawning grounds in the upper reaches of the watershed, however, by the early nineteenth century, settlers' milling activities had severely impacted the salmon population by restricting spawning (Toronto and Region Conservation Authority 2016).

1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MTCSS. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude



and longitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block AIGt.

According to the OASD, two previously registered archaeological sites are located within one kilometre of the Study Area (Ministry of Tourism, Culture and Sport 2018). A summary of the sites is provided below.

Table 2: List of previously registered sites within one kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Researcher
AlGt-286	n/a	Euro-Canadian	Homestead	ASI 2001
AlGt-517	n/a	Euro-Canadian	Scatter	TMHC 2007

TMHC – Timmins Martelle Heritage Consultants Inc.

The Study Area is located approximately 1200 metres northwest of the Jean-Baptiste Lainé (Mantle) Site (AlGt-334), a large sixteenth-century ancestral Huron-Wendat village.

According to the background research, two previous reports detail fieldwork within 50 m of the Study Area.

ASI (2014) conducted a Stage 1 Archaeological Assessment of the Metrolinx proposed property acquisition of 0.2 ha at the Stouffville GO Station, as part of the due diligence study process for acquiring property, adjacent to the current Study Area. The property inspection determined that the entirety of the study area does not retain archaeological potential on account of deep and extensive land disturbance, and does not require further archaeological assessment.

ASI (2017) conducted a Stage 1 Archaeological Assessment during the Impact Assessment Phase of the GO Rail Network Electrification Transit Project Assessment Process. The assessment includes portions of the Stouffville Corridor adjacent to the current Study Area. The background research determined that the corridor between Union and Exhibition GO stations did not retain archaeological potential due to deep and extensive disturbance, and did not require further assessment.

2.0 FIELD METHODS: PROPERTY INSPECTION

A Stage 1 property inspection must adhere to the S & G, Section 1.2, Standards 1-6, which are discussed below. The entire property and its periphery must be inspected. The inspection may be either systematic or random. Coverage must be sufficient to identify the presence or absence of any features of archaeological potential. The inspection must be conducted when weather conditions permit good visibility of land features. Natural landforms and watercourses are to be confirmed if previously identified. Additional features such as elevated topography, relic water channels, glacial shorelines, well-drained soils within heavy soils and slightly elevated areas within low and wet areas should be identified and documented, if present. Features affecting assessment strategies should be identified and documented such as woodlots, bogs or other permanently wet areas, areas of steeper grade than indicated on topographic mapping, areas of overgrown vegetation, areas of heavy soil, and recent land disturbance such as grading, fill deposits and vegetation clearing. The inspection should also identify and document



structures and built features that will affect assessment strategies, such as heritage structures or landscapes, cairns, monuments or plaques, and cemeteries.

The Stage 1 archaeological assessment property inspection was conducted under the field direction of Peter Carruthers (P163) of ASI, on April 24, 2018, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the Study Area. It was a visual inspection only and did not include excavation or collection of archaeological resources. Fieldwork was only conducted when weather conditions were deemed suitable, per S & G Section 2. Previously identified features of archaeological potential were examined; additional features of archaeological potential not visible on mapping were identified and documented as well as any features that will affect assessment strategies. Field observations are compiled onto the existing conditions of the Study Area in Section 7.0 (Figure 13) and associated photographic plates are presented in Section 8.0 (Plates 1-20).

3.0 ANALYSIS AND CONCLUSIONS

The historical and archaeological contexts have been analyzed to help determine the archaeological potential of the Study Area. These data are presented below in Section 3.1. Results of the analysis of the Study Area property inspection are presented in Section 3.2.

3.1 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:

- Previously identified archaeological sites (AlGt-286 and AlGt-517);
- Water sources: primary, secondary, or past water source (Stouffville/West Duffins Creek);
- Early historic transportation routes (Main St, Edward St, Second St, Harold Ave, Rupert Ave, T&NR);
- Proximity to early settlements (village of Stouffville); and

According to the S & G, Section 1.4 Standard 1e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area can be documented as disturbed. There are 33 properties within and directly adjacent to the Study Area are listed on the Town of Whitchurch-Stouffville Built Heritage Inventory (Town of Whitchurch-Stouffville 2015):

#	Street	History
41	Albert	c. 1892-1924 house, property bought in 1886 by Joseph Park (of the Park Bros. mill) who sold to James Ratcliff in 1907, a grocer with a shop in the Todd Block
47	Albert	c. 1910 – 1924 Alexander Fleury house, owner of the Fleury Foundry on Edward Street which made implements for labourers as well as the Aurora Agricultural Works, established in 1859.
49/53/55	Albert	c. 1886 part of a row of “Second Empire” cottages built by Wm. P. Hartney as four rental homes
51	Albert	c. 1886 Tom Williamson house, who owned several rental houses in Stouffville's west end for railway and shop workers



#	Street	History
79	Albert	c. 1893 Jacob Flocker, farmer
80	Edward	c. 1895 Joel Baker house, owner of the lumber yard (with J. L Baker) at the north end on Edward St. after he retired from his homestead and saw mill at Baker Hill
88	Edward	c. 1889 Joel Baker house, willed to his daughter Edith Bundy who sold it in 1913 to Robert Brown
169	Harold	c. 1892 John Booth house, sectionman for the GTR
6128/6130	Main	c. 1886 Robert Sangster house, family owned the property until 1944.
6132-6148	Main	c. 1889 house – in 1876 John Hopkins built the first commercial enterprise in this area. The property was bought by Joseph Todd in 1886, replacing the old building in 1889 with a block of three stores called “Todd Block”.
6162	Main	c. 1879 Elijah Miller hotel “The Mansion House”
6166	Main	Early twentieth-century grain elevator
6173	Main	c. 1875 house, 1872 David Musselman, who bought it from Abe Stouffer Jr. then sold it in 1877 to Henry Woodgate who sold it to Joseph Todd in 1895
6179	Main	site of former house built c. 1873 for Eliza Cook, demolished in 1919
6185	Main	c. 1876 W.B. Sanders house, postmaster 1878-1912, lumber, coal and grain merchant, member of the consortium, Reeve of Stouffville and Warden of York County
494	Millard	c. 1860 Stouffer family property
159/165	Rupert	c. 1887 William Mason ‘sister’ houses
169	Rupert	c. 1887 Frederick George house (brother of the Sash and Door Factory George’s), rented to Arthur Fleury
155	Second	c.1887 house of George (a tanner) and Elizabeth Lloyd
161	Second	c.1880 Joseph Park house, sold to Ratcliff family in 1907
164	Second	c. 1879 David Baker house, carriage maker on Main St, who sold the house and shop to Wm. B. Brown in 1880

These criteria are indicative of potential for the identification of Indigenous and Euro-Canadian archaeological resources, depending on soil conditions and the degree to which soils have been subject to deep disturbance.

3.2 Analysis of Property Inspection Results

The property inspection determined that parts of the Study Area exhibit archaeological potential due to the proximity of heritage structures along Main Street, Edward Street, Second Street, Rupert Avenue, and Harold Avenue (Plates 3, 7, 9; Figure 13: areas highlighted in green). These areas will require Stage 2 archaeological assessment prior to any development. According to the S & G Section 2.1.2, test pit survey is required on terrain where ploughing is not viable, such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rocky pasture, and narrow linear corridors up to 10 metres wide.

Parts of the Study Area have been previously assessed and do not require further archaeological assessment (Figure 13: areas highlighted in orange).

The remainder of the Study Area has been subjected to deep soil disturbance events associated with twentieth- and twenty-first-century development, utilities, and road improvements. According to the



S & G Section 1.3.2 do not retain archaeological potential (Plates 1-20; Figure 13: areas highlighted in yellow). These areas do not require further survey.

3.3 Conclusions

The Stage 1 background study determined that two previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection determined that parts of the Study Area exhibit archaeological potential and, if impacted, will require Stage 2 assessment, prior to any proposed development.

4.0 RECOMMENDATIONS

In light of these results, the following recommendations are made:

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, prior to any proposed impacts to the property;
2. Parts of the Study Area have been previously assessed and do not require further archaeological assessment;
3. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance. These lands do not require further archaeological assessment; and,
4. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the MTCS should be immediately notified.



5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI also advises compliance with the following legislation:

- This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological field work and report recommendations ensure the conservation, preservation and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.
- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.
- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the *Ontario Heritage Act*.
- The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.



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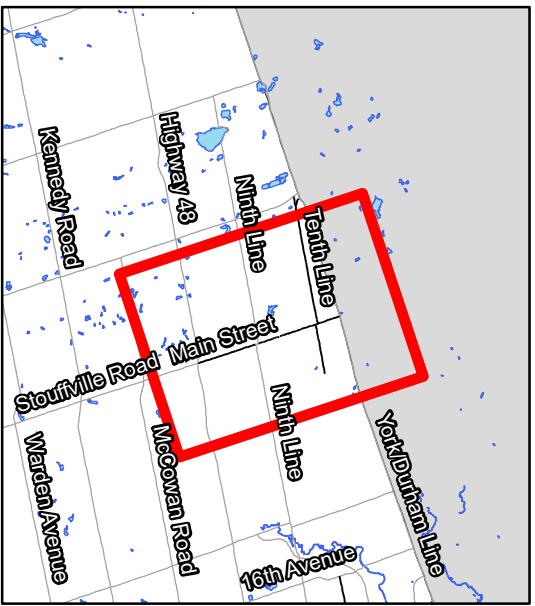
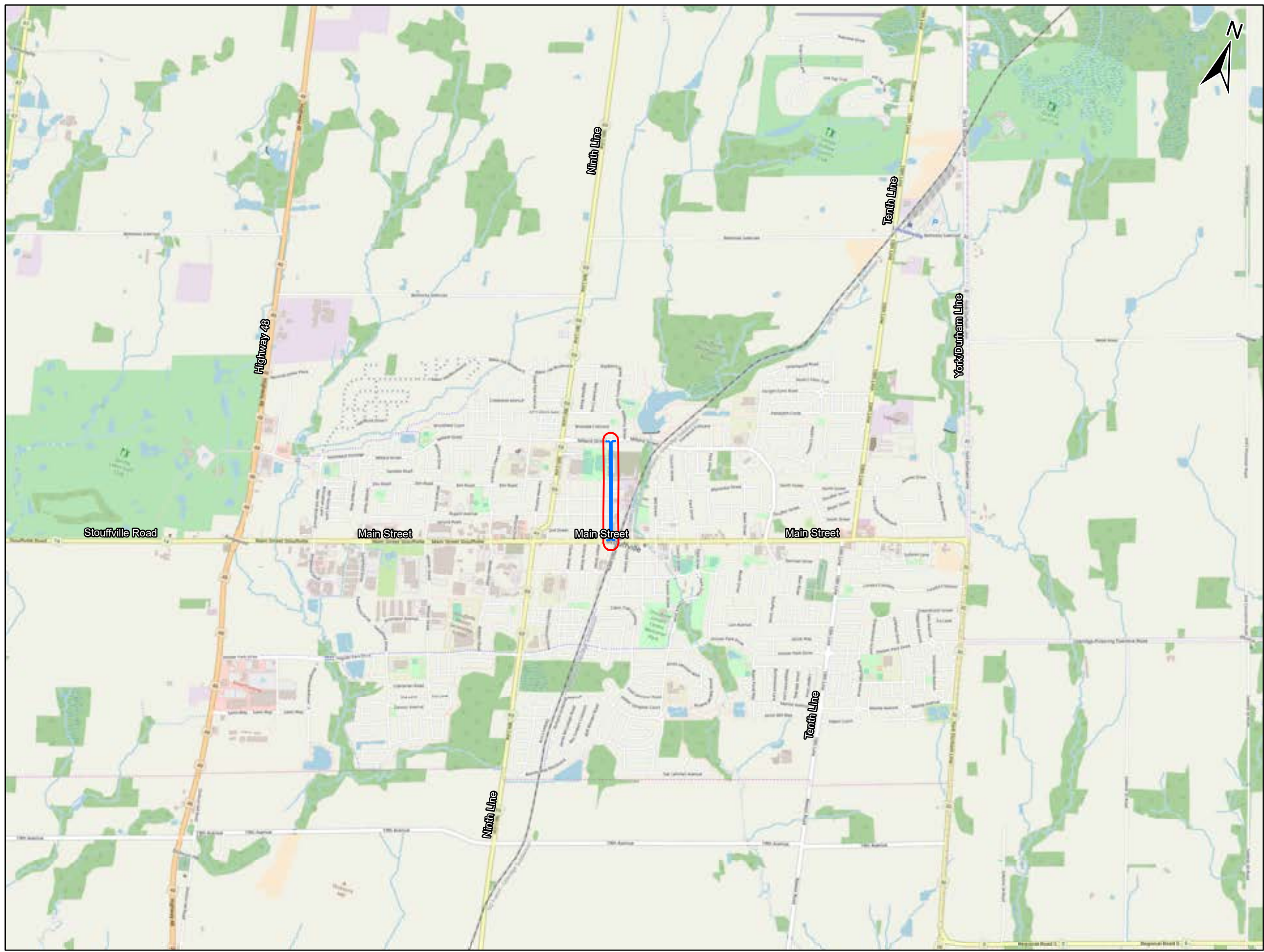
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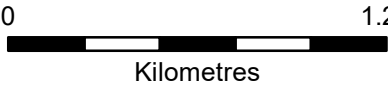


7.0 MAPS



-  Study Area (50m Buffer)
-  Study Area (Alignment Limit)

BASE: Ortho
Esri, DigitalGlobe, GeoEye, i-cubed, USDA,
USGS, AEX, Getmapping, Aerogrid, IGN,
IGP, swisstopo, and the GIS User Community



ASI PROJECT NO.: 17EA-171
DATE: 4/12/2018
DRAWN BY: JF
FILE: 17EA171_fig1



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528 Bathurst Street Toronto, ONTARIO M5S 2P9
416-966-1069 | F416-966-9723 | asiheritage.ca

Figure 1: Edward Street Extension - Location of the Study Area

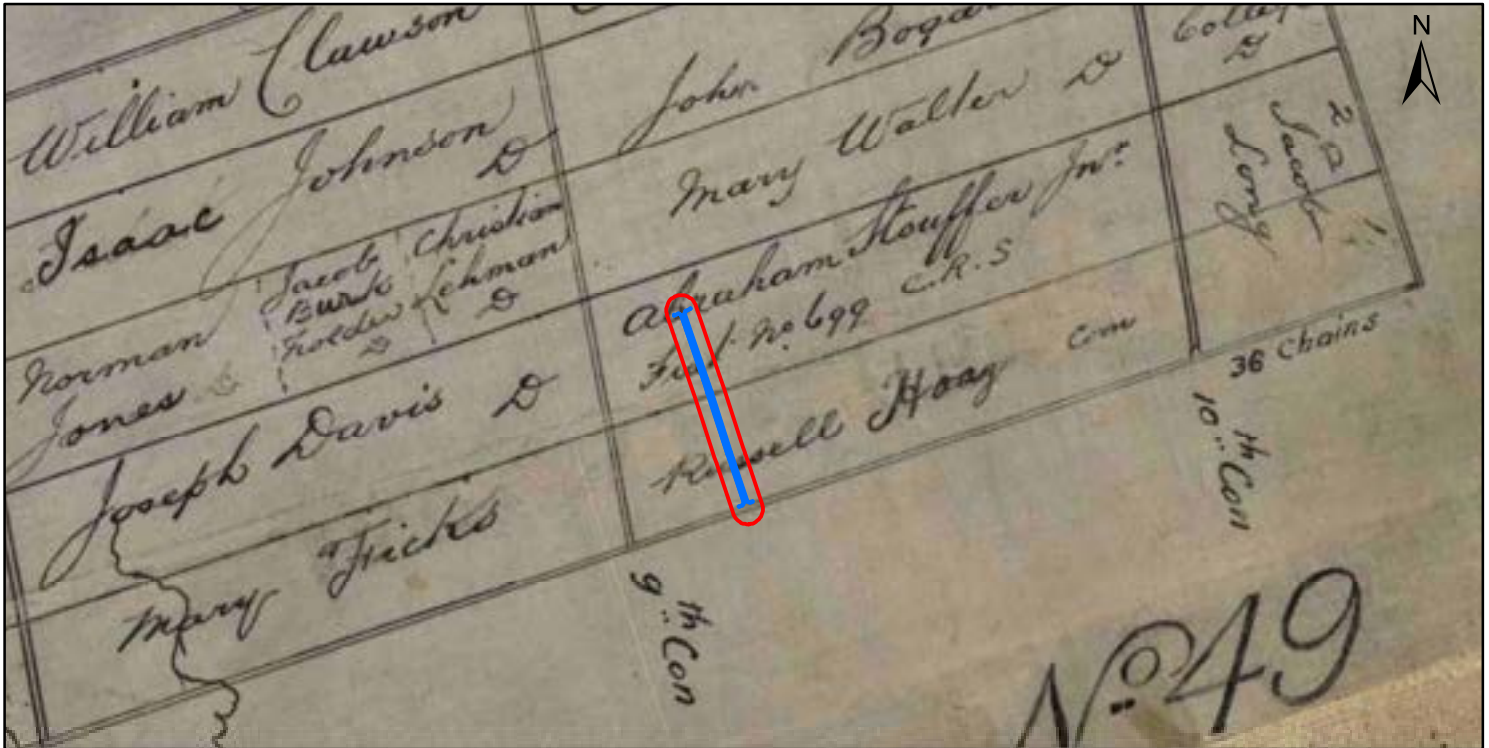


Figure 2: Edward Street Extension Study Area (Approximate Location) Overlaid on the 1817 Patent Plan of Whitchurch Township (1929 reprint)

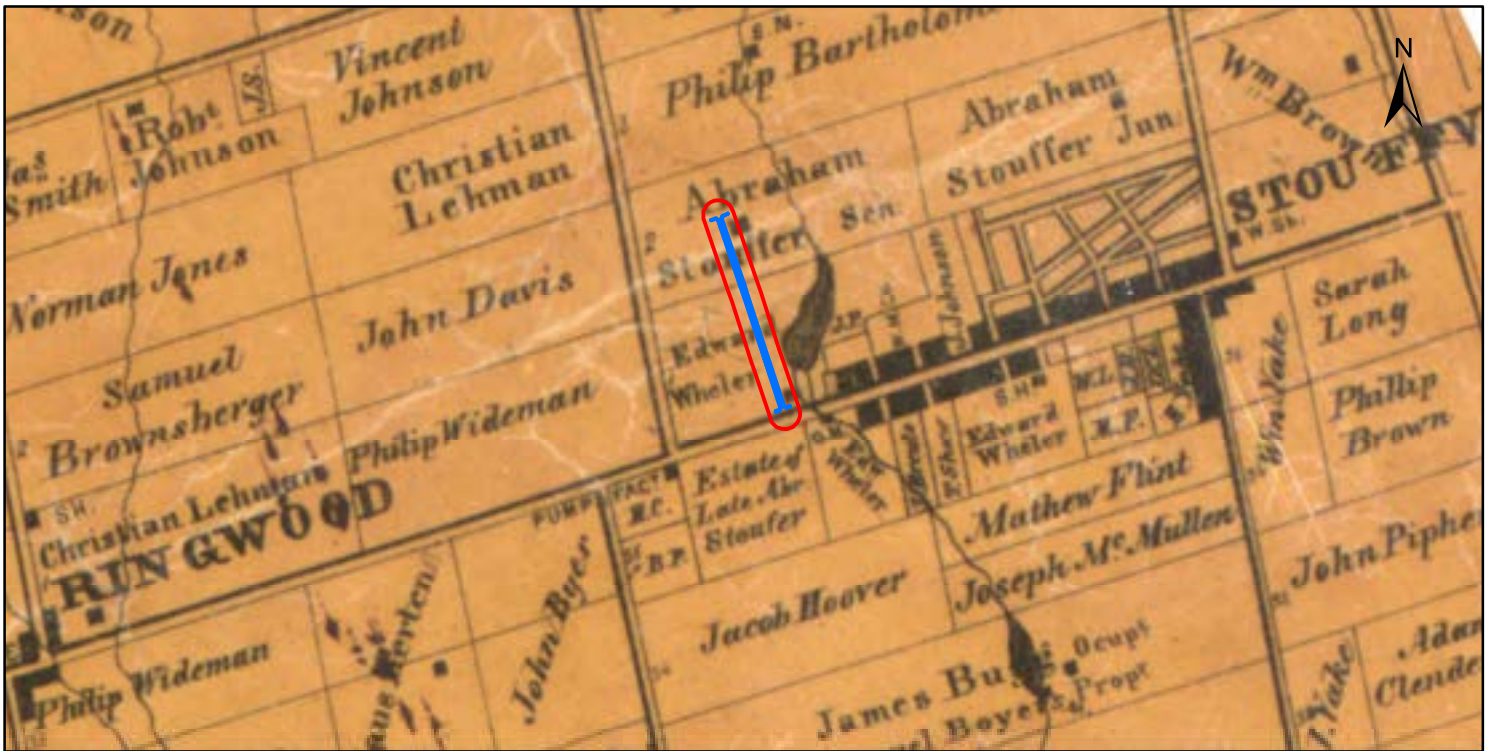


Figure 3: Edward Street Extension Study Area (Approximate Location) Overlaid on the 1860 Map of the County of York



Figure 4: Edward Street Extension Study Area (Approximate Location) Overlaid on the 1878 Illustrated Historical Atlas of the County of York, Townships of Whitchurch and Markham pages

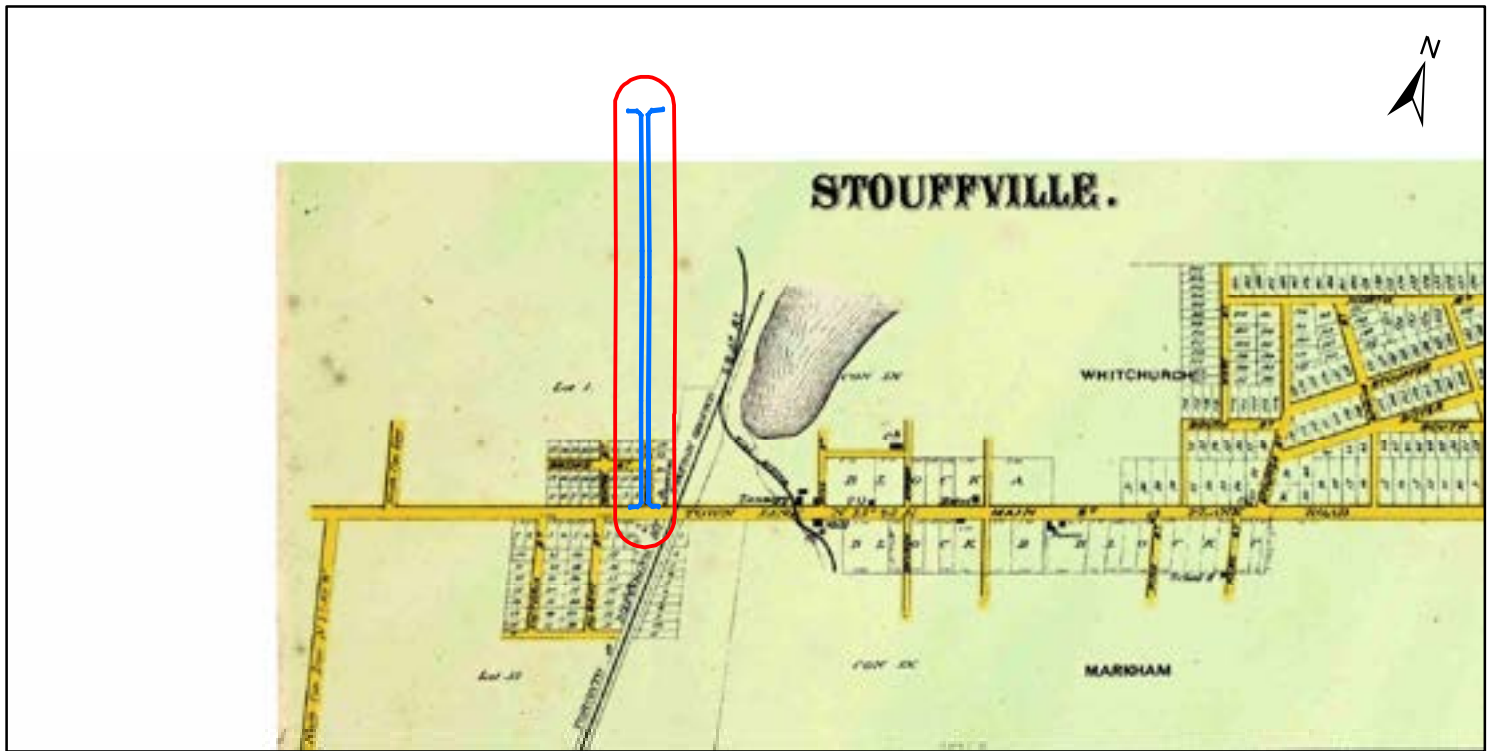


Figure 5: Edward Street Extension Study Area (Approximate Location) Overlaid on the 1878 Illustrated Historical Atlas of the County of York, Village of Stouffville page



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- Study Area (Alignment Limit)
- Study Area (50m Buffer)

Base:
1910 Goad's Fire Insurance Maps of Stouffville

0 100
Metres

ASI PROJECT NO.: 17EA-171
DATE: 5/4/2018

DRAWN BY: JF
FILE: 17EA-171_fig6_hist

Figure 6: Edward Street Extension Study Area (Approximate Location) Overlaid on the 1910 Goad's Fire Insurance Map of Stouffville



Figure 6: Edward Street Extension Study Area (Approximate Location) Overlaid on the 1930 National Topographic System Markham Sheet



Figure 7: Edward Street Extension Study Area (Approximate Location) Overlaid on the 1954 Aerial Photograph of Stouffville

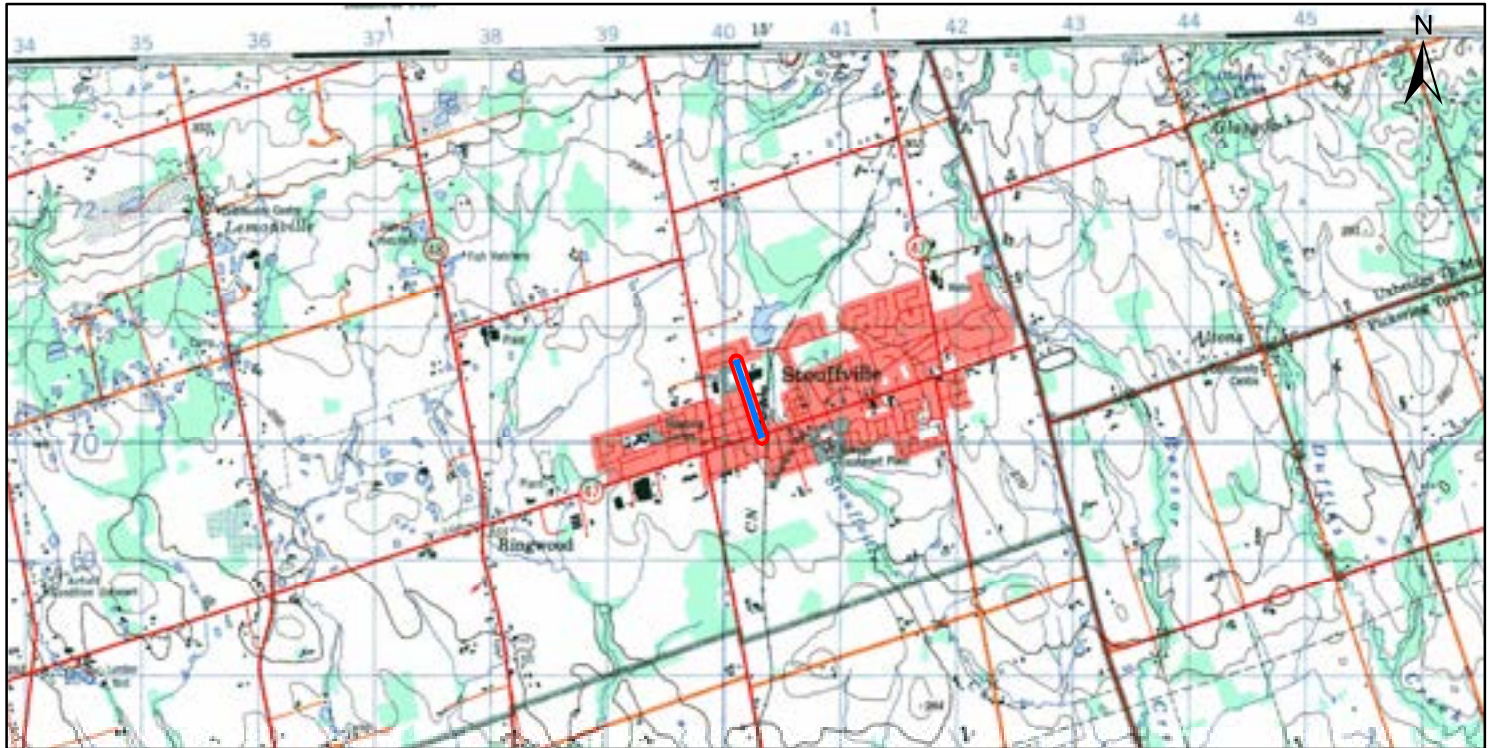


Figure 8: Edward Street Extension Study Area (Approximate Location) Overlaid on the 1994 National Topographic System Markham Sheet

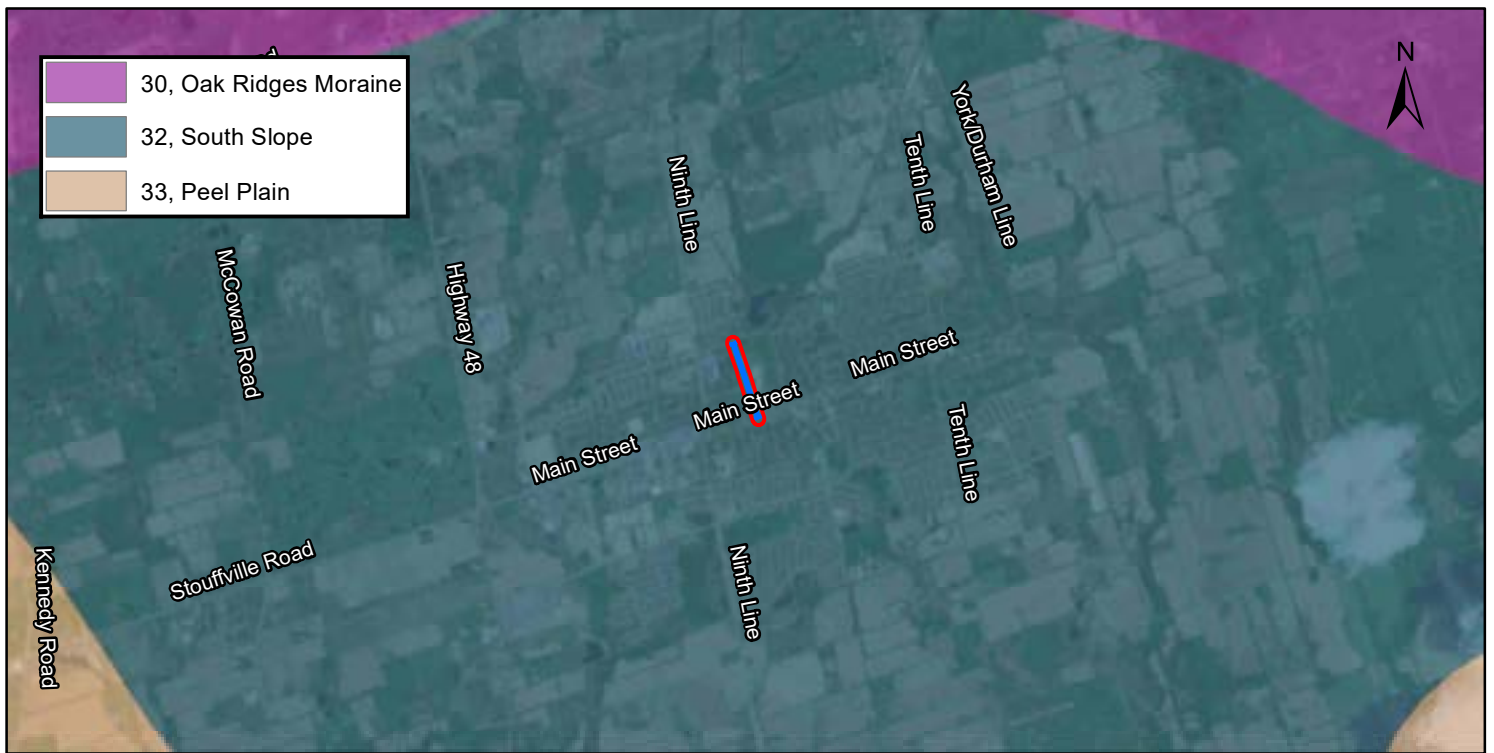


Figure 9: Edward Street Extension Study Area - Physiographic Regions

 Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 416-966-9723 asiheritage.ca	 Study Area (50m Buffer) Study Area (Alignment Limit)	Base: 1994 National Topographic System Markham Sheet	0 1.25 Kilometres ASI PROJECT NO.: 17EA-171 DATE: 4/12/2018 DRAWN BY: JF FILE: 17EA171_fig8_9_hist
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Figure 10: Edward Street Extension Study Area - Surficial Geology

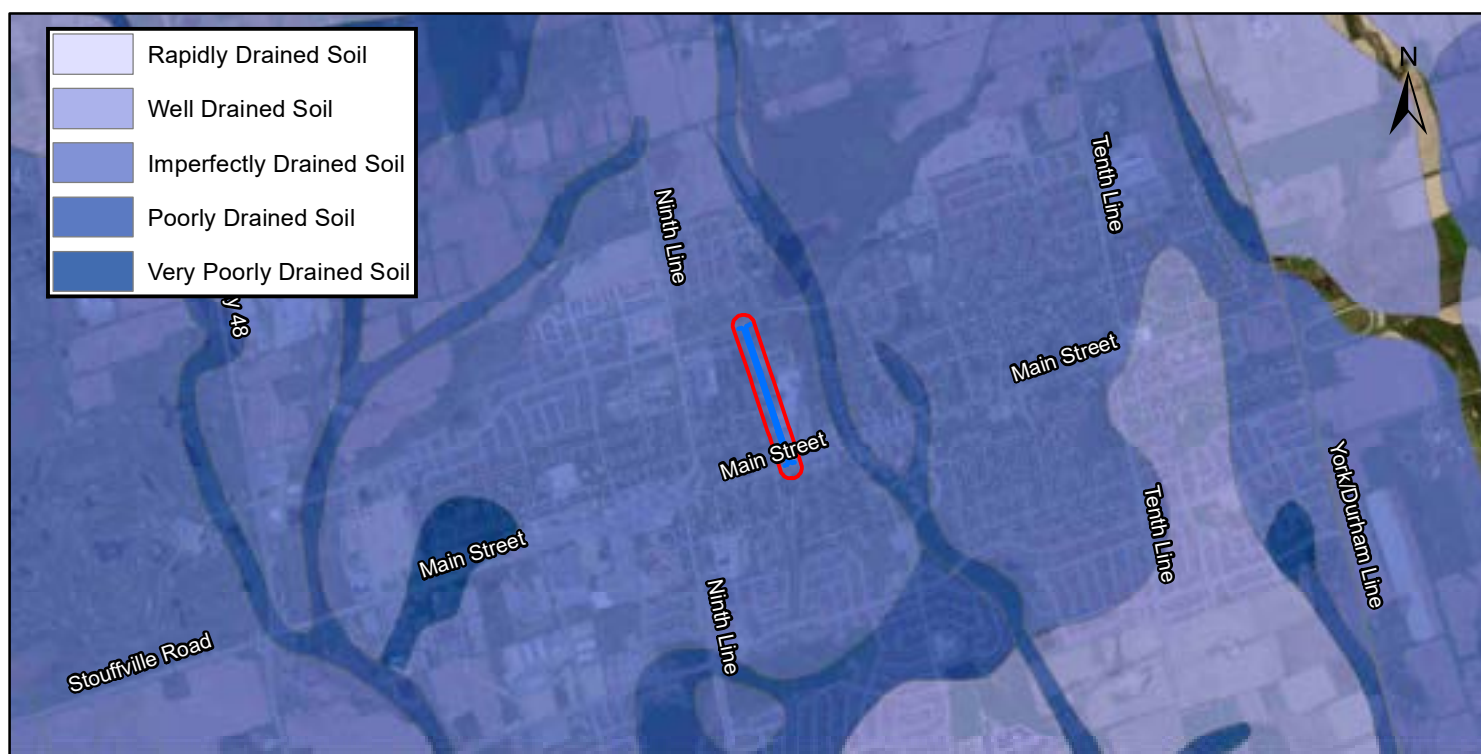


Figure 11: Edward Street Extension Study Area - Soil Drainage



Figure 13: Edward Street Extension Study Area - Results of the Property Inspection

8.0 IMAGES



Plate 1: South view of Study Area; Area beyond previously assessed rail corridor is disturbed, no potential



Plate 2: South view of Main St.; Area beyond disturbed ROW exhibits potential on historic property frontage



Plate 3: West view of Main St.; Area is disturbed, no potential



Plate 4: North view of Edward St.; Area is disturbed, no potential



Plate 5: South view of Edward St.; Area is disturbed, no potential



Plate 6: Northwest view of Edward St. at Rupert Ave.; Area is disturbed, no potential



Plate 7: Southeast view of Edward St.; Area is disturbed, no potential



Plate 8: Northwest view of Edward St. toward Harold Ave.; Area beyond disturbed ROW, between historic houses exhibits potential, requires Stage 2 test pit survey



Plate 9: North view of Edward St. At Rupert Ave.; Area is disturbed, no potential



Plate 10: Northeast view of Edward St at Schell St.; Area is disturbed, no potential



Plate 11: Northwest view of Edward St.; Area is disturbed, no potential



Plate 12: Northwest view of Edward St. terminus; Area is disturbed, no potential



Plate 13: Northeast view of Edward St. terminus; Area is disturbed, no potential



Plate 14: Southwest view of former school property; Area is disturbed, no potential



Plate 15: South view of proposed Edward St. extension; Area is disturbed, no potential



Plate 16: South view of proposed Edward St. extension; Area is disturbed, no potential



Plate 17: Southwest view of proposed Edward St. extension; Area is disturbed, no potential



Plate 18: South view of Edward St. terminus at Millard St; Area is disturbed, no potential



Plate 19: West view of Millard St.; Area is disturbed, no potential



Plate 20: Northeast view of Millard St.; Area is disturbed, no potential

Appendix C

Natural Heritage Assessment



Natural Heritage Assessment
Edward Street Class Environmental Assessment
Town of Whitchurch-Stouffville, Region of York

Prepared for:
Ainley Group

Prepared by:
Azimuth Environmental
Consulting, Inc.

July 2019

AEC 17-418



Environmental Assessments & Approvals

July 18, 2019

AEC 17-418

Ainley Group
195 County Court Blvd., Suite 300
Brampton, Ontario
L6W 4P7

ATTN: Tony Bosco, B. Eng., Manager of Transportation & Brampton Branch Manager

Re: **Natural Heritage Assessment for Municipal Class EA at Edward St. (Main St. to Millard St.), Town of Whitchurch-Stouffville, Region of York**

Dear Mr. Bosco:

Azimuth Environmental Consulting, Inc. was retained to provide a Natural Heritage Assessment report as part of a Municipal (Schedule "C") Class Environmental Assessment associated with proposed road works at the location described above. This report documents the natural environmental features present within the study area and adjacent lands, and outlines potential impacts to local environmental features associated with road design alternatives. Mitigation measures are provided to minimize the potential for environmental impacts upon natural heritage features within the study area.

Based on the results of our study it is concluded that providing mitigation measures described in this report are followed, there is no expectation of negative impacts to candidate significant natural heritage features as a result of the proposed alternatives. As the field study was completed in spring 2018, the above conclusion assumes the study area has not changed substantially since that time.

Certainly, should you have any questions or require additional information feel free to contact the undersigned.

Yours truly,
AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Dan Stuart, H.B.Sc.
Terrestrial Ecologist



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Appendix C: Photographic Record
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1.0 INTRODUCTION

Azimuth Environmental Consulting, Inc. (Azimuth) was retained by the Ainley Group (“the client”), to undertake a Natural Heritage Assessment (NHA) as part of a Municipal (Schedule “C”) Class Environmental Assessment for the proposed road improvements of Edward Street, between Main Street and Millard Street, in the settlement of Stouffville (Town of Whitchurch-Stouffville; the “Town”), Region of York (the “Region”). A map illustrating the limits of the study area is shown on Figure 1.

A review of background information in combination with field surveys was carried out during the spring 2018 season to detect the presence of the candidate significant natural heritage features, Species at Risk (SAR) and their habitats associated with the study area. The potential for negative impacts to candidate significant natural heritage features resulting from the proposed design alternatives within the study area and adjacent lands is considered and recommendations for mitigation and avoidance are provided.

This NHA is intended to identify the candidate significant Natural Heritage Features (NHF) present within the study area and address potential impacts to existing and candidate significant NHFs. Azimuth has consulted with the Ministry of Natural Resources and Forestry (MNRF) for matters related to SAR, drainage features in the study area, and local environmental features including an Evaluated Wetland – Other located beyond the study area limits.

It is our understanding that no portion of the study area or adjacent lands (up to 75 metres (m) from the defined study area limits) is regulated by the Toronto Region Conservation Authority (TRCA), however municipal drainage features within the study area limits discharge to Stouffville Creek, located approximately 150 m east of Edward Street and the Stouffville Marsh located approximately 200 m northeast of Edward Street. Stouffville Creek, the Stouffville Marsh, and their floodplains are regulated by TRCA. The Stouffville Creek floodplain and regulated area is located approximately 110 m east of Edward Street at its closest point, and the Stouffville Marsh floodplain and regulated area is located approximately 90 m east of Edward Street at its closest point.

2.0 STUDY APPROACH

A combination of background information review and a field investigation were used to fulfill the objectives of this NHA. Azimuth undertook the following activities for this study:



- Searched the Region, the Town, TRCA, and MNRF records to obtain background information related to natural heritage conditions including SAR in the nearby area;
- Contacted the MNRF to acquire background data related to natural heritage features including SAR information;
- Conducted one (1) field survey in spring 2018 to document existing natural heritage features, functions, and species to the extent that seasonal conditions permit. Surveys included:
 - Evaluate/update/map vegetation community types based on Ecological Land Classification methods (Lee *et al.* 1998. Ecological land classification for southern Ontario: first approximation and its applications. SCSS Field Guide FG-02);
 - Completion of one vascular plant survey
 - Characterization of drainage features and potential for fish habitat within the study area; and
 - Recording of all incidental wildlife observations during the site visit.
- Completed a SAR habitat assessment using field data collected by Azimuth staff during the site visit and other data available and/or provided by agencies to confirm environmental constraints, and approval requirements under the *Endangered Species Act*, 2007 (ESA);
- Assessed the potential direct and indirect impacts of the proposed development on the natural heritage features and functions identified on or adjacent to the property; and,
- Identified environmental approval requirements of the Town and/or MNRF, and whether approvals may be required from TRCA.

A request for background information including SAR data was provided to MNRF on March 6, 2018 (Appendix A). A response was received from MNRF on May 25, 2018 (Appendix A), discussed in further detail in Section 2.4.1 below.

2.1 Study Area

The study area is located along the length of Edward Street between Main Street and Millard Street in the settlement of Stouffville, depicted in its regional context in Figure 1. For the purposes of this NHA the term “study area” refers to the defined study area limits shown on Figure 1 and Figure 2. The term “adjacent lands” refers to those areas located outside (lands within approximately 75 m) of the study area.

Edward Street is a maintained residential street from Main Street, northward for approximately 415 m, at which location an installed gate restricts flow-through traffic. North of this location until reaching Millard Street, the street converts to a parking lot



(also described as part of Bramble Crescent) with adjacent sports fields to the west and east. Lands within the study area are typical of urban core environs, and comprise a combination of the existing roadway (Edward Street) and associated infrastructure, residential dwellings and associated landscaped areas, and aforementioned large maintained sports fields. All lands within the study area are urban in character, with no portion of the study area consisting of natural or naturalized lands as described by the ELC system.

The Town of Whitchurch-Stouffville Official Plan Policy (Stouffville Secondary Plan) Greenland System map illustrates a small segment of “Woodlands” adjacent to Edward street in the southeast portion of the study area, with a 30 m Minimum Protection Zone and 120 m Area of Influence (Appendix B). Air photo interpretation however, suggests that this parcel consists of developed residential properties and associated ornamental landscape treatments, and as such does not qualify as woodland in accordance with ELC protocols.

The Stouffville Marsh (Evaluated Wetland – Other) is located approximately 200 m northeast of Edward Street at its closest point, and Stouffville Creek is located approximately 150 m east of Edward Street at its closest point. As such, records indicate the study area is beyond both Minimum Protection Zones and Areas of Influence for wetlands and streams described in the Stouffville Secondary Plan (Appendix B).

2.2 Background Data

A review of background documents provided information on site characteristics, habitat, wildlife, rare species and communities, and general cultural/historic aspects of the study area. This included a review of the following:

- MNRF’s Natural Heritage Information Center (NHIC);
 - o Make-A-Map: Natural Heritage Areas application
- Atlas of the Breeding Birds of Ontario (OBBA);
- Ontario Reptile and Amphibian Atlas;
- MNRF's Species at Risk Ontario list;
- Air photos available for the Project Area (Google, VuMap);
- Government of Canada's Species at Risk Public Registry; and,
- Atlas of the Mammals of Ontario (Dobbyn, 1994).

2.3 Vegetation Community Mapping and Surveys

Prior to undertaking the field studies, an initial classification of habitats was undertaken using recent air photo imagery for an area encompassing the study area. Vegetation boundaries were then checked in the field on May 30, 2018 during a period when the



emergent ground cover vegetation layer was present. Vegetation community types were classified using ELC protocols.

The site visit was undertaken by a qualified Terrestrial Ecologist with existing knowledge related to rare, Threatened, and Endangered plant species with potential to occur in the area. The site assessment was focused during ELC work to ensure that appropriate effort was made to detect any federally or provincially designated species, notably SAR as identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) and Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

A detailed survey including a screening for Butternut was also conducted within the study area.

2.4 Wildlife Surveys

Wildlife species utilizing the study area were identified from direct observation, auditory signs, and through interpretation of other signs (*i.e.* tracks, scats, vocalizations, *etc.*) as a matter of course while conducting field surveys. This information was used with background data related to wildlife use of the study area to determine the sensitive areas associated with wildlife.

2.4.1 Species at Risk

The SAR screening undertaken for the scope of this assignment includes an assessment where the habitat requirements of SAR species with potential to occur in the overall planning area are compared with potential habitat features identified within the study area. Habitat requirements and appropriate designations (Endangered (END), Threatened (THR), or Special Concern (SC)) for all species with potential to occur based on the above are outlined in Table 1.

Particular care was taken during the field work to determine if habitat for any federally or provincially designated species, notably SAR as identified by COSSARO and/or by COSEWIC, was present within the study area.

The MNRF was contacted to obtain any SAR information relevant to the study area (Appendix A). A response was received from MNRF on May 25, 2018 indicating that no SAR or rare species records exist in the area, however this does not indicate absence of sensitive species. For this reason further assessment is typically required determine potential and confirmed habitat, which was completed for this project.



2.5 Fish and Fish Habitat

Background mapping sources were reviewed to determine the presence of surface water features within or adjacent to the study area. Mapping did not indicate presence of watercourses, however Stouffville Creek is mapped approximately 150 m east of Edward Street at its closest point (Figure 2).

Azimuth staff completed a site investigation on May 30, 2018 within the study area to affirm the absence of mapped watercourses, and determine if the project has the potential to impact fish habitat as a result of the proposed road improvements. Photographs from the field survey are included in Appendix C.

3.0 EXISTING CONDITIONS

3.1 Terrestrial Resources

3.1.1 Vegetation

The limits of ELC communities and other land uses identified within the study area and adjacent lands are illustrated in Figure 2. A complete list of vascular plant species identified within the study area is presented in Table 2. A photographic record of the study area is presented in Appendix C.

The study area is present within highly urbanized setting, comprising anthropogenic vegetation communities associated with residential properties, sports fields, and municipal right-of-ways. There are no natural/naturalized vegetation communities associated with the study area, rather all lands therein are characterized as maintained lands (M). A Cultural Woodland (CUW) is located approximately 200 m east of Edward Street on the south side of Millard Street, beyond the study area limits.

A screening for wetland communities was conducted using the >50% relative facultative and obligate wetland species cover standard that defines a wetland in accordance with the Ontario Wetland Evaluation System (OWES; MNRF, 2013). No wetlands were identified within the study area as a result of this exercise, in accordance with the OWES and ELC systems. A ditch located at the south edge of the parking lot (Figure 2) is lined with a minor element of moisture-tolerant species (facultative wetland species), however these species were low in density and do not constitute a wetland community.

A complete vascular plant inventory was collected throughout the study area limits. A total of 68 vascular plant species were identified within the study area, 67 of which could be identified to the species level. Of the 67 species identified within the study area, 18 were identified solely as planted ornamental (landscape) trees, and are not representative of natural/naturalized vegetation communities within the study area. Excluding



ornamental trees, 49 natural/naturalized species were identified, 15 (31%) are considered native to Ontario. This low percentage of native species representation is typical of highly urbanized settings, and reflective of the low vegetative quality of the study area.

None of the vegetation communities or species documented are of federal or provincial conservation concern (NHIC, 2018).

3.1.1.1 Rare and Uncommon Plants

There are no elements of occurrence (EO_ID) within the study area for provincially END or THR, or provincially rare vegetation species according to the MNR NHIC database (NHIC, 2018).

No plant species considered END or THR were identified during the site investigation, including Butternut trees. Further, no provincially or regionally rare species were observed during the course of the field program.

3.1.2 Wildlife

One mammalian species, Eastern Chipmunk, was observed during the course of the site investigation, however it is expected the following other mammals could conceivably be encountered within the study area in an urbanized setting: small mammal species (various mice, voles, and shrews), Grey Squirrel, Red Squirrel, Striped Skunk, Eastern Cottontail, Virginia Opossum, Raccoon.

No herpetofaunal species were observed during the course of the site investigation. The study area provides limited opportunities to support amphibian and reptile life processes, however based on an evaluation of suitable habitats, the following species have potential to occur:

- Anurans: American Toad (foraging habitat), Gray Treefrog (foraging habitat)
- Snakes: Dekay's Brownsnake, Red-bellied Snake, Eastern Gartersnake, Eastern Milksnake, Smooth Greensnake

A total of seven (7) bird species were documented incidentally during the site investigation on May 30, 2018, as follows:

- European Starling
- American Crow
- Common Grackle
- Chimney Swift (THR; foraging southeast of study area)



- American Goldfinch
- Song Sparrow
- Northern Cardinal

3.1.3 Species at Risk

SAR with potential to occur in the planning area and their preferred habitats were screened to determine whether there is potentially suitable habitat within the study area for these species (Table 1).

The MNRF was contacted to obtain any SAR information relevant to the study area (Appendix A). A response was received from MNRF on May 25, 2018 (Appendix A) indicating that no SAR are known to occur in the area, however this does not indicate absence of sensitive species and further assessment is required determine potential and confirmed habitat.

Table 1 fully considers the SAR known within the Aurora MNRF District and York Region that have potential to occur within the study area based on species range. Based on this assessment in combination with vegetation communities observed during the site investigation, the following species are considered below in this NHA based on confirmed or potential occurrence within the study area:

- **SC:** Common Nighthawk (SC), Monarch (SC)
- **THR and END:** Barn Swallow (THR), Chimney Swift (THR), Eastern Small-footed Bat (END), Little Brown Myotis (END), Tri-colored Bat (END)

3.2 Candidate Significant Wildlife Habitat

An assessment of the potential for Significant Wildlife Habitat (SWH) within study area was conducted, using the criteria outlined within MNRF's Significant Wildlife Habitat Technical Guide (SWHTG; OMNR, 2000) and the accompanying the Ecoregion 6E Criteria Schedules (MNRF, 2015). Common Nighthawk (SC) and Monarch (SC) have the capacity to utilize the study area for their life processes, therefore the following Candidate SWH type may be present within the study area based on the results of the field program:

- Special Concern and Rare Wildlife Species: Common Nighthawk, Monarch

Based on the results of background review and site investigation, there is no expectation that other Candidate SWH types listed in the SWHTG and Ecoregion 6E Criteria Schedules are present within the study area.



3.3 Candidate Significant Woodland

The PPS affords ultimate responsibility for the designation of natural features as “significant” to the Municipality and/or the Province. The CUW feature located approximately 200 m east of Edward Street (Figure 2) may qualify as significant woodland, as the feature is mapped as “Woodlands” within the Stouffville Secondary Plan Greenland System map, with associated 30 m Minimum Protection Zone and 120 m Area of Influence (Appendix B).

Based on the results of the site investigation, the refined feature limits including 30 m Minimum Protection Zone and 120 m Area of Influence are located beyond the limits of the study area. As such it is considered outside of the scope of this assessment. No other natural features that could qualify as woodland are located within the study area limits.

3.4 Wetland

The PPS affords ultimate responsibility for the designation of natural features as “significant” to the Municipality and/or the Province. The Stouffville Marsh (Evaluated Wetland – Other) is located approximately 200 m northeast of Edward Street at its closest point, and may be considered Locally Significant Wetland in accordance with the Stouffville Secondary Plan Greenland System map.

The study area is beyond both the 30 m Minimum Protection Zone and 120 m Area of Influence for wetlands described in the Stouffville Secondary Plan (Appendix B), and as such is considered outside of the scope of this assessment. No other natural features that could qualify as wetland are located within the study area limits.

3.5 Candidate Significant Valley Land

There are no valley land features located within the study area according to the Stouffville Secondary Plan, or standards presented in the Natural Heritage Reference Manual (NHRM; OMNR, 2010). The drainage ditch located at the south end of the parking lot (Figure 2) demonstrates minor capacity for seasonal and municipal storm drainage. No portion of the study area exhibits the well-defined valley morphology and landform prominence required to be considered Candidate Significant Valley Land.

3.6 Fish and Fish Habitat

No natural watercourses or waterbodies are located within the study area limits. Stouffville Creek, a permanent coldwater stream, is located approximately 150 m east of the existing limit of Edward Street at its closest point, and occurs outside the study area.



Municipal drainage occurs along the edges of Edward Street, and is characterized by municipal storm sewer drains and shallow paved ditches along both sides of the roadway with intermittent CSP (Corrugated Steel Pipe) culverts beneath residential and commercial driveways. Drainage features in this portion of the study area connect exclusively with municipal storm drainage and therefore there is no expectation that these features function as fish habitat. A photographic record of these municipal drainage features is presented in Appendix C.

The northern “travelled” edge of Edward Street intersects with an east-west oriented drainage channel (Figure 2), originating as a very shallow mowed swale immediately west of Edward Street. A CSP culvert is installed beneath Edward Street at this location and the drainage channel continues eastward for approximately 180 m before reaching another CSP culvert beneath CN Rail tracks. Presumably, the drainage channel continues east of the rail tracks for approximately 40 m to meet Stouffville Creek, although confirmation of this connection (presence and type of connection) could not be verified due to a lack of property access. During the site investigation on May 30, 2018, the drainage channel was found to be completely dry and consist of leaf litter and both live and dead plant material, with a minor element of moisture-tolerant (facultative wetland) plant species. A photographic record of the feature is presented in Appendix C. Based on the results of the site investigation, there is no expectation that this feature carries west-east flow except for during substantial flooding and/or storm events. It is expected that the channel’s capacity to convey flow is particularly minor in the vicinity of Edward Street, as the only evidence of drainage on the west side of the street is a mowed, grassed, swale with channelization not beginning until the eastern (downstream) edge of Edward Street. As such, there is no expectation that the east-west oriented drainage channel has the capacity to function as fish habitat.

It is Azimuth’s recommendation that potential downstream impacts can be mitigated through appropriate best management practices, erosion and sediment controls, *etc.*, to avoid impacts to Stouffville Creek approximately 220 m downstream from the existing limit of Edward Street. Recommendations for mitigation and avoidance of potential downstream impacts are provided in Section 7 below.

Updated DFO Aquatic SAR mapping (Appendix A) indicates that no known occurrences of aquatic SAR are found in proximity to the study area. NHIC records report Redside Dace (END) habitat located within 1 kilometre (km) of the study area, however MNRF correspondence (Appendix A) did not indicate presence or concern related to Redside Dace. Based on this correspondence there is no expectation that Redside Dace are associated with the study area or its area of influence.



4.0 NATURAL HERITAGE FEATURES AND FUNCTIONS

The results of our field studies and review of background information indicate the potential for the following significant natural heritage features and functions to be located within the study area:

- Candidate Significant Wildlife Habitat
- Potential Habitat for Threatened or Endangered Species

4.1 Candidate Significant Wildlife Habitat

The following Candidate SWH types are present within the study area limits:

- Special Concern and Rare Wildlife Species: Common Nighthawk, Monarch

Based on background resources and the results site surveys, potential habitat for Special Concern species including Common Nighthawk and Monarch may be present within the study area.

4.2 Potential Habitat of Threatened and Endangered Species

Potential habitat for species listed as THR or END was identified within the study area. Our preliminary screening considered in combination with data acquired through background sources and site surveys has identified habitat potential as follows:

- Potential foraging habitat for **Barn Swallow** (THR) and **Chimney Swift** (THR) within the study area, particularly over open habitats.
- Potential roosting habitat for **Eastern Small-footed Bat** (END), **Little Brown Myotis** (END), and **Tri-colored Bat** within older residential dwellings located within the study area.

5.0 DESIGN ALTERNATIVES

The scope of the study contemplates options for the minimal, partial, or full urbanization of Edward Street between its northern “travelled” limit, and Millard Street (this section is also referred to as Bramble Crescent). An illustration of conceptual proposed design alternatives is presented in Appendix D. The three proposed design alternatives are summarized as follows:

- 1) **Maintaining Existing Conditions with Minimal Modifications:** Minimal road reconstruction would occur at the south end of the proposed work area, utilizing the existing pavement surface. Completion of the road connection with Millard



Street would involve removal of the existing gate and addition of line markings to the existing road surface. No curbs, sidewalks, storm sewer, boulevard, or street lighting is proposed as a part of this design alternative.

- 2) **Partial Urbanization:** Road realignment would occur to create a linear connection between Edward Street and Millard Street. Road resurfacing and localized reconstruction would be required to accommodate this option. Full length curb, sidewalk (west side only), partial storm sewer, graded boulevard (west side only), and street lighting (west side only) are additionally proposed to accomplish partial urbanization.
- 3) **Full Urbanization:** Full road reconstruction would occur to create a linear connection between Edward Street and Millard Street, with the addition of entrances to the existing parking lot on the east side of the street. Full length curb (both sides), sidewalk (west side only), new storm sewer, graded boulevards, and street lighting (west side only) are additionally proposed to accomplish full urbanization.

In the context of this NHA, the differences between the proposed design alternatives (Appendix D) represent minor variations with similar construction footprint and anticipated environmental impacts. As such, the impact assessment and resulting recommendations (Section 6 and Section 7) below apply to all three (3) design alternatives described above.

6.0 IMPACT ASSESSMENT

6.1 Candidate Significant Wildlife Habitat

According to the PPS development and site alteration are not permitted within SWH located in Ecoregion 6E, unless it can be demonstrated there will be no negative impacts upon the feature and its ecological functions. For the purposes of this assessment, Candidate SWH types listed below are treated as significant.

6.1.1 Habitat for Special Concern and Rare Wildlife Species

For the purposes of this assessment, presence of the species listed below is assumed in lieu of conducting species-specific screenings, as it is conceivable that these species could be encountered within the study area during the appropriate season:

- Common Nighthawk
- Monarch



Common Nighthawk

Traditional Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, and along gravel roads, large gravel roofs, and railways, they tend to occupy natural sites (MNRF, 2018). Lands throughout the study area, but particularly the northern portion of the study area may provide habitat for Common Nighthawk.

Suitable habitat for Common Nighthawk is abundant within urban areas, including large portions of the settlement of Stouffville. Habitat for this species is well represented in the general area and as such, no negative impact to the species or their habitat is anticipated as a result of proposed works associated with the proposed design alternatives.

Monarch

Monarch Butterfly can generally be identified in any old field or cultural meadow habitat and disturbed ditches along road right of ways. The key habitat is typically associated with tracts of old-field meadow habitat containing an abundance of Common Milkweed. Common Milkweed was identified within the study area, however in very limited quantities (fewer than 10 plants) along sports field fringes. Common Milkweed and other meadow wildflowers may provide breeding and nectaring opportunities for Monarch, although such capacity should be considered marginal.

Habitat for this species is highly represented in the general landscape, including much higher quality habitat units based on size, connectivity, and abundance of Common Milkweed. As such, no negative impact to the species or its habitat is anticipated as a result of proposed works associated with the proposed design alternatives.

6.2 Habitat for Threatened or Endangered Species

Impacts with regards to the ESA and Habitat of THR or END Species are covered under Section 9 and 10 of the ESA. Section 9 deals directly with killing, harming, or harassing living members of a species while Section 10 covers destruction or damage to habitat of THR or END species. The following THR and END species have the potential to occur within the limits of the study area:

- Barn Swallow (THR), Chimney Swift (THR)
- Little Brown Myotis (END), Northern Myotis (END), Tri-colored Bat (END)



6.2.1 Barn Swallow (THR) and Chimney Swift (THR)

Ontario's ESA affords Barn Swallow and Chimney Swift individual and habitat protection as THR species.

Aerial foraging habitat for Barn Swallow and Chimney Swift may be present over portions of the study area, particularly open sports fields located east and west of the parking lot feature (Figure 2), where vegetation may have the capacity to support sufficient insect populations for Barn Swallow and Chimney Swift foraging purposes.

Foraging habitat for these species is highly represented in both urban and rural environs within the general area and as such, no negative impact to the species or their habitat is anticipated as a result of the proposed works associated with the proposed design alternatives.

6.2.2 Eastern Small-footed Myotis (END), Little Brown Myotis (END), Tri-colored Bat (END)

Ontario's ESA affords Eastern Small-footed Bat, Little Brown Myotis, and Tri-colored Bat individual and habitat protection as END species.

Candidate bat roosting habitat may be present within older residential dwellings or commercial buildings (>50 years most frequently used) located on either side of Edward Street within the study area limits. Proposed works associated with the proposed design alternatives will not result in the removal of any residential dwellings or commercial structures within the study area, and as such there is no expectation that the proposed works will have a negative impact upon Eastern Small-footed Bat, Little Brown Myotis, Tri-colored Bat or the habitat upon which they depend.

7.0 RECOMMENDATIONS

7.1 Species at Risk

It should be noted that the absence of a protected species within the study area does not indicate that they will never occur within the area. Given the dynamic character of the natural environment, there is a constant variation in habitat use. Care should be taken in the interpretation of presence of species of concern including those listed under the ESA. Changes to policy, or the natural environment, could result in shifts, removal, or addition of new areas to the list of areas currently considered candidate Significant NHFs. This report is intended as a point in time assessment of the potential to impact SAR; not to provide long term "clearance" for SAR. While there is no expectation that the



assessment should change significantly, it is the responsibility of the proponent to ensure that they are not in contravention of the ESA at the time that site works are undertaken. A review of the assessment provided in this report by a qualified person should be sufficient to provide appropriate advice at the time of the onset of future site works.

7.1.1 Worker Training

Worker training would assist the on-site workers in the identification of the SAR with potential to occur in the area. Workers should be instructed to stop work and contact the local MNRF office immediately if any SAR are encountered within the work area. Individuals working on site should ensure that SAR are not harmed during construction or killed by heavy machinery, vehicles or other equipment.

The contractor should seek to ensure that all personnel are educated by a SAR expert to ensure that, if identified, the SAR are not injured or killed, and to ensure that damage to features which could constitute habitat is avoided. Information conveyed through this education should include:

- Species habitat and identification;
- Requirements under the ESA including avoidance of harm to the species and damage to relevant habitat;
- Appropriate action to take if the species is encountered;
- How to record sightings and encounters; and
- That care should be taken when undertaking construction activities in order to avoid harming the species or damaging/destroying habitat.

The expert should be a qualified biologist who specializes in ecology/biology, and SAR.

7.2 Migratory Breeding Birds

Activities involving the removal of vegetation should be restricted from occurring during the breeding season. Migratory birds, nests, and eggs are protected by the *Migratory Birds Convention Act*, 1994 and the *Fish and Wildlife Conservation Act*, 1997.

Environment Canada outlines dates when activities in any region have potential to impact nests at the Environment Canada Website (http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#_03). In Zones C1 and C2 vegetation clearing should be avoided between **April 1st through August 30th** of any given year. If work requires that vegetation clearing is required between these dates screening by an ecologist with knowledge of bird species present in the area could be undertaken to ensure that the vegetation has been confirmed to be free of nests prior to clearing.



7.3 Sediment and Erosion Controls

Diligent application of sediment and erosion controls is recommended for all future construction activities to minimize the extent of accidental or unavoidable impacts to vegetation communities and wildlife habitat, and to mitigate potential downstream impacts associated with the drainage channel within the study area. Prior to the commencement of site works, silt fencing should be applied along the length of the drainage channel onsite, and routine inspection/maintenance of the silt fencing should occur throughout construction. Once construction is complete, exposed/disturbed soils should be restored immediately to limit erosion and sediment into nearby drainage features.

7.4 Operations

All maintenance activities required during future construction should be conducted at least 30 m away from woodlands, wetlands, and the drainage channel to prevent accidental spillage of deleterious substances that may harm natural environments.

Snow fencing or equivalent should be installed at the limit of the work area to prevent the accidental intrusion of machinery operations into adjacent undisturbed natural areas.

7.5 Fish and Fish Habitat

Potential for impacts to downstream fish-bearing watercourses (*i.e.* Stouffville Creek that occurs outside the study area) could occur if the appropriate mitigation measures are not followed during construction. Although no direct impacts to fish habitat are anticipated as a result of any of the design alternatives, it is recommended that the focus of mitigation include proper sediment and erosion control installation, monitoring and maintenance to ensure that site runoff is contained, and does not result in washout or sediment transport to any natural system including Stouffville Creek.

Diligent application of sediment and erosion controls and provision for best management practices during operations (Section 7.3 and Section 7.4 above) should be adhered to during the construction phase. It is recommended that the Erosion & Sediment Control Guideline for Urban Construction be used as a planning guide in this regard (Greater Golden Horseshoe Area Conservation Authorities, 2006).



8.0 CONCLUSIONS

Based upon our analysis, it is concluded that the environmental conditions within the study area are not limiting to implementation of any one of the three (3) proposed design alternatives (Appendix D), through incorporation of the environmental protection measures and criteria as described throughout this report. As the field study was completed in spring 2018, the conclusions below are based upon the assumption that the study area has not changed substantially since that time.

At this time, our findings are summarized as follows:

1. Our impact assessment has given full consideration to the habitat requirements of all SAR assumed and documented to occur in the area and results indicate the proposed development will not result in negative direct or indirect impacts to habitat of SAR providing conformance is demonstrated to mitigation measures described in Section 7.
2. The proposed works are not expected to negatively impact the ecological functions of the Candidate SWH outlined in Section 4 if the appropriate mitigation measures outlined in Section 7 are followed.
3. Fish habitat was not identified within the study area limits during the site investigation, and as such no direct impacts to fish or fish habitat are expected as a result of the proposed development. Potential impacts associated with sedimentation offsite are mitigable, and can be addressed through proper planning sediment and erosion controls. It is Azimuth's recommendation that the potential for downstream impacts to fish-bearing watercourses be evaluated during the preparation of the sediment and erosion control plan, to ensure that construction staging plans and erosion and sediment control plans provide adequate mitigation for the protection of natural resources outside the project limits.
4. The study area is not located within TRCA regulated lands, and therefore does not require a work permit in accordance with Ontario Regulation 166/06. Further, the study area does not include watercourses, therefore no further fisheries screening or permitting from DFO is required for the project.



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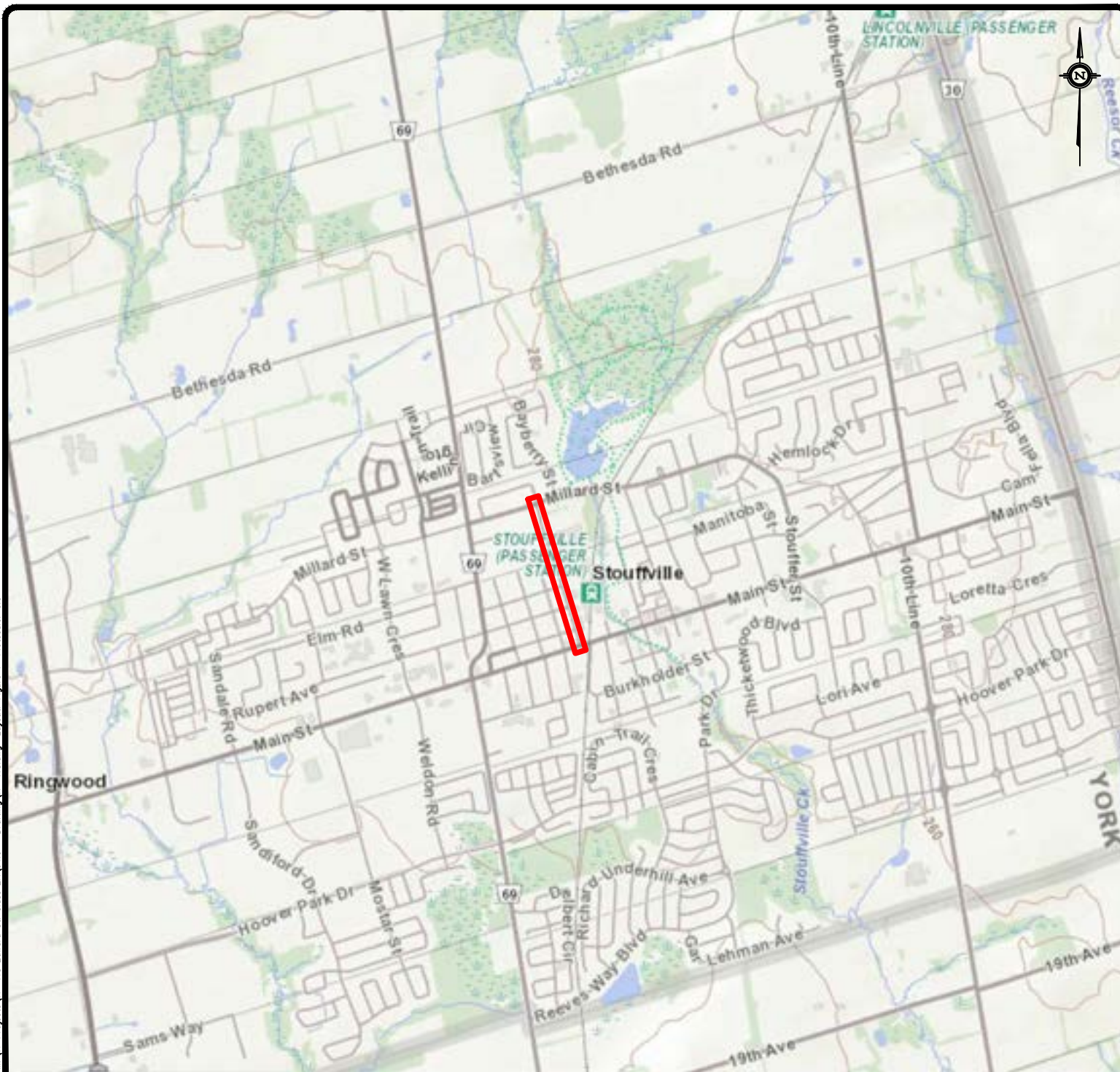
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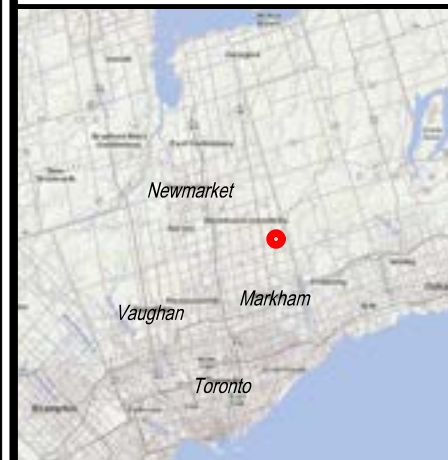
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LEGEND:

— Approx. Study Area



REG MAP

250m 0 750m
HORIZONTAL SCALE 1: 25,000



Study Area Location

Edward St.,
Whitchurch-Stouffville, ON

DATE ISSUED: July 2018

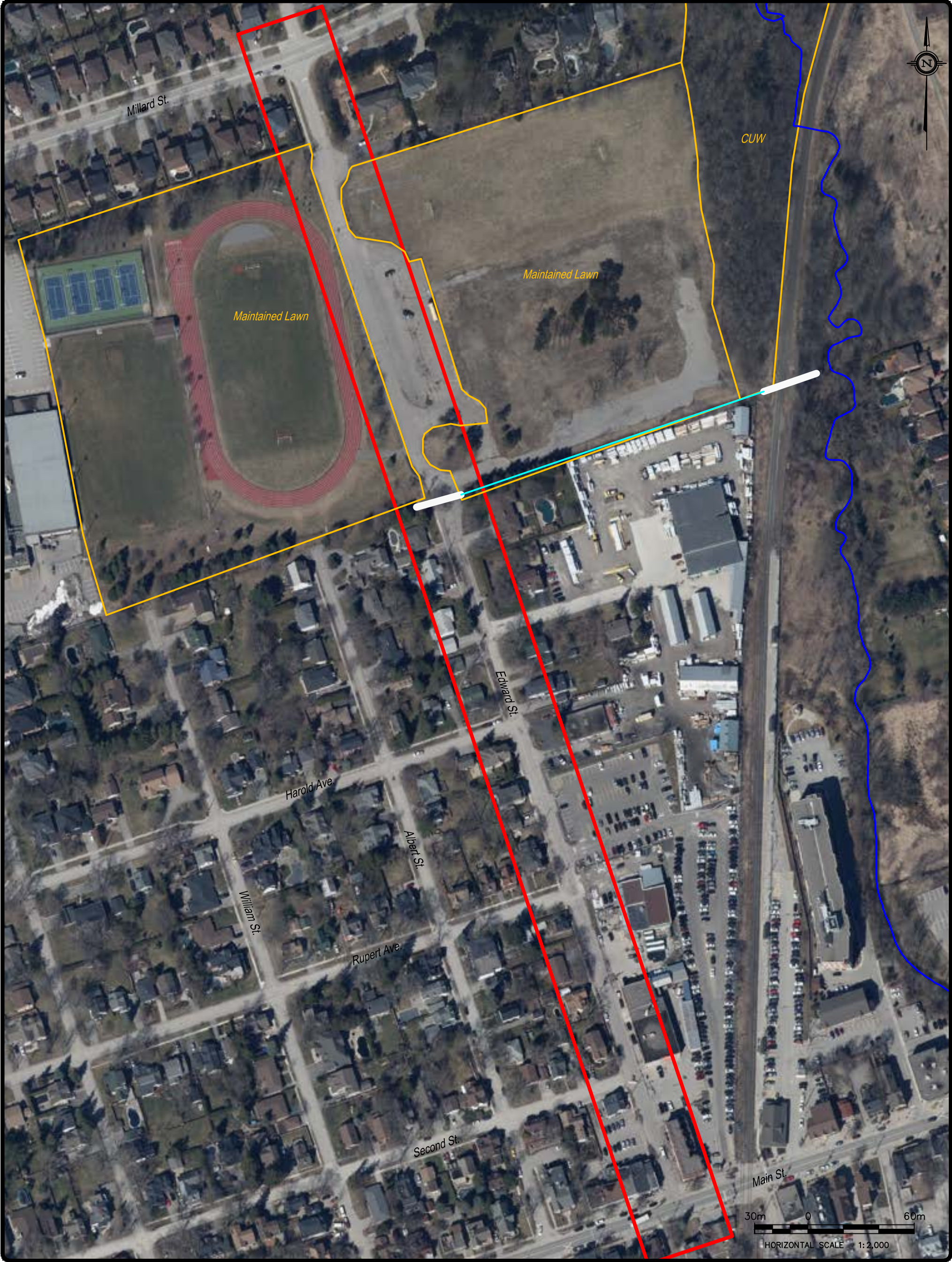
CREATED BY: JLM

PROJECT NO.: 17-418

REFERENCE: MNR

Figure No.

1



LEGEND:

- Approx. Study Area
- Stouffville Creek
- Drainage Channel
- CSP Culvert (white)
- Vegetation Communities
- CUW Cultural Woodland

DAYSTAMP: M:\17 Projects\17-418 Edward St. Class EA\04.0 - Drafting\17-418.dwg

Plotted by: JMCARNEY on July 9, 2018 at 9:54am

File: M:\17 Projects\17-418 Edward St. Class EA\04.0 - Drafting\17-418.dwg Layout: EIS2 PlotScale: 0.5

 AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Environmental Features

Edward St.,
Whitchurch-Stouffville, ON

DATE ISSUED: July 2018	Figure No. 2
CREATED BY: JLM	
PROJECT NO.: 17-418	
REFERENCE: York Region Mapping	

Table 1: Species at Risk Habitat Summary

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species ¹	Initial Assessment
Bank Swallow	<i>Riparia riparia</i>	THR	No status	Nests in burrows excavated in natural and human-made settings with vertical sand and silt faces. Commonly found in sand or gravel pits, road cuts, lakeshore bluffs, and along riverbanks (COSEWIC, 2013b). ESA Protection: Species and general habitat protection	No exposed vertical sand or silt faces, lakeshore bluffs, road cuts, etc. No suitable habitat for the species.
Barn Swallow	<i>Hirundo rustica</i>	THR	No status	Ledges and walls of man-made structures such as buildings, barns, boathouses, garages, culverts and bridges. Also nest in caves, holes, crevices and cliff ledges (COSEWIC, 2011b). ESA Protection: Species and general habitat protection	No Barn Swallow nests (active or inactive) observed within the study area. Urban core is unlikely to provide foraging habitat for Barn Swallow, however marginal foraging lands may be present over open fields within the study area limits.
Black Tern	<i>Chlidonias niger</i>	SC	No status	Colonial nesters typically found within marshes. Its preferred nesting habitat is a hemi-marsh (i.e. a wetland with 50:50 open water and emergent vegetation). Nests are usually built on an upturned cattail root, floating vegetation mat or patch of mud (Cadman <i>et al.</i> , 2007). ESA Protection: N/A	No wetlands within the study area limits. No suitable habitat for the species.
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR	THR	Blanding's Turtles are a primarily aquatic species that prefer wetland habitats, lakes, ponds, slow-moving streams, etc., however they may utilize upland areas to search for suitable basking and nesting sites. In general, preferred wetland sites are eutrophic and characterized by clear, shallow water, with organic substrates and high density of aquatic vegetation (COSEWIC, 2005). ESA Protection: Species and general habitat protection	No wetlands or areas of permanent standing water within the study area limits. Study area does not provide connectivity between any isolated wetland units (urban core landscape). Potentially suitable habitat may be associated within the Stouffville Creek riparian corridor and Stouffville Marsh, however these areas are located approximately 200 m and 150 m from the existing limits of Edward Street respectively, and are separated by city parks, residential paved roads, commercial buildings and residential dwellings. As such, there is no expectation that any portion of the study area would function as habitat for the species. No suitable habitat for the species.
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	No Status	Nests primarily in forage crops (<i>e.g.</i> hayfields and pastures) dominated by a variety of species such as clover, Timothy, Kentucky Bluegrass, tall grass, and broadleaved plants. Also occurs in wet prairie, graminoid peatlands, and abandoned fields dominated by tall grasses. Does not generally occupy fields of row crops (<i>e.g.</i> corn, soybeans, wheat) or short-grass prairie. Sensitive to habitat size and has lower reproductive success in small habitat fragments (COSEWIC, 2010a). ESA Protection: Species and general habitat protection	Open areas are regularly maintained and lack the suitable grassland thatch layer required for the species' life processes. No suitable habitat for the species.
Broad Beech Fern	<i>Phygoteris hexagonoptera</i>	SC	SC	Rich soils in deciduous forests, such as Maple-Beech forests (MNRF, 2018). ESA Protection: N/A	Not identified during the vegetation survey.
Butternut	<i>Juglans cinerea</i>	END	END	Commonly found in riparian habitats, but is also found in rich, moist, well-drained loams, and well-drained gravels. Butternut is intolerant of shade (COSEWIC, 2003). ESA Protection: Species and general habitat protection	Not identified during the vegetation survey.
Canada Warbler	<i>Cardellina canadensis</i>	SC	THR	Occupies deciduous and coniferous forests, usually wet types with a well-developed, dense shrub layer (MNRF, 2018). ESA Protection: N/A	No woodlands within the study area. No suitable habitat for the species.
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	Nests primarily in chimneys though some populations (<i>i.e.</i> in rural northern areas) may nest in cavity trees (COSEWIC, 2007c). Recent changes in chimney design may be a significant factor in recent declines in numbers (Cadman <i>et al.</i> , 2007). ESA Protection: Species and general habitat protection	No suitable chimney structures were observed within the study area during the site investigation. One (1) Chimney Swift was heard foraging beyond the study area limits, southeast of the intersection of Main Street and Edward Street. Given this species' foraging habits, it is possible that Chimney Swift are also foraging within the study area.
Common Nighthawk	<i>Chordeiles minor</i>	SC	THR	Open habitats including sand dunes, beaches recently logged/burned over areas, forest clearings, short grass prairies, pastures, open forests, bogs, marshes, lakeshores, gravel roads, mine tailings, quarries, and other open relatively clear areas (COSEWIC, 2007d). ESA Protection: N/A	Foraging habitat for Common Nighthawk may be located over open fields within the study area.
Eastern Meadowlark	<i>Sturnella magna</i>	THR	No status	Most common in grassland, pastures, savannahs, as well as anthropogenic grassland habitats, including hayfields, weedy meadows, young orchards, golf courses, restored surface mines, <i>etc.</i> Occasionally nest in row crop fields such as corn and soybean, but there are considered low-quality habitat. Large tracts of grassland are preferred over smaller fragments and the minimum area required is estimated at 5ha (COSEWIC, 2011a). ESA Protection: Species and general habitat protection	Open areas are regularly maintained and lack the suitable grassland thatch layer required for the species' life processes. No suitable habitat for the species.
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	SC	SC	Found in wetland habitats with both flowing and standing water such as marshes, bogs, fens, ponds, lake shorelines and wet meadows. Most sightings occur near the water's edge (COSEWIC, 2012a). ESA Protection: N/A	No wetlands or areas of permanent standing water within the study area limits. Study area does not provide connectivity between any isolated wetland units (urban core landscape). Potentially suitable habitat may be associated within the Stouffville Creek riparian corridor and Stouffville Marsh, however these areas are located approximately 200 m and 150 m from the existing limits of Edward Street respectively, and are separated by city parks, residential paved roads, commercial buildings and residential dwellings. As such, there is no expectation that any portion of the study area would function as habitat for the species. No suitable habitat for the species.
Eastern Small-footed Myotis	<i>Myotis Llebii</i>	END	END	Generally occurs in mountainous or rocky regions as well as in buildings, on the face of rock bluffs and beneath slabs of rock and stones. Hibernation is typically confined to caves and old mines (Best and Jennings, 1997). ESA Protection: Species and general habitat protection	No mines, caves, etc., with potential to provide hibernation habitat within the study area. Structures adjacent to the study area may provide suitable maternity roosting habitat for the species, particularly older (>50 year) residences where access to attics is possible.
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	THR	THR	Semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances, are preferred nesting habitats (COSEWIC, 2009b). ESA Protection: Species and general habitat protection	No woodlands within the study area. No suitable habitat for the species.
Eastern Wood-pewee	<i>Contopus virens</i>	SC	No status	Mostly in mature and intermediate-age deciduous and mixed forests having an open understory. It is often associated with forests dominated by Sugar Maple and oak. Usually associated with forest clearings and edges within the vicinity of its nest (COSEWIC, 2012c). ESA Protection: N/A	No woodlands within the study area. No suitable habitat for the species.
Grasshopper Sparrow <i>pratensis</i> subspecies	<i>Ammodramus savannarum pratensis</i>	SC	No status	Typically breeds in large human-created grasslands (≥5 ha), such as pastures and hayfields, and natural prairies, such as alvars, characterized by well-drained, often poor soil dominated by low, sparse perennial herbaceous vegetation (COSEWIC, 2013c). ESA Protection: N/A	Open areas are regularly maintained and lack both the size and the suitable grassland thatch layer required for the species' life processes. No suitable habitat for the species.

Table 1: Species at Risk Habitat Summary

AEC17-418 Edward Street Class EA					
Common Name	Species Name	ESA	SARA	Key Habitats Used By Species ¹	Initial Assessment
Least Bittern	<i>Ixobrychus exilis</i>	THR	THR	Breed strictly in marshes of emergents (usually cattails) that have relatively stable water levels and interspersed areas of open water (COSEWIC, 2009a). ESA Protection: Species and general habitat protection	No wetlands within the study area limits. No suitable habitat for the species.
Little Brown Myotis	<i>Myotis lucifugus</i>	END	END	Forests and regularly aging human structures as maternity roost sites. Regularly associated with attics of older buildings and barns for summer maternity roost colonies. Overwintering sites are characteristically mines or caves, but can often include buildings (MNRF, 2014) (COSEWIC, 2013a). ESA Protection: Species and general habitat protection	No mines, caves, etc., with potential to provide hibernation habitat within the study area. No forest or woodland units within the study area with potential to provide maternity roosting habitat. Structures adjacent to the study area may provide suitable maternity roosting habitat for the species, particularly older (>50 year) residences where access to attics is possible.
Monarch	<i>Danaus plexippus</i>	SC	SC	Breeding habitat is confined to sites where milkweeds, the sole food of caterpillars, grow. Milkweeds grow in a variety of environments, including meadows in farmlands, along roadsides and in ditches, open wetlands, dry sandy areas, short and tall grass prairie, river banks, irrigation ditches, arid valleys, and south-facing hills (COSEWIC, 2010b). ESA Protection: N/A	Milkweed (<i>Asclepias spp.</i>) identified within the study area in very limited quantities. Milkweed and other wildflowers within open lawn on the school grounds may provide breeding and nectaring habitat for the species, however would be considered marginal due to a lack of dense meadow cover.
Northern Myotis	<i>Myotis septentrionalis</i>	END	END	Maternity roost sites are generally located within deciduous and mixed forests and focused in snags including loose bark and cavities of trees. Overwintering sites are characteristically mines or caves (COSEWIC, 2013a). ESA Protection: Species and general habitat protection	No mines, caves, etc., with potential to provide hibernation habitat within the study area. No forest or woodland units within the study area with potential to provide maternity roosting habitat.
Northern Map Turtle	<i>Graptemys geographica</i>	SC	SC	Inhabits rivers and lakes where it basks on emergent rocks, banks, logs and fallen trees. Prefer shallow, soft-bottomed aquatic habitats with exposed objects for basking (COSEWIC, 2012b). ESA Protection: N/A	No wetlands or areas of permanent standing water within the study area limits. Study area does not provide connectivity between any isolated wetland units (urban core landscape). Potentially suitable habitat may be associated within Stouffville Marsh, however this area is located approximately 200 m from the existing limits of Edward Street, and is separated by city parks, residential paved roads, and residential dwellings. As such, there is no expectation that any portion of the study area would function as habitat for the species. No suitable habitat for the species.
Peregrine Falcon	<i>Falco peregrinus</i>	SC	SC <i>(anatum/tundrius)</i>	Most nest on cliff ledges or crevices, but some will use tall buildings or bridges near good foraging areas. Nests are typically close to bodies of water (COSEWIC, 2007b). ESA Protection: N/A	No cliff ledges or tall buildings within the study area that could provide suitable habitat for the species.
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	SC	THR	Occurs in open deciduous forests, particularly those dominated by oak and beech, grasslands, forest edges, orchards, pastures along rivers and roads, urban parks, golf courses, cemeteries, beaver ponds and timber stands that have been treated with herbicides (COSEWIC, 2007e).	No woodlands or woodland edges within the study area. Suitable semi-open tree cover preferred by the species not located within the study area. No suitable habitat for the species.
Redside Dace	<i>Clinostomus elongatus</i>	END	SC	Found in pools and slow-flowing sections of relatively small, clear headwater streams with both pool and riffle habitats and a moderate to high gradient. These streams typically flow through meadows, pasture or shrub overstory, and have abundant overhanging riparian vegetation (COSEWIC, 2007a). ESA Protection: Species and general habitat protection.	NHIC records confirm Redside Dace habitat is located within 1 km of the study area. MNRF correspondence, however did not indicate presence/concern related to Redside Dace, therefore it is not expected Redside Dace are associated with the study area or its area of influence. No sutiable habitat for the species within the study area limits.
Snapping Turtle	<i>Chelydra serpentina</i>	SC	SC	Habitat is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Often located in ponds, sloughs, shallow bays or river edges and slow streams, or areas combining several of these wetland habitats (COSEWIC, 2008). ESA Protection: N/A	No wetlands or areas of permanent standing water within the study area limits. Study area does not provide connectivity between any isolated wetland units (urban core landscape). Potentially suitable habitat may be associated within the Stouffville Creek riparian corridor and Stouffville Marsh, however these areas are located approximately 200 m and 150 m from the existing limits of Edward Street respectively, and are separated by city parks, residential paved roads, commercial buildings and residential dwellings. As such, there is no expectation that any portion of the study area would function as habitat for the species. No suitable habitat for the species.
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END	Maternity roost sites include forests and modified landscapes (barns or human-made structures). Overwintering sites include mines and caves (COSEWIC, 2013a). ESA Protection: Species and general habitat protection	No mines, caves, etc., with potential to provide hibernation habitat within the study area. No forest or woodland units within the study area with potential to provide maternity roosting habitat. Structures adjacent to the study area may provide suitable maternity roosting habitat for the species, particularly older (>50 year) residences where access to attics is possible.
Wood Thrush	<i>Hylocichla mustelina</i>	SC	No status	Found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches (COSEWIC, 2012b). ESA Protection: N/A	No woodlands within the study area. No suitable habitat for the species.
Yellow-breasted Chat	<i>Icteria virens</i>	END	SC	Dense riparian shrubland including early shrubby regrowth on abandoned agricultural fields, power-line corridors, clear-cuts, fencerows, forest edges and openings, and areas near streams, ponds and swamps (COSEWIC, 2011c). ESA Protection: Species and general habitat protection	No wetlands within the study area limits. No suitable habitat for the species.

¹ Habitat as outlined within the MNRF's Species at Risk in Ontario website files (<https://www.ontario.ca/environment-and-energy/species-risk-ontario-list>), or Species Specific COSEWIC Reports referenced in this document.

Species at Risk in Ontario List (June 13, 2017)

Best, T., and J. Jennings. 1997. Mammalian Species, *Myotis leibii* . The American Society of Mammalogists. No. 547, pp. 1-6, 5 figs.

Cadman, M., D. Sutherland, G. Beck, D. Lepage and A. Couturier. 2007. Atlas of the Breeding Birds of Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field

COSEWIC 2003. COSEWIC assessment and status report on the Butternut *Juglans cinerea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.

COSEWIC. 2005. COSEWIC assessment and update status report on the Blanding's Turtle *Emydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa.viii +40 pp.

COSEWIC. 2007a. COSEWIC assessment and update status report on the Redside Dace *Clinostomus elongates* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 59 pp.

COSEWIC. 2007b. COSEWIC assessment and status report on the Peregrine Falcon *Falco peregrinus* (*pealei* subspecies - *Falco peregrinus* and *pealei anatum/tundrius* - *Falco peregrinus anatum/tundrius*) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 45 pp.

COSEWIC. 2007c. COSEWIC assessment and update status report on the Chimney Swift *Chaetura pelagic a* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp.

COSEWIC. 2007d. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp.

COSEWIC. 2007e. COSEWIC assessment and status report on the Red-headed Woodpecker *Melanerpes erythrocephalus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.

COSEWIC. 2008. COSEWIC assessment and status report on the Snapping Turtle *Chelydra serpentina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.

COSEWIC. 2009a. COSEWIC assessment and update status report on the Least Bittern *Ixobrychus exilis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 36 pp.

COSEWIC. 2009b. COSEWIC assessment and update status report on the Whip-poor-will *Caprimulgus vociferus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.

COSEWIC. 2010a. COSEWIC assessment and update status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42 pp.

COSEWIC. 2010b. COSEWIC assessment and status report on the Monarch *Danaus plexippus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.

COSEWIC. 2011a. COSEWIC assessment and update status report on the Eastern Meadowlark *Sturnella magna* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.

COSEWIC. 2011b. COSEWIC assessment and update status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.

COSEWIC. 2011c. COSEWIC assessment and update status report on the Yellow-breasted Chat *auricollis* subspecies *Icteria virens auricollis* and the Yellow-breasted Chat *virens* subspecies *Icteria virens virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 51 pp.

COSEWIC. 2012a. COSEWIC assessment and status report on the Eastern Ribbonsnake *Thamnophis sauritus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 39 pp.

COSEWIC. 2012b. COSEWIC assessment and status report on the Northern Map Turtle *Graptemys geographica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 63 pp.

COSEWIC. 2012c. COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.

Table 1: Species at Risk Habitat Summary

Common Name	Species Name	ESA	SARA	Key Habitats Used By Species ¹	Initial Assessment
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COSEWIC. 2012d. COSEWIC assessment and status report on the Wood Thrush *Hylocichla mustelina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.

COSEWIC. 2013a. COSEWIC assessment and update status report on the Little Brown Myotis *Myotis lucifugus* , Northern Myotis *Myotis septentrionalis* and Tri-colored Bat *Perimyotis subfalvus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.

COSEWIC. 2013b. COSEWIC assessment and update status report on the Bank Swallow *Riparia riparia* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.

COSEWIC. 2013c. COSEWIC assessment and status report on the Grasshopper Sparrow pratensis subspecies *Ammodramus savannarum pratensis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 36 pp.

Ministry of Natural Resources and Forestry (MNRF). 2014. Eastern Small-footed Bat. Queen's Printer for Ontario. <https://www.ontario.ca/environment-and-energy/eastern-small-footed-bat>

Ministry of Natural Resources and Forestry (MNRF). 2018. Species at Risk in Ontario. <http://www.ontario.ca/environment-and-energy/species-risk>

Table 2: Vascular Plant List, Edward Street Class EA

Surveyor: D. Stuart

AEC17-418

FAMILY ¹	SCIENTIFIC NAME ¹	COMMON NAME ¹	Vegetation Communities ²	Conservation Rankings ³			Regional ⁴
			M	GRANK	SRANK	TRACK	TRCA
Aceraceae	<i>Acer negundo</i>	Manitoba Maple	X	G5	S5	N	L+?
Aceraceae	<i>Acer platanoides</i>	Norway Maple	X	GNR	SE5	N	--
Aceraceae	<i>Acer saccharinum</i>	Silver Maple	X	G5	S5	N	--
Aceraceae	<i>Acer saccharum</i>	Sugar Maple	X	G5	S5	N	--
Apiaceae	<i>Daucus carota</i>	Wild Carrot	X	GNR	SE5	N	L+
Asclepiadaceae	<i>Asclepias syriaca</i>	Common Milkweed	X	G5	S5	N	L5
Asclepiadaceae	<i>Cynanchum rossicum</i>	European Swallow-wort	X	GNR	SE5	N	L+
Asteraceae	<i>Ambrosia artemisiifolia</i>	Annual Ragweed	X	G5	S5	N	L5
Asteraceae	<i>Arctium minus</i>	Common Burdock	X	GNR	SE5	N	L+
Asteraceae	<i>Cichorium intybus</i>	Chicory	X	GNR	SE5	N	L+
Asteraceae	<i>Cirsium arvense</i>	Canada Thistle	X	GNR	SE5	N	L+
Asteraceae	<i>Cirsium vulgare</i>	Bull Thistle	X	GNR	SE5	N	L+
Asteraceae	<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	X	G5	S5	N	L5
Asteraceae	<i>Lactuca serriola</i>	Prickly Lettuce	X	GNR	SE5	N	L+
Asteraceae	<i>Solidago canadensis</i> var. <i>canadensis</i>	Canada Goldenrod	X	G5T5	S5	N	L5
Asteraceae	<i>Symphyotrichum</i> sp.	an Aster	X	N/A	N/A	N/A	
Asteraceae	<i>Taraxacum officinale</i>	Common Dandelion	X	G5	SE5	N	L+
Asteraceae	<i>Tragopogon dubius</i>	Yellow Goat's-beard	X	GNR	SE5	N	L+
Asteraceae	<i>Tussilago farfara</i>	Colt's-foot	X	GNR	SE5	N	L+
Betulaceae	<i>Betula papyrifera</i>	Paper Birch	X	G5	S5	N	--
Boraginaceae	<i>Cynoglossum officinale</i>	Common Hound's-tongue	X	GNR	SE5	N	L+
Boraginaceae	<i>Myosotis scorpioides</i>	True Forget-me-not	X	G5	SE5	N	L+
Brassicaceae	<i>Barbarea vulgaris</i>	Bitter Wintercress	X	GNR	SE5	N	L+
Caprifoliaceae	<i>Lonicera tatarica</i>	Tartarian Honeysuckle	X	GNR	SE5	N	L+
Caryophyllaceae	<i>Cerastium fontanum</i>	Common Mouse-ear Chickweed	X	GNR	SE5	N	L+

Table 2: Vascular Plant List, Edward Street Class EA

Surveyor: D. Stuart

AEC17-418

FAMILY ¹	SCIENTIFIC NAME ¹	COMMON NAME ¹	Vegetation Communities ²	Conservation Rankings ³			Regional ⁴
			M	GRANK	SRANK	TRACK	TRCA
Chenopodiaceae	<i>Chenopodium album</i>	White Goosefoot	X	G5	SE5	N	L+
Cornaceae	<i>Cornus stolonifera</i>	Red-osier Dogwood	X	G5	S5	N	L5
Cupressaceae	<i>Juniperus virginiana</i>	Eastern Red Cedar	X	G5	S5	N	--
Cupressaceae	<i>Thuja occidentalis</i>	Eastern White Cedar	X	G5	S5	N	--
Equisetaceae	<i>Equisetum arvense</i>	Field Horsetail	X	G5	S5	N	L5
Euphorbiaceae	<i>Euphorbia cyparissias</i>	Cypress Spurge	X	G5	SE5	N	L+
Fabaceae	<i>Gleditsia triacanthos</i>	Honey-locust	X	G5	S2	Y	--
Fabaceae	<i>Gymnocladus dioica</i>	Kentucky Coffee-tree	X	G5	S2	Y	--
Fabaceae	<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	X	GNR	SE5	N	L+
Fabaceae	<i>Medicago lupulina</i>	Black Medic	X	GNR	SE5	N	L+
Fabaceae	<i>Trifolium repens</i>	White Clover	X	GNR	SE5	N	L+
Fabaceae	<i>Vicia cracca</i>	Tufted Vetch	X	GNR	SE5	N	L+
Hippocastanaceae	<i>Aesculus hippocastanum</i>	Horse Chestnut	X	GNR	SE2	N	--
Lamiaceae	<i>Glechoma hederacea</i>	Ground Ivy	X	GNR	SE5	N	L+
Lamiaceae	<i>Nepeta cataria</i>	Catnip	X	GNR	SE5	N	L+
Malvaceae	<i>Malva neglecta</i>	Dwarf Cheeseweed	X	GNR	SE5	N	L+
Moraceae	<i>Morus alba</i>	White Mulberry	X	GNR	SE5	N	--
Oleaceae	<i>Syringa vulgaris</i>	Common Lilac	X	GNR	SE5	N	--
Pinaceae	<i>Picea glauca</i>	White Spruce	X	G5	S5	N	--
Pinaceae	<i>Picea pungens</i>	Blue Spruce	X	G5	SE1	N	--
Pinaceae	<i>Pinus sylvestris</i>	Scotch Pine	X	GNR	SE5	N	--
Plantaginaceae	<i>Plantago lanceolata</i>	English Plantain	X	G5	SE5	N	L+
Plantaginaceae	<i>Plantago major</i>	Common Plantain	X	G5	S5	N	L+
Poaceae	<i>Bromus inermis</i>	Awnless Brome	X	G5TNR	SE5	N	L+
Poaceae	<i>Dactylis glomerata</i>	Orchard Grass	X	GNR	SE5	N	L+

Table 2: Vascular Plant List, Edward Street Class EA

Surveyor: D. Stuart

AEC17-418

FAMILY ¹	SCIENTIFIC NAME ¹	COMMON NAME ¹	Vegetation Communities ²	Conservation Rankings ³			Regional ⁴
			M	GRANK	SRANK	TRACK	TRCA
Poaceae	<i>Phleum pratense</i>	Common Timothy	X	GNR	SE5	N	L+
Poaceae	<i>Poa pratensis ssp. pratensis</i>	Kentucky Bluegrass	X	G5T5	S5	N	L+
Polygonaceae	<i>Fallopia japonica</i>	Japanese Knotweed	X	GNR	SE5	N	L+
Polygonaceae	<i>Rumex crispus</i>	Curly Dock	X	GNR	SE5	N	L+
Rhamnaceae	<i>Rhamnus cathartica</i>	Common Buckthorn	X	GNR	SE5	N	L+
Rosaceae	<i>Crataegus monogyna</i>	English Hawthorn	X	G5	SE4	N	L+
Rosaceae	<i>Fragaria virginiana</i>	Wild Strawberry	X	G5	S5	N	L5
Rosaceae	<i>Geum aleppicum</i>	Yellow Avens	X	G5	S5	N	L5
Rosaceae	<i>Malus pumila</i>	Common Apple	X	G5	SE4	N	--
Rosaceae	<i>Prunus virginiana</i>	Choke Cherry	X	G5	S5	N	
Rosaceae	<i>Rubus occidentalis</i>	Black Raspberry	X	G5	S5	N	L5
Solanaceae	<i>Solanum dulcamara</i>	Climbing Nightshade	X	GNR	SE5	N	L+
Taxaceae	<i>Taxus canadensis</i>	Canadian Yew	X	G5	S4	N	--
Tiliaceae	<i>Tilia cordata</i>	Little-leaf Linden	X	GNR	SE1	N	--
Ulmaceae	<i>Ulmus pumila</i>	Siberian Elm	X	GNR	SE3	N	--
Violaceae	<i>Viola odorata</i>	English Violet	X	GNR	SE2	Y	
Vitaceae	<i>Parthenocissus inserta</i>	Thicket Creeper	X	G5	S5	N	L5
Vitaceae	<i>Vitis riparia</i>	Riverbank Grape	X	G5	S5	Y	

1 Nomenclature based on Ministry of Natural Resources and Forestry (MNR) Natural Heritage Information Centre (NHIC, 2015)

2 ELC Codes based on Ecological Land Classification for Southern Ontario manual (Lee et al. 1998)

3 Conservation Rankings: From Ontario Ministry of Natural Resources, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_.cfm)

4 Regional - Toronto Regional Conservation Authority (TRCA) Flora Species. April 2014 Ranks.

 Indicates ornamental (street landscape) tree



APPENDICES

Appendix A: MNRF and DFO Background and Correspondence

Appendix B: Municipal Background Information

Appendix C: Photographic Record

Appendix D: Edward Street Design Alternatives



APPENDIX A

MNRF and DFO Background and Correspondence

March 6, 2018

AEC 17-418

Ministry of Natural Resources and Forestry
Aurora District
50 Bloomington Road
Aurora, Ontario L4G 0L8

Attn: Assistant Species at Risk Biologist

**RE: Species at Risk Information Request for Edward Street between Main Street
and Millard Street, Town of Whitchurch-Stouffville, Region of York**

Dear Sir/Madam:

Azimuth Environmental Consulting (Azimuth) has been retained to prepare a Natural Heritage Assessment (NHA) as part of a Municipal Class EA for Edward Street (Stouffville) between Main Street and Millard Street in the Town of Whitchurch-Stouffville (see attached map). The purpose of this study is to identify natural heritage features and functions including (but not limited to) vegetation communities, drainage features (if present), and potential habitat of species listed under Ontario's *Endangered Species Act, 2007* (ESA) associated with the potential work area and adjacent lands. The purpose of this letter is to request additional information regarding Species at Risk, fish and fish habitat, and any other sensitive areas associated with the study area, and to request any background information that may be relevant to our study.

EXISTING CONDITIONS

The Town of Whitchurch-Stouffville Official Plan Policy (Stouffville Secondary Plan) identifies the area as a combination of Community Core Area (Main Street and Mixed Use), Activity Node Area, and Existing Residential Area. The Stouffville Secondary Plan Greenland System map illustrates a small segment of "Woodlands" adjacent to Edward Street in the northeast portion of the study area, with associated 30 metre (m) Minimum Protection Zone and 120 m Area of Influence (see attached map). Air photo interpretation indicates that within the study area, current land use is primarily mixed residential and commercial use in the southern portion of the study area, and primarily parkland that comprises open maintained lands in the northern portion of the study area. The mapped woodland feature in the northeast portion of the study area appears to not exist to the extent shown in the Stouffville Secondary Plan, rather this mapped feature appears to derive from clusters of ornamental trees associated with maintained residential



yards. Natural/naturalized woodland is contiguous with these ornamental trees approximately 200 m east of Edward Street, although the dimensions of this feature will require field verification to confirm its limits.

A review of Natural Heritage Information Centre (NHIC) mapping does not depict mapped wetlands, ponds, watercourses, or other water bodies within the study area. The Stouffville Marsh (Evaluated – Other) is located approximately 210 m northeast of Edward Street at its closest point, and Stouffville Creek is located approximately 150 m east of Edward Street at its closest point. As a component of our site investigation (spring 2018), Azimuth will conduct a detailed assessment based on site conditions to confirm whether wetland vegetation communities and/or drainage features are present within the study area limits.

BACKGROUND SAR DATA

A search of the Ontario Breeding Bird Atlas (OBBA) has been completed. Square 17PJ47 was queried and it was determined that SAR bird species have been recorded demonstrating probable or confirmed breeding evidence within the 10 x 10 kilometre (km) data square, including Common Nighthawk (Special Concern), Whip-poor-will (Threatened), Chimney Swift (Threatened), Bank Swallow (Threatened), Barn Swallow (Threatened), Bobolink (Threatened), Eastern Meadowlark (Threatened), Red-headed Woodpecker (Special Concern), Eastern Wood-pewee (Special Concern), Wood Thrush (Special Concern), Canada Warbler (Special Concern), and Grasshopper Sparrow (Special Concern).

Available information from the NHIC indicates that SAR recorded within the 1 km of Edward Street include Redside Dace (Endangered; 1987), which is assumed to have been identified within Stouffville Creek (approximately 150 m east of Edward Street). Butternut (Endangered) has also been identified within 1 km of Edward Street. A search for Butternut (Endangered) will occur during the site investigation.

If the District's files contain additional or contradictory information, we would appreciate your input at this time. It is generally our intention to append this correspondence in the resulting NHA. If any "Restricted" species occur in the area and the MNRF determines that restricted species need to be considered in our review, please provide two copies of the response - one with the species name replaced with (Restricted Species) for inclusion in within Azimuth's NHA, and the other retaining the identity of the species for Azimuth's internal use only.



Thank you very much for your assistance in this matter. If you have any questions regarding this project please do not hesitate to contact us.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Daniel Stuart, H.B.Sc.
Terrestrial Ecologist

Attach: 17-418 Aurora MNR Information Request Form
17-418 Study Area
17-418 Stouffville Secondary Plan Schedule F3 (Greenland System)
17-418 Ontario Breeding Bird Atlas Data Summary (17PJ47)

Aurora MNR Information Request Form

Name:	
Company Name:	
Proponent Name:	
Phone Number:	
Email Address:	
Project Name:	
Property Location (address):	
Township (Geographic):	
Lot & Concession:	
UTM Coordinates:	
Brief Description of Undertaking	

Have you previously contacted someone at MNR for information on this site? ☐ Yes ☐ No

If yes, when and
who?

Provide a map of accurate scale to illustrate footprint/study area of the proposed activity in relation to the surrounding landscape (e.g. property boundaries, roads, waterbodies, natural features, towns, transmission corridors, and other human landmarks). Use of aerial photography is strongly encouraged. Include scale, north arrow and legend.

ATTACHMENTS - I have attached a:

☐ Picture

☐ Map

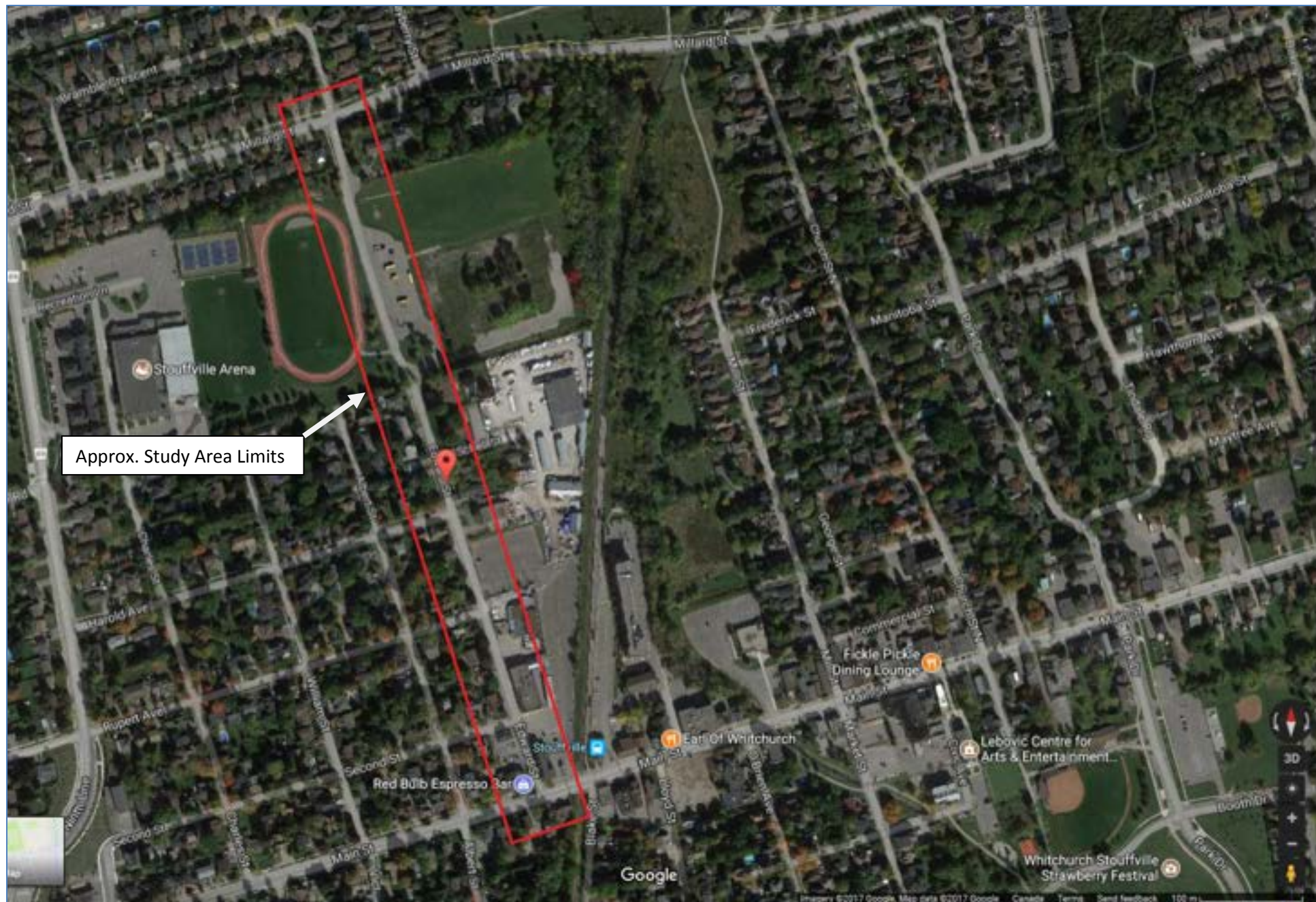
☐ Other

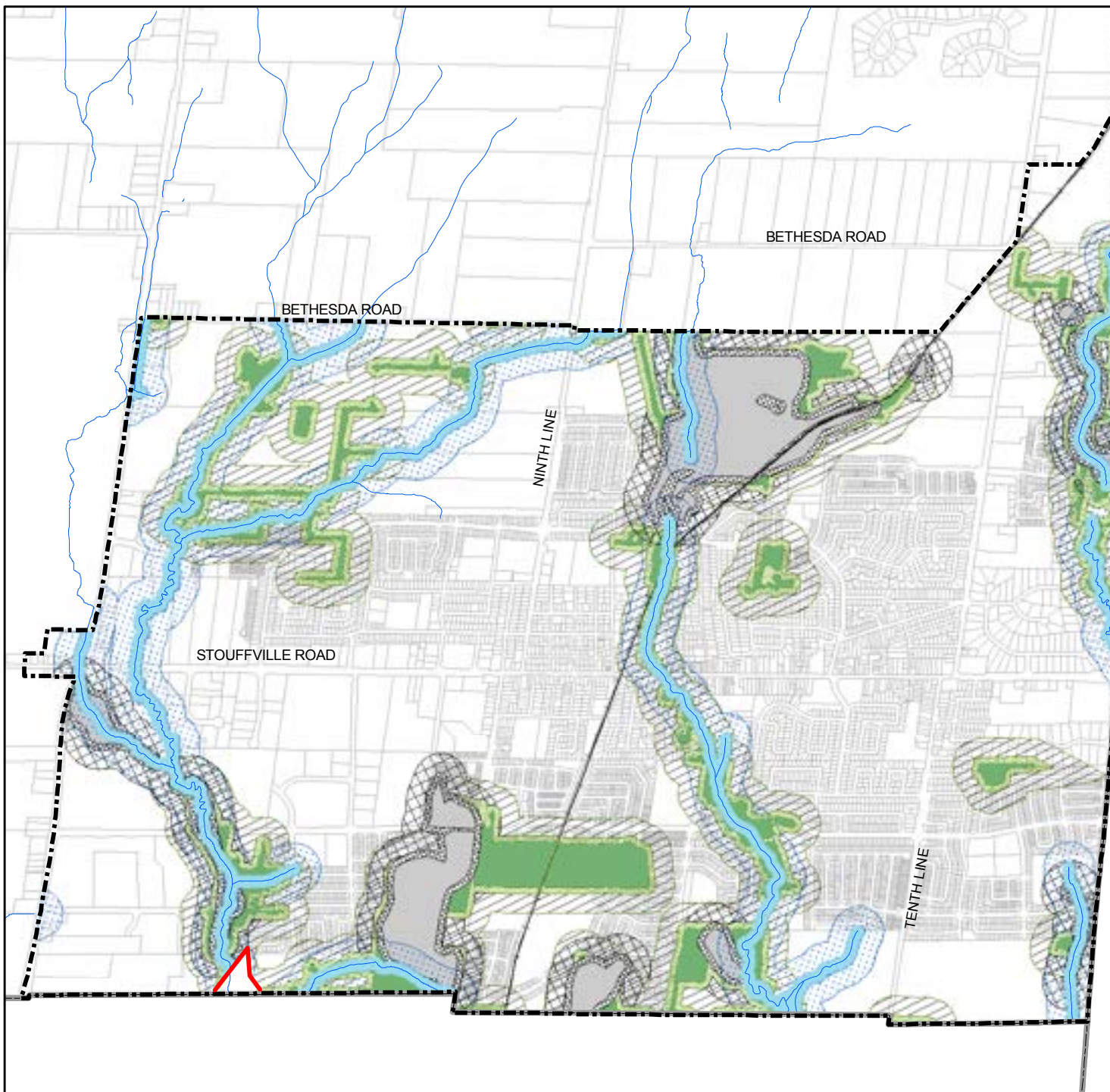
REQUEST - I would like to request the following information for the property identified above:

- | | |
|--|--|
| ☐ Fish Dot Information
(fish and other aquatic species found in a particular area of
a watercourse) | ☐ ANSI Mapping (hard copy) and/or check- sheet - please
provide name of ANSI if known) |
| ☐ Wetland Mapping (hard copy) and/or evaluation and data
record - please provide name of wetland if known) | ☐ Nesting Sites ☐ Species at Risk |

Please forward the completed form to: esa.aurora@ontario.ca

Or send by mail:
Attn: Assistant Species at Risk Biologist
Aurora District, Ministry of Natural Resources
50 Bloomington Rd Aurora, ON L4G 0L8





Legend

-  SECONDARY PLAN AREA BOUNDARY
-  LAKES & WATERCOURSES
-  WETLANDS
-  WETLANDS 30m MINIMUM VEGETATION PROTECTION ZONE
-  WETLANDS 120m AREA OF INFLUENCE
-  WOODLANDS
-  WOODLANDS 30m MINIMUM VEGETATION PROTECTION ZONE
-  WOODLANDS 120m AREA OF INFLUENCE
-  STREAMS
-  STREAMS 30m MINIMUM VEGETATION PROTECTION ZONE
-  STREAMS 120m AREA OF INFLUENCE
-  OAK RIDGES MORaine BOUNDARY

TOWN OF
WHITCHURCH - STOUFFVILLE
OFFICIAL PLAN

Schedule "F-3"

Greenland System



0 0.15 0.3 0.6 0.9 1.2
km

JULY 31, 2007

Square Summary (17PJ47)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
10	28	68	106	22	46	47	115	86	47	25	5

Region summary (#46: Durham)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
27	26	27	168	175	1103	675

Target number of point counts in this square: 20 road side, 5 off road (2 in deciduous forest, 1 in coniferous forest, 1 in mixed forest, 1 in rock outcrops and quarries). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose	NY	FY	96	100
Mute Swan			15	37
Trumpeter Swan †		H	0	25
Wood Duck	FY	T	80	92
Gadwall			38	40
American Wigeon			23	18
American Black Duck	FY		57	25
Mallard	NY	FY	100	100
Blue-winged Teal	FY		88	48
Northern Shoveler			11	22
Northern Pintail			15	18
Green-winged Teal			0	22
Redhead †			0	7
Hooded Merganser		H	7	37
Common Merganser			15	18
Red-breast Merganser ‡			3	0
Ruddy Duck †			7	14
Ring-necked Pheasant	T	H	61	40
Ruffed Grouse	FY	FY	96	96
Wild Turkey		FY	0	77
Northern Bobwhite †			0	3
Common Loon ‡			19	14
Pied-billed Grebe	P		46	33

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black-crown N.-Heron † §			15	3
Turkey Vulture	T	H	57	88
Osprey	H	H	34	37
Bald Eagle †			0	0
Northern Harrier	NY	T	96	92
Sharp-shinned Hawk	NY	H	61	92
Cooper's Hawk		AE	34	74
Northern Goshawk ‡	NY	NY	34	48
Red-should Hawk †	S		65	51
Broad-winged Hawk		P	65	81
Red-tailed Hawk	CF	H	100	100
American Kestrel	CF	CF	100	96
Merlin ‡			0	7
Yellow Rail †			3	0
Virginia Rail	T	S	73	74
Sora	T	T	69	51
Common Moorhen		FY	46	40
American Coot			30	25
Coot/Moorhen			0	3
Sandhill Crane ‡			0	3
Killdeer	NY	FY	100	96
Rock Dove	FY	P	100	100
Spotted Sandpiper	DD	A	100	88

SPECIES	Code		%	
	1st	2nd	1st	2nd
Herring Gull ‡§			23	11
Lesser Black-backed Gull †			0	0
Great Black-backed Gull †			0	0
Caspian Tern †			0	3
Black Tern † §			57	25
Common Tern §			19	18
Forster's Tern † §			0	0
Mourning Dove	CF	P	100	100
Yellow-billed Cuckoo	T	P	38	37
Black/Yell-billed Cuckoo			0	33
Black-billed Cuckoo	A	P	96	81
Barn Owl †			0	0
Eastern Screech-Owl		FY	53	85
Great Horned Owl	T	NY	100	92
Barred Owl			26	29
Long-eared Owl ‡		S	34	11
Short-eared Owl †			0	3
North Saw-whet Owl			7	11
Common Nighthawk	T		61	33
Whip-poor-will	T		46	25
Chimney Swift	T	H	76	62
Ruby-thr Hummingbird	T	H	96	96
Belted Kingfisher	CF	T	100	100

Double-crest Cormorant ‡§			3	0	Upland Sandpiper			73	33	Red-headed Woodpecker †	AE		80	51
American Bittern	H		46	44	Common Snipe	T	T	65	70	Red-bell Woodpecker			11	18
Least Bittern †			38	33	American Woodcock	T	FY	80	88	Yellow-bellied Sapsucker		S	61	51
Great Blue Heron §	H	H	100	55	Wilson's Phalarope †			0	3	Downy Woodpecker	CF	T	100	96
Great Egret †			0	0	Little Gull †			3	0	Hairy Woodpecker	T	NY	96	96
Green Heron ‡§	FY	T	92	96	Ring-billed Gull ‡§			3	7	Northern Flicker	CF	NY	100	100

Ontario Breeding Bird Atlas - Summary Sheet for Square 17PJ47 (page 2 of 3)

SPECIES	Code		%		SPECIES	Code		%		SPECIES	Code		%	
	1st	2nd	1st	2nd		1st	2nd	1st	2nd		1st	2nd	1st	2nd
Pileated Woodpecker	AE	H	88	92	Carolina Wren			3	25	Black-thr Blue Warbler			0	44
Olive-sided Flycatcher ‡			7	0	House Wren	CF	A	100	100	Yellow-rumped Warbler		A	57	70
Eastern Wood-Pewee	CF	T	100	96	Winter Wren	S	FY	84	85	Black-thr Green Warbler		T	38	88
Alder Flycatcher	S	T	84	92	Sedge Wren ‡			15	22	Blackburnian Warbler			34	29
Willow Flycatcher	P	S	80	81	Marsh Wren			34	40	Pine Warbler	T	CF	26	85
Least Flycatcher	CF	S	96	92	Golden-crown Kinglet		T	23	62	Cerulean Warbler †			7	3
Eastern Phoebe	NY	NY	96	96	Ruby-crown Kinglet			11	0	Black-white Warbler	H	CF	84	92
Gr Crested Flycatcher	FY	AE	100	100	Blue-gr Gnatcatcher			26	48	American Redstart	A	FS	96	92
Eastern Kingbird	NY	AE	100	100	Eastern Bluebird	CF	AE	57	81	Ovenbird	NE	CF	100	96
Loggerhead Shrike †			11	0	Veery	CF	FY	100	96	North Waterthrush	CF	FY	92	92
White-eyed Vireo †			3	0	Swainson's Thrush ‡			3	0	Louis Waterthrush †			0	7
Yellow-throated Vireo			11	7	Hermit Thrush		T	23	55	Mourning Warbler	A	T	80	96
Blue-headed Vireo			15	37	Wood Thrush	FY	A	96	96	Common Yellowthroat	CF	DD	100	100
Warbling Vireo	CF	T	100	96	American Robin	NY	NY	100	100	Canada Warbler	CF	CF	46	44
Red-eyed Vireo	FY	A	100	96	Gray Catbird	FY	CF	100	100	Eastern Towhee	T	A	69	70
Blue Jay	CF	CF	100	96	Northern Mockingbird		FY	7	51	Chipping Sparrow	CF	CF	100	96
American Crow	FY	FY	100	100	Brown Thrasher	CF	T	100	100	Clay-colored Sparrow			46	55
Horned Lark	FY	D	100	92	European Starling	CF	NY	100	100	Field Sparrow	CF	FY	92	92
Purple Martin	H	H	80	37	Cedar Waxwing	CF	P	100	100	Vesper Sparrow	NE	A	100	85
Tree Swallow	NY	FY	100	100	Blue-winged Warbler		S	15	40	Savannah Sparrow	CF	A	100	100

North Rgh-wing Swallow	T	H	92	88
Bank Swallow ‡§	AE	AE	100	96
Cliff Swallow ‡§	NY	AE	80	77
Barn Swallow	NY	NY	100	100
Black-capped Chickadee	NY	CF	100	100
Tufted Titmouse †			0	0
Red-breast Nuthatch	P	A	65	85
White-breast Nuthatch	N	P	88	96
Brown Creeper	N	T	73	66

Golden-winged Warbler	H	S	38	25
Blue/Gold-wing Warbler			0	11
Lawrence's Warbler †			0	0
Brewster's Warbler †			3	11
Nashville Warbler	NY	FY	84	74
Northern Parula			3	3
Yellow Warbler	CF	NU	100	100
Chestn-sided Warbler	S	S	76	88
Magnolia Warbler		T	19	66

Grasshopper Sparrow	NE	S	76	66
Henslow's Sparrow †			0	0
Song Sparrow	CF	AE	100	100
Swamp Sparrow	CF	A	84	100
White-throat Sparrow	P	FY	100	85
Dark-eyed Junco			15	3
Summer Tanager ‡			0	0
Scarlet Tanager	T	A	69	74
Northern Cardinal	T	A	96	96

Ontario Breeding Bird Atlas - Summary Sheet for Square 17PJ47 (page 3 of 3)

SPECIES	Code		%	
	1st	2nd	1st	2nd
Rose-breast Grosbeak	FY	T	100	96
Indigo Bunting	CF	NE	96	100
Dickcissel †			0	0
Bobolink	NY	T	100	100
Red-wing Blackbird	NY	CF	100	100
Eastern Meadowlark	FY	T	100	100
Western Meadowlark ‡			3	0
Brewer's Blackbird ‡			0	0
Common Grackle	CF	NY	100	100
Brown-head Cowbird	NY	P	100	96
Orchard Oriole			15	37
Baltimore Oriole	CF	A	100	100
Purple Finch	T	T	57	66
House Finch		P	26	96
Red Crossbill ‡			11	3
White-winged Crossbill ‡			3	3
Pine Siskin			26	11

American Goldfinch	CF	P	100	100
Evening Grosbeak			11	7
House Sparrow	CF	P	100	96

This list includes all species found during the Ontario Breeding Bird Atlas (1st atlas: 1981-1985, 2nd atlas: 2001-2005) in the region #46 (Durham). Underlined species are those that you should try to add to this square. They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. In the species table, "BE 2nd" and "BE 1st" are the codes for the highest breeding evidence for that species in square 17PJ47 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #46). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), or † (provincially rare). Current as of 5/03/2018. An up-to-date version of this sheet is available from <http://www.birdsontario.org/atlas/summaryform.jsp?squareID=17PJ47>

Special Concern

Threatened

Endangered

May 25, 2018

Dan Stuart
Terrestrial Ecologist
Azimuth Environmental Consulting, Inc
642 Welham Road
Barrie, ON, L4N 9A1
dstuart@azimuthenvironmental.com

**Re: Request for Information for Edward Street Environmental Assessment, Town of
Whitchurch-Stouffville, Regional Municipality of York**

Dear Mr. Stuart,

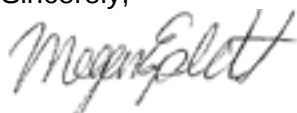
In your email dated March 6, 2018 you requested information on Species at Risk and rare species occurring on or adjacent to the above mentioned location. MNRF does not have records of species at risk within your study area.

Absence of information provided by MNRF for a given geographic area, or lack of current information for a given area or element, does not categorically mean the absence of sensitive species or features. Many areas in Ontario have never been surveyed and new plant and animal species records are still being discovered for many localities. For these reasons, the MNRF cannot provide a definitive statement on the presence, absence or condition of biological elements in any part of Ontario. If development or site alteration is proposed, surveys by a qualified professional may need to be undertaken in the future to confirm presence or absence of sensitive species or features.

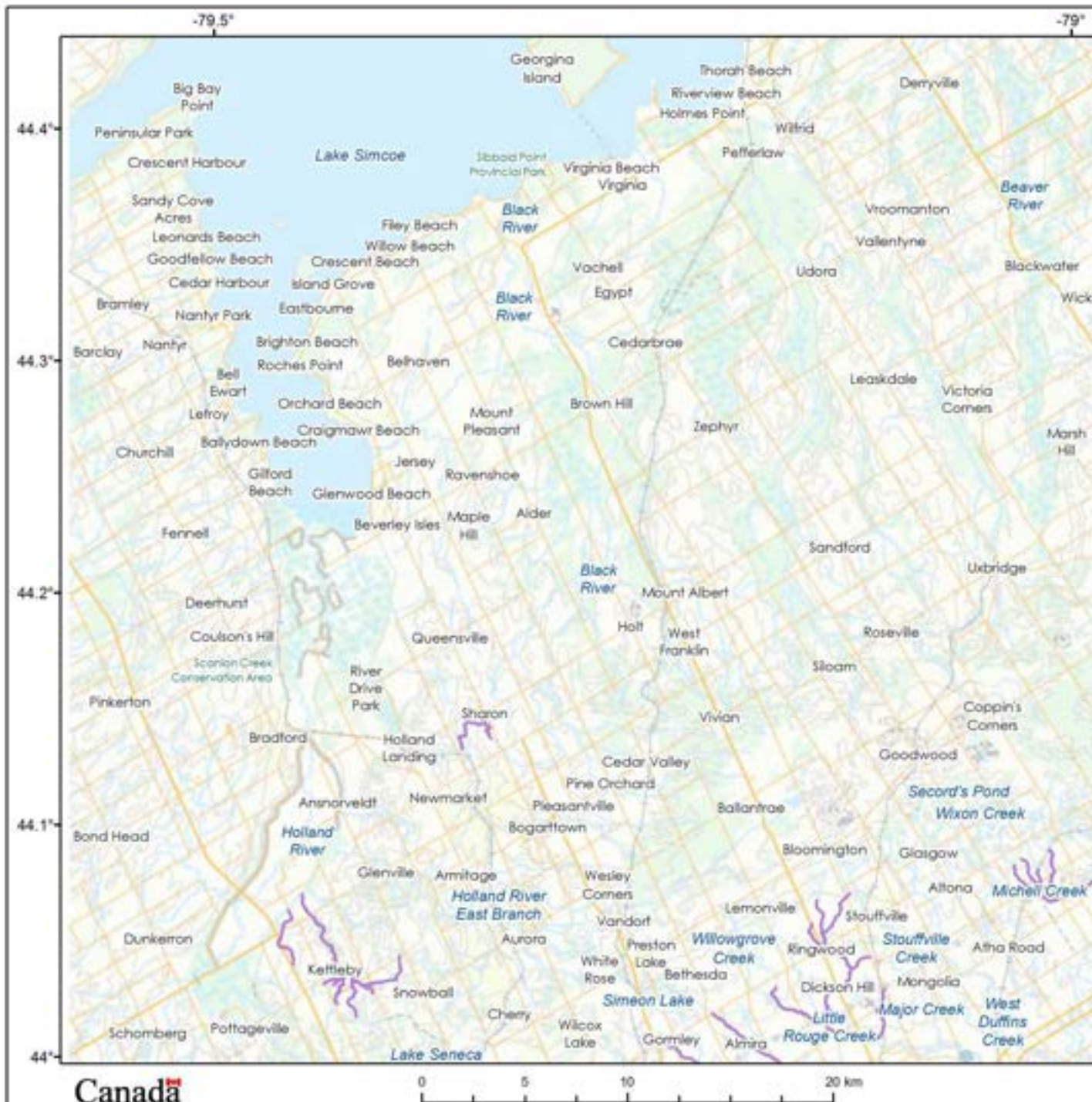
This Species at Risk information is highly sensitive and is not intended for any person or project unrelated to this undertaking. Please do not include any specific information in reports that will be available for public record. As you complete your fieldwork in these areas, please report all information related to any Species at Risk to our office. This will assist with updating our database and facilitate early consultation regarding your project.

If you have any questions or comments, please do not hesitate to contact
ESA.aurora@ontario.ca.

Sincerely,



Megan Eplett
Management Biologist
Ontario Ministry of Natural Resources and Forestry, Aurora District



Ontario South West

Map 5 of 34

Area within which Critical Habitat is found for one or more aquatic species listed under SARA as:

Extirpated, Endangered, or Threatened

Area within which one or more species listed under SARA may be found:

Extirpated, Endangered, or Threatened

Special Concern

The map and table (below) are intended to provide a general overview of aquatic species at risk that may occur within the mapped area and may be used as a screening tool by proponents considering activities in these areas.

The official source of information is the Species at Risk Public Registry www.sararegistry.gc.ca

Ontario South West



Map produced July 2017

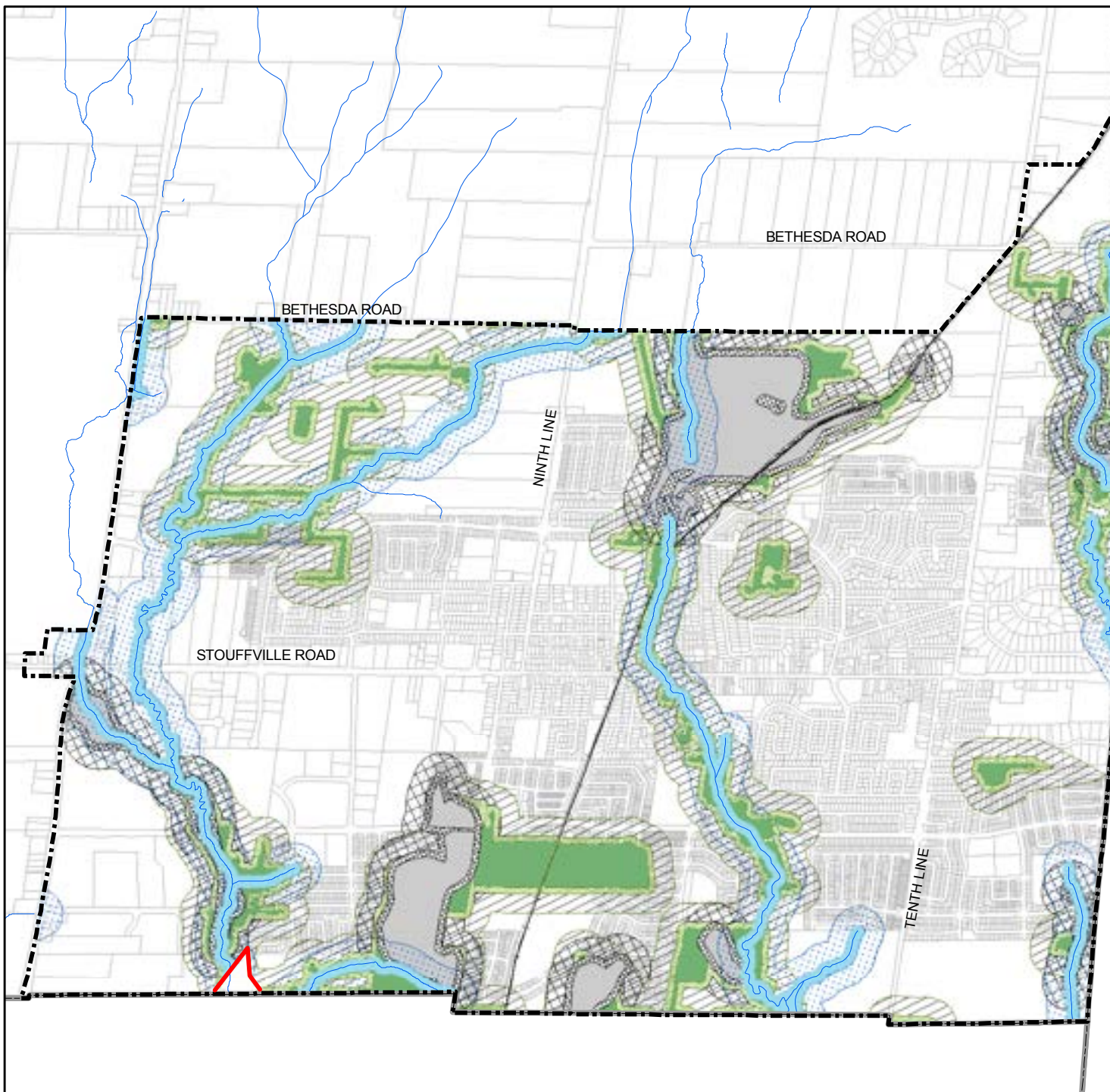


Fisheries and Oceans Canada / Pêches et Océans Canada



APPENDIX B

Municipal Background Information



Legend

-  SECONDARY PLAN AREA BOUNDARY
-  LAKES & WATERCOURSES
-  WETLANDS
-  WETLANDS 30m MINIMUM VEGETATION PROTECTION ZONE
-  WETLANDS 120m AREA OF INFLUENCE
-  WOODLANDS
-  WOODLANDS 30m MINIMUM VEGETATION PROTECTION ZONE
-  WOODLANDS 120m AREA OF INFLUENCE
-  STREAMS
-  STREAMS 30m MINIMUM VEGETATION PROTECTION ZONE
-  STREAMS 120m AREA OF INFLUENCE
-  OAK RIDGES MORaine BOUNDARY

TOWN OF
WHITCHURCH - STOUFFVILLE
OFFICIAL PLAN

Schedule "F-3"

Greenland System



0 0.15 0.3 0.6 0.9 1.2
km

JULY 31, 2007



APPENDIX C

Photographic Record



Municipal drainage ditch, E side Edward St. – May 30, 2018



Collapsed CSP, W side Edward St. – May 30, 2018



Grassed swale leading to CSP, W side Edward St. – May 30, 2018



CSP beneath Edward St., E outlet – May 30, 2018



Drainage channel from study area limit, facing E – May 30, 2018



E study area limit, facing N along Bramble Cres. – May 30, 2018



Mapped “Woodland” not present; residential area – May 30, 2018

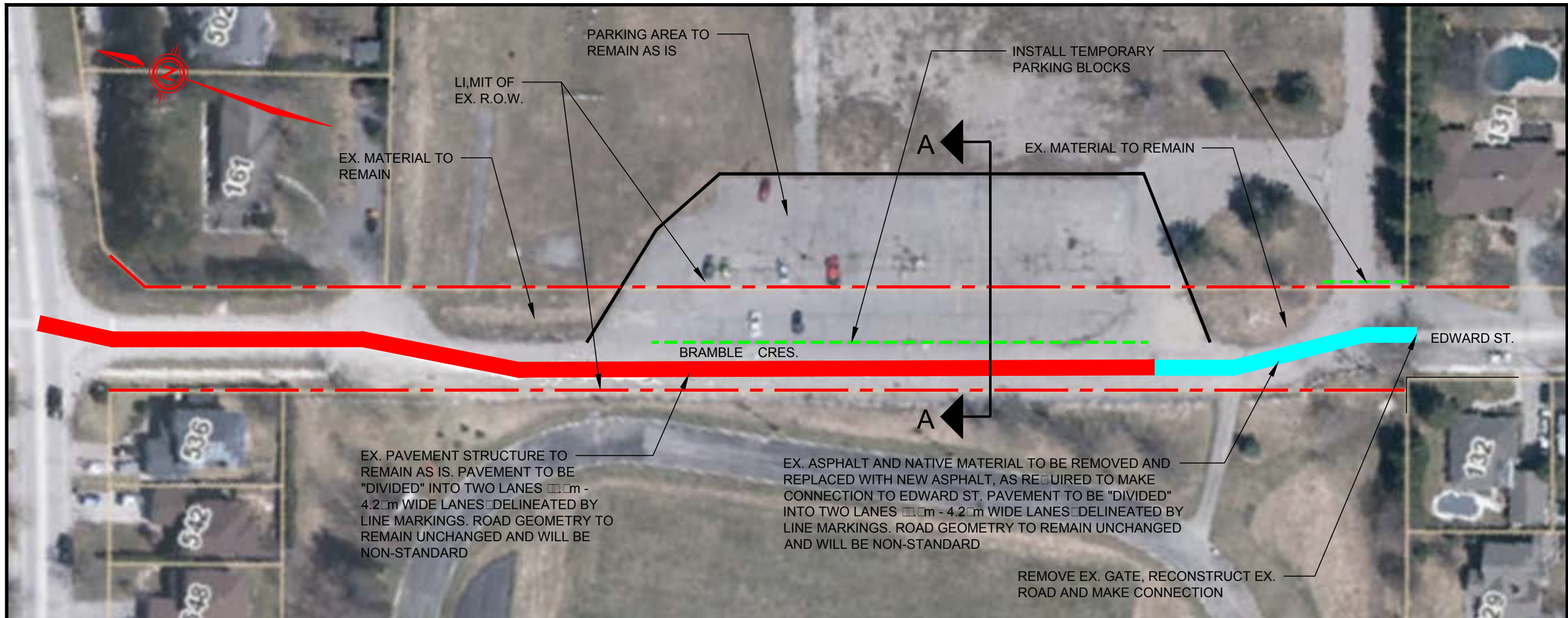


W study area limit, facing S along Bramble Cres. – May 30, 2018



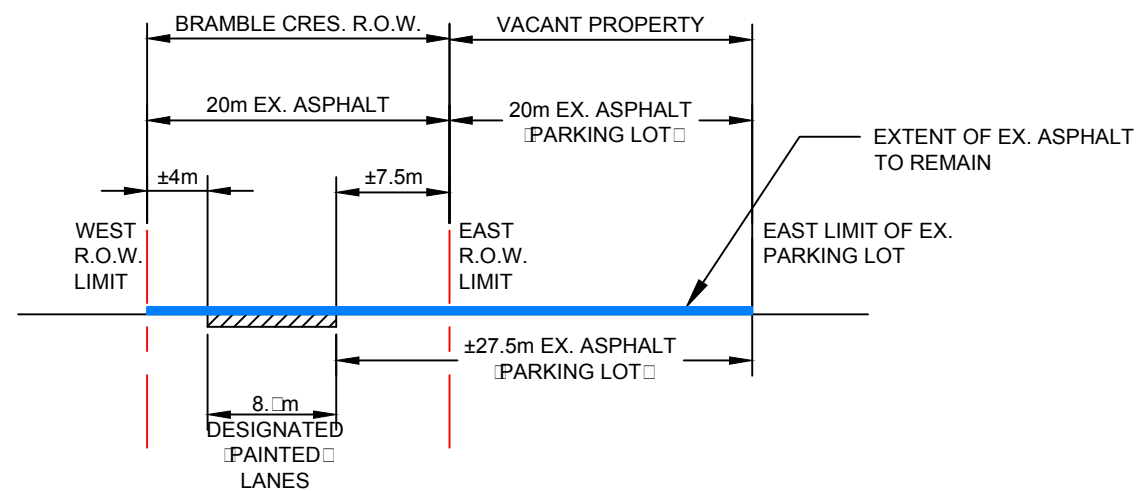
APPENDIX D

Edward Street Design Alternatives



PLAN

1:700



SECTION A-A
N.T.S.

MAINTAIN EXISTING CONDITIONS INCLUDES:

- MINIMAL ROAD RECONSTRUCTION (SOUTH END ONLY)
- UTILIZES EXISTING PAVEMENT
- NON-STANDARD PAVEMENT GEOMETRY
- LANES DELINEATED BY LINE MARKINGS
- NO CURB
- NO SIDEWALK
- NO STORM SEWER
- NO BOULEVARDS
- NO STREET LIGHTING

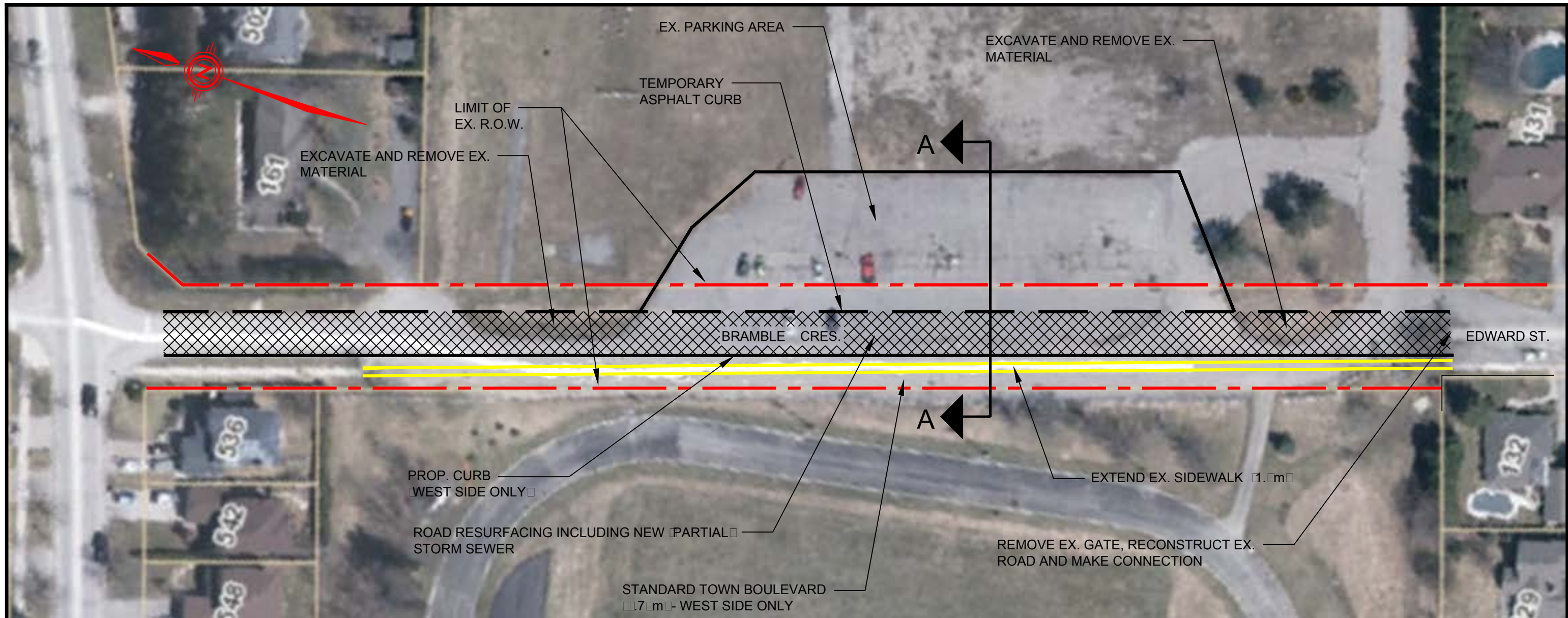
Attachment 3



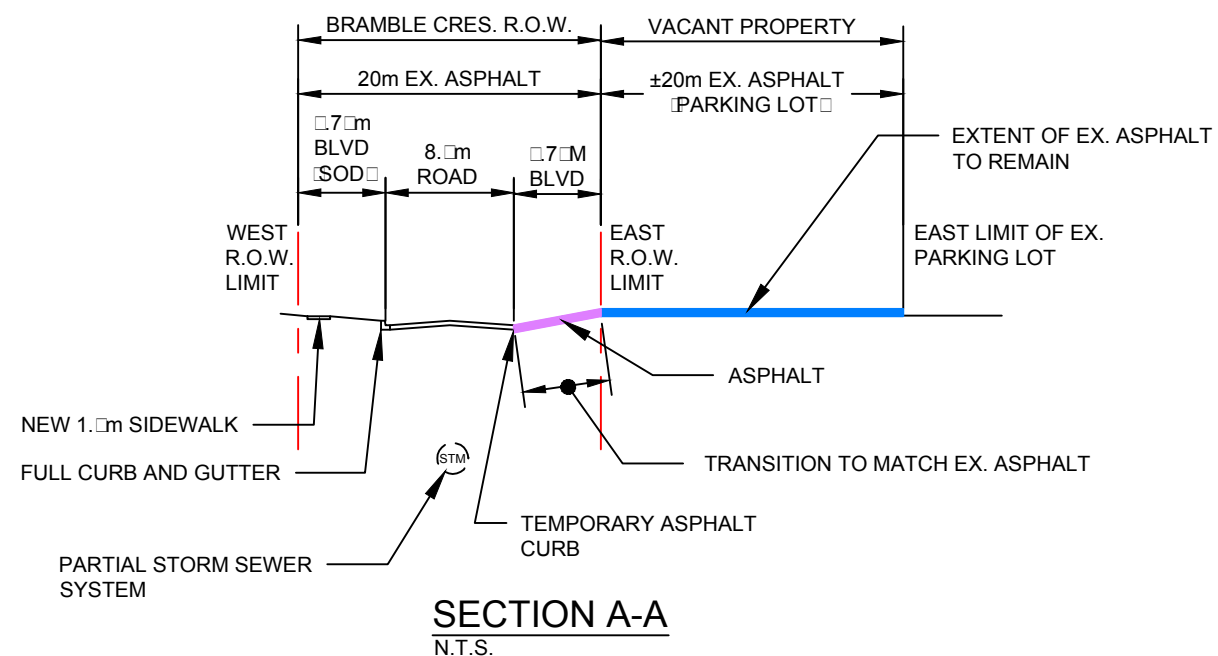
TOWN OF WHITCHURCH STOUFFVILLE

OPTION 1 - MAINTAIN EX. CONDITIONS WITH MINIMAL MODIFICATIONS

CHECKED J.C.B.	DATE SEP. 24-10	PROJ. No. 14002
DRAWN M.J.G.	SCALE AS NOTED	FIGURE No. OPT-1



PLAN
1:70



PARTIAL URBANIZATION INCLUDES:

- ROAD RESURFACING AND LOCALIZED RECONSTRUCTION
- FULL LENGTH CURB
- FULL LENGTH SIDEWALK (WEST SIDE ONLY)
- NEW (PARTIAL) STORM SEWER
- STANDARD (GRADED) BOULEVARD (WEST SIDE ONLY)
- STREET LIGHTING (WEST SIDE ONLY)

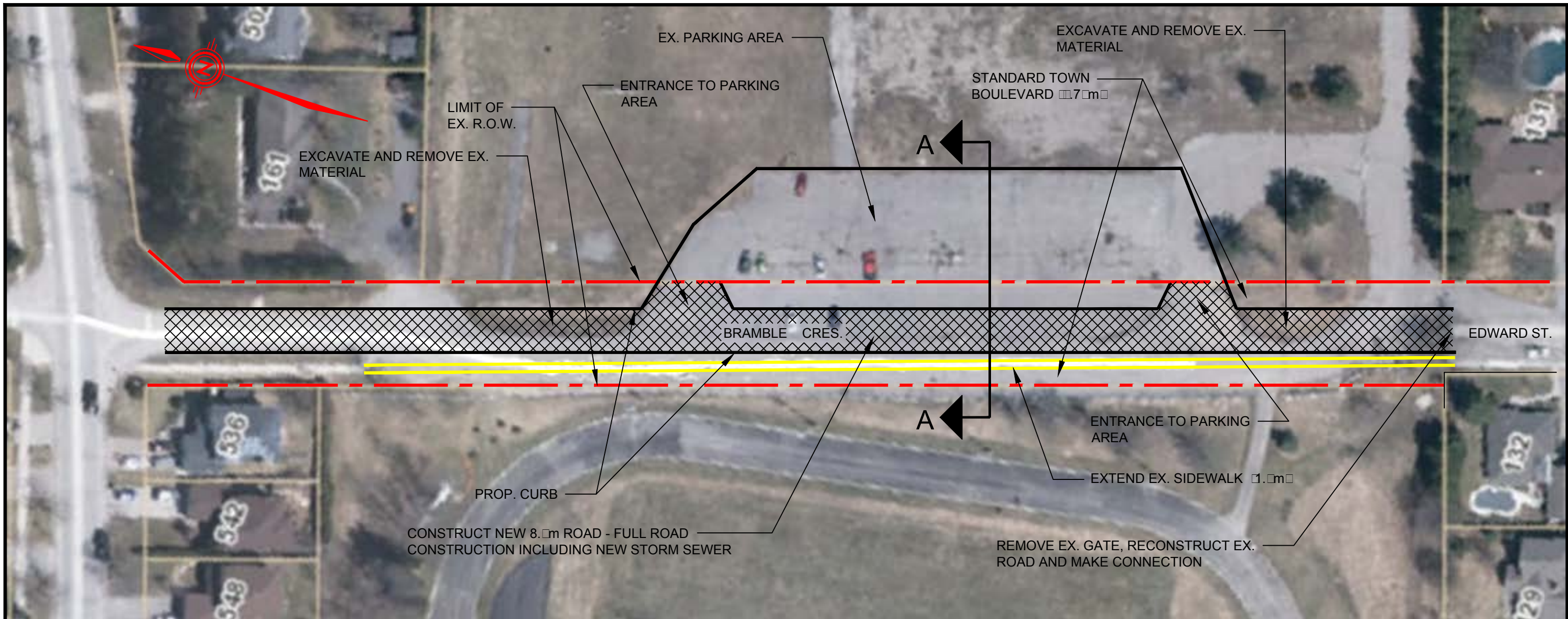
Attachment 3



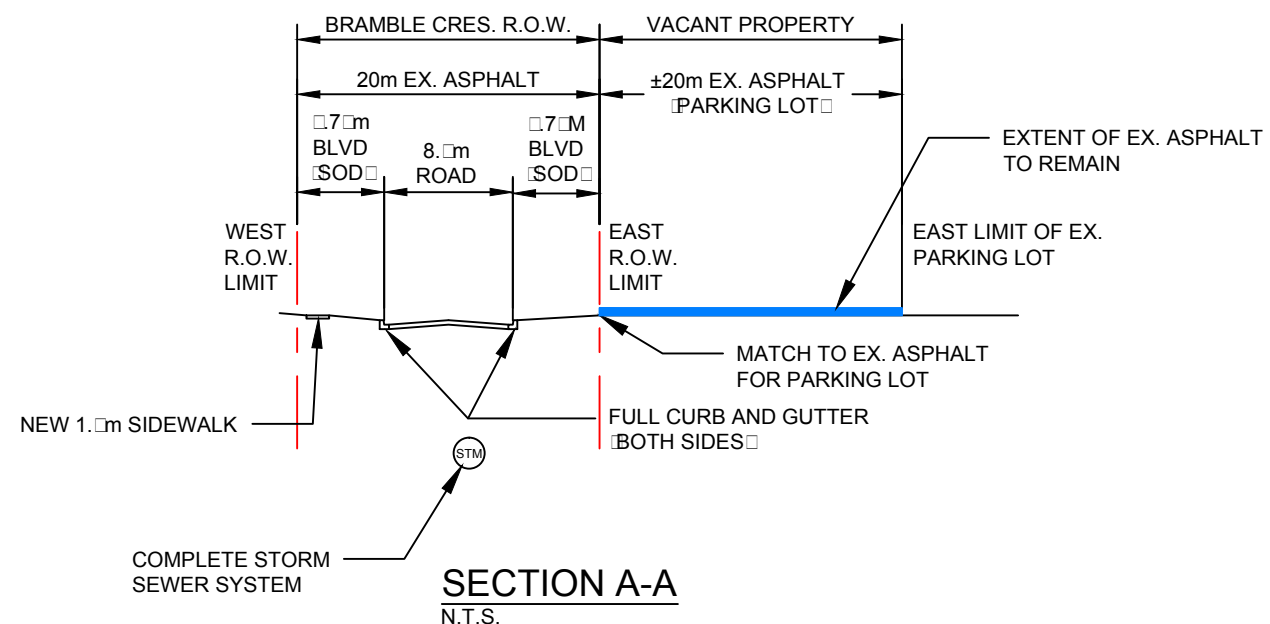
TOWN OF WHITCHURCH STOUFFVILLE

OPTION 2 - PARTIAL URBANIZATION

CHECKED J.C.B.	DATE SEP. 24-10	PROJ. No. 14002
DRAWN M.J.G.	SCALE AS NOTED	FIGURE No. OPT2



PLAN
1:700



FULL URBANIZATION INCLUDES:

- FULL ROAD RECONSTRUCTION
- FULL LENGTH CURB BOTH SIDES
- FULL LENGTH SIDEWALK WEST SIDE ONLY
- NEW STORM SEWER
- STANDARD GRADED BOULEVARDS
- STREET LIGHTING WEST SIDE ONLY

Attachment 3



TOWN OF WHITCHURCH STOUFFVILLE

OPTION - FULL URBANIZATION

CHECKED J.C.B.	DATE SEP. 24-10	PROJ. No. 14002
DRAWN M.J.G.	SCALE AS NOTED	FIGURE No. OPT-1

Appendix D

MTCS Built Heritage Checklist

Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

A Checklist for the Non-Specialist

The purpose of the checklist is to determine:

- if a property(ies) or project area:
 - is a recognized heritage property
 - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
 - the main project area
 - temporary storage
 - staging and working areas
 - temporary roads and detours

Processes covered under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

Cultural Heritage Evaluation Report (CHER)

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

Other checklists

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

Project or Property Name

Edward Street Improvements Class Environmental Assessment Schedule 'C'

Project or Property Location (upper and lower or single tier municipality)

Town of Whitchurch-Stouffville

Proponent Name

Tim Hayward

Proponent Contact Information

Screening Questions

- | | | |
|--|--------------------------|-------------------------------------|
| | Yes | No |
| 1. Is there a pre-approved screening checklist, methodology or process in place? | ☐ | ☒ |

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

- | | | |
|--|--------------------------|-------------------------------------|
| | Yes | No |
| 2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value? | ☐ | ☒ |

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

- | | | |
|---|--------------------------|-------------------------------------|
| | Yes | No |
| 3. Is the property (or project area): | | |
| a. identified, designated or otherwise protected under the <i>Ontario Heritage Act</i> as being of cultural heritage value? | ☐ | ☒ |
| b. a National Historic Site (or part of)? | ☐ | ☒ |
| c. designated under the <i>Heritage Railway Stations Protection Act</i> ? | ☐ | ☒ |
| d. designated under the <i>Heritage Lighthouse Protection Act</i> ? | ☐ | ☒ |
| e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)? | ☐ | ☒ |
| f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site? | ☐ | ☒ |

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	☐	☒
b. has or is adjacent to a known burial site and/or cemetery?	☐	☒
c. is in a Canadian Heritage River watershed?	☐	☒
d. contains buildings or structures that are 40 or more years old?	☒	☐

Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	☐	☒
b. has a special association with a community, person or historical event?	☐	☒
c. contains or is part of a cultural heritage landscape?	☐	☒

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act*, *Planning Act* processes
- maintained by the property owner, proponent or approval authority

Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
 - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport's [Ontario Heritage Toolkit](#) or [Standards and Guidelines for Conservation of Provincial Heritage Properties](#).

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government's [Standards & Guidelines for Conservation of Provincial Heritage Properties](#) [s.B.2.]

Part A: Screening for known (or recognized) Cultural Heritage Value

2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?

Respond 'yes' to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

Note: Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

3a. Is the property (or project area) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value e.g.:

i. designated under the *Ontario Heritage Act*

- individual designation (Part IV)
- part of a heritage conservation district (Part V)

Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note:** To date, no properties have been designated by the Minister.

Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
- [Ontario Heritage Trust](#)
- local land registry office (for a title search)

ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- [Ontario Heritage Trust](#) - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
- municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
- local land registry office (for a title search)

iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
- municipal heritage planning staff
- municipal heritage committee

iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act*. **Note:** To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
- [Ontario Heritage Trust](#)

- v. included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at registrar@ontario.ca.

3b. Is the property (or project area) a National Historic Site (or part of)?

National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the *Canada National Parks Act*, based on the advice of the Historic Sites and Monuments Board of Canada.

For more information, see the [National Historic Sites website](#).

3c. Is the property (or project area) designated under the *Heritage Railway Stations Protection Act*?

The *Heritage Railway Stations Protection Act* protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.

For more information, see the [Directory of Designated Heritage Railway Stations](#).

3d. Is the property (or project area) designated under the *Heritage Lighthouse Protection Act*?

The *Heritage Lighthouse Protection Act* helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.

For more information, see the [Heritage Lighthouses of Canada website](#).

3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?

The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.

For more information, contact the [Federal Heritage Buildings Review Office](#).

See a [directory of all federal heritage designations](#).

3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?

A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.

Currently, the Rideau Canal is the only World Heritage Site in Ontario.

For more information, see Parks Canada – [World Heritage Site website](#).

Part B: Screening for potential Cultural Heritage Value

4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?

Heritage resources are often recognized with formal plaques or markers.

Plaques are prepared by:

- municipalities
- provincial ministries or agencies
- federal ministries or agencies
- local non-government or non-profit organizations

For more information, contact:

- [municipal heritage committees](#) or local heritage organizations – for information on the location of plaques in their community
- Ontario Historical Society's [Heritage directory](#) – for a list of historical societies and heritage organizations
- Ontario Heritage Trust – for a [list of plaques](#) commemorating Ontario's history
- Historic Sites and Monuments Board of Canada – for a [list of plaques](#) commemorating Canada's history

4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulations, Ontario Ministry of Consumer Services – for a [database of registered cemeteries](#)
- Ontario Genealogical Society (OGS) – to [locate records of Ontario cemeteries](#), both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to [locate early cemeteries](#)

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the [Canadian Heritage River System](#).

If you have questions regarding the boundaries of a watershed, please contact:

- your conservation authority
- municipal staff

4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?

A 40 year 'rule of thumb' is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:

- history of the development of the area
- fire insurance maps
- architectural style
- building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

Note: 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:

- residential structure
- farm building or outbuilding
- industrial, commercial, or institutional building
- remnant or ruin
- engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide [Heritage Property Evaluation](#).

Part C: Other Considerations

5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- [municipal heritage committees](#) or local heritage organizations
- Ontario Historical Society's "[Heritage Directory](#)" - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through [Ontario Trails](#).

Appendix E

Technical Memorandum



TECHNICAL MEMORANDUM

DATE October 28, 2018

Project No. 18100184

TO Jodi Moore, Environmental Planner
Ainley & Associates Limited

CC Tony Bosco, B.Eng., Transportation Manager

FROM Karolina Konarski, P.Eng. / Anthony O'Brien, C.E.T.

EMAIL karolina_konarski@golder.com

EDWARD STREET – DESKTOP STUDY TOWN OF WHITCHURCH-STOUFFVILLE, ONTARIO

INTRODUCTION

Golder Associates Ltd. (Golder) has been retained by Ainley & Associates Limited (Ainley) to carry out a desktop study of existing pavement conditions of Edward Street from Main Street northerly to the end of the road, in the Town of Whitchurch-Stouffville (TWS), Regional Municipality of York (York Region). This desktop study is part of the overall Municipal Class Environmental Assessment (Class EA) Study initiated to improve the efficiency of local traffic movements and provide additional direct access to TWS's downtown businesses.

The purpose of this Technical Memorandum (Memo) is to present the results of the desktop study. This Memo was prepared for the exclusive use of Ainley and is intended to be used for planning for further investigations only. Any use that a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party.

Additional explorations of subsurface conditions will need to be carried out as part of this Class EA and preliminary design assignment to better define the local geologic stratigraphy, groundwater levels, and the engineering properties of the subsurface materials for further design activities.

SITE AND PROJECT DESCRIPTION

The study area for the proposed road improvements is located along the entire length of Edward Street, from Main Street, northerly to the end of the road. Edward Street is a two-lane north-south collector road that provides access to businesses/GO Station on the east side and residential dwellings on the west side. Improvements to Edward Street are required to re-evaluate road alignment, address pavement structure deficiencies, address drainage and storm water management concerns, provide for active transportation (i.e., walking, cycling, etc.) and improve safety.

EXISTING CONDITIONS

Pavement Condition Survey

In April 2018, Golder carried out a visual pavement condition inspection of Edward Street between Main Street northerly to the end of the road, in accordance with the procedures listed in MTO's *Flexible Pavement Condition Rating Guidelines for Municipalities* (SP-022). The pavement on Edward Street between Main Street and about 120 m north of Main Street is generally in excellent condition and appears to be recently rehabilitated (referred to hereafter as Section 1). Between 120 m north of Main Street and the end of the road, Edward Street is in poor condition (referred to hereafter as Section 2).

The following surface distresses were observed in Section 1:

- Slight, intermittent longitudinal and transverse cracking; and
- Slight, intermittent distortions.

Pavement Condition Rating (PCR) = 90; excellent condition

The following surface distresses were observed in Section 2:

- Moderate to severe, extensive alligator cracking;
- Moderate to severe, frequent distortions;
- Moderate to severe, intermittent potholes;
- Severe, frequent raveling;
- Severe, extensive pavement edge cracking; and
- Severe, extensive longitudinal and transverse cracking.

Pavement Condition Rating (PCR) = 35; poor condition

Section 1 has an urban cross section (curb and gutter), and Section 2 has a rural cross-section, with a sidewalk running along the west side of the entire length of the road. Inadequate crossfall was observed along Section 2, and ditching was not observed on either side of the road in Section 2. Water ponding was observed at some locations along both sides of the road in Section 2. Additionally, the severe pavement edge cracking observed in Section 2 may be an indication of inadequate subsurface drainage.

Photographs of typical distresses observed on the existing pavement are provided in Appendix A.

DISCUSSION AND RECOMMENDATIONS

A review of TWS's *Standard Guidelines and Drawings* (October, 2009) indicates the required minimum pavement design is as follows:

90 mm Hot-Mix Asphalt (40 mm HL 3 over 50 mm HL 8)

150 mm Granular 'A' Base

300 mm Granular 'B' Subbase

540 mm Minimum Total Thickness

Based on the visual condition survey, at locations of deteriorated alligator cracking and potholes, it appeared that only one lift of HMA was present at the north end of the site. Thus, the minimum pavement design requirements were likely not met at the time of construction.

Based solely on the visual survey, Golder suggests a full reconstruction strategy on Section 2 of Edward Street including drainage improvements. At the present time, rehabilitation is not required on Section 1, however it is suggested that crack sealing is carried out.

To properly assess subsurface and groundwater conditions, Golder recommends carrying out a borehole investigation along Edward Street. Upon completion of a borehole investigation and a review of traffic data, a pavement design can be carried out to ensure structural number requirements are met.

CLOSURE

We trust that the information presented in this memo is sufficient for your immediate needs. If any clarification is required, please do not hesitate to contact this office.

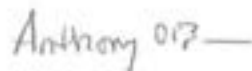
Yours truly,

GOLDER ASSOCIATES LTD.



Karolina Konarski, M.A.Sc., P.Eng.
Pavement and Materials Engineer

KK/AO/kk:lh



Anthony O'Brien, C.E.T., Principal
Senior Consultant - Construction Services

<https://golderassociates.sharepoint.com/sites/26055g/technical-work/18100184-anley-travel-edward-street-20191028.docx>

ATTACHMENT: Appendix A - Photographs of Typical Distresses

APPENDIX A

Photographs of Typical Distresses

Site Photographs

PAVEMENT CONDITION ASSESSMENT
EDWARD STREET FROM MAIN STREET TO THE END OF THE ROAD
TOWN OF WHITCHURCH-STOUFFVILLE, ONTARIO

Figure A-1



Photo 1: Edward Street looking north, showing severe alligator cracking, severe distortions, severe ravelling, and moderate potholes



Photo 2: Edward Street looking north, showing deteriorated alligator cracking and thin asphalt layer



Photo 3: Edward Street looking south, showing moderate to severe alligator cracking, severe distortions and water ponding along the edge of the road



Photo 4: Edward Street looking south, showing the section from Main Street to ~120 m north of Main Street in excellent condition

Project: 18100184

Date: April, 2018

Golder Associates Ltd.

Inputted by: KK

Checked by: AOB

Appendix F

Phase 1 Environmental Site Assessment



Phase One Environmental Site Assessment – Edward Street Extension, Whitchurch- Stouffville, Ontario

Cambium Reference No.: 7030-001

2018-04-11

Prepared for: Ainley & Associates Ltd.

(On Behalf of The Corporation of the
Township of Whitchurch-Stouffville)



Cambium Inc.

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52 Hunter Street East, Peterborough
Ontario, K9H 1G5

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EXECUTIVE SUMMARY

At the request of Ainley & Associates Ltd., on behalf of the Corporation of the Township of Whitchurch-Stouffville, Cambium Inc. conducted a Phase One Environmental Site Assessment (ESA) of the property known as the Edward Street Extension, Whitchurch-Stouffville, Ontario. The purpose of the Phase One ESA was to summarize the existing site conditions and identify any areas of potential environmental concern (APECs).

The main objective of the Phase One ESA was to identify potential environmental concerns on, in or under the Phase One Property that may have resulted from existing and previous land uses on the property or adjacent properties. The Phase One ESA was conducted in accordance with Ontario Regulation 153/04, as amended, which states that there should be a review of historical information and documents pertaining to the property; a site reconnaissance of the property including detailed checklists; interviews with a person(s) that are knowledgeable of the property and the surrounding properties; a regulatory records review (public and/or private sources); and the completion of a final report that documents the study results.

The Phase One Property is currently developed as a 270 m asphalt covered laneway situated on the York Region District School Board (YRDSB) lands. The laneway was the former school parking lot entrance and has no curb, sidewalk, or storm sewer. The Phase One Property is bounded by Bramble Crescent to the north, the YRDSB lands to the east, Harold Avenue to the south and Stouffville Arena to the west.

The first developed land use at the site was for institutional purposes. A 1946 aerial photograph depicts the site as undeveloped. A review of the 1960 aerial photograph depicts the original school building on-site to the east of the roadway. Information on the YRDSB website revealed the Stouffville District Secondary School, 183 Bramble Crescent was developed in 1954.

The results of the Phase One ESA identified no on-site potentially contaminating activities (PCAs). Four (4) off-site potentially contaminating activities were identified related to historical uses. However, based on the local topography, inferred groundwater flow direction, and distance from the site, none of these PCAs are contributing to an APEC.

A Record of Site Condition (RSC) was filed in 2010 for the site, which is part of 183 Bramble Crescent, for a proposed institutional property use, which is more stringent than a community use designation, as denoted in O.Reg. 153/04 for municipal roadways. Based on the observations and information obtained for the site during the Phase One ESA, Cambium has concluded that there are no APECs at the site. As such, a Phase Two ESA is not required at this time.



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1.0 INTRODUCTION

Cambium Inc. (Cambium) was retained by Ainley & Associates Ltd., on behalf of the Corporation of the Town of Whitchurch-Stouffville, to complete a Phase One Environmental Site Assessment (ESA) of the property known as the Edward Street Extension, Whitchurch-Stouffville, Ontario (herein denoted "Site or Phase One Property"). Cambium understands that Edward Street presently ends at approximately 100 metres (m) north of Harold Avenue and is to be extended to Bramble Crescent through lands currently owned by the York Region District School Board (YRDSB). The Site is not subject to Section 168.3.1 of Part XV.1 of the Environmental Protection Act which requires a Record of Site Condition (RSC) to be filed in the Environmental Site Registry for a property when a change in land use occurs to a more sensitive land use.

For due diligence purposes, the Corporation of the Town of Whitchurch-Stouffville required completion of a Phase One ESA for the Site in accordance with Ontario Regulation (O.Reg.) 153/04, as amended (Ministry of the Environment and Climate Change, 2013).

The Phase One work program was completed to meet the requirements of Ontario Regulation (O.Reg.) 153/04, as amended (Ministry of the Environment and Climate Change, 2013).

1.1 PHASE ONE PROPERTY INFORMATION

The Phase One Property is currently developed as a 270 m asphalt covered laneway situated on the YRDSB lands. The laneway was the former school parking lot entrance and has no curb, sidewalk or storm sewer. The legal description of the Phase One Property was unavailable. The Universal Transverse Mercator (UTM) coordinates located at the centroid for the Site are Zone 17 T, 4,870,603 m north, 640,138 m east. The Phase One Property is bounded by Bramble Crescent to the north, the YRDSB lands to the east, Harold Avenue to the south and Stouffville Arena to the west. A regional location plan is included as Figure 1, and surrounding land uses are shown on Figure 2. Photographs taken during the Site reconnaissance are included as Appendix A.

1.2 PROPERTY OWNERSHIP

The following is the contact information for the current property owner:

York Region District School Board
60 Wellington Street West
Aurora, Ontario
L4G 3H2



1.3 CURRENT AND PROPOSED FUTURE USES

The Phase One Property is developed as an asphalt covered laneway on the YRDSB lands. The YRDSB lands were formerly occupied by the Stouffville District Secondary School, 153 Edward Street (a.k.a 183 Bramble Crescent), which was reportedly built in 1954 and demolished around 2010. Cambium understands the Corporation of the Town of Whitchurch-Stouffville is planning to extend Edward Street from Harold Avenue to Bramble Street, through the YRDSB lands. Reportedly, the laneway has not been dedicated as a municipal road allowance.



2.0 SCOPE OF INVESTIGATION

This Phase One ESA was completed in accordance with the requirements in Schedule D of O.Reg. 153/04. In compliance with the regulation, this Phase One ESA consisted of the following:

- A review of pertinent background and historical information including documents such as aerial photographs and topographic maps (as available)
- A review and summary of available environmental records obtained from the Site and/or public and private sources
- Interviews with persons knowledgeable of the Site and adjacent properties
- A Site reconnaissance including visual observations of properties in the Phase One study area
- A report to discuss the findings of the Phase One ESA and to provide the Client with recommendations on any further work required to make certain the environmental condition of the Site

This Phase One ESA report describes the methods used to document and identify potentially contaminating activities (PCAs) associated with the Site and Phase One study area at the time of the assessment. While this report considers said environmental concerns, both past and present, it is limited by the availability of information obtained at the time of the assessment. This included a desktop exercise of records review, interviews with persons knowledgeable of the Site, and a Site reconnaissance. No subsurface investigation or sampling was completed as part of the Phase One ESA.



3.0 RECORDS REVIEW

3.1 GENERAL

3.1.1 PHASE ONE STUDY AREA DETERMINATION

O.Reg. 153/04 defines the Phase One study area as the area that includes the Phase One Property, any other property that is located, wholly or partly, within 250 m from the nearest point on the Phase One boundary, and any property that the Qualified Person (QP_{ESA}) determines should be included as a part of the Phase One study area, as per clause 3(1)(a) of Schedule D. The QP_{ESA} determined that the Phase One study area should extend from south of Main Street to north of Bramble Avenue for record review purposes. This was based on observed surrounding land uses, topography, inferred groundwater flow direction, and the location of the Site in an urban area.

3.1.2 FIRST DEVELOPED USE DETERMINATION

A review of available aerial photographs was completed to determine the first developed land use for the Site. A 1946 aerial photograph depicts the Site as undeveloped. A review of the 1960 aerial photograph depicts the original school building on-site to the east of the roadway. Information on the YRDSB website revealed the Stouffville District Secondary School was developed in 1954. Based on this information, the first developed land use at the Site was for institutional purposes in approximately 1954.

3.1.3 FIRE INSURANCE PLANS

Fire Insurance Plans (FIPs) dated 1924 (Canadian Underwriters' Association) were acquired from Opta Information Intelligence Inc. There was no coverage for the Site; however, Edward Street was depicted south of Rupert Avenue towards Main Street. The FIPs identified the following significant information for the Phase One study area:

The 1924 FIP identifies Edward Street between Main Street and Rupert Avenue. By that time, residential development had occurred on the west side of Edward Street. Industrial and commercial establishments were located on the east side of Edward Street, including but not limited to a hotel, storage building, planing mill, grain shed etc.

3.1.4 CHAIN OF TITLE

A chain of title was not conducted as part of the records review process.



3.1.5 ENVIRONMENTAL REPORTS

A search of the on-line Brownfields Environmental Site Registry revealed that the former Stouffville Secondary School Site, 183 Bramble Crescent, Stouffville, Ontario had a Record of Site Condition (RSC) filed in August 2010.

Specific information noted on the RSC included:

- Intended Proposed Use – Institutional
- Applicability to Entire Legal Property – Yes
- Applicable Standard – Full Depth Site Condition Standard with Potable Ground Water, Coarse Textured Soil for Residential, Parkland and Institutional property use.

The following environmental reports were provided in support of filing the RSC.

- Phase I ESA, 183 Bramble Crescent, Stouffville, Ontario, prepared by Genivar Consultants LP, dated February 22, 2010.
- Former Stouffville District Secondary School Underground Storage Tank Removal, prepared by Genivar Consultants LP, dated August 17, 2010.
- Phase II ESA, Former Stouffville District Secondary School, prepared by Genivar Consultants LP, dated August 17, 2010.

A copy of the aforementioned environmental reports was not provided for Cambium to review.

3.1.6 FREEDOM OF INFORMATION

Freedom of Information (FOI) Requests were sent to the Ministry of the Environment and Climate Change (MOECC) and Township of Whitchurch-Stouffville.

The MOECC provided a response dated April 11, 2018 and included records and correspondence pertaining to the generation of hazardous wastes registered to the York Region District School Board between 1986 and 1998. Registered wastes included engine oil, varsol, brake fluid, crankcase oils and lubricants, miscellaneous organic and inorganic wastes, photochemical wastes, and oily water/sludge, compressed gases, and heavy metal alkaline and acid solutions.

A response letter from the Township of Whitchurch-Stouffville had not been received prior to completion of this report. Should a response indicate any findings that would affect the conclusions in this report, an addendum will be issued.

Copies of the Freedom of Information requests and responses are included in Appendix B.



3.2 ENVIRONMENTAL SOURCE INFORMATION

Cambium made appropriate inquiries to obtain the following information and documents as were reasonably ascertainable and pertained to the Site, including the following, as outlined in Schedule D, subsection 3 (2), paragraph 7 of O.Reg. 153/04:

- National Pollutant Release Inventory information maintained by Environment Canada
- Polychlorinated biphenyl (PCB) information maintained by the MOECC
- Certificates of approval, permits to take water, certificates of property use or similar instruments related to the environmental condition of the Phase One Property and any property on, under or adjacent to the Phase One Property and issued pursuant to an Act administered by the MOECC, whether in force or not
- The inventory of coal gasification plants that is maintained by the MOECC
- Records concerning environmental incidents, orders, offences, spills, discharges of contaminants or inspections maintained by the MOECC where the incident, order, offence, spill, discharge or inspection affects the Phase One Property and any property on, under or adjacent to the Phase One Property
- Waste management records, including current and historical waste storage locations and waste generator and waste receiver information maintained pursuant to Regulation 347 of the Revised Regulations of Ontario, 1990 (General — Waste Management) made under the Act, or its predecessors with respect to the Phase One Property and any property on, under or adjacent to the Phase One Property
- Reports submitted to the MOECC related to the environmental conditions of the Phase One Property and any property on, under or adjacent to the Phase One Property
- Retail fuel storage tanks information maintained by the Technical Standards and Safety Authority
- Notices and instruments, including records of site condition, posted in the Registry
- Identification of areas of natural significance maintained by the Ministry of Natural Resources
- Landfill information maintained by the MOECC

3.2.1 REGULATORY RECORDS

Environmental Risk Information Services Ltd. (ERIS) is a private environmental database and information service company. Cambium contracted ERIS to provide a database report for the Phase One study area (Environmental Risk Information Services Ltd., 2018), a copy of which was received on March 9, 2018. The ERIS report summarizes the findings of a search of various federal, provincial, and private source databases for all properties located within a pre-determined search radius of 250 m from the Site boundary. The ERIS file search included a



review of numerous databases; an exhaustive list and detailed description of each database searched is presented in the ERIS report in Appendix C.

3.2.1.1 REGULATORY RECORDS REVIEW

The ERIS report identified no database listings for the Phase One Property.

Based on the information provided in the ERIS report, four (4) off-site PCAs were noted due to waste generation activities (153 Edward Street, 83 Edward Street, 47 Edward Street, 6176 Main Street, 92 Schell Street), USTs (153 Edward Street, 79 Albert Street, 47 Edward Street, 6082 Main Street), a former municipal dump (Markham Concession 9) and railway corridor (CN Railway).

Based on the local topography, inferred groundwater flow direction, and distance from the Site, none of these PCAs are contributing to an APEC on-site.

Refer to Table 1 for a detailed description of all identified PCAs, and Figure 3 for PCA locations in the Phase One Study Area.

3.3 CITY DIRECTORIES

Cambium did not review city directories as information was readily available from other sources for the Phase One Property and immediate surrounding lands.

3.4 PHYSICAL SETTING SOURCES

The following documents were available for review and were used to improve the information database for this report:

- Historical aerial photographs
- Topography, hydrology, and geology maps (stratigraphic maps, topographic maps, Ontario base mapping (OBM), etc.)
- Areas of Natural or Scientific Interests (ANSI) maps
- Well records

Each source is described below in detail.

3.4.1 AERIAL PHOTOGRAPHS

The following aerial photographs were reviewed for the purpose of identifying the first developed use of the Site and subsequent Site activities, buildings, structures, and APECs, as per Schedule D, subsection 3 (2), paragraph 9 of O.Reg. 153/04:



- Black and white aerial photographs from 1946, 1960, 1978 and 1995 provided by the National Air Photo Library (Figure 4 through (Figure 7)
- Colour aerial photo dated 2017, provided by York Region GIS (Figure 8)

The 1946 aerial photograph depicts the site as undeveloped, agricultural land. Lands to the south were developed for residential use by that time.

The 1960 and 1978 aerial photographs show the YRDSB lands with the laneway developed at that time.

By 1995, surrounding lands appear developed. A running track was located directly west of the Site.

The 2017 image shows the Site and surrounding properties similar to that seen today. The YRDSB school had been demolished by that time.

3.4.2 TOPOGRAPHY, HYDROLOGY, AND GEOLOGY

The local topography of the Site is described as being relatively flat, with a slight southeast gradient.

The Site is within the physiographic region (Chapman & Putnam, 1984), characterized by fine textured glaciolacustrine deposits. In the general Site area, the overburden is typically composed of silt and clay, minor sand and gravel, massive to well laminated (Ontario Geological Survey, 2007).

Based on the local topography, the inferred regional groundwater flow is southerly to southeasterly toward Stouffville Creek, though it is noted that local disruptions in the groundwater flow direction could result from the presence of buried utility conduits beneath adjacent roadways.

3.4.3 WATER BODIES AND AREAS OF NATURAL SIGNIFICANCE

The nearest water body to the Site, Stouffville Creek, is approximately 250 m east of the Site. There are no Areas of Natural Significance, as defined in Section 1 of O.Reg. 153/04, located in whole or in part in the Phase One study area.

3.4.4 WELL RECORDS

A search in the ERIS report of the MOECC Water Well Information System (refer to Section 3.2.1.1) revealed five (5) wells in the Phase One study area, to the south of the Site.

3.4.5 SITE OPERATING RECORDS

A review of available site operating records is required when the Site is an Enhanced Investigation Property. A property is defined as an Enhanced Investigation Property as per clause 32 (1) (b) of O.Reg. 153/04 if it is used, or has ever been used, in whole or in part for an industrial use or for any of the following commercial uses,



- (i) as a garage,
- (ii) as a bulk liquid dispensing facility, including a gasoline outlet, or
- (iii) for the operation of dry cleaning equipment. O.Reg. 511/09, s. 14.

The Site is not an Enhanced Investigation Property and as such, a review of site operating records was not required.



4.0 INTERVIEWS

A minimum of two (2) interviews with persons described below, are required as per O.Reg. 153/04, as amended, in an effort to obtain further information regarding the Site use, occupancy history, and environmental conditions of the Site. This may include the following:

- Persons relevant to meeting the objectives of the Phase One ESA
- Current occupants and/or owners of the Site, or an individual with control of or authority over the owner
- Previous owners and/or occupants
- For industrial/commercial properties, a person that is knowledgeable of the Site activities (to be conducted on-Site)
- Where the owner/occupant is not available, at least one (1) owner or occupant of an adjacent Site and one (1) provincial or municipal government official, both of whom should be familiar with the Site

As described in Section 3.1.6, FOI requests were also submitted to the MOECC for any relevant information they may have on file pertaining to the Site. For the purpose of this inquiry, the request was made specific to YRDSB lands. Responses to the FOI requests were outstanding at the time of this reports completion.



5.0 SITE RECONNAISSANCE

5.1 GENERAL REQUIREMENTS

Mr. David M. Mably, P. Eng. conducted a site reconnaissance on March 29, 2018. Mr. Mably also conducted a walk-by of the surrounding properties in the Phase One study area to evaluate any potential off-site PCAs which may be contributing to an APEC on the Phase One Property.

During the site reconnaissance, the weather was overcast. The entire Site was accessible and unsecured, and all aspects of the property were inspected. All information obtained from the site reconnaissance is described in Section 5.2.

5.2 SPECIFIC OBSERVATIONS AT PHASE ONE PROPERTY

Cambium made all reasonable attempts to obtain the following information where applicable, as required by Schedule D, Section 13 of O.Reg. 153/04, as amended.

- A general description of structures and other improvements, including the number and age of buildings;
- A general description of the number, age and depth of below-ground structures;
- Details of all tanks, above and below ground, at the Phase One Property, including the material and method of construction of the tank, tank age, tank contents and tank volume, whether in use or not;
- Any potable and non-potable water sources; and,
- The type and approximate location of underground utility and service corridors, such as sewer, water, electrical or gas lines, located on, in or under the Phase One Property.

With respect to the structures and buildings on-Site, the following information was obtained:

- Exit and entry points;
- Details of existing and former heating systems, including type and fuel source;
- Details of cooling systems, including type and fuel source, if any;
- Details of any drains, pits and sumps, including their current use, if any, and former use;
- Details of any unidentified substances; and,
- Details, including locations, of stains or corrosion on floors other than from water, where located near a drain, pit, sump, crack or other potential discharge location.



Inquiries were also made to determine the following:

- Details including locations of current and former wells, including all wells described or defined in or under the *Ontario Water Resources Act and the Oil, Gas and Salt Resources Act*
- Details of sewage works, including their location
- Details of ground surface, including type of ground cover, such as grass, gravel, soil or pavement; and,
- Details of current or former railway lines or spurs and their locations

For the portion of the property not covered by structures and buildings, the following observations were made:

- Areas of stained soil, vegetation or pavement
- Stressed vegetation
- Areas where fill and debris materials appear to have been placed or graded
- Potentially contaminating activity
- Details of any unidentified substances found at the property

The following is a description of the various points of investigation noted during the site reconnaissance conducted for the Phase One ESA, consistent with O.Reg. 153/04, as amended. All observations made during the site reconnaissance are discussed in detail with regard to any findings that are relevant to potential environmental contaminating activities in the following sections.

5.2.1 BUILDINGS AND/OR STORAGE BUILDINGS

The Site is currently developed as a 270 m asphalt covered laneway situated on the YRDSB lands. The laneway was the former school parking lot entrance and has no curb, sidewalk or storm sewer.

5.2.2 STORAGE TANKS – ABOVE GROUND AND UNDERGROUND

No storage tanks were reported or observed at the Site.

5.2.3 OIL/WATER SEPARATORS

No oil/water separators were reported or observed.

5.2.4 VEHICLE AND EQUIPMENT MAINTENANCE

No vehicle or equipment maintenance was reported or observed.



5.2.5 MATERIALS AND STORAGE

No materials or storage was reported or observed.

5.2.6 WASTE – SOLID, LIQUID, OR HAZARDOUS/INDUSTRIAL

No waste was reported or observed on the Site.

5.2.7 UNDERGROUND UTILITY AND SERVICE CORRIDORS

There was no evidence of underground utilities on-site. A storm manhole and catch basin system was observed on YRDSB lands to the east of the Site. The presence of any service corridors is not expected to pose a significant impact on contaminant distribution and/or transport at the Site.

5.2.8 SUMPS, DRAINS, PITS, AND LAGOONS

There was no evidence of sumps, drains, pit and lagoons at the Site.

5.2.9 SPILLS

No spills were reported or observed on-site.

5.2.10 STAINS

Cambium did not observe any stains on the property. There was no evidence of salt, used as a de-icer for the adjacent parking lot on the YRDSB lands.

5.2.11 FILL

No fill material of an unknown origin was observed on the Site. Where broken, aggregate was visible beneath the asphalt surface.

5.2.12 AIR EMISSIONS

No air emissions were reported or observed on-site.

5.2.13 POLYCHLORINATED BIPHENYLS

No equipment containing polychlorinated biphenyls (PCBs) were observed on the Site.

5.2.14 DESIGNATED SUBSTANCES

No suspected asbestos containing materials (ACMs) were observed on the Site.



5.2.15 MICROBIAL CONTAMINATION AND MOULD

There was no evidence of mould or microbial contamination observed during the site reconnaissance.

5.2.16 RADIOACTIVE MATERIALS

There was no evidence of radioactive materials at the Site.

5.2.17 OZONE DEPLETING SUBSTANCES

There was no evidence of ozone depleting materials at the Site.

5.2.18 UREA FORMALDEHYDE FOAM INSULATION

There was no evidence of urea formaldehyde foam insulation at the Site.

5.2.19 PESTICIDES AND HERBICIDES

There was no evidence of pesticides or herbicide manufacturing, processing, or bulk storage at the Site.

5.2.20 DRINKING WATER

No drinking water wells were observed on-site during the site reconnaissance.

5.2.21 SEPTIC FIELDS

No septic fields were reported or observed.

5.2.22 ENVIRONMENTAL MONITORING

To Cambium's knowledge, the only environmental monitoring undertaken at the Site would be associated with the historical investigations discussed in Section 3.1.5.

5.2.23 STRESSED VEGETATION

There was no stressed vegetation observed at the Site.

5.2.24 FIRES

No significant fires or evidence of fire was observed at the Site.

5.2.25 NOISE AND ODOURS

There was no evidence of strong, pungent, or noxious odours at the Site. Additionally, there was no evidence of loud noises that would indicate non-compliance with environmental legislation.



5.2.26 UNIDENTIFIED SUBSTANCES

No unidentified substances were reported or observed.

5.2.27 SPECIAL ATTENTION ITEMS

There was no evidence of radon gas, electric or magnetic fields, or vibration present at the Site.

5.3 ADJACENT LAND USES AND ENVIRONMENTAL CONCERNS

In general, the Site is bound by Bramble Crescent to the north, YRDSB lands to the east, Harold Avenue to the south and Stouffville Arena to the west.

No potentially contaminating activities were observed at these locations during the recent Site reconnaissance.

5.4 ENHANCED INVESTIGATION PROPERTY

A property is defined as an Enhanced Investigation Property as per clause 32 (1) (b) of O.Reg. 153/04 if it is used, or has ever been used, in whole or in part for an industrial use or for any of the following commercial uses,

- (i) as a garage,
- (ii) as a bulk liquid dispensing facility, including a gasoline outlet, or
- (iii) for the operation of dry cleaning equipment, O.Reg. 511/09, s. 14.

The Site has never been utilized for any of the above uses, and as such is not considered an Enhanced Investigation Property.

5.5 WRITTEN DESCRIPTION OF INVESTIGATION

Further to the description of the investigations outlined above, the findings that are relevant to the existence of an APEC or PCA are described in Section 6.0.



6.0 REVIEW AND EVALUATION OF INFORMATION

6.1 CURRENT AND PAST USES

The first identified use of the Site was for institutional purposes based on available aerial photography and information on the web. Prior to 1954, the Site was undeveloped as depicted on the 1946 aerial photograph.

6.2 POTENTIALLY CONTAMINATING ACTIVITIES

No on-site PCAs were identified. Four (4) off-site PCAs were identified related to waste generation activities (153 Edward Street, 83 Edward Street, 47 Edward Street, 6176 Main Street, 92 Schell Street), USTs (79 Albert Street, 47 Edward Street, 6082 Main Street), a former municipal dump (Markham Concession 9), and a railway corridor (CN Railway).

6.3 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

According to O.Reg. 153/04, as amended, an on-site PCA constitutes an automatic APEC. None of the above noted PCAs, being off-site, contributes to an APEC.

6.4 PHASE ONE CONCEPTUAL SITE MODEL

The following descriptions and discussion supplement the attached figures, which comprise the Phase One Conceptual Site Model (CSM). The CSM is required for a Phase One ESA to assist the QP in illustrating the results of the Phase One ESA to the readers of this report and to provide a basis for further work, if required.

6.4.1 SITE DESCRIPTION

The Phase One Property is currently developed as a 270 m asphalt covered laneway situated on the York Region District School Board (YRDSB) lands, 153 Edward Street, Whitchurch-Stouffville. The laneway was the former school parking lot entrance and has no curb, sidewalk or storm sewer.

The Phase One Property is bounded by Bramble Crescent to the north, the YRDSB lands to the east, Harold Avenue to the south and Stouffville Arena to the west.

6.4.2 EXISTING BUILDINGS AND STRUCTURES

There are no existing buildings or evidence of former building structures on-site.



6.4.3 WATER BODIES AND AREAS OF NATURAL SIGNIFICANCE

The nearest water body to the Site, Stouffville Creek, is located approximately 250 m east of the Site. There are no Areas of Natural Significance as defined in Section 1 of O.Reg. 153/04, located in whole or in part in the Phase One study area.

6.4.4 DRINKING WATER WELLS

No drinking water wells were observed on-site during the Site reconnaissance.

6.4.5 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

Based on the results of the Phase One ESA, no APECs were identified.

6.4.6 CONTAMINANTS OF POTENTIAL CONCERN

No contaminants of potential concern were identified at the Site.

6.4.7 CONTAMINANT DISTRIBUTION AND TRANSPORT

There was no evidence of underground utilities at the Site. A storm manhole and catch basin system was observed to the east on YRDSB lands. The presence of any service corridor is not expected to pose a significant impact on contaminant distribution and/or transport at the Site.

6.4.8 GEOLOGICAL AND HYDROGEOLOGICAL SETTING

The Site is within a physiographic region (Chapman & Putnam, 1984) characterized by fine textured glaciolacustrine deposits. In the general area, the overburden typically consists of silt and clay, and minor sand and gravel (Ontario Geological Survey, 2007).

Based on the local topography, the inferred regional groundwater flow in the area is southerly to southeasterly toward Stouffville Creek, though it is noted that local disruptions in the groundwater flow direction could result from the presence of buried utility conduits beneath adjacent roadways.

6.4.9 UNCERTAINTY OR ABSENCE OF INFORMATION

All aspects of the Phase One ESA were conducted in general accordance with O.Reg. 153/04, as amended, and as such the Site was investigated thoroughly to the best of the assessor's abilities. As access to the entire Site was granted, and adequate historical information was available through the interviewee's, uncertainty or absence of information is not expected.



7.0 CONCLUSIONS

The Phase One ESA conclusions regarding the current environmental conditions at the Site are based solely on the results from the document review, regulatory records review, interviews, and Site reconnaissance conducted as part of this Phase One ESA.

Based on the records review, site reconnaissance and interviews, no APECs were identified, resulting from PCAs on or potentially affecting the Phase One Property.

A Record of Site Condition (RSC) was filed in 2010 for the site, which is part of 183 Bramble Crescent, for a proposed institutional property use, which is more stringent than a community use designation, as denoted in O.Reg. 153/04 for municipal roadways.

7.1 REQUIREMENT OF A PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

Based on the observations and information obtained for the Site during the Phase One ESA and reported herein, Cambium has concluded that there are no APECs and accordingly a Phase Two ESA is not required at this time.



7.2 SIGNATURES

This Phase One ESA was completed by Mr. David. M. Mably, P.Eng. (QP) and reviewed by Mr. Nick Young, M.Eng., P.Geo. (QP), as per O.Reg. 153/04, as amended. Information presented in this report is true and accurate to the best of the assessors' knowledge.

Respectfully submitted,

Cambium Inc.



Nick Young, M.Eng., P. Geo.
Senior Environmental Scientist

DMMh/y

P:\7000 to 7099\7030-001 Ainley Group - Phase One ESA - Edward Street Extension, Whitchurch, Stouffville\Deliverables\REPORT - Phase One ESA\Final\2018-04-11 - Edward Street Extension.docx



REFERENCES

Chapman, L., & Putnam, D. (1984). *The Physiographic Regions of Southern Ontario, Third Edition*. Ontario Ministry of Natural Resources.

Environmental Risk Information Services Ltd. (2018). *Database Report*.

Ministry of the Environment and Climate Change. (2013). *O. Reg. 153/04 - Records of Site Condition - Part XV.1 of the Act*.

Ontario Geological Survey. (2007). *Paleozoic Geology of Southern Ontario*.



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Appended Figures



**PHASE ONE ENVIRONMENTAL
SITE ASSESSMENT**
TOWN OF WHITCHURCH-STOUFFVILLE
C/O AMLEY ASSOCIATES LIMITED
Edward Street Extension,
Whitchurch-Stouffville, Ontario

LEGEND

- Highway
- Major Road
- Railroad
- Watercourse
- Water Area
- Provincial Park
- Built-Up Area
- Wooded Area

Notes:
1. This map is for informational purposes only and is not intended to be used for any other purpose.
2. The map is not a guarantee of accuracy and is not intended to be used for any other purpose.
3. The map is not a guarantee of accuracy and is not intended to be used for any other purpose.
4. The map is not a guarantee of accuracy and is not intended to be used for any other purpose.



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REGIONAL LOCATION PLAN

Project No.:	2030-001	Date:	March 2018
Scale:	1:200,000	Prepared by:	AMLEY ASSOCIATES LIMITED
Created by:	CPL	Checked by:	DL
		Figure:	1



**PHASE ONE ENVIRONMENTAL
SITE ASSESSMENT**
TOWN OF WHITCHURCH-STOUFFVILLE
C/O ANLEY ASSOCIATES LIMITED
Edward Street Extension,
Whitchurch-Stouffville, Ontario

LEGEND

- Present Day Study Area (approximate)
- Present Day Subject Property (approximate)

LAND USE

Note:
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**SITE PLAN AND
SURROUNDING LAND USE**

Project No:	7030-001	Date:	March 2018
Scale:	1:5,000	Revision:	
Drawn by:	CM	Checked by:	EM
Figure:		Figure:	2



PHASE ONE ENVIRONMENTAL SITE ASSESSMENT TOWN OF WHITCHURCH-STOUFFVILLE, C/O ANLEY ASSOCIATES LIMITED Edward Street Extension, Whitchurch-Stouffville, Ontario

LEGEND

- Present Day Study Area (approximate)
- Present Day Subject Property (approximate)

Potentially Contaminating Activity:

- ① Waste Disposal and Waste Management
- ② Gasoline and Associated Products Storage
- ③ Importation of Fill Material of Unknown Quality
- ④ Rail Yards Tracks and Spurs

Notes:
Aerial imagery is based on a 2011 Google Earth image. It is not intended to be used for any other purpose than for general reference only.
Locations are indicated in this map and are not intended to be used for any other purpose.
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CONCEPTUAL SITE MODEL PHASE ONE STUDY AREA

Project No.:	2030-001	Date:	March 2010
Scale:	1:1,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	CPM	Checked by:	DM
		Figure:	3

C:\Users\jgibson\Documents\1946 Aerial Imagery\1946 Aerial Imagery.dwg



**PHASE ONE ENVIRONMENTAL
SITE ASSESSMENT**
TOWN OF WHITCHURCH-STOUFFVILLE
CO ANLEY ASSOCIATES LIMITED
Edward Street Extension,
Whitchurch-Stouffville, Ontario

- LEGEND**
- Present Day Study Area (approximate)
 - Present Day Subject Property (approximate)

Notes:
1. All aerial photography obtained from the Ontario Aerial Photo Library.
2. Base mapping features are in Queen's Printer's Edition, 2007 and have not been updated or corrected by the Ministry of Natural Resources and the Environment.
3. Changes in vegetation and in features and are not represented in this map.
4. The user is advised that this map is for informational purposes only and should not be used for any other purpose. The user is responsible for any damage due to use of this map. This map should not be used for navigation or legal purposes. It is intended for general reference only.

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1946 AERIAL IMAGERY

Project No:	2008-001	Date:	March 2010
Scale:	1:5,000	Project:	WHS 1946 Aerial Imagery
Created by:	CPH	Checked by:	CM
		Figure:	4



**PHASE ONE ENVIRONMENTAL
SITE ASSESSMENT**
TOWN OF WHITCHURCH-STOUFFVILLE
C/O ANLEY ASSOCIATES LIMITED
Edward Street Extension,
Whitchurch-Stouffville, Ontario

- LEGEND**
- Present Day Study Area (approximate)
 - Present Day Subject Property (approximate)

Notes:
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1978 AERIAL IMAGERY

Project No:	2010-001	Date:	March 2010
Scale:	1:5,000	Project Name:	NAC-1940-078 Zone 178
Created by:	CPH	Checked by:	DM
		Figure:	6



PHASE ONE ENVIRONMENTAL SITE ASSESSMENT TOWN OF WHITCHURCH-STOUFFVILLE, C/O ANLEY ASSOCIATES LIMITED Edward Street Extension, Whitchurch-Stouffville, Ontario

LEGEND
 Present Day Study Area (approximate)
 Present Day Subject Property (approximate)

Notes:
 1. This Assessment is based on information provided by the Town of Whitchurch-Stouffville and is not intended to be a final assessment.
 2. The assessment is based on the information provided by the Town of Whitchurch-Stouffville and is not intended to be a final assessment.
 3. The assessment is based on the information provided by the Town of Whitchurch-Stouffville and is not intended to be a final assessment.
 4. The assessment is based on the information provided by the Town of Whitchurch-Stouffville and is not intended to be a final assessment.

1. This Assessment is based on information provided by the Town of Whitchurch-Stouffville and is not intended to be a final assessment.
 2. The assessment is based on the information provided by the Town of Whitchurch-Stouffville and is not intended to be a final assessment.
 3. The assessment is based on the information provided by the Town of Whitchurch-Stouffville and is not intended to be a final assessment.
 4. The assessment is based on the information provided by the Town of Whitchurch-Stouffville and is not intended to be a final assessment.

1995 AERIAL IMAGERY

Project No.	7530-001	Date:	March 2018
Scale:	1:6,000	Revision:	
Created by:	CPM	Checked by:	DM
Figure:			7



Appended Tables



Table 1: Potential Contaminating Activities

Potentially Contaminating Activity (PCA)		Location of PCA	Contaminants of Potential Environmental Concern	Media Potentially Impacted (Groundwater or Soil)
1	#58 - Waste Disposal and Waste Management	Off-Site: 353 Edward Street, 83 Edward Street, 47 Edward Street, 6176 Main Street, 92 Schell Street	PHC F1-F4, VOCs, PCBs, Metals	N/A: Properties located downgradient
2	#28 - Gasoline and Associated Products Storage in Fixed Tanks	Off-Site: 153 Edward Street, 79 Albert Street, 47 Edward Street, 6082 Main Street	PHC F1-F4, VOCs, Metals	N/A: Properties located downgradient
3	#30 - Importation of Fill Material of Unknown Quality	Off-Site: Markham Concession 9	PHC F1-F4, VOCs, Metals	N/A: Property located cross to downgradient
4	#46 - Rail Yards, tracks, and spurs	Off-Site: Northeast, East and Southeast of the Site	PHC F1-F4, VOCs, PAHs, Metals	N/A: Properties located downgradient

Notes:

1. Potentially Contaminating Activity means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in the phase one study area.



Appendix A

Site Photographs



Photo 1 View of subject property looking south, March 2018

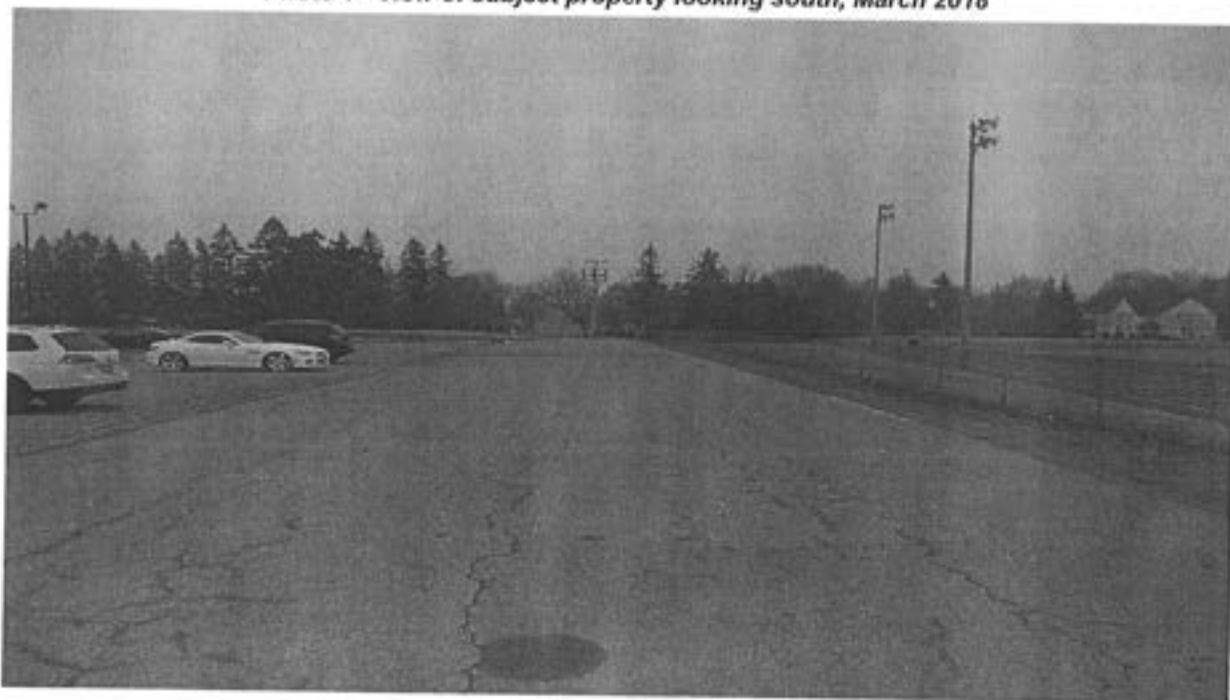


Photo 2 View of subject property, central portion, March 2018



Photo 3 View of subject property looking north, March 2018



Photo 4 View of subject property looking east at south end, March 2018



Appendix B

FOI Requests

Ministry of the Environment
and Climate Change

Freedom of Information and
Protection of Privacy Office

12th Floor
40 St. Clair Avenue West
Toronto ON M4V 1M2
Tel: (416) 314-4075
Fax: (416) 314-4285

Ministère de l'Environnement et de
l'Action en matière de changement
climatique

Bureau de l'accès à l'information et
de la protection de la vie privée

12^e étage
40, avenue St. Clair ouest
Toronto ON M4V 1M2
Tél.: (416) 314-4075
Téléc.: (416) 314-4285



April 11, 2018

David Mably
Cambium Inc.
74 Cedar Point Drive
Barrie, ON L4N 5R7

Dear David Mably:

RE: ***Freedom of Information and Protection of Privacy Act Request***
Our File #: A-2018-02101, Your Reference #: 7030-001

This letter is in response to your request made pursuant to the *Freedom of Information and Protection of Privacy Act* relating to 153 Edward Street, Whitchurch-Stouffville.

After a thorough search of the Ministry's York Durham District Office, Investigations and Enforcement Branch, Environmental Monitoring and Reporting Branch, Sector Compliance Branch and Safe Drinking Water Branch, records were located in response to your request. It is my decision to provide full access to the attached information.

In accordance with Section 57 of the *Freedom of Information and Protection of Privacy Act*, detailed below are our charges:

• Search Time 1 hour @ \$30/hour	\$30.00
• Copying 49 pages @ \$0.20/page	\$ 9.80
• Delivery	\$ 3.00
• Total	\$42.80
• Deposit Received	- \$30.00
• BALANCE WAIVED (NOT REQUIRED)	\$12.80

You may request a review of my decision by contacting the Information and Privacy Commissioner/Ontario, 2 Bloor Street East, Suite 1400, Toronto, ON M4W 1A8 (800-387-0073 or 416-326-3333). Please note that there is a \$25.00 fee and you only have 30 days from receipt of this letter to request a review.

If you have any questions regarding this matter, please contact Kayla Stephenson at kayla.stephenson@ontario.ca.

Yours truly,

Janet Dadufalza
FOI Manager

Attachments



Ministry
of the
Environment
Ontario

3

Generator Registration Reports (GRR) Summary

Generator Registration No. ON 1279402	Company Name TORONTO REGION BOARD OF EDUCATION	Log No. 93-066
---	--	--------------------------

Waste Management Branch Review

☐ Initial GRR	☒ Re-submission	☐ Name Change	☐ Address Change
GRR(s) Dated April 27/93	Date Received May 3/93		
Letter(s) Dated	Date Received		
Telephone Record			
Remarks MINISTRY OF THE ENVIRONMENT GENERAL REGION 70 QUEEN'S BLVD. TORONTO, ONTARIO M4H 1A8 RECEIVED MAY 26 1993			
Waste(s) Added WASTE, 251 L			
☐ Please follow-up carriers/receivers	☒ Acknowledged	☐ Rejected	☐ Exempted
Waste Management Branch Reviewer David Okulian		Date May 13/93	

Regional Review

☐ No changes to GRR	☐ Clarification to GRR (attachments enclosed)	☐ Changes to GRR (attachments enclosed)
☐ Site Audit	Company Contact	Audit Date
☐ Telephone Audit		
Remarks		
Regional Reviewer		
District Officer / Reg. 309 Co-ordinator		
		Date
		Date

000001



Ministry of
Environment
and Energy

Ministère de
l'Environnement
et de l'Énergie

135 St. Clair Avenue West
Suite 100
Toronto ON M4V 1P5

135, avenue St. Clair ouest
Bureau 100
Toronto ON M4V 1P5

May 20, 1993

York Region Board of Education
P.O. Box 40
60 Wellington St. W.
Aurora, Ontario
L4G 3H2

Attn: Mr. Bernard Marsden
Coordinator of Health & Safety

Dear Mr. Marsden:

RE: Acknowledgement of Subject Waste Registration

As prescribed by Section 15(4) of Ontario Regulation 309, this letter acknowledges receipt of your Generator Registration Report(s) dated October 3, 1986 and further correspondence as outlined in Schedule "B" for the following site:

Stouffville District Secondary
School
153 Edward Street
Stouffville, Ontario

The Generator Registration Number assigned to your company at this site is:

ON1279402

Please note that this Generator Registration Number must be used only in conjunction with the site for which it was issued.

This acknowledgement letter supersedes the previous acknowledgement letter dated August 26, 1991 for this site:

Please ensure that the company name shown in this letter is complete and accurate. This would be the corporate name or, if a partnership or proprietorship, the name of the principal(s). If you intend to carry on business under a separate name or style, this should also be entered. If there is a discrepancy, it is your responsibility to re-register providing us with your complete and accurate company name.



A list of the waste stream(s) covered by this acknowledgement is attached to this letter as Schedule "A".

Under the Environmental Protection Act of Ontario, off-site and on-site disposal of subject wastes is only permissible if the property receiving the waste has been approved as a waste disposal site. The disposal of waste materials in an uncertified site is unlawful.

For off-site disposal of subject wastes, the waste number(s) describing the waste stream(s) in Schedule "A" and the Generator Registration Number must be entered on manifest forms for each waste transaction after you have received this generator registration document.

For on-site disposal of subject wastes covered by this acknowledgement, including on-site incineration, landfilling and discharges to sanitary sewers, every generator shall retain records for a period of at least two years. These records shall include the generator registration number, waste name(s), waste number(s), quantity and disposition of the waste(s).

For off-site disposal of any registerable solid wastes shown in Schedule "A" (waste classes ending in the letter "N"), manifesting is not required at this time. These wastes can be disposed of at most approved municipal landfilling sites.

The selection of accurate waste classes is the responsibility of each waste generator. This acknowledgement must not be considered as a confirmation of the accuracy of information submitted by you. Based on the information you have provided, the waste class(es) that has (have) been selected appear(s) to be correct. If, due to new information or re-assessment of information submitted, you feel your waste is inappropriately classified, you should apply for a revision to your registration using the Generator Registration Report, Form 2. Should the waste class(es) that you have selected be deemed incorrect by the Ministry, or improper waste disposal occurs at any time, you may be subject to legal action as provided by the Environmental Protection Act and Regulation 309.

Your Generator Registration Report has now been forwarded to the District Office of this Ministry that is closest to your generating site. The District Office will be conducting a post-registration audit and may be contacting you for additional information or may be conducting site visits.

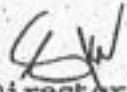
It is important to note that under Section 15(4) of Ontario Regulation 309, a new Generator Registration Report must be submitted to the Ministry within fifteen (15) days for any of the following reasons:

1. If the name, address or telephone number of your company or waste generating site changes.
2. If the description, the waste class or physical or chemical characteristics of your registered wastes change(s).
3. If you generate a hazardous or liquid industrial waste that has not been registered with the Ministry.

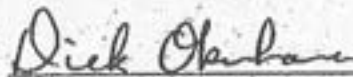
If the quantity of registered wastes or your carrier or receiver changes, automatic re-registration is not required. However, in order to update our file, we may periodically request additional information when we observe or suspect a significant change as compared to the most recent information submitted by you for registration purposes.

Should you have any questions concerning generator registration or manifesting requirements, please contact the Waste Management Branch Reviewer identified below at 323-5156.

Yours truly,


Director
Regulation 309, R.R.O., 1980
Environmental Protection Act

Waste Management Branch Reviewer:


Dick Okuhara

WT/sf

Enclosure

SCHEDULE "A"

This attached Schedule forms part of the acknowledgement of generator registration for the facility and site identified by Generator Registration Number ON1279402, dated at Toronto, May 20, 1993.

	Waste Stream	Waste Class
1.	Miscellaneous waste inorganic	148A
2.	Miscellaneous waste organic	263A
3.	Engine oil, varsol, brake fluid	252I
4.	Used photochemicals from darkroom lab.	264C
5.	Waste oily water/sludge	251L

Waste Management Branch Reviewer:

Dick Okuhara
Dick Okuhara

SCHEDULE "B"

This attached Schedule forms part of the acknowledgement of generator registration for the facility and site identified by Generator Registration Number ON1279402, dated at Toronto, May 20, 1993.

	<u>Date</u>
Initial Generator Registration Report (GRR)	OCT 3, 1986
Supplemental GRR	JUL 31, 1991
Supplemental GRR	APR 27, 1993

Telephone Conversation(s) with:	
G. Gilday	MAY 12, 1987
G. Gilday	JAN 13, 1988
G. Gilday	JAN 15, 1988
G. Gilday	FEB 22, 1988
G. Gilday	MAR 25, 1988

Letter(s):	MAR 7, 1988
------------	-------------

Memo	MAY 13, 1987
------	--------------

Waste Management Branch Reviewer: Dick Okuhara
Dick Okuhara



Ministry
of the
Environment

Ministère
de
l'Environnement

WASTE MANAGEMENT BOARD

Generator Registration Report

"Regulation 309, R.R.O. 1980, Form 2"

Rapport d'inscription du producteur

"Règlement 309, R.R.O. de 1980, formule 2"

MAY - 3 1993

MANIFES: SYSTEM

NOTE: Regulation 309 requires generators of hazardous or liquid industrial wastes to submit a Generator Registration Report using this form respecting each waste generation facility and each hazardous or liquid industrial waste.

REMARQUE: Le règlement 309 exige que les producteurs de déchets industriels dangereux ou liquides présentent un Rapport d'inscription du producteur en se servant de la présente formule pour chaque lieu de production de déchets et chaque déchet industriel liquide ou dangereux.

Part I - Generator Identification / Partie I - Identification du producteur

43-066

This report is / Le présent rapport constitue:

Generator Registration Number
N° d'inscription du producteur

1. ☐ an initial generator registration report /
un premier rapport d'inscription du producteur

or / ou

2. ☐ a revision - enter Ontario Generator Registration No.
une révision - veuillez inscrire le numéro d'inscription du producteur de l'Ontario

3. For generators located outside of Ontario, enter Registration/Notification number assigned by your local environmental authority. / Si vous êtes un producteur de l'extérieur de l'Ontario, veuillez inscrire le numéro d'inscription/identification attribué par les autorités locales en matière d'environnement.

Name of Generator (Enter the corporate name or, if a partnership or proprietorship, the name of the principal(s). If the generator intends to carry on business under a separate name or style, this should also be entered.) / Nom du producteur (Veuillez inscrire la dénomination sociale ou, s'il s'agit d'une société en nom collectif ou d'une société à propriétaire unique, le nom du (des) principal (principaux) propriétaire(s). Si le producteur envisage d'exploiter une entreprise sous une dénomination ou un nom distinct, veuillez également le noter.)

4. Name / Nom

NORTH REGION BOARD OF EDUCATION

5. Address / Adresse

60 WILKINSON STREET

6. Municipality / Municipalité

HURON

Province
Province

ONT

Postal Code / Code postal

E4G 3H2

7. Site location / Lieu des installations

STOUFFVILLE D.S.S.
193 EDWARD ST

8. Municipality / Municipalité

STOUFFVILLE

Province
Province

ONT

Postal Code / Code postal

K4A 1A8

9. Name of contact / Nom de la personne à contacter

Tel No. / N° de tél.

416 640 1433

Standard Industrial Classification Codes (SIC) for Site noted in Section 7. / Codes de la classification des activités économiques pour les installations décrites au n° 7

11. Total number of wastes to be registered with this report /
Nombre total de déchets à inscrire au moyen de ce rapport

1

12. Name of Company Official / Nom du représentant autorisé de la compagnie

BERNARD MARSDEN

13. Position / Poste

COORDINATOR OF HEALTH & SAFETY

14. Signature / Signature

Bernard Marsden

15. Date / Date

27 April 1993

PENALTY

PENALTY

Generators may be punished by fines of up to \$2,000 (higher if environmental damage may result).
(Environmental Protection Act, sections 47 and 147)

Toute infraction peut être sanctionnée par une amende maximale de 2 000 \$
(ou plus s'il peut en résulter une détérioration de l'environnement).
(Articles 47 et 147 de la Loi sur la protection de l'environnement)

16. Ministry Use Only /
Réserve au ministère

County Code / Code de comté

Region/District Code / Code de région/district

Municipal Code / Code de municipalité

Inter City Tie Line / Ligne privée interurbaine

1.	Description of Waste / Description des déchets	WASTE OILY WATER / SUDOR. WASTE MANAGEMENT NO. 101 Date 3-1-89							
2.	Description of generating process / Description du procédé de production	AUTO SHOP. CHARTERED ANALYSTS							
3.	Waste quantity generated or accumulated / Quantité des déchets produite ou accumulée Continuous process / Procédé continu [][] [][] [][] [][] [][] [][] [][] [][] [][] [][] [][] 20 kg/mo. / kg/mois Batch process / par lots [][] [][] [][] [][] [][] [][] [][] [][] [][] [][] [][] [][] [][] [][] lotses/mo. kg/batch / kg/lot or / ou								
4.	Primary characteristic / Caractéristique principale								
<i>Analytical data (if applicable). If the data has been estimated, attach separate sheet outlining the basis for the estimate. / Données analytiques (le cas échéant). Si les données sont estimatives, veuillez annexer une feuille à part pour décrire sur quoi reposent les estimations.</i>									
Name of Laboratory (if applicable) : / Laboratoire (le cas échéant)									
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%; border-bottom: 1px solid black;">Waste Class Catégorie des déchets</td> <td style="width: 15%; border-bottom: 1px solid black; text-align: center;">251</td> <td style="width: 20%; border-bottom: 1px solid black;">Hazardous Waste Number Numéro des déchets dangereux</td> <td style="width: 15%; border-bottom: 1px solid black; text-align: center;">[][] [][] [][] [][]</td> <td style="width: 15%; border-bottom: 1px solid black;">Specific Gravity Gravité spécifique</td> <td style="width: 10%; border-bottom: 1px solid black; text-align: center;">[][] * 8</td> <td style="width: 15%; border-bottom: 1px solid black; vertical-align: middle;">Physical State (Solid-S, Liquid-L, Gas-G) État physique (solide-S, liquide-L, gaz-G)</td> </tr> </table>			Waste Class Catégorie des déchets	251	Hazardous Waste Number Numéro des déchets dangereux	[][] [][] [][] [][]	Specific Gravity Gravité spécifique	[][] * 8	Physical State (Solid-S, Liquid-L, Gas-G) État physique (solide-S, liquide-L, gaz-G)
Waste Class Catégorie des déchets	251	Hazardous Waste Number Numéro des déchets dangereux	[][] [][] [][] [][]	Specific Gravity Gravité spécifique	[][] * 8	Physical State (Solid-S, Liquid-L, Gas-G) État physique (solide-S, liquide-L, gaz-G)			
For Ministry Use Only / Réserve au ministère									
5.	Secondary Characteristic / Caractéristique secondaire								
<i>Analytical data (if applicable) / Données analytiques (le cas échéant)</i>									

1. Principal Intended Receiver / Réceptionnaire principal prévu

Company name and address / Nom et adresse de la compagnie

ACCURATE INDUSTRIAL WASTE
1929 HIGHWAY 7

Municipality / Municipalité: CONCORD

Province/State / Province/État: ONT

Postal Code / Code postal: L4K 1V5

Receiver No. / N° du réceptionnaire: A2800385

2. Principal Intended Carrier / Transporteur principal prévu

Company name and address / Nom et adresse de la compagnie

SAMP

Municipality / Municipalité:

Province/State / Province/État:

Postal Code / Code postal:

MOE Carrier No. / N° du M. de l'E. du transporteur: A5477



Ontario

Ministry
of the
Environment

Generator Registration Reports (GRR) Summary

Generator Registration No. <i>ON1279402</i>	Company Name <i>York Region Board of Education</i>	Log No. <i>43-066</i>
--	---	--------------------------

Waste Management Branch Review

☐ Initial GRR	☒ Re-submission	☐ Name Change	☐ Address Change
GRR(s) Dated <i>July 3/91</i>	Date Received <i>Aug 6/91</i>		
Letter(s) Dated	Date Received		
Telephone Record			
Remarks MINISTRY OF THE ENVIRONMENT CENTRAL REGION 7 OVERLEA BLVD., 4th FL TORONTO, ONTARIO M4H 1A8			
Waste(s) Added <i>264C</i>			
☐ Please follow-up carriers/receivers	☒ Acknowledged	☐ Rejected	☐ Exempted
Waste Management Branch Reviewer <i>Blue</i>		Date <i>Aug 13/91</i>	

Regional Review

☐ No changes to GRR	☐ Clarification to GRR (attachments enclosed)	☐ Changes to GRR (attachments enclosed)
☐ Site Audit	Company Contact	Audit Date
☐ Telephone Audit		
Remarks		
Regional Reviewer		
District Officer / Reg. 309 Co-ordinator		Date

000009



Ministry of the Environment
Ministère de l'Environnement

AUG 26 1991

York Region Board of Education
P.O. Box 40
60 Wellington St. W.
Aurora, Ontario
L4G 3H2

135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

135, avenue St. Clair ouest
Bureau 100
Toronto (Ontario)
M4V 1P5

Attn: Mr. W.G. Gilday
Health and Safety Officer

Dear Mr. Gilday:

RE: Acknowledgement of Subject Waste Registration

As prescribed by Section 15(4) of Ontario Regulation 309, this letter acknowledges receipt of your Generator Registration Report(s) dated October 3, 1986 and further correspondence as outlined in Schedule "B" for the following site:

Stouffville District Secondary
School
153 Edward Street
Stouffville, Ontario

The Generator Registration Number assigned to your company at this site is:

ON1279402

Please note that this Generator Registration Number must be used only in conjunction with the site for which it was issued.

This acknowledgement letter supersedes the previous acknowledgement letter dated May 11, 1990 for this site.

Please ensure that the company name shown in this letter is complete and accurate. This would be the corporate name or, if a partnership or proprietorship, the name of the principal(s). If you intend to carry on business under a separate name or style, this should also be entered. If there is a discrepancy, it is your responsibility to re-register providing us with your complete and accurate company name.

A list of the waste stream(s) covered by this acknowledgement is attached to this letter as Schedule "A".

Under the Environmental Protection Act of Ontario, off-site and on-site disposal of subject wastes is only permissible if the property receiving the waste has been approved as a waste disposal site. The disposal of waste materials in an uncertified site is unlawful.

For off-site disposal of subject wastes, the waste number(s) describing the waste stream(s) in Schedule "A" and the Generator Registration Number must be entered on manifest forms for each waste transaction after you have received this generator registration document.

For on-site disposal of subject wastes covered by this acknowledgement, including on-site incineration, landfilling and discharges to sanitary sewers, every generator shall retain records for a period of at least two years. These records shall include the generator registration number, waste name(s), waste number(s), quantity and disposition of the waste(s).

For off-site disposal of any registerable solid wastes shown in Schedule "A" (waste classes ending in the letter "N"), manifesting is not required at this time. These wastes can be disposed of at most approved municipal landfilling sites.

The selection of accurate waste classes is the responsibility of each waste generator. This acknowledgement must not be considered as a confirmation of the accuracy of information submitted by you. Based on the information you have provided, the waste class(es) that has (have) been selected appear(s) to be correct. If, due to new information or re-assessment of information submitted, you feel your waste is inappropriately classified, you should apply for a revision to your registration using the Generator Registration Report, Form 2. Should the waste class(es) that you have selected be deemed incorrect by the Ministry, or improper waste disposal occurs at any time, you may be subject to legal action as provided by the Environmental Protection Act and Regulation 309.

Your Generator Registration Report has now been forwarded to the District Office of this Ministry that is closest to your generating site. The District Office will be conducting a post-registration audit and may be contacting you for additional information or may be conducting site visits.

It is important to note that under Section 15(4) of Ontario Regulation 309, a new Generator Registration Report must be submitted to the Ministry within fifteen (15) days for any of the following reasons:

1. If the name, address or telephone number of your company or waste generating site changes.
2. If the description, the waste class or physical or chemical characteristics of your registered wastes change(s).
3. If you generate a hazardous or liquid industrial waste that has not been registered with the Ministry.

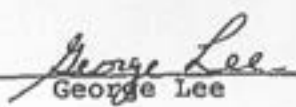
If the quantity of registered wastes or your carrier or receiver changes, automatic re-registration is not required. However, in order to update our file, we may periodically request additional information when we observe or suspect a significant change as compared to the most recent information submitted by you for registration purposes.

Should you have any questions concerning generator registration or manifesting requirements, please contact the Waste Management Branch Reviewer identified below at 323-5143.

Yours truly,


Director
Regulation 309, R.R.O., 1980
Environmental Protection Act

Waste Management Branch Reviewer:


George Lee

WT/ic

Enclosure

ADDITIONAL COMMENTS:

The number of wastes reported in Field 11 of Part 1 of your Generator Registration Report (GRR) does not correspond to the number of wastes included in Part 2 of the GRR (i.e., does not correspond to the number of copies of page 2 submitted in your GRR). Should there be additional wastes which require registration, other than those shown in Schedule "A" of this letter, re-registration would be required for these additional wastes.

SCHEDULE "A"

This attached Schedule forms part of the acknowledgement of generator registration for the facility and site identified by Generator Registration Number ON1279402, dated at Toronto,

AUG 26 1991

Waste Stream	Waste Class
1. Miscellaneous waste inorganic	148A
2. Miscellaneous waste organic	263A
3. Engine oil, varsol, brake fluid	252I
4. Used photochemicals from darkroom lab.	264C

Waste Management Branch Reviewer:

George Lee
George Lee

SCHEDULE "B"

This attached Schedule forms part of the acknowledgement of generator registration for the facility and site identified by Generator Registration Number ON1279402, dated at Toronto,

AUG 26 1991

	<u>Date</u>
Initial Generator Registration Report (GRR)	OCT 3, 1986
Supplemental GRR	JUL 31, 1991

Telephone Conversation(s) with:

G. Gilday	MAY 12, 1987
G. Gilday	JAN 13, 1988
G. Gilday	JAN 15, 1988
G. Gilday	FEB 22, 1988
G. Gilday	MAR 25, 1988

Letter(s):

MAR 7, 1988

Memo

MAY 13, 1987

Waste Management Branch Reviewer:

George Lee
George Lee



of the
Environment

de
l'Environnement

Ontario

NOTE: Regulation 309 requires generators of hazardous or liquid industrial wastes to submit a Generator Registration Report using this form respecting each waste generation facility and each hazardous or liquid industrial waste.

REMARQUE: Le règlement 309 exige que les producteurs de déchets industriels liquides ou dangereux présentent un Rapport d'inscription du producteur en se servant de la présente formule pour chaque lieu de production de déchets industriels liquides ou dangereux.

WASTE MANAGEMENT BRANCH

AUG - 6 1991

Rapport d'inscription du producteur

"Regulation 309, R.R.O. de 1980, formule 2"

Part I - Generator Identification / Partie I - Identification du producteur

43-066

This report is / Le présent rapport constitue:

Generator Registration Number
N° d'inscription du producteur

1. ☐ an initial generator registration report /
un premier rapport d'inscription du producteur

or / ou

2. ☒ a revision - enter Ontario Generator Registration No.
une révision - veuillez inscrire le numéro d'inscription du producteur de l'Ontario

0 N 12 7 9 4 0 2

3. For generators located outside of Ontario, enter Registration/Notification number assigned by your local environmental authority. / Si vous êtes un producteur de l'extérieur de l'Ontario, veuillez inscrire le numéro d'inscription/identification attribué par les autorités locales en matière d'environnement.

Name of Generator (Enter the corporate name or, if a partnership or proprietorship, the name of the principal(s). If the generator intends to carry on business under a separate name or style, this should also be entered.) / Nom du producteur (Veuillez inscrire la dénomination sociale ou, s'il s'agit d'une société en nom collectif ou d'une société à propriétaire unique, le nom du (des) principal (principaux) propriétaire(s). Si le producteur envisage d'exploiter une entreprise sous une dénomination ou un nom distinct, veuillez également le noter.)

Name / Nom

YORK REGION BOARD OF EDUCATION

5. Address / Adresse

60 WELLINGTON ST WEST BOX 40

6. Municipality / Municipalité

AURORA

Province / Province
ONT

Postal Code / Code postal

L4G3H2

7. Site location / Lieu des installations

STOUFFVILLE DISTRICT SECONDARY SCHOOL
153 EDWARD ST

8. Municipality / Municipalité

STOUFFVILLE

Province / Province
ONT

Postal Code / Code postal

L4A1A8

Name of contact / Nom de la personne à contacter

Tel No. / N° de tél.

10. Standard Industrial Classification Codes (SIC) for Site noted in Section 7. / Codes de la classification des activités économiques pour les installations décrites au n° 7

5951 5971

11. Total number of wastes to be registered with this report /
Nombre total de déchets à inscrire au moyen de ce rapport

12. Name of Company Official / Nom du représentant autorisé de la compagnie

W. GRAEME GILDAY

13. Position / Poste

HEALTH AND SAFETY OFFICER

14. Signature / Signature

15. Date / Date

July 31/91

PENALTY

PENALTY

Contraventions may be punished by fines of up to \$2,000 (higher if environmental damage may result).
(Environmental Protection Act, sections 47 and 147)

Toute infraction peut être sanctionnée par une amende maximale de 2 000 \$
(ou plus si peut en résulter une détérioration de l'environnement).
(Articles 47 et 147 de la Loi sur la protection de l'environnement)

16. Ministry Use Only /
Réservé au ministère

County Code / Code de comté

Regional/District Code / Code de région/district

Municipal Code / Code de municipalité

Inter City Tie Line / Ligne privée interurbaine

000016

Part 2 - Waste Identification / Partie 2 - Identification des déchets

1. Description of Waste / Description des déchets

USED PHOTO CHEMICALS

2. Description of generating process / Description du procédé de production

DARKROOM PHOTO LAB

3. Waste quantity generated or accumulated / Quantité des déchets produite ou accumulée

Continuous process / Procédé continu

1 0 0

kg/mo. / kg/mois

or / ou

Batch process / par lots

1 0 0

kg/batch / kg/lot

4. Primary characteristic / Caractéristique principale

CORROSIVE

Analytical data (if applicable). If the data has been estimated, attach separate sheet outlining the basis for the estimate. / Données analytiques (le cas échéant). Si les données sont estimatives, veuillez annexer une feuille à part pour décrire sur quel reposent les estimations.

MATERIAL SAFETY DATA SHEETS

Name of Laboratory (if applicable). / Laboratoire (le cas échéant)

NA,

Waste Class

Catégorie des déchets

2 6 4 C

Hazardous Waste Number

Numéro des déchets dangereux

UN

1 7 6 0

Specific Gravity

Gravité spécifique

1 0 1

Physical State

(Solid-S, Liquid-L, Gas-G)

(État physique)

(Solid-S, Liquid-L, Gas-G)

L

For Ministry Use Only / Réservé au ministère

5. Secondary characteristic / Caractéristique secondaire

LEACHATE TOXIC

Analytical data (if applicable) / Données analytiques (le cas échéant)

H.S.D.S.

Part 3 - Waste Management / Partie 3 - Gestion des déchets

1. Principal Intended Receiver / Réceptionnaire principal prévu

Company name and address / Nom et adresse de la compagnie

APEX PHOTO FINISHING SUPPLIES
1228 GORHAM ST. #27 LTD.

Municipality

Municipalité

NEWARKET

Province/State

Province/État

ONT

Receiver No. / N° du réceptionnaire

A 230406

Postal Code

Code postal

L 3 Y 7 V 1

2. Principal Intended Carrier / Transporteur principal prévu

Company name and address / Nom et adresse de la compagnie

SAME AS ABOVE

Municipality

Municipalité

Province/State

Province/État

Postal Code

Code postal

MCE Carrier No.

N° d'adm. de l'E. du transporteur

A 840980



Ontario

٢٧

STOUTFVILLE DISTRICT S.S.

Waste Management Branch Review

MINISTRY OF THE ENVIRONMENT
CENTRAL REGION
7 OVERLEA BLVD.
TORONTO, ONTARIO
M4H 1A8

Regional Review

-000018



Ministry
of the
Environment

Ministère
de
l'Environnement

MAY 11 1990

135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

135, avenue St. Clair ouest
Bureau 100
Toronto (Ontario)
M4V 1P5

York Region Board of Education
Stouffville District Secondary
School
153 Edward Street
Stouffville, Ontario
L4R 1A8

Attn: Mr. P.D. Bright
School Principal

Dear Mr. Bright:

RE: Acknowledgement of Subject Waste Registration

As prescribed by Section 15(4) of Ontario Regulation 309, this letter acknowledges receipt of your Generator Registration Report(s) dated October 3, 1986 and further correspondence as outlined in Schedule "B" for the following site:

Stouffville District Secondary
School
153 Edward Street
Stouffville, Ontario

The Generator Registration Number assigned to your company at this site is:

ON1279402

Please note that this Generator Registration Number must be used only in conjunction with the site for which it was issued.

This acknowledgement letter supersedes the previous acknowledgement letter dated October 11, 1988 for the previous Generator Registration number ON0192306 is no longer valid and should not be used.

Please ensure that the company name shown in this letter is complete and accurate. This would be the corporate name or, if a partnership or proprietorship, the name of the principal(s). If you intend to carry on business under a separate name or style, this should also be entered. If there is a discrepancy, it is your responsibility to re-register providing us with your complete and accurate company name.

A list of the waste stream(s) covered by this acknowledgement is attached to this letter as Schedule "A".

For off-site disposal of subject wastes, the waste number(s) describing the waste stream(s) in Schedule "A" and the Generator Registration Number must be entered on manifest forms for each waste transaction after you have received this generator registration document. A copy of an example manifest form is attached for your information.

For on-site disposal of subject wastes covered by this acknowledgement, including on-site incineration, landfilling and discharges to sanitary sewers, every generator shall retain records for a period of at least two years. These records shall include the generator registration number, waste name(s), waste number(s), quantity and disposition of the waste(s).

For off-site disposal of any registerable solid wastes shown in Schedule "A" (waste classes ending in the letter "N"), manifesting is not required at this time. These wastes can be disposed of at most approved municipal landfilling sites.

The selection of accurate waste classes is the responsibility of each waste generator. This acknowledgement must not be considered as a confirmation of the accuracy of information submitted by you. Based on the information you have provided, the waste class(es) that has (have) been selected appear(s) to be correct. If, due to new information or re-assessment of information submitted, you feel your waste is inappropriately classified, you should apply for a revision to your registration using the Generator Registration Report, Form 2. Should the waste class(es) that you have selected be deemed incorrect by the Ministry, or improper waste disposal occurs at any time, you may be subject to legal action as provided by the Environmental Protection Act and Regulation 309.

Your Generator Registration Report has now been forwarded to the District Office of this Ministry that is closest to your generating site. The District Office will be conducting a post-registration audit and may be contacting you for additional information or may be conducting site visits.

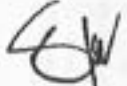
It is important to note that under Section 15(4) of Ontario Regulation 309, a new Generator Registration Report must be submitted to the Ministry within fifteen (15) days for any of the following reasons:

1. If the name, address or telephone number of your company or waste generating site changes.
2. If the description, the waste class or physical or chemical characteristics of your registered wastes change(s).
3. If you generate a hazardous or liquid industrial waste that has not been registered with the Ministry.

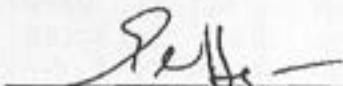
If the quantity of registered wastes or your carrier or receiver changes, automatic re-registration is not required. However, in order to update our file, we may periodically request additional information when we observe or suspect a significant change as compared to the most recent information submitted by you for registration purposes.

Should you have any questions concerning generator registration or manifesting requirements, please contact the Waste Management Branch Reviewer identified below at 323-5157.

Yours truly,


Director
Regulation 309, R.R.O., 1980
Environmental Protection Act

Waste Management Branch Reviewer:


E. Norman Hogan

EAS/lvc

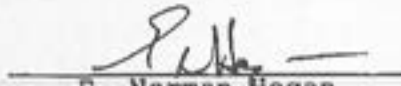
Enclosure

SCHEDULE "A"

This attached Schedule forms part of the acknowledgement of generator registration for the facility and site identified by Generator Registration Number ON1279402, dated at Toronto, MAY 11 1990

Waste Stream	Waste Class
1. Miscellaneous waste inorganic	148A
2. Miscellaneous waste organic	263A
3. Engine oil, varsol, brake fluid	252I

Waste Management Branch Reviewer:


E. Norman Hogan

SCHEDULE "B"

This attached Schedule forms part of the acknowledgement of generator registration for the facility and site identified by Generator Registration Number ON1279402, dated at Toronto, MAY 11 1990

	<u>Date</u>
Initial Generator Registration Report (GRR)	OCT 3, 1986

Telephone Conversation(s) with:

G. Gilday	MAY 12, 1987
G. Gilday	JAN 13, 1988
G. Gilday	JAN 15, 1988
G. Gilday	FEB 22, 1988
G. Gilday	MAR 25, 1988

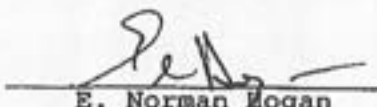
Letter(s):

MAR 7, 1988

Memo

MAY 13, 1987

Waste Management Branch Reviewer:


E. Norman Hogan

AUDIT SUMMARY

REVIEWER: KATHLEEN SMITH DISTRICT: YORK - DURHAM.
 COMPANY NAME: YORK REGION BOARD OF ED. - SEC. SCHOOL STOLENFILLE DISTRICT
 GRR #: 0N0192 306 TELEPHONE #: _____
 TYPE OF INDUSTRY: SECONDARY SCHOOL
 SITE VISIT: YES ☐ NO ☒ DATE OF VISIT: N/A.
 SAMPLES: YES ☐ NO ☒ RESULTS: N/A.
 WASTE CLASS AND PRIMARY CHARACTERISTIC: 148A, 263A, 252I.

PROCESS DESCRIPTION: 148A & 263A are small quantities
of organic & inorganic chemicals generated
from school's science lab(s).
- 252I is crankcase oil with some
solvents & /or antifreeze generated from
school's auto shop. (may contain
some brake fluid)

ACTION REQUIRED: none; no additional wastes
suspected at this time.

ABATEMENT OFFICER: [Signature] REVIEWER: K. Smith

SUMMARY FORM
FOR GENERATOR REGISTRATION REPORTS (GRR)

GENERATOR REGISTRATION NUMBER : 0N0192306

COMPANY NAME : YORK REGION BOARD OF EDUCATION

WASTE MANAGEMENT BRANCH (WMB) REVIEW 43-066

NOTES:

GRR dated Oct. 03/86
Rec'd Oct. 09/86
Reviewed July 01/87
Letter received on 07/03/88 (Wallace Currie)
Tel 13/01/88 (Graeme Gilday)
Memo letter 13/03/87

Based on information provided, Waste
Class(es) appear(s) reasonable as acknowledged

ACKNOWLEDGED ☒ MINISTRY OF THE ENVIRONMENT

REJECTED ☐ CENTRAL REGION
7 OVERLEA PLVD. DATE

WMB REVIEWER 13/05/88

REGIONAL REVIEW

NOTES:

- 263A, 145A, 252I REGR ACK.

- no additional wastes suspected
at this time

☒ No changes to GRR

☐ Clarification to GRR
(attachments enclosed)

☐ Changes to GRR
(attachments enclosed)

Patricia Smith
REGIONAL REVIEWER

DATE: OCT. 28/88

[Signature]
DISTRICT OFFICER

DATE: 88 11 02



OCT 11 1988

York Region Board of Education
Stouffville District Secondary
School
153 Edward Street
Stouffville, Ontario
L4R 1A8

Attn: Mr. P.D. Bright
School Principal

Dear Mr. Bright:

RE: Acknowledgement of Subject Waste Registration

As prescribed by Section 15(4) of Ontario Regulation 309, this letter acknowledges receipt of your Generator Registration Report(s) dated October 3, 1986, telephone conversation(s) with G. Gilday of May 12, 1987, January 13, 1988, January 15, 1988, February 22, 1988, March 25, 1988, letter(s) dated March 7, 1988 and memo(s) dated May 13, 1987 for the following site:

Stouffville District Secondary
School
153 Edward Street
Stouffville, Ontario

The Generator Registration Number assigned to your company at this site is:

ON0192306

Please note that this Generator Registration Number must be used only in conjunction with the site for which it was issued.

Please ensure that the company name shown in this letter is complete and accurate. This would be the corporate name or, if a partnership or proprietorship, the name of the principal(s). If you intend to carry on business under a separate name or style, this should also be entered. If there is a discrepancy, it is your responsibility to re-register providing us with your complete and accurate company name.

A list of the waste stream(s) covered by this acknowledgement is attached to this letter as Schedule "A".

For off-site disposal of subject wastes, the waste number(s) describing the waste stream(s) in Schedule "A" and the Generator Registration Number must be entered on manifest forms for each waste transaction after you have received this generator registration document. A copy of an example manifest form is attached for your information.

For on-site disposal of subject wastes covered by this acknowledgement, including on-site incineration, landfilling and discharges to sanitary sewers, every generator shall retain records for a period of at least two years. These records shall include the generator registration number, waste name(s), waste number(s), quantity and disposition of the waste(s).

For off-site disposal of any registerable solid wastes shown in Schedule "A" (waste classes ending in the letter "N"), manifesting is not required at this time. These wastes can be disposed of at most approved municipal landfilling sites.

The selection of accurate waste classes is the responsibility of each waste generator. This acknowledgement must not be considered as a confirmation of the accuracy of information submitted by you. Based on the information you have provided, the waste class(es) that has (have) been selected appear(s) to be correct. If, due to new information or re-assessment of information submitted, you feel your waste is inappropriately classified, you should apply for a revision to your registration using the Generator Registration Report, Form 2. Should the waste class(es) that you have selected be deemed incorrect by the Ministry, or improper waste disposal occurs at any time, you may be subject to legal action as provided by the Environmental Protection Act and Regulation 309.

Your Generator Registration Report has now been forwarded to the District Office of this Ministry that is closest to your generating site. The District Office will be conducting a post-registration audit and may be contacting you for additional information or may be conducting site visits.

It is important to note that under Section 15(4) of Ontario Regulation 309, a new Generator Registration

Report must be submitted to the Ministry within fifteen (15) days for any of the following reasons:

1. If the name, address or telephone number of your company or waste generating site changes.
2. If the description, the waste class or physical or chemical characteristics of your registered wastes change(s).
3. If you generate a hazardous or liquid industrial waste that has not been registered with the Ministry.

If the quantity of registered wastes or your carrier or receiver changes, automatic re-registration is not required. However, in order to update our file, we may periodically request additional information when we observe or suspect a significant change as compared to the most recent information submitted by you for registration purposes.

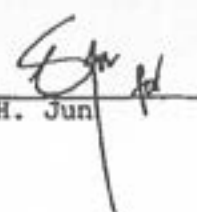
Should you have any questions concerning generator registration or manifesting requirements, please contact the Waste Management Branch Reviewer identified below at 323-5208.

Yours truly,



Director
Regulation 309, R.R.O., 1980
Environmental Protection Act

Waste Management Branch Reviewer:


K. H. Jun

EAS/mm

Enclosure

ADDITIONAL COMMENTS:

Based on the information submitted in your Generator Registration Report, we have selected waste class 148A for "miscellaneous inorganic laboratory chemical wastes (lab pack)", and waste class 263A for "miscellaneous organic laboratory chemical wastes (lab pack)". The usage of lab pack waste classes 148A and 263A are intended only for the

registrations of small volumes of various waste chemicals generated by laboratories. Where a large quantity of a specific waste chemical is generated, separate registration and manifesting will be required. The primary characteristic A (Acute Hazardous Waste Chemical) in both cases represents the worst possible situation. This characteristic may be used for all miscellaneous laboratory chemical wastes, even if they have a lesser hazardous characteristic (i.e., corrosive, reactive, etc.).

It should be noted that Severely Toxic, Pathological or PCB wastes, if generated, will require separate registration and manifesting.

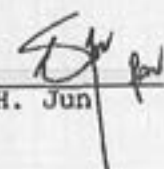
Based on the information you have submitted in your Generator Registration Report and/or through telephone discussion, we have selected the waste class 252I for your engine oil, varsol, brake fluid. It is your responsibility to evaluate these waste classes and re-register within fifteen (15) days if they are found to be inappropriate for your particular wastes.

SCHEDULE "A"

This attached Schedule forms part of the acknowledgement of generator registration for the facility and site identified by Generator Registration Number ON0192306, dated at Toronto, OCT 11 1988

	Waste Stream	Waste Class
1.	Miscellaneous waste inorganic from lab	148A
2.	Miscellaneous waste organic from lab	263A
3.	Engine oil, varsol, brake fluid	252I

Waste Management Branch Reviewer: _____


K. H. Jun



Environnement

l'Environnement

REGISTRATION 202, P.O. BOX 1000, TORONTO, ONT. M5G 1B1

Rapport d'inscription du producteur

Règlement 309, R.R.O. de 1990, formule 2

43-066

NOTE: Regulators require generators of hazardous or liquid industrial wastes to submit a Generator Registration Report using this form respecting each waste generation facility.

REMARQUE: Les régulateurs exigent que les producteurs de déchets industriels liquides ou dangereux présentent un Rapport d'inscription du producteur en se servant de la présente formule pour chaque lieu de production de déchets et chaque déchet industriel liquide ou dangereux.

Part I - Generator Identification / Partie I - Identification du producteur

This report is / Le présent rapport constitue:		Generator Registration Number N° d'inscription du producteur	
1. ☒ an initial generator registration report / un premier rapport d'inscription du producteur	OND192306		
or / ou			
2. ☐ a revision - enter Ontario Generator Registration No. une révision - veuillez inscrire le numéro d'inscription du producteur de l'Ontario			
3. For generators located outside of Ontario, enter Registration/Notification number assigned by your local environmental authority. / Si vous êtes un producteur de l'extérieur de l'Ontario, veuillez inscrire le numéro d'inscription/identification attribué par les autorités locales en matière d'environnement.			
4. Name / Nom YORK REGION BOARD OF EDUCATION			
5. Address / Adresse BOX 40, 60 WELLINGTON STREET WEST			
6. Municipality / Municipalité AURORA		Province / Province ONT	Postal Code / Code postal L4G3H2
7. Site location / Lieu des installations STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET			
8. Municipality / Municipalité STOUFFVILLE		Province / Province ONT	Postal Code / Code postal L4A1A8
9. Name of contact / Nom de la personne à contacter W. GRAEME GILDAY		Tel No. / N° de tél. 4167273141	
10. Standard Industrial Classification Codes (SIC) for Site noted in Section 7. / Codes de la classification des activités économiques 8511			
11. Total number of wastes to be registered with this report / Nombre total de déchets à inscrire au moyen de ce rapport 003			
12. Name of Company Official / Nom du représentant autorisé de la compagnie W. GRAEME GILDAY		13. Position / Poste HEALTH AND SA.	
14. Signature / Signature 		15. Date / Date October 3 / 1986	
PENALTY			
Convictions may be punished by fines of up to \$2,000 (higher if environmental damage may result). (Environmental Protection Act, sections 47 and 147)			
Toute infraction peut être sanctionnée par une amende maximale de 2 000 \$ (ou plus s'il peut en résulter une dégradation de l'environnement). (Articles 47 et 147 de la Loi sur la protection de l'environnement)			
16. Ministry Use Only / Réserve au ministère			
County Code / Code de comté		22	
Regional/District Code / Code de région/district			
Municipal Code / Code de municipalité			
Inter City Tie Line / Ligne privée interurbaine			

1. Description of Waste / Description des déchets

148A - MISCELLANEOUS WASTE INORGANIC
 263A - MISCELLANEOUS WASTE ORGANIC
 252X - WASTE CRANKCASE OILS AND LUBRICANTS

2. Description of generating process / Description du procédé de production

EDUCATIONAL ACTIVITIES, SECONDARY SCHOOL LEVEL.

3. Waste quantity generated or accumulated / Quantité des déchets produits ou accumulés

Continuous process / Procédé continu

0000002

kg/mo. / kg/mois

or / ou

Batch process / per lots

batches/mo.
lots/mois

kg/batch / kg/lot

4. Primary characteristic / Caractéristique principale

Analytical data (if applicable). If the data has been estimated, attach separate sheet outlining the basis for the estimate. / Données analytiques (le cas échéant). Si les données sont estimatives, veuillez annexer une feuille à part pour décrire sur quoi reposent les estimations.

Name of Laboratory (if applicable). / Laboratoire (le cas échéant)

Waste Class
Catégorie des déchetsHazardous Waste Number
Numéro des déchets dangereuxSpecific Gravity
Gravité spécifiquePhysical State
(Solid-S, Liquid-L, Gas-G)
État physique
(solide-S, liquide-L, gaz-G)

For Ministry Use Only / Réservé au ministère

5. Secondary characteristic / Caractéristique secondaire

Analytical data (if applicable) / Données analytiques (le cas échéant)

Part 3 - Waste Management / Partie 3 - Gestion des déchets

1. Principal Intended Receiver / Réceptionnaire principal prévu

Company name and address / Nom et adresse de la compagnie

MOSAIC CHEMICAL CORPORATION
 5369 HAINGATE DRIVE

Municipality
Municipalité

MISSISSAUGA

Province/State
Province/État

ONT

Postal Code
Code postal

L4W1G6

Receiver No. / N° du réceptionnaire

A220115

2. Principal Intended Carrier / Transporteur principal prévu

Company name and address / Nom et adresse de la compagnie

MOSAIC CHEMICAL CORPORATION
 5369 HAINGATE DRIVE

Municipality
Municipalité

MISSISSAUGA

Province/State
Province/État

ONT

Postal Code
Code postal

L4W1G6

MOE Carrier No.
N° du M. de l'E. du transporteur

A840182



Ministry
of the
Environment

Ministère
de
l'Environnement

135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

135 Street, Avenue St. Clair
Bureau 100
Toronto (Ontario)
M4V 1P5

November 25, 1986

York Region Board of Education
P.O. Box 40
Aurora, Ontario
L4G 3H2

Attn: Mr. W. Graeme Gilday
Health and Safety Officer

Dear Sirs:

We have received your Generator Registration Report(s)
dated October 3, 1986 for the following site:

Stouffville District Secondary School
153 Edward Street
Stouffville, Ont.

Your generator registration report has not yet been
reviewed in detail and as such we are not in a position to
respond under section 15 (3) of Regulation 309 and issue
either an acknowledgement or rejection.

The following temporary number can be used on manifests in
place of a generator registration number until a final
decision regarding your generator registration report has
been made:

OND192306Y

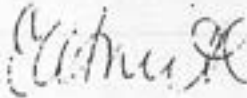
This temporary number should be entered in the box headed
"Generator Registration Number" at the top of Part A of
the manifest.

The waste class(es) to be entered on the manifest is (are)
the responsibility of the generator. You should ensure
that the waste class(es) selected by you accurately
describe(s) your waste(s).

.../2

If you have any questions, please feel free to contact the closest District Office of this Ministry. In the meantime, staff of this Branch will be reviewing your generator registration report and will be contacting you shortly.

Yours truly,



E.A. Smith
Director
Regulation 309, R.R.O., 1980
Environmental Protection Act

cc: Reg. 309 Coordinators

RAB/gwm

IN 08 21

Record of Verbal Transaction
Waste Management Branch

File No.

From: T. JAFFER	To: W. GRAEME GILDAY.
Location WMB	Location YORK REGION B.O.C.
☐ Incoming Call ☐ Outgoing Call ☐ Interview	Time 3:50 P Date MAY 12/87

Re: AMT OF 148A, 263A & 252.

#1 LEFT MISS. FOR MR. GILDAY
3:50 P. MAY 12/87.

#2 CALLED BACK MAY 12/87 4:15 P.
148A & 263A ARE 2KG/MONTH
MAXIMUM. AND BEING DISPOSED BY
MOBAC & CHEMICALS CORP.

CRANKCASE OILS IS ONLY GENERATED
AT SOME SCHOOLS NOT ALL.

MR. GILDAY WILL CALL BACK TO
LIST THE SITES AND THE AMOUNTS.

#3 I PHONED MAY 19/87 9:35 A. ASK FOR ABOVE
INFO. FROM MR. GILDAY. & HE SAYS HE HAS
SENT MEMOS TO ALL THE TECH. DIRECTORS
AND AWAITING REPLYES. WILL SEND ME
THE REQUIRED INFO. AS SOON AS
THE TIFY ARE READY.



Ministry
of the
Environment

Record of Verbal Transaction

Waste Management Branch

File No.

0192306-19

From: Grasme Gilday.	To: Robin Plummer
Location York Region BJB	Location WMB.
☐ Incoming Call ☐ Outgoing Call ☐ Interview	Time Date Mar 25/88

Re: waste descriptions

- 1- I advised that I was getting limited response from bus letter to technical leads at each school.
- 2- before I was able to finish my request for more information he interjected that he wishes to not be pursued with this matter and that I contact each and every school to get the required info. He acknowledges that he signed the documents but under the Education Act the principal is responsible for each school and that is who we work with.
- 3- I advised that that is not the case, the signer of the bill is responsible for it's contents.
- 4- I advised that in light of the fact that there has been little co-operation I will reject the schools with insufficient

[Signature]

Signature



Ministry
of the
Environment

Record of Verbal Transaction

Waste Management Branch

File No.

ON 0192306-20

From: <i>Giraine Gilday</i>	To: <i>Robert Shumir</i>
Location: <i>York Region B. 3 Ctl</i>	Location: <i>WMB</i>
☐ Incoming Call ☐ Outgoing Call ☐ Interview	Time: <i>10am</i> Date: <i>Feb 22 '88</i>

Re: *solid waste*

*sent letter to each school asking
re solid waste as per our
previous discussions.*

*we sent copy of letter to my attention
Feb 17 '88*

*Each school will reply individually to
me.*



Ministry
of the
Environment

Record of Verbal Transaction
Waste Management Branch

File No.

51923-0-20

From: <i>Robin Shmir</i>	To: <i>Eivonne Gilday</i>
Location: <i>WMB</i>	Location: <i>Work Regim B 7 Bd.</i>
☐ Incoming Call ☐ Outgoing Call ☐ Interview	Time: <i>1:00</i> Date: <i>Jan 15/88</i>

Re: *waste details.*

- I said that his interview cannot be
proceeded until I get clearer information
I would like to know the following*
- 1. what are the wastes produced at each school*
 - 2. what are the quantities.*
 - 3. Are they being bulked.*
 - 4. If so, what are relative quantities and
mixture.*
 - 5. What are waste disposal methods.*



Ministry
of the
Environment

Record of Verbal Transaction

Waste Management Branch

File No. 0192306-19

~~0192306-19~~

From: <i>Robert Skinner</i>	To: <i>Graham Gilday</i>
Location <i>COMB</i>	Location <i>York Region Board of Ed.</i>
☐ Incoming Call ☐ Outgoing Call ☐ Interview	Time <i>2 pm</i> Date <i>Jan 13/88</i>

Re:

*1 kg/year - max amount of 168A wastes and
263A wastes - for lab demonstrations by
teacher only. **

*I was advised to contact each school separately
on the matter of volumes petroleum spirits and
waste oils generated.*

** This supersede's call of May 12/87. The previous claim
of 2 kg/month is high due to a massive cleanup
of the science departments of each school and
an unusual high amount of waste was generated.*

1988 MAR -7 A 11:34

Stouffville District Secondary School

P.D. BRIGHT, B.S.A.
Principal



R.A. LEONARD, B.A., M.ED.
Vice-Principal

153 Edward Street
STOUFFVILLE, ONTARIO L4A 1A8
Telephone: 640-1433

Ministry of the Environment
Waste Management Branch
40 St. Clair Avenue West
5th Floor
Toronto, Ontario
M4V 1M2

Att: Mr. Robin Skinner

Re: Description of Wasters
Technical Director: W. Currie
Waste type: Engine oil, varsol, brake fluid
Amount: 60 gal. per year - total

All waste is kept in one holding tank in room 117 - Auto Shop
Disposal Company: Septor Oil

Wallace Currie

TO: Secondary School Technical Directors

FROM: Health and Safety Officer

SUBJECT: Waste Crankcase Oils and/or Shops Solvents

DATE: May 13, 1987

The Ministry of the Environment has requested the following information in order to process our Waste Generators' Registration in accordance with the requirements of Regulation 309.

Please forward the information to me at Box 40 at your earliest convenience.

W. Graeme Gilday
W. Graeme Gilday
Health and Safety Officer

c.c. Secondary School Principals

STONFVILLE D S SCHOOL

(name and address of location)

W CURRIE Room 115

(name and room number of Tech Director)

OIL, VARSOL

(description of wastes likely to require periodic disposal)

80 GAL PER YEAR

(estimated quantities of wastes likely to require periodic disposal; by month, quarter, year, etc., as appropriate)

*Thinking?
7/7/87*

*-interview still do not
clarify earlier,
hence no*

1/8/87

*left message
for G. G. Gilday*

Feb 16



Ministry
of the
Environment

Ministère
de
l'Environnement

135 St. Clair Avenue West
Suite 100
Toronto, Ontario
M4V 1P5

135 ouest, avenue St. Clair
Bureau 100
Toronto (Ontario)
M4V 1P5

November 25, 1986

York Region Board of Education
P.O. Box 40
Aurora, Ontario
L4G 3H2

Attn: Mr. W. Graeme Gilday
Health and Safety Officer

Dear Sirs:

We have received your Generator Registration Report(s)
dated October 3, 1986 for the following site:

Stouffville District Secondary School
153 Edward Street
Stouffville, Ont.

Your generator registration report has not yet been
reviewed in detail and as such we are not in a position to
respond under section 15 (3) of Regulation 309 and issue
either an acknowledgement or rejection.

The following temporary number can be used on manifests in
place of a generator registration number until a final
decision regarding your generator registration report has
been made:

ON0192306Y

This temporary number should be entered in the box headed
"Generator Registration Number" at the top of Part A of
the manifest.

The waste class(es) to be entered on the manifest is (are)
the responsibility of the generator. You should ensure
that the waste class(es) selected by you accurately
describe(s) your waste(s).

.../2

If you have any questions, please feel free to contact the closest District Office of this Ministry. In the meantime, staff of this Branch will be reviewing your generator registration report and will be contacting you shortly.

Yours truly,

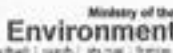


E.A. Smith
Director
Regulation 309, R.R.O., 1980
Environmental Protection Act

cc: Reg. 309 Coordinators

RAB/gwm

IN 08 21

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hwin
 Administration

Generator Details

Registration/Notification Number

ON1279002

Legal Company Name

Primary Name:	YORK REGION DISTRICT SCHOOL BOARD	Division Name:	NA
---------------	-----------------------------------	----------------	----

Company Operating Name

Primary Name:	YORK REGION DISTRICT SCHOOL BOARD	Division Name:	NA
---------------	-----------------------------------	----------------	----

Mailing Address

Division Building:	NA	Post Box Number:	NA
Address Line 1:	60 WELLINGTON STREET WEST	Address Line 2:	P.O. BOX 10
Town/City:	AURORA	Postal Code / Zip Code:	L4G 3H5
Country (if inside Ontario):	YORK (R. M.)	Province/State (if inside Canada/US):	ONTARIO
Country (if outside Ontario):	NA	Province / State (if outside Canada / US):	NA
Country:	Canada		

Site Location

This should be the exact address of the site that is being registered. You are required to register each site that generates hazardous waste separately.

Division Building:	NA	Post Box Number:	NA
Address Line 1:	STONEYVILLE DISTRICT SECONDARY SCHOOL		
Address Line 2:	187 BRAMBLE CRESCENT		
Town/City:	WHITCHURCH-STONEYVILLE	Postal Code / Zip Code:	L4A 1Z1
Country (if inside Ontario):	YORK (R. M.)	Province / State (if inside Canada / US):	ONTARIO
Country (if outside Ontario):	NA	Province / State (if outside Canada / US):	NA
Country:	Canada		

Company Official

000044




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 Administration

Search

Company Name: YORK REGION DISTRICT SCHOOL BOARD

Company Number: ON1279402 (Generator)

Active Waste Classes

Active Waste Class Listing

[Add New Waste Class](#) | [Inactive waste classes](#)

Active On-site Waste Classes

Waste View Class Details	Hazardous Waste Number (per waste stream)	Reg. 347 Schedules	Disposal Method	Part 2B required	Part 2B complete	Physical State	Off-Site	Status
112 - C View Details	D002	5, 13	Land Disposal	Y	Y	Solid	Off-Site	Active
121 - C View Details	D002	5, 13	Land Disposal	Y	Y	Solid	Off-Site	Active
146 - C View Details	D002	5, 13	Land Disposal	Y	Y	Liquid	Off-Site	Active
251 - L View Details	N/A					Liquid	Off-Site	Active
252 - L View Details	N/A					Liquid	Off-Site	Active
263 - I View Details	D001	5, 13	Land Disposal	Y	Y	Liquid	Off-Site	Active

000045

https://intra.apps.lrc.gov.on.ca/hwinadmin/wasteclass/wasteclass_details.jsp?iCompanyID=... 04/09/2018

264 - C View Details D002	S, 13	Land Disposal	Y	Y	Liquid	Site	Active
264 - L View Details N/A					Liquid	Off-Site	Active
331 - I View Details D001	S, 13	Land Disposal	Y	Y	Gas	Off-Site	Active

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Environment

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Search:

Company Name: YORK REGION DISTRICT SCHOOL BOARD
Company Number: ON1279402 (Generator)

Inactive Waste Classes

Inactive Waste Class Listing

[Add New Waste Class](#) [Active waste classes](#)

Inactive Off-site Waste Classes

Waste Class	Physical State	Off-Site	Status	Activate	
148 - A	Liquid	Off-Site	Inactive	☐	View Details
252 - I	Liquid	Off-Site	Inactive	☐	View Details
263 - A	Liquid	Off-Site	Inactive	☐	View Details
264 - T	Liquid	Off-Site	Inactive	☐	View Details
					Activate

000047

https://intra.apps.lrc.gov.on.ca/hwinadmin/wasteclass/generatorhome_wasteclass.jsp?iComp... 04/09/2018

File Copy for ON1279402 SCHEDULE 'A' - FILE COPY

April 21, 1998

**YORK REGION DISTRICT SCHOOL BOARD
P.O. BOX 40
60 WELLINGTON STREET WEST
AURORA, ONT
L4G 3H2**

Attention: MR. LARRY SCHURMAN

Re: Acknowledgement of Subject Waste Registration

In accordance with Subsection 18(3) of Ontario Regulation 347, this letter acknowledges receipt of your Generator Registration report dated February 19, 1998. The Generator Registration Number assigned to your company is:

ON1279402

for the site located at: **STOUFFVILLE DISTRICT SECONDARY SCHOOL
183 BRAMBLE CRESCENT
WHITCHURCH-STOUFFVILLE
ONT**

A list of acknowledged waste number(s) is attached as Schedule 'A'. The format of this schedule has been modified since July 1993. A waste number now appears only once, regardless of the number of different waste streams which may have identical waste numbers. The waste description is also generic. However, you are still required to register all waste streams, even if they have identical waste numbers.

For off-site disposal of subject waste, the appropriate waste number(s) acknowledged in Schedule 'A', and the Generator Registration Number, must be entered in Part A of each manifest form after receipt of this generator registration document. Under Ontario's Environmental Protection Act, the property receiving the waste must be approved as a disposal site for the waste it is receiving. The disposal of waste at an uncertified site is illegal.

The selection of accurate waste numbers is your responsibility. This acknowledgement must not be considered a confirmation of the accuracy of the information submitted by you. Should the waste number(s) you have selected be deemed incorrect by the Ministry, or improper waste disposal occurs at any time, you may be subject to legal action as provided by the Environmental Protection Act and Regulation 347.

SCHEDULE 'A'

In accordance with information submitted with your generator registration report(s), the site indicated below is registered for the waste number(s) shown on this schedule, which may represent more than one waste stream. This attached Schedule forms part of the acknowledgement of generator registration report dated February 19, 1998 for the following site:

YORK REGION DISTRICT SCHOOL BOARD
STOUFFVILLE DISTRICT SECONDARY SCHOOL
183 BRAMBLE CRESCENT
WHITCHURCH-STOUFFVILLE
ONT

Identified by Generator Registration Number ON1279402, dated in Toronto, April 21, 1998.

<u>WASTE STREAM</u>	<u>WASTE NUMBER</u>
INORGANIC LABORATORY CHEMICALS	148A
OIL SKIMMINGS & SLUDGES	251L
WASTE OILS & LUBRICANTS	252I
ORGANIC LABORATORY CHEMICALS	263A
PHOTOPROCESSING WASTES	264C
PHOTOPROCESSING WASTES	264L
PHOTOPROCESSING WASTES	264T

----- End of List -----



Environmental

Geotechnical

Building Sciences

Construction
Monitoring

CONTACT US:

Telephone

(800) 217.7900

(705) 742.7900

Facsimile

(705) 742.7907

Website

cambium-inc.com

Mailing Address

P.O. Box 325

52 Hunter Street East

Peterborough, Ontario

K9H 1G5

LOCATIONS:

Peterborough

Barrie

Oshawa

Kingston

LABORATORY:

Peterborough



**Professional Engineers
Ontario**

March 28, 2018

York Region District School Board
60 Wellington Street West
Aurora, Ontario
L4G 3H2

Attention: Mr. Gilbert Luk, Associate Manager – Planning & Property Services

**Re: Edward Street Class EA, Bramble Crescent Opening, Whitchurch
Stouffville, Ontario**

Dear Sir,

Cambium Inc. is in the midst of completing an Environmental Site Assessment (ESA) of the above captioned site (See Location Map). Our information request pertains to any environmental information regarding the Bramble Crescent Opening lands including the former Stouffville Secondary School property, which we understand it remains part of.

Furthermore, our information request is with respect to environmental reports, environmental concerns, regulatory notices, infractions etc.

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

Yours truly,

CAMBIUM INC.

David M. Mably, P.Eng.

Project Manager

Attached: Location Map

DMM/

P:\7000 to 7999\7030-001 Ainsley Group - Phase One ESA - Edward Street Extension, Whitchurch, Stouffville\Correspondence\Ltr\2018-03-28 LTR - Edward Street Extension.docx

Location Map – Bramble Crescent Opening

Attachment 1



David Mably

From: Public Information Services <publicinformationservices@tssa.org>
Sent: Friday, March 23, 2018 4:01 PM
To: David Mably
Subject: Automatic reply: TSSA Records (7030-001)

Thank you for your email. We will respond to your request for information in the order it was received. The turnaround time for a confirmation is approximately 10 business days. Requests for documents are currently being processed in 90 days.

Please note that all requests for documents must be accompanied by a completed Release of Information or Bulk Database Product Application form and the required prepayment/deposit. Incomplete requests will not be processed.

For more information please contact us at 1-877-682-8772 or visit our website at www.tssa.org

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Appendix C

Eris Report



DATABASE REPORT

Project Property: *Edward Street, from Main to Millard
Edward Street, from Main to Millard
Whitchurch - Stouffville ON*

Project No:

Report Type: *Quote - Custom-Build Your Own Report*

Order No: *20171120118*

Requested by: *Cambium Environmental*

Date Completed: *March 9, 2018*

**Environmental Risk
Information Services**
A division of Glacier Media Inc.
P: 1.866.517.5204
E: info@erisinfo.com
www.erisinfo.com

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Executive Summary

Property Information:

Project Property: *Edward Street, from Main to Millard
Edward Street, from Main to Millard Whitchurch - Stouffville ON*

Project No:

Order Information:

Order No: *20171120118*
Date Requested: *November 20, 2017*
Requested by: *Cambium Environmental*
Report Type: *Quote - Custom-Build Your Own Report*

Historical/Products:

Insurance Products *Fire Insurance Maps/Inspection Reports/Site Specific Plans*

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Boundary to 0.25km	Total
AAGR	Abandoned Aggregate Inventory	Y	0	0	0
AGR	Aggregate Inventory	Y	0	0	0
AMIS	Abandoned Mine Information System	Y	0	0	0
ANDR	Anderson's Waste Disposal Sites	Y	0	1	1
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
BORE	Borehole	Y	0	0	0
CA	Certificates of Approval	Y	0	5	5
CFOT	Commercial Fuel Oil Tanks	Y	0	2	2
CHEM	Chemical Register	Y	0	0	0
CNG	Compressed Natural Gas Stations	Y	0	0	0
COAL	Inventory of Coal Gasification Plants and Coal Tar Sites	Y	0	0	0
CONV	Compliance and Convictions	Y	0	0	0
CPU	Certificates of Property Use	Y	0	0	0
DRL	Drill Hole Database	Y	0	0	0
EASR	Environmental Activity and Sector Registry	Y	0	2	2
EBR	Environmental Registry	Y	0	0	0
ECA	Environmental Compliance Approval	Y	0	1	1
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	0	10	10
EIS	Environmental Issues Inventory System	Y	0	0	0
EMHE	Emergency Management Historical Event	Y	0	0	0
EXP	List of TSSA Expired Facilities	Y	0	0	0
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	0	0	0
FOFT	Fisheries & Oceans Fuel Tanks	Y	0	0	0
FST	Fuel Storage Tank	Y	0	0	0
FSTH	Fuel Storage Tank - Historic	Y	0	0	0
GEN	Ontario Regulation 347 Waste Generators Summary	Y	0	51	51
GHG	Greenhouse Gas Emissions from Large Facilities	Y	0	0	0
HINC	TSSA Historic Incidents	Y	0	1	1
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
INC	TSSA Incidents	Y	0	1	1
LIMO	Landfill Inventory Management Ontario	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Mineral Occurrences	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0

Database	Name	Searched	Project Property	Boundary to 0.25km	Total
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defense & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defense & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBI	National Energy Board Pipeline Incidents	Y	0	0	0
NEBW	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	1	1
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGW	Oil and Gas Wells	Y	0	0	0
OOGW	Ontario Oil and Gas Wells	Y	0	0	0
OPCB	Inventory of PCB Storage Sites	Y	0	0	0
ORD	Orders	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	6	6
PINC	TSSA Pipeline Incidents	Y	0	0	0
PRT	Private and Retail Fuel Storage Tanks	Y	0	3	3
PTTW	Permit to Take Water	Y	0	0	0
REC	Ontario Regulation 347 Waste Receivers Summary	Y	0	0	0
RSC	Record of Site Condition	Y	0	2	2
RST	Retail Fuel Storage Tanks	Y	0	1	1
SCT	Scott's Manufacturing Directory	Y	0	12	12
SPL	Ontario Spills	Y	0	4	4
SRDS	Wastewater Discharger Registration Database	Y	0	0	0
TANK	Anderson's Storage Tanks	Y	0	0	0
TCFT	Transport Canada Fuel Storage Tanks	Y	0	0	0
VAR	TSSA Variances for Abandonment of Underground Storage Tanks	Y	0	0	0
WDS	Waste Disposal Sites - MOE CA Inventory	Y	0	0	0
WDSH	Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	0	0	0
WWIS	Water Well Information System	Y	0	16	16
Total:			0	119	119

Executive Summary: Site Report Summary - Project Property

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Dir/Dist (m)</i>	<i>Elev diff (m)</i>	<i>Page Number</i>
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No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
<u>1</u>	WMIS		ON	SSE/0.9	-1.04	<u>23</u>
<u>2</u>	WMIS		ON	SSE/2.4	-1.05	<u>25</u>
<u>3</u>	CA	TOWN OF WHITCHURCH-STOUFFVILLE-LOT 2/C-9	EDWARD ST./HAROLD ST. WHITCHURCH-STOUFFVILLE TOWN ON	SSE/5.4	-0.83	<u>27</u>
<u>4</u>	CA	WHITCHURCH-STOUFFVILLE TOWN	EDWARD ST./SCHELL ST./ROBERT WHITCHURCH-STOUFFVILLE TOWN ON	NNE/6.0	-0.01	<u>27</u>
<u>5</u>	WMIS		STOUFFVILLE ON	SSE/10.6	-1.06	<u>27</u>
<u>6</u>	WMIS		ON	SSE/11.3	-1.05	<u>30</u>
<u>7</u>	WMIS		ON	SSE/12.5	-1.08	<u>32</u>
<u>8</u>	SPL	UNITED CO-OPERATIVES OF ONTARIO	STOUFFVILLE CO-OP 47 EDWARD ST. STOUFFVILLE STORAGE TANK MARKHAM TOWN ON	SSE/15.2	-1.40	<u>32</u>
<u>9</u>	WMIS		STOUFFVILLE ON	SSE/19.8	-1.12	<u>33</u>
<u>10</u>	SCT	MAIN ST. PRINTING & SERVICES	6148 MAIN ST STOUFFVILLE ON L4A 1A6	SSE/20.7	-1.06	<u>35</u>
<u>10</u>	SCT	Main St. Printing & Services Ltd.	6148 Main St Stouffville ON L4A 1A6	SSE/20.7	-1.06	<u>36</u>
<u>11</u>	CA	WHITCHURCH-STOUFFVILLE TOWN	RUPERT ST/WILLIAM ST/EDWARD ST WHITCHURCH-STOUFFVILLE TOWN ON	N/22.5	0.98	<u>36</u>
<u>12</u>	EHS		19 Edward St Whitchurch-Stouffville ON L4A1A4	SSE/23.7	-1.11	<u>36</u>
<u>13</u>	GEN	Dr. Izso and Dr. Wat	6179 Main St. Stouffville ON L4A 8A1	SSE/27.8	-1.12	<u>36</u>
<u>13</u>	GEN	Dr. Izso and Dr. Wat	6179 Main St. Stouffville ON L4A 8A1	SSE/27.8	-1.12	<u>37</u>
<u>13</u>	GEN	Dr. Izso and Dr. Wat	6179 Main St. Stouffville ON L4A 8A1	SSE/27.8	-1.12	<u>37</u>
<u>13</u>	GEN	Dr. Izso and Dr. Wat	6179 Main St. Stouffville ON L4A 8A1	SSE/27.8	-1.12	<u>37</u>
<u>14</u>	WMIS		STOUFFVILLE ON	SSE/28.3	-1.13	<u>38</u>
<u>15</u>	GEN	UNITED CO-OPERATIVES OF ONTARIO	STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD ST. BOX 130 STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>40</u>
<u>15</u>	GEN	UNITED CO(SEE&USE ON1446963) 39-262	STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD ST. BOX 130 STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>40</u>
<u>15</u>	GEN	UNITED CO-OPERATIVES (SEE&USE ON1446963)	STOUFFVILLE CO-OP ASSOCIATION GAS BAR 47 EDWARD STREET STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>41</u>
<u>15</u>	GEN	STOUFFVILLE COOPERATIVE ASSCN.	47 EDWARD ST. P.O.BOX 130 STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>41</u>

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
<u>15</u>	GEN	STOUFFVILLE COOPERATIVE ASSCN. 34-398	47 EDWARD ST, P.O.BOX 130 STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>41</u>
<u>15</u>	GEN	UPI INC. 39-262	STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD STREET STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>41</u>
<u>15</u>	GEN	UCO PETROLEUM INC. 39-262	STOUFFVILLE CO-OP ASSOC. GAS BAR, 47 EDWARD ST. STOUFFVILLE, C/O 5600 CANCROSS CT, BOX 7030 MISSISSAUGA ON L4A 1A4	SSE/28.9	-1.74	<u>42</u>
<u>15</u>	PES	STOUFFVILLE CO-OPERATIVE ASSOCIATION	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>42</u>
<u>15</u>	PES	STOUFFVILLE CO-OPERATIVE ASSOCIATION	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>42</u>
<u>15</u>	PES	STOUFFVILLE CO-OPERATIVE ASSOCIATION(C#91383)	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>43</u>
<u>15</u>	PES	SHELL LUMBER LIMITED	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>43</u>
<u>15</u>	PES	SHELL LUMBER LIMITED	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>43</u>
<u>15</u>	PES	SHELL LUMBER LIMITED	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>44</u>
<u>15</u>	PRT	STOUFFVILLE CO-OP ASSOC	47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>44</u>
<u>15</u>	PRT	STOUFFVILLE CO-OP ASSOC	47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>44</u>
<u>15</u>	PRT	ROMANDALE FARMS LTD	47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>44</u>
<u>15</u>	RST	STOUFFVILLE CO-OPERATIVE ASSN	47 EDWARD ST STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>44</u>
<u>15</u>	SCT	STOUFFVILLE CO-OPERATIVE ASSOC	47 EDWARD ST STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>45</u>
<u>15</u>	SPL	EXPERTS COOP	47 EDWARDS TANK TRUCK (CARGO) WHITCHURCH-STOUFFVILLE ON L4A 1A4	SSE/28.9	-1.74	<u>45</u>
<u>16</u>	GEN	UPI INC.(OUT OF BUSINESS)	STOUFFVILLE CO-OP ASSOCIATION GAS BAR 47 EDWARD STREET STOUFFVILLE ON	SSE/29.0	-1.45	<u>45</u>
<u>17</u>	WWIS		STOUFFVILLE ON	SSE/30.3	-1.15	<u>45</u>
<u>18</u>	WWIS		ON	SSE/32.5	-1.18	<u>48</u>
<u>19</u>	SCT	Villa Italian Bakery 1980 Ltd	67A Edward St Unit A Stouffville ON L4A 1A5	SSE/35.6	-1.91	<u>49</u>
<u>19</u>	SCT	Villa Italian Bakery (1980) Ltd.	67A Edward St Stouffville ON L4A 1A5	SSE/35.6	-1.91	<u>49</u>
<u>20</u>	WWIS		STOUFFVILLE ON	SSE/37.2	-1.14	<u>49</u>
<u>21</u>	EHS		67 Edward Street Stouffville ON L4A 1A5	SE/42.1	-2.04	<u>52</u>
<u>21</u>	GEN	Kingfisher International Inc.	67 Edward Street Stouffville ON L4A 1A4	SE/42.1	-2.04	<u>52</u>
<u>21</u>	GEN	Kingfisher International Inc.	67 Edward Street Stouffville ON L4A 1A5	SE/42.1	-2.04	<u>52</u>
<u>21</u>	GEN	Kingfisher International Inc.	67 Edward Street Stouffville ON L4A 1A5	SE/42.1	-2.04	<u>52</u>

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
<u>21</u>	SCT	VILLA ITALIAN BAKERY 1980 LTD	67 A EDWARD ST STOUFFVILLE ON L4A 1A4	SE/42.1	-2.04	<u>53</u>
<u>22</u>	EHS		6132 Main Street Stouffville ON L4A 1A6	S/43.5	-1.02	<u>53</u>
<u>23</u>	GEN	ROYAL DIE LTD.	83 EDWARD ST. STOUFFVILLE ON L0H 1L0	SE/47.2	-1.46	<u>53</u>
<u>23</u>	GEN	ROYAL DIE LIMITED	83 EDWARD STREET STOUFFVILLE ON L0H 1L0	SE/47.2	-1.46	<u>54</u>
<u>23</u>	SCT	ROYAL DIE LTD	83 EDWARD ST STOUFFVILLE ON L4A 1A7	SE/47.2	-1.46	<u>54</u>
<u>24</u>	CFOT	WAYNE SMITH	79 ALBERT ST STOUFFVILLE ON L4A 1B2	SSW/57.8	0.33	<u>54</u>
<u>25</u>	EHS		47 Edward St Whitchurch-Stouffville ON L4A1A4	SE/64.6	-2.01	<u>54</u>
<u>26</u>	GEN	YORK BOARD OF EDUCATION	STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	N/68.9	-0.02	<u>55</u>
<u>26</u>	GEN	YORK BOARD (SEE & USE ON1279402)	STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	N/68.9	-0.02	<u>55</u>
<u>26</u>	GEN	YORK BOARD (SEE & USE ON1279402) 43-066	STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	N/68.9	-0.02	<u>55</u>
<u>26</u>	GEN	YORK REGION BOARD OF EDUCATION	STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	N/68.9	-0.02	<u>56</u>
<u>27</u>	GEN	Metrolinx	6176 Main Street, Stouffville ON L4A 2S5	SSE/69.4	-1.44	<u>56</u>
<u>27</u>	GEN	Metrolinx	6176 Main Street, Stouffville ON L4A 2S5	SSE/69.4	-1.44	<u>56</u>
<u>27</u>	GEN	Metrolinx	6176 Main Street, Stouffville ON L4A 2S5	SSE/69.4	-1.44	<u>57</u>
<u>27</u>	GEN	Metrolinx	6176 Main Street, Stouffville ON	SSE/69.4	-1.44	<u>57</u>
<u>27</u>	GEN	Metrolinx	6176 Main Street, Stouffville ON L4A 8A4	SSE/69.4	-1.44	<u>57</u>
<u>27</u>	GEN	Metrolinx	6176 Main Street, Stouffville ON L4A 8A4	SSE/69.4	-1.44	<u>57</u>
<u>27</u>	GEN	Metrolinx	6176 Main Street, Stouffville ON L4A 8A4	SSE/69.4	-1.44	<u>58</u>
<u>27</u>	GEN	Metrolinx GO Transit	6176 Main Street, Stouffville ON L4A 8A4	SSE/69.4	-1.44	<u>58</u>
<u>28</u>	GEN	ROYAL DIE LTD.	83 EDWARD ST. STOUFFVILLE ON L3P 3J3	ESE/69.6	-2.16	<u>58</u>
<u>28</u>	GEN	ROYAL DIE LTD. 336	33- 83 EDWARD ST. STOUFFVILLE ON L3P 3J3	ESE/69.6	-2.16	<u>59</u>
<u>29</u>	WMS		STOUFFVILLE ON	SE/69.6	-2.03	<u>59</u>
<u>30</u>	EHS		6209 Main St Stouffville ON L4A 4H8	SSE/70.1	-1.48	<u>64</u>
<u>30</u>	HINC		6209 MAIN STREET STOUFFVILLE ON L4A 4H8	SSE/70.1	-1.48	<u>64</u>
<u>30</u>	NPCB	WHITCHURCH-STOUFFVILLE HYDRO	6209 MAIN ST. STOUFFVILLE ON L4A 4H8	SSE/70.1	-1.48	<u>65</u>

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
<u>31</u>	SCT	Stouffville Picture Framing	6186 Main St Stouffville ON L4A 2S5	SE/92.1	-1.78	<u>65</u>
<u>32</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON	ENE/98.3	-1.05	<u>65</u>
<u>32</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON	ENE/98.3	-1.05	<u>66</u>
<u>32</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON	ENE/98.3	-1.05	<u>66</u>
<u>32</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON	ENE/98.3	-1.05	<u>66</u>
<u>32</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON	ENE/98.3	-1.05	<u>66</u>
<u>32</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON	ENE/98.3	-1.05	<u>66</u>
<u>33</u>	SCT	Stouffville Monument Works Ltd	6194 Main St Stouffville ON L4A 2S5	SE/102.7	-1.85	<u>67</u>
<u>33</u>	SCT	Stouffville Monument Works Ltd.	6194 Main St Stouffville ON L4A 2S5	SE/102.7	-1.85	<u>67</u>
<u>34</u>	EHS		47 Edward St Whitchurch-Stouffville ON L4A1A4	ESE/103.2	-2.27	<u>67</u>
<u>35</u>	EHS		183 Bramble Cres. Stouffville ON L4A 7Z1	NNE/105.4	-0.60	<u>67</u>
<u>35</u>	GEN	YORK REGION DISTRICT SCHOOL BOARD	STOUFFVILLE DISTRICT SECONDARY SCHOOL 183 BRAMBLE CRESCENT WHITCHURCH-STOUFFVILLE ON L4A 7Z1	NNE/105.4	-0.60	<u>68</u>
<u>35</u>	GEN	York Region District School Board	183 Bramble Crescent Stouffville ON L4A 7Z1	NNE/105.4	-0.60	<u>68</u>
<u>35</u>	RSC	The Trustees of the Stouffville District High School Board	183 BRAMBLE CRES, STOUFFVILLE, ON, L4A 7Z1 ON L4A 7Z1	NNE/105.4	-0.60	<u>68</u>
<u>36</u>	WWIS		ON	ESE/105.9	-2.31	<u>69</u>
<u>37</u>	SPL		14B Albert St Whitchurch-Stouffville ON	S/117.3	-1.20	<u>70</u>
<u>38</u>	WWIS		ON	SE/128.6	-3.35	<u>70</u>
<u>39</u>	EASR	GERANIUM HOMES (MAIN ST.) INC.	6233 MAIN STOUFFVILLE STOUFFVILLE ON	SE/130.6	-1.99	<u>72</u>
<u>39</u>	EASR	GERANIUM HOMES (MAIN ST.) INC.	6233 MAIN ST STOUFFVILLE ON L4A 4J3	SE/130.6	-1.99	<u>72</u>
<u>39</u>	EHS		6233 Main Street Stouffville ON	SE/130.6	-1.99	<u>72</u>
<u>40</u>	WWIS		lot 35 con 9 ON	SSE/135.2	-2.08	<u>72</u>
<u>41</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON L4A1A8	ENE/135.8	-1.42	<u>74</u>
<u>41</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON L4A1A8	ENE/135.8	-1.42	<u>74</u>
<u>41</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON L4A1A8	ENE/135.8	-1.42	<u>75</u>
<u>41</u>	GEN	Schell Lumber LTD.	92 Schell Street Stouffville ON L4A1A8	ENE/135.8	-1.42	<u>75</u>
<u>42</u>	INC		6204 Main Street Whitchurch-Stouffville ON	SE/136.8	-2.54	<u>75</u>

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
<u>43</u>	EHS		40 Freel Lane Whitchurch-Stouffville ON L4A0P5	ESE/144.9	-4.04	<u>76</u>
<u>44</u>	WWIS		ON	SE/148.1	-2.51	<u>77</u>
<u>45</u>	RSC	DCMS GP (STOUFFVILLE) INC.	40 Freel Lane, Whitchurch-Stouffville, ON	ESE/150.9	-4.64	<u>77</u>
<u>46</u>	EHS		6233 Main St Whitchurch-Stouffville ON L4A4J3	SE/153.9	-2.58	<u>78</u>
<u>47</u>	SCT	Toy Sport Agencies Limited	31 Pondmede Cres. Stouffville ON L4A 0E2	NNW/169.2	4.27	<u>78</u>
<u>48</u>	GEN	York Apothecaries	6212 Main St. Stouffville ON L4A 2S5	SE/176.5	-6.07	<u>78</u>
<u>48</u>	GEN	W.A. Ali Dentistry Professional Corp	6212 Main Street Suite 206 Stouffville ON L4A2S5	SE/176.5	-6.07	<u>78</u>
<u>48</u>	GEN	York Apothecaries	6212 Main St. Stouffville ON L4A 2S5	SE/176.5	-6.07	<u>79</u>
<u>48</u>	GEN	W.A. Ali Dentistry Professional Corp	6212 Main Street Suite 206 Stouffville ON L4A2S5	SE/176.5	-6.07	<u>79</u>
<u>48</u>	GEN	York Apothecaries	6212 Main St. Stouffville ON L4A 2S5	SE/176.5	-6.07	<u>79</u>
<u>48</u>	GEN	Gajan Ethan Krishna Medicine Professional Corp	6212 Main Street, Suite 202 Stouffville ON L4A2S5	SE/176.5	-6.07	<u>80</u>
<u>48</u>	GEN	W.A. Ali Dentistry Professional Corp	6212 Main Street Suite 206 Stouffville ON L4A2S5	SE/176.5	-6.07	<u>80</u>
<u>48</u>	GEN	York Apothecaries	6212 Main St. Stouffville ON L4A 2S5	SE/176.5	-6.07	<u>80</u>
<u>49</u>	CA	Eldercare Equities Inc.	6257 Main Street Whitchurch-Stouffville ON	SE/193.6	-5.54	<u>80</u>
<u>49</u>	ECA	Eldercare Equities Inc.	6257 Main Street Whitchurch-Stouffville ON L4A 4J3	SE/193.6	-5.54	<u>81</u>
<u>50</u>	CFOT	LESLEY A ZECK	6082 MAIN STREET STOUFFVILLE ON L4A 1B7	SSW/198.2	-1.34	<u>81</u>
<u>51</u>	CA	The Corporation of the Town of Whitchurch-Stouffville	Victoria Street between Main Street and Sunset Boulevard Whitchurch-Stouffville ON	S/206.8	-2.30	<u>81</u>
<u>52</u>	ANDR	Old Fill Dump 1965	Stouffville ON L4A	ESE/218.3	-5.94	<u>82</u>
<u>53</u>	SCT	Virtual Dispatch	6072 Main St Suite 100 Stouffville ON L4A 1B8	SSW/228.6	-2.02	<u>82</u>
<u>54</u>	WWIS		ON	NNE/242.2	-1.87	<u>82</u>
<u>55</u>	GEN	Danosh Construction	6240 Main Street Stouffville ON L4A 1E2	ESE/244.1	-5.92	<u>83</u>
<u>56</u>	SPL		Burkholder St and Park Dr Whitchurch-Stouffville ON	SE/249.9	-7.91	<u>83</u>

Executive Summary: Summary By Data Source

ANDR - Anderson's Waste Disposal Sites

A search of the ANDR database, dated 1860s-Present has found that there are 1 ANDR site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Old Fill Dump 1965	Stouffville ON L4A	218.3	<u>52</u>

CA - Certificates of Approval

A search of the CA database, dated 1985-Oct 30, 2011* has found that there are 5 CA site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
TOWN OF WHITCHURCH-STOUFFVILLE-LOT 2/C-9	EDWARD ST./HAROLD ST. WHITCHURCH-STOUFFVILLE TOWN ON	5.4	<u>3</u>
WHITCHURCH-STOUFFVILLE TOWN	EDWARD ST./SCHELL ST./ROBERT WHITCHURCH-STOUFFVILLE TOWN ON	6.0	<u>4</u>
WHITCHURCH-STOUFFVILLE TOWN	RUPERT ST./WILLIAM ST./EDWARD ST WHITCHURCH-STOUFFVILLE TOWN ON	22.5	<u>11</u>
Eldercare Equities Inc.	6257 Main Street Whitchurch-Stouffville ON	193.6	<u>49</u>
The Corporation of the Town of Whitchurch-Stouffville	Victoria Street between Main Street and Sunset Boulevard Whitchurch-Stouffville ON	206.8	<u>51</u>

CFOT - Commercial Fuel Oil Tanks

A search of the CFOT database, dated Feb 28, 2017 has found that there are 2 CFOT site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
WAYNE SMITH	79 ALBERT ST STOUFFVILLE ON L4A 1B2	57.8	<u>24</u>
LESLEY A ZECK	6082 MAIN STREET STOUFFVILLE ON L4A 1B7	198.2	<u>50</u>

EASR - Environmental Activity and Sector Registry

A search of the EASR database, dated Oct 2011-Oct 2017 has found that there are 2 EASR site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
GERANIUM HOMES (MAIN ST.) INC.	6233 MAIN ST STOUFFVILLE ON L4A 4J3	130.6	<u>39</u>
GERANIUM HOMES (MAIN ST.) INC.	6233 MAIN STOUFFVILLE STOUFFVILLE ON	130.6	<u>39</u>

ECA - Environmental Compliance Approval

A search of the ECA database, dated Oct 2011-Oct 2017 has found that there are 1 ECA site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Eldercare Equities Inc.	6257 Main Street Whitchurch-Stouffville ON L4A 4J3	193.6	<u>49</u>

EHS - ERIS Historical Searches

A search of the EHS database, dated 1999-Aug 2016 has found that there are 10 EHS site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
	19 Edward St Whitchurch-Stouffville ON L4A1A4	23.7	<u>12</u>
	67 Edward Street Stouffville ON L4A 1A5	42.1	<u>21</u>
	6132 Main Street Stouffville ON L4A 1A6	43.5	<u>22</u>
	47 Edward St Whitchurch-Stouffville ON L4A1A4	64.6	<u>25</u>
	6209 Main St Stouffville ON L4A 4H8	70.1	<u>30</u>
	47 Edward St Whitchurch-Stouffville ON L4A1A4	103.2	<u>34</u>
	183 Bramble Cres. Stouffville ON L4A 7Z1	105.4	<u>35</u>
	6233 Main Street Stouffville ON	130.6	<u>39</u>
	40 Freel Lane Whitchurch-Stouffville ON L4A0P5	144.9	<u>43</u>
	6233 Main St Whitchurch-Stouffville ON L4A4J3	153.9	<u>46</u>

GEN - Ontario Regulation 347 Waste Generators Summary

A search of the GEN database, dated 1986-December 31, 2017 has found that there are 51 GEN site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Dr. Izso and Dr. Wat	6179 Main St. Stouffville ON L4A 8A1	27.8	<u>13</u>
Dr. Izso and Dr. Wat	6179 Main St. Stouffville ON L4A 8A1	27.8	<u>13</u>
Dr. Izso and Dr. Wat	6179 Main St. Stouffville ON L4A 8A1	27.8	<u>13</u>
Dr. Izso and Dr. Wat	6179 Main St. Stouffville ON L4A 8A1	27.8	<u>13</u>
UNITED CO-OPERATIVES OF ONTARIO	STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD ST. BOX 130 STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
UNITED CO(SEE&USE ON1446963) 39-262	STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD ST. BOX 130 STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
UNITED CO-OPERATIVES (SEE&USE ON1446963)	STOUFFVILLE CO-OP ASSOCIATION GAS BAR 47 EDWARD STREET STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
STOUFFVILLE COOPERATIVE ASSCN.	47 EDWARD ST. P.O.BOX 130 STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
STOUFFVILLE COOPERATIVE ASSCN. 34-398	47 EDWARD ST. P.O.BOX 130 STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
UPI INC. 39-262	STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD STREET STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
UCO PETROLEUM INC. 39- 262	STOUFFVILLE COOP ASSOC GAS BAR.47 EDWARD ST. STOUFFVILLE, C/O5600 CANCROSSCT.BOX7030 MISSISSAUGA ON L4A 1A4	28.9	<u>15</u>
UPI INC.(OUT OF BUSINESS)	STOUFFVILLE CO-OP ASSOCIATION GAS BAR 47 EDWARD STREET STOUFFVILLE ON	29.0	<u>16</u>
Kingfisher International Inc.	67 Edward Street Stouffville ON L4A 1A4	42.1	<u>21</u>
Kingfisher International Inc.	67 Edward Street Stouffville ON L4A 1A5	42.1	<u>21</u>
Kingfisher International Inc.	67 Edward Street Stouffville ON L4A 1A5	42.1	<u>21</u>
ROYAL DIE LTD.	83 EDWARD ST. STOUFFVILLE ON L0H 1L0	47.2	<u>23</u>
ROYAL DIE LIMITED	83 EDWARD STREET STOUFFVILLE ON L0H 1L0	47.2	<u>23</u>
YORK BOARD OF EDUCATION	STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	68.9	<u>26</u>
YORK BOARD (SEE & USE ON1279402)	STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	68.9	<u>26</u>
YORK BOARD (SEE & USE ON1279402) 43-066	STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	68.9	<u>26</u>
YORK REGION BOARD OF EDUCATION	STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	68.9	<u>26</u>
Metrolinx	6176 Main Street, Stouffville ON L4A 2S5	69.4	<u>27</u>
Metrolinx	6176 Main Street, Stouffville ON L4A 2S5	69.4	<u>27</u>

Site		Address	Distance (m)	Map Key
Metrolinx		6176 Main Street, Stouffville ON L4A 2S5	69.4	<u>27</u>
Metrolinx		6176 Main Street, Stouffville ON	69.4	<u>27</u>
Metrolinx		6176 Main Street, Stouffville ON L4A 8A4	69.4	<u>27</u>
Metrolinx		6176 Main Street, Stouffville ON L4A 8A4	69.4	<u>27</u>
Metrolinx		6176 Main Street, Stouffville ON L4A 8A4	69.4	<u>27</u>
Metrolinx GO Transit		6176 Main Street, Stouffville ON L4A 8A4	69.4	<u>27</u>
ROYAL DIE LTD.		83 EDWARD ST. STOUFFVILLE ON L3P 3J3	69.6	<u>28</u>
ROYAL DIE LTD.	33-336	83 EDWARD ST. STOUFFVILLE ON L3P 3J3	69.6	<u>28</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON	98.3	<u>32</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON	98.3	<u>32</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON	98.3	<u>32</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON	98.3	<u>32</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON	98.3	<u>32</u>
YORK REGION DISTRICT SCHOOL BOARD		STOUFFVILLE DISTRICT SECONDARY SCHOOL, 183 BRAMBLE CRESCENT WHITCHURCH-STOUFFVILLE ON L4A 7Z1	105.4	<u>35</u>
York Region District School Board		183 Bramble Crescent Stouffville ON L4A 7Z1	105.4	<u>35</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON L4A1A8	135.8	<u>41</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON L4A1A8	135.8	<u>41</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON L4A1A8	135.8	<u>41</u>
Schell Lumber LTD.		92 Schell Street Stouffville ON L4A1A8	135.8	<u>41</u>
York Apothecaries		6212 Main St. Stouffville ON L4A 2S5	176.5	<u>48</u>
W.A. Ali Dentistry Professional Corp		6212 Main Street Suite 206 Stouffville ON L4A2S5	176.5	<u>48</u>
York Apothecaries		6212 Main St. Stouffville ON L4A 2S5	176.5	<u>48</u>
W.A. Ali Dentistry Professional Corp		6212 Main Street Suite 206 Stouffville ON L4A2S5	176.5	<u>48</u>

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
York Apothecaries	6212 Main St. Stouffville ON L4A 2S5	176.5	<u>48</u>
Gajan Ethan Krishna Medicine Professional Corp	6212 Main Street, Suite 202 Stouffville ON L4A2S5	176.5	<u>48</u>
W.A. Ali Dentistry Professional Corp	6212 Main Street Suite 206 Stouffville ON L4A2S5	176.5	<u>48</u>
York Apothecaries	6212 Main St. Stouffville ON L4A 2S5	176.5	<u>48</u>
Danosh Construction	6240 Main Street Stouffville ON L4A 1E2	244.1	<u>55</u>

HINC - TSSA Historic Incidents

A search of the HINC database, dated 2006-June 2009* has found that there are 1 HINC site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
	6209 MAIN STREET STOUFFVILLE ON L4A 4H8	70.1	<u>30</u>

INC - TSSA Incidents

A search of the INC database, dated Feb 28, 2017 has found that there are 1 INC site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
	6204 Main Street Whitchurch-Stouffville ON	136.8	<u>42</u>

NPCB - National PCB Inventory

A search of the NPCB database, dated 1988-2008* has found that there are 1 NPCB site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
WHITCHURCH-STOUFFVILLE HYDRO	6209 MAIN ST. STOUFFVILLE ON L4A 4H8	70.1	<u>30</u>

PES - Pesticide Register

A search of the PES database, dated 1988-Aug 2017 has found that there are 6 PES site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
STOUFFVILLE CO-OPERATIVE ASSOCIATION	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
STOUFFVILLE CO-OPERATIVE ASSOCIATION	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
STOUFFVILLE CO-OPERATIVE ASSOCIATION(C#91383)	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
SCHELL LUMBER LIMITED	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
SCHELL LUMBER LIMITED	47 EDWARD STREET STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
SCHELL LUMBER LIMITED	47 EDWARD STREET STOUFFVILLE ON L4A1A4	28.9	<u>15</u>

PRT - Private and Retail Fuel Storage Tanks

A search of the PRT database, dated 1989-1996* has found that there are 3 PRT site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
STOUFFVILLE CO-OP ASSOC	47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
STOUFFVILLE CO-OP ASSOC	47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
ROMANDALE FARMS LTD	47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>

RSC - Record of Site Condition

A search of the RSC database, dated 1997-Sept 2001, Oct 2004-Nov 2017 has found that there are 2 RSC site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
The Trustees of the Stouffville District High School Board	183 BRAMBLE CRES, STOUFFVILLE, ON, L4A 7Z1 ON L4A 7Z1	105.4	<u>35</u>
DCMS GP (STOUFFVILLE) INC.	40 Freel Lane, Witchurch-Stouffville, ON	150.9	<u>45</u>

RST - Retail Fuel Storage Tanks

A search of the RST database, dated 1999-Jan 31, 2018 has found that there are 1 RST site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
STOUFFVILLE CO-OPERATIVE ASSN	47 EDWARD ST STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>

SCT - Scott's Manufacturing Directory

A search of the SCT database, dated 1992-Mar 2011* has found that there are 12 SCT site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
MAIN ST. PRINTING & SERVICES	6148 MAIN ST STOUFFVILLE ON L4A 1A6	20.7	<u>10</u>
Main St. Printing & Services Ltd.	6148 Main St Stouffville ON L4A 1A6	20.7	<u>10</u>
STOUFFVILLE CO-OPERATIVE ASSOC	47 EDWARD ST STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
Villa Italian Bakery 1980 Ltd	67A Edward St Unit A Stouffville ON L4A 1A5	35.6	<u>19</u>
Villa Italian Bakery (1980) Ltd.	67A Edward St Stouffville ON L4A 1A5	35.6	<u>19</u>
VILLA ITALIAN BAKERY 1980 LTD	67 A EDWARD ST STOUFFVILLE ON L4A 1A4	42.1	<u>21</u>
ROYAL DIE LTD	83 EDWARD ST STOUFFVILLE ON L4A 1A7	47.2	<u>23</u>
Stouffville Picture Framing	6186 Main St Stouffville ON L4A 2S5	92.1	<u>31</u>
Stouffville Monument Works Ltd	6194 Main St Stouffville ON L4A 2S5	102.7	<u>33</u>
Stouffville Monument Works Ltd.	6194 Main St Stouffville ON L4A 2S5	102.7	<u>33</u>
Toy Sport Agencies Limited	31 Pondmede Cres. Stouffville ON L4A 0E2	169.2	<u>47</u>
Virtual Dispatch	6072 Main St Suite 100 Stouffville ON L4A 1B8	228.6	<u>53</u>

SPL - Ontario Spills

A search of the SPL database, dated 1988-Sep 2017 has found that there are 4 SPL site(s) within approximately 0.25 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
UNITED CO-OPERATIVES OF ONTARIO	STOUFFVILLE CO-OP 47 EDWARD ST. STOUFFVILLE STORAGE TANK MARKHAM TOWN ON	15.2	<u>8</u>
EXPERTS COOP	47 EDWARDS TANK TRUCK (CARGO) WHITCHURCH-STOUFFVILLE ON L4A 1A4	28.9	<u>15</u>
	14B Albert St Whitchurch-Stouffville ON	117.3	<u>37</u>
	Burkholder St and Park Dr Whitchurch-Stouffville ON	249.9	<u>56</u>

WWIS - Water Well Information System

A search of the WWIS database, dated Mar 31, 2017 has found that there are 16 WWIS site(s) within approximately 0.25 kilometers of

the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
	ON	0.9	<u>1</u>
	ON	2.4	<u>2</u>
	STOUFFVILLE ON	10.6	<u>5</u>
	ON	11.3	<u>6</u>
	ON	12.5	<u>7</u>
	STOUFFVILLE ON	19.8	<u>9</u>
	STOUFFVILLE ON	28.3	<u>14</u>
	STOUFFVILLE ON	30.3	<u>17</u>
	ON	32.5	<u>18</u>
	STOUFFVILLE ON	37.2	<u>20</u>
	STOUFFVILLE ON	69.6	<u>29</u>
	ON	105.9	<u>36</u>
	ON	128.6	<u>38</u>
	lot 35 con 9 ON	135.2	<u>40</u>
	ON	148.1	<u>44</u>
	ON	242.2	<u>54</u>

79° 15' W

43° 58' 30" N

43° 58' 30" N



Aerial (2015)

Order No: 20171120118

Address: Edward Street, from Main to Millard, Whitchurch - Stouffville



Source: ESRI World Imagery

© ERIS Information Limited Partnership

Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>1</u>	1 of 1	SSE/0.9	270.8 / -1.04	ON	WWIS
Well ID: 7260659 Construction Date: Primary Water Use: Test Hole Sec. Water Use: Final Well Status: Test Hole Water Type: Casing Material: Audit No: Z208298 Tag: A182274 Construction Method: Elevation (m): Elevation Reliability: Depth to Bedrock: Well Depth: Overburden/Bedrock: Pump Rate: Static Water Level: Flowing (Y/N): Flow Rate: Clear/Cloudy: Data Entry Status: Data Src: Date Received: 4/4/2016 Selected Flag: 1 Abandonment Rec: Contractor: 7383 Form Version: 7 Owner: Street Name: 33 EDWARD STREET County: YORK Municipality: WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP) Site Info: Lot: Concession: Concession Name: Easting NAD83: Northing NAD83: Zone: UTM Reliability:					
<u>Bore Hole Information</u>					
Bore Hole ID: 1005921798 DP2BR: Code OB: Code OB Desc: Open Hole: Elevation: 270.541656 Elevrc: Remarks: Elevrc Desc: Location Source Date: Improvement Location Source: Improvement Location Method: Source Revision Comment: Supplier Comment: Spatial Status: Cluster Kind: UTMRC: 4 UTMRC Desc: margin of error : 30 m - 100 m Location Method: wwr Org CS: UTM83 Date Completed: 8/14/2015					
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID: 1006001143 Layer: 1 Plug From: 0.00 Plug To: 1.00 Plug Depth UOM: ft Plug ID: 1006001144 Layer: 2 Plug From: 1.00					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Plug To:		4.00			
Plug Depth UOM:		ft			
Plug ID:		1006001145			
Layer:		3			
Plug From:		4.00			
Plug To:		15.00			
Plug Depth UOM:		ft			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1006001142			
Method Construction Code:		D			
Method Construction:		Direct Push			
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:		1006001135			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1006001139			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.00			
Depth To:		10.00			
Casing Diameter:		1.00			
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
<u>Construction Record - Screen</u>					
Screen ID:		1006001140			
Layer:		1			
Slot:		10			
Screen Top Depth:		10.00			
Screen End Depth:		15.00			
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		1.00			
<u>Water Details</u>					
Water ID:		1006001138			
Layer:		1			
Kind Code:					
Kind:					
Water Found Depth:		10.00			
Water Found Depth UOM:		ft			
<u>Hole Diameter</u>					
Hole ID:		1006001137			
Diameter:		2.25			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	
Depth From:		0.00			
Depth To:		15.00			
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			

2	1 of 1	SSE/2.4	270.8 / -1.05	ON	WWS
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Well ID: 7260679
 Construction Date:
 Primary Water Use: Test Hole
 Sec. Water Use:
 Final Well Status: Test Hole
 Water Type:
 Casing Material:
 Audit No: Z208299
 Tag: A182273
 Construction Method:
 Elevation (m):

Elevation Reliability:
 Depth to Bedrock:
 Well Depth:
 Overburden/Bedrock:
 Pump Rate:
 Static Water Level:
 Flowing (Y/N):
 Flow Rate:
 Clear/Cloudy:

Data Entry Status:

Data Src:
 Date Received: 4/4/2016
 Selected Flag: 1
 Abandonment Rec:
 Contractor: 7383
 Form Version: 7
 Owner:
 Street Name: 33 EDWARD STREET
 County: YORK
 Municipality: WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP)

Site Info:
 Lot:
 Concession:
 Concession Name:
 Easting NAD83:
 Northing NAD83:
 Zone:
 UTM Reliability:

Bore Hole Information

Bore Hole ID: 1005921953
 DP2BR:
 Code OB:
 Code OB Desc:
 Open Hole:
 Elevation: 270.644561
 Elevrc:
 Remarks:
 Elevrc Desc:
 Location Source Date:
 Improvement Location Source:
 Improvement Location Method:
 Source Revision Comment:
 Supplier Comment:

Spatial Status:
 Cluster Kind:
 UTMRC: 4
 UTMRC Desc: margin of error : 30 m - 100 m
 Location Method: wwr
 Org CS: UTM83
 Date Completed: 8/14/2015

Annular Space/Abandonment
Sealing Record

Plug ID: 1006001371
 Layer: 1
 Plug From: 0.00
 Plug To: 1.00
 Plug Depth UOM: ft
 Plug ID: 1006001372
 Layer: 2
 Plug From: 1.00
 Plug To: 4.00
 Plug Depth UOM: ft
 Plug ID: 1006001373

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site
Layer:		3		
Plug From:		4.00		
Plug To:		15.00		
Plug Depth UOM:		ft		
<u>Method of Construction & Well Use</u>				
Method Construction ID:		1006001370		
Method Construction Code:		D		
Method Construction:		Direct Push		
Other Method Construction:				
<u>Pipe Information</u>				
Pipe ID:		1006001363		
Casing No:		0		
Comment:				
Alt Name:				
<u>Construction Record - Casing</u>				
Casing ID:		1006001367		
Layer:		1		
Material:		5		
Open Hole or Material:		PLASTIC		
Depth From:		0.00		
Depth To:		5.00		
Casing Diameter:		1.00		
Casing Diameter UOM:		inch		
Casing Depth UOM:		ft		
<u>Construction Record - Screen</u>				
Screen ID:		1006001368		
Layer:		1		
Slot:		10		
Screen Top Depth:		5.00		
Screen End Depth:		15.00		
Screen Material:		5		
Screen Depth UOM:		ft		
Screen Diameter UOM:		inch		
Screen Diameter:		1.00		
<u>Water Details</u>				
Water ID:		1006001366		
Layer:		1		
Kind Code:				
Kind:				
Water Found Depth:		10.00		
Water Found Depth UOM:		ft		
<u>Hole Diameter</u>				
Hole ID:		1006001365		
Diameter:		2.25		
Depth From:		0.00		
Depth To:		15.00		
Hole Depth UOM:		ft		
Hole Diameter UOM:		inch		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>3</u>	1 of 1	SSE/5.4	271.0 / -0.83	TOWN OF WHITCHURCH-STOUFFVILLE-LOT 2/C-9 EDWARD ST./HAROLD ST. WHITCHURCH-STOUFFVILLE TOWN ON	CA
Certificate #: Application Year: Issue Date: Approval Type: Status: Application Type: Client Name:: Client Address:: Client City:: Client Postal Code:: Project Description:: Contaminants:: Emission Control::		7-1689-90-90 2/18/1991 Municipal water Approved in 1991			
<u>4</u>	1 of 1	NNE/6.0	271.9 / -0.01	WHITCHURCH-STOUFFVILLE TOWN EDWARD ST./SCHELL ST./ROBERT WHITCHURCH-STOUFFVILLE TOWN ON	CA
Certificate #: Application Year: Issue Date: Approval Type: Status: Application Type: Client Name:: Client Address:: Client City:: Client Postal Code:: Project Description:: Contaminants:: Emission Control::		7-0655-93-93 7/30/1993 Municipal water Approved			
<u>5</u>	1 of 1	SSE/10.6	270.8 / -1.06	STOUFFVILLE ON	WWIS
Well ID: Construction Date: Primary Water Use: Sec. Water Use: Final Well Status: Water Type: Casing Material: Audit No: Tag: Construction Method: Elevation (m): Elevation Reliability: Depth to Bedrock: Well Depth: Overburden/Bedrock: Pump Rate: Static Water Level: Flowing (Y/N): Flow Rate: Clear/Cloudy:		7198822 Monitoring Observation Wells 2153767 A134366 Z153767 A134366 135/55 MAIN ST. , EDWARD ST. YORK STOUFFVILLE VILLAGE			
		Data Entry Status: Data Src: Date Received: Selected Flag: Abandonment Rec: Contractor: Form Version: Owner: Street Name: County: Municipality: Site Info: Lot: Concession: Concession Name: Easting NAD83: Northing NAD83: Zone: UTM Reliability:			
		3/19/2013 1 7383 7			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Bore Hole Information					
Bore Hole ID:	1004264695			Spatial Status:	
DP2BR:				Cluster Kind:	
Code OB:				UTMRC:	4
Code OB Desc:				UTMRC Desc:	margin of error : 30 m - 100 m
Open Hole:				Location Method:	digit
Elevation:	270.567413			Org CS:	UTM83
Elevrc:				Date Completed:	11/14/2012
Remarks:					
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
Overburden and Bedrock Materials Interval					
Formation ID:	1004909368				
Layer:	1				
Color:	8				
General Color:	BLACK				
Mat1:					
Most Common Material:					
Mat2:					
Other Materials:					
Mat3:					
Other Materials:					
Formation Top Depth:	0.00				
Formation End Depth:	2.00				
Formation End Depth UOM:	ft				
Formation ID:	1004909369				
Layer:	2				
Color:	6				
General Color:	BROWN				
Mat1:	01				
Most Common Material:	FILL				
Mat2:	11				
Other Materials:	GRAVEL				
Mat3:	28				
Other Materials:	SAND				
Formation Top Depth:	2.00				
Formation End Depth:	2.00				
Formation End Depth UOM:	ft				
Formation ID:	1004909370				
Layer:	3				
Color:	2				
General Color:	GREY				
Mat1:	05				
Most Common Material:	CLAY				
Mat2:	28				
Other Materials:	SAND				
Mat3:	11				
Other Materials:	GRAVEL				
Formation Top Depth:	2.00				
Formation End Depth:	20.00				
Formation End Depth UOM:	ft				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site
<u>Annular Space/Abandonment Sealing Record</u>				
Plug ID:		1004909377		
Layer:		1		
Plug From:		0.00		
Plug To:		4.00		
Plug Depth UOM:		ft		
Plug ID:		1004909378		
Layer:		2		
Plug From:		4.00		
Plug To:		20.00		
Plug Depth UOM:		ft		
<u>Method of Construction & Well Use</u>				
Method Construction ID:		1004909376		
Method Construction Code:		2		
Method Construction:		Rotary (Convent.)		
Other Method Construction:				
<u>Pipe Information</u>				
Pipe ID:		1004909367		
Casing No:		0		
Comment:				
Alt Name:				
<u>Construction Record - Casing</u>				
Casing ID:		1004909373		
Layer:		1		
Material:		5		
Open Hole or Material:		PLASTIC		
Depth From:		0.00		
Depth To:		5.00		
Casing Diameter:		2.00		
Casing Diameter UOM:		inch		
Casing Depth UOM:		ft		
<u>Construction Record - Screen</u>				
Screen ID:		1004909374		
Layer:		1		
Slot:		10		
Screen Top Depth:		5.00		
Screen End Depth:		20.00		
Screen Material:		5		
Screen Depth UOM:		ft		
Screen Diameter UOM:		inch		
Screen Diameter:		2.37		
<u>Water Details</u>				
Water ID:		1004909372		
Layer:		1		
Kind Code:				
Kind:				
Water Found Depth:		6.00		
Water Found Depth UOM:		ft		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>Hole Diameter</u>					
Hole ID:		1004909371			
Diameter:		4.50			
Depth From:		0.00			
Depth To:		20.00			
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			

6	1 of 1	SSE/11.3	270.8 / -1.05	ON	WWIS
Well ID:	7260678			Data Entry Status:	
Construction Date:				Data Src:	
Primary Water Use:	Test Hole			Date Received:	4/4/2016
Sec. Water Use:				Selected Flag:	1
Final Well Status:	Test Hole			Abandonment Rec:	
Water Type:				Contractor:	7383
Casing Material:				Form Version:	7
Audit No:	Z208300			Owner:	
Tag:	A182272			Street Name:	33 EDWARD STREET
Construction Method:				County:	YORK
Elevation (m):				Municipality:	STOUFFVILLE VILLAGE
Elevation Reliability:				Site Info:	
Depth to Bedrock:				Lot:	
Well Depth:				Concession:	
Overburden/Bedrock:				Concession Name:	
Pump Rate:				Easting NAD83:	
Static Water Level:				Northing NAD83:	
Flowing (Y/N):				Zone:	
Flow Rate:				UTM Reliability:	
Clear/Cloudy:					

Bore Hole Information

Bore Hole ID:	1005921950	Spatial Status:	
DP2BR:		Cluster Kind:	
Code OB:		UTMRC:	4
Code OB Desc:		UTMRC Desc:	margin of error : 30 m - 100 m
Open Hole:		Location Method:	gis
Elevation:	270.540405	Org CS:	UTM83
Elevrc:		Date Completed:	8/14/2015
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1006001360
Layer:	1
Plug From:	0.00
Plug To:	1.00
Plug Depth UOM:	ft
Plug ID:	1006001361
Layer:	2

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Plug From:		1.00			
Plug To:		4.00			
Plug Depth UOM:		ft			
Plug ID:		1006001362			
Layer:		3			
Plug From:		4.00			
Plug To:		15.00			
Plug Depth UOM:		ft			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1006001359			
Method Construction Code:		D			
Method Construction:		Direct Push			
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:		1006001352			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1006001356			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.00			
Depth To:		5.00			
Casing Diameter:		1.00			
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
<u>Construction Record - Screen</u>					
Screen ID:		1006001357			
Layer:		1			
Slot:		10			
Screen Top Depth:		5.00			
Screen End Depth:		15.00			
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		1.00			
<u>Water Details</u>					
Water ID:		1006001355			
Layer:		1			
Kind Code:					
Kind:					
Water Found Depth:		10.00			
Water Found Depth UOM:		ft			
<u>Hole Diameter</u>					
Hole ID:		1006001354			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Diameter:		2.25			
Depth From:		0.00			
Depth To:		15.00			
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			
7	1 of 1	SSE/12.5	270.8 / -1.08	ON	WWIS
Well ID:	7263280			Data Entry Status:	Date Entry is incomplete
Construction Date:				Data Src:	
Primary Water Use:				Date Received:	5/20/2016
Sec. Water Use:				Selected Flag:	1
Final Well Status:				Abandonment Rec:	
Water Type:				Contractor:	7383
Casing Material:				Form Version:	8
Audit No:	C33494			Owner:	
Tag:	A203528			Street Name:	
Construction Method:				County:	YORK
Elevation (m):				Municipality:	WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP)
Elevation Reliability:				Site Info:	
Depth to Bedrock:				Lot:	
Well Depth:				Concession:	
Overburden/Bedrock:				Concession Name:	
Pump Rate:				Easting NAD83:	
Static Water Level:				Northing NAD83:	
Flowing (Y/N):				Zone:	
Flow Rate:				UTM Reliability:	
Clear/Cloudy:					
Bore Hole Information					
Bore Hole ID:	1006002693			Spatial Status:	
DP2BR:				Cluster Kind:	
Code OB:				UTMRC:	4
Code OB Desc:				UTMRC Desc:	margin of error : 30 m - 100 m
Open Hole:				Location Method:	wwr
Elevation:	270.655944			Org CS:	UTM83
Elevrc:				Date Completed:	8/7/2015
Remarks:					
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
8	1 of 1	SSE/15.2	270.5 / -1.40	UNITED CO-OPERATIVES OF ONTARIO STOUFFVILLE CO-OP 47 EDWARD ST. STOUFFVILLE STORAGE TANK MARKHAM TOWN ON	SPL
Ref No:	57172			Site Address:	
Contaminant Name:				Site Conc:	
Contaminant Code:				Site Lot:	
Contaminant Limit 1:				Site County/District:	
Contam. Limit Freq 1:				Site Municipality:	27402
Contaminant UN No 1:				Site Postal Code:	
Contaminant Qty:				Sector Type:	
MOE Reported Dt:	9/12/1991			Source Type:	
Health/Env Conseq:				Receiving Medium:	LAND
Incident Dt:	9/12/1991			Receiving Env:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Formation End Depth:		0.16			
Formation End Depth UOM:		ft			
Formation ID:		1004909418			
Layer:		2			
Color:		6			
General Color:		BROWN			
Mat1:		01			
Most Common Material:		FILL			
Mat2:		11			
Other Materials:		GRAVEL			
Mat3:		28			
Other Materials:		SAND			
Formation Top Depth:		0.16			
Formation End Depth:		1.50			
Formation End Depth UOM:		ft			
Formation ID:		1004909419			
Layer:		3			
Color:		2			
General Color:		GREY			
Mat1:		05			
Most Common Material:		CLAY			
Mat2:		28			
Other Materials:		SAND			
Mat3:		11			
Other Materials:		GRAVEL			
Formation Top Depth:		1.50			
Formation End Depth:		20.00			
Formation End Depth UOM:		ft			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1004909426			
Layer:		1			
Plug From:		0.00			
Plug To:		4.00			
Plug Depth UOM:		ft			
Plug ID:		1004909427			
Layer:		2			
Plug From:		4.00			
Plug To:		20.00			
Plug Depth UOM:		ft			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1004909425			
Method Construction Code:		2			
Method Construction:		Rotary (Convent.)			
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:		1004909416			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Casing ID:		1004909422			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.00			
Depth To:		5.00			
Casing Diameter:		2.00			
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
 <u>Construction Record - Screen</u>					
Screen ID:		1004909423			
Layer:		1			
Slot:		10			
Screen Top Depth:		5.00			
Screen End Depth:		20.00			
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		2.37			
 <u>Water Details</u>					
Water ID:		1004909421			
Layer:		1			
Kind Code:					
Kind:					
Water Found Depth:		6.00			
Water Found Depth UOM:		ft			
 <u>Hole Diameter</u>					
Hole ID:		1004909420			
Diameter:		4.50			
Depth From:		0.00			
Depth To:		20.00			
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			
10	1 of 2	SSE/20.7	270.8 / -1.06	MAIN ST. PRINTING & SERVICES 6148 MAIN ST STOUFFVILLE ON L4A 1A6	SCT
Established:		1981			
Plant Size (ft ²):		0			
Employment:		2			
 <u>--Details--</u>					
Description:		COMMERCIAL PRINTING, LITHOGRAPHIC			
SIC/NAICS Code:		2752			
Description:		COMMERCIAL PRINTING, NOT ELSEWHERE CLASSIFIED			
SIC/NAICS Code:		2759			
Description:		MANIFOLD BUSINESS FORMS			
SIC/NAICS Code:		2761			
Description:		Quick Printing			
SIC/NAICS Code:		323114			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Description: SIC/NAICS Code:		Digital Printing 323115			
Description: SIC/NAICS Code:		Manifold Business Forms Printing 323116			
Description: SIC/NAICS Code:		Other Printing 323119			
<u>10</u>	2 of 2	SSE/20.7	270.8 / -1.06	Main St. Printing & Services Ltd. 6148 Main St Stouffville ON L4A 1A6	SCT
Established:		1981			
Plant Size (ft²):					
Employment:		2			
<u>11</u>	1 of 1	N/22.5	272.8 / 0.98	WHITCHURCH-STOUFFVILLE TOWN RUPERT ST/WILLIAM ST/EDWARD ST WHITCHURCH-STOUFFVILLE TOWN ON	CA
Certificate #:		3-1550-97-			
Application Year:		97			
Issue Date:		10/23/1997			
Approval Type:		Municipal sewage			
Status:		Approved			
Application Type:					
Client Name::					
Client Address::					
Client City::					
Client Postal Code::					
Project Description::					
Contaminants::					
Emission Control::					
<u>12</u>	1 of 1	SSE/23.7	270.8 / -1.11	19 Edward St Whitchurch-Stouffville ON L4A1A4	EHS
Postal Code:		L4A1A4			
City:		Whitchurch-Stouffville			
Address2:					
Address1:		19 Edward St			
Prov/state:		ON			
Order No.:		20150724051			
Addit. Info Ordered::					
Report Date:		31-JUL-15			
Report Type:		Standard Report			
Search Radius (km):		.25			
<u>13</u>	1 of 4	SSE/27.8	270.7 / -1.12	Dr. Izso and Dr. Wat 6179 Main St. Stouffville ON L4A 8A1	GEN
Generator No.:		ON8566981		PO Box No.:	
Status:				Country:	
Approval Years:		2015		Canada	
Contam. Facility:		No		Choice of Contact:	
MHSW Facility:		No		CO_ADMIN	
SIC Code:		622111		Co Admin:	
				Lucy A Fink	
				Phone No. Admin:	
				905-640-2300 Ext.	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
SIC Description:		GENERAL (EXCEPT PAEDIATRIC) HOSPITALS			
--Details--					
Waste Code:		312			
Waste Description:		PATHOLOGICAL WASTES			
13	2 of 4	SSE/27.8	270.7 / -1.12	Dr.Izso and Dr.Wat 6179 Main St. Stouffville ON L4A 8A1	GEN
Generator No.:		ON8566981		PO Box No.:	
Status:				Country:	
Approval Years:		2016		Choice of Contact:	
Contam. Facility:		No		Co Admin:	
MHSW Facility:		No		Phone No. Admin:	
SIC Code:		622111		Canada	
SIC Description:		GENERAL (EXCEPT PAEDIATRIC) HOSPITALS		CO_ADMIN	
--Details--					
Waste Code:		312			
Waste Description:		PATHOLOGICAL WASTES			
13	3 of 4	SSE/27.8	270.7 / -1.12	Dr.Izso and Dr.Wat 6179 Main St. Stouffville ON L4A 8A1	GEN
Generator No.:		ON8566981		PO Box No.:	
Status:				Country:	
Approval Years:		2014		Choice of Contact:	
Contam. Facility:		No		Co Admin:	
MHSW Facility:		No		Phone No. Admin:	
SIC Code:		622111		Canada	
SIC Description:		GENERAL (EXCEPT PAEDIATRIC) HOSPITALS		CO_ADMIN	
--Details--					
Waste Code:		312			
Waste Description:		PATHOLOGICAL WASTES			
13	4 of 4	SSE/27.8	270.7 / -1.12	Dr.Izso and Dr.Wat 6179 Main St. Stouffville ON L4A 8A1	GEN
Generator No.:		ON8566981		PO Box No.:	
Status:		Registered		Country:	
Approval Years:		As of Jun 2017		Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:				Canada	
SIC Description:					
--Details--					
Waste Code:		312 P			
Waste Description:		Pathological wastes			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
14	1 of 1	SSE/28.3	270.7 / -1.13	STOUFFVILLE ON	WWIS
Well ID: 7198823 Construction Date: Primary Water Use: Monitoring Sec. Water Use: Final Well Status: Observation Wells Water Type: Casing Material: Audit No: Z153759 Tag: A134365 Construction Method: Elevation (m): Elevation Reliability: Depth to Bedrock: Well Depth: Overburden/Bedrock: Pump Rate: Static Water Level: Flowing (Y/N): Flow Rate: Clear/Cloudy: Data Entry Status: Data Src: Date Received: 3/19/2013 Selected Flag: 1 Abandonment Rec: Contractor: 7383 Form Version: 7 Owner: Street Name: 135 MAIN ST. / 33 EDWARD ST. County: YORK Municipality: WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP) Site Info: Lot: Concession: Concession Name: Easting NAD83: Northing NAD83: Zone: UTM Reliability:					
<u>Bore Hole Information</u>					
Bore Hole ID: 1004254698 DP2BR: Code OB: Code OB Desc: Open Hole: Elevation: 270.707458 Elevrc: Remarks: Elevrc Desc: Location Source Date: Improvement Location Source: Improvement Location Method: Source Revision Comment: Supplier Comment: Spatial Status: Cluster Kind: UTMRC: 4 UTMRC Desc: margin of error : 30 m - 100 m Location Method: wwr Org CS: UTM83 Date Completed: 11/14/2012					
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID: 1004909391 Layer: 1 Color: 8 General Color: BLACK Mat1: Most Common Material: Mat2: Other Materials: Mat3: Other Materials: Formation Top Depth: 0.00 Formation End Depth: 0.25 Formation End Depth UOM: ft Formation ID: 1004909392 Layer: 2 Color: 6 General Color: BROWN Mat1: 01					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site
Most Common Material:		FILL		
Mat2:		28		
Other Materials:		SAND		
Mat3:		11		
Other Materials:		GRAVEL		
Formation Top Depth:		0.25		
Formation End Depth:		2.00		
Formation End Depth UOM:		ft		
Formation ID:		1004909393		
Layer:		3		
Color:		2		
General Color:		GREY		
Mat1:		05		
Most Common Material:		CLAY		
Mat2:		28		
Other Materials:		SAND		
Mat3:		11		
Other Materials:		GRAVEL		
Formation Top Depth:		2.00		
Formation End Depth:		20.00		
Formation End Depth UOM:		ft		
 <u>Annular Space/Abandonment Sealing Record</u>				
Plug ID:		1004909400		
Layer:		1		
Plug From:		0.00		
Plug To:		4.00		
Plug Depth UOM:		ft		
Plug ID:		1004909401		
Layer:		2		
Plug From:		4.00		
Plug To:		20.00		
Plug Depth UOM:		ft		
 <u>Method of Construction & Well Use</u>				
Method Construction ID:		1004909399		
Method Construction Code:		2		
Method Construction:		Rotary (Convent.)		
Other Method Construction:				
 <u>Pipe Information</u>				
Pipe ID:		1004909390		
Casing No:		0		
Comment:				
Alt Name:				
 <u>Construction Record - Casing</u>				
Casing ID:		1004909396		
Layer:		1		
Material:		5		
Open Hole or Material:		PLASTIC		
Depth From:		0.00		
Depth To:		5.00		
Casing Diameter:		2.00		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
<u>Construction Record - Screen</u>					
Screen ID:		1004909397			
Layer:		1			
Slot:		10			
Screen Top Depth:		5.00			
Screen End Depth:		20.00			
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		2.37			
<u>Water Details</u>					
Water ID:		1004909395			
Layer:		1			
Kind Code:					
Kind:					
Water Found Depth:		6.00			
Water Found Depth UOM:		ft			
<u>Hole Diameter</u>					
Hole ID:		1004909394			
Diameter:		4.50			
Depth From:		0.00			
Depth To:		20.00			
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			
<u>15</u>	1 of 19	SSE/28.9	270.1 / -1.74	UNITED CO-OPERATIVES OF ONTARIO STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD ST. BOX 130 STOUFFVILLE ON L4A 1A4	GEN
Generator No.:	ON0178477			PO Box No.:	
Status:				Country:	
Approval Years:	88,89,90			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	5111				
SIC Description:	PETROLEUM PROD., WH.				
<u>--Details--</u>					
Waste Code:	221				
Waste Description:	LIGHT FUELS				
<u>15</u>	2 of 19	SSE/28.9	270.1 / -1.74	UNITED CO(SEE&USE ON1446963) 39-262 STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD ST. BOX 130 STOUFFVILLE ON L4A 1A4	GEN
Generator No.:	ON0178477			PO Box No.:	
Status:				Country:	
Approval Years:	92,93,94,95,96,97			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
SIC Code: SIC Description:	5111	PETROLEUM PROD., WH.			
<u>15</u>	3 of 19	SSE/28.9	270.1 / -1.74	UNITED CO-OPERATIVES (SEE&USE ON1446963) STOUFFVILLE CO-OP ASSOCIATION GAS BAR 47 EDWARD STREET STOUFFVILLE ON L4A 1A4	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON0178477 98 5111 PETROLEUM PROD., WH.			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:	
<u>15</u>	4 of 19	SSE/28.9	270.1 / -1.74	STOUFFVILLE COOPERATIVE ASSCN. 47 EDWARD ST. P.O.BOX 130 STOUFFVILLE ON L4A 1A4	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON1050400 88,89,90 0239 OTHER AGRIC. SERV.			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:	
--Details-- Waste Code: Waste Description:	242 HALOGENATED PESTICIDES				
<u>15</u>	5 of 19	SSE/28.9	270.1 / -1.74	STOUFFVILLE COOPERATIVE ASSCN. 34-398 47 EDWARD ST. P.O.BOX 130 STOUFFVILLE ON L4A 1A4	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON1050400 92,93,94,95,96,97,98 0239 OTHER AGRIC. SERV.			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:	
--Details-- Waste Code: Waste Description:	242 HALOGENATED PESTICIDES				
<u>15</u>	6 of 19	SSE/28.9	270.1 / -1.74	UPI INC. 39-262 STOUFFVILLE CO-OP ASSOC. GAS BAR 47 EDWARD STREET STOUFFVILLE ON L4A 1A4	GEN
Generator No.: Status: Approval Years:	ON1446963 92,93,96,97,98			PO Box No.: Country: Choice of Contact:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Contam. Facility: MHSW Facility: SIC Code: SIC Description:	5111	PETROLEUM PROD., WH.		Co Admin: Phone No. Admin:	
--Details-- Waste Code: Waste Description:		221 LIGHT FUELS			
15	7 of 19	SSE/28.9	270.1 / -1.74	UCO PETROLEUM INC. 39-262 STOUF.COOP ASSOC GAS BAR,47 EDWARD ST. STOUFFVILLE,C/O5600 CANCROSSCT,BOX7030 MISSISSAUGA ON L4A 1A4	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON1446963 94,95 5111	PETROLEUM PROD., WH.		PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:	
--Details-- Waste Code: Waste Description:		221 LIGHT FUELS			
15	8 of 19	SSE/28.9	270.1 / -1.74	STOUFFVILLE CO-OPERATIVE ASSOCIATION 47 EDWARD STREET STOUFFVILLE ON L4A 1A4	PES
Licence No.: Detail Licence No.: Licence Type Code: Licence Type: Licence Class: Licence Control: Trade Name: Post Office Box: Lot: Concession: Region: District: County:	Operator			Operator Box: Operator Class: Operator No.: Operator Type: Operator Lot: Oper Concession: Operator Region: Operator District: Operator County: Oper Phone Area Cd: Ext: Oper Phone Number: Proponent Ext:	
15	9 of 19	SSE/28.9	270.1 / -1.74	STOUFFVILLE CO-OPERATIVE ASSOCIATION 47 EDWARD STREET STOUFFVILLE ON L4A 1A4	PES
Licence No.: Detail Licence No.: Licence Type Code: Licence Type: Licence Class: Licence Control: Trade Name: Post Office Box: Lot: Concession:	Vendor			Operator Box: Operator Class: Operator No.: Operator Type: Operator Lot: Oper Concession: Operator Region: Operator District: Operator County: Oper Phone Area Cd:	

DE

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>15</u>	13 of 19	SSE/28.9	270.1 / -1.74	SCHELL LUMBER LIMITED 47 EDWARD STREET STOUFFVILLE ON L4A1A4	PES
Licence No.: 13200 Detail Licence No.: Licence Type Code: 23 Licence Type: Active Limited Vendor Licence Licence Class: 01 Licence Control: Trade Name: Post Office Box: Lot: Concession: Region: District: County:		Operator Box: Operator Class: Operator No.: Operator Type: Operator Lot: Oper Concession: Operator Region: Operator District: Operator County: Oper Phone Area Cd: 905 Ext: Oper Phone Number: 6401550 Proponent Ext:			
<u>15</u>	14 of 19	SSE/28.9	270.1 / -1.74	STOUFFVILLE CO-OP ASSOC 47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	PRT
Location ID: 14161 Type: retail Expiry Date: 1993-02-28 Capacity (L): 340700 Licence #: 0012974003					
<u>15</u>	15 of 19	SSE/28.9	270.1 / -1.74	STOUFFVILLE CO-OP ASSOC 47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	PRT
Location ID: 14161 Type: retail Expiry Date: 1995-02-28 Capacity (L): 45460 Licence #: 0053217001					
<u>15</u>	16 of 19	SSE/28.9	270.1 / -1.74	ROMANDALE FARMS LTD 47 EDWARD ST LOT 1 CON 9 STOUFFVILLE ON L4A 1A4	PRT
Location ID: 14161 Type: retail Expiry Date: Capacity (L): 0 Licence #: 0001067414					
<u>15</u>	17 of 19	SSE/28.9	270.1 / -1.74	STOUFFVILLE CO-OPERATIVE ASSN 47 EDWARD ST STOUFFVILLE ON L4A 1A4	RST
Headcode: 924800 Headcode Desc: Oils-Fuel Phone: 9056401550 List Name: Description:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>15</u>	18 of 19	SSE/28.9	270.1 / -1.74	STOUFFVILLE CO-OPERATIVE ASSOC 47 EDWARD ST STOUFFVILLE ON L4A 1A4	SCT
Established:	1943				
Plant Size (ft²):	0				
Employment:	30				
--Details--					
Description:	PREPARED FEEDS AND FEED INGREDIENTS FOR ANIMALS AND FOWLS, EXCEPT DOGS AND CATS				
SIC/NAICS Code:	2048				
Description:	FARM AND GARDEN MACHINERY AND EQUIPMENT				
SIC/NAICS Code:	5083				
Description:	FARM SUPPLIES				
SIC/NAICS Code:	5191				
<u>15</u>	19 of 19	SSE/28.9	270.1 / -1.74	EXPERTS COOP 47 EDWARDS TANK TRUCK (CARGO) WHITCHURCH-STOUFFVILLE ON L4A 1A4	SPL
Ref No:	55963			Site Address:	
Contaminant Name:				Site Conc:	
Contaminant Code:				Site Lot:	
Contaminant Limit 1:				Site County/District:	
Contam. Limit Freq 1:				Site Municipality:	27406
Contaminant UN No 1:				Site Postal Code:	
Contaminant Qty:				Sector Type:	
MOE Reported Dt:	8/21/1991			Source Type:	
Health/Env Conseq:				Receiving Medium:	LAND
Incident Dt:	8/21/1991			Receiving Env:	
Incident Cause:	CONTAINER OVERFLOW			Environment Impact:	CONFIRMED
Incident Event:				Nature of Impact:	Soil contamination
Incident Reason:	ERROR			SAC Action Class:	
Incident Summary:	EXPERTS COOP TANKER TRUCK150 L DIESEL FUEL TO GRAVEL-OPERATOR OVERFILL				
<u>16</u>	1 of 1	SSE/29.0	270.4 / -1.45	UPI INC.(OUT OF BUSINESS) STOUFFVILLE CO-OP ASSOCIATION GAS BAR 47 EDWARD STREET STOUFFVILLE ON	GEN
Generator No.:	ON1446963			PO Box No.:	
Status:				Country:	
Approval Years:	03,04			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:					
SIC Description:					
<u>17</u>	1 of 1	SSE/30.3	270.7 / -1.15	STOUFFVILLE ON	WWIS
Well ID:	7198821			Data Entry Status:	
Construction Date:				Data Src:	
Primary Water Use:	Monitoring			Date Received:	3/19/2013
Sec. Water Use:				Selected Flag:	1

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Final Well Status:	Observation Wells			Abandonment Rec:	
Water Type:				Contractor:	7383
Casing Material:				Form Version:	7
Audit No:	Z153761			Owner:	
Tag:	A134503			Street Name:	135 MAIN ST. 35 EDWARD ST.
Construction Method:				County:	YORK
Elevation (m):				Municipality:	WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP)
Elevation Reliability:				Site Info:	
Depth to Bedrock:				Lot:	
Well Depth:				Concession:	
Overburden/Bedrock:				Concession Name:	
Pump Rate:				Easting NAD83:	
Static Water Level:				Northing NAD83:	
Flowing (Y/N):				Zone:	
Flow Rate:				UTM Reliability:	
Clear/Cloudy:					
Bore Hole Information					
Bore Hole ID:	1004264692			Spatial Status:	
DP2BR:				Cluster Kind:	
Code OB:				UTMRC:	4
Code OB Desc:				UTMRC Desc:	margin of error : 30 m - 100 m
Open Hole:				Location Method:	wwr
Elevation:	270.853424			Org CS:	UTM83
Elevrc:				Date Completed:	11/16/2012
Remarks:					
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
Overburden and Bedrock Materials Interval					
Formation ID:	1004909284				
Layer:	1				
Color:	8				
General Color:	BLACK				
Mat1:					
Most Common Material:					
Mat2:					
Other Materials:					
Mat3:					
Other Materials:					
Formation Top Depth:	0.00				
Formation End Depth:	2.00				
Formation End Depth UOM:	ft				
Formation ID:	1004909285				
Layer:	2				
Color:	6				
General Color:	BROWN				
Mat1:	01				
Most Common Material:	FILL				
Mat2:	11				
Other Materials:	GRAVEL				
Mat3:	28				
Other Materials:	SAND				
Formation Top Depth:	2.00				
Formation End Depth:	2.00				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site
Formation End Depth UOM:				
Formation ID:		1004909286		
Layer:		3		
Color:		2		
General Color:		GREY		
Mat1:		05		
Most Common Material:		CLAY		
Mat2:		28		
Other Materials:		SAND		
Mat3:		11		
Other Materials:		GRAVEL		
Formation Top Depth:		2.00		
Formation End Depth:		20.00		
Formation End Depth UOM:		ft		
Annular Space/Abandonment Sealing Record				
Plug ID:		1004909293		
Layer:		1		
Plug From:		0.00		
Plug To:		4.00		
Plug Depth UOM:		ft		
Plug ID:		1004909294		
Layer:		2		
Plug From:		4.00		
Plug To:		20.00		
Plug Depth UOM:		ft		
Method of Construction & Well Use				
Method Construction ID:		1004909292		
Method Construction Code:		2		
Method Construction:		Rotary (Convent.)		
Other Method Construction:				
Pipe Information				
Pipe ID:		1004909283		
Casing No:		0		
Comment:				
Alt Name:				
Construction Record - Casing				
Casing ID:		1004909289		
Layer:		1		
Material:		5		
Open Hole or Material:		PLASTIC		
Depth From:		0.00		
Depth To:		5.00		
Casing Diameter:		2.00		
Casing Diameter UOM:		inch		
Casing Depth UOM:		ft		
Construction Record - Screen				
Screen ID:		1004909290		
Layer:		1		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Slot:		10			
Screen Top Depth:		5.00			
Screen End Depth:		20.00			
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		2.37			
<u>Water Details</u>					
Water ID:		1004909288			
Layer:		1			
Kind Code:					
Kind:					
Water Found Depth:		6.00			
Water Found Depth UOM:		ft			
<u>Hole Diameter</u>					
Hole ID:		1004909287			
Diameter:		4.50			
Depth From:		0.00			
Depth To:		20.00			
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			

18	1 of 1	SSE/32.5	270.7 / -1.18	ON	WWIS
Well ID:	7223573			Data Entry Status:	Date Entry is incomplete
Construction Date:				Data Src:	
Primary Water Use:				Date Received:	7/10/2014
Sec. Water Use:				Selected Flag:	1
Final Well Status:				Abandonment Rec:	
Water Type:				Contractor:	6607
Casing Material:				Form Version:	8
Audit No:	C23852			Owner:	
Tag:	A157243			Street Name:	
Construction Method:				County:	YORK
Elevation (m):				Municipality:	WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP)
Elevation Reliability:				Site Info:	
Depth to Bedrock:				Lot:	
Well Depth:				Concession:	
Overburden/Bedrock:				Concession Name:	
Pump Rate:				Easting NAD83:	
Static Water Level:				Northing NAD83:	
Flowing (Y/N):				Zone:	
Flow Rate:				UTM Reliability:	
Clear/Cloudy:					
<u>Bore Hole Information</u>					
Bore Hole ID:	1004917217			Spatial Status:	
DP2BR:				Cluster Kind:	
Code OB:				UTMRC:	4
Code OB Desc:				UTMRC Desc:	margin of error : 30 m - 100 m
Open Hole:				Location Method:	wwr
Elevation:	270.9888			Org CS:	UTM83
Elevrc:				Date Completed:	2/12/2014
Remarks:					
Elevrc Desc:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Location Source Date: Improvement Location Source: Improvement Location Method: Source Revision Comment: Supplier Comment:					
<u>19</u>	1 of 2	SSE/35.6	270.0 / -1.91	Villa Italian Bakery 1980 Ltd 67A Edward St Unit A Stouffville ON L4A 1A5	SCT
Established:		1980			
Plant Size (ft²):		2500			
Employment:					
<u>--Details--</u>					
Description:		Commercial Bakeries and Frozen Bakery Product Manufacturing			
SIC/NAICS Code:		311814			
<u>19</u>	2 of 2	SSE/35.6	270.0 / -1.91	Villa Italian Bakery (1980) Ltd. 67A Edward St Stouffville ON L4A 1A5	SCT
Established:		1980			
Plant Size (ft²):		2500			
Employment:		3			
<u>20</u>	1 of 1	SSE/37.2	270.7 / -1.14	STOUFFVILLE ON	WWIS
Well ID:		7198820	Data Entry Status:		
Construction Date:			Data Src:		
Primary Water Use:			Date Received:		
Sec. Water Use:			Selected Flag:		
Final Well Status:		Observation Wells	Abandonment Rec:		
Water Type:			Contractor:		
Casing Material:			Form Version:		
Audit No:		Z153760	Owner:		
Tag:		A134364	Street Name:		
Construction Method:			County:		
Elevation (m):			Municipality:		
Elevation Reliability:			Site Info:		
Depth to Bedrock:			Lot:		
Well Depth:			Concession:		
Overburden/Bedrock:			Concession Name:		
Pump Rate:			Easting NAD83:		
Static Water Level:			Northing NAD83:		
Flowing (Y/N):			Zone:		
Flow Rate:			UTM Reliability:		
Clear/Cloudy:					
<u>Bore Hole Information</u>					
Bore Hole ID:		1004264689	Spatial Status:		
DP2BR:			Cluster Kind:		
Code OB:			UTMRC:		
Code OB Desc:			UTMRC Desc:		
Open Hole:			Location Method:		
Elevation:		270.725708	Org CS:		
Elevrc:			Date Completed:		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Remarks: Elevr Desc: Location Source Date: Improvement Location Source: Improvement Location Method: Source Revision Comment: Supplier Comment:					
<u>Overburden and Bedrock</u>					
<u>Materials Interval</u>					
Formation ID:		1004909263			
Layer:		1			
Color:		8			
General Color:		BLACK			
Mat1:					
Most Common Material:					
Mat2:					
Other Materials:					
Mat3:					
Other Materials:					
Formation Top Depth:		0.00			
Formation End Depth:		2.00			
Formation End Depth UOM:		ft			
Formation ID:		1004909264			
Layer:		2			
Color:		6			
General Color:		BROWN			
Mat1:		01			
Most Common Material:		FILL			
Mat2:		28			
Other Materials:		SAND			
Mat3:		11			
Other Materials:		GRAVEL			
Formation Top Depth:		2.00			
Formation End Depth:		2.00			
Formation End Depth UOM:		ft			
Formation ID:		1004909265			
Layer:		3			
Color:		2			
General Color:		GREY			
Mat1:		05			
Most Common Material:		CLAY			
Mat2:		28			
Other Materials:		SAND			
Mat3:		11			
Other Materials:		GRAVEL			
Formation Top Depth:		2.00			
Formation End Depth:		17.50			
Formation End Depth UOM:		ft			
<u>Annular Space/Abandonment</u>					
<u>Sealing Record</u>					
Plug ID:		1004909271			
Layer:		1			
Plug From:		0.00			
Plug To:		4.00			
Plug Depth UOM:		ft			
Plug ID:		1004909272			
Layer:		2			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Plug From:		4.00			
Plug To:		20.00			
Plug Depth UOM:		ft			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1004909270			
Method Construction Code:		2			
Method Construction:		Rotary (Convent.)			
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:		1004909262			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1004909268			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.00			
Depth To:		25.00			
Casing Diameter:		2.00			
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
<u>Construction Record - Screen</u>					
Screen ID:		1004909269			
Layer:		1			
Slot:		10			
Screen Top Depth:		2.50			
Screen End Depth:		17.50			
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		2.37			
<u>Water Details</u>					
Water ID:		1004909267			
Layer:		1			
Kind Code:					
Kind:					
Water Found Depth:		61.00			
Water Found Depth UOM:		ft			
<u>Hole Diameter</u>					
Hole ID:		1004909266			
Diameter:		84.50			
Depth From:		0.00			
Depth To:		20.00			
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>21</u>	1 of 5	SE/42.1	269.8 / -2.04	67 Edward Street Stouffville ON L4A 1A5	EHS
Postal Code: City: Address2: Address1: Prov/state: Order No.: 20121026022 Addit. Info Ordered: Fire Insur. Maps and/or Site Plans Report Date: 05-NOV-12 Report Type: Custom Report Search Radius (km): .25					
<u>21</u>	2 of 5	SE/42.1	269.8 / -2.04	Kingfisher International Inc. 67 Edward Street Stouffville ON L4A 1A4	GEN
Generator No.: ON8049497 Status: Approval Years: 06,07,08 Contam. Facility: MHSW Facility: SIC Code: 541990 541940 SIC Description: All Other Professional Scientific and Technical Se, Veterinary Services PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:					
--Details-- Waste Code: 261 Waste Description: PHARMACEUTICALS Waste Code: 261 Waste Description: PHARMACEUTICALS Waste Code: 312 Waste Description: PATHOLOGICAL WASTES					
<u>21</u>	3 of 5	SE/42.1	269.8 / -2.04	Kingfisher International Inc. 67 Edward Street Stouffville ON L4A 1A5	GEN
Generator No.: ON8049497 Status: Approval Years: 2009 Contam. Facility: MHSW Facility: SIC Code: 541990, 541940 SIC Description: All Other Professional Scientific and Technical Services, Veterinary Services PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:					
--Details-- Waste Code: 261 Waste Description: PHARMACEUTICALS Waste Code: 312 Waste Description: PATHOLOGICAL WASTES					
<u>21</u>	4 of 5	SE/42.1	269.8 / -2.04	Kingfisher International Inc. 67 Edward Street Stouffville ON L4A 1A5	GEN

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON8049497 2010 541990, 541940 All Other Professional Scientific and Technical Services, Veterinary Services			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:	
--Details-- Waste Code: Waste Description:	312 PATHOLOGICAL WASTES				
Waste Code: Waste Description:	261 PHARMACEUTICALS				
<u>21</u>	5 of 5	SE/42.1	269.8 / -2.04	VILLA ITALIAN BAKERY 1980 LTD 67 A EDWARD ST STOUFFVILLE ON L4A 1A4	SCT
Established: Plant Size (ft²): Employment:	1980 2500 3				
--Details-- Description: SIC/NAICS Code:	BREAD & OTHER BAKERY PRODUCTS, EXCEPT COOKIES & CRACKERS 2051				
<u>22</u>	1 of 1	S/43.5	270.9 / -1.02	6132 Main Street Stouffville ON L4A 1A6	EHS
Postal Code: City: Address2: Address1: Provstate: Order No.: Addit. Info Ordered:; Report Date: Report Type: Search Radius (km):	 20130412004 15-APR-13 Standard Report .25				
<u>23</u>	1 of 3	SE/47.2	270.4 / -1.46	ROYAL DIE LTD. 83 EDWARD ST. STOUFFVILLE ON L0H 1L0	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON0853900 92,93,97,98 3081 MACHINE SHOP IND.			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:	
--Details-- Waste Code: Waste Description:	213 PETROLEUM DISTILLATES				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>23</u>	2 of 3	SE/47.2	270.4 / -1.46	ROYAL DIE LIMITED 83 EDWARD STREET STOUFFVILLE ON L0H 1L0	GEN
Generator No.:	ON0853900			PO Box No.:	
Status:				Country:	
Approval Years:	99,00,01			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	3081				
SIC Description:	MACHINE SHOP IND.				
--Details--					
Waste Code:	213				
Waste Description:	PETROLEUM DISTILLATES				
<u>23</u>	3 of 3	SE/47.2	270.4 / -1.46	ROYAL DIE LTD 83 EDWARD ST STOUFFVILLE ON L4A 1A7	SCT
Established:	1968				
Plant Size (ft²):	4000				
Employment:	3				
--Details--					
Description:	SPECIAL DIES AND TOOLS, DIE SETS, JIGS AND FIXTURES, AND INDUSTRIAL MOLDS				
SIC/NAICS Code:	3544				
Description:	Other Metalworking Machinery Manufacturing				
SIC/NAICS Code:	333519				
<u>24</u>	1 of 1	SSW/57.8	272.2 / 0.33	WAYNE SMITH 79 ALBERT ST STOUFFVILLE ON L4A 1B2	CFOT
Licence No:				Letter Sent:	
Registration No:				Corrosion Protection:	
Posse File No:				Province:	ON
Posse Reg No:				Nbr:	418
Tank Type:	Single Wall UST			Contact Name:	
Instance Number:	40995690			Contact Address:	
Facility Type:	FS Fuel Oil Tank			Contact Address2:	
Instance Type:	FS Fuel Oil Tank			Contact Suite:	
Status Name:	Active			Contact City:	
Fuel Type:	Fuel Oil			Contact Prov:	
Distributor:				Contact Postal:	
Tank Material:	Steel			Tank Address:	79 ALBERT ST
Tank Age (as of 05/1992):				Comments:	
Tank Size:	2273				
<u>25</u>	1 of 1	SE/64.6	269.9 / -2.01	47 Edward St Whitchurch-Stouffville ON L4A1A4	EHS
Postal Code:					
City:					
Address2:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Address1: Provstate: Order No.: 20131112022 Addit. Info Ordered:: Aerial Photos Report Date: 20-NOV-13 Report Type: Custom Report Search Radius (km): .25					
<u>26</u>	1 of 4	N/68.9	271.8 / -0.02	YORK BOARD OF EDUCATION STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	GEN
Generator No.: ON0192306 Status: Approval Years: 86,87,88,89 Contam. Facility: MHSW Facility: SIC Code: 0007 SIC Description: LETTER ACKNOWLEDG. --Details-- Waste Code: 148 Waste Description: INORGANIC LABORATORY CHEMICALS Waste Code: 252 Waste Description: WASTE OILS & LUBRICANTS Waste Code: 263 Waste Description: ORGANIC LABORATORY CHEMICALS					
<u>26</u>	2 of 4	N/68.9	271.8 / -0.02	YORK BOARD (SEE & USE ON1279402) STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	GEN
Generator No.: ON0192306 Status: Approval Years: 90,98 Contam. Facility: MHSW Facility: SIC Code: 8511 SIC Description: ELEM./SECON. EDUC. PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:					
<u>26</u>	3 of 4	N/68.9	271.8 / -0.02	YORK BOARD (SEE & USE ON1279402) 43-066 STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	GEN
Generator No.: ON0192306 Status: Approval Years: 92,93,94,95,96,97 Contam. Facility: MHSW Facility: SIC Code: 8511 SIC Description: ELEM./SECON. EDUC. PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>26</u>	4 of 4	N/68.9	271.8 / -0.02	YORK REGION BOARD OF EDUCATION STOUFFVILLE DISTRICT SECONDARY SCHOOL 153 EDWARD STREET STOUFFVILLE ON L4A 1A8	GEN
Generator No.:	ON1279402			PO Box No.:	
Status:				Country:	
Approval Years:	92,93			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	8511				
SIC Description:	ELEMT./SECON. EDUC.				
--Details--					
Waste Code:	263				
Waste Description:	ORGANIC LABORATORY CHEMICALS				
Waste Code:	264				
Waste Description:	PHOTOPROCESSING WASTES				
Waste Code:	252				
Waste Description:	WASTE OILS & LUBRICANTS				
Waste Code:	148				
Waste Description:	INORGANIC LABORATORY CHEMICALS				
Waste Code:	251				
Waste Description:	OIL SKIMMINGS & SLUDGES				
<u>27</u>	1 of 8	SSE/69.4	270.4 / -1.44	Metrolinx 6176 Main Street, Stouffville ON L4A 2S5	GEN
Generator No.:	ON5558331			PO Box No.:	
Status:				Country:	
Approval Years:	2010			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	912910, 485990				
SIC Description:	Other Provincial and Territorial Public Administration, Other Transit and Ground Passenger Transportation				
--Details--					
Waste Code:	251				
Waste Description:	OIL SKIMMINGS & SLUDGES				
<u>27</u>	2 of 8	SSE/69.4	270.4 / -1.44	Metrolinx 6176 Main Street, Stouffville ON L4A 2S5	GEN
Generator No.:	ON5558331			PO Box No.:	
Status:				Country:	
Approval Years:	2011			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	912910, 485990				
SIC Description:	Other Provincial and Territorial Public Administration, Other Transit and Ground Passenger Transportation				
--Details--					
Waste Code:	251				
Waste Description:	OIL SKIMMINGS & SLUDGES				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>27</u>	3 of 8	SSE/69.4	270.4 / -1.44	Metrolinx 6176 Main Street, Stouffville ON L4A 2S5	GEN
Generator No.:	ON5558331			PO Box No.:	
Status:				Country:	
Approval Years:	2012			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	912910, 485990				
SIC Description:	Other Provincial and Territorial Public Administration, Other Transit and Ground Passenger Transportation				
--Details--					
Waste Code:	251				
Waste Description:	OIL SKIMMINGS & SLUDGES				
<u>27</u>	4 of 8	SSE/69.4	270.4 / -1.44	Metrolinx 6176 Main Street, Stouffville ON	GEN
Generator No.:	ON5558331			PO Box No.:	
Status:				Country:	
Approval Years:	2013			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	912910, 485990				
SIC Description:	OTHER PROVINCIAL AND TERRITORIAL PUBLIC ADMINISTRATION				
--Details--					
Waste Code:	251				
Waste Description:	OIL SKIMMINGS & SLUDGES				
<u>27</u>	5 of 8	SSE/69.4	270.4 / -1.44	Metrolinx 6176 Main Street, Stouffville ON L4A 8A4	GEN
Generator No.:	ON5558331			PO Box No.:	
Status:				Country:	Canada
Approval Years:	2016			Choice of Contact:	CO_OFFICIAL
Contam. Facility:	No			Co Admin:	Emily Cosburn
MHSW Facility:	No			Phone No. Admin:	416-202-4374 Ext.
SIC Code:	912910, 485990				
SIC Description:	OTHER PROVINCIAL AND TERRITORIAL PUBLIC ADMINISTRATION, 485990				
--Details--					
Waste Code:	251				
Waste Description:	OIL SKIMMINGS & SLUDGES				
<u>27</u>	6 of 8	SSE/69.4	270.4 / -1.44	Metrolinx 6176 Main Street, Stouffville ON L4A 8A4	GEN
Generator No.:	ON5558331			PO Box No.:	
Status:				Country:	Canada
Approval Years:	2015			Choice of Contact:	CO_OFFICIAL

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Contam. Facility: MHSW Facility: SIC Code: SIC Description:	No No 912910, 485990			Co Admin: Phone No. Admin: Emily Cosburn 416-869-3600 Ext.5209	
OTHER PROVINCIAL AND TERRITORIAL PUBLIC ADMINISTRATION, 485990					
--Details--					
Waste Code: Waste Description:	251 OIL SKIMMINGS & SLUDGES				
27	7 of 8	SSE/69.4	270.4 / -1.44	Metrolinx 6176 Main Street, Stouffville ON L4A 8A4	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON5558331 2014 No No 912910, 485990			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin: Canada CO_OFFICIAL Phil r Pengelly 416 412 7916 Ext.2831	
OTHER PROVINCIAL AND TERRITORIAL PUBLIC ADMINISTRATION, 485990					
--Details--					
Waste Code: Waste Description:	251 OIL SKIMMINGS & SLUDGES				
27	8 of 8	SSE/69.4	270.4 / -1.44	Metrolinx GO Transit 6176 Main Street, Stouffville ON L4A 8A4	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON5558331 Registered As of Dec 2017			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin: Canada	
--Details--					
Waste Code: Waste Description:	251 L Waste oils/sludges (petroleum based)				
28	1 of 2	ESE/69.6	269.7 / -2.16	ROYAL DIE LTD. 83 EDWARD ST. STOUFFVILLE ON L3P 3J3	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON0853900 86,87,88,89,90 3081			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin: 	
MACHINE SHOP IND.					
--Details--					
Waste Code: Waste Description:	213 PETROLEUM DISTILLATES				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
28	2 of 2	ESE/69.6	269.7 / -2.16	ROYAL DIE LTD. 83 EDWARD ST. STOUFFVILLE ON L3P 3J3	33-336 GEN
Generator No.:	ON0853900			PO Box No.:	
Status:				Country:	
Approval Years:	94,95,96			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	3081				
SIC Description:	MACHINE SHOP IND.				
--Details--					
Waste Code:	213				
Waste Description:	PETROLEUM DISTILLATES				
29	1 of 1	SE/69.6	269.8 / -2.03	STOUFFVILLE ON	WWIS
Well ID:	7103999			Data Entry Status:	
Construction Date:				Data Src:	
Primary Water Use:	Test Hole			Date Received:	4/15/2008
Sec. Water Use:				Selected Flag:	1
Final Well Status:	Test Hole			Abandonment Rec:	
Water Type:				Contractor:	7383
Casing Material:				Form Version:	5
Audit No:	M01180			Owner:	
Tag:	A072180			Street Name:	67 EDWARD ST.
Construction Method:				County:	YORK
Elevation (m):				Municipality:	WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP)
Elevation Reliability:				Site Info:	
Depth to Bedrock:				Lot:	
Well Depth:				Concession:	
Overburden/Bedrock:				Concession Name:	
Pump Rate:				Easting NAD83:	
Static Water Level:				Northing NAD83:	
Flowing (Y/N):				Zone:	
Flow Rate:				UTM Reliability:	
Clear/Cloudy:					
<u>Bore Hole Information</u>					
Bore Hole ID:	1002677643			Spatial Status:	
DP2BR:				Cluster Kind:	This is a record from cluster log sheet
Code OB:				UTMRC:	3
Code OB Desc:				UTMRC Desc:	margin of error : 10 - 30 m
Open Hole:				Location Method:	wwt
Elevation:	270.799285			Org CS:	UTM83
Elevrc:				Date Completed:	3/13/2008
Remarks:					
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
<u>Annular Space/Abandonment</u>					
<u>Sealing Record</u>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Plug ID:		1002677647			
Layer:					
Plug From:					
Plug To:					
Plug Depth UOM:					
 <u>Method of Construction & Well Use</u>					
Method Construction ID:		1002677646			
Method Construction Code:					
Method Construction:					
Other Method Construction:		BORING			
 <u>Pipe Information</u>					
Pipe ID:		1002677648			
Casing No:		0			
Comment:					
Alt Name:					
 <u>Construction Record - Casing</u>					
Casing ID:		1002677650			
Layer:					
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:					
Depth To:		6.00			
Casing Diameter:					
Casing Diameter UOM:					
Casing Depth UOM:		m			
 <u>Construction Record - Screen</u>					
Screen ID:		1002677649			
Layer:					
Slot:					
Screen Top Depth:		1.50			
Screen End Depth:		6.00			
Screen Material:					
Screen Depth UOM:		m			
Screen Diameter UOM:					
Screen Diameter:					
 <u>Results of Well Yield Testing</u>					
Pump Test ID:		1002677651			
Pump Set At:					
Static Level:		2.00			
Final Level After Pumping:					
Recommended Pump Depth:					
Pumping Rate:					
Flowing Rate:					
Recommended Pump Rate:					
Levels UOM:		m			
Rate UOM:					
Water State After Test Code:					
Water State After Test:					
Pumping Test Method:					
Pumping Duration HR:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	
<u>Pumping Duration MIN: Flowing:</u>					
<u>Hole Diameter</u>					
Hole ID:		1002677645			
Diameter:		21.00			
Depth From:					
Depth To:		6.00			
Hole Depth UOM:		m			
Hole Diameter UOM:		cm			
<u>Bore Hole Information</u>					
Bore Hole ID:	1002677634			Spatial Status:	
DP2BR:				Cluster Kind:	This is a record from cluster log sheet
Code OB:				UTMRC:	3
Code OB Desc:				UTMRC Desc:	margin of error : 10 - 30 m
Open Hole:				Location Method:	wwr
Elevation:	271.144958			Org CS:	UTM83
Elevrc:				Date Completed:	3/13/2008
Remarks:					
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1002677638			
Layer:					
Plug From:					
Plug To:					
Plug Depth UOM:					
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1002677637			
Method Construction Code:					
Method Construction:					
Other Method Construction:		BORING			
<u>Pipe Information</u>					
Pipe ID:		1002677639			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1002677641			
Layer:					
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:					
Depth To:		6.00			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	
<u>Casing Diameter:</u>					
<u>Casing Diameter UOM:</u>					
<u>Casing Depth UOM:</u>		m			
<u>Construction Record - Screen</u>					
<u>Screen ID:</u>		1002677640			
<u>Layer:</u>					
<u>Slot:</u>					
<u>Screen Top Depth:</u>		1.50			
<u>Screen End Depth:</u>		6.00			
<u>Screen Material:</u>					
<u>Screen Depth UOM:</u>		m			
<u>Screen Diameter UOM:</u>					
<u>Screen Diameter:</u>					
<u>Results of Well Yield Testing</u>					
<u>Pump Test ID:</u>		1002677642			
<u>Pump Set At:</u>					
<u>Static Level:</u>		2.00			
<u>Final Level After Pumping:</u>					
<u>Recommended Pump Depth:</u>					
<u>Pumping Rate:</u>					
<u>Flowing Rate:</u>					
<u>Recommended Pump Rate:</u>					
<u>Levels UOM:</u>		m			
<u>Rate UOM:</u>					
<u>Water State After Test Code:</u>					
<u>Water State After Test:</u>					
<u>Pumping Test Method:</u>					
<u>Pumping Duration HR:</u>					
<u>Pumping Duration MIN:</u>					
<u>Flowing:</u>					
<u>Hole Diameter</u>					
<u>Hole ID:</u>		1002677636			
<u>Diameter:</u>		21.00			
<u>Depth From:</u>					
<u>Depth To:</u>		6.00			
<u>Hole Depth UOM:</u>		m			
<u>Hole Diameter UOM:</u>		cm			
<u>Bore Hole Information</u>					
<u>Bore Hole ID:</u>	1001574807			<u>Spatial Status:</u>	
<u>DP2BR:</u>					
<u>Code OB:</u>					
<u>Code OB Desc:</u>					
<u>Open Hole:</u>	N			<u>Cluster Kind:</u>	
<u>Elevation:</u>	271.144958			<u>UTMRC:</u>	3
<u>Elevrc:</u>					
<u>Remarks:</u>					
<u>Elevrc Desc:</u>					
<u>Location Source Date:</u>					
<u>Improvement Location Source:</u>					
<u>Improvement Location Method:</u>					
<u>Source Revision Comment:</u>					
<u>Supplier Comment:</u>					
<u>Overburden and Bedrock</u>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site
<u>Materials Interval</u>				
Formation ID:		1002677654		
Layer:		1		
Color:		6		
General Color:		BROWN		
Mat1:		28		
Most Common Material:		SAND		
Mat2:		06		
Other Materials:		SILT		
Mat3:		66		
Other Materials:		DENSE		
Formation Top Depth:		0.00		
Formation End Depth:		6.00		
Formation End Depth UOM:		m		
<u>Annular Space/Abandonment Sealing Record</u>				
Plug ID:		1002677656		
Layer:		1		
Plug From:		0.20		
Plug To:		1.00		
Plug Depth UOM:		m		
<u>Method of Construction & Well Use</u>				
Method Construction ID:		1002677661		
Method Construction Code:		6		
Method Construction:		Boring		
Other Method Construction:				
<u>Pipe Information</u>				
Pipe ID:		1002677652		
Casing No:		0		
Comment:				
Alt Name:				
<u>Construction Record - Casing</u>				
Casing ID:		1002677658		
Layer:		1		
Material:		5		
Open Hole or Material:		PLASTIC		
Depth From:		0.00		
Depth To:		6.00		
Casing Diameter:		5.00		
Casing Diameter UOM:		cm		
Casing Depth UOM:		m		
<u>Construction Record - Screen</u>				
Screen ID:		1002677659		
Layer:		1		
Slot:		10		
Screen Top Depth:				
Screen End Depth:				
Screen Material:		5		
Screen Depth UOM:		m		
Screen Diameter UOM:		cm		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Screen Diameter:		5.10			
<u>Results of Well Yield Testing</u>					
Pump Test ID:		1002677653			
Pump Set At:					
Static Level:		2.00			
Final Level After Pumping:					
Recommended Pump Depth:					
Pumping Rate:					
Flowing Rate:					
Recommended Pump Rate:					
Levels UOM:		m			
Rate UOM:					
Water State After Test Code:		0			
Water State After Test:					
Pumping Test Method:		0			
Pumping Duration HR:					
Pumping Duration MIN:					
Flowing:					
<u>Water Details</u>					
Water ID:		1002677657			
Layer:		1			
Kind Code:		1			
Kind:		FRESH			
Water Found Depth:		2.00			
Water Found Depth UOM:		m			
<u>Hole Diameter</u>					
Hole ID:		1002677655			
Diameter:		21.00			
Depth From:		0.00			
Depth To:		6.00			
Hole Depth UOM:		m			
Hole Diameter UOM:		cm			
<u>30</u>	1 of 3	SSE/70.1	270.4 / -1.48	6209 Main St Stouffville ON L4A 4H8	EHS
<u>Postal Code:</u>					
<u>City:</u>					
<u>Address2:</u>					
<u>Address1:</u>					
<u>Provstate:</u>					
<u>Order No.:</u>		20011123008			
<u>Addit. Info Ordered.:</u>					
<u>Report Date:</u>		11/27/01			
<u>Report Type:</u>		Site Report			
<u>Search Radius (km):</u>		0.25			
<u>30</u>	2 of 3	SSE/70.1	270.4 / -1.48	6209 MAIN STREET STOUFFVILLE ON L4A 4H8	HINC
<u>External File Num:</u>					
<u>Date of Occurrence:</u>					
<u>Fuel Occurrence Type:</u>					
<u>Fuel Type Involved:</u>					
<u>Status Desc.:</u>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Job Type Desc:: Incident/Near-Miss Occurrence (FS) Oper. Type Involved:: Construction Site (pipeline strike) Service Interruptions:: Yes Property Damage:: No Fuel Life Cycle Stage:: Transmission, Distribution and Transportation Root Cause:: Root Cause: Equipment/Material/Component:No Procedures:No Maintenance:No Design:No Training:No Management:No Human Factors:Yes Reported Details:: Fuel Category:: Gaseous Fuel Occurrence Type:: Incident Affiliation:: Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.) County Name:: York Approx. Quant. Rel:: Nearby body of water:: Enter Drainage Syst.: Approx. Quant. Unit:: Environmental Impact::					
<u>30</u>	3 of 3	SSE/70.1	270.4 / -1.48	WHITCHURCH-STOUFFVILLE HYDRO 6209 MAIN ST. STOUFFVILLE ON L4A 4H8	NPCB
Company Code: O005310 Industry: UTILITY Site Status: NO MORE PCB'S ON THIS SITE Transaction Date: Inspection Date:					
<u>31</u>	1 of 1	SE/92.1	270.1 / -1.78	Stouffville Picture Framing 6186 Main St Stouffville ON L4A 2S5	SCT
Established: 01-AUG-98 Plant Size (ft²): Employment:					
--Details-- Description: Other Ornamental and Architectural Metal Product Manufacturing SIC/NAICS Code: 332329 Description: All Other Miscellaneous Wood Product Manufacturing SIC/NAICS Code: 321999					
<u>32</u>	1 of 5	ENE/98.3	270.8 / -1.05	Schell Lumber LTD. 92 Schell Street Stouffville ON	GEN
Generator No.: ON8861927 Status: Approval Years: 2009 Contam. Facility: MHSW Facility: SIC Code: 444110 SIC Description: Home Centres PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:					
--Details-- Waste Code: 252 Waste Description: WASTE OILS & LUBRICANTS					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>32</u>	2 of 5	ENE/98.3	270.8 / -1.05	Schell Lumber LTD. 92 Schell Street Stouffville ON	GEN
Generator No.:	ON8861927			PO Box No.:	
Status:				Country:	
Approval Years:	2010			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	444110				
SIC Description:	Home Centres				
--Details--					
Waste Code:	252				
Waste Description:	WASTE OILS & LUBRICANTS				
<u>32</u>	3 of 5	ENE/98.3	270.8 / -1.05	Schell Lumber LTD. 92 Schell Street Stouffville ON	GEN
Generator No.:	ON8861927			PO Box No.:	
Status:				Country:	
Approval Years:	2011			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	444110				
SIC Description:	Home Centres				
--Details--					
Waste Code:	252				
Waste Description:	WASTE OILS & LUBRICANTS				
<u>32</u>	4 of 5	ENE/98.3	270.8 / -1.05	Schell Lumber LTD. 92 Schell Street Stouffville ON	GEN
Generator No.:	ON8861927			PO Box No.:	
Status:				Country:	
Approval Years:	2012			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	444110				
SIC Description:	Home Centres				
--Details--					
Waste Code:	252				
Waste Description:	WASTE OILS & LUBRICANTS				
<u>32</u>	5 of 5	ENE/98.3	270.8 / -1.05	Schell Lumber LTD. 92 Schell Street Stouffville ON	GEN
Generator No.:	ON8861927			PO Box No.:	
Status:				Country:	
Approval Years:	2013			Choice of Contact:	
Contam. Facility:				Co Admin:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
MHSW Facility: SIC Code: 444110 SIC Description: HOME CENTRES Phone No. Admin:					
--Details-- Waste Code: 252 Waste Description: WASTE OILS & LUBRICANTS					
<u>33</u>	1 of 2	SE/102.7	270.0 / -1.85	Stouffville Monument Works Ltd 6194 Main St Stouffville ON L4A 2S5	SCT
Established: Plant Size (ft²): Employment: 01-JUN-39					
--Details-- Description: SIC/NAICS Code: All Other Non-Metallic Mineral Product Manufacturing 327990					
<u>33</u>	2 of 2	SE/102.7	270.0 / -1.85	Stouffville Monument Works Ltd. 6194 Main St Stouffville ON L4A 2S5	SCT
Established: Plant Size (ft²): Employment: 2					
<u>34</u>	1 of 1	ESE/103.2	269.6 / -2.27	47 Edward St Whitchurch-Stouffville ON L4A1A4	EHS
Postal Code: City: Address2: Address1: Provstate: Order No.: Addit. Info Ordered:: Report Date: Report Type: Search Radius (km): 20130826036 Fire Insur. Maps and/or Site Plans 05-SEP-13 Standard Select Report 25					
<u>35</u>	1 of 4	NNE/105.4	271.3 / -0.60	183 Bramble Cres. Stouffville ON L4A 7Z1	EHS
Postal Code: City: Address2: Address1: Provstate: Order No.: Addit. Info Ordered:: Report Date: Report Type: Search Radius (km): 20091120017 Fire Insur. Maps and/or Site Plans; City Directory 12/1/2009 Custom Report 0.25					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>35</u>	2 of 4	NNE/105.4	271.3 / -0.60	YORK REGION DISTRICT SCHOOL BOARD STOUFFVILLE DISTRICT SECONDARY SCHOOL 183 BRAMBLE CRESCENT WHITCHURCH-STOUFFVILLE ON L4A 7Z1	GEN
Generator No.:	ON1279402			PO Box No.:	
Status:				Country:	
Approval Years:	97,98,99,00,01,02,03,04,05,06			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	8511				
SIC Description:	ELEMT./SECON. EDUC.				
--Details--					
Waste Code:	148				
Waste Description:	INORGANIC LABORATORY CHEMICALS				
Waste Code:	251				
Waste Description:	OIL SKIMMINGS & SLUDGES				
Waste Code:	252				
Waste Description:	WASTE OILS & LUBRICANTS				
Waste Code:	263				
Waste Description:	ORGANIC LABORATORY CHEMICALS				
Waste Code:	264				
Waste Description:	PHOTOPROCESSING WASTES				
Waste Code:	331				
Waste Description:	WASTE COMPRESSED GASES				
<u>35</u>	3 of 4	NNE/105.4	271.3 / -0.60	York Region District School Board 183 Bramble Crescent Stouffville ON L4A 7Z1	GEN
Generator No.:	ON3510303			PO Box No.:	
Status:				Country:	
Approval Years:	2010			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:	611090				
SIC Description:	All Other Schools and Instruction				
--Details--					
Waste Code:	145				
Waste Description:	PAINT/PIGMENT/COATING RESIDUES				
Waste Code:	146				
Waste Description:	OTHER SPECIFIED INORGANICS				
Waste Code:	243				
Waste Description:	PCBS				
Waste Code:	251				
Waste Description:	OIL SKIMMINGS & SLUDGES				
<u>35</u>	4 of 4	NNE/105.4	271.3 / -0.60	The Trustees of the Stouffville District High School Board	RSC

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	
				183 BRAMBLE CRES, STOUFFVILLE, ON, L4A 7Z1 ON L4A 7Z1	
Reg No:	86115			Cert Date:	5-Aug-10
RA No:				Cert Prop Use No:	No CPU
RSC Type:				Intended Prop Use:	Institutional
Curr Property Use:	Institutional			Nm of Qual. Person:	Bryan Blackert
District Office:	WHITCHURCH-STOUFFVILLE			Stratified (Y/N):	
Date Submitted:	3-Dec-10			Audit (Y/N):	
Date Ack:				Entire Leg Prop. (Y/N):	Yes
Date Returned:				Accuracy Estimate:	21 to 100 meters
Restoration Type:				Telephone:	905-7270022
Soil Type:				Fax:	905-8301640
Criteria:				Email:	bryan.blackert@yrdsb.edu.on.ca
Asmt Roll No:	1.944E+18				
Prop. ID No:	03713-0212; 03713-0357				
CPU Issued Sect 1686:	No				
Property Municipal Address:	183 BRAMBLE CRES, STOUFFVILLE, ON, L4A 7Z1				
Mailing Address:	1260 GORHAM ST, NEWMARKET, ON, L3Y 8W4				
Latitude & Longitude:	43.97498480N 79.25122740W (converted from UTM)				
UTM Coordinates:	NAD83 17-640266-4870581				
Consultant:					
Filing Owner:					
Legal Desc:	PT LT 2 CON 9 WHITCHURCH AS IN B37678B; S/T RESERVATIONS IN B37678B; WHITCHURCH-STOUFFVILLE; and PT LT 2 CON 9 WHITCHURCH AS IN WH24389 & A947A; T/W WH24389; WHITCHURCH-STOUFFVILLE				
Measurement Method:	Digitized from a satellite image				
Applicable Standards:	Full Depth Site Conditions Standard, with Potable Ground Water, Coarse Textured Soil, for Residential/Parkland/Institutional property use				
RSC PDF:					

36	1 of 1	ESE/105.9	269.6 / -2.31	ON	WWIS
Well ID:	7223572			Data Entry Status:	Date Entry is incomplete
Construction Date:				Data Src:	
Primary Water Use:				Date Received:	7/10/2014
Sec. Water Use:				Selected Flag:	1
Final Well Status:				Abandonment Rec:	
Water Type:				Contractor:	6607
Casing Material:				Form Version:	8
Audit No:	C23883			Owner:	
Tag:	A157243			Street Name:	
Construction Method:				County:	YORK
Elevation (m):				Municipality:	WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP)
Elevation Reliability:				Site Info:	
Depth to Bedrock:				Lot:	
Well Depth:				Concession:	
Overburden/Bedrock:				Concession Name:	
Pump Rate:				Easting NAD83:	
Static Water Level:				Northing NAD83:	
Flowing (Y/N):				Zone:	
Flow Rate:				UTM Reliability:	
Clear/Cloudy:					
Bore Hole Information					
Bore Hole ID:	1004917214			Spatial Status:	
DP2BR:				Cluster Kind:	
Code OB:				UTMRC:	4
Code OB Desc:				UTMRC Desc:	margin of error : 30 m - 100 m

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Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	
Elevation:	268.494873			Org CS:	UTM83
Elevrc:				Date Completed:	4/8/2006
Remarks:					
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:	933293577				
Layer:	1				
Plug From:	7.00				
Plug To:	0.00				
Plug Depth UOM:	ft				
<u>Method of Construction & Well Use</u>					
Method Construction ID:	966930258				
Method Construction Code:	B				
Method Construction:	Other Method				
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:	11568665				
Casing No:	1				
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:	930879973				
Layer:	1				
Material:					
Open Hole or Material:					
Depth From:	9.00				
Depth To:	0.00				
Casing Diameter:	1.00				
Casing Diameter UOM:	inch				
Casing Depth UOM:	ft				
<u>Construction Record - Screen</u>					
Screen ID:	933418659				
Layer:	1				
Slot:					
Screen Top Depth:	9.00				
Screen End Depth:	19.00				
Screen Material:					
Screen Depth UOM:	ft				
Screen Diameter UOM:	inch				
Screen Diameter:	1.00				
<u>Hole Diameter</u>					
Hole ID:	11691174				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Diameter:		3.00			
Depth From:		20.00			
Depth To:		0.00			
Hole Depth UOM:		R			
Hole Diameter UOM:		inch			
<u>39</u>	1 of 3	SE/130.6	269.9 / -1.99	GERANIUM HOMES (MAIN ST.) INC. 6233 MAIN STOUFFVILLE STOUFFVILLE ON	EASR
Approval No:	R-009-4621000419			SWP Area Name:	
Status:	Registered			MOE District:	
Date:	2016-08-09			City:	
Record Type:				Latitude:	
Link Source:				Longitude:	
Full Address:					
Project Type:	Water Taking - Construction Dewatering				
Approval Type:					
Full PDF Link:	http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2023739				
<u>39</u>	2 of 3	SE/130.6	269.9 / -1.99	GERANIUM HOMES (MAIN ST.) INC. 6233 MAIN ST STOUFFVILLE ON L4A 4J3	EASR
Approval No:	R-009-4621000419			SWP Area Name:	Toronto
Status:	REGISTERED			MOE District:	York-Durham
Date:	2016-08-09			City:	
Record Type:	EASR			Latitude:	43.97055556
Link Source:	MOFA			Longitude:	-79.24916667
Full Address:					
Project Type:	Water Taking - Construction Dewatering				
Approval Type:	EASR-Water Taking - Construction Dewatering				
Full PDF Link:	http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2023739				
<u>39</u>	3 of 3	SE/130.6	269.9 / -1.99	6233 Main Street Stouffville ON	EHS
Postal Code:					
City:					
Address2:					
Address1:					
Provstate:					
Order No.:	20120426019				
Addit. Info Ordered.:					
Report Date:	5/2/2012 3:44:15 PM				
Report Type:	Standard Report				
Search Radius (km):	0.25				
<u>40</u>	1 of 1	SSE/135.2	269.8 / -2.08	lot 35 con 9 ON	WWIS
Well ID:	6905429			Data Entry Status:	
Construction Date:				Data Src:	1
Primary Water Use:				Date Received:	11/30/1965
Sec. Water Use:				Selected Flag:	1
Final Well Status:	Abandoned-Supply			Abandonment Rec:	
Water Type:				Contractor:	5420
Casing Material:				Form Version:	1
Audit No:				Owner:	
Tag:				Street Name:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Construction Method: Elevation (m):				County: Municipality:	YORK WHITCHURCH-STOUFFVILLE TOWN (MARKHAM TWP)
Elevation Reliability: Depth to Bedrock: Well Depth: Overburden/Bedrock: Pump Rate: Static Water Level: Flowing (Y/N): Flow Rate: Clear/Cloudy:				Site Info: Lot: Concession: Concession Name: Easting NAD83: Northing NAD83: Zone: UTM Reliability:	035 09 CON
Bore Hole Information					
Bore Hole ID:	10496134			Spatial Status:	
DP2BR:				Cluster Kind:	
Code OB:	0			UTMRC:	4
Code OB Desc:	Overburden			UTMRC Desc:	margin of error : 30 m - 100 m
Open Hole:				Location Method:	p4
Elevation:	269.998291			Org CS:	
Elevrc:				Date Completed:	2/10/1965
Remarks:					
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
Overburden and Bedrock Materials Interval					
Formation ID:	932728469				
Layer:	1				
Color:					
General Color:					
Mat1:	05				
Most Common Material:	CLAY				
Mat2:	13				
Other Materials:	BOULDERS				
Mat3:					
Other Materials:					
Formation Top Depth:	0.00				
Formation End Depth:	60.00				
Formation End Depth UOM:	ft				
Formation ID:	932728470				
Layer:	2				
Color:					
General Color:					
Mat1:	05				
Most Common Material:	CLAY				
Mat2:	12				
Other Materials:	STONES				
Mat3:					
Other Materials:					
Formation Top Depth:	60.00				
Formation End Depth:	130.00				
Formation End Depth UOM:	ft				
Formation ID:	932728471				
Layer:	3				
Color:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
General Color:					
Mat1:		05			
Most Common Material:		CLAY			
Mat2:		09			
Other Materials:		MEDIUM SAND			
Mat3:					
Other Materials:					
Formation Top Depth:		130.00			
Formation End Depth:		210.00			
Formation End Depth UOM:		ft			
Method of Construction & Well Use					
Method Construction ID:		966905429			
Method Construction Code:		1			
Method Construction:		Cable Tool			
Other Method Construction:					
Pipe Information					
Pipe ID:		11044704			
Casing No:		1			
Comment:					
Alt Name:					
Construction Record - Casing					
Casing ID:		930808465			
Layer:		1			
Material:					
Open Hole or Material:					
Depth From:					
Depth To:					
Casing Diameter:		5.00			
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
41	1 of 4	ENE/135.8	270.5 / -1.42	Schell Lumber LTD. 92 Schell Street Stouffville ON L4A1A8	GEN
Generator No.:	ON8861927			PO Box No.:	
Status:				Country:	Canada
Approval Years:	2016			Choice of Contact:	CO_OFFICIAL
Contam. Facility:	No			Co Admin:	
MHSW Facility:	No			Phone No. Admin:	
SIC Code:	444110				
SIC Description:	HOME CENTRES				
--Details--					
Waste Code:	252				
Waste Description:	WASTE OILS & LUBRICANTS				
41	2 of 4	ENE/135.8	270.5 / -1.42	Schell Lumber LTD. 92 Schell Street Stouffville ON L4A1A8	GEN
Generator No.:	ON8861927			PO Box No.:	
Status:				Country:	Canada

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	2015 No No 444110 HOME CENTRES			Choice of Contact: Co Admin: Phone No. Admin:	CO_OFFICIAL
--Details-- Waste Code: Waste Description:	252 WASTE OILS & LUBRICANTS				
<u>41</u>	3 of 4	ENE/135.8	270.5 / -1.42	Schell Lumber LTD. 92 Schell Street Stouffville ON L4A1A8	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON8861927 2014 No No 444110 HOME CENTRES			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:	Canada CO_OFFICIAL
--Details-- Waste Code: Waste Description:	252 WASTE OILS & LUBRICANTS				
<u>41</u>	4 of 4	ENE/135.8	270.5 / -1.42	Schell Lumber LTD. 92 Schell Street Stouffville ON L4A1A8	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON8861927 Registered As of Dec 2017 			PO Box No.: Country: Choice of Contact: Co Admin: Phone No. Admin:	Canada
--Details-- Waste Code: Waste Description:	145 L Wastes from the use of pigments, coatings and paints				
Waste Code: Waste Description:	252 L Waste crankcase oils and lubricants				
<u>42</u>	1 of 1	SE/136.8	269.3 / -2.54	6204 Main Street Whitchurch-Stouffville ON	INC
Incident No: Incident ID: Attribute Category: Status Code: Incident Location: Drainage System: Sub Surface Contam.: Aff. Prop. Use Water: Contam. Migrated: Contact Natural Env.:	775056 FS-Perform L1 Incident Insp 6204 Main Street Whitchurch-Stouffville - Fire 				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Near Body of Water: Approx. Quant. Ref.: Equipment Model: Serial No.: Residential App. Type: Commercial App. Type: Industrial App. Type: Institutional App. Type: Venting Type: Vent Connector Mater: Vent Chimney Mater: Pipeline Type: Pipeline Involved: Pipe Material: Depth Ground Cover: Regulator Location: Regulator Type: Operation Pressure: Liquid Prop Make: Liquid Prop Model: Liquid Prop Serial No.: Equipment Type: Cylinder Capacity: Cylinder Capac. Units: Cylinder Material Type: Tank Capacity: Fuels Occurrence Type: Fire Fuel Type Involved: Propane Date of Occurrence: 2011/06/22 00:00:00 Time of Occurrence: 12:00:00 Occur Insp Start Date: 2012/03/13 00:00:00 Any Health Impact: No Any Environmental Impact: Unknown Was Service Interrupted: Yes Was Property Damaged: Yes Operation Type Involved: Commercial (e.g. restaurant, business unit, etc) Enforcement Policy: NULL Prc Escalation Required: NULL Task No.: 3758233 Notes: Occurrence Narrative: Old fire that was never reported to TSSA, owner of building looking for charges to be laid against tenant which cannot be located. Tank Material Type: Tank Storage Type: Tank Location Type: Pump Flow Rate Capac: Liquid Prop Notes:					
43	1 of 1	ESE/144.9	267.8 / -4.04	40 Freel Lane Whitchurch-Stouffville ON L4A0P5	EHS
Postal Code: L4A0P5 City: Whitchurch-Stouffville Address2: Address1: 40 Freel Lane Provstate: ON Order No.: 20150112092 Addit. Info Ordered:: City Directory Report Date: 19-JAN-15 Report Type: RSC Premium Package (Urban) Search Radius (km): .3					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
44	1 of 1	SE/148.1	269.4 / -2.51	ON	WWIS
Well ID: 7191889 Construction Date: Primary Water Use: Sec. Water Use: Final Well Status: Water Type: Casing Material: Audit No: C19083 Tag: A132940 Construction Method: Elevation (m): Elevation Reliability: Depth to Bedrock: Well Depth: Overburden/Bedrock: Pump Rate: Static Water Level: Flowing (Y/N): Flow Rate: Clear/Cloudy: Data Entry Status: Date Entry is incomplete Data Src: Date Received: 11/22/2012 Selected Flag: 1 Abandonment Rec: Contractor: 6607 Form Version: 8 Owner: Street Name: County: YORK Municipality: WHITCHURCH-STOUFFVILLE TOWN (MARKHAM TWP) Site Info: Lot: Concession: Concession Name: Easting NAD83: Northing NAD83: Zone: UTM Reliability:					
<u>Bore Hole Information</u>					
Bore Hole ID: 1004208493 DP2BR: Code OB: Code OB Desc: Open Hole: Elevation: 269.720458 Elevrc: Remarks: Elevrc Desc: Location Source Date: Improvement Location Source: Improvement Location Method: Source Revision Comment: Supplier Comment: Spatial Status: Cluster Kind: UTMRC: 4 UTMRC Desc: margin of error : 30 m - 100 m Location Method: wwr Org CS: UTM83 Date Completed: 9/10/2012					
45	1 of 1	ESE/150.9	267.2 / -4.64	DCMS GP (STOUFFVILLE) INC. 40 Freel Lane, Witchurch-Stouffville, ON	RSC
Reg No: 29504 RA No: RSC Type: Curr Property Use: Agriculture/Other District Office: WHITCHURCH-STOUFFVILLE Date Submitted: 11-Sep-07 Date Ack: Date Returned: Restoration Type: Soil Type: Criteria: Asmt Roll No: Prop. ID No: 03713-0309 LT CPU Issued Sect 1686: No Property Municipal Address: 40 Freel Lane, Witchurch-Stouffville, Mailing Address: Suite 301, 2121 ARGENTIA RD, MISSISSAUGA, ON, L5N 2X4 Latitude & Longitude: 43.97111110N 79.24916670W UTM Coordinates: NAD83 17-840440-4870154 (converted from Latitude & Longitude) Cert Date: 30-May-07 Cert Prop Use No: No CPU Intended Prop Use: Institutional Nm of Qual. Person: Domenic Gesualdi Stratified (Y/N): Audit (Y/N): Entire Leg Prop. (Y/N): Yes Accuracy Estimate: 0 to 1 meters Telephone: 905-8211161 Fax: Email:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Consultant: Filing Owner: Legal Desc: PT BLK C PL 61 STOUFFVILLE; PT LT 5 PL 70 STOUFFVILLE; PT LT 46 PL 70 SOUTFFVILLE ,PT 2 , 65R2699 , EXCEPT PTS 1 & 2 65R11094; WHITCHURCH-STOUFFVILLE Measurement Method: Digitized from a map Applicable Standards: Background Site Conditions Standard, with Potable Ground Water, Coarse Textured Soil, for Residential/Parkland/Institutional property use RSC PDF:					
<u>46</u>	1 of 1	SE/153.9	269.3 / -2.58	6233 Main St Whitchurch-Stouffville ON L4A4J3	EHS
Postal Code: City: Address2: Address1: Provstate: Order No.: Addit. Info Ordered.: Report Date: Report Type: Search Radius (km):		L4A4J3 Whitchurch-Stouffville 6233 Main St ON 20160603131 Topographic Maps 10-JUN-16 Standard Report .25			
<u>47</u>	1 of 1	NNW/169.2	276.1 / 4.27	Toy Sport Agencies Limited 31 Pondmede Cres. Stouffville ON L4A 0E2	SCT
Established: Plant Size (ft²): Employment: --Details-- Description: SIC/NAICS Code: Description: SIC/NAICS Code:		01-NOV-71 2400 Wholesale Trade Agents and Brokers 419120 Wholesale Trade Agents and Brokers 419120			
<u>48</u>	1 of 8	SE/176.5	265.8 / -6.07	York Apothecaries 6212 Main St. Stouffville ON L4A 2S5	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:		ON5887832 2016 No No 446110 446110			
--Details-- Waste Code: Waste Description:		 261 PHARMACEUTICALS			
<u>48</u>	2 of 8	SE/176.5	265.8 / -6.07	W.A. Ali Dentistry Professional Corp 6212 Main Street Suite 206 Stouffville ON L4A2S5	GEN

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON7427073 2015 No No 621210			PO Box No.: Country: Canada Choice of Contact: CO_OFFICIAL Co Admin: Joan Wilson Phone No. Admin: 9056427474 Ext.	
	OFFICES OF DENTISTS				
--Details-- Waste Code: Waste Description:		312 PATHOLOGICAL WASTES			
<u>48</u>	3 of 8	SE/176.5	265.8 / -6.07	York Apothecaries 6212 Main St. Stouffville ON L4A 2S5	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON5887832 2015 No No 446110			PO Box No.: Country: Canada Choice of Contact: CO_OFFICIAL Co Admin: Phone No. Admin:	
	446110				
--Details-- Waste Code: Waste Description:		261 PHARMACEUTICALS			
<u>48</u>	4 of 8	SE/176.5	265.8 / -6.07	W.A. Ali Dentistry Professional Corp 6212 Main Street Suite 206 Stouffville ON L4A2S5	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON7427073 2016 No No 621210			PO Box No.: Country: Canada Choice of Contact: CO_OFFICIAL Co Admin: Joan Wilson Phone No. Admin: 9056427474 Ext.	
	OFFICES OF DENTISTS				
--Details-- Waste Code: Waste Description:		312 PATHOLOGICAL WASTES			
<u>48</u>	5 of 8	SE/176.5	265.8 / -6.07	York Apothecaries 6212 Main St. Stouffville ON L4A 2S5	GEN
Generator No.: Status: Approval Years: Contam. Facility: MHSW Facility: SIC Code: SIC Description:	ON5887832 2014 No No 446110			PO Box No.: Country: Canada Choice of Contact: CO_OFFICIAL Co Admin: Phone No. Admin:	
	446110				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
--Details--					
Waste Code:		261			
Waste Description:		PHARMACEUTICALS			
48	6 of 8	SE/176.5	265.8 / -6.07	Gajan Ethan Krishna Medicine Professional Corp 6212 Main Street, Suite 202 Stouffville ON L4A2S5	GEN
Generator No.:	ON9750454			PO Box No.:	
Status:	Registered			Country:	Canada
Approval Years:	As of Dec 2017			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:					
SIC Description:					
--Details--					
Waste Code:		312 P			
Waste Description:		Pathological wastes			
48	7 of 8	SE/176.5	265.8 / -6.07	W.A. Ali Dentistry Professional Corp 6212 Main Street Suite 206 Stouffville ON L4A2S5	GEN
Generator No.:	ON7427073			PO Box No.:	
Status:	Registered			Country:	Canada
Approval Years:	As of Dec 2017			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:					
SIC Description:					
--Details--					
Waste Code:		312 P			
Waste Description:		Pathological wastes			
48	8 of 8	SE/176.5	265.8 / -6.07	York Apothecaries 6212 Main St. Stouffville ON L4A 2S5	GEN
Generator No.:	ON5887832			PO Box No.:	
Status:	Registered			Country:	Canada
Approval Years:	As of Dec 2017			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No. Admin:	
SIC Code:					
SIC Description:					
--Details--					
Waste Code:		261 P			
Waste Description:		Pharmaceuticals			
49	1 of 2	SE/193.6	266.3 / -5.54	Eldercare Equities Inc. 6257 Main Street Whitchurch-Stouffville ON	CA

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Certificate #: 1877-6QQMNL Application Year: 2006 Issue Date: 7/7/2006 Approval Type: Air Status: Approved Application Type: Client Name:: Client Address:: Client City:: Client Postal Code:: Project Description:: Contaminants:: Emission Control::					
49	2 of 2	SE/193.6	266.3 / -5.54	Eldercare Equities Inc. 6257 Main Street Whitchurch-Stouffville ON L4A 4J3	ECA
Approval No: 1877-6QQMNL Status: Approved Date: 2006-07-07 Record Type: ECA Link Source: IDS Project Type: Air Approval Type: ECA-Air Full Address: Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/5088-6N7MQP-14.pdf SWP Area Name: Toronto MOE District: York-Durham City: Latitude: 43.970687999999996 Longitude: -79.248314					
50	1 of 1	SSW/198.2	270.5 / -1.34	LESLEY A ZECK 6082 MAIN STREET STOUFFVILLE ON L4A 1B7	CFOT
Licence No: Registration No: Posse File No: Posse Reg No: Tank Type: Single Wall UST Instance Number: 61319724 Facility Type: FS Fuel Oil Tank Instance Type: FS Fuel Oil Tank Status Name: Active Fuel Type: Fuel Oil Distributor: Tank Material: Steel Tank Age (as of 05/1992): Tank Size: 3784 Letter Sent: Corrosion Protection: Province: ON Nbr: 2802 Contact Name: Contact Address: Contact Address2: Contact Suite: Contact City: Contact Prov: Contact Postal: Tank Address: 6082 MAIN STREET Comments:					
51	1 of 1	S/206.8	269.6 / -2.30	The Corporation of the Town of Whitchurch-Stouffville Victoria Street between Main Street and Sunset Boulevard Whitchurch-Stouffville ON	CA
Certificate #: 5883-86FGU4 Application Year: 2010 Issue Date: 6/23/2010 Approval Type: Municipal and Private Sewage Works Status: Approved Application Type:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Client Name:: Client Address:: Client City:: Client Postal Code:: Project Description:: Contaminants:: Emission Control::					
<u>52</u>	1 of 1	ESE/218.3	265.9 / -5.94	Old Fill Dump 1965 Stouffville ON L4A	ANDR
Legal Description:		Markham Con 9 EYS Lot 25 pt			
Location Description:					
Municipality:		Whitchurch-Stouffville Town			
Current Municipality:		Whitchurch-Stouffville Town			
RM:		York Region			
Facility:		Fill Dump			
Date Active:		1965			
Date Begun:					
Date Complete:					
Area (Ha):					
Landfill Type:					
Group Name:					
Operated By:					
Serial:		FD YKR1 1965			
NTS:		30M14			
Diameter (m):		125			
Historical Summary:					
Old Fill Dump 1965 1965 Air Photos Sheet #345 Old graded fill marked, 125m dia [CTA: 1965 Air Photos]					
Waste Type:					
UTM X Nad 27:		640465			
UTM Y Nad 27:		4870075			
UTM Zone:		17			
<u>53</u>	1 of 1	SSW/228.6	269.9 / -2.02	Virtual Dispatch 6072 Main St Suite 100 Stouffville ON L4A 1B8	SCT
Established:		01-JUN-97			
Plant Size (ft'):					
Employment:					
--Details--					
Description:		Software Publishers			
SIC/NAICS Code:		511210			
Description:		Computer Systems Design and Related Services			
SIC/NAICS Code:		541510			
Description:		Computer Systems Design and Related Services			
SIC/NAICS Code:		541510			
<u>54</u>	1 of 1	NNE/242.2	270.0 / -1.87	ON	WWS
Well ID:		7262606		Data Entry Status:	Date Entry is incomplete

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Construction Date: Primary Water Use: Sec. Water Use: Final Well Status: Water Type: Casing Material: Audit No: C20974 Tag: A146803 Construction Method: Elevation (m): Elevation Reliability: Depth to Bedrock: Well Depth: Overburden/Bedrock: Pump Rate: Static Water Level: Flowing (Y/N): Flow Rate: Clear/Cloudy:				Data Src: Date Received: 5/5/2016 Selected Flag: 1 Abandonment Rec: Contractor: 6607 Form Version: 8 Owner: Street Name: County: YORK Municipality: WHITCHURCH-STOUFFVILLE TOWN (WHITCHURCH TWP) Site Info: Lot: Concession: Concession Name: Easting NAD83: Northing NAD83: Zone: UTM Reliability:	
Bore Hole Information					
Bore Hole ID: 1005966163 DP2BR: Code OB: Code OB Desc: Open Hole: Elevation: 275.291534 Elevrc: Remarks: Elevrc Desc: Location Source Date: Improvement Location Source: Improvement Location Method: Source Revision Comment: Supplier Comment:				Spatial Status: Cluster Kind: UTMRC: 4 UTMRC Desc: margin of error : 30 m - 100 m Location Method: wwr Org CS: UTM83 Date Completed: 7/24/2013	
55	1 of 1	ESE/244.1	266.0 / -5.92	Danosh Construction 6240 Main Street Stouffville ON L4A 1E2	GEN
Generator No.: ON5716819 Status: Registered Approval Years: As of Dec 2017 Contam. Facility: MHSW Facility: SIC Code: SIC Description:				PO Box No.: Country: Canada Choice of Contact: Co Admin: Phone No. Admin:	
--Details--					
Waste Code: Waste Description:		221 L Light fuels			
56	1 of 1	SE/249.9	264.0 / -7.91	Burkholder St and Park Dr Whitchurch-Stouffville ON	SPL
Ref No: 2753-APNVL7 Contaminant Name: HYDROCARBON LIGHT Contaminant Code: 13 Contaminant Limit 1: Contam. Limit Freq 1:				Site Address: Burkholder St and Park Dr Site Conc: Site Lot: Site County/District: Regional Municipality of York Site Municipality: Whitchurch-Stouffville	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Contaminant UN No 1:	n/a			Site Postal Code:	
Contaminant Qty:	1 n/a			Sector Type:	Unknown / N/A
MOE Reported Dt:	7/27/2017			Source Type:	Unknown / N/A
Health/Env Conseq:	2 - Minor Environment			Receiving Medium:	
Incident Dt:	7/27/2017			Receiving Env:	Surface Water
Incident Cause:				Environment Impact:	
Incident Event:	Unknown / N/A			Nature of Impact:	
Incident Reason:	Unknown / N/A			SAC Action Class:	Watercourse Spills
Incident Summary:	PIR: gas spilled to Stouffville Creek - Confirmed hydrocarbons in creek				

Unplottable Summary

Total: 15 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
CA	STOUFFVILLE MEAT PACKERS INC.	NINTH LINE,PT.LOT 2, CONC. 9	WHITCHURCH-STOUFFVILLE TOWN ON	
CA		Albert Street	Whitchurch-Stouffville ON	
CA		Albert Street	Whitchurch-Stouffville ON	
CA	ASHALL HOMES LTD.	SUNSET BLVD.	WHITCHURCH-STOUFFVILLE TOWN ON	
CA	THE TOWN	SUNSET BLVD.	WHITCHURCH-STOUFFVILLE ON	
CA	YORK REGION BOARD OF EDUCATION	SWM-GLAD PARK PUBLIC SCHOOL	WHITCHURCH-STOUFFVILLE TOWN ON	
CA	WHITCHURCH-STOUFFVILLE TOWN	EASTERN GATE PH.3/MAIN ST.	WHITCHURCH-STOUFFVILLE TOWN ON	
CA	WHITCHURCH-STOUFFVILLE TOWN	EDWARD ST./SUNSET BLVD.	WHITCHURCH-STOUFFVILLE TOWN ON	
GEN	HEMAN MOBILE WASH	LEHMAN'S COLD STREAM GDNS 9TH LINE	STOUFFVILLE ON	
GEN	LEHMAN'S COLD STREAM GARDENS LTD.	9TH LINE NORTH R..R #2, STOUFFVILLE	TOWN OF WHITCHURCH-STOUFFVILLE ON	L4A 7X3
GEN	J. CHEFERO SAND & GRAVEL LTD.	9TH LINE, EAST SIDE CONC. 9, PART LOT 15	STOUFFVILLE ON	
NEES	STOUFFVILLE CO-OP		WHITCHURCH-STOUFFVILLE ON	
PES	STOUFFVILLE CO-OPERATIVE ASSOCIATION	PO BOX 130	STOUFFVILLE ON	L4A7Z4
SPL	STOUFFVILLE CO-OP	EDWARD STREET EDWARD ST STOUFFVILLE	WHITCHURCH-STOUFFVILLE ON	
WMS			STOUFFVILL ON	

Unplottable Report

Site: STOUFFVILLE MEAT PACKERS INC.
NINTH LINE,PT.LOT 2, CONC. 9 WHITCHURCH-STOUFFVILLE TOWN ON

Database:
CA

Certificate #: 3-0623-93-
Application Year: 93
Issue Date: 6/15/1993
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: Albert Street Whitchurch-Stouffville ON

Database:
CA

Certificate #: 5580-4MH96
Application Year: 00
Issue Date: 7/10/00
Approval Type: Municipal & Private water
Status: Approved
Application Type: New Certificate of Approval
Client Name:: Town of Whitchurch-Stouffville
Client Address:: 37 Sandiford Drive, 4th Flr.
Client City:: Whitchurch-Stouffville
Client Postal Code:: L4A 7X5
Project Description:: Replacement of Albert St. Watermain
Contaminants::
Emission Control::

Site: Albert Street Whitchurch-Stouffville ON

Database:
CA

Certificate #: 5850-4LZS92
Application Year: 00
Issue Date: 7/10/00
Approval Type: Municipal & Private sewage
Status: Approved
Application Type: New Certificate of Approval
Client Name:: Town Of Whitchurch-Stouffville
Client Address:: 37 Sandiford Drive, 4th Flr.
Client City:: Whitchurch-Stouffville
Client Postal Code:: L4A 7X5
Project Description:: Albert Street Sanitary Sewer
Contaminants::
Emission Control::

Site: ASHALL HOMES LTD.
SUNSET BLVD. WHITCHURCH-STOUFFVILLE TOWN ON

Database:
CA

Certificate #: 7-0169-86-

Application Year: 86
Issue Date: 3/20/1986
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: THE TOWN
SUNSET BLVD. WHITCHURCH-STOUFFVILLE ON

Database:
CA

Certificate #: 3-0231-85-006
Application Year: 85
Issue Date: 7/4/85
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: YORK REGION BOARD OF EDUCATION
SWM-GLAD PARK PUBLIC SCHOOL WHITCHURCH-STOUFFVILLE TOWN ON

Database:
CA

Certificate #: 3-0940-97-
Application Year: 97
Issue Date: 7/23/1997
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: WHITCHURCH-STOUFFVILLE TOWN
EASTERN GATE PH.3/MAIN ST. WHITCHURCH-STOUFFVILLE TOWN ON

Database:
CA

Certificate #: 3-0571-99-
Application Year: 99
Issue Date: 6/7/1999
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: WHITCHURCH-STOUFFVILLE TOWN
EDWARD ST./SUNSET BLVD. WHITCHURCH-STOUFFVILLE TOWN ON

Database:
CA

Certificate #: 7-1103-92-
Application Year: 92
Issue Date: 10/27/1992
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Site: HEMAN MOBILE WASH
LEHMAN'S COLD STREAM GDNS 9TH LINE STOUFFVILLE ON

Database:
GEN

Generator No.: ON2650801
Status:
Approval Years: 01
Contam. Facility:
MHSW Facility:
SIC Code: 6391
SIC Description: CAR WASHES
PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--

Waste Code: 145
Waste Description: PAINT/PIGMENT/COATING RESIDUES

Site: LEHMAN'S COLD STREAM GARDENS LTD.
9TH LINE NORTH R.R #2, STOUFFVILLE TOWN OF WHITCHURCH-STOUFFVILLE ON L4A 7X3

Database:
GEN

Generator No.: ON1814100
Status:
Approval Years: 93,94,95,96,97,98,99,00,01
Contam. Facility:
MHSW Facility:
SIC Code: 0163
SIC Description: NURSERY PRODUCTS
PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Site: J. CHEFERO SAND & GRAVEL LTD.
9TH LINE, EAST SIDE CONC. 9, PART LOT 15 STOUFFVILLE ON

Database:
GEN

Generator No.: ON0606401
Status:
Approval Years: 92,93,97,98
Contam. Facility:
MHSW Facility:
SIC Code: 0821
SIC Description: SAND & GRAVEL PITS
PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--

Waste Code: 252

Waste Description: WASTE OILS & LUBRICANTS

Site: STOUFFVILLE CO-OP
WHITCHURCH-STOUFFVILLE ON

Database:
NEES

Incident Date: 5/6/88
Contaminant: DIESEL FUEL
Amount: 0
Units: Overflow
Quantity:
Cause: Error
Source: Other Storage Facilities
Reason:
Sector: Agriculture

Site: STOUFFVILLE CO-OPERATIVE ASSOCIATION
PO BOX 130 STOUFFVILLE ON L4A7Z4

Database:
PES

Licence No.:
Detail Licence No.:
Licence Type Code: 02
Licence Type: Operator
Licence Class:
Licence Control:
Trade Name:
Post Office Box:
Lot:
Concession:
Region:
District:
County:
Operator Box:
Operator Class:
Operator No.:
Operator Type:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Oper Phone Area Cd:
Ext:
Oper Phone Number:
Proponent Ext:

Site: STOUFFVILLE CO-OP
EDWARD STREET EDWARD ST

STOUFFVILLE WHITCHURCH-STOUFFVILLE ON

Database:
SPL

Ref No: 3334
Contaminant Name:
Contaminant Code:
Contaminant Limit 1:
Contam. Limit Freq 1:
Contaminant UN No 1:
Contaminant Qty:
MOE Reported Dt: 5/6/1988
Health/Env Conseq:
Incident Dt: 5/6/1988
Incident Cause: CONTAINER OVERFLOW
Incident Event:
Incident Reason: ERROR
Incident Summary: STOUFFVILLE CO-OP-1350 L DIESEL FUEL
TO STORM DITCH.
Site Address:
Site Conc:
Site Lot:
Site County/District:
Site Municipality: 27406
Site Postal Code:
Sector Type:
Source Type:
Receiving Medium: LAND
Receiving Env:
Environment Impact: NOT ANTICIPATED
Nature of Impact:
SAC Action Class:

Site: STOUFFVILL ON

Database:
WWIS

Well ID: 7171039
Construction Date:
Primary Water Use:
Sec. Water Use:
Final Well Status: Abandoned-Supply
Water Type:
Casing Material:
Audit No: 2141148
Data Entry Status:
Data Src:
Date Received: 11/2/2011
Selected Flag: 1
Abandonment Rec: Yes
Contractor: 5459
Form Version: 7
Owner:

Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Street Name: 9TH LINE
County:
Municipality:
Site Info:
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 1003595241
DP2BR:
Code OB:
Code OB Desc:
Open Hole:
Elevation:
Elevrc:
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Spatial Status:
Cluster Kind:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na
Org CS:
Date Completed: 10/11/2011

Method of Construction & Well Use

Method Construction ID: 1004014451
Method Construction Code:
Method Construction:
Other Method Construction:

Pipe Information

Pipe ID: 1004014445
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004014449
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To:
Casing Diameter: 6.00
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1004014450
Layer:
Slot:
Screen Top Depth:
Screen End Depth:
Screen Material:

Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter:

Water Details

Water ID: 1004014448
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1004014447
Diameter:
Depth From:
Depth To:
Hole Depth UOM: ft
Hole Diameter UOM: inch

Appendix: Database Descriptions

*Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. **Note:** Databases denoted with * * * indicates that the database will no longer be updated. See the individual database description for more information.*

Abandoned Aggregate Inventory:

Provincial AAGR

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.*

Government Publication Date: Sept 2002*

Aggregate Inventory:

Provincial AGR

The Ontario Ministry of Natural Resources maintains a database of all active pits and quarries. The database provides information regarding the registered owner/operator, location name, operation type, approval type, and maximum annual tonnage.

Government Publication Date: Up to Sep 2017

Abandoned Mine Information System:

Provincial AMIS

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Government Publication Date: 1800-Nov 2016

Anderson's Waste Disposal Sites:

Private ANDR

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1860s-Present

Automobile Wrecking & Supplies:

Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Jan 31, 2018

Borehole:

Provincial BORE

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Government Publication Date: 1875-Jul 2014

Certificates of Approval:

Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CoA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

Government Publication Date: 1985-Oct 30, 2011*

Commercial Fuel Oil Tanks:

Provincial

CFOT

Since May 2002, Ontario developed a new act where it became mandatory for fuel oil tanks to be registered with Technical Standards & Safety Authority (TSSA). This data would include all commercial underground fuel oil tanks in Ontario with fields such as location, registration number, tank material, age of tank and tank size.

Government Publication Date: Feb 28, 2017

Chemical Register:

Private

CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

Government Publication Date: 1999-Jan 31, 2018

Compressed Natural Gas Stations:

Private

CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 31, 2012

Inventory of Coal Gasification Plants and Coal Tar Sites:

Provincial

COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory."

Government Publication Date: Apr 1987 and Nov 1988

Compliance and Convictions:

Provincial

CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Government Publication Date: 1989-Nov 2017

Certificates of Property Use:

Provincial

CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Government Publication Date: 1994-Oct 2017

Drill Hole Database:

Provincial

DRL

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

Government Publication Date: 1986-Nov 30, 2017

Environmental Activity and Sector Registry:

Provincial

EASR

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval). Please see our ECA database.

Government Publication Date: Oct 2011-Oct 2017

Environmental Registry:

Provincial

EBR

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Government Publication Date: 1994-Oct 2017

Environmental Compliance Approval:

Provincial ECA

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

Government Publication Date: Oct 2011-Oct 2017

Environmental Effects Monitoring:

Federal EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches:

Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Aug 2016

Environmental Issues Inventory System:

Federal EHS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EHS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2007*

Emergency Management Historical Event:

Provincial EMHE

List of locations of historical occurrences of emergency events, including those assigned to the Ministry of Natural Resources by Order-in-Council (OIC) under the Emergency Management and Civil Protection Act, as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance. EMHE record details are reproduced by ERIS under License with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2017.

Government Publication Date: Dec 31, 2016

List of TSSA Expired Facilities:

Provincial EXP

List of facilities with removed tanks which were once registered with the Fuels Safety Program of the Technical Standards and Safety Authority (TSSA). Includes private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc. Tanks which have been removed automatically fall under the expired facilities inventory held by TSSA.

Government Publication Date: Feb 28, 2017

Federal Convictions:

Federal FCOR

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land:

Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Government Publication Date: Jun 2000-Dec 2017

Fisheries & Oceans Fuel Tanks:

Federal FOFT

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Government Publication Date: 1964-Sep 2017

Fuel Storage Tank:

Provincial FST

The Technical Standards & Safety Authority (TSSA), under the Technical Standards & Safety Act of 2000 maintains a database of registered private and retail fuel storage tanks in Ontario with fields such as location, tank status, license date, tank type, tank capacity, fuel type, installation year and facility type.

Government Publication Date: Feb 28, 2017

Fuel Storage Tank - Historic:

Provincial FSTH

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

Government Publication Date: Pre-Jan 2010*

Ontario Regulation 347 Waste Generators Summary:

Provincial GEN

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

Government Publication Date: 1986-December 31, 2017

Greenhouse Gas Emissions from Large Facilities:

Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO₂ eq).

Government Publication Date: 2013-Dec 2015

TSSA Historic Incidents:

Provincial HINC

This database will cover all incidences recorded by TSSA with their older system, before they moved to their new management system. TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. The TSSA works to protect the public, the environment and property from fuel-related hazards such as spills, fires and explosions. This database will include spills and leaks from pipelines, diesel, fuel oil, gasoline, natural gas, propane and hydrogen recorded by the TSSA.

Government Publication Date: 2005-June 2009*

Indian & Northern Affairs Fuel Tanks:

Federal IAFIT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

TSSA Incidents:

Provincial INC

TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Includes incidents from fuel-related hazards such as spills, fires and explosions. This database will include spills and leaks from diesel, fuel oil, gasoline, natural gas, propane and hydrogen recorded by the TSSA.

Government Publication Date: Feb 28, 2017

Landfill Inventory Management Ontario:

Provincial LIMO

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the ministry compiles new and updated information. The inventory will include small and large landfills. Additionally, each year the ministry will request operators of the larger landfills complete a landfill data collection form that will be used to update LIMO and will include the following information from the previous operating year. This will include additional information such as estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills will include information such as site owner, site location and certificate of approval # and status.

Government Publication Date: Dec 31, 2013

Canadian Mine Locations:

Private

MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences:

Provincial

MNR

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Government Publication Date: 1846-Feb 2017

National Analysis of Trends in Emergencies System (NATES):

Federal

NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

Non-Compliance Reports:

Provincial

NCPL

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Government Publication Date: Dec 31, 2014

National Defense & Canadian Forces Fuel Tanks:

Federal

NDFT

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills:

Federal

NDSP

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Aug 2010

National Defence & Canadian Forces Waste Disposal Sites:

Federal

NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents:

Federal

NEBI

Locations of pipeline incidents from 2008 to present, made available by the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Dec 31, 2017

National Energy Board Wells:

Federal

NEBW

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES):

Federal

NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets 'or Trends' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory:

Federal

NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory:

Federal

NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-May 2017

Oil and Gas Wells:

Private

OGW

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-December 31, 2017

Ontario Oil and Gas Wells:

Provincial

OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Government Publication Date: 1800-Oct 2017

Inventory of PCB Storage Sites:

Provincial

OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Government Publication Date: 1987-Oct 2004; 2012-Dec 2013

Orders:

Provincial

ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Government Publication Date: 1994-Oct 2017

Canadian Pulp and Paper:

Private

PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009

Parks Canada Fuel Storage Tanks:

Federal

PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register:

Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

Government Publication Date: 1988-Aug 2017

TSSA Pipeline Incidents:

Provincial PINC

TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. This database will include spills, strike and leaks from recorded by the TSSA.

Government Publication Date: Feb 28, 2017

Private and Retail Fuel Storage Tanks:

Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Government Publication Date: 1989-1996*

Permit to Take Water:

Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all PTTWs on the registry such as OWRA s. 34 - Permit to take water.

Government Publication Date: 1994-Oct 2017

Ontario Regulation 347 Waste Receivers Summary:

Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Government Publication Date: 1986-2016

Record of Site Condition:

Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.

RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Government Publication Date: 1997-Sept 2001, Oct 2004-Nov 2017

Retail Fuel Storage Tanks:

Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Jan 31, 2018

Scott's Manufacturing Directory:

Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Ontario Spills:

Provincial SPL

This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X.

Government Publication Date: 1988-Sep 2017

Wastewater Discharger Registration Database:

Provincial SRDS

Information under this heading is combination of the following 2 programs. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment maintained a database of all direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation; Mining; Petroleum Refining; Organic Chemicals; Inorganic Chemicals; Pulp & Paper; Metal Casting; Iron & Steel; and Quarries. All sampling information is now collected and stored within the Sample Result Data Store (SRDS).

Government Publication Date: 1990-Dec 31, 2016

Anderson's Storage Tanks:

Private TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1915-1953*

Transport Canada Fuel Storage Tanks:

Federal TCFT

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

Government Publication Date: 1970-Aug 2017

TSSA Variances for Abandonment of Underground Storage Tanks:

Provincial VAR

List of variances granted for abandoned tanks. Under the Technical Standards and Safety Authority (TSSA) Liquid Fuels Handling Code and Fuel Oil Code, all underground storage tanks must be removed within two years of disuse. If removal of a tank is not feasible, an application may be sought for a variance from this code requirement.

Government Publication Date: Feb 28, 2017

Waste Disposal Sites - MOE CA Inventory:

Provincial WDS

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Government Publication Date: Oct 31, 2017

Waste Disposal Sites - MOE 1991 Historical Approval Inventory:

Provincial WDSH

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30th, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Government Publication Date: Up to Oct 1990*

Water Well Information System:

Provincial WWIS

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Government Publication Date: Mar 31, 2017

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.



Appendix D

Curriculum Vitae



DAVID M. MABLY, P.ENG.

Environmental Engineer

Mr. Mably holds a Bachelor of Applied Science degree from the University of Toronto. Mr. Mably is a licensed Professional Engineer (P.Eng.) with Professional Engineers Ontario (PEO) and a member of the Ontario Society of Professional Engineers (OSPE). Mr. Mably is also a Qualified Person (QP_{ESA}) for Environmental Site Assessments (ESAs) under the Environmental Protection Act. He has over twenty (20) years of employment experience in the environmental field, working throughout Ontario.

Mr. Mably is experienced in Phase I-III ESAs, Environmental Management Systems, Decommissioning, Brownfields and Hazard Material Assessments for all types of facilities and properties.

SKILLS OVERVIEW

Environmental Engineer for the Barrie, Ontario office of Cambium Inc., in support of environmental site assessment and remediation projects. Typical projects at Cambium include; retail service stations, decommissioning, brownfield redevelopment and development projects. Current activities involve filing of a Record of Site Condition (RSC) for a former bulk petroleum bulk depot involving extensive subsurface characterization work and Risk Assessment. And, administering a Certificate of Property Use for redevelopment of a brownfield site in Orillia, Ontario.

SUMMARY OF PROFESSIONAL EXPERIENCE

- | | |
|----------------------|---|
| Oct. 2015
Onwards | <p>– Environmental Engineer, Cambium Inc.
Barrie, Ontario, Canada</p> <p><i>Provide technical support and leadership in a variety of environmental settings in support of Cambium projects including field work, proposal and report preparation; data compilation, interpretation, and completion of final reports.</i></p> |
| 2008 – 2015 | <p>Senior Manager Environmental, RiskCheck Environmental Ltd.
Toronto, Ontario, Canada</p> <p><i>Manager of environmental services for a risk based environmental, health and safety company. Responsible for 5 or so professionals operating across Canada in support of due diligence proceedings for a client base in Real Estate, Financial and the Property Management Sector. Responsible for the Environmental Division and involved with contract fiscal budget tracking, job forecasting, development of technical marketing materials and co-ordination of projects and management of junior staff.</i></p> |
| 1999 – 2008 | <p>Senior Engineer, Environmental Auditors (Canada) Ltd.
Toronto, Ontario, Canada</p> <p><i>Lead engineer for completion of Phase I – III ESAs and Environmental Audits for Pension Funds, Property Owners and Asset Managers as part of a proprietary internet based Environmental Management System. Developed and implemented the Environmental Management System in approximately 250 properties.</i></p> |



1995 – 1999	Project Engineer/Manager, Briggs Environmental Ltd. Richmond Hill, Ontario, Canada <i>Project Engineer/Manager in due diligence proceedings. Conducted Hazardous Material Assessments on various industrial and commercial properties. Contract administrator/environmental consultant for large scale work projects including remediation and restoration of a paint manufacturing, pharmaceutical plant, metal fabricating facility and automotive assembly plant.</i>
1992 – 1995	Engineer, Environmental Auditors Ltd. Richmond Hill, Ontario, Canada <i>Field engineer engaged on Phase I – III ESAs, soil, ground water recovery, environmental audits.</i>

PROFESSIONAL ASSOCIATIONS

- Licenced Member, Professional Engineers Ontario
- Member, Ontario Society of Professional Engineers

EDUCATION & TRAINING

2018	Smart Remediation Conference
2017	WHMIS Training
2011	Toronto Real Estate Board, Guest Speaker, Due Diligence
2011	MOE Ontario Regulation 153/04 (Brownfields) Seminar
1998	U.S. EPA Seminar on Characterizing and Remediating DNAPL at Hazardous Sites
1986	B.A.Sc. (Geological Engineering), University of Toronto

LANGUAGES

- English (written fluent, verbal fluent, reading fluent)

SELECTED EXPERIENCE

RECORD OF SITE CONDITION

Obtained RSC approval for industrial subdivisions, institutional and residential clients in the GTA. Designed and implemented Phase One and Two Environmental Site Assessment (ESA) work plans, conducted field work and/or coordinated field staff for the collection of soil and ground water samples, compiled RSC reports and MOECC application packages, and consulted with the MOECC to ensure successful permit applications.



CONTAMINATED SITE ASSESSMENT AND REMEDIATION

Managed various remedial projects involving "insitu" remediation; typical sites impacted with chlorinated solvents and petroleum related products. All projects successfully remediated to Client satisfaction and/or MOECC Standards.

Developed a detailed contractor specification for a multimillion dollar remediation project of a former mill race infilled with fire laden debris dating back to the early 1900s, resulting in a quick sale of an environmentally challenged property.

Contract administrator/environmental consultant for large scale work projects including remediation and restoration of a paint manufacturing, retail fuel outlets, pharmaceutical plant, metal fabricating facility and automotive assembly plant.

STORAGE TANK REMOVAL

Planned, tendered and managed underground storage tank removal projects for several hundred residential, retail and industrial facilities. Project work often included permitting, contractor selection and supervision, sampling and testing and issuance of closure reports following regulatory policy and guidelines.

HAZARDOUS BUILDING MATERIALS SURVEYS

Managed various Hazardous Building Materials Surveys to identify provincially designated (e.g. asbestos, lead, mercury) and other hazardous materials (e.g. PCBs, mould) present within industrial/commercial properties or specific areas of buildings (e.g. prior to renovations within a portion of a building).

PEER REVIEWS

Conducted Peer Reviews for the financial community of environmental reports prepared by 'non-approved' consultants to determine the quality of previous investigation work; and whether the conclusions and financial implications in the report are fully supported by the facts of the investigation.

ENVIRONMENTAL MANAGEMENT SYSTEMS

Designed and implemented a risk management system for clients in the Property Management Sector. The risk management system was designed to assist clients in reducing risk and exposure by ensuring legal compliance, delivering staff training and establishing appropriate environmental policies and procedures. The system provided



the client with a key to successful environmental management through the correct identification of risks and the setting up of procedures to eliminate or control those risks via an internet based platform.



Nick Young, M.Eng., P.Geo., QPESA/RA

Senior Environmental Scientist

SUMMARY OF PROFESSIONAL EXPERIENCE

2017	Senior Environmental Scientist. Cambium Inc. Oshawa, Ontario, Canada <i>Responsible for senior project management including budgeting and analysis, coordination of multi-disciplinary project staff and contractors, liaison with clients and regulators, ensuring compliance with federal, provincial, and municipal regulatory requirements, data analysis and interpretation, report preparation, and senior technical review.</i>
2015 - 2017	Senior Environmental Consultant. PGL Environmental Consultants Whitby, Ontario, Canada
2012 - 2014	Senior Consultant, Associate. Stantec Inc. Burlington / Stoney Creek, Ontario, Canada
2005 - 2012	Project Manager. Dillon Consulting Limited Cambridge / Oakville, Ontario, Canada
2004 - 2005	Sr. Environmental Scientist / Team Leader. Trow Associates Kitchener, Ontario, Canada
2001 - 2004	Project Manager. O'Connor Associates Environmental Inc. Oakville, Ontario, Canada
1998 - 2000	Environmental Geologist. DJA Environmental Consultants Inc. Oakville, Ontario, Canada
1996 - 1997	Sr. Staff Geologist. Marshall Miller & Associates Raleigh, North Carolina, United States
1993 - 1995	Staff Geologist. ENSCI Environmental Inc. Raleigh, North Carolina, United States

EDUCATION & TRAINING

2016	LEED Green Associate
2010	LEED Accredited Professional
2007	M.Eng., Civil Engineering, University of Waterloo
1993	OHSA – 40 Hour Health and Safety
1991	B.Sc. Honours Earth Science, University of Waterloo



PROJECT SUMMARY

PHASE I AND II ESAs OF DOWNSTREAM PETROLEUM FACILITIES – VARIOUS LOCATIONS IN ONTARIO

Senior Project Manager responsible for Phase I and II ESAs at Downstream Petroleum facilities in Ontario (2012 to 2017). Investigations included assessment of soil and groundwater for petroleum hydrocarbons, volatile organic compounds, polycyclic aromatic hydrocarbons, and metals & inorganics. The results were used to identify potential environmental liabilities, long-term management strategies, develop remediation programs and/or support risk assessment and identification of risk management measures.

PHASE I AND II ESAs OF AUTOMOTIVE DEALERSHIPS

Project Manager responsible for Phase I and II ESAs at numerous automotive dealerships to support transfer of ownership from the auto manufacturer to the dealer operator (2003 to 2006). Typical sources of contamination included underground storage tanks (fuelling and waste oil), waste water collection systems (oil/water separators), and in-ground hydraulic hoists. The investigations were used to support remedial excavation programs at several of the dealerships.

PHASE I AND II ESAs OF HYDRO SERVICE CENTRES AND DISTRIBUTION STATIONS

Point of Contact and Project Manager responsible for Phase I and II ESAs at numerous Hydro facilities in Ontario (2003 to 2006, and 2015). Typical sources of contamination included underground storage tanks (fuelling and waste oil), waste water collection systems (oil/water separators), storage of treated hydro poles, and storage of out of service PCB containing transformers. The investigations were used to support remedial excavation programs and due diligence risk assessments.

PHASE I AND II ESAs OF UNDEVELOPED PROPERTIES – VARIOUS LOCATIONS

Project Manager responsible for numerous Phase I and Phase II ESAs and supplementary investigations including surface soil, sediment and surface water, and groundwater sampling for petroleum hydrocarbons, volatile organic compounds, polycyclic aromatic hydrocarbons, metals, phenols, and dioxins & furans. Investigations also included assessments of historical activities and potential sources of contamination. Property types included undeveloped and vacant lands, and municipally owned lands.

PHASE II ESAs OF RAIL YARDS

Project Manager responsible for Phase II ESAs and supplemental investigations at five rail yards in eastern Ontario and four in northern Ontario (2008 to 2009). Typical sources of contamination included underground storage tanks (fuelling and waste oil), waste water collection systems (oil/water separators), transportation system maintenance activities, and fuel releases. Investigations included assessment of soil and groundwater for petroleum hydrocarbons, volatile organic compounds, polycyclic aromatic hydrocarbons, and heavy metals. The results were used to identify potential environmental liabilities and long-term management strategies.



ENVIRONMENTAL SITE REMEDIATION PROJECTS, HYDRO DISTRIBUTION STATIONS

Main point of contact and Project Manager for assessment, remediation (on-site and off-site), and management of soil and groundwater impacts related to historical operations at hydro distribution stations (2003 to 2006, and 2015). Typical sources of contamination included underground storage tanks (fuelling and waste oil), waste water collection systems (oil/water separators), storage of treated hydro poles, and storage of out of service PCB containing transformers.

ENVIRONMENTAL SITE REMEDIATION PROJECTS, DOWNSTREAM PETROLEUM FACILITIES – VARIOUS LOCATIONS IN ONTARIO

Senior Project Manager for remedial excavation programs at Downstream Petroleum facilities in Ontario (1993 to 1996). Responsibilities included senior technical review and guidance, ensuring reporting consistency, quality assurance, report review.

RISK ASSESSMENTS – VARIOUS PROPERTIES IN ONTARIO

Senior Environmental Consultant and risk assessor for regulatory (Suncor) and due diligence Risk Assessments (CTREL and Bentall-Kennedy) from 2015 to 2017. Responsibilities included coordination of multi-disciplinary project team, identification of receptors, exposure pathways, and contaminants of concern, development of risk models, report preparation, review of reports for technical quality assurance, preparing responses to MOECC comments, and liaison with client Site Remediation Advisors and MOECC staff (e.g., district engineers, Brownfield Filing & Review staff, Risk Assessment Coordinators, etc.). Regulatory Risk Assessments were completed to support RSC filing.

BROWNFIELD RISK ASSESSMENT, CAMBRIDGE, ONTARIO

Project Lead responsible for site assessment and risk assessment at a former manufacturing site to evaluate human health and ecological risks associated with historical operation of a former knitting mill. Risk assessment was used to support filing a Record of Site Condition to allow redevelopment for multi-tenant residential use.

PUBLIC PARK RISK ASSESSMENT, HAMILTON, ONTARIO

Project coordinator and QPESA responsible for evaluation of human health and ecological risks associated with historical operation auto fuelling and repair facilities, fill placement, and an offsite wool dyeing facility. The risk assessment was used to support filing a Record of Site Condition for the property.

RISK ASSESSMENT FOR UNDEVELOPED PROPERTY, FORT ERIE, ONTARIO

Project lead on human health and ecological risk assessment for a property that included provincially significant wetland and a former municipal landfill. The objective of the project was to obtain regulatory acknowledgment of the risk assessment prior to transfer of the property from the current owner back to the previous owner.



SCREENING LEVEL RISK ASSESSMENTS, RAIL YARDS, VARIOUS, NORTHERN ONTARIO

Project Manager and senior reviewer for screening level assessment of human health and ecological risks related to historical activities at rail yards in Mactier, Sudbury, Agincourt, and Selim, Ontario.

BROWNFIELD RISK ASSESSMENT, CAMBRIDGE, ONTARIO

Project Manager and QP_{RA} for the redevelopment of a light industrial property with soil and groundwater contamination. Soil contamination was excavated prior to completion of a risk assessment. Groundwater contamination originated from two up-gradient properties. Coordinated review and acceptance of an affidavit by the Municipality of Waterloo to allow holding provisions on the property to be lifted, and redevelopment as a commercial property prior to filing a Record of Site Condition. Managed submission of the risk assessment and responses to Ministry comments.

PEER AND TECHNICAL REVIEW

Senior technical reviewer for hundreds of Phase I and II ESAs, remediation, and risk assessment reports in the past 15 years for a variety of sites including Downstream Petroleum facilities, redevelopment properties, vacant lands, landfills, and provincially significant wetlands.

Senior Peer Reviewer for projects to support land conveyances (and RSC filing) from private properties to the City of Toronto.

Appendix G

Noise and Air Assessments



600 Southgate Drive
Guelph, ON N1G 4P6
Canada

Tel: +1.519.823.1311
Fax: +1.519.823.1316
E-mail: solutions@rwdi.com

MEMORANDUM

DATE:

2018-08-28

RWDI REFERENCE #: 1801961**TO:**

Catherine Jin

EMAIL: jin@ainleygroup.com**FROM:**

Claire Finoro

EMAIL: Claire.Finoro@rwdi.com**RE:**

Noise Assessment in Support of the Town of Whitchurch-Stouffville – Edward Street Environmental Assessment
RWDI Project # 1801961

Dear Ms. Jin,

Ainley Group Consulting Engineers & Planners (Ainley) retained RWDI to complete a noise assessment in support of the Edward Street Class Environmental Assessment in Whitchurch-Stouffville, Ontario. The Town of Whitchurch-Stouffville and the Ainley have undertaken a Class Environmental Assessment (EA) for Edward Street, between Millard Street and Main Street (inclusive).

This memo addresses noise impacts based on high level modelling of roadway emissions. The memo considers both impacts from operation of the project after construction is complete, and impacts during construction.

1. Overview of Approach

The objective of the study is to predict future “build” and future “no-build” sound levels from road traffic noise sources in the area (i.e., noise levels with and without the proposed project taking place); to use these predictions to assess potential impacts according to the applicable guidelines and; to specify mitigation measures where required; and to assess the potential for construction noise and vibration and provide a Code of Practice to minimize potential impacts.

The proposed improvements consist of a two-lane road that will connect the gap between Schell Street and Millard Street. This section of road will go past lands owned by a local school district, potentially used for future development. This assessment has been completed assuming that a future development will not be in place on these lands and does not include the traffic associated with its operation. The area of investigation for this study has been limited to the first row of houses along Edwards Street due to the small traffic volume along the roadway.



1.1 Traffic Information

Predicted traffic volumes for Edward Street, between Main Street and Millard Street, were provided by Ainley and included in Attachment A. We focused on the traffic volumes for the year 2031. For both “build” and “no-build” scenarios the operation of the high school was not considered. Traffic data was provided in the form of peak hour volumes. Annual Average Daily Traffic (AADT) values were estimated from the AM and PM Peak volumes, assuming either peak period is 10% of the total daily volume, respectively. Though not provided, a conservative estimate of 3% commercial and a split of 38% / 62% medium/heavy trucks was used. In addition, this assessment focused on the daytime 16-hr L_{eq} value and as such a day/night split of 90% / 10% was used. The breakdown of traffic used in the assessment can be found attached.

For surface transportation projects, operation and maintenance noise, relating to noise from operation of the project following project completion, are of primary importance.

1.2 Applicable Guidelines

The province of Ontario policies established by the Ministry of Transportation (MTO) and the Ministry of the Environment, Conservation and Parks (MECP) are directly applicable under the Municipal Class EA process for transportation projects, and are discussed in detail in this report. The document which applies to municipal roadway construction and reconstruction projects is the Ontario MECP/MTO, “Joint Protocol”, A Protocol for Dealing with Noise concerns during the Preparation, Review and Evaluation of Provincial Highway’s Environmental Assessments (MTO & MECP, 1986).

In May 2007, the MTO adopted a new Environmental Guide for Noise which supersedes the Joint Protocol and previous MTO Quality and Standards Directive QST-A1 for Provincial highways and freeways (MTO 2006, 1992). It is our understanding that the updated Guide has not been adopted by the MECP for municipal projects at the time of publication.

The Joint Protocol sets out an Outdoor Objective sound level of 55 dBA L_{eq} , or the existing ambient, whichever is higher. The importance of changes from a noise impact perspective is based on the objective level and change from existing conditions. Cumulative sound levels are assessed. Assessments are based on a 10-year future horizon year (i.e., on traffic volumes 10 years after the completion of the project). Accordingly, a design year of 2031 applies to this project.

Noise mitigation is warranted when increases in sound level over the no-build ambient are 5 dB and greater. Mitigation measures can include noise barriers, noise reducing asphalts, and changes in vertical profiles and horizontal alignments. Noise mitigation where applied must be administratively, economically and technically feasible, and must provide at least 5 dB of reduction averaged over the first row of noise-sensitive receivers. Mitigation measures are restricted to within the roadway right-of-way. Off right-of-way noise mitigation, such as window upgrades and air conditioning installations, is not considered. Noise mitigation requirements are summarized below:



Table 1: Summary of Mitigation Efforts Under Ontario Road Traffic Noise Guidelines

Existing and Future Sound Levels	Change in Noise Level Above Future “No-Build” Ambient (dBA)	Mitigation Effort Required
< 55 dBA	0 to 5	None
	> 5	None. Sound levels still below 55 dBA Objective
> 55 dBA	0 to 5	None
	> 5	- Investigate noise control measures within right-of-way - Noise control measures where used must provide a minimum of 5 dBA of attenuation, averaged over the first row of receivers - Mitigated to as close to ambient as possible, where technically, economically and administratively feasible

Notes: Values are L_{eq} (16h) levels for municipal and Provincial Highways, and L_{eq} (24h) for Freeways.

Under MECP policies, daytime L_{eq} (16h) sound levels are used to assess impacts from Municipal roadways.

1.3 Receptors

Noise impacts from transportation projects are evaluated at noise sensitive receptors within the area of investigation. Noise receptors are called “Noise Sensitive Areas (NSAs)” in this report, in keeping with MTO practices for Provincial roadways. Under current MECP policies, NSAs include the following land uses, provided they have an Outdoor Living Area (OLA) associated with them:

- Private homes (single family units and townhouses);
- Multiple unit buildings such as apartments, provided they have a communal OLA associated with them;
- Hospitals and nursing homes for the aged, provided they have an OLA for use by patients;
- Schools, educational facilities and daycare centres where there are OLAs for students;
- Campgrounds that provide overnight accommodation;
- Hotels and motels with outdoor communal OLAs (e.g., swimming pools) for visitors; and
- Churches and places of worship.

The location of the two noise sensitive areas or receptors used in this assessment are indicated in Figure 1.



Figure 1: Evaluated Noise Sensitive Areas (Google Earth, 2016)

The following land uses are generally not considered by MECP to qualify as NSAs:

- Apartment balconies;
- Cemeteries;
- Parks and picnic areas not part of a defined OLA;
- All commercial; and
- All industrial.



Lands that have been zoned for future noise sensitive uses and which have an approved Plan of Subdivision in place, but where NSAs do not currently exist must also be considered under MECP policies. A review of the land use zoning within the project Area of Investigation has been conducted. The land use zoning review indicates no zoned-for-future-use NSAs.

2. Determination of Potential Impacts

2.1 Modelling

Road traffic noise levels were modelled using a computerized spreadsheet model of the “Ontario Road Noise Analysis Method for Environmental Transportation (ORNAMENT)” algorithms (MECP, 1989). The algorithms in this spreadsheet form the basis of the STAMSON v5.03 computer program produced by the MECP (MECP, 1996). Results from the ORNAMENT calculations and STAMSON are equivalent. Sound levels were predicted using the computerized spreadsheet for both the future “no-build” and future “build” cases. The ORNAMENT model was selected as road-receiver geometries and intervening terrain within the Area of Investigation are relatively “simple”, and the potential for impacts (sound level increases greater than 5 dBA) to result from the proposed undertaking is small.

2.1 Results

Under the Joint Protocol, the assessment of impact is conducted by comparing future build sound levels (with the project in place) versus future no-build sound levels. A comparison of future build versus future no-build sound levels is found in the table below.

Table 2: Summary of Operational Noise

Receptor Location	Future Build L_{eq} (16hr)	Future No-Build L_{eq} (16hr)	Change (Build minus No-Build)
NSA1	61	60	1
NSA2	53	47	6

Detailed ORNAMENT calculations can be found in Attachment B. The results show that increases in road traffic sound exposures resulting from the project will be less than 5 dB at NSA1. While results evaluated at NSA2 show an increase of greater than 5 dB, the future Build sound level is still less than the outdoor objective level of 55 dBA. As a result, under the Joint Protocol, additional investigation of noise mitigation is not required.

3. Construction Noise

Construction noise impacts are temporary in nature, and largely unavoidable. With adequate controls, impacts can be minimized. However, for some periods of time and types of work, construction noise will be noticeable. Bylaws restricting noise generally and specifically noise from construction activity may exist within this jurisdiction. The bylaw should be followed or proper exemptions and permits be sought in advance of any work to be performed that may contravene the bylaw.



The MECP stipulates limits on noise emissions from individual items of equipment, rather than for overall construction noise. In the presence of persistent noise complaints, sound emission standards for the various types of construction equipment used on the project should be checked to ensure that they meet the specified limits contained in MECP Publication NPC-115 – “Construction Equipment”, as follows (MECP, 1977):

Table 3: NPC-115 Maximum Noise Emission Levels for Typical Construction Equipment

Type of Unit	Maximum Sound Level ^[1] (dBA)	Distance (m)	Power Rating (kW)
Excavation Equipment ^[2]	83	15	Less than 75 kW
	85	15	75 kW or Greater
Pneumatic Equipment ^[3]	85	7	-
Portable Compressors	76	7	-

Notes: [1] Maximum permissible sound levels presented here are for equipment manufactured after Jan. 1, 1981.

[2] Excavation equipment includes bulldozers, backhoes, front end loaders, graders, excavators, steam rollers and other equipment capable of being used for similar applications.

[3] Pneumatic equipment includes pavement breakers.

Construction activities will vary temporally and spatially as the project progresses. Noise levels from construction at a given receptor location will also vary over time as different activities take place, and as those activities change location within the right-of-way.

To minimize the potential for construction noise impacts, it is recommended that provisions be written into the contract documentation for the contractor, as outlined below:

- Construction should be limited to the time periods allowed by the locally applicable bylaws. If construction activities are required outside of these hours, the Contractor must seek permits / exemptions directly from the municipality in advance.
- There should be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and local noise by-laws. Enforcement of noise control by-laws is the responsibility of the Municipality for all work done by Contractors.
- All equipment should be properly maintained to limit noise emissions. As such, all construction equipment should be operated with effective muffling devices that are in good working order.
- The Contract documents should contain a provision that any initial noise complaint will trigger verification that the general noise control measures agreed to are in effect.
- In the presence of persistent noise complaints, all construction equipment should be verified to comply with MECP NPC-115 guidelines, as outlined above.
- In the presence of persistent complaints and subject to the results of a field investigation, alternative noise control measures may be required, where reasonably available. In selecting appropriate noise control and mitigation measures, consideration should be given.



4. Conclusions

The potential environmental noise impacts of the proposed undertaking have been assessed. Both operational and construction noise impacts have been considered. The following conclusions and recommendations result:

- Operational noise impacts resulting from the proposed Edward Street extension do not meet the mitigation requirements of MTO/MECP Joint Protocol. Changes in sound levels resulting from the project do not trigger noise mitigation analysis.
- Construction noise impacts are temporary in nature but may be noticeable at times at residential receptors. Methods to minimize construction noise impacts should be included in the Construction Code of Practice, as outlined in the text.

5. References

Ontario Ministry of the Environment (MECP), 1977b, *Model Municipal Noise Control Bylaw*, which includes Publication NPC-115 – Construction Equipment.

Ontario Ministry of the Environment (MECP) / Ontario Ministry of Transportation (MTO), 1986, "Joint Protocol", A Protocol for Dealing with Noise concerns during the Preparation, Review and Evaluation of Provincial Highway's Environmental Assessments.

Ontario Ministry of the Environment (MECP), 1989, *Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT)*.

Ontario Ministry of Transportation (MTO), 1992a, Quality and Standards Directive QST-A1, *Noise Policy and Acoustic Standards for Provincial Highways*.

Ontario Ministry of Transportation (MTO), 2006, *Environmental Guide for Noise* Version 1.1 July 2008.

Respectfully submitted by:

RWDI

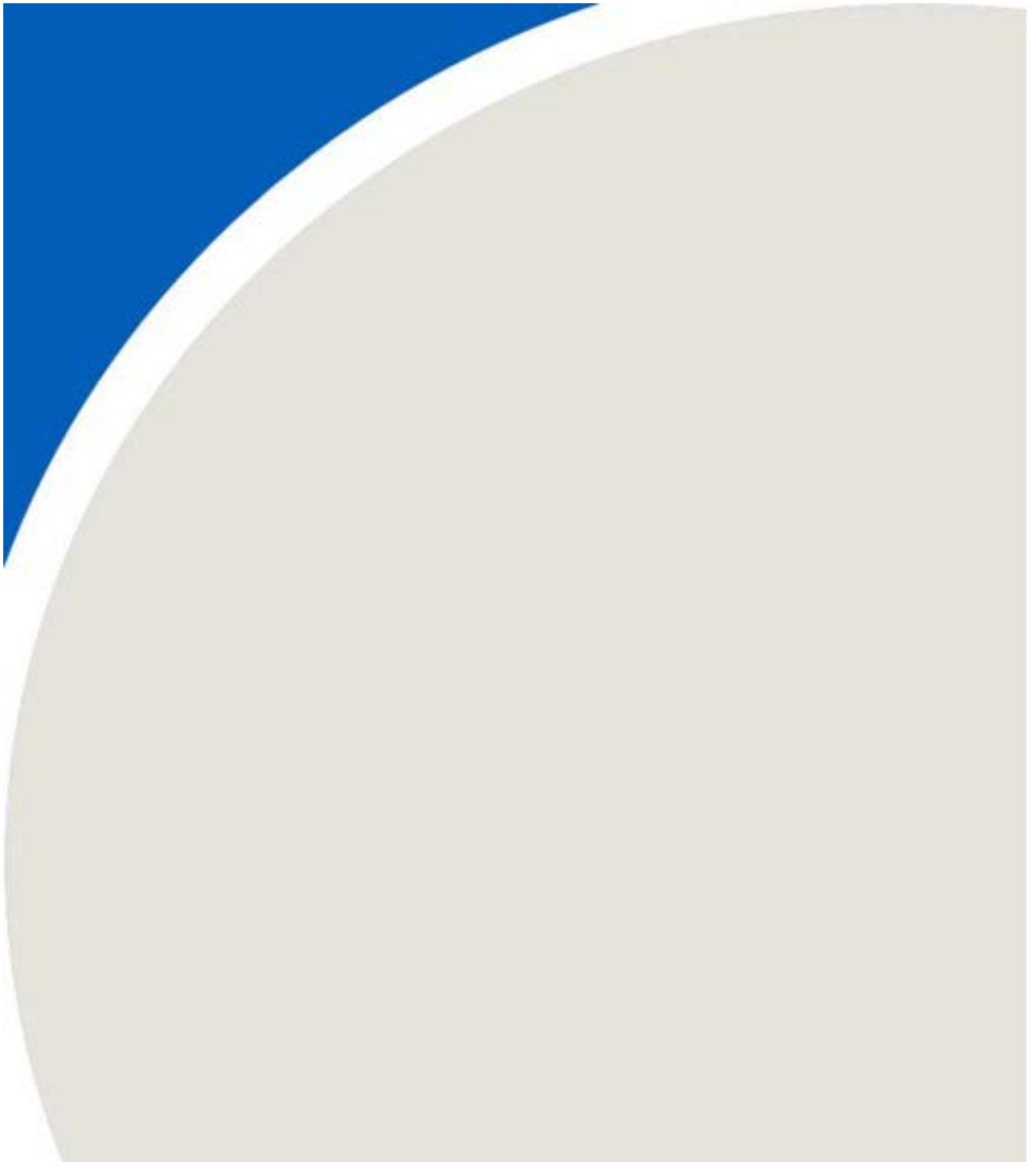
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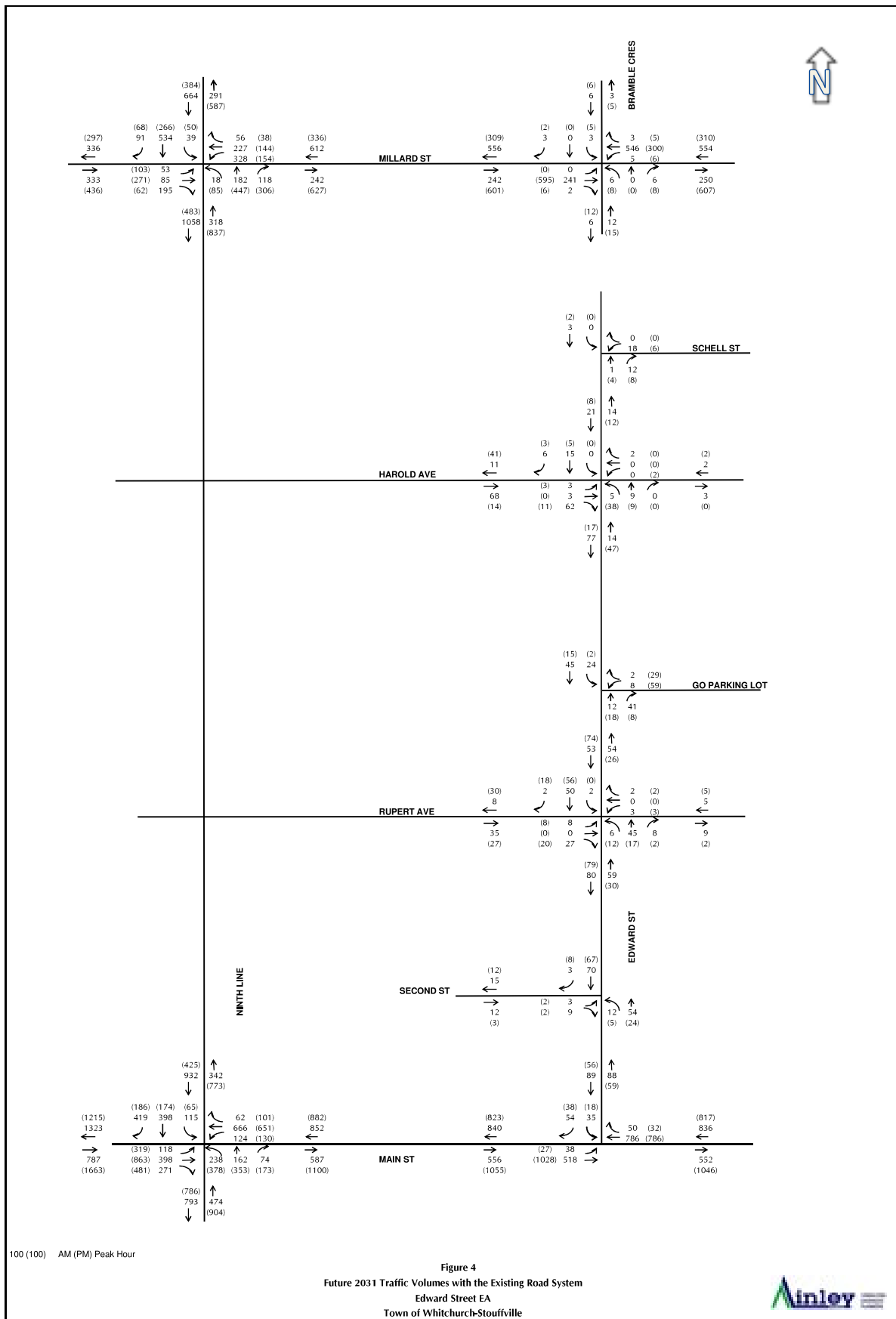
Claire Finoro, B.Sc. (Eng.) P.Eng.
Project Manager

CIF/hta

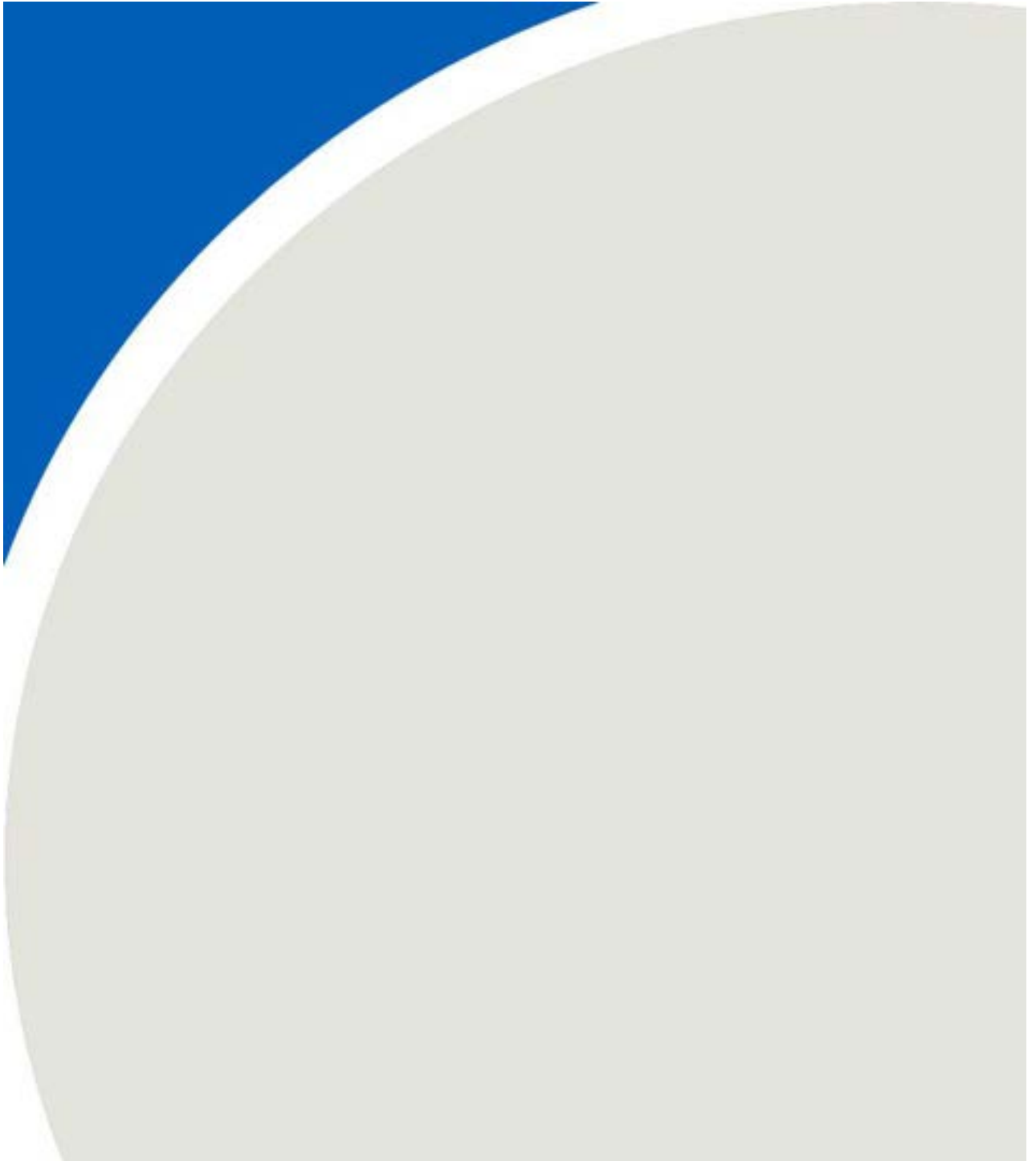
Attach.

ATTACHMENT A





ATTACHMENT B





Ontario Road Noise Analysis Method for ENvironment and Transportation

version 2.08

Job No. 1801961

Job Name Edwards Street

Scenario Daytime - Future No Build

ROAD CHARACTERISTICS

SOURCE-RECEIVER-BARRIER-TOPOGRAPHY CHARACTERISTICS

[illegible]



Ontario Road Noise Analysis Method for ENvironment and Transportation

version 2.08

Job No. 1801961

Job Name Edwards Street

Scenario Daytime - Future Build

ROAD CHARACTERISTICS

SOURCE-RECEIVER-BARRIER-TOPOGRAPHY CHARACTERISTICS

ID	Description	Time Period	Number of Vehicles			Speed (km/h)	Road Gradient (%)	Two Way? (y/n)	Pavement Type	Road Viewable Angle		Source-Receiver Distance (m)	Ground Type (Hard/S oft)	Topo-graphy Type	Source Height (m)	Road Elevation (m asl)	Receptor Height (m)	Receptor Elevation (m asl)	Ground Elevation Change (m)			Barrier Height (m)	Barrier Elevation (m asl)	Barrier-Receiver Distance (m)	Barrier Viewable Angle		No. of Rows of Houses	Density of Houses (% Houses)	Depth of Woods	Adjustment (dB)	Reason for Adjustment	Total Segment L_{eq} (dBA)				
			Autos	Medium	Heavy					Θ_1	Θ_2								Elevation Change e (m)	Hor. Dist a (m)	Hor. Dist b (m)				Θ_1	Θ_2										
NSA1	Edwards Street	16	8640	100	170	50	0	y	1	-90	90	15.0	Hard	A	1.2																					
	Millard Street	16	8005	94	154	50	0	y	1	-90	0	15.0	Hard	A	1.2																					
															-																					



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MEMORANDUM

DATE:

2018-08-28

RWDI REFERENCE #: 1801961

TO:

Catherine Jin

EMAIL: jin@ainleygroup.com

FROM:

Claire Finoro

EMAIL: Claire.Finoro@rwdi.com

RE:

**Qualitative Air Quality Assessment in Support of the Town of Whitchurch-Stouffville – Edward Street Environmental Assessment
RWDI Project # 1801961**

Dear Ms. Jin,

Ainley Group Consulting Engineers & Planners (Ainley) retained RWDI to complete a qualitative air quality assessment in support of the Edward Street Class Environmental Assessment in Whitchurch-Stouffville, Ontario. The Town of Whitchurch-Stouffville and the Ainley have undertaken a Class Environmental Assessment (EA) for Edward Street between Millard Street and Main Street (inclusive).

This memo qualitatively addresses air quality impacts based on RWDI's past experience with air quality modelling of roadway emissions. The memo considers both impacts from operation of the project after construction is complete, and impacts during construction.

1. Overview of Approach

The approach to assessing air quality impacts associated with operation of the project, after construction is complete, consisted of reviewing projected future traffic volumes for the Edward Street, reviewing the proximity and orientation of the roads relative to existing and planned sensitive land uses, reviewing the existing air quality conditions, and reviewing data from a previous air quality modelling study by RWDI for another roadway of similar size and traffic. Further information is provided below.



Construction activities involve heavy equipment that generates air pollutants and dust; however, these impacts are temporary in nature. The emissions are highly variable, difficult to predict, and depend on the specific activities that are taking place and the effectiveness of the mitigation measures. The best manner to deal with these emissions is through diligent implementation of operating procedures such as application of dust suppressants, reducing travel speeds for heavy vehicles, efficient staging of activities and minimization of haul distances, covering up stockpiles, etc. It is recommended that to minimize potential air quality impacts during construction, the construction tendering process should include requirements for implementation of an emissions management plan.

1.1 Traffic Information

Predicted traffic volumes for Edward Street from Main Street to Millard Street were provided by Ainley. We focused on the traffic volumes for the year 2031, with the ultimate build out of Edward Street in place. Please refer to Attachment A for a summary of the traffic data used for the qualitative assessment.

1.2 Contaminants of Interest

Vehicular traffic produces a variety of air contaminants as a result of fuel combustion inside the engine, evaporation of fuel from the tank, brake and tire wear, and re-suspension (also known as re-entrainment) of loose particles on the road surface (silt) as the vehicle travels over the road surface. The contaminants of concern are listed below:

- Respirable (fine) particulate matter ($PM_{2.5}$);
- Nitrogen oxides (NO_x);
- Benzene; and,
- Acrolein.

The term respirable particulate matter refers airborne particles that are small enough to enter the fine passages of a human lung. Nitrogen oxides are gaseous productions of combustion, of which nitrogen dioxide (NO_2) is the most toxic representative. Acrolein and benzene are key representatives of vehicle exhaust hydrocarbons. They are volatile organic compounds (VOCs).

1.3 Applicable Guidelines

The Province of Ontario's Ministry of the Environment, Conservation and Parks (MECP) has established criteria for concentrations of airborne contaminants (MECP, 2012). The Ambient Air Quality Criteria (AAQC's) are effects-based levels in air, based on health and/or other effects. They are used in environmental assessments, special air monitoring studies, and assessments of general air quality to determine the potential for adverse effects. The AAQC's are not enforceable standards but are desirable objectives that municipalities should strive to attain.



In addition to provincial AAQC's, the Federal Government's Environment Canada (EC) has established Canadian Ambient Air Quality Standards (CAAQS). These are health-based air quality objectives for pollutant concentrations in outdoor air. These objectives are being phased in, with the final and most stringent objective becoming active in the year 2020. Since the assessment is based on a future scenario, this assessment uses the 2020 CAAQS for PM_{2.5} as the relevant objective.

The air quality criteria and standards used to assess potential local project impacts are summarized in Table 1. The pollutants listed in Table 1 are key ones of concern with respect to motor vehicle emissions.

Table 1: Summary of Relevant Air Quality Thresholds

Pollutant	Criterion (µg/m ³)	Averaging Period	Criterion Type	Reference
PM _{2.5}	27	24-hour	CAAQS	(EC, 2013)
	8.8	Annual	CAAQS	(EC, 2013)
NO ₂	400	1-hour	AAQC	(MECP, 2016)
	200	24-hour	AAQC	(MECP, 2016)
Acrolein	4.5	1-hour	AAQC	(MECP, 2016)
	0.4	24-hour	AAQC	(MECP, 2016)
Benzene	2.3	24-hour	AAQC	(MECP, 2016)
	0.45	Annual	AAQC	(MECP, 2016)

1.4 Existing Ambient Air Quality Measurements

Historical ambient air quality monitoring data from stations operated by the MECP were used to determine background concentrations for the contaminants of interest. In selecting the most appropriate monitoring station(s), consideration was given to whether the station was in a similar land use setting to that of the study area. The MECP publishes a summary of its monitoring data in its annual Air Quality in Ontario reports (MECP, 2011-2015), and makes raw data available for download. The raw data for 2016 were downloaded and analyzed to determine the appropriate percentiles, annual mean and maximums. The MECP air quality monitoring stations do not monitor acrolein or benzene, therefore raw data were downloaded for EC's National Air Pollution Surveillance (NAPS) air quality monitoring stations.

Table 2 summarizes the MECP and NAPS ambient air monitoring stations that were used in the assessment and a list of the monitored contaminants. These monitoring stations are the ones with recent data available that are most representative of the study area. They provide a reasonable representation of existing air quality conditions.



Table 2: Ambient Station Information

NAPS ID	MECP ID	Station Name	Location	Contaminants	Year
65101	48006	Newmarket	Eagle St. & McCaffrey Rd.	NO ₂ , PM _{2.5} , Benzene	2011-2016
60418	N/A	Toronto	Ruskin & Perth St.	Acrolein	2011-2016

1.5 Receptors

A receptor is any location that may experience an undesirable impact due to air emissions associated with the project. The Ontario Ministry of Transportation's (MTO) Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (MTO, 2012) provides a useful categorization of receptors into two key categories

1. Sensitive Receptors: i.e. residential dwellings; and
2. Critical Receptors: i.e. retirement homes, hospitals, childcare centres, schools and similar institutional buildings.

Based on the Town of Whitchurch-Stouffville Schedule 48 Zoning Map, the current zoning in the study area consists mainly of residential, institutional, and downtown mixed commercial. Of these uses, the residential and institutional uses can include sensitive receptors. Please refer to Attachment B for the Schedule 48 Zoning Map.

1.6 Previous RWDI Studies of Similar Situations

The traffic volumes provided by Ainley were reviewed in addition to the Whitchurch-Stouffville Schedule 48 Zoning Map. The two documents were studied to determine the land use designations, proximity of potential receptors to the edge of the roadway and the traffic volumes associated with the proposed roadways. From this, the location where the maximum impacts are expected to occur was determined to be along Edward Street between Second Street and Main Street. This section of the study area has sensitive/critical receptors in proximity to the roadway and has a higher projected traffic volume than elsewhere along Edward Street.



To assess how local air quality conditions will change due to the preferred alternative design and configuration of the road as well as the increased traffic, RWDI examined data from a previous roadway modelling study. RWDI was recently retained by the Town of Whitby to conduct an air quality assessment of the proposed Garden Street expansion in Whitby, Ontario. The air quality assessment was completed in support of a Municipal Class Environmental Assessment. Garden Street is a larger roadway than Edward Street, with a higher traffic volume. Therefore, the results from the Garden Street air quality modelling study represent a conservative upper bound estimate of air quality impacts in the present case.

In the Garden Street study, computer models for roadway emissions and dispersion of the emissions were used to predict the contribution of the project to air pollutant levels in the immediate area. Background air quality conditions were estimated using air quality monitoring data collected by the MECP and EC. The emission modelling was based on the US Environmental Protection Act's (EPA) roadway emissions model, MOVES, for the horizon year of 2021, which corresponds to the earliest design year for the Project. The dispersion modelling was based on the US EPA's roadway dispersion model, CAL3QHCR for the horizon year of 2031, which corresponds to the highest traffic volumes among the future no build (Year 2021) and future build (2031) scenarios. The meteorological data sets for the most recent year (2016) used in the analysis were selected based on guidance from the MECP for regulatory dispersion modelling in Ontario (MECP, 2009). Upper air data were obtained from AERMET. Surface data were obtained for Oshawa Airport, with data from Toronto International Airport to supplement missing data.

Table 3 compares the Garden Street project to the current Edward Street project.

Table 3: Similarities Between Edward Street and Garden Street

	Edward Street Project	Garden Street EA
Traffic Data	990 AADT (highest)	24,500 AADT
Build Out Year	2031	2031
Contaminants of Interest	PM _{2.5} , NO ₂ , Acrolein, Benzene	PM _{2.5} , NO ₂ , Acrolein
Ambient Monitoring Stations	PM_{2.5}, NO₂, Benzene: Newmarket (MECP ID 48006) Acrolein: Toronto (Ruskin/Perth St.) (NAPS ID 60418)	PM_{2.5}, NO₂: Oshawa (MECP ID 45026) Acrolein: Toronto (Ruskin/Perth St.) (NAPS ID 60418)



In the Garden Street project, receptors were placed with approximately 80 m spacing along each side of the Garden Street Corridor to represent operable windows and outdoor use areas at nearby residences. Receptors ranged from approximately 10 m to 30 m from the centre of the roadway, with the most impacted receptor located approximately 10 m from the centre of the roadway. The estimated AADT in the Garden Street project is approximately twenty-five times greater than the traffic volume on Edward Street, and therefore modelling results from the Garden Street EA would provide a conservative upper bound of potential air quality impacts.

2. Findings: Operational Impacts After Construction

2.1 Background Air Quality Conditions

Table 4 summarizes the ambient air measurements from the air quality monitoring stations previously listed in Table 2.

Table 4: Summary of Ambient Air Measurements

Contaminant	Averaging Period	Adapted Value ^[1] [µg/m ³] [µg/m ³]	Description	Threshold [µg/m ³]	Percent of Threshold (%)
NO₂	1-hour	27	90 th Percentile	400	13%
	24-hour	53	24 hour Maximum	200	28%
PM_{2.5}	1-hour	14	90 th Percentile	--	--
	24-hour	26	24 hour Maximum	27	63%
	Annual	6.6	Annual Average	8.8	86%
Acrolein	24-hour	0.30	90 th Percentile	0.4	75%
Benzene	24-hour	0.65	90 th Percentile	2.3	28%
	Annual	0.41	Annual Average	0.45	91%

Notes: [1] For each contaminant, the most recent 5 years of available data were used to calculate an average value to represent existing conditions. The 1-hour and 24-hour values in the table above were calculated based on the 90th percentiles over the available years. The values for the annual averaging period were calculated using the annual concentrations averaged over the available years.



As can be seen from Table 4, the contaminants of interest are below the AAQCs and CAAQCS. NO₂ is well below their respective AAQCs; whereas, ambient PM_{2.5}, 24-hour acrolein, 24-hour and annual benzene levels are below but approaching their thresholds.

2.2 Future Air Quality Conditions

Table 5 presents a summary of the results from the Garden Street air quality modelling study that are used to represent a conservative upper bound prediction of future roadway air quality impacts in the present study. The column labelled as “Predicted Concentration” represents the contribution of the project, over and above the background concentration, and the column labelled as “Combined Concentration” represents the summed total of the incremental increase and the background. As per the data in the table, the project contribution for PM_{2.5} and acrolein is small in relation to the background level, while the contribution for NO₂ is relatively large. In all cases, however, the maximum predicted cumulative concentrations associated with the proposed roadways are less than the thresholds for all contaminants and all averaging periods. Thus, the project is not expected to cause undesirable levels of air pollutants at any nearby sensitive/critical receptors, and no mitigation measures are recommended for the operational phase of the project.

Table 5: Maximum Predicted Roadway Impacts (µg/m³) from the Garden Street Study (year 2031)

Contaminant	Averaging Period	Predicted Conc.	Background Conc.	Combined Conc.	Threshold	% of Threshold
NO ₂	1 hr	87.3	26.9	114	400	29
	24 hr	20.1	26.9	47.0	200	24
PM _{2.5}	24 hr	1.94	13.4	15.3	27	57
	Annual	0.64	6.34	7.0	8.8	79
Acrolein	1 hr	0.018	0.75	0.77	4.5	17
	24 hr	0.004	0.30	0.30	0.4	76



3. Impacts During Construction

Construction activities involve heavy equipment that generates air pollutants and dust; however, these impacts are temporary in nature. The emissions are highly variable, difficult to predict, and depend on the specific activities that are taking place and the effectiveness of the mitigation measures. The best manner to deal with these emissions is through diligent implementation of operating procedures such as application of dust suppressants, reduced travel speeds for heavy vehicles, efficient staging of activities and minimization of haul distances, covering up stockpiles, etc. It is recommended that to minimize potential air quality impacts during construction, the construction tendering process should include requirements for implementation of an emissions management plan. Such a plan would set out established best management practices for dust and other emissions. Some of the best practices include the following:

- Use of reformulated fuels, emulsified fuels, exhaust catalyst and filtration technologies, cleaner engine repowers, and new alternative-fuelled trucks to reduce emissions from construction equipment.
- Regular cleaning of construction sites and access roads to remove construction-caused debris and dust.
- Dust suppression on unpaved haul roads and other traffic areas susceptible to dust, subject to the area being free of sensitive plant, water or other ecosystems that may be affected by dust suppression chemicals.
- Covered loads when hauling fine-grained materials.
- Prompt cleaning of paved streets/roads where tracking of soil, mud or dust has occurred.
- Tire washes and other methods to prevent trucks and other vehicles from tracking soil, mud or dust onto paved streets or roads.
- Covered stockpiles of soil, sand and aggregate as necessary.
- Compliance with posted speed limits and, as appropriate, further reductions in speeds when travelling sites on unpaved surfaces.

4. Conclusions

During the operational phase of the project, vehicle emissions on the proposed roadways are not expected to cause undesirable cumulative air pollutant levels (i.e., levels above the applicable thresholds). Impacts of construction activities on air quality are expected to be temporary in nature, and can be mitigated through implementation of an emissions management plan.



5. References

1. Ministry of the Environment, Conservation and Parks (MECP), 2016. Ontario's Ambient Air Quality Criteria. Retrieved from <https://www.ontario.ca/page/ontarios-ambient-air-quality-criteria-sorted-chemical-abstracts-service-registry-number>
2. Environment Canada (EC). *National Air Pollution Surveillance Network, Annual Summary Reports: 1999-2012*. Retrieved from <http://www.etc-cte.ec.gc.ca/napsstations/main.aspx>
3. Environment Canada (EC), 2013. *Canadian Ambient Air Quality Standards*. Canada. [Online] last accessed June 18, 2013.
4. Ontario Ministry of Transportation. Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects, June 2012.

Respectfully submitted by:

RWDI

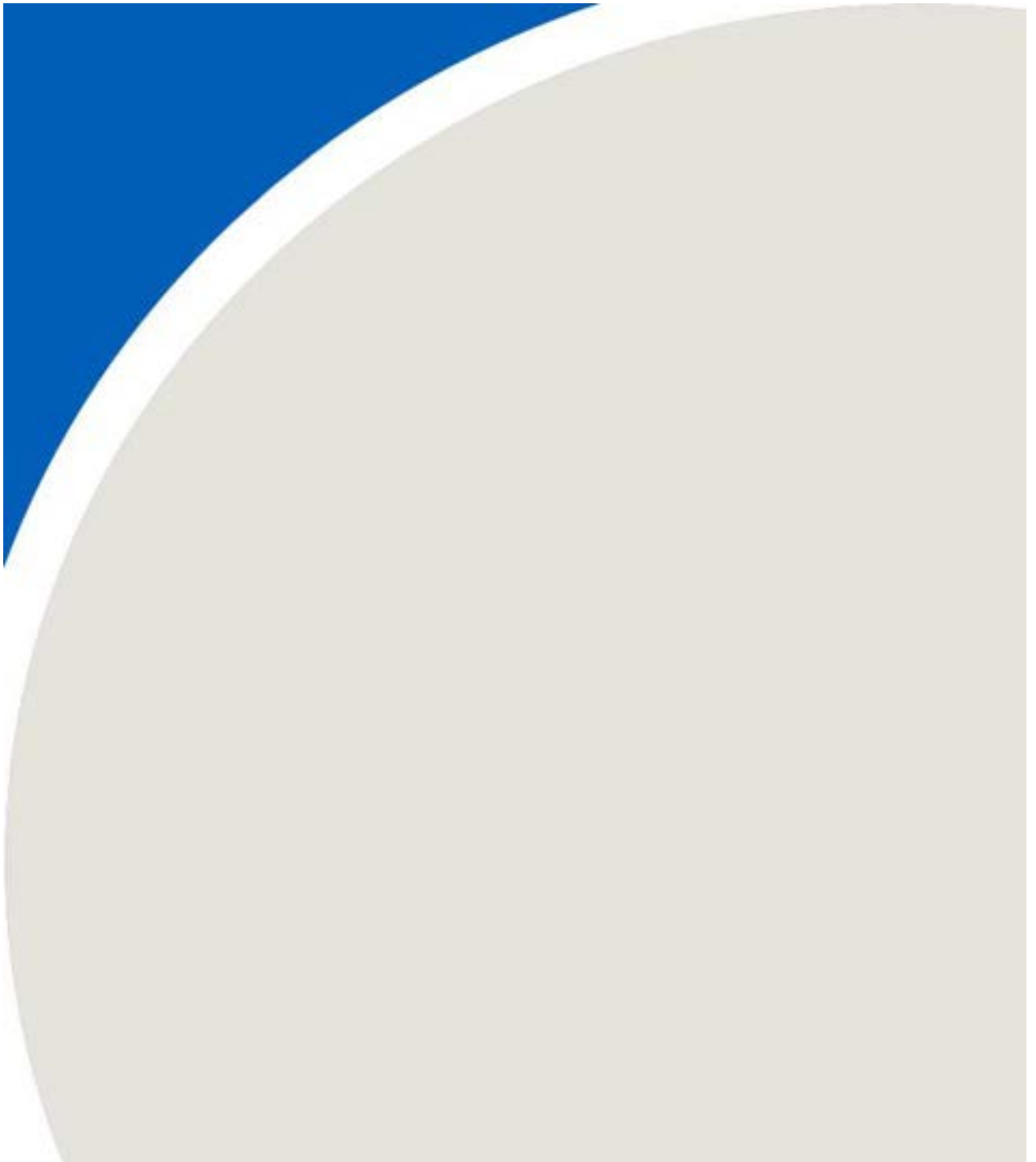
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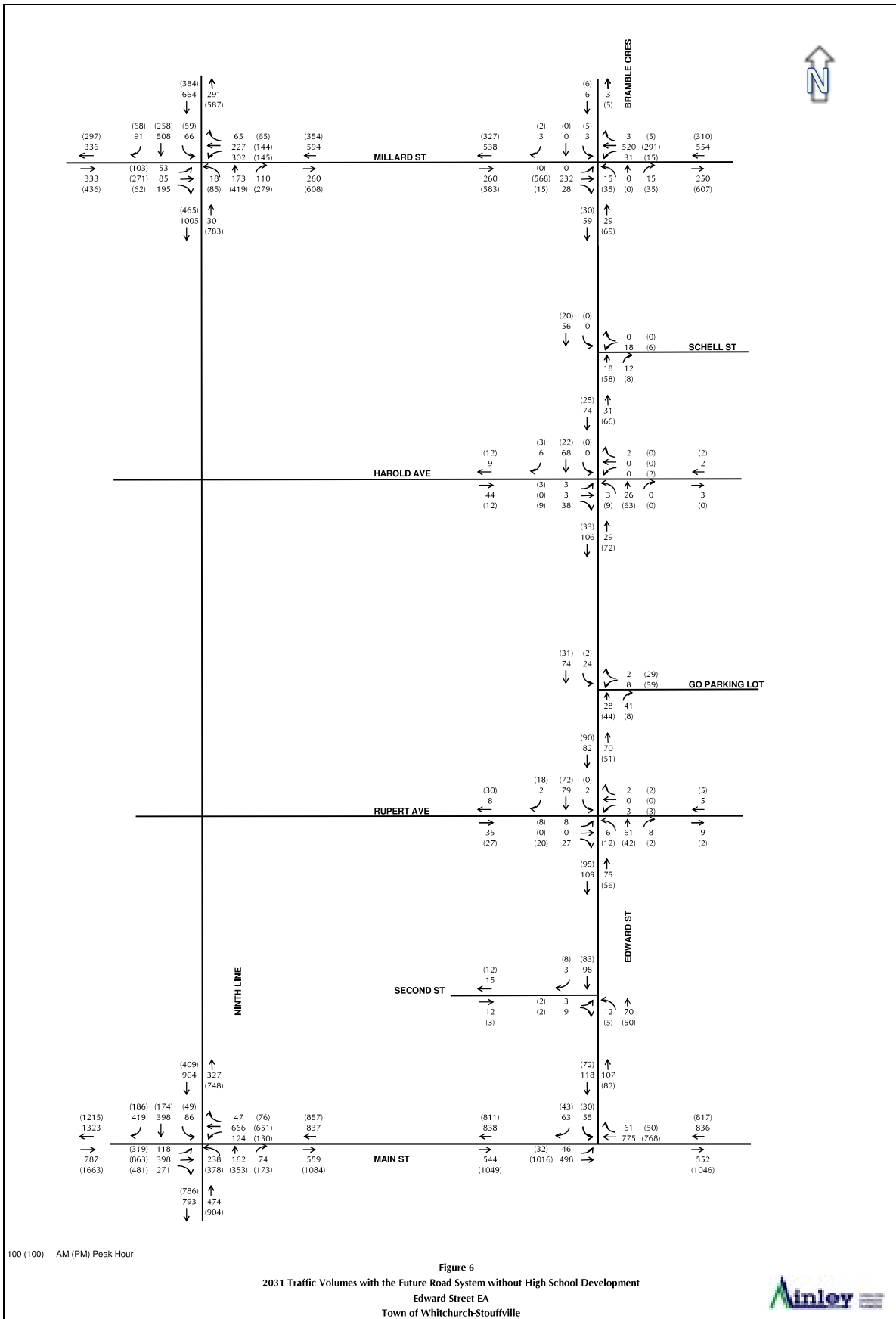
Claire Finoro, B.Sc. (Eng.) P.Eng.
Project Manager

CIF/hta

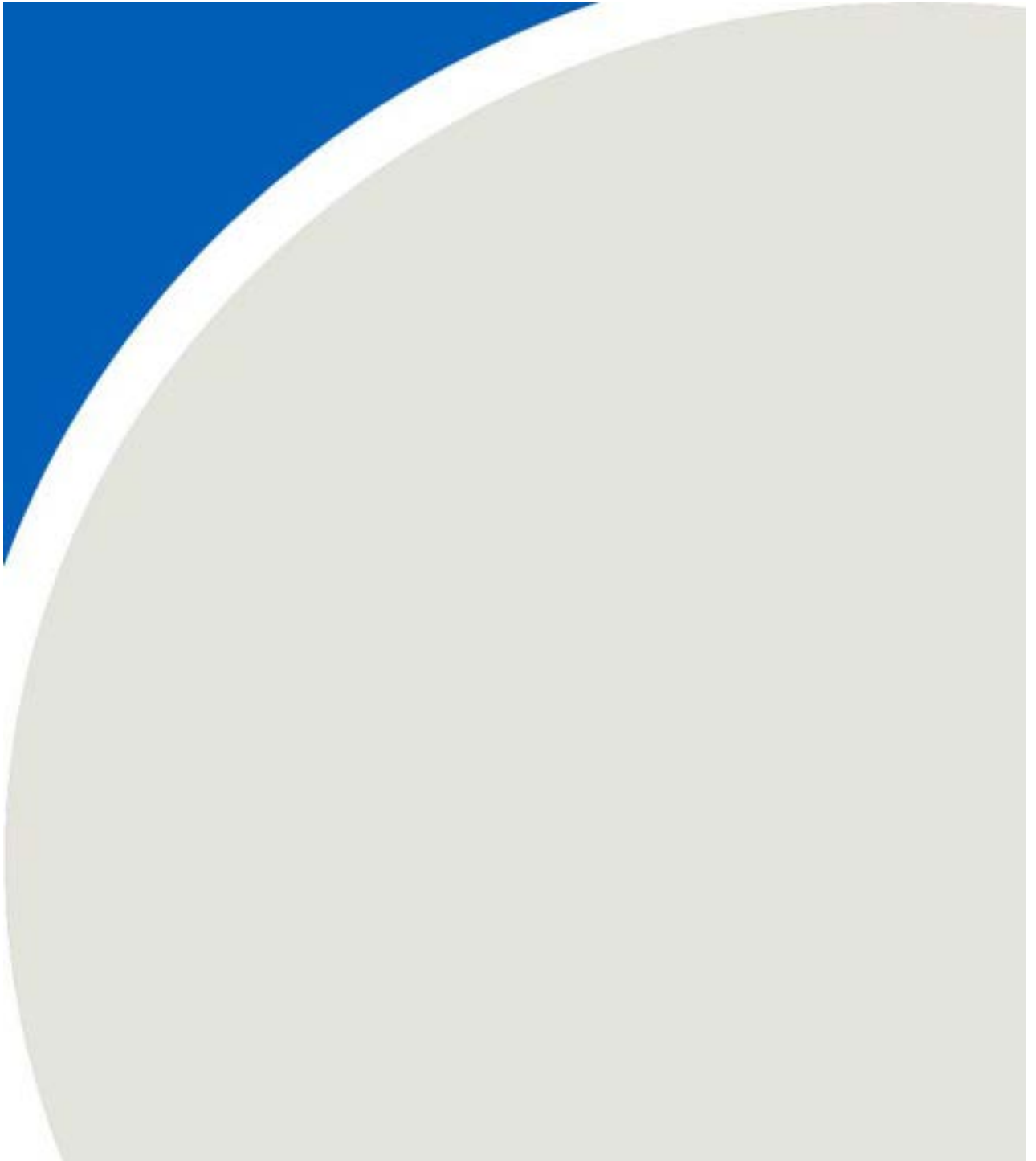
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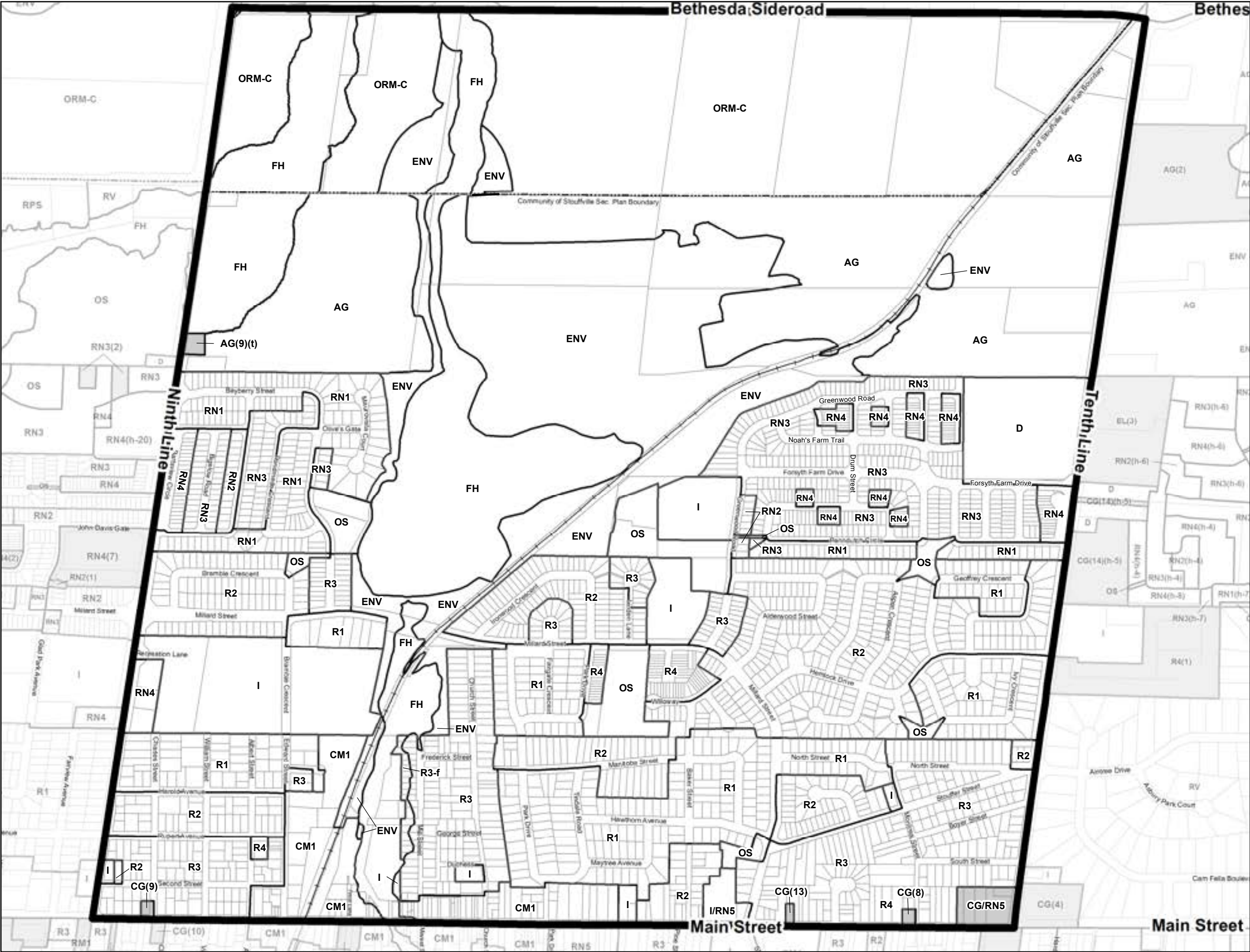
ATTACHMENT A





ATTACHMENT B





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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	32	33	34	35	36
37	38	39	40	41	42	43
44	45	46	47	48	49	50
51	52	53	54	55	56	57

SCHEDULE 48

ZONE DESCRIPTION

Section 4
AG - Agricultural
ENV - Environmental
FH - Flood Hazard
ORM-C - Oak Ridges Moraine Countryside
ORM-L - Oak Ridges Moraine Linkage
ORM-NC - Oak Ridges Moraine Natural Core
Section 5
RPS - Residential Private Services
RV - Residential Village
R1 - Residential 1
R2 - Residential 2
R3 - Residential 3
R4 - Residential 4
RM1 - Residential Multiple 1
RM2 - Residential Multiple 2
Section 5A
RN1 - New Residential 1
RN2 - New Residential 2
RN3 - New Residential 3
RN4 - New Residential 4
RN5 - New Residential 5
Section 6
CM1 - Downtown Mixed Commercial
CM2 - Western Approach Mixed Commercial
CMB - Commercial Residential Mixed - Ballantrae
CG - General Commercial
CL - Local Commercial
CV - Village Commercial
CR - Recreational Commercial
Section 7
EBP/EBP-G - Employment Business Park / - Gormley
EH/EH-G - Employment Heavy / - Gormley
EL/EL-G - Employment Light / - Gormley
ED - Employment Disposal
EX - Employment Extraction
Section 8
I - Institutional
OS - Open Space
D - Development Reserve
Section 2
h - Holding Symbol
f - Flood Vulnerable
t - Temporary Use
w - Water Restriction
WDA - Waste Disposal Area

NOTES

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Town of Whitchurch Stouffville
Zoning By-law 2010-001-ZO
Revised: November 2014

SCHEDULE 48