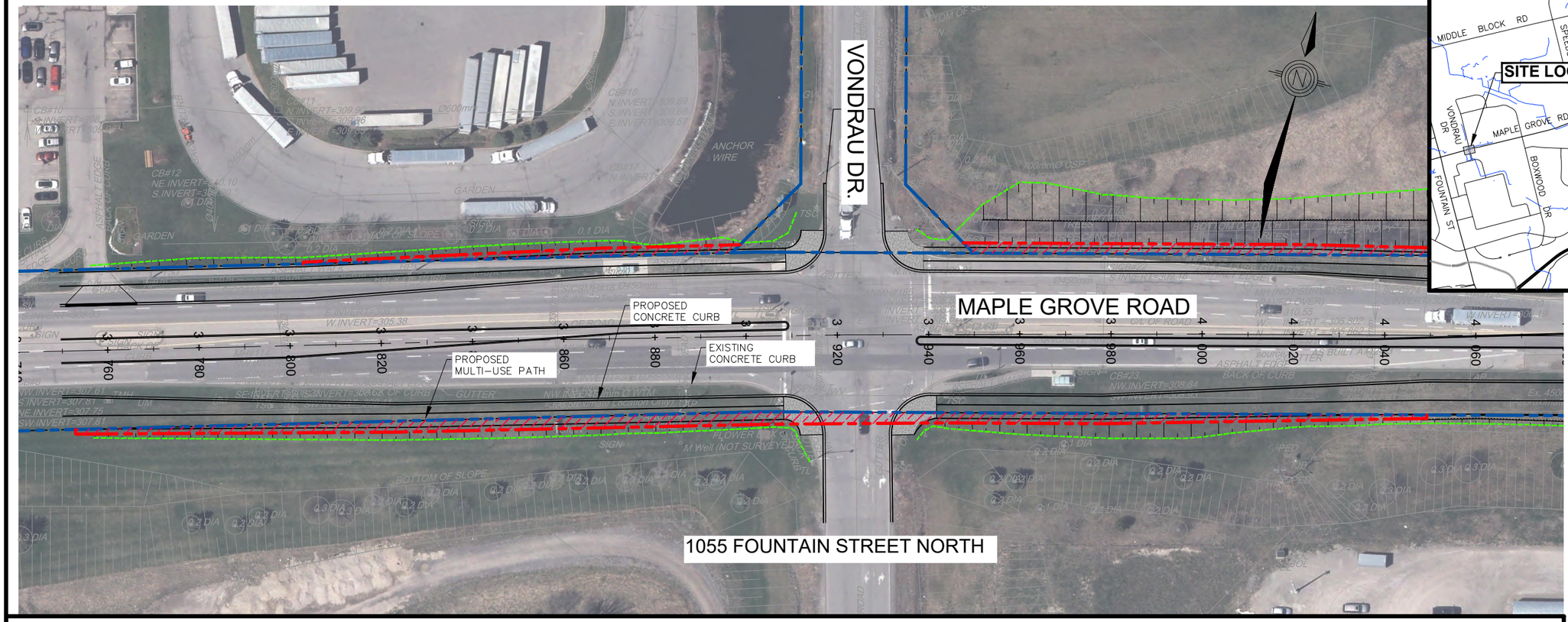
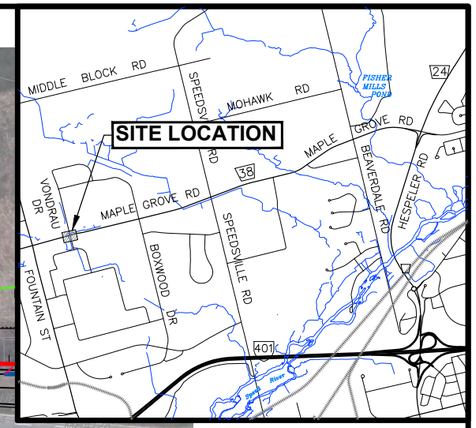
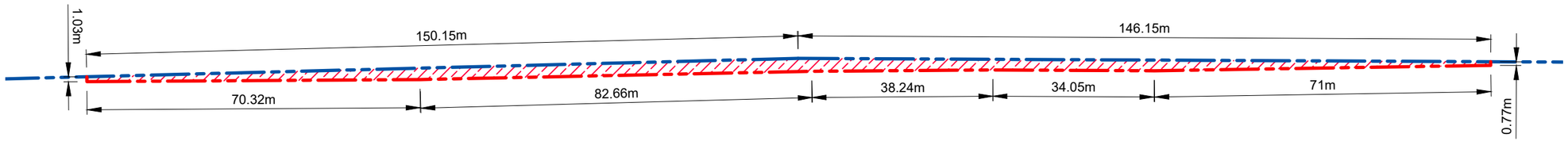
Appendix T – Preliminary Property Impact Plans

September 2023







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	615.7 m²

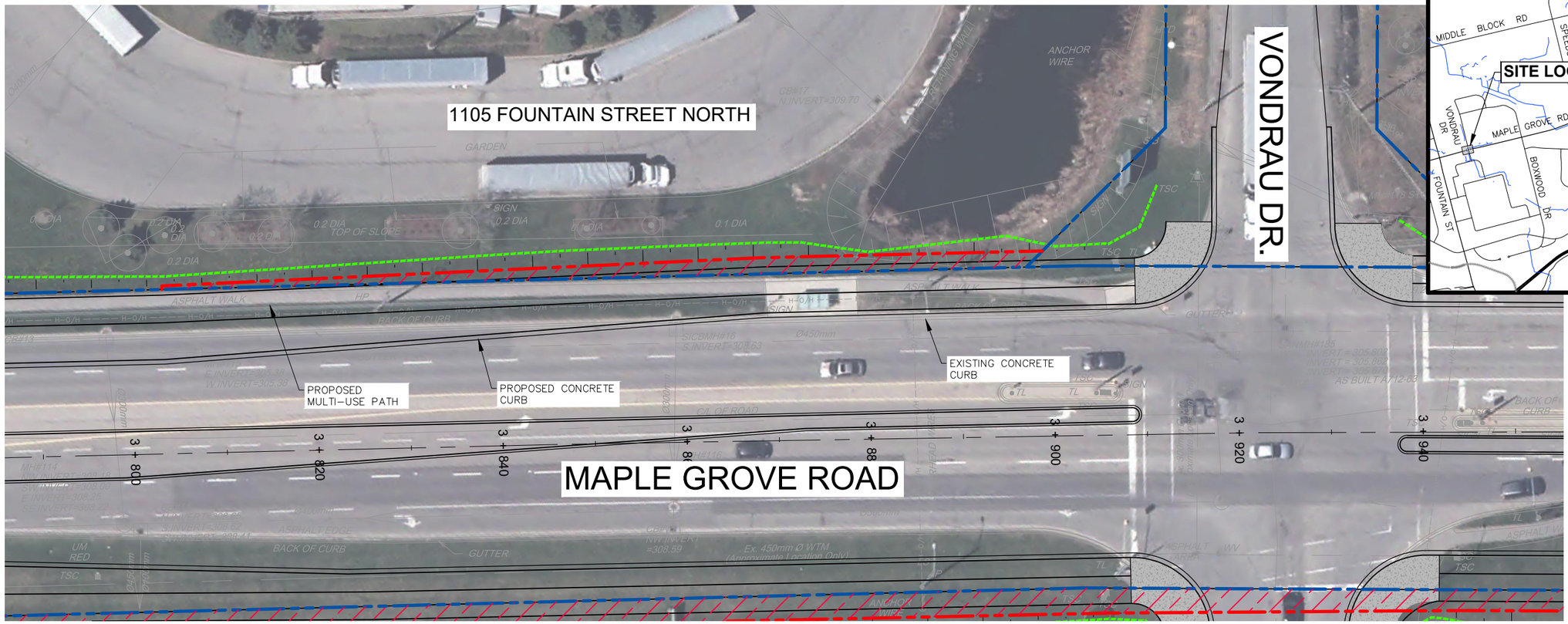
LEGEND

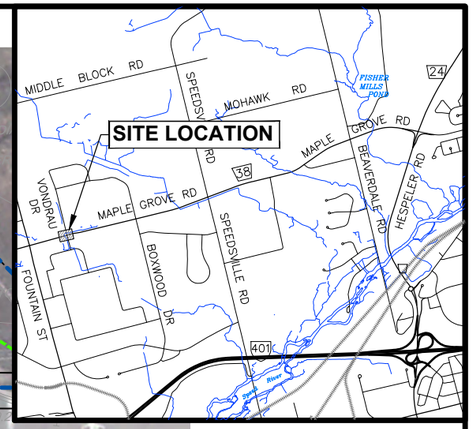
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

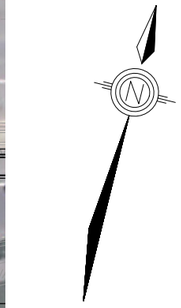
Region of Waterloo

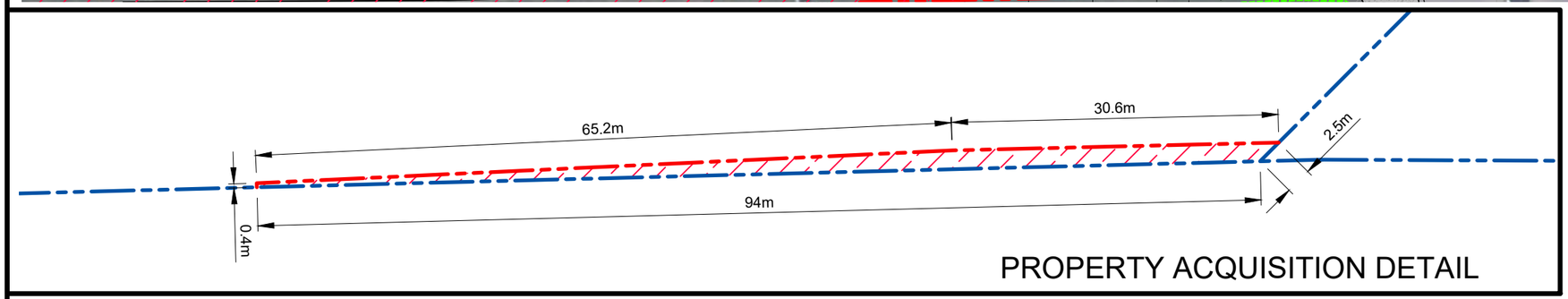
PLAN SCALE:	1:1000
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

1055 FOUNTAIN ST. N. - PART 1
PROPERTY ACQUISITION PLAN









PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	121.3 m²

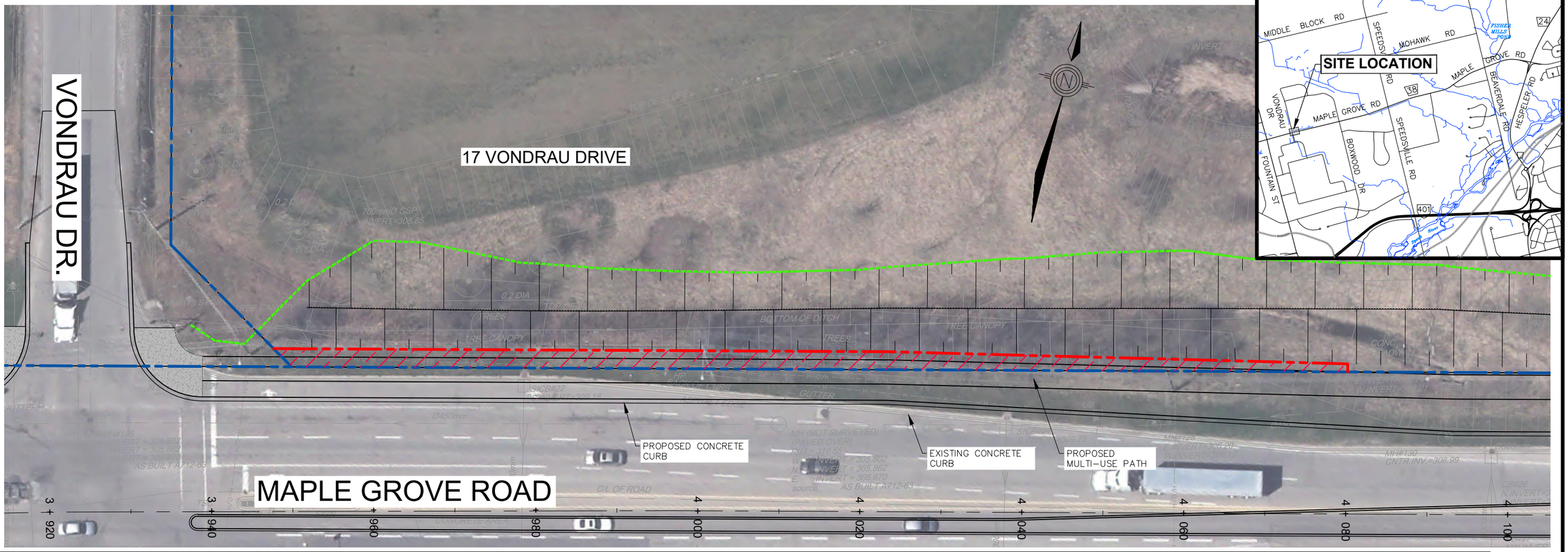
LEGEND

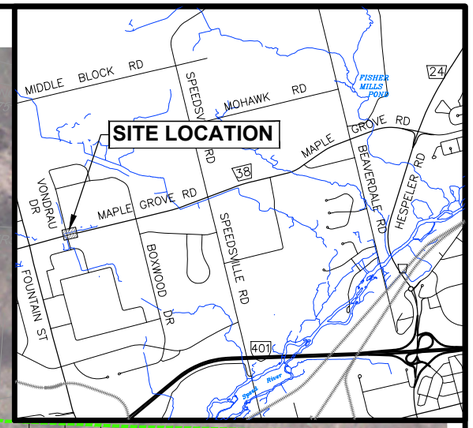
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

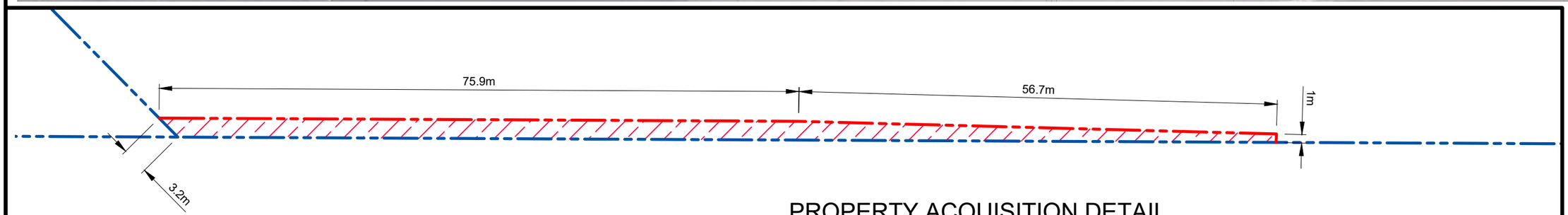
Region of Waterloo

PLAN SCALE:	1:500
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

1105 FOUNDTAIN STREET NORTH
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	258.5m²

LEGEND

- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

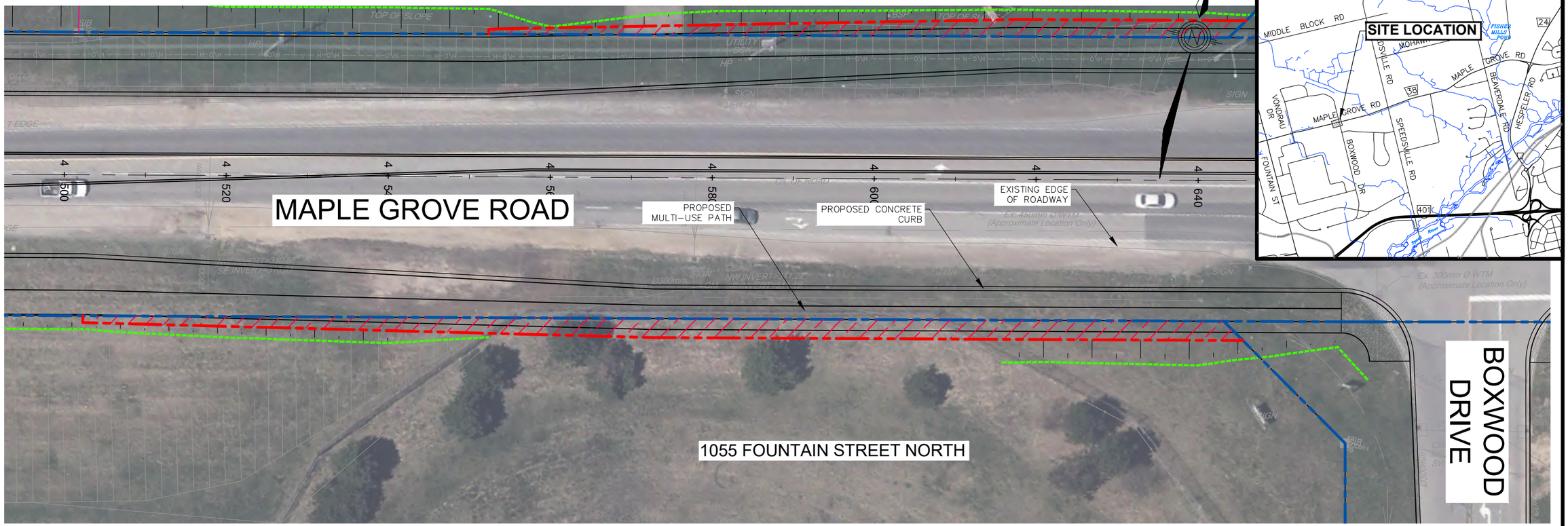
PLAN SCALE: 1:500

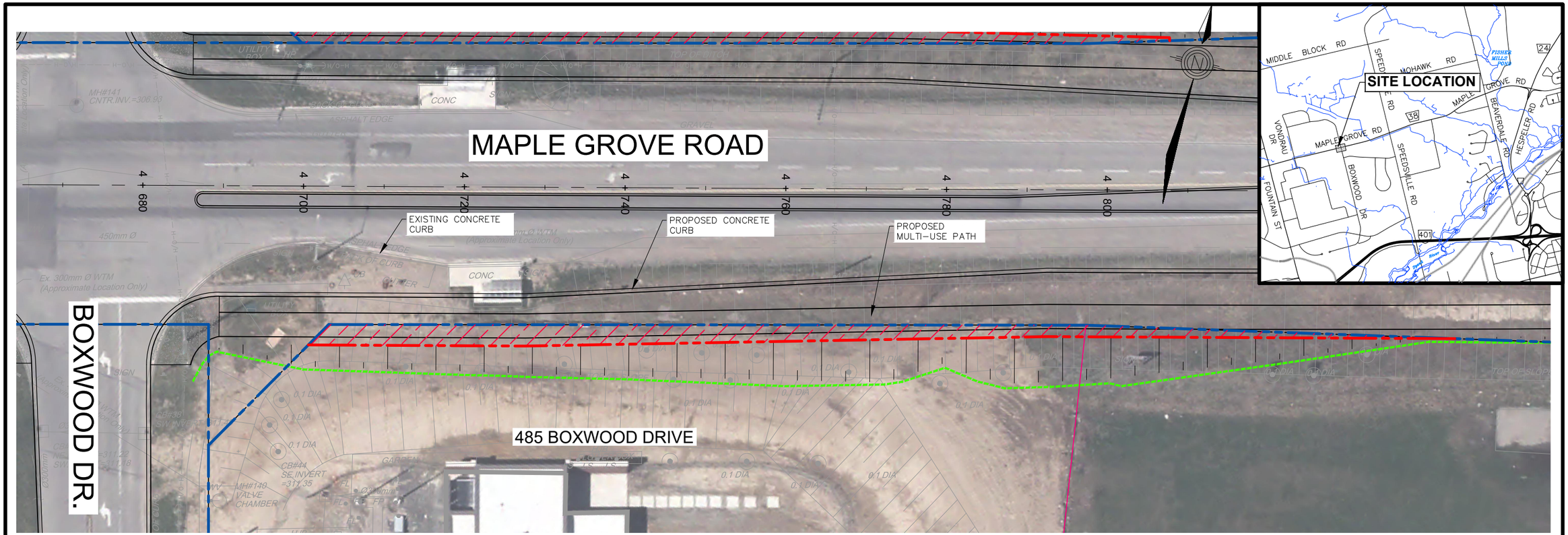
DATE: NOV, 2021

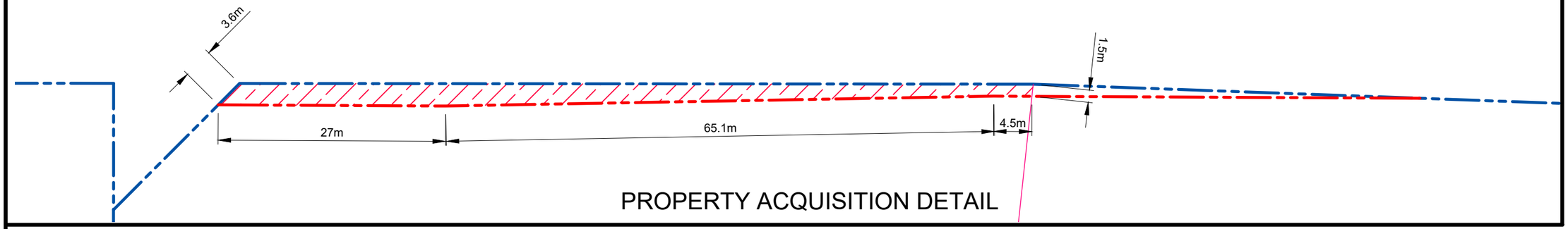
DRAWN BY: T.Y.L

FILE No. --

17 VONDRAU DRIVE
PROPERTY ACQUISITION PLAN


MAPLE GROVE ROAD
4 + 500
4 + 520
4 + 540
4 + 560
4 + 580
4 + 600
4 + 620
4 + 640
PROPOSED MULTI-USE PATH
PROPOSED CONCRETE CURB
EXISTING EDGE OF ROADWAY
1055 FOUNTAIN STREET NORTH
BOXWOOD DRIVE
Ex. 300mm Ø WTM (Approximate Location Only)
Ex. 150mm Ø WTM (Approximate Location Only)
TOP OF SLOPE
T EDGE
DITCH
SIGN
HP
UTILITY POLE
MH#438
CB#36
NW INVERT=310.22
SE INVERT=310.07
Ø300mm
CB#35
NW INVERT=311.22
SE INVERT=311.06
CB#34
NW INVERT=311.06
SE INVERT=310.85
Ø300mm
Ø375mm
CH. of ROAD
CB#33
NW INVERT=310.85
SE INVERT=310.67
Ø300mm
SIB
SIGN
MH#436
MH#434
CB#32
NW INVERT=310.67
SE INVERT=310.52
Ø300mm
SIGN
SIGN
SIGN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	206.3 m²

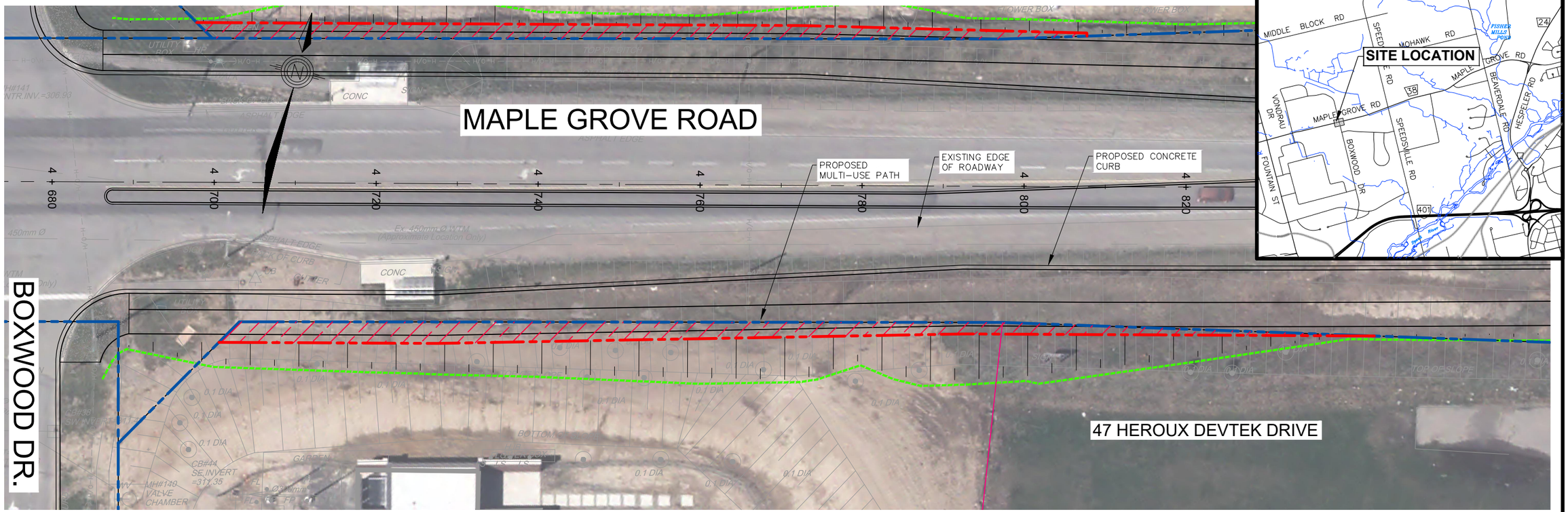
LEGEND

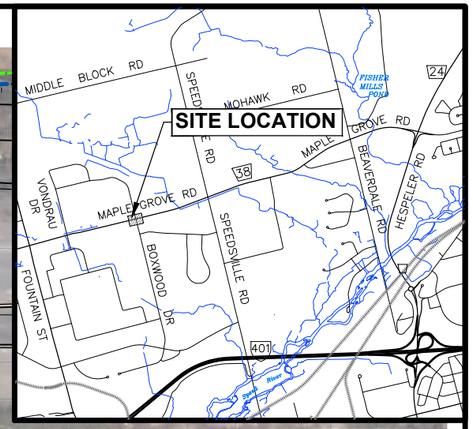
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

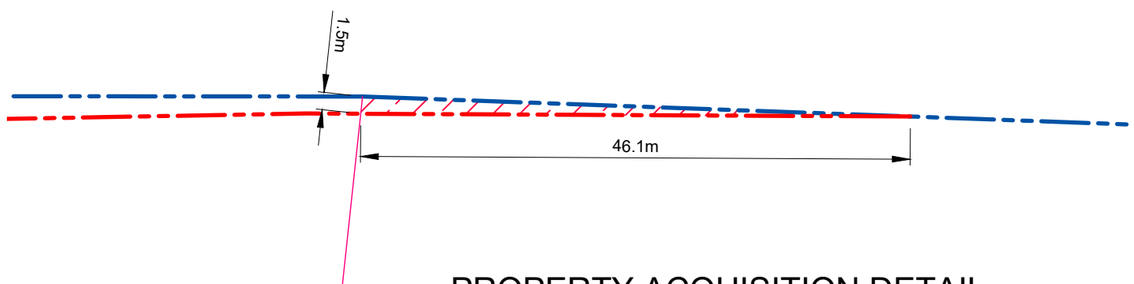
Region of Waterloo

PLAN SCALE: 1:500
DATE: NOV, 2021
DRAWN BY: T.Y.L
FILE No. --

485 BOXWOOD DRIVE
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	33.3 m²

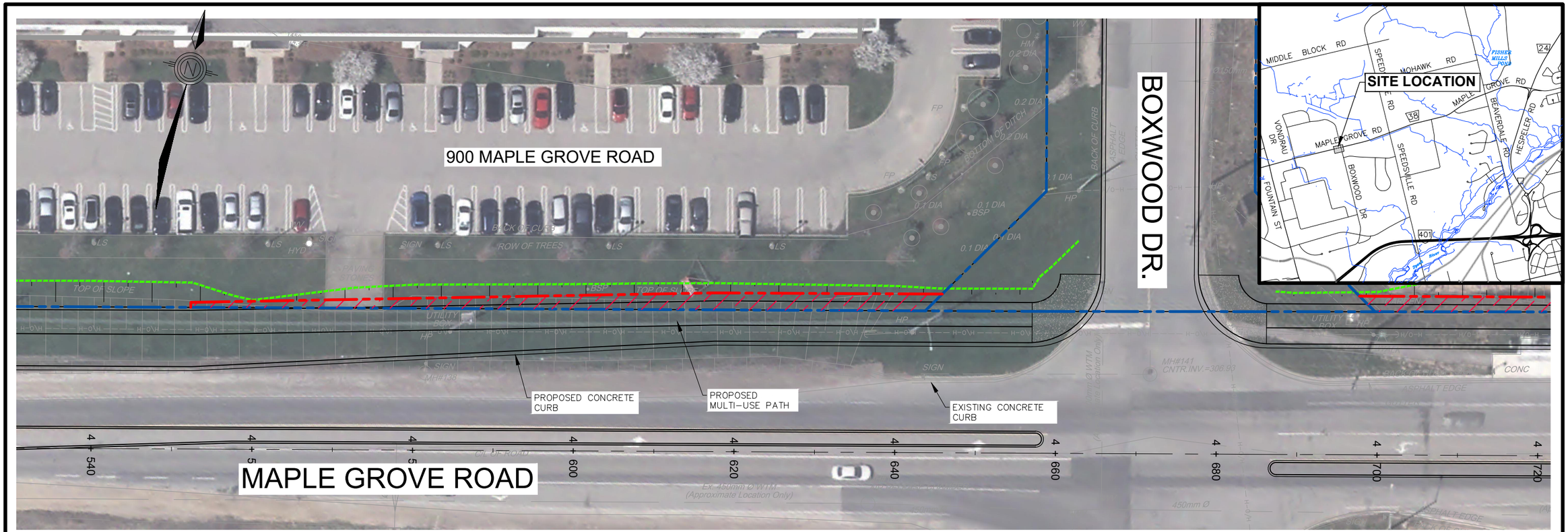
LEGEND

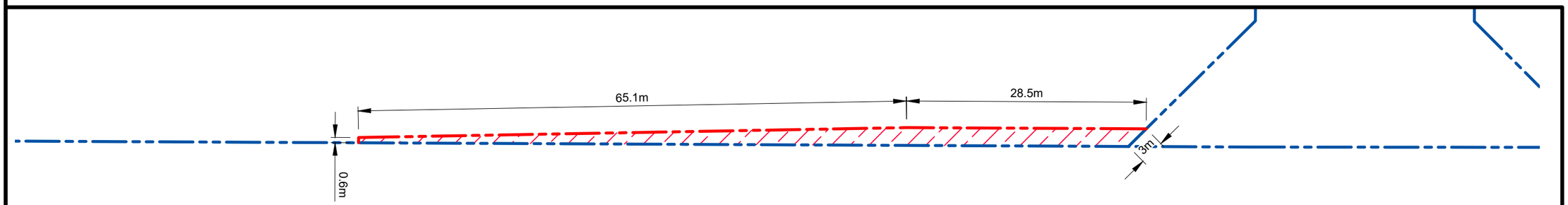
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE:	1:500
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

47 HEROUX DEVTEK DRIVE
PROPERTY ACQUISITION PLAN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	146.4 m²

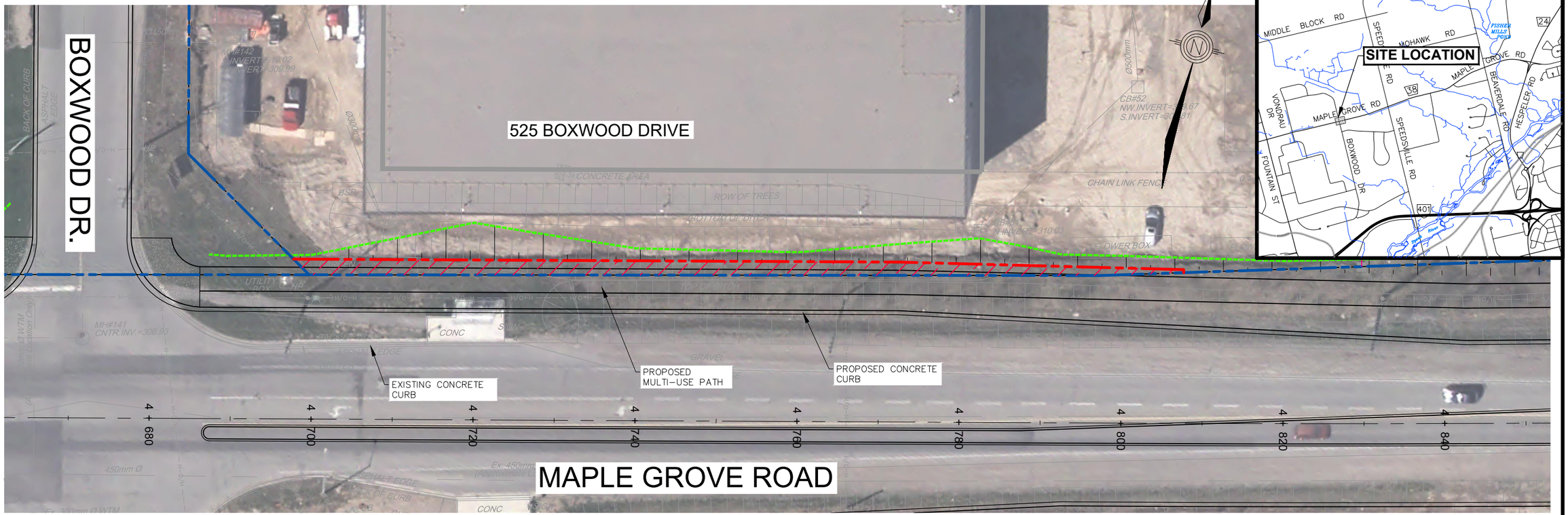
LEGEND

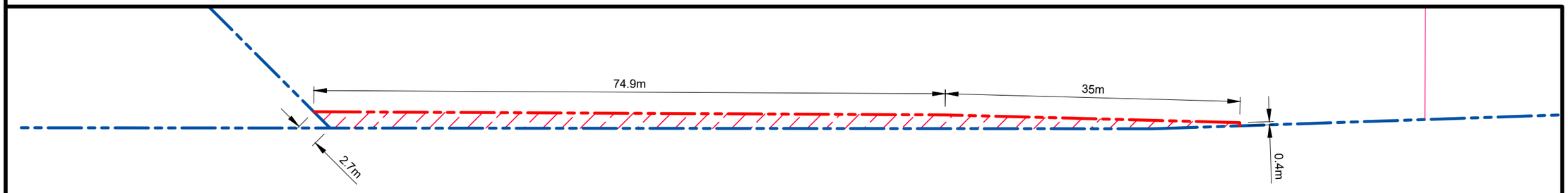
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE: 1:500
DATE: NOV, 2021
DRAWN BY: T.Y.L
FILE No. --

900 MAPLE GROVE ROAD
PROPERTY ACQUISITION PLAN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	171.8 m²

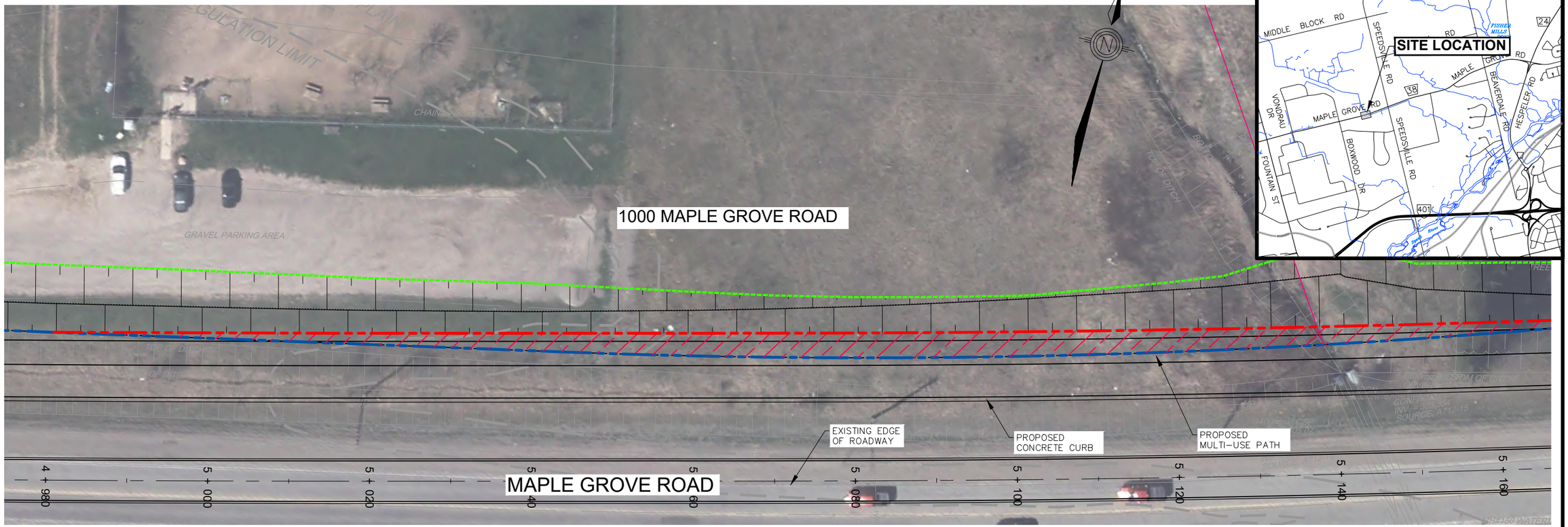
LEGEND

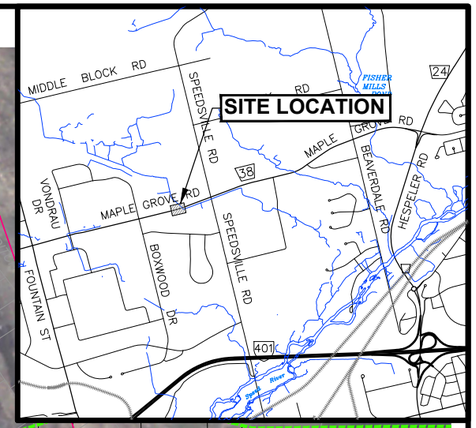
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

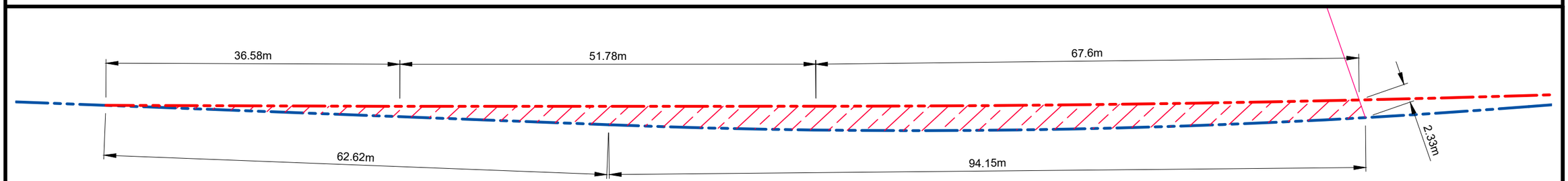
Region of Waterloo

PLAN SCALE: 1:500
DATE: NOV, 2021
DRAWN BY: T.Y.L
FILE No. --

525 BOXWOOD DRIVE
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	333.0 m²

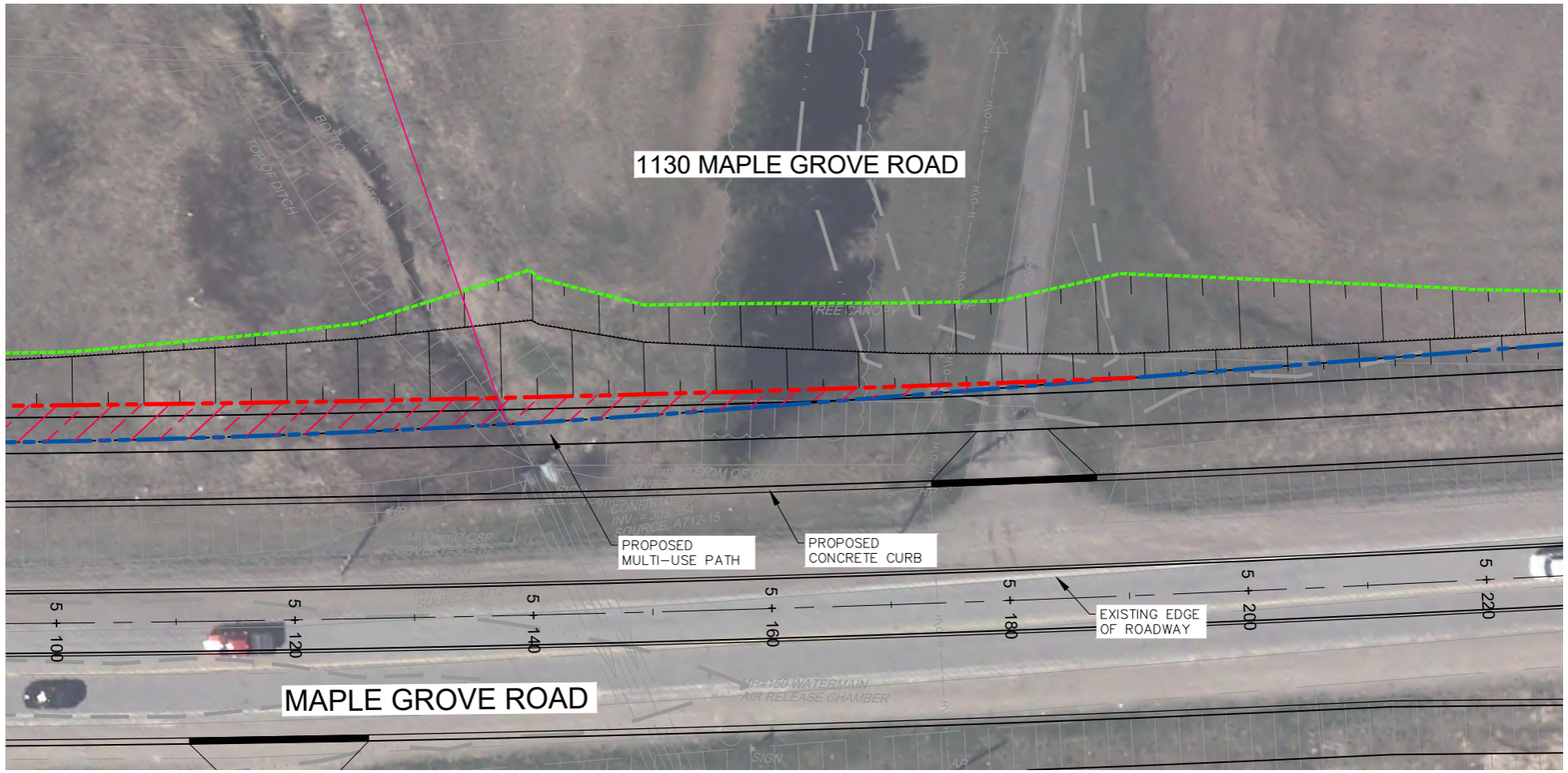
LEGEND

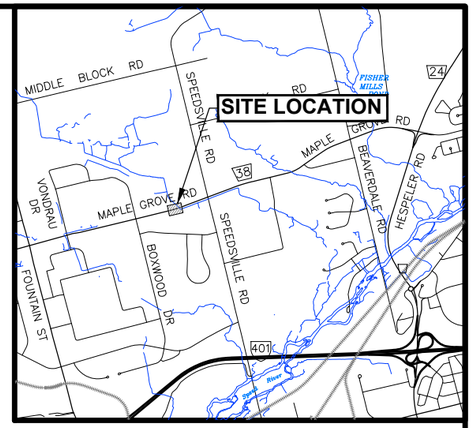
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

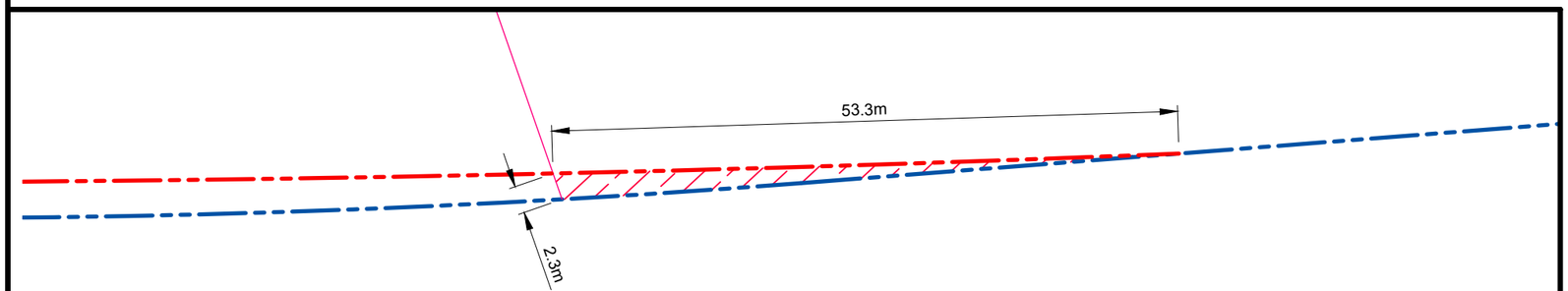
Region of Waterloo

PLAN SCALE:	1:500
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

1000 MAPLE GROVE ROAD
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	59.1 m²

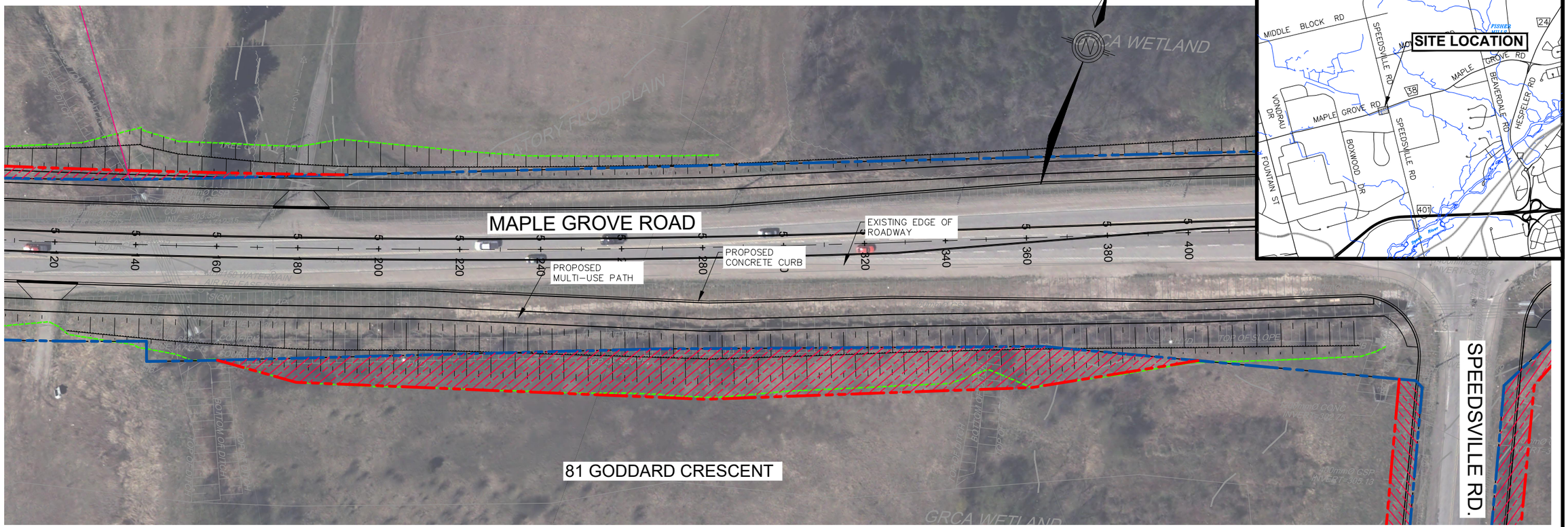
LEGEND

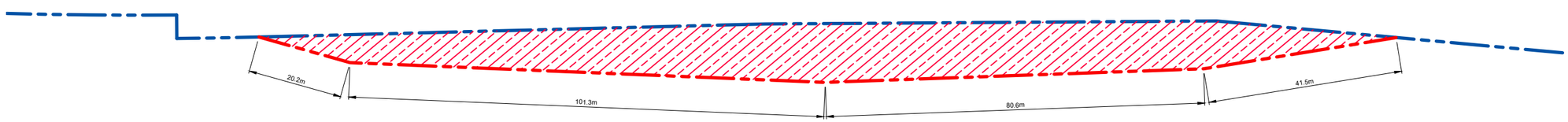
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE: 1:500
DATE: NOV, 2021
DRAWN BY: T.Y.L
FILE No. --

1130 MAPLE GROVE ROAD - PART 1
PROPERTY ACQUISITION PLAN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	2129.7 m²

LEGEND

- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE:	1:1000
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

81 GODDARD CRESCENT - PART 1
PROPERTY ACQUISITION PLAN

PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	1269.2 m²

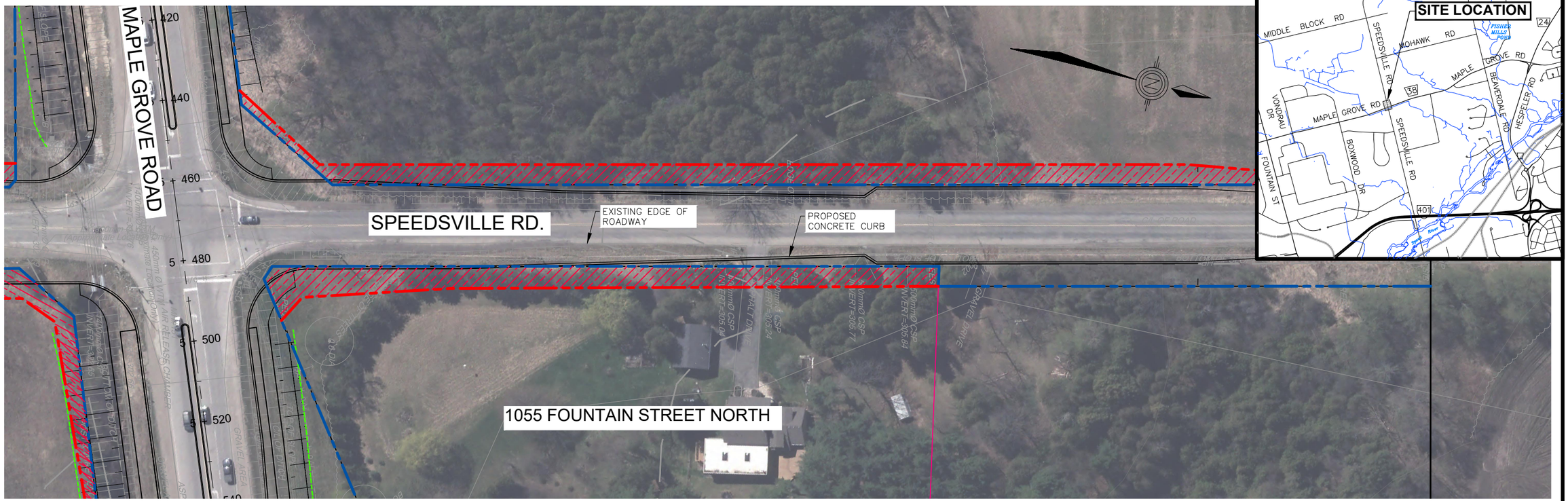
LEGEND

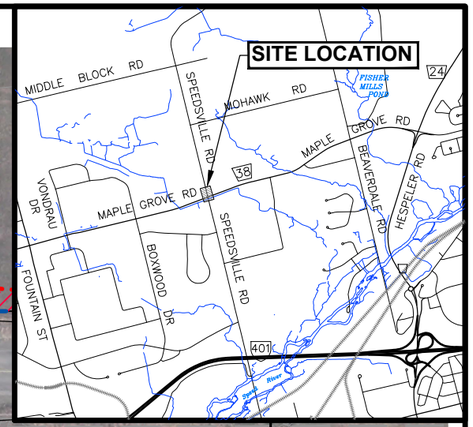
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

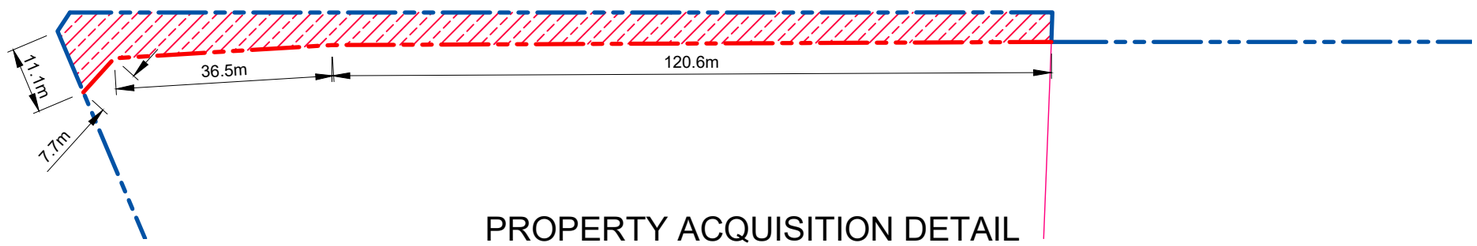
Region of Waterloo

PLAN SCALE:	1:1000
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

1130 MAPLE GROVE ROAD - PART 2
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	953.3 m²

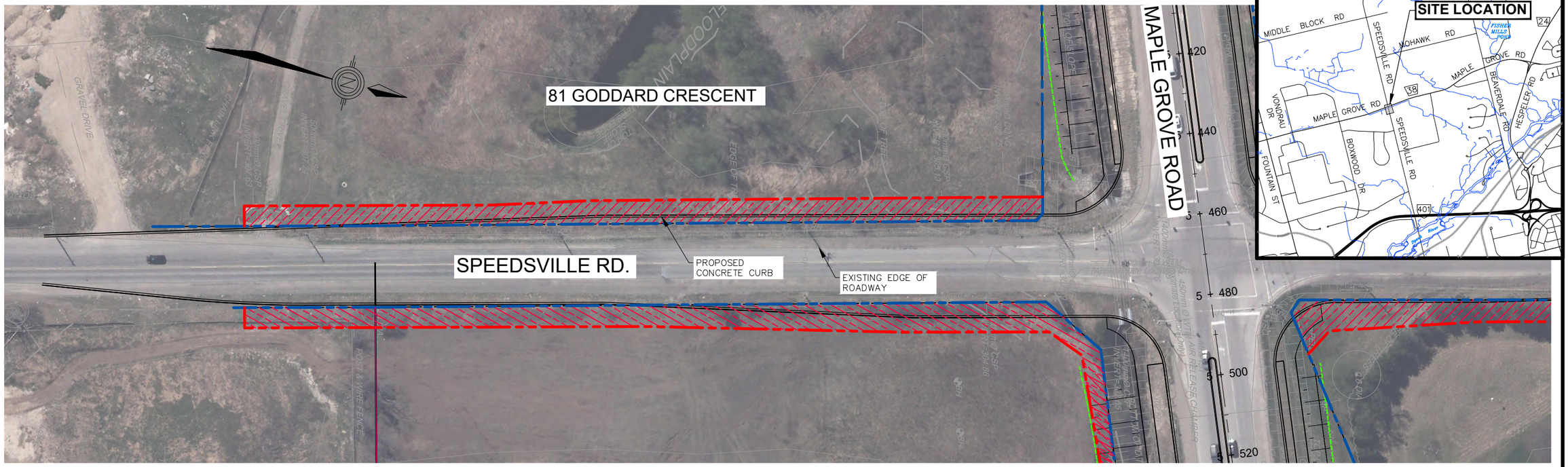
LEGEND

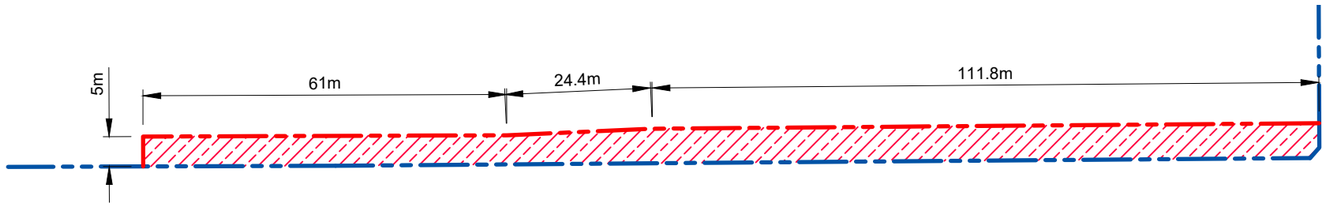
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE: 1:1000
DATE: NOV, 2021
DRAWN BY: T.Y.L
FILE No. --

1755 SPEEDSVILLE ROAD
PROPERTY ACQUISITION PLAN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	1081.6 m²

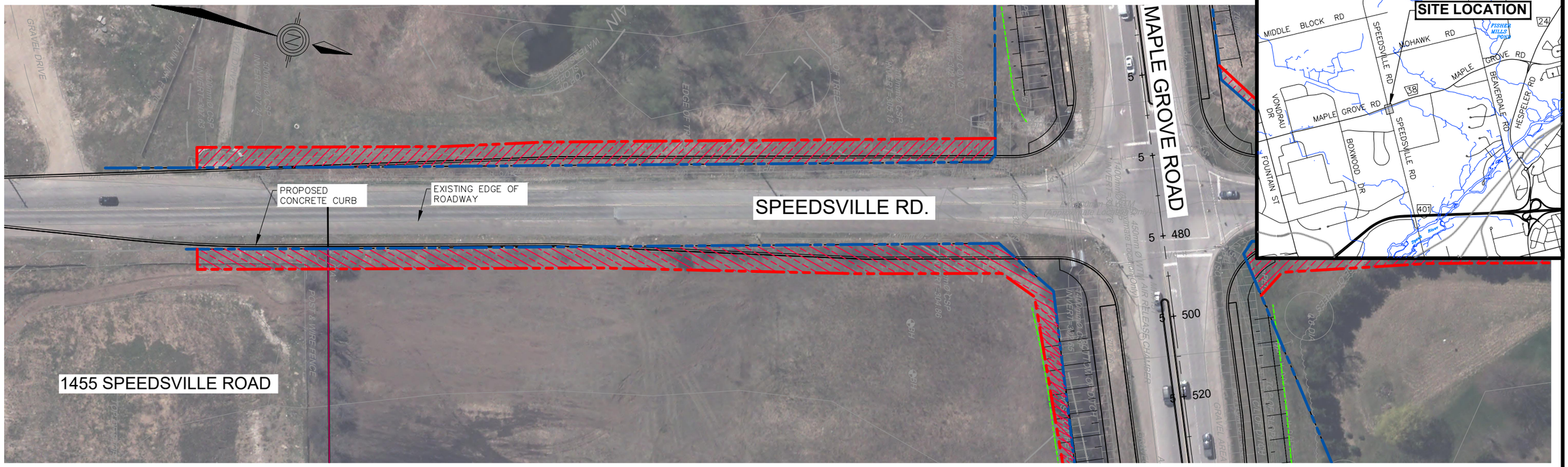
LEGEND

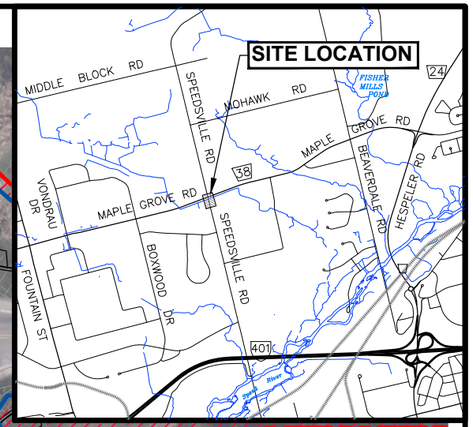
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

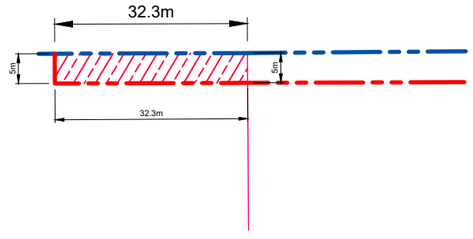
Region of Waterloo

PLAN SCALE:	1:1000
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

81 GODDARD CRESCENT - PART 2
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	161.5 m²

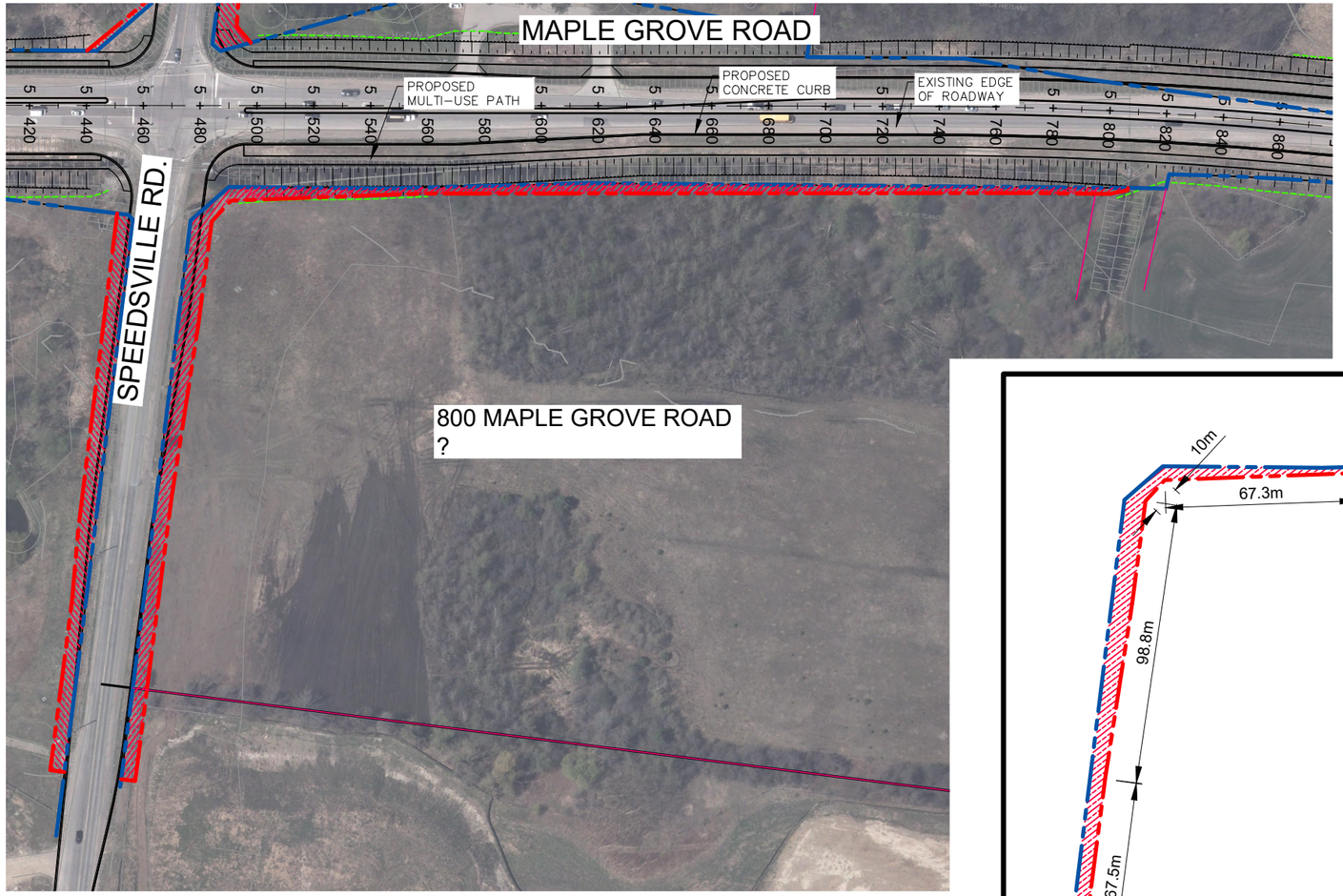
LEGEND

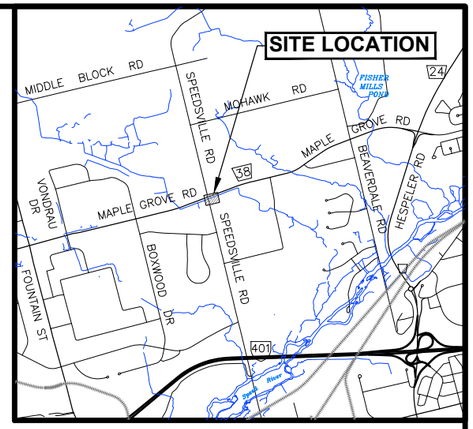
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

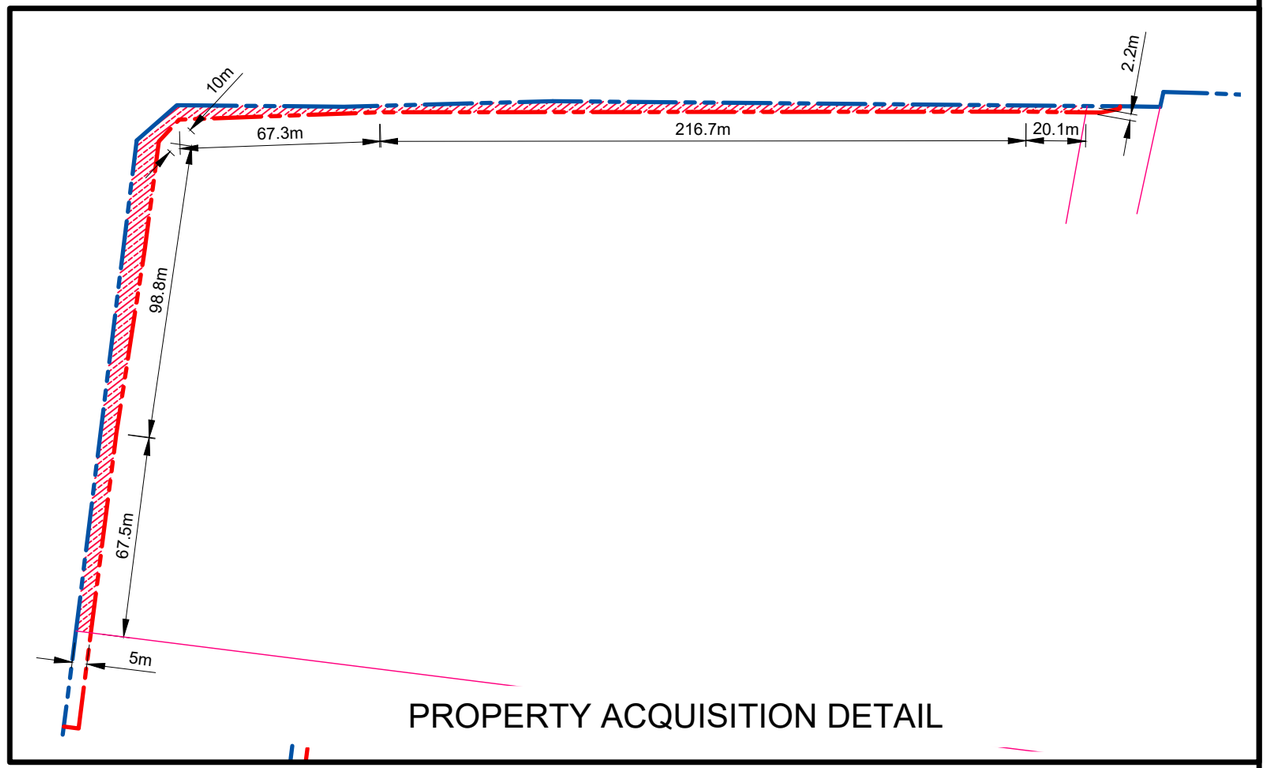
Region of Waterloo

PLAN SCALE:	1:1000
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

1455 SPEEDSVILLE ROAD
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	1959.0 m²

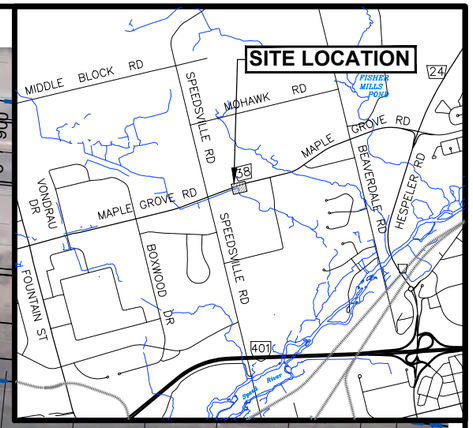
LEGEND

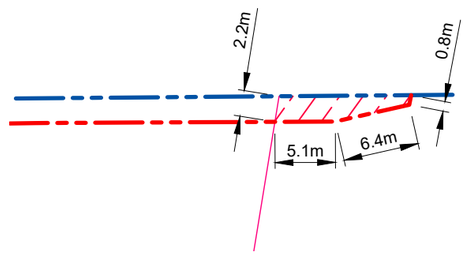
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE:	1:2000
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

800 MAPLE GROVE ROAD ?
PROPERTY ACQUISITION PLAN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	19.7 m²

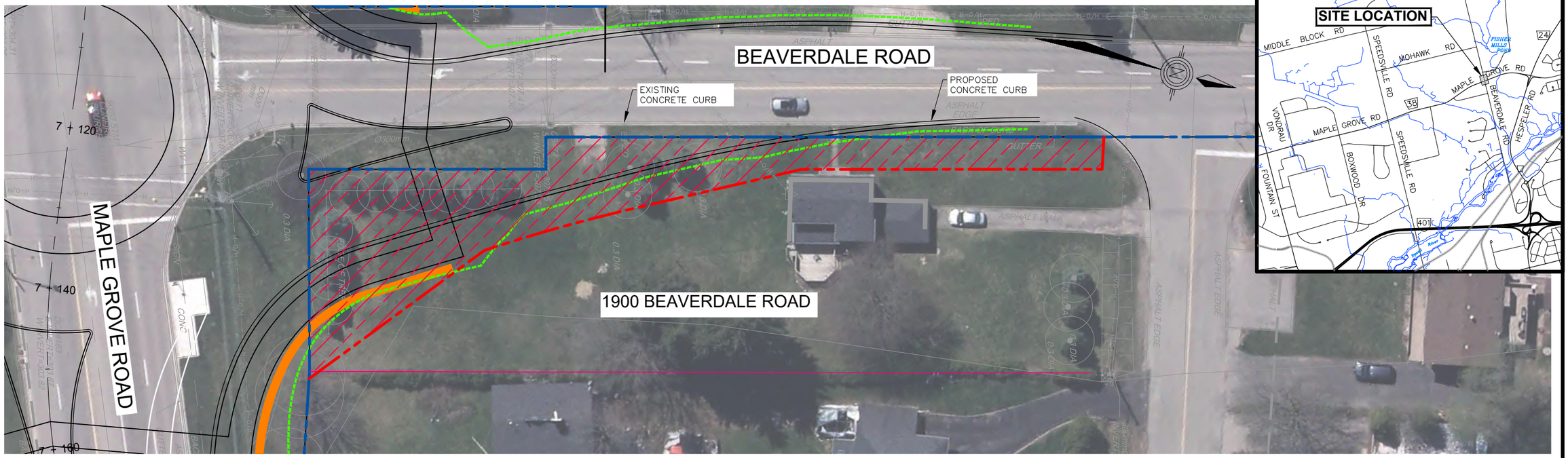
LEGEND

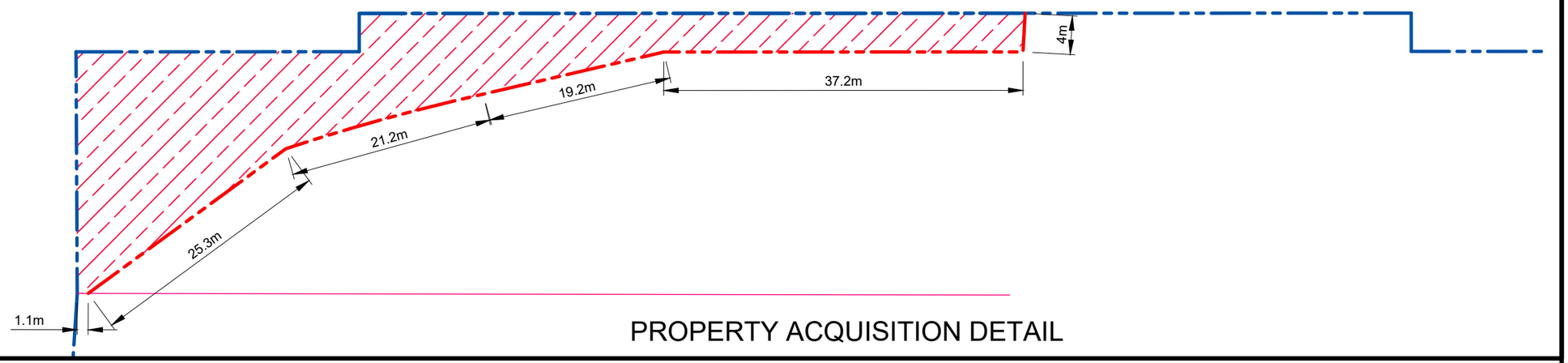
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE: 1:500
DATE: NOV, 2021
DRAWN BY: T.Y.L
FILE No. --

?
PROPERTY ACQUISITION PLAN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	846.7 m²

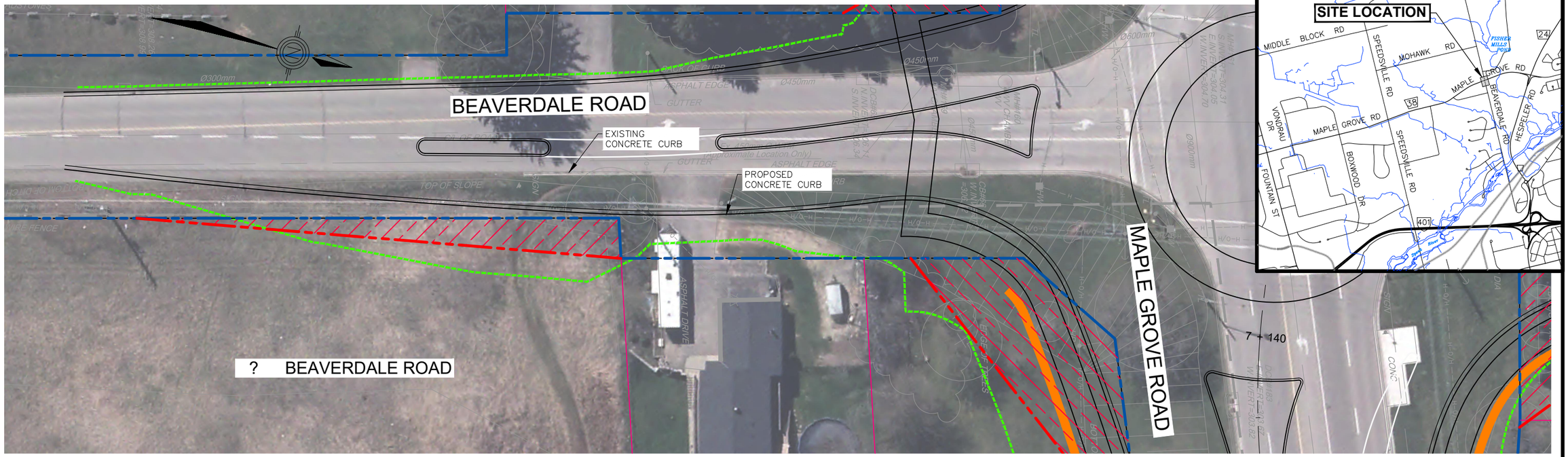
LEGEND

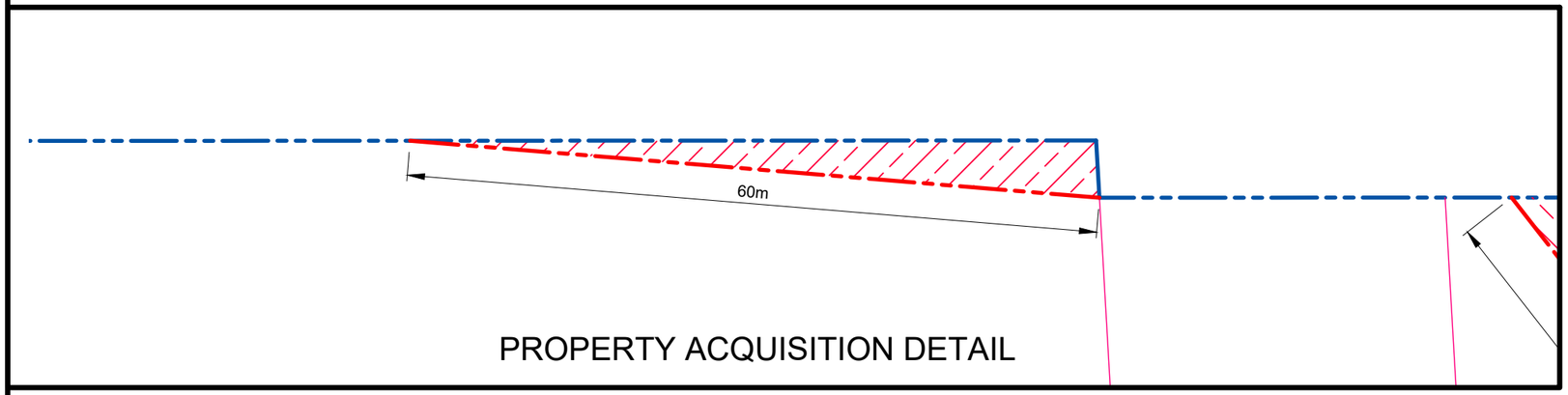
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE: 1:500
DATE: NOV, 2021
DRAWN BY: T.Y.L
FILE No. --

1900 BEAVERDALE ROAD
PROPERTY ACQUISITION PLAN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	147.9 m²

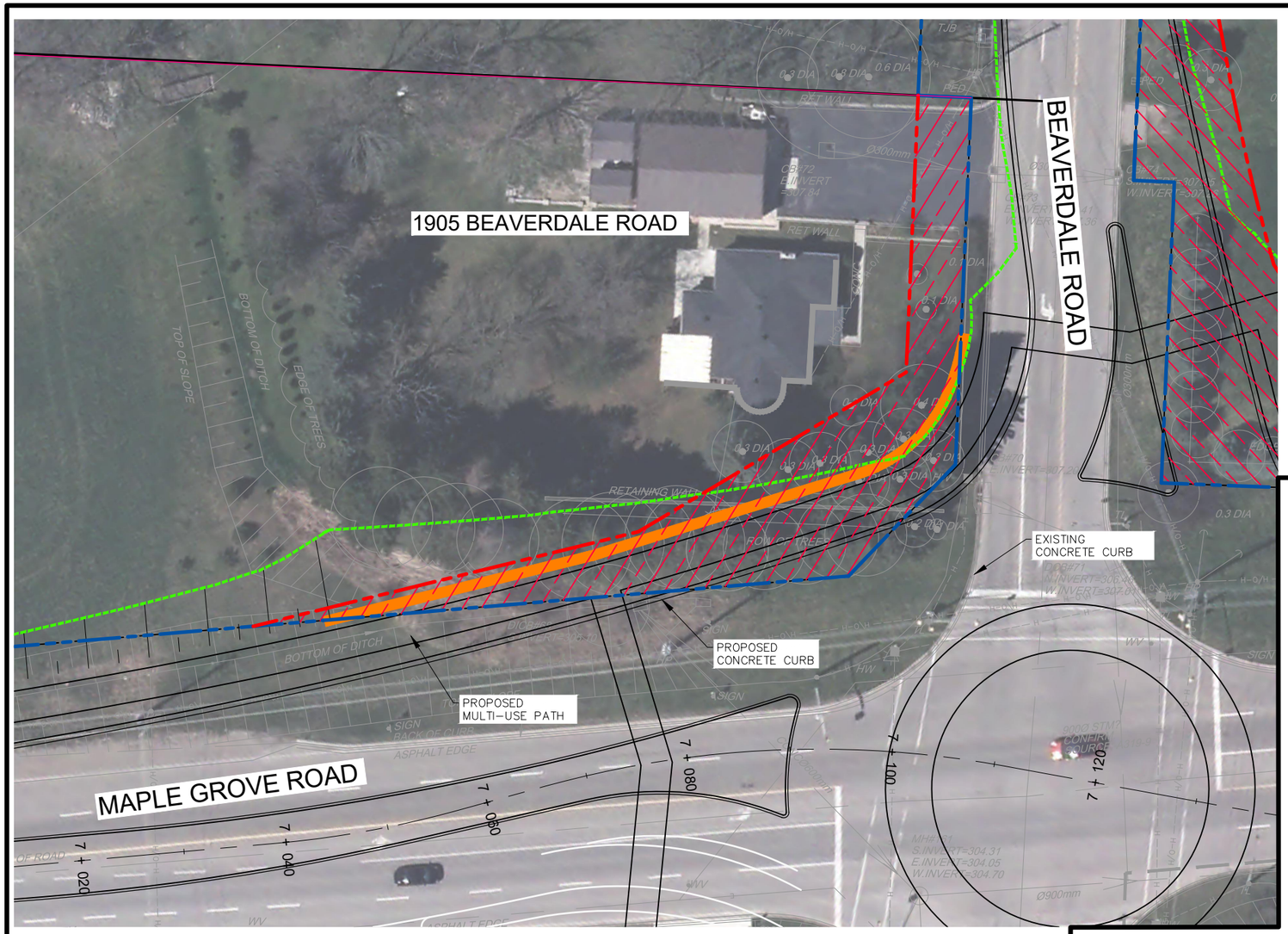
LEGEND

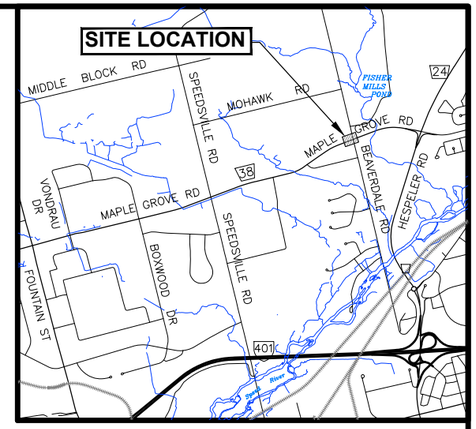
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

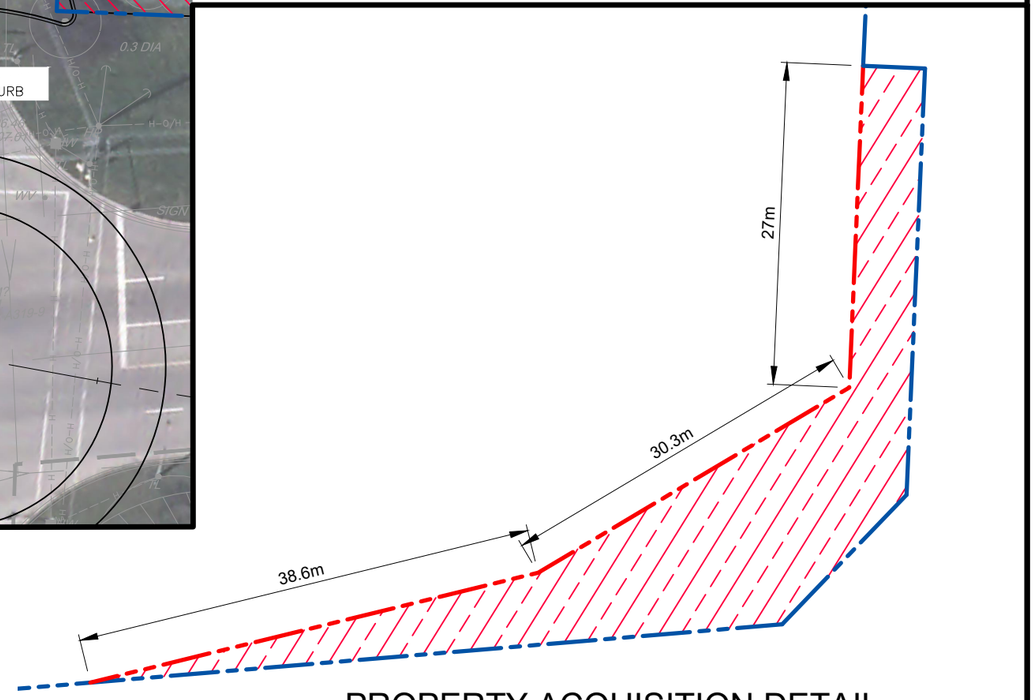
Region of Waterloo

PLAN SCALE:	1:500
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

? BEAVERDALE ROAD
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	625.6 m²

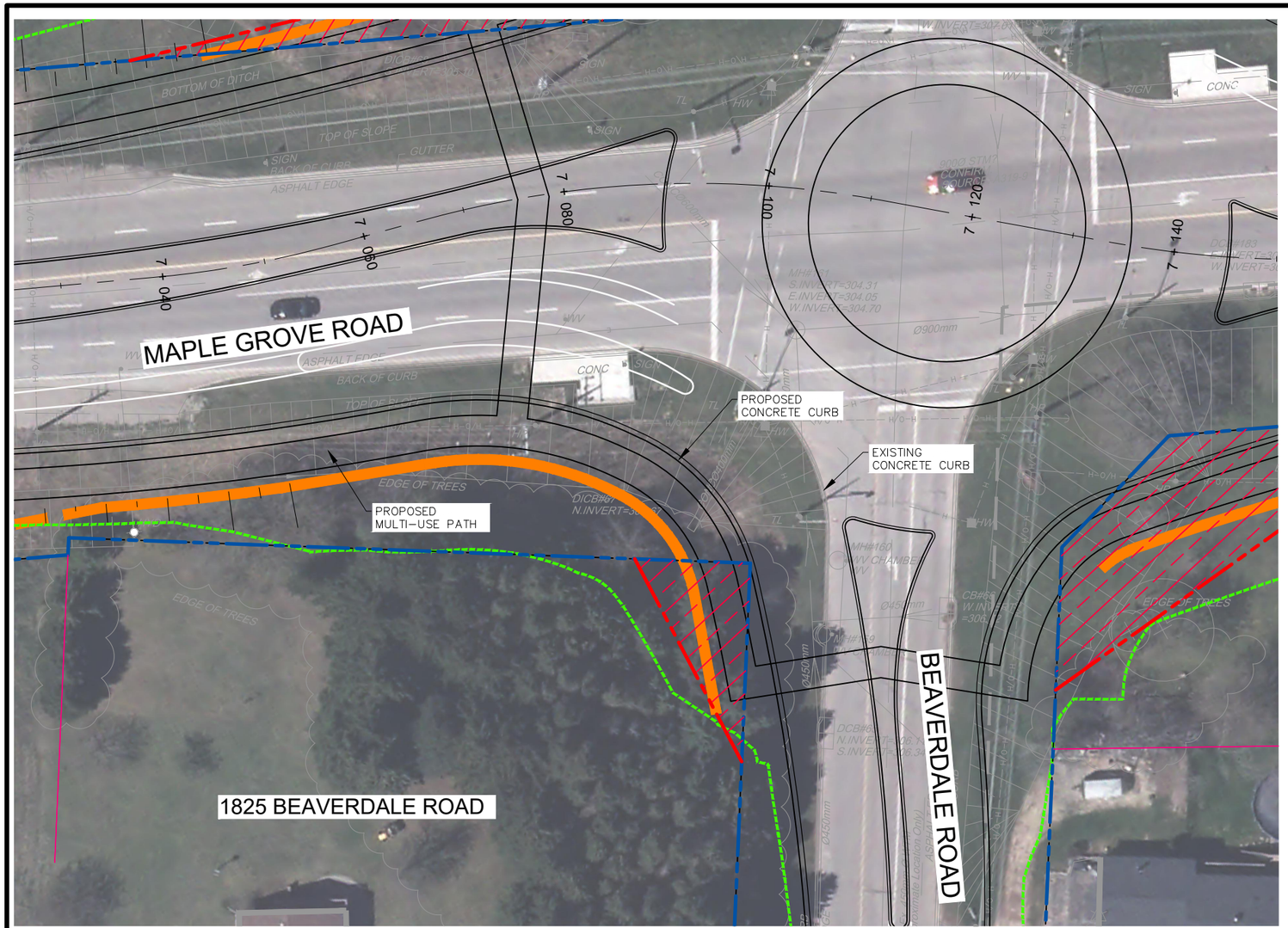
LEGEND

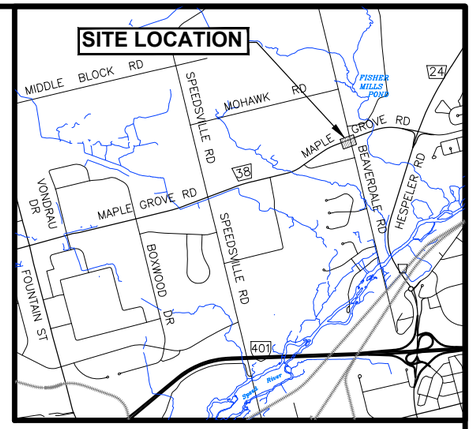
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

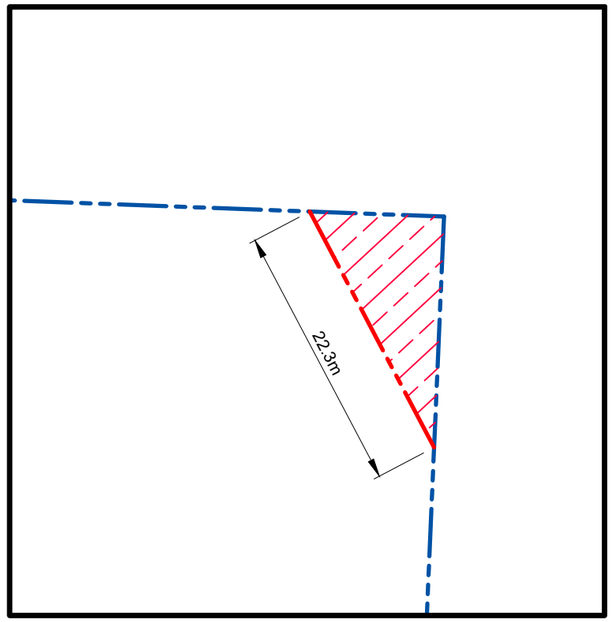
Region of Waterloo

PLAN SCALE:	1:500
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

1905 BEAVERDALE ROAD
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	109.0 m²

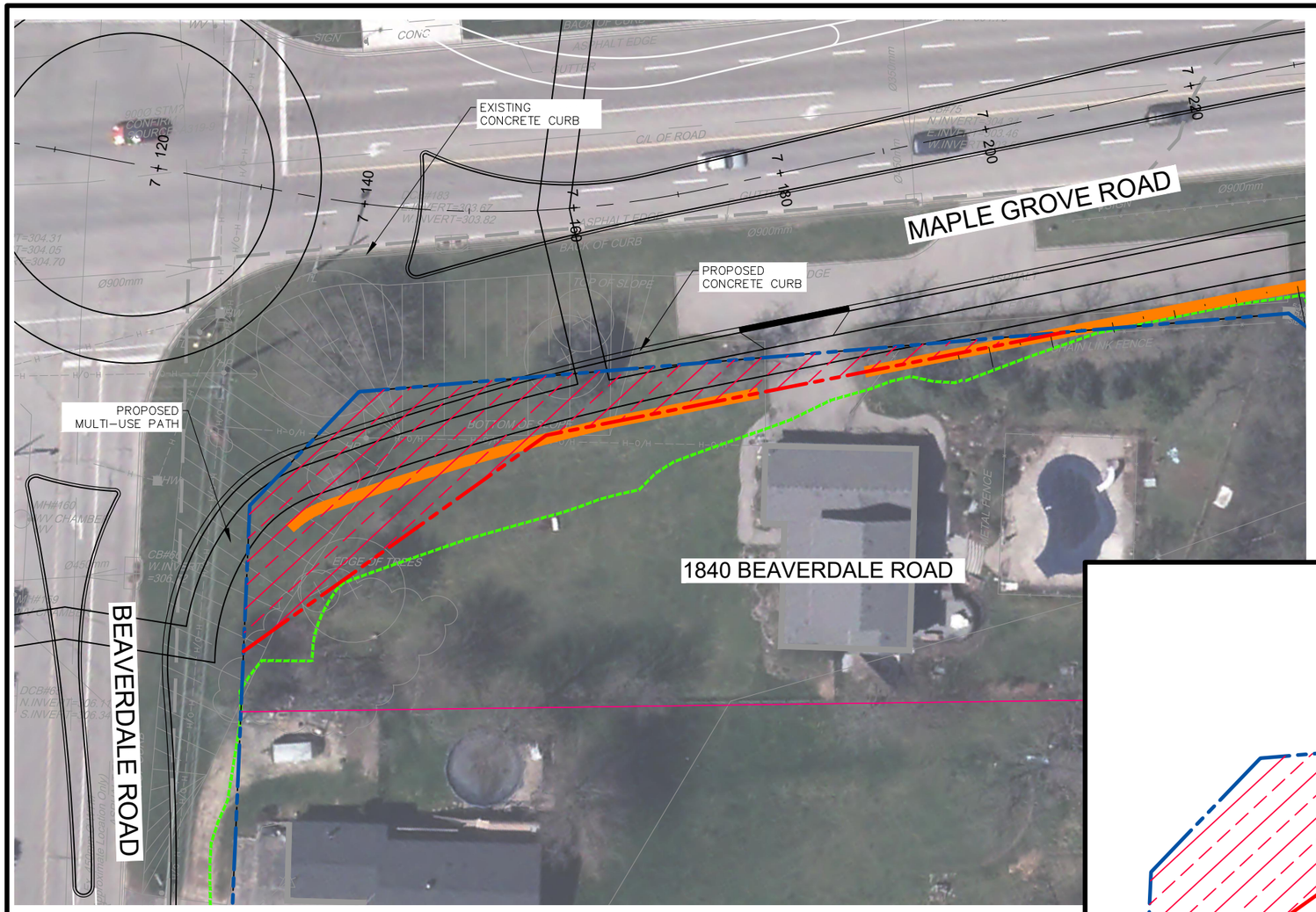
LEGEND

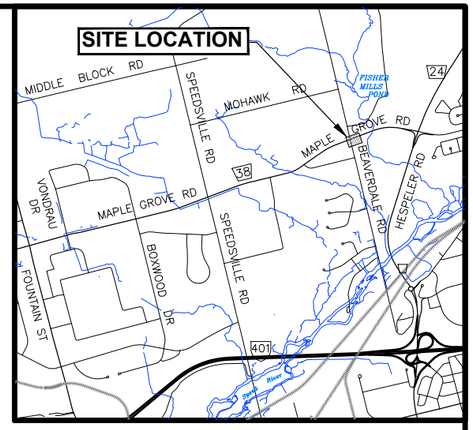
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

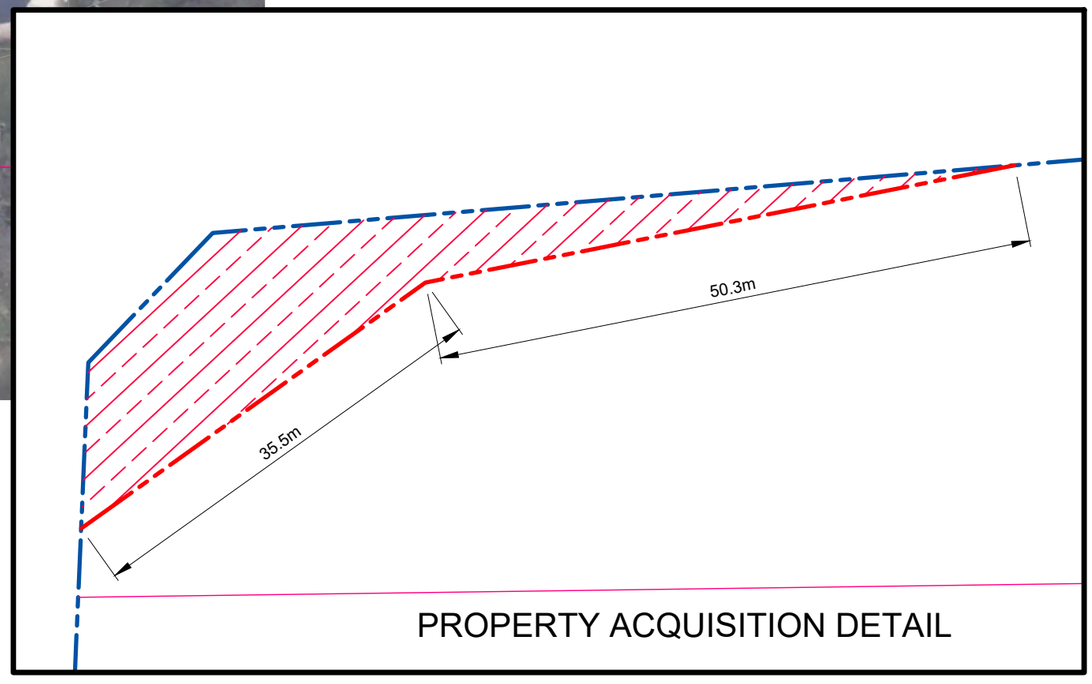
Region of Waterloo

PLAN SCALE:	1:500
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

1825 BEAVERDALE ROAD
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	503.1 m²

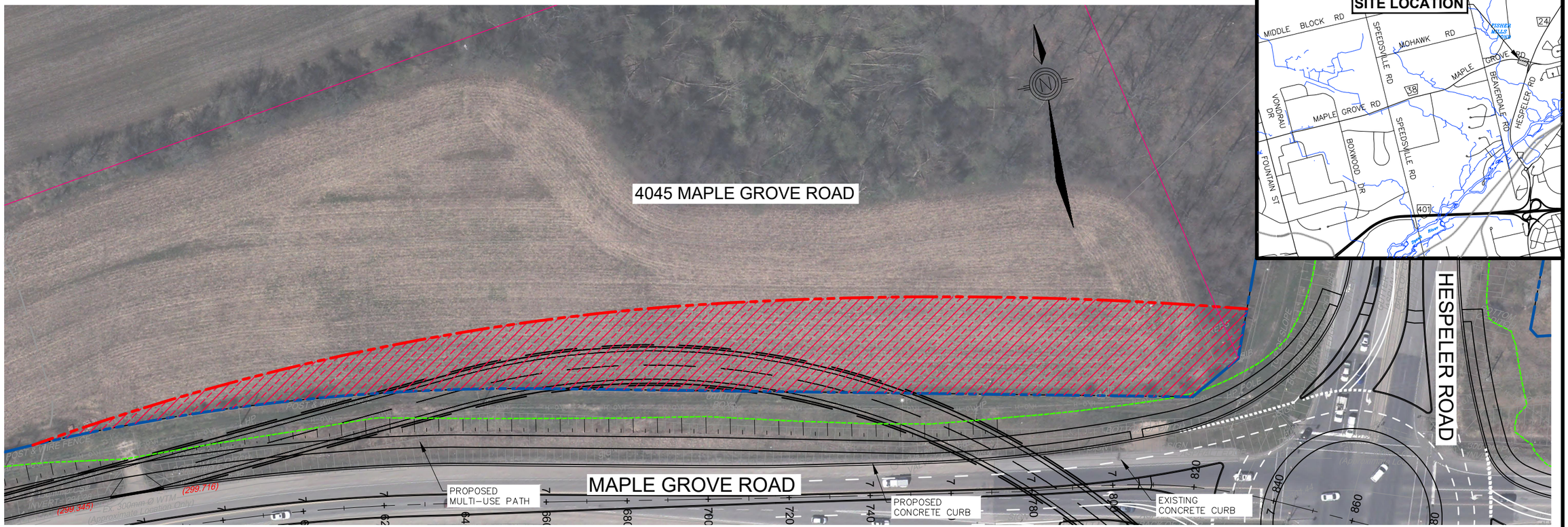
LEGEND

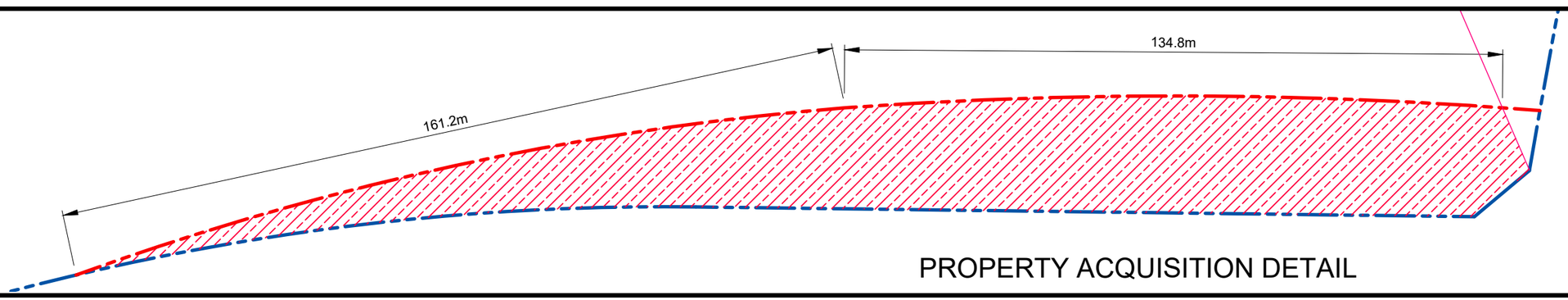
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE: 1:500
DATE: NOV, 2021
DRAWN BY: T.Y.L
FILE No. --

1840 BEAVERDALE ROAD
PROPERTY ACQUISITION PLAN





PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	4786.2 m²

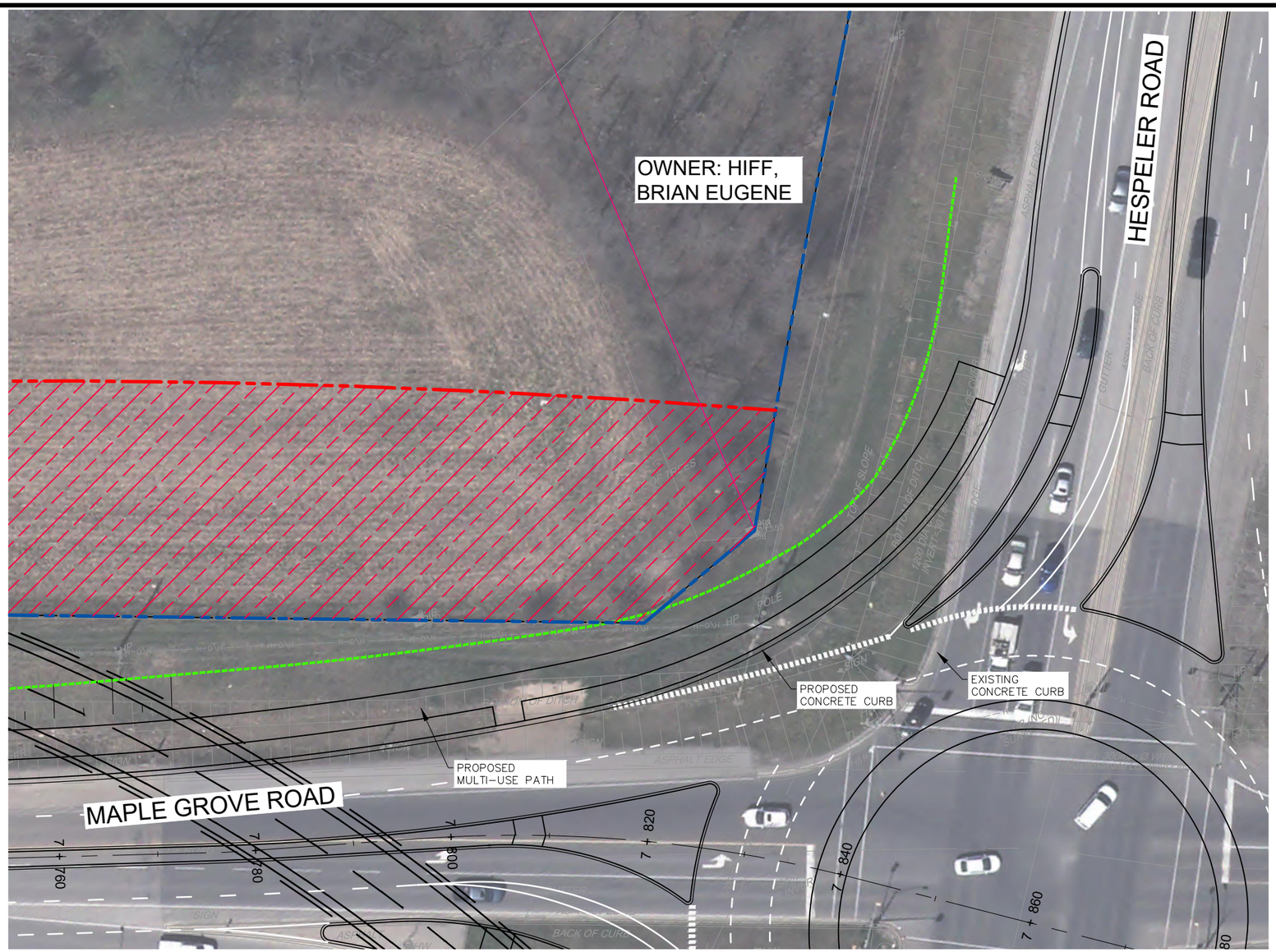
LEGEND

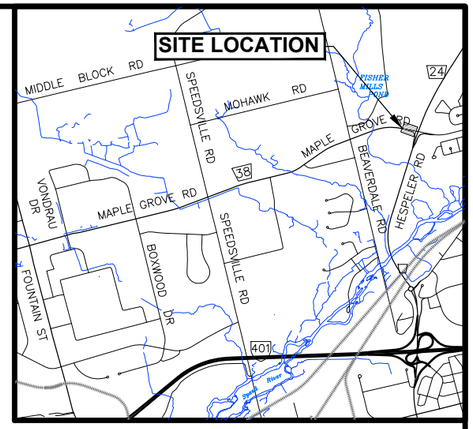
- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

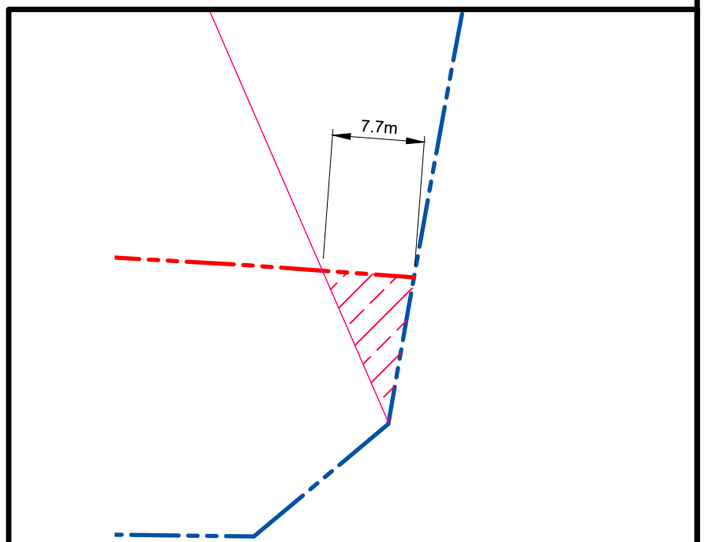
Region of Waterloo

PLAN SCALE:	1:1000
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

4045 MAPLE GROVE ROAD
PROPERTY ACQUISITION PLAN







PROPERTY ACQUISITION DETAIL

PART No.	AREA
A	47.5 m²

LEGEND

- PROPOSED FEE SIMPLE AQUISITION
- PROPOSED ROAD RIGHT-OF-WAY, PROPERTY LINE (FEE SIMPLE)
- EXISTING ROAD RIGHT-OF-WAY, PROPERTY LINE
- PROPOSED LIMIT OF GRADING
- X — REMOVE EXISTING TREE

Region of Waterloo

PLAN SCALE:	1:500
DATE:	NOV, 2021
DRAWN BY:	T.Y.L
FILE No.	--

OWNER: HIFF, BRIAN EUGENE

PROPERTY ACQUISITION PLAN

Appendix E

Property Acquisition Process Information Sheet

The following information is provided as a general overview of the property acquisition process and is not legal advice. Further, the steps, timing, and processes can vary depending on the individual circumstances of each case.

Once the Class Environmental Assessment is complete and the Environmental Study Report outlining the Recommended Design Concept has been approved, the property acquisition process and the efforts of Regional Real Estate staff will focus on preparation for acquiring the required lands to implement the approved design. Regional staff cannot make fundamental amendments or changes to the approved design concept.

Property Impact Plans

After the project has been approved and as it approaches final design, the project planners will generate drawings and sketches indicating what lands and interests need to be acquired from each affected property to undertake the project. These drawing are referred to as Property Impact Plans (PIP).

Initial Owner Contact by Regional Real Estate Staff

Once the PIPs are finalized and available, Regional Real Estate staff will retain an independent appraiser to provide preliminary valuations of the land requirements and their effect on the value of the property. As this process nears completion Real Estate staff will contact the affected property owner/s by telephone and mail to introduce themselves and set-up initial meetings to discuss the project, appraisals, and proposed acquisitions.

Initial Meetings

The initial meeting is attended by the project engineer and the assigned real estate staff person to brief the owner on the project, what part of their lands are to be acquired or will be affected, what work will be undertaken, when, with what equipment, etc. and to answer any questions. The primary purpose of the meeting is to listen to the owner and identify issues, concerns, effects of the proposed acquisition on remaining lands and businesses that can be feasibly mitigated and/or compensated, and how the remaining property may be restored. These discussions may require additional meetings. The goal of staff is to work with the owner to reach mutually agreeable solutions.

Goal – Fair and Equitable Settlement for All Parties

The goal is always to reach a fair and equitable agreement for both the property owner and the Region. Such an agreement will provide compensation for the fair market value of the lands and address the project impacts (such as repairing or replacing landscaping, fencing, paving, etc.) such that the property owner will receive the value of the lands acquired and the restoration of their remaining property to the condition it was prior to the Project.

The initial meetings will form the basis of an initial offer of settlement or agreement of purchase and sale for the required lands or interests.

Steps Toward Offer of Settlement or Agreement of Purchase and Sale

The general steps toward such an offer are as follows:

1) the Region will obtain an independent appraisal of the fair market value of the lands and interests to be acquired, and an appraisal of any effect on the value of the rest of the property resulting from the acquisition of the required lands and interests;
2) compensation will be estimated and/or works to minimize other effects will be defined and agreed to by the property owner and the Region;
3) reasonable costs of the owner will be included in any compensation settlement;
4) an offer with a purchase price and any other compensation or works in lieu of compensation will be submitted to the property owner for consideration; and
5) an Agreement will be finalized with any additional discussion, valuations, etc. as may be required.

Depending on the amount of compensation, agreements may require the approval of Council. The approval is undertaken in Closed Session which is not open to the public to ensure a level of confidentiality.

Expropriation

Due to the time constraints of these projects, it is the practice of the Region to commence the expropriation process in parallel with the negotiation process to ensure that lands and interests are acquired in time for commencement of the Project. Typically, over 90% of all required lands and interests are acquired through the negotiation process. Even after lands and interests have been acquired through expropriation an agreement on compensation can be reached through negotiation, this is usually referred to as a ‘settlement agreement’.

Put simply, an expropriation is the transfer of lands or an easement to a governmental authority for reasonable compensation, including payment of fair market value for the transferred lands, without the consent of the property owner being required. In the case of expropriations by municipalities such as the Region of Waterloo, the process set out in the Ontario *Expropriations Act* must be followed to ensure that the rights of the property owners provided under that *Act* are protected.

For information on the expropriation process, please refer to ‘Expropriation Information Sheet’.

The following information is provided as a general overview of the expropriation process and is not legal advice. For complete information, reference should be made to the Ontario *Expropriations Act* as well as the more detailed information in the Notices provided under that *Act*.

Expropriation Information Sheet

What is Expropriation?

Governmental authorities such as municipalities, school boards, and the provincial and federal governments undertake many projects which require them to obtain land from private property owners. In the case of the Regional Municipality of Waterloo, projects such as the construction or improvement of Regional Roads sometimes require the purchase of land from private property owners. In many cases, the Region of Waterloo only needs a small portion of the private property owner's lands or an easement for related purposes such as utilities, although in certain instances, entire properties are required.

Usually the governmental authority is able to buy the land required for a project through a negotiated process with the affected property owners. Sometimes, however, the expropriation process must be used in order to ensure that the land is obtained within a specific timeline. Put simply, an expropriation is the transfer of lands or an easement to a governmental authority for reasonable compensation, including payment of fair market value for the transferred lands, without the consent of the property owner being required. In the case of expropriations by municipalities such as the Region of Waterloo, the process set out in the Ontario **Expropriations Act** must be followed to ensure that the rights of the property owners provided under that *Act* are protected.

Important Note: The Region of Waterloo tries in all instances to obtain lands needed for its projects through a negotiated agreement on mutually acceptable terms. Sometimes, the Region of Waterloo will start the expropriation process while negotiations are underway. This dual approach is necessary to ensure that the Region of Waterloo will have possession of all of the lands needed to start a construction project on schedule. However, it is important to note that Regional staff continues to make every effort to reach a negotiated purchase of the required lands on mutually agreeable terms while the expropriation process is ongoing. If agreement is reached, expropriation proceedings can be discontinued and the land transferred to the Region of Waterloo in exchange for payment of the agreed-upon compensation.

What is the process of the Region of Waterloo under the Expropriations Act?

- Regional Council considers a request to begin an application under the ***Expropriations Act*** to obtain land and/or an easement for a specific Regional project. No decision is made at this meeting to expropriate the land. This step is simply direction for the Region of Waterloo to provide a "Notice of Application for Approval to Expropriate" to affected property owners that the process has started to seek approval to expropriate the land.
- As stated in the Notice, affected property owners have 30 days to request a Hearing to consider whether the requested expropriation is "fair, sound and reasonably necessary in the

achievement of the objectives" of the Region of Waterloo. This Hearing is conducted by a provincially-appointed Inquiry Officer. Prior to the Hearing, the Region of Waterloo must serve the property owner with a Notice setting out its reasons or grounds for the proposed expropriation. **Compensation for lands is not determined at this Hearing.** The Inquiry Officer can order the Region of Waterloo to pay the property owner up to $200.00 as compensation for the property owner's costs in participating in this Hearing, regardless of the outcome of the Hearing.

- If a Hearing is held, a written report is provided by the Inquiry Officer to the property owner and the Region of Waterloo. Council must consider the Report within 90 days of receiving it. The Report is not binding on Council and Council may or may not accept the findings of the Report. After consideration of the Report, Council may or may not approve the expropriation of the land or grant approval with modifications. A property owner may wish to make written and/or verbal submissions to Council at the time that it is considering the Report.
- If no Hearing is requested by the property owner, then Council may approve the expropriation of the land after expiry of a 30 day period following service of the Notice of Application for Approval to Expropriate.
- If Council approves the expropriation then, within 3 months of this approval, the Region of Waterloo must register a Plan at the Land Registry Office that describes the expropriated lands. The registration of this Plan automatically transfers title of the lands to the Region of Waterloo, instead of by a Deed signed by the property owner.
- Within 30 days of registration of the Plan, the Region of Waterloo must serve a Notice of Expropriation on the affected property owner advising of the expropriation. Within 30 days of this Notice, the property owner may serve the Region of Waterloo with a Notice of Election selecting the valuation date under the *Expropriations Act* for calculation of the compensation.
- In order to obtain possession of the expropriated lands, the Region of Waterloo must also serve a Notice of Possession setting out the date that possession of the land is required by the Region of Waterloo. This date has to be 3 months or more from the date that this Notice of Possession is served on the affected property owner.
- Within 3 months of registration of the Plan, the Region of Waterloo must provide the affected property owner with payment for the full amount of the appraised fair market value of the expropriated land or easement and a copy of the appraisal report on which the value is based. If the property owner disagrees with this amount, and/or claims other compensation and/or costs under the *Expropriations Act*, the compensation and/or costs matter may be referred to a provincially-appointed Board of Negotiation in an effort to reach a mediated settlement and/or an appeal may be made to the Ontario Municipal Board (OMB) for a decision. In any event, the Region of Waterloo continues in its efforts to reach a negotiated settlement with the affected property owner prior to the OMB making a decision.

Appendix U – Geometric Design Criteria

September 2023

MAPLE GROVE ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

References Legend:
TAC - Transportation Association of Canada, Geometric Design Guide (2017)
OPSD - Ontario Provincial Standard Detail (2016)
RMWD - Regional Municipalit of Waterloo Standard Drawing
ROW TCD - Region of Waterloo Transportation Corridor Design Guidelines (2013)
MGR-EAS - MAPLE GROVE ROAD Environmental Assessment Study
ROW PIR - Region of Waterloo - Preliminary Information Report (2015)
ROW TMP - Region of Waterloo - Transportation Master Plan (2011)
SP - Standard Practice (IBI GROUP)
FHWA - Federal Highway Administration Guide
N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	MAPLE GROVE ROAD VONDRAU DRIVE TO HESPELER ROAD		
				Existing	Guideline Standard	Proposed
	Jurisdiction: Region of Waterloo					
1.0	**General Elements**					
1.1	Roadway Classification		ROW TCD	COM (1)	COM	**COM**
1.2	Posted Speed (km/h)		ROW TCD	70	70	**70**
1.3	Design Speed (km/h)		ROW TCD	n/a	80	**80**
2.0	**Traffic Volumes**					
2.1	Current Volumes (AADT)	Midblock	ROW PIR	12301		
		Intersection	ROW Roundabout Screening Assessment	19735-24475		
2.2	Projected Volumes (Design Horizon Year)		ROW Roundabout Screening Assessment	24800 - 49600		**TBC**
3.0	**Cross-Sectional Elements**					
3.1	ROW width (m)		ROW TCD	35.0 - 52.0m	36.0	**36.0**
3.2	Number of Thru Lanes		ROW TMP	2	4	**4**
3.3	Pavement Width (m)	Total	ROW TCD	7.8 - 26.2m	14.0m (4)	**14.00**
3.4	Lane Widths (m)	Inside	TAC Table 4.2.3/ROW TCD	3.65-3.9m	3.5 - 3.7m/3.35m	**3.50**
		Curbside	TAC Table 4.2.3/ROW TCD	varies	3.5 - 3.7m/3.65m	**3.50**
		Rt turn	TAC Sect 8.5.2.1	varies	3.0 - 3.5m (2)	**3.50**
		Lt turn	TAC Sect 8.5.2.1	3.35m	3.0 - 3.5m (2)	**3.50**
		Two Way Lt	TAC Sect 8.6.2	n/a	3.5-4.0m	**N/A**
		Channel	TAC Sect 9.16.1	4.35m	Varies (5.0m Min.)	**5.00**
3.5	Median Width (m)	E/P to E/P	SP	n/a	5.0-6.0 (5)	**5.5m**
3.6	Curb & Gutter Width (m)	Inside	OPSD 600.080	n/a	0.25m	**0.25**
		Outside	OPSD 600.040	n/a	0.50m	**0.50**
3.7	Normal Pavt Cross-Slope (%)		SP	varies	2 - 4%	**2 - 4%**
3.8	Minimum Swale/Ditch Grade (%)		MTO Drainage Manual	0.3%	0.3%	**0.3%**
3.9	Max. Backslope w/o Guide Rail (H:V)		MTO Roadside Safety	2:1	2:1	**2.5:1**
3.10	Max. Foreslope w/o Guide Rail (H:V)		MTO Roadside Safety	2:1	3:1	**3:1/2.5:1**
3.11	Boulevard Width (m) (measured from B/C to E/Sdwalk)		TAC Sect 4.6.2	varies	2.0-3.0m	**4.0**
3.12	Grassed Boulevard Slope (%)		SP	varies	2.0 - 8.0%	**2.0 - 8.0%**
3.13	Ped. Pathway/Walkway Width (m)		ROW TCD	varies	1.8m	**TBC**
3.14	Multi-Use Trail Width (m)		ROW TCD/ ROW PIR	n/a	3.0m	**3.0**
3.15	Sidewalk/Pathway Cross-Slope (%)		OPSD 310.01/AODA	2	2.0-4.0%	**2%**
4.0	**Roundabout Sectional Elements**					
4.1	Curb Type & Width (m) - Splitter Islands		OPSD 600.080	n/a	0.25	**0.25**
4.2	Gutter Type & Width (m) - Centre Island		OPSD 600.020 MOD. (REINF.)	n/a	0.4	**0.4**
4.3	Truck Apron Type & Width (m) (Coloured Impressed Conc.)		RMWD/FHWA	n/a	1.0 - 4.0	**4.0**
4.4	Normal Pavt Cross-Slope (%)		Accepted Design Practice	n/a	2.0	**2.0**
5.0	**Horizontal Alignment**		Cro			
5.1	Min. Radius (w. normal crown) (m)		TAC Table 3.2.4	exist.	2130	**TBC** (2)
5.2	Min Radius (w. 4% max superelevation) (m)		TAC Table 3.2.3	exist.	280	**500**
5.3	Min. Length of Curve (m)		TAC 3.2.6.1	exist.	150	**150**
5.4	Max. Superelevation (%)		TAC Table 3.2.4	exist.	6.0	**3.6**
5.5	Point of Rotation for Super (undivided)		TAC Figure 3.2.7	exist.	inside EOP	**inside EOP**
5.5	Point of Rotation for Super (divided)		TAC Figure 3.2.8	exist.	method B	**TBC** (2)
5.6	Max. Rollover of Shoulder (%)		MTO/OPSD 201.020	exist.	4.0	**N/A**
6.0	**Vertical Alignment**					
6.1	Max. Grade Longitudinal (%)		TAC Table 3.3.1	exist.	3.0-6.0	**4.15**
6.2	Min. Grade Longitudinal (%)		TAC Sect. 3.5	exist.	0.5	**0.5**
6.3	Min. Curve K-Value (SSD-Crest)		TAC Table 3.3.2	exist.	25.7	**26 (MIN)**
6.4	Min. Curve K-Value (SSD-Sag)		TAC Table 3.3.4	exist.	29.4	**30 (MIN)**
6.5	Min. Curve K-Value (Comfort-Sag)		TAC Table 3.3.5	exist.	12.4-16.2	**12.0-16.0**
6.6	Max. K-Value (Drainage)		SP	exist.	43	**43**
6.7	Min. Stop Sight Dist. (m) Vertical Curve		TAC Table 3.3.4	exist.	130	**130 (MIN)**
6.8	Min. Vertical Clearance (over roads) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
6.9	Min. Vertical Clearance (under structure) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
7.0	**Intersection Treatments**					

MAPLE GROVE ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

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RMWD - Regional Municipalit of Waterloo Standard Drawing
ROW TCD - Region of Waterloo Transportation Corridor Design Guidelines (2013)
MGR-EAS - MAPLE GROVE ROAD Environmental Assessment Study
ROW PIR - Region of Waterloo - Preliminary Information Report (2015)
ROW TMP - Region of Waterloo - Transportation Master Plan (2011)
SP - Standard Practice (IBI GROUP)
FHWA - Federal Highway Administration Guide
N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	MAPLE GROVE ROAD VONDRAU DRIVE TO HESPELER ROAD		
				Existing	Guideline Standard	Proposed
	Jurisdiction: Region of Waterloo					
7.1	Min. Intersection Curb Radius Arterial - Arterial (m)		TAC Sect. 9.13.2	n/a(3)	varies	**15**
7.2	Min. Intersection Curb Radius Arterial - Collector (m)		TAC Sect. 9.13.2	n/a(3)	varies	**12**
7.3	Min. Intersection Curb Radius Arterial - Local (m)		TAC Sect. 9.13.2	n/a(3)	varies	**9**
7.4	Min. Visibility Triangle		TAC Sect. 9.9.2	n/a(3)	varies	**TBC**
7.5	Median Width @ Intersection (m)		TAC Sect. 9	n/a(3)	1.5	**1.5-2**
7.6	Deceleration Taper Length, Typ. (m)		TAC Table 9.14.2	n/a(3)	59.5-84	**60 (MIN)**
7.7	Design Vehicle		SP	n/a(3)	WB-20	**WB-20**
8.0	**Access Treatments**					
8.1	Commercial Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	4.5-12	**TBC**
8.2	Residential Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	3.0-4.5	**TBC**
8.3	Max. Driveway Grade (%)		TAC Sect. 8.9.11	n/a(3)	8.0	**8.0**

Notes

(1) MAPLE GROVE ROAD designated as a Urban Arterial Roadway in Region of Waterloo Transportation Corridor Design Guidelines (2013)

(2) Per TAC Sect 8.5.2.1 auxiliary lane width to be 0.2m less than through lane width.

(3) For specific details see existing conditions.

(4) EP to EP width at mid block with no turning lanes

(5) Median width is variable, dependent on section, but width as descriped applies to mid-block sections where possible

(6) Not used

Approvals: John Bayley, P.Eng., Manager Transportation Engineering
IBI Group _____ Signature _____ Date

ROW PM
Region of Waterloo _____ Signature _____ Date

VONDRAU DRIVE - DESIGN CRITERIA - DESIGN PROPOSAL

References Legend:
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ROW TMP - Region of Waterloo - Transportation Master Plan (2011)
COC TMP - City of Cambridge Transportation Master Plan Update (Under Review)
COC OP - City of Cambridge Official Plan (2018)
COC ESDM - Engineering Standards & Development Manual - Oct 2013
SP - Standard Practice (IBI GROUP)
FHWA - Federal Highway Administration Guide
N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	VONDRAU DRIVE VONDRAU INTERSECTION @ MAPLE GROVE ROAD Existing	Guideline Standard	Proposed
	Jurisdiction: City of Cambridge					
1.0	**General Elements**					
1.1	Roadway Classification		COC TMP	Local	Local	Local
1.2	Posted Speed (km/h)		COC ESDM	50		**50**
1.3	Design Speed (km/h)		COC ESDM	n/a	50	**60**
2.0	**Traffic Volumes**					
2.1	Current Volumes (AADT)	Intersection	ROW Roundabout Screening Assessment	22875		
2.2	Projected Volumes (Design Horizon Year)	Intersection	ROW Roundabout Screening Assessment	37625-41375		**TBC**
3.0	**Cross-Sectional Elements**					
3.1	ROW width (m)		COC TMP	23.0	23.0	**23.0**
3.2	Number of Thru Lanes		COC TMP	2	2	**2**
3.3	Pavement Width (m)	Total	ROW TCD	9.3	10.0m (4)	**10.00**
3.4	Lane Widths (m)	Inside	TAC Table 4.2.3/COC ESDM	3.65-3.9m	3.0 - 3.7m/3.35m	**n/a**
		Curbside	TAC Table 4.2.3/COC ESDM	varies	3.0 - 3.7m/3.65m	**5.00**
		Rt turn	TAC Sect 8.5.2.1	varies	3.0 - 3.5m (2)	**TBC**
		Lt turn	TAC Sect 8.5.2.1	3.35m	3.0 - 3.5m (2)	**TBC**
		Two Way Lt	TAC Sect 8.6.2	n/a	3.5-4.0m	**n/a**
		Channel	TAC Sect 9.16.1	n/a	Varies (5.0m Min.)	**n/a**
3.5	Median Width (m)	E/P to E/P	SP	n/a	5.0-6.0 (5)	**n/a**
3.6	Curb & Gutter Width (m)	Inside	OPSD 600.040	n/a	0.25m	**n/a**
		Outside		n/a	0.50m	**0.50**
3.7	Normal Pavt Cross-Slope (%)		SP	varies	2 - 4%	**2 - 4%**
3.8	Minimum Swale/Ditch Grade (%)		MTO Drainage Manual	0.3%	0.3%	**0.3%**
3.9	Max. Backslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	n/a	**n/a**
3.10	Max. Foreslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	n/a	**n/a**
3.11	Boulevard Width (m) (measured from B/C to E/Sdwalk)		TAC Sect 4.6.2	varies	2.0-3.0m	**4.0**
3.12	Grassed Boulevard Slope (%)		SP	varies	2.0 - 8.0%	**2.0 - 8.0%**
3.13	Ped. Pathway/Walkway Width (m)		COC ESDM	varies	1.50	**1.5**
3.14	Multi-Use Trail Width (m)		COC ESDM	n/a	3.00	**n/a**
3.15	Sidewalk/Pathway Cross-Slope (%)		OPSD 310.01/AODA	2	2.0-4.0%	**2%**
4.0	**Roundabout Sectional Elements**					
4.1	Curb Type & Width (m) - Splitter Islands		OPSD 600.080	n/a	0.25	**0.25**
4.2	Gutter Type & Width (m) - Centre Island		OPSD 600.020 MOD. (REINF.)	n/a	0.4	**0.4**
4.3	Truck Apron Type & Width (m) (Coloured Impressed Conc.)		RMWD/FHWA	n/a	1.0 - 4.0	**4.0**
4.4	Normal Pavt Cross-Slope (%)		Accepted Design Practice	n/a	2.0	**2.0**
5.0	**Horizontal Alignment**					
5.1	Min. Radius (w. normal crown) (m)		TAC Table 3.2.4	exist.	1290	**TBC** (2)
5.2	Min Radius (w. 4% max superelevation) (m)		TAC Table 3.2.3	exist.	130	**TBC**
5.3	Min. Length of Curve (m)		TAC Table 3.2.5	exist.	150	**TBC**
5.4	Max. Superelevation (%)		TAC Table 3.2.4	exist.	6.0	**TBC**
5.5	Point of Rotation for Super (undivided)		TAC Figure 3.2.7	exist.	inside EOP	**inside EOP**
5.5	Point of Rotation for Super (divided)		TAC Figure 3.2.8	exist.	method B	**TBC** (2)
5.6	Max. Rollover of Shoulder (%)		MTO/OPSD 201.020	exist.	4.0	**N/A**
6.0	**Vertical Alignment**					
6.1	Max. Grade Longitudinal (%)		TAC Table 3.3.1	exist.	6.0-11.0	**TBC**
6.2	Min. Grade Longitudinal (%)		TAC Sect. 3.5	exist.	0.5	**0.5**
6.3	Min. Curve K-Value (SSD-Crest)		TAC Table 3.3.2	exist.	11.00	**TBC**
6.4	Min. Curve K-Value (SSD-Sag)		TAC Table 3.3.4	exist.	11.00	**TBC**
6.5	Min. Curve K-Value (Comfort-Sag)		TAC Table 3.3.5	exist.	7.7-9.1	**8.0-9.0**
6.6	Max. K-Value (Drainage)		SP	exist.	43	**43**
6.7	Min. Stop Sight Dist. (m) Vertical Curve		TAC Table 3.3.2/Table 3.3.4	exist.	85	**85 (MIN)**
6.8	Min. Vertical Clearance (over roads) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
6.9	Min. Vertical Clearance (under structure) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
7.0	**Intersection Treatments**					

VONDRAU DRIVE - DESIGN CRITERIA - DESIGN PROPOSAL

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SP - Standard Practice (IBI GROUP)
FHWA - Federal Highway Administration Guide
N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	VONDRAU DRIVE VONDRAU INTERSECTION @ MAPLE GROVE ROAD		
				Existing	Guideline Standard	Proposed
7.1	Min. Intersection Curb Radius Arterial - Arterial (m)		TAC Sect. 9.13.2	n/a(3)	varies	**15**
7.2	Min. Intersection Curb Radius Arterial - Collector (m)		TAC Sect. 9.13.2	n/a(3)	varies	**12**
7.3	Min. Intersection Curb Radius Arterial - Local (m)		TAC Sect. 9.13.2	n/a(3)	varies	**9**
7.4	Min. Visibility Triangle		TAC Sect. 9.9.2	n/a(3)	varies	**TBC**
7.5	Median Width @ Intersection (m)		TAC Sect. 9	n/a(3)	1.5	**TBC**
7.6	Deceleration Taper Length, Typ. (m)		TAC Table 9.14.2	n/a(3)	14-59.5	**TBC**
7.7	Design Vehicle		SP	n/a(3)	WB-20	**WB-20**
8.0	**Access Treatments**					
8.1	Commercial Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	4.5-12	**TBC**
8.2	Residential Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	3.0-4.5	**TBC**
8.3	Max. Driveway Grade (%)		TAC Sect. 8.9.11	n/a(3)	8.0	**8.0**

Notes

(1) VONDRAU DRIVE designated as a Collector Roadway in City of Cambridge Transportation Master Plan Update (Under Review)

(2) Per TAC Sect 8.5.2.1 auxiliary lane width to be 0.2m less than through lane width.

(3) For specific details see existing conditions.

(4) EP to EP width at mid block with no turning lanes

(5) Median width is variable, dependent on section, but width as descriped applies to mid-block sections where possible

(6) Not used

Approvals: John Bayley, P.Eng., Manager Transportation Engineering
IBI Group _____ Signature _____ Date

ROW PM
Region of Waterloo _____ Signature _____ Date

BOXWOOD DRIVE - DESIGN CRITERIA - DESIGN PROPOSAL

References Legend:
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N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	BOXWOOD DRIVE BOXWOOD INTERSECTION @ MAPLE GROVE ROAD		
				Existing	Guideline Standard	Proposed
	Jurisdiction: City of Cambridge					
1.0	**General Elements**					
1.1	Roadway Classification		COC TMP	Collector (1)	Collector	Collector
1.2	Posted Speed (km/h)		COC ESDM	50-70	50	**50**
1.3	Design Speed (km/h)		COC ESDM	n/a	60	**60**
2.0	**Traffic Volumes**					
2.1	Current Volumes (AADT)	Intersection	ROW Roundabout Screening Assessment	20725		
2.2	Projected Volumes (Design Horizon Year)	Intersection	ROW Roundabout Screening Assessment	34200-38110		**TBC**
3.0	**Cross-Sectional Elements**					
3.1	ROW width (m)		COC TMP	23.0	23-30	**23-30**
3.2	Number of Thru Lanes		COC TMP	2	2-4	**2-4**
3.3	Pavement Width (m)	Total	COC ESDM	9.3	10-18m	**10-18m**
3.4	Lane Widths (m)	Inside	TAC Table 4.2.3/COC ESDM	3.65-3.9m	3.75	**3.75**
		Curbside	TAC Table 4.2.3/COC ESDM	varies	3.75	**3.75**
		Rt turn	TAC Sect 8.5.2.1	varies	3.0 - 3.5m (2)	**TBC**
		Lt turn	TAC Sect 8.5.2.1	3.35m	3.0 - 3.5m (2)	**TBC**
		Two Way Lt	TAC Sect 8.6.2	n/a	3.5-4.0m	**n/a**
		Channel	TAC Sect 9.16.1	n/a	Varies (5.0m Min.)	**n/a**
3.5	Median Width (m)	E/P to E/P	SP	n/a	5.0-6.0 (5)	**n/a**
3.6	Curb & Gutter Width (m)	Inside	OPSD 600.040	n/a	0.25m	**n/a**
		Outside		n/a	0.50m	**0.50**
3.7	Normal Pavt Cross-Slope (%)		SP	varies	2 - 4%	**2 - 4%**
3.8	Minimum Swale/Ditch Grade (%)		MTO Drainage Manual	0.3%	0.3%	**0.3%**
3.9	Max. Backslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	n/a	**n/a**
3.10	Max. Foreslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	n/a	**n/a**
3.11	Boulevard Width (m) (measured from B/C to E/Sdwalk)		TAC Sect 4.6.2	varies	2.0-3.0m	**4.0**
3.12	Grassed Boulevard Slope (%)		SP	varies	2.0 - 8.0%	**2.0 - 8.0%**
3.13	Ped. Pathway/Walkway Width (m)		COC ESDM	varies	1.50	**1.5**
3.14	Multi-Use Trail Width (m)		COC ESDM	n/a	3.00	**n/a**
3.15	Sidewalk/Pathway Cross-Slope (%)		OPSD 310.01/AODA	2	2.0-4.0%	**2%**
4.0	**Roundabout Sectional Elements**					
4.1	Curb Type & Width (m) - Splitter Islands		OPSD 600.080	n/a	0.25	**0.25**
4.2	Gutter Type & Width (m) - Centre Island		OPSD 600.020 MOD. (REINF.)	n/a	0.4	**0.4**
4.3	Truck Apron Type & Width (m) (Coloured Impressed Conc.)		RMWD/FHWA	n/a	1.0 - 4.0	**4.0**
4.4	Normal Pavt Cross-Slope (%)		Accepted Design Practice	n/a	2.0	**2.0**
5.0	**Horizontal Alignment**					
5.1	Min. Radius (w. normal crown) (m)		TAC Table 3.2.4	exist.	1290	**TBC** (2)
5.2	Min Radius (w. 4% max superelevation) (m)		TAC Table 3.2.3	exist.	130	**TBC**
5.3	Min. Length of Curve (m)		TAC Table 3.2.5	exist.	150	**TBC**
5.4	Max. Superelevation (%)		TAC Table 3.2.4	exist.	6.0	**TBC**
5.5	Point of Rotation for Super (undivided)		TAC Figure 3.2.7	exist.	inside EOP	**inside EOP**
5.5	Point of Rotation for Super (divided)		TAC Figure 3.2.8	exist.	method B	**TBC** (2)
5.6	Max. Rollover of Shoulder (%)		MTO/OPSD 201.020	exist.	4.0	**N/A**
6.0	**Vertical Alignment**					
6.1	Max. Grade Longitudinal (%)		TAC Table 3.3.1	exist.	6.0-11.0	**TBC**
6.2	Min. Grade Longitudinal (%)		TAC Sect. 3.5	exist.	0.5	**0.5**
6.3	Min. Curve K-Value (SSD-Crest)		TAC Table 3.3.2	exist.	11.00	**TBC**
6.4	Min. Curve K-Value (SSD-Sag)		TAC Table 3.3.4	exist.	11.00	**TBC**
6.5	Min. Curve K-Value (Comfort-Sag)		TAC Table 3.3.5	exist.	7.7-9.1	**8.0-9.0**
6.6	Max. K-Value (Drainage)		SP	exist.	43	**43**
6.7	Min. Stop Sight Dist. (m) Vertical Curve		TAC Table 3.3.4	exist.	85	**85 (MIN)**
6.8	Min. Vertical Clearance (over roads) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
6.9	Min. Vertical Clearance (under structure) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
7.0	**Intersection Treatments**					

BOXWOOD DRIVE - DESIGN CRITERIA - DESIGN PROPOSAL

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COC ESDM - Engineering Standards & Development Manual - Oct 2013
SP - Standard Practice (IBI GROUP)
FHWA - Federal Highway Administration Guide
N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	BOXWOOD DRIVE BOXWOOD INTERSECTION @ MAPLE GROVE ROAD		
				Existing	Guideline Standard	Proposed
7.1	Min. Intersection Curb Radius Arterial - Arterial (m)		TAC Sect. 9.13.2	n/a(3)	varies	**15**
7.2	Min. Intersection Curb Radius Arterial - Collector (m)		TAC Sect. 9.13.2	n/a(3)	varies	**12**
7.3	Min. Intersection Curb Radius Arterial - Local (m)		TAC Sect. 9.13.2	n/a(3)	varies	**9**
7.4	Min. Visibility Triangle		TAC Sect. 9.9.2	n/a(3)	varies	**TBC**
7.5	Median Width @ Intersection (m)		TAC Sect. 9	n/a(3)	1.5	**TBC**
7.6	Deceleration Taper Length, Typ. (m)		TAC Table 9.14.2	n/a(3)	14-59.5	**TBC**
7.7	Design Vehicle		SP	n/a(3)	WB-20	**WB-20**
8.0	**Access Treatments**					
8.1	Commercial Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	4.5-12	**TBC**
8.2	Residential Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	3.0-4.5	**TBC**
8.3	Max. Driveway Grade (%)		TAC Sect. 8.9.11	n/a(3)	8.0	**8.0**

Notes

(1) BOXWOOD DRIVE designated as a Collector Roadway in City of Cambridge Transportation Master Plan Update (Under Review)

(2) Per TAC Sect 8.5.2.1 auxiliary lane width to be 0.2m less than through lane width.

(3) For specific details see existing conditions.

(4) EP to EP width at mid block with no turning lanes

(5) Median width is variable, dependent on section, but width as descriped applies to mid-block sections where possible

(6) Not used

Approvals: John Bayley, P.Eng., Manager Transportation Engineering
IBI Group _____ Signature _____ Date

ROW PM
Region of Waterloo _____ Signature _____ Date

SPEEDSVILLE ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

References Legend:
TAC - Transportation Association of Canada, Geometric Design Guide (2017)
OPSD - Ontario Provincial Standard Detail (2016)
RMWD - Regional Municipalit of Waterloo Standard Drawing
ROW TCD - Region of Waterloo Transportation Corridor Design Guidelines (2013)
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COC OP - City of Cambridge Official Plan (2018)
COC ESDM - Engineering Standards & Development Manual - Oct 2013
SP - Standard Practice (IBI GROUP)
FHWA - Federal Highway Administration Guide
N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	SPEEDSVILLE ROAD SPEEDSVILLE ROAD @ MAPLE GROVE ROAD Existing	Guideline Standard	Proposed
	Jurisdiction: City of Cambridge					
1.0	**General Elements**					
1.1	Roadway Classification		COC TMP	Collector [1]	Collector	**Collector**
1.2	Posted Speed (km/h)		COC ESDM	70	50	**50**
1.3	Design Speed (km/h)		COC ESDM	n/a	60	**60**
2.0	**Traffic Volumes**					
2.1	Current Volumes (AADT)	Intersection	ROW Roundabout Screening Assessment	24475		
2.2	Projected Volumes (Design Horizon Year)		ROW Roundabout Screening Assessment	44675-49600		**TBC**
3.0	**Cross-Sectional Elements**					
3.1	ROW width (m)		COC TMP	23.0	30.0	**30.0**
3.2	Number of Thru Lanes		COC TMP	2	4	**4**
3.3	Pavement Width (m)	Total	COC ESDM	9.3	18.00	**18.00**
3.4	Lane Widths (m)	Inside	TAC Table 4.2.3/COC ESDM	3.65-3.9m	3.75	**3.75**
		Curbside	TAC Table 4.2.3/COC ESDM	varies	3.75	**3.75**
		Rt turn	TAC Sect 8.5.2.1	varies	3.0 - 3.5m (2)	**TBC**
		Lt turn	TAC Sect 8.5.2.1	3.35m	3.0 - 3.5m (2)	**TBC**
		Two Way Lt	TAC Sect 8.6.2	n/a	3.5-4.0m	**n/a**
		Channel	TAC Sect 9.16.1	n/a	Varies (5.0m Min.)	**n/a**
3.5	Median Width (m)	E/P to E/P	SP	n/a	5.0-6.0 (5)	**n/a**
3.6	Curb & Gutter Width (m)	Inside	OPSD 600.040	n/a	0.25m	**n/a**
		Outside		n/a	0.50m	**0.50**
3.7	Normal Pavt Cross-Slope (%)		SP	varies	2 - 4%	**2 - 4%**
3.8	Minimum Swale/Ditch Grade (%)		MTO Drainage Manual	0.3%	0.3%	**0.3%**
3.9	Max. Backslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	n/a	**n/a**
3.10	Max. Foreslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	n/a	**n/a**
3.11	Boulevard Width (m) (measured from B/C to E/Sdwalk)		TAC Sect 4.6.2	varies	2.0-3.0m	**4.0**
3.12	Grassed Boulevard Slope (%)		SP	varies	2.0 - 8.0%	**2.0 - 8.0%**
3.13	Ped. Pathway/Walkway Width (m)		COC ESDM	varies	1.50	**1.5**
3.14	Multi-Use Trail Width (m)		COC ESDM	n/a	3.00	**n/a**
3.15	Sidewalk/Pathway Cross-Slope (%)		OPSD 310.01/AODA	2	2.0-4.0%	**2%**
4.0	**Roundabout Sectional Elements**					
4.1	Curb Type & Width (m) - Splitter Islands		OPSD 600.080	n/a	0.25	**0.25**
4.2	Gutter Type & Width (m) - Centre Island		OPSD 600.020 MOD. (REINF.)	n/a	0.4	**0.4**
4.3	Truck Apron Type & Width (m) (Coloured Impressed Conc.)		RMWD/FHWA	n/a	1.0 - 4.0	**4.0**
4.4	Normal Pavt Cross-Slope (%)		Accepted Design Practice	n/a	2.0	**2.0**
5.0	**Horizontal Alignment**					
5.1	Min. Radius (w. normal crown) (m)		TAC Table 3.2.4	exist.	1290	**TBC** [2]
5.2	Min Radius (w. 4% max superelevation) (m)		TAC Table 3.2.3	exist.	130	**TBC**
5.3	Min. Length of Curve (m)		TAC Table 3.2.5	exist.	150	**TBC**
5.4	Max. Superelevation (%)		TAC Table 3.2.4	exist.	6.0	**TBC**
5.5	Point of Rotation for Super (undivided)		TAC Figure 3.2.7	exist.	inside EOP	**inside EOP**
5.5	Point of Rotation for Super (divided)		TAC Figure 3.2.8	exist.	method B	**TBC** [2]
5.6	Max. Rollover of Shoulder (%)		MTO/OPSD 201.020	exist.	4.0	**N/A**
6.0	**Vertical Alignment**					
6.1	Max. Grade Longitudinal (%)		TAC Table 3.3.1	exist.	6.0-11.0	**TBC**
6.2	Min. Grade Longitudinal (%)		TAC Sect. 3.5	exist.	0.5	**0.5**
6.3	Min. Curve K-Value (SSD-Crest)		TAC Table 3.3.2	exist.	11.00	**TBC**
6.4	Min. Curve K-Value (SSD-Sag)		TAC Table 3.3.4	exist.	11.00	**TBC**
6.5	Min. Curve K-Value (Comfort-Sag)		TAC Table 3.3.5	exist.	7.7-9.1	**8.0-9.0**
6.6	Max. K-Value (Drainage)		SP	exist.	43	**43**
6.7	Min. Stop Sight Dist. (m) Vertical Curve		TAC Table 3.3.4	exist.	85	**85 (MIN)**
6.8	Min. Vertical Clearance (over roads) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
6.9	Min. Vertical Clearance (under structure) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
7.0	**Intersection Treatments**					

SPEEDSVILLE ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

References Legend:
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N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	SPEEDSVILLE ROAD SPEEDSVILLE ROAD @ MAPLE GROVE ROAD Existing	Guideline Standard	Proposed
7.1	Min. Intersection Curb Radius Arterial - Arterial (m)		TAC Sect. 9.13.2	n/a(3)	varies	**15**
7.2	Min. Intersection Curb Radius Arterial - Collector (m)		TAC Sect. 9.13.2	n/a(3)	varies	**12**
7.3	Min. Intersection Curb Radius Arterial - Local (m)		TAC Sect. 9.13.2	n/a(3)	varies	**9**
7.4	Min. Visibility Triangle		TAC Sect. 9.9.2	n/a(3)	varies	**TBC**
7.5	Median Width @ Intersection (m)		TAC Sect. 9	n/a(3)	1.5	**TBC**
7.6	Deceleration Taper Length, Typ. (m)		TAC Table 9.14.2	n/a(3)	14-59.5	**TBC**
7.7	Design Vehicle		SP	n/a(3)	WB-20	**WB-20**
8.0	**Access Treatments**					
8.1	Commercial Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	4.5-12	**TBC**
8.2	Residential Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	3.0-4.5	**TBC**
8.3	Max. Driveway Grade (%)		TAC Sect. 8.9.11	n/a(3)	8.0	**8.0**

Notes

(1) SPEEDSVILLE ROAD designated as a Collector Roadway in City of Cambridge Transportation Master Plan Update (Under Review)

(2) Per TAC Sect 8.5.2.1 auxiliary lane width to be 0.2m less than through lane width.

(3) For specific details see existing conditions.

(4) EP to EP width at mid block with no turning lanes

(5) Median width is variable, dependent on section, but width as descriped applies to mid-block sections where possible

(6) Not used

Approvals: John Bayley, P.Eng., Manager Transportation Engineering
IBI Group _____ Signature _____ Date

ROW PM
Region of Waterloo _____ Signature _____ Date

OLD MAPLE GROVE ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

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COC ESDM - Engineering Standards & Development Manual - Oct 2013
SP - Standard Practice (IBI GROUP)
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N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	OLD MAPLE GROVE ROAD OLD MAPLE GROVE INTERSECTION @ MAPLE GROVE ROAD Existing	Guideline Standard	Proposed
	Jurisdiction: City of Cambridge					
1.0	**General Elements**					
1.1	Roadway Classification		COC TMP	Local	Local	Local
1.2	Posted Speed (km/h)		COC ESDM	50		**50**
1.3	Design Speed (km/h)		COC ESDM	n/a	50	**60**
2.0	**Traffic Volumes**					
2.1	Current Volumes (AADT)	Intersection	ROW Roundabout Screening Assessment	19735		
2.2	Projected Volumes (Design Horizon Year)	Intersection	ROW Roundabout Screening Assessment	26400-30300		**TBC**
3.0	**Cross-Sectional Elements**					
3.1	ROW width (m)		COC TMP	20.0	18.5 to 20	**30.0**
3.2	Number of Thru Lanes		COC TMP	2	2	**2**
3.3	Pavement Width (m)	Total	ROW TCD	7.85	14.0m (4)	**7.00**
3.4	Lane Widths (m)	Inside	TAC Table 4.2.3/ROW TCD	3.65-3.9m	3.0 - 3.7m/3.35m	**3.50**
		Curbside	TAC Table 4.2.3/ROW TCD	varies	3.0 - 3.7m/3.65m	**3.50**
		Rt turn	TAC Sect 8.5.2.1	varies	3.0 - 3.5m (2)	**TBC**
		Lt turn	TAC Sect 8.5.2.1	3.35m	3.0 - 3.5m (2)	**TBC**
		Two Way Lt	TAC Sect 8.6.2	n/a	3.5-4.0m	**n/a**
		Channel	TAC Sect 9.16.1	n/a	Varies (5.0m Min.)	**n/a**
3.5	Median Width (m)	E/P to E/P	SP	n/a	5.0-6.0 (5)	**n/a**
3.6	Curb & Gutter Width (m)	Inside	OPSD 600.040	n/a	0.25m	**n/a**
		Outside		n/a	0.50m	**0.50**
3.7	Normal Pavt Cross-Slope (%)		SP	varies	2 - 4%	**2 - 4%**
3.8	Minimum Swale/Ditch Grade (%)		MTO Drainage Manual	0.3%	0.3%	**0.3%**
3.9	Max. Backslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	2:1	**n/a**
3.10	Max. Foreslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	3:1	**n/a**
3.11	Boulevard Width (m) (measured from B/C to E/Sdwalk)		TAC Sect 4.6.2	varies	2.0-3.0m	**4.0**
3.12	Grassed Boulevard Slope (%)		SP	varies	2.0 - 8.0%	**2.0 - 8.0%**
3.13	Ped. Pathway/Walkway Width (m)		ROW TCD	varies	1.8m	**TBC**
3.14	Multi-Use Trail Width (m)		ROW TCD	n/a	3.0m	**3.0**
3.15	Sidewalk/Pathway Cross-Slope (%)		OPSD 310.01/AODA	2	2.0-4.0%	**2%**
4.0	**Roundabout Sectional Elements**					
4.1	Curb Type & Width (m) - Splitter Islands		OPSD 600.080	n/a	0.25	**0.25**
4.2	Gutter Type & Width (m) - Centre Island		OPSD 600.020 MOD. (REINF.)	n/a	0.4	**0.4**
4.3	Truck Apron Type & Width (m) (Coloured Impressed Conc.)		RMWD/FHWA	n/a	1.0 - 4.0	**4.0**
4.4	Normal Pavt Cross-Slope (%)		Accepted Design Practice	n/a	2.0	**2.0**
5.0	**Horizontal Alignment**					
5.1	Min. Radius (w. normal crown) (m)		TAC Table 3.2.4	exist.	1290	**TBC** (2)
5.2	Min Radius (w. 4% max superelevation) (m)		TAC Table 3.2.3	exist.	149	**450**
5.3	Min. Length of Curve (m)		TAC Table 3.2.5	exist.	90	**TBC**
5.4	Max. Superelevation (%)		TAC Table 3.2.4	exist.	6.0	**4.0**
5.5	Point of Rotation for Super (undivided)		TAC Figure 3.2.7	exist.	inside EOP	**inside EOP**
5.5	Point of Rotation for Super (divided)		TAC Figure 3.2.8	exist.	method B	**TBC** (2)
5.6	Max. Rollover of Shoulder (%)		MTO/OPSD 201.020	exist.	4.0	**N/A**
6.0	**Vertical Alignment**					
6.1	Max. Grade Longitudinal (%)		TAC Table 3.3.1	exist.	6.0-11.0	**6.0**
6.2	Min. Grade Longitudinal (%)		TAC Sect. 3.5	exist.	0.5	**0.5**
6.3	Min. Curve K-Value (SSD-Crest)		TAC Table 3.3.2	exist.	11.00	**15 (MIN)**
6.4	Min. Curve K-Value (SSD-Sag)		TAC Table 3.3.4	exist.	17.3	**20 (MIN)**
6.5	Min. Curve K-Value (Comfort-Sag)		TAC Table 3.3.5	exist.	7.7-9.1	**8.0-9.0**
6.6	Max. K-Value (Drainage)		SP	exist.	43	**43**
6.7	Min. Stop Sight Dist. (m) Vertical Curve		TAC Table 3.3.4	exist.	85	**85 (MIN)**
6.8	Min. Vertical Clearance (over roads) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
6.9	Min. Vertical Clearance (under structure) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
7.0	**Intersection Treatments**					

OLD MAPLE GROVE ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

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FHWA - Federal Highway Administration Guide
N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	OLD MAPLE GROVE ROAD OLD MAPLE GROVE INTERSECTION @ MAPLE GROVE ROAD		
				Existing	Guideline Standard	Proposed
7.1	Min. Intersection Curb Radius Arterial - Arterial (m)		TAC Sect. 9.13.2	n/a(3)	varies	**15**
7.2	Min. Intersection Curb Radius Arterial - Collector (m)		TAC Sect. 9.13.2	n/a(3)	varies	**12**
7.3	Min. Intersection Curb Radius Arterial - Local (m)		TAC Sect. 9.13.2	n/a(3)	varies	**9**
7.4	Min. Visibility Triangle		TAC Sect. 9.9.2	n/a(3)	varies	**TBC**
7.5	Median Width @ Intersection (m)		TAC Sect. 9	n/a(3)	1.5	**TBC**
7.6	Deceleration Taper Length, Typ. (m)		TAC Table 9.14.2	n/a(3)	14-59.5	**TBC**
7.7	Design Vehicle		SP	n/a(3)	WB-20.5	**WB-20.5**
8.0	**Access Treatments**					
8.1	Commercial Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	4.5-12	**TBC**
8.2	Residential Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	3.0-4.5	**TBC**
8.3	Max. Driveway Grade (%)		TAC Sect. 8.9.11	n/a(3)	8.0	**8.0**

Notes

(1) SPEEDSVILLE ROAD designated as a Local Road in City of Cambridge Transportation Master Plan Update (Under Review)

(2) Per TAC Sect 8.5.2.1 auxiliary lane width to be 0.2m less than through lane width.

(3) For specific details see existing conditions.

(4) EP to EP width at mid block with no turning lanes

(5) Median width is variable, dependent on section, but width as descriped applies to mid-block sections where possible

(6) Not used

Approvals: John Bayley, P.Eng., Manager Transportation Engineering
IBI Group _____ Signature _____ Date

ROW PM
Region of Waterloo _____ Signature _____ Date

BEAVERDALE ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

References Legend:
TAC - Transportation Association of Canada, Geometric Design Guide (2017)
OPSD - Ontario Provincial Standard Detail (2016)
RMWD - Regional Municipalit of Waterloo Standard Drawing
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N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	BEAVERDALE ROAD / BEAVERDALE INTERSECTION @ MAPLE GROVE ROAD		
				Existing	Guideline Standard	Proposed
	Jurisdiction: City of Cambridge					
1.0	**General Elements**					
1.1	Roadway Classification		COC TMP	Collector [1]	Collector	Collector
1.2	Posted Speed (km/h)		COC ESDM	50	50	**50**
1.3	Design Speed (km/h)		COC ESDM	n/a	60	**60**
2.0	**Traffic Volumes**					
2.1	Current Volumes (AADT)	Intersection	ROW Roundabout Screening Assessment	22075		
2.2	Projected Volumes (Design Horizon Year)	Intersection	ROW Roundabout Screening Assessment	22400-37296		**TBC**
3.0	**Cross-Sectional Elements**					
3.1	ROW width (m)		COC TMP	20-25	30.0	**30.0**
3.2	Number of Thru Lanes		COC TMP	2	4	**4**
3.3	Pavement Width (m)	Total	COC ESDM	9.3	18.00	**18.00**
3.4	Lane Widths (m)	Inside	TAC Table 4.2.3/COC ESDM	3.65-3.9m	3.75	**3.75**
		Curbside	TAC Table 4.2.3/COC ESDM	varies	3.75	**3.75**
		Rt turn	TAC Sect 8.5.2.1	varies	3.0 - 3.5m (2)	**TBC**
		Lt turn	TAC Sect 8.5.2.1	3.35m	3.0 - 3.5m (2)	**TBC**
		Two Way Lt	TAC Sect 8.6.2	n/a	3.5-4.0m	**n/a**
		Channel	TAC Sect 9.16.1	n/a	Varies (5.0m Min.)	**n/a**
3.5	Median Width (m)	E/P to E/P	SP	n/a	5.0-6.0 (5)	**n/a**
3.6	Curb & Gutter Width (m)	Inside	OPSD 600.040	n/a	0.25m	**n/a**
		Outside		n/a	0.50m	**0.50**
3.7	Normal Pavt Cross-Slope (%)		SP	varies	2 - 4%	**2 - 4%**
3.8	Minimum Swale/Ditch Grade (%)		MTO Drainage Manual	0.3%	0.3%	**0.3%**
3.9	Max. Backslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	n/a	**n/a**
3.10	Max. Foreslope w/o Guide Rail (H:V)		MTO Roadside Safety	n/a	n/a	**n/a**
3.11	Boulevard Width (m) (measured from B/C to E/Sdwalk)		TAC Sect 4.6.2	varies	2.0-3.0m	**4.0**
3.12	Grassed Boulevard Slope (%)		SP	varies	2.0 - 8.0%	**2.0 - 8.0%**
3.13	Ped. Pathway/Walkway Width (m)		COC ESDM	varies	1.50	**1.5**
3.14	Multi-Use Trail Width (m)		COC ESDM	n/a	3.00	**n/a**
3.15	Sidewalk/Pathway Cross-Slope (%)		OPSD 310.01/AODA	2	2.0-4.0%	**2%**
4.0	**Roundabout Sectional Elements**					
4.1	Curb Type & Width (m) - Splitter Islands		OPSD 600.080	n/a	0.25	**0.25**
4.2	Gutter Type & Width (m) - Centre Island		OPSD 600.020 MOD. (REINF.)	n/a	0.4	**0.4**
4.3	Truck Apron Type & Width (m) (Coloured Impressed Conc.)		RMWD/FHWA	n/a	1.0 - 4.0	**4.0**
4.4	Normal Pavt Cross-Slope (%)		Accepted Design Practice	n/a	2.0	**2.0**
5.0	**Horizontal Alignment**					
5.1	Min. Radius (w. normal crown) (m)		TAC Table 3.2.4	exist.	1290	**TBC** [2]
5.2	Min Radius (w. 4% max superelevation) (m)		TAC Table 3.2.3	exist.	130	**TBC**
5.3	Min. Length of Curve (m)		TAC Table 3.2.5	exist.	150	**TBC**
5.4	Max. Superelevation (%)		TAC Table 3.2.4	exist.	6.0	**TBC**
5.5	Point of Rotation for Super (undivided)		TAC Figure 3.2.7	exist.	inside EOP	**inside EOP**
5.5	Point of Rotation for Super (divided)		TAC Figure 3.2.8	exist.	method B	**TBC** [2]
5.6	Max. Rollover of Shoulder (%)		MTO/OPSD 201.020	exist.	4.0	**N/A**
6.0	**Vertical Alignment**					
6.1	Max. Grade Longitudinal (%)		TAC Table 3.3.1	exist.	6.0-11.0	**TBC**
6.2	Min. Grade Longitudinal (%)		TAC Sect. 3.5	exist.	0.5	**0.5**
6.3	Min. Curve K-Value (SSD-Crest)		TAC Table 3.3.2	exist.	11.00	**TBC**
6.4	Min. Curve K-Value (SSD-Sag)		TAC Table 3.3.4	exist.	11.00	**TBC**
6.5	Min. Curve K-Value (Comfort-Sag)		TAC Table 3.3.5	exist.	7.7-9.1	**8.0-9.0**
6.6	Max. K-Value (Drainage)		SP	exist.	43	**43**
6.7	Min. Stop Sight Dist. (m) Vertical Curve		TAC Table 3.3.4	exist.	85	**85 (MIN)**
6.8	Min. Vertical Clearance (over roads) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
6.9	Min. Vertical Clearance (under structure) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
7.0	**Intersection Treatments**					

BEAVERDALE ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

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N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	BEAVERDALE ROAD BEAVERDALE INTERSECTION @ MAPLE GROVE ROAD		
				Existing	Guideline Standard	Proposed
7.1	Min. Intersection Curb Radius Arterial - Arterial (m)		TAC Sect. 9.13.2	n/a(3)	varies	**15**
7.2	Min. Intersection Curb Radius Arterial - Collector (m)		TAC Sect. 9.13.2	n/a(3)	varies	**12**
7.3	Min. Intersection Curb Radius Arterial - Local (m)		TAC Sect. 9.13.2	n/a(3)	varies	**9**
7.4	Min. Visibility Triangle		TAC Sect. 9.9.2	n/a(3)	varies	**TBC**
7.5	Median Width @ Intersection (m)		TAC Sect. 9	n/a(3)	1.5	**TBC**
7.6	Deceleration Taper Length, Typ. (m)		TAC Table 9.14.2	n/a(3)	14-59.5	**TBC**
7.7	Design Vehicle		SP	n/a(3)	WB-20	**WB-20**
8.0	**Access Treatments**					
8.1	Commercial Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	4.5-12	**TBC**
8.2	Residential Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	3.0-4.5	**TBC**
8.3	Max. Driveway Grade (%)		TAC Sect. 8.9.11	n/a(3)	8.0	**8.0**

Notes

(1) BEAVERDALE ROAD designated as a Collector Roadway in City of Cambridge Transportation Master Plan Update (Under Review)

(2) Per TAC Sect 8.5.2.1 auxiliary lane width to be 0.2m less than through lane width.

(3) For specific details see existing conditions.

(4) EP to EP width at mid block with no turning lanes

(5) Median width is variable, dependent on section, but width as descriped applies to mid-block sections where possible

(6) Not used

Approvals: John Bayley, P.Eng., Manager Transportation Engineering
IBI Group _____ Signature _____ Date

ROW PM
Region of Waterloo _____ Signature _____ Date

HESPELER ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

References Legend:
TAC - Transportation Association of Canada, Geometric Design Guide (2017)
OPSD - Ontario Provincial Standard Detail (2016)
RMWD - Regional Municipalit of Waterloo Standard Drawing
ROW TCD - Region of Waterloo Transportation Corridor Design Guidelines (2013)
MGR-EAS - MAPLE GROVE ROAD Environmental Assessment Study
ROW PIR - Region of Waterloo - Preliminary Information Report (2015)
ROW TMP - Region of Waterloo - Transportation Master Plan (2011)
SP - Standard Practice (IBI GROUP)
FHWA - Federal Highway Administration Guide
N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	HESPELER ROAD HESPELER INTERSECTION @ MAPLE GROVE ROAD Existing	Guideline Standard	Proposed
	Jurisdiction: Region of Waterloo					
1.0	**General Elements**					
1.1	Roadway Classification		ROW TCD	COM (1)	COM	**COM**
1.2	Posted Speed (km/h)		ROW TCD	70	70	**70**
1.3	Design Speed (km/h)		ROW TCD		80	**80**
2.0	**Traffic Volumes**					
2.1	Current Volumes (AADT)	Midblock	ROW PIR	12301		
		Intersection	ROW Roundabout Screening Assessment	19735-24475		
2.2	Projected Volumes (Design Horizon Year)		ROW Roundabout Screening Assessment	24800 - 49600		**TBC**
3.0	**Cross-Sectional Elements**					
3.1	ROW width (m)		ROW TCD	70.0 - 104.0m	36.0	**TBC**
3.2	Number of Thru Lanes		ROW TMP	2	4	**4**
3.3	Pavement Width (m)	Total	ROW TCD	7.8 - 26.2m	14.0m (4)	**14.00**
3.4	Lane Widths (m)	Inside	TAC Table 4.2.3/ROW TCD	3.65-3.9m	3.5 - 3.7m/3.35m	**3.50**
		Curbside	TAC Table 4.2.3/ROW TCD	varies	3.5 - 3.7m/3.65m	**3.50**
		Rt turn	TAC Sect 8.5.2.1	varies	3.0 - 3.5m (2)	**TBC**
		Lt turn	TAC Sect 8.5.2.1	3.35m	3.0 - 3.5m (2)	**TBC**
		Two Way Lt	TAC Sect 8.6.2	n/a	3.5-4.0m	**3.5 - 4.0**
		Channel	TAC Sect 9.16.1	4.35m	Varies (5.0m Min.)	**TBC**
3.5	Median Width (m)	E/P to E/P	SP	n/a	5.0-6.0 (5)	**5.5m**
3.6	Curb & Gutter Width (m)	Inside	OPSD 600.040	n/a	0.25m	**0.25**
		Outside		n/a	0.50m	**0.50**
3.7	Normal Pavt Cross-Slope (%)		SP	varies	2 - 4%	**2 - 4%**
3.8	Minimum Swale/Ditch Grade (%)		MTO Drainage Manual	0.3%	0.3%	**0.3%**
3.9	Max. Backslope w/o Guide Rail (H:V)		MTO Roadside Safety	2:1	2:1	**2.5:1**
3.10	Max. Foreslope w/o Guide Rail (H:V)		MTO Roadside Safety	2:1	3:1	**3:1/2.5:1**
3.11	Boulevard Width (m) (measured from B/C to E/Sdwalk)		TAC Sect 4.6.2	varies	2.0-3.0m	**4.0**
3.12	Grassed Boulevard Slope (%)		SP	varies	2.0 - 8.0%	**2.0 - 8.0%**
3.13	Ped. Pathway/Walkway Width (m)		ROW TCD	varies	1.8m	**TBC**
3.14	Multi-Use Trail Width (m)		ROW TCD	n/a	3.0m	**3.0**
3.15	Sidewalk/Pathway Cross-Slope (%)		OPSD 310.01/AODA	2	2.0-4.0%	**2%**
4.0	**Roundabout Sectional Elements**					
4.1	Curb Type & Width (m) - Splitter Islands		OPSD 600.080	n/a	0.25	**0.25**
4.2	Gutter Type & Width (m) - Centre Island		OPSD 600.020 MOD. (REINF.)	n/a	0.4	**0.4**
4.3	Truck Apron Type & Width (m) (Coloured Impressed Conc.)		RMWD/FHWA	n/a	1.0 - 4.0	**4.0**
4.4	Normal Pavt Cross-Slope (%)		Accepted Design Practice	n/a	2.0	**2.0**
5.0	**Horizontal Alignment**					
5.1	Min. Radius (w. normal crown) (m)		TAC Table 3.2.4	exist.	2130	**TBC** (2)
5.2	Min Radius (w. 4% max superelevation) (m)		TAC Table 3.2.3	exist.	280	**450**
5.3	Min. Length of Curve (m)		TAC Table 3.2.5	exist.	135	**TBC**
5.4	Max. Superelevation (%)		TAC Table 3.2.4	exist.	6.0	**4.0**
5.5	Point of Rotation for Super (undivided)		TAC Figure 3.2.7	exist.	inside EOP	**inside EOP**
5.5	Point of Rotation for Super (divided)		TAC Figure 3.2.8	exist.	method B	**TBC** (2)
5.6	Max. Rollover of Shoulder (%)		MTO/OPSD 201.020	exist.	4.0	**N/A**
6.0	**Vertical Alignment**					
6.1	Max. Grade Longitudinal (%)		TAC Table 3.3.1	exist.	3.0-6.0	**6.0**
6.2	Min. Grade Longitudinal (%)		TAC Sect. 3.5	exist.	0.5	**0.5**
6.3	Min. Curve K-Value (SSD-Crest)		TAC Table 3.3.2	exist.	25.7	**26 (MIN)**
6.4	Min. Curve K-Value (SSD-Sag)		TAC Table 3.3.4	exist.	29.4	**30 (MIN)**
6.5	Min. Curve K-Value (Comfort-Sag)		TAC Table 3.3.5	exist.	12.4-16.2	**12.0-16.0**
6.6	Max. K-Value (Drainage)		SP	exist.	43	**43**
6.7	Min. Stop Sight Dist. (m) Vertical Curve		TAC Table 3.3.4	exist.	130	**130 (MIN)**
6.8	Min. Vertical Clearance (over roads) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
6.9	Min. Vertical Clearance (under structure) (m)		TAC Sect. 3.3.5.5	n/a	5.00	**5.0 (MIN)**
7.0	**Intersection Treatments**					

HESPELER ROAD - DESIGN CRITERIA - DESIGN PROPOSAL

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N/A - Not Applicable, or feature not found in section

Existing Design Deficiency

Design Exception

	Item		Reference	HESPELER ROAD HESPELER INTERSECTION @ MAPLE GROVE ROAD		
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7.5	Median Width @ Intersection (m)		TAC Sect. 9	n/a(3)	1.5	**TBC**
7.6	Deceleration Taper Length, Typ. (m)		TAC Table 9.14.2	n/a(3)	59.5-84	**TBC**
7.7	Design Vehicle		SP	n/a(3)	WB-20.5	**WB-20.5**
8.0	**Access Treatments**					
8.1	Commercial Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	4.5-12	**TBC**
8.2	Residential Drive Radius (m)	Entry	TAC Sect. 8.9.5	n/a(3)	3.0-4.5	**TBC**
8.3	Max. Driveway Grade (%)		TAC Sect. 8.9.11	n/a(3)	8.0	**8.0**

Notes

(1) MAPLE GROVE ROAD designated as a Urban Arterial Roadway in Region of Waterloo Transportation Corridor Design Guidelines (2013)

(2) Per TAC Sect 8.5.2.1 auxiliary lane width to be 0.2m less than through lane width.

(3) For specific details see existing conditions.

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(6) Not used

Approvals: John Bayley, P.Eng., Manager Transportation Engineering
IBI Group _____ Signature _____ Date

ROW PM
Region of Waterloo _____ Signature _____ Date

Appendix V – Public Consultation Centre #2 Materials, Comments and Project Team Responses

September 2023

Region of Waterloo

WELCOME

to Public Consultation Centre #2 for

Maple Grove Road Improvements

from Hespeler Road to Vondrau Drive, City of Cambridge

Municipal Class Environmental Assessment, Schedule C

June 28, 2021

IBI GROUP

Study Introduction

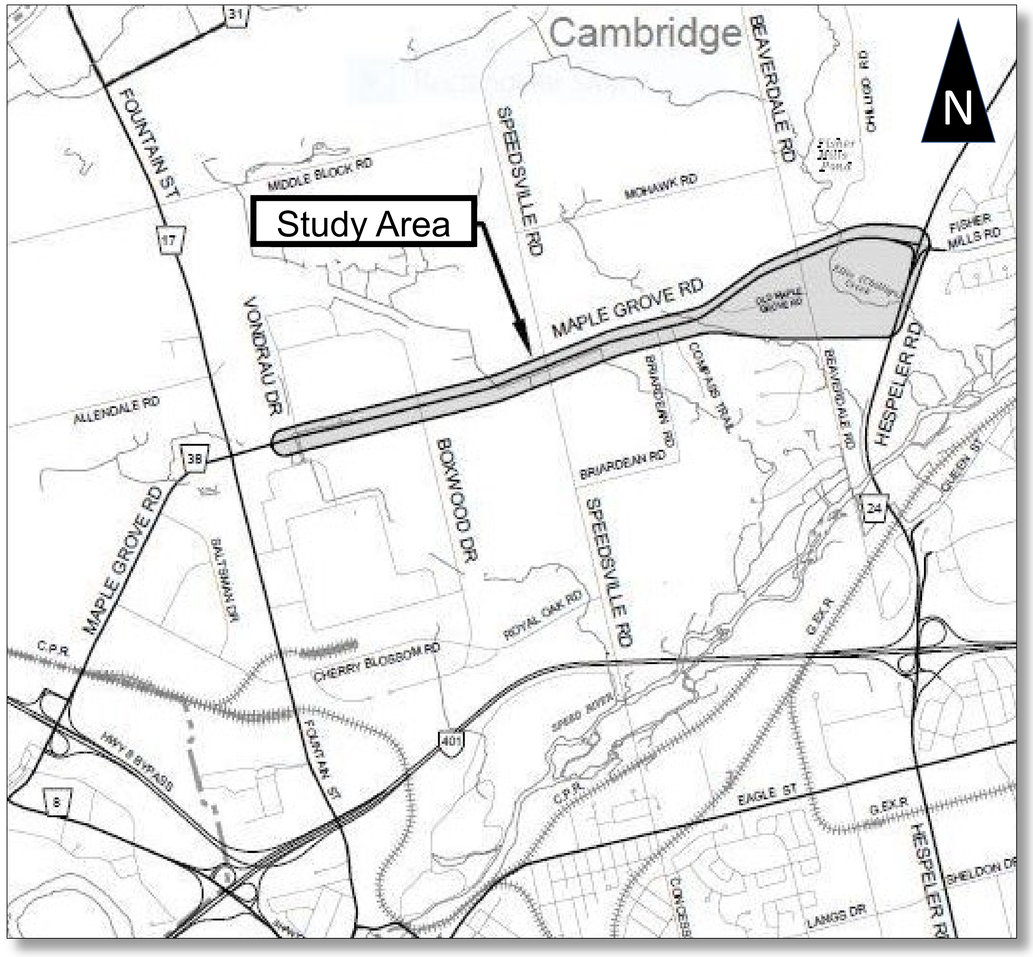
Purpose

Investigate alternative solutions for required improvement opportunities along Maple Grove Road between Hespeler Road and Vondrau Drive, including:

- Ongoing development and community growth leading to higher traffic volumes;
- The need for new and future Active Transportation facility improvements;
- Localized concerns at various intersections requiring operational improvements;
- Planned / future Grand River Transit (GRT) routes and stops.

Study Area

Maple Grove Road, and immediately adjacent lands, between Hespeler Road and Vondrau Drive.



Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

Study Team

Region of Waterloo

Karl Kiefer
Regional Councillor

Justin Armstrong
Senior Engineer
Design and Construction, Transportation Expansion

Mike Jones
Supervisor
Traffic Engineering

Darryl Spencer
Senior Engineer
Transportation Planning

Marcos Kroker
Head
Design and Construction, Transportation Expansion

CAMBRIDGE CANADA
PEOPLE • PLACE • PROSPERITY

Donna Reid
Councillor
Ward 1

Alex Nichols
Project Engineer
Development Engineering

IBI GROUP
(Consultant)

John Bayley
Consultant Lead
Municipal Engineering

Scott Johnston
Transportation Lead
Transportation Planning

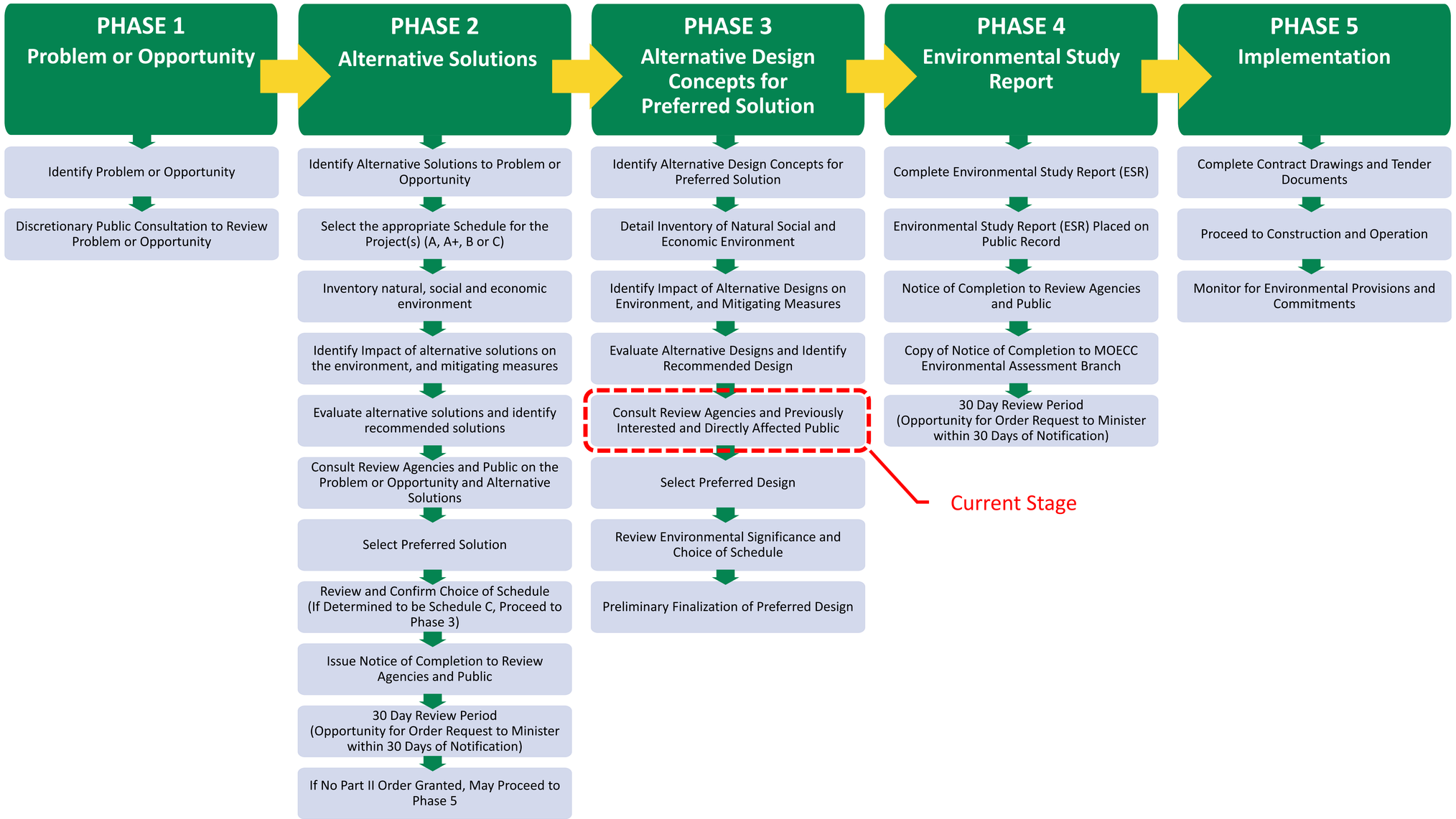
Patrick Garel
Environmental Assessment Lead
Transportation Planning

Study Process

Following the Municipal Class Environmental Assessment (Class EA) Process:

Municipal Engineers Association (MEA)
Prepared and maintained by MEA

Schedule C Project
Study ends after Phase 4



Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

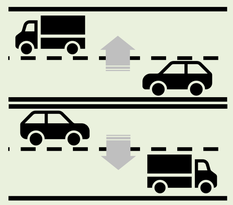
Project Need

The Region's Transportation Master Plan identifies the need to:

- Widen Maple Grove Road from two to four through lanes from Hespeler Road to Vondrau Drive within five (5) years to provide adequate capacity for existing and forecasted traffic volumes along this corridor;
- Provide pedestrian and cycling facilities along Maple Grove Road within the study limits; and
- Rehabilitate or replace asphalt on Maple Grove Road from Hespeler Road to Vondrau Drive.

Opportunities for Improvement

Vehicular Capacity



Improvements to vehicular capacity will reduce current traffic concerns

Active Transportation

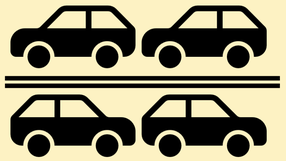
New active transportation infrastructure will support walking, cycling, and public transit use

Transit Improvements

Improvements can also support planned Grand River Transit routes and stops

Contents:
Introduction
Study Process
Challenges/ Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Existing Challenges

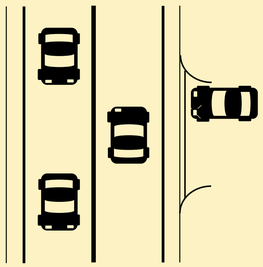


High traffic volumes (existing and forecasted)

Existing asphalt in fair to poor condition – in need of rehabilitation or replacement

Limited pedestrian and cycling facilities

High percentage of heavy trucks use along corridor



Driveway / Truck Access

Limited local transit

Contents:

Introduction

Study Process

Challenges / Opportunities

Alternative Solutions

Public Feedback

Preferred Solution

Alternative Designs

Recommended Design

Next Steps

Thank You/ Have Your Say

Alternative Solutions

The Region considered ten (10) alternative solutions:

Alternative	Description	Addresses Increase in Traffic and Local Development	Addresses need for Active Transportation Improvements	Addresses need for Public Transit Improvements	Comment
1. Do Nothing	Reconstruct road to match current two (2) lanes rural cross-section, with shoulders and roadside ditches	✗	✗	✗	Eliminate – does not address any of Region's Objectives
2. Traffic Operations Improvements	Optimize timing of existing traffic signals on Maple Grove Road	✓	✗	✗	Carry forward in combination with other solutions
3. Access Management	Access management through constructing a raised centre median and/or centre left-turn lanes	✓	✗	✗	Carry forward in combination with other solutions
4. Intersection Improvements	Additional through lanes and turn lanes at existing intersections	✓	✗	✗	Carry forward in combination with other solutions
5. Roundabouts	Construct new roundabouts in place of traffic signals without widening Maple Grove Road	✓	✗	✗	Carry forward in combination with other solutions
6. Widening Maple Grove Road	Widening Maple Grove Road from two (2) to four (4) lanes between Hespeler Road and Vondrau Drive	✓	✓	✓	**Preferred Solution**, in combination with other solutions
7. Active Transportation Facilities	Providing facilities for cyclists and pedestrians on Maple Grove Road from Hespeler Road to Vondrau Drive	✗	✓	✗	Carry forward in combination with other solutions
8. Transit Service	Improve GRT service along the corridor to potentially decrease vehicle traffic on Maple Grove Road	✓	✗	✓	Carry forward in combination with other solutions
9. Upgrade Other Routes	Improvements to nearby roads potentially reducing traffic on Maple Grove Road	✓	✗	✗	Carry forward in combination with other solutions
10. Build Alternative Routes	Add new or extend existing roads to the road network to reduce traffic on Maple Grove Road	✓	✗	✗	Eliminate – does not address any of Region's Objectives

Contents:

Introduction

Study Process

Challenges / Opportunities

Alternative Solutions

Public Feedback

Preferred Solution

Alternative Designs

Recommended Design

Next Steps

Thank You/ Have Your Say

Public Feedback

Public Consultation Centre #1

July 27, 2020 to August 31, 2020

- Virtual Public Consultation Centre hosted on the Region's EngageWR Website

Participants were encouraged to:

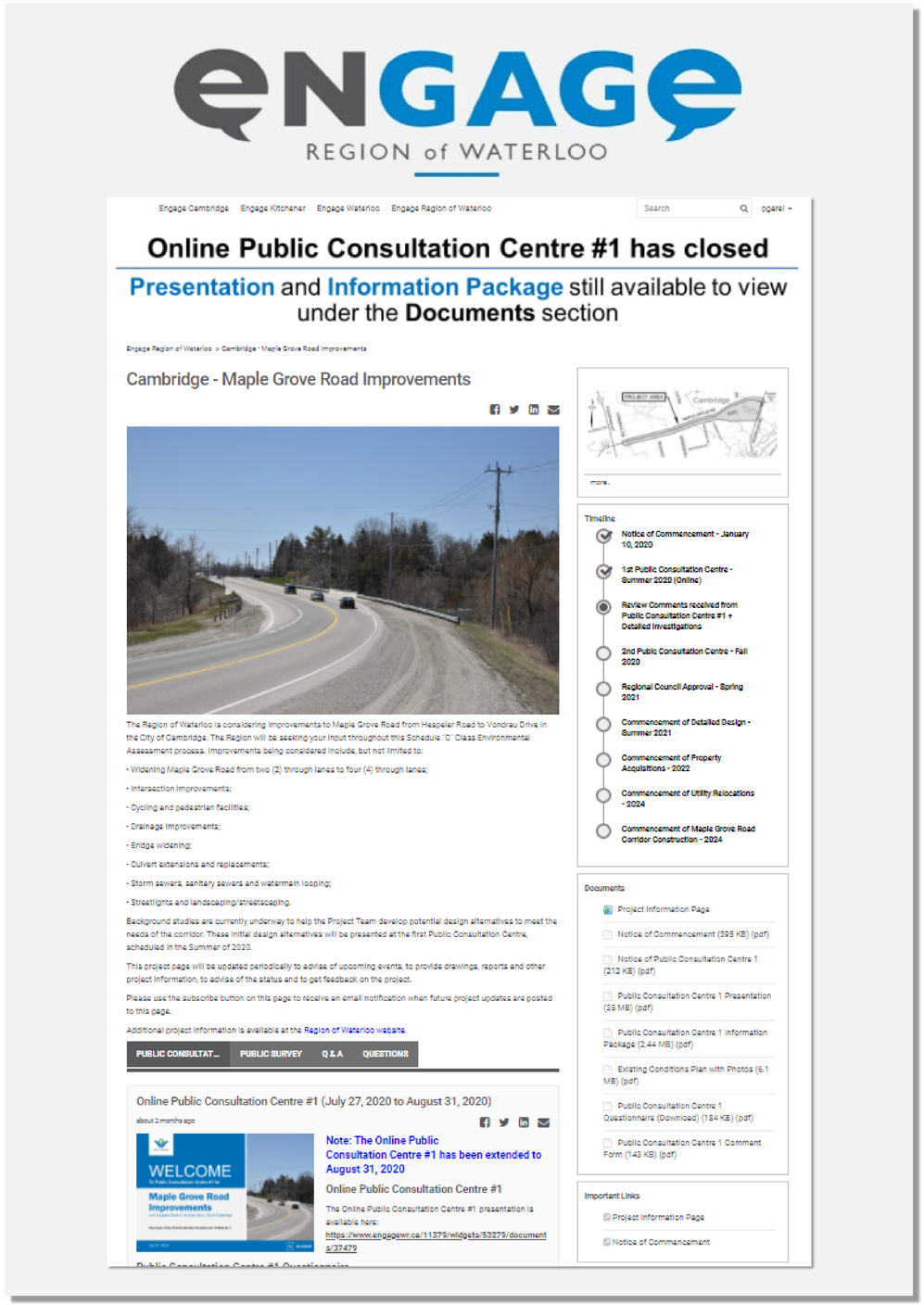
- Complete the PCC# 1 Public Survey
- Submit questions via the Question and Answer (Q&A) page
- Submit comment forms / emails
- Contact the Project Team

159 Site Visits

- The Study webpage on EngageWR was visited 159 times during PCC #1

19 Surveys and Comments Received

- Through EngageWR website and email



Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

Public Feedback

Public Consultation Centre #1

Participation

97 Aware Visitors

Viewed at least one page
(Includes Informed and Engaged Visitors)

60 Informed Visitors

Viewed documents, images or multiple pages
(Includes Engaged Visitors)

8 Engaged Visitors

Participated in the survey or asked a question

Downloads

49 Presentation File

16 Information Package

10 Comment Form

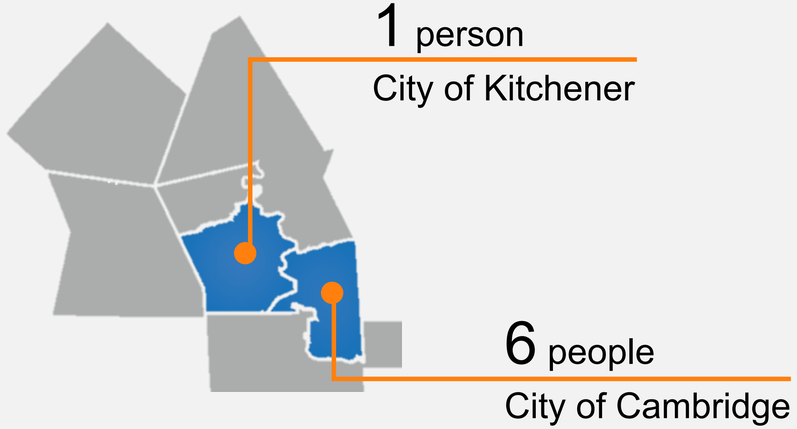
Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

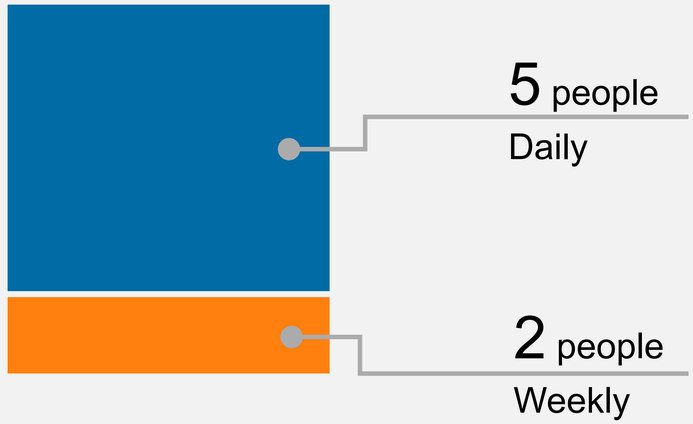
Public Feedback

Public Consultation Centre #1 – Respondent Profile

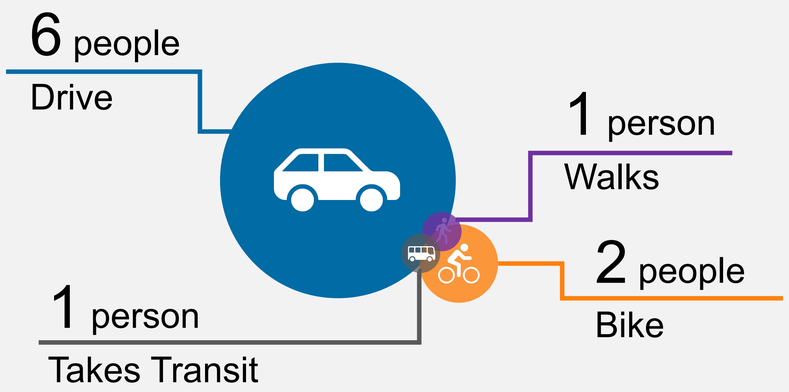
Q1. Where do you live?



Q2. How often do you travel on this section of Maple Grove Road (pre-COVID 19)?



Q3. What is the travel mode you often use on this section of Maple Grove Road?



Note: Some respondents use more than one mode of travel

Q4. What is the general purpose of your travel on this section of Maple Grove Road?

Note: Some respondents have more than one purpose of travel

Region of Waterloo

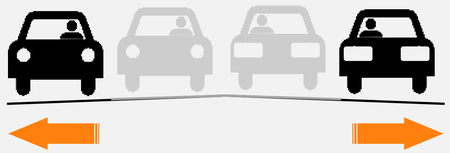
Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

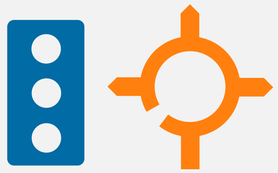
IBI

Public Feedback

Public Consultation Centre #1 – Community Priorities



Widen Maple Grove Road to four through traffic lanes

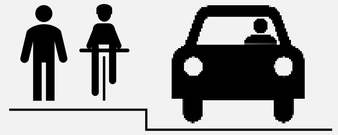


Improve operations at busy intersections

Limit property impacts

Limit noise impacts

Reduce commercial and/or high-speed vehicle traffic through residential neighbourhoods



Improve and separate active transportation facilities

Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

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Studies Undertaken

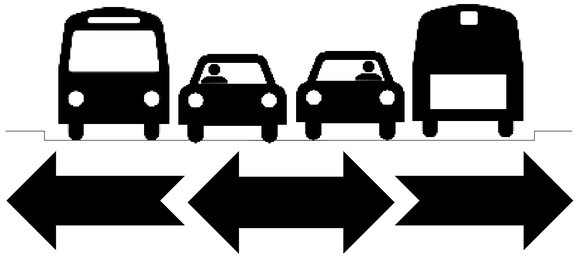
Study	Considerations
(Natural) Environmental Impact Study	Potential impacts on terrestrial species, vegetation, birds, amphibians, bat habitat, aquatic habitat, and fish
Stage 1 Archaeological Assessment and Cultural Heritage Resource Assessment	Potential impacts on previously registered archaeological sites or sites with archaeological potential, and cultural heritage resources
Traffic Impact Study	Roundabout Screenings, Intersection Control Studies, and Detailed Traffic Analyses and Simulations for future conditions
Noise	Forecasted traffic volumes, and potential need for noise attenuation

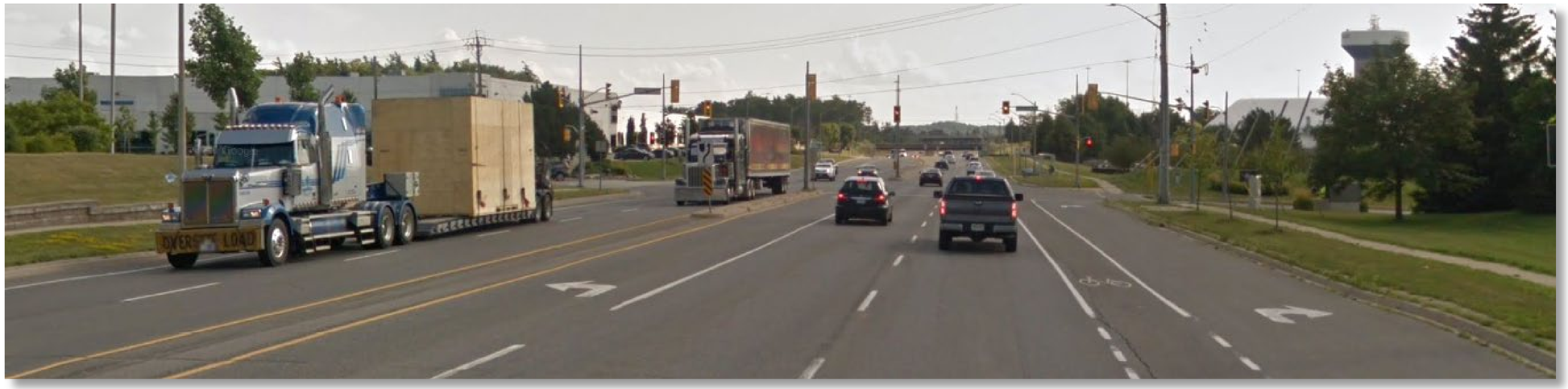
Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Project Team Preferred Solution

Widening Maple Grove Road from two (2) to four (4) lanes between Hespeler Road and Vondrau Drive, including:

- Roundabouts (at Beaverdale Road and at Hespeler Road);
- Signalized intersections at Vondrau Drive, Boxwood Drive, and Speedsville Road;
- Traffic Operations / Intersection Improvements (at all intersections);
- Active Transportation Facilities Improvements; and
- Transit Service Improvements.





A four-lane section of Maple Grove Road with left- and right-turning lanes, on-street bike lanes, and sidewalks.

Contents:

Introduction

Study Process

Challenges / Opportunities

Alternative Solutions

Public Feedback

Preferred Solution

Alternative Designs

Recommended Design

Next Steps

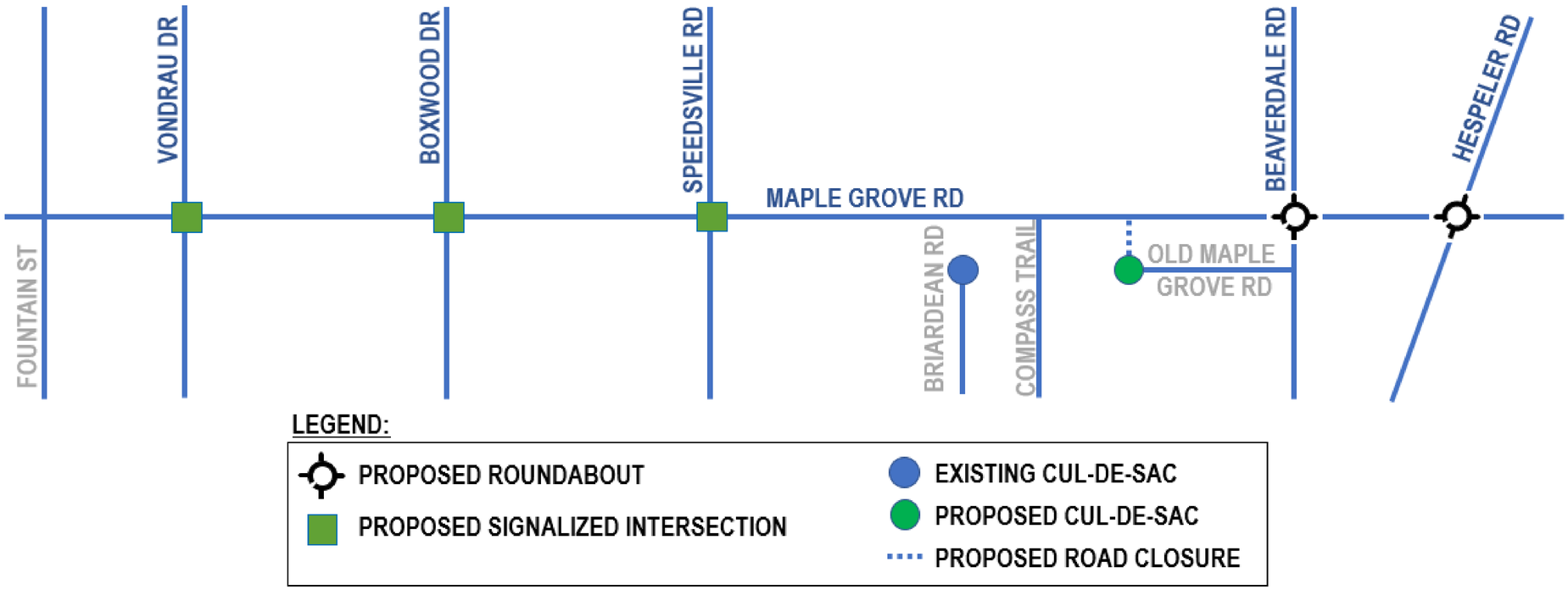
Thank You/ Have Your Say

Preferred Solution – Intersection Types

Transportation Analyses for Maple Grove Road support the following:

- New roundabouts at Beaverdale Road and Hespeler Road;
- New signalized intersection at Boxwood Drive; and
- Expanded traffic control signalized intersections (including dedicated left- and right-turn lanes).

Roundabouts on Franklin Boulevard (top left) and University Avenue (bottom right).



Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Preferred Solution – Traffic Operations / Intersection Improvements

Traffic signal and intersection improvements were considered at intersections with:

- existing traffic control signals that require additional through lanes or turn lanes to improve capacity;
- projected traffic volumes warrant new traffic control signals; and
- expanded traffic control signalized intersections (including dedicated left- and right-turn lanes).

Example of past intersection improvements on Maple Grove Road at Cherry Blossom Road

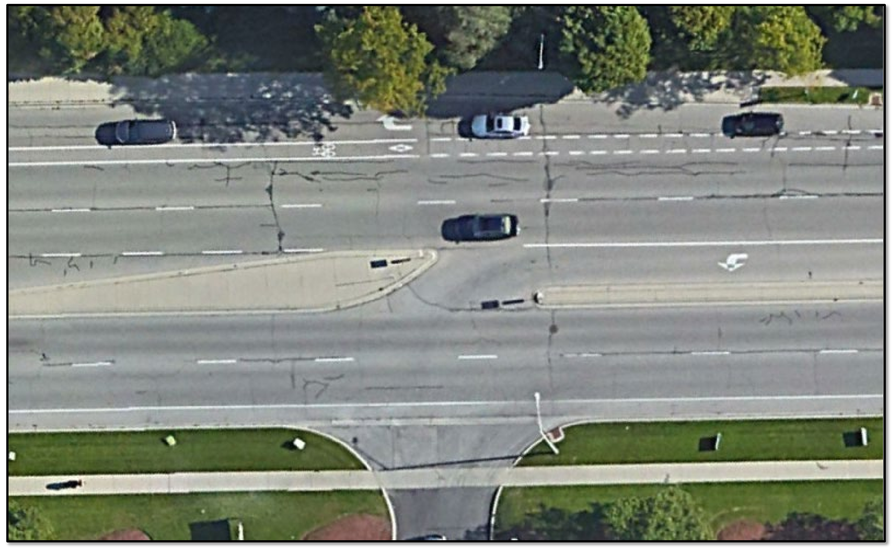
Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Preferred Solution – Access Management

Access management was considered at the following intersections:

Old Maple Grove Road:

Construction of a cul-de-sac at Maple Grove Road is (supported by the City of Cambridge, and) recommended to eliminate traffic bypass



Restricting left-out, but allowing left-in, right-in, and right-out turns on Fischer-Hallman Road near University Avenue West.

Compass Trail:

Restriction of left-out is recommended at Compass Trail, while allowing left-in, right-in, and right-out turns at Maple Grove Road

Briardean Road:

Briardean Road has been closed at Maple Grove Road (as a condition of the Hunt Club Subdivision Agreement), creating a cul-de-sac

Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

Preferred Solution – Active Transportation

Providing facilities for cyclists and pedestrians on Maple Grove Road from Hespeler Road to Vondrau Drive, such as:

- Boulevard Multi-use Pathways (for cycling and pedestrians), per the Regional Transportation Master Plan.

Sidewalk on Maple Grove Road (top left), separated cycling lane on Manitou Drive (top right), and multi-use path on Dundas Street (bottom).

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Preferred Solution - Transit Service Improvements

Improvements to transit service provided by Grand River Transit (GRT) may decrease overall vehicle traffic on Maple Grove Road:

- Review Grand River Transit planning objectives for the Maple Grove Road corridor; and
- Grand River Transit will be consulted to obtain feedback for the locations of new bus stops, pedestrian crossing locations related to bus stops, and related shelter requirements.

GRT bus with bike rack

Region of Waterloo

Contents:

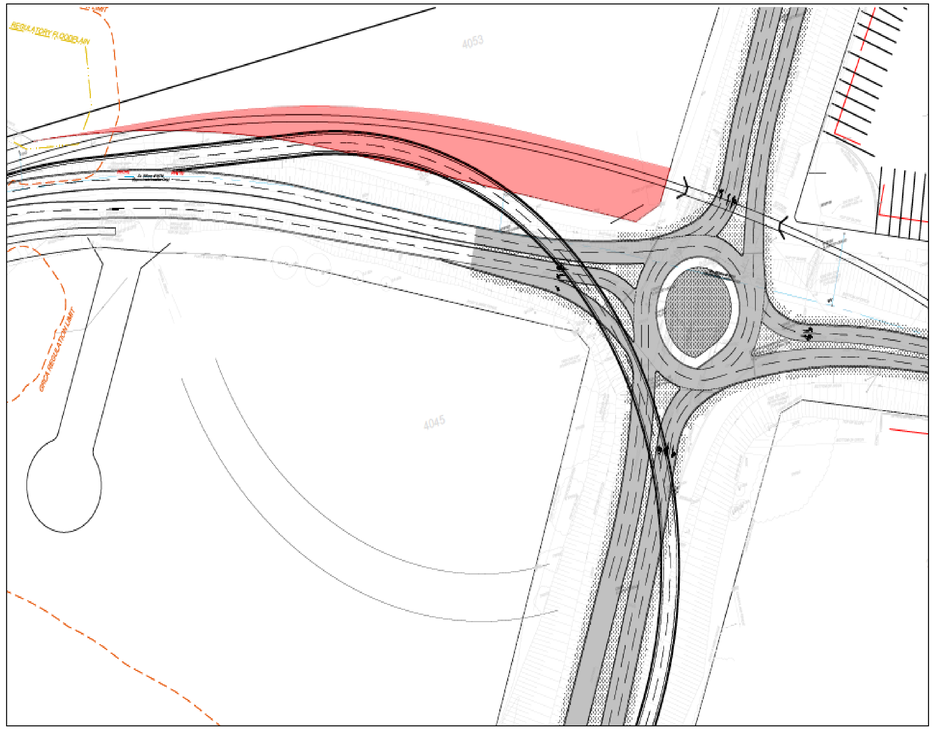
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

Preferred Solution – Hespeler Road

To account for projected long-term traffic growth at the Hespeler Road intersection, other long-term improvements were considered:

- In addition to the roundabout at Hespeler Road and Maple Grove Road, the ultimate condition recommends a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only).



Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs Evaluation Process

The Preferred Alternative Design is determined by examining:

Alternative Widening Alignments + Alternative Design Cross-sections = Preferred Alternative Design

The evaluation of each alternative design considers:

- Natural Environment
- Social Environment
- Transportation
- Cost
- Consultation

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Evaluation Process

The design alternative evaluation criteria included the following:

Criteria	Sub-Criteria	Least Preferred	Most Preferred
Natural Environment	Aquatic Species & Habitat	Significant impact to aquatic species or habitat	No impact to aquatic species or habitat
	Terrestrial Species & Habitat	Significant impact to terrestrial species or habitat	No impact to terrestrial species or habitat
	Floodplain	Significant expansion or construction into floodplain area	Improvements to floodplain storage
	Wetlands	Significant loss of, or impact to wetlands	No loss of, or impact to, wetlands
	Trees & Landscaping	Significant loss of existing trees and landscaping	Improvements to trees and landscaping
	Wildlife	Significant impact to Species at Risk	Improvements to conditions for Species at Risk
	Property Contamination	Exposure of contaminated materials	Avoidance of contaminated materials
	Drainage	Detrimental Impact on storm water management and drainage	Maintenance or improvements to existing storm water management and drainage
Social Environment	Cultural Heritage & Archaeology	Significant loss or impact to cultural heritage or archaeological sites	No impact to cultural heritage or archaeological sites
	Culture & Recreation	Significant loss or impact to cultural or recreational facilities	No impact to cultural or recreational facilities
	Businesses	Reduced access to businesses	Improved access to businesses
	Construction	Lengthy construction duration with traffic delays and/or reduced access	Limited construction duration, traffic delays and/or access restrictions
	Streetscaping	Reduced opportunity to provide space for improvements to streetscaping elements (e.g. plantings, decorative paving materials, decorative streetlights)	Enhanced opportunity to provide space for improvements to streetscaping elements (e.g. plantings, decorative paving materials, decorative streetlights)
	Air Quality & Noise	Increased air and noise emissions	Reduced air and noise emissions
	Private Property	Greater impacts on property and need for land acquisition	Lesser impacts on property and need for land acquisition

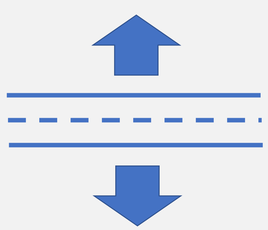
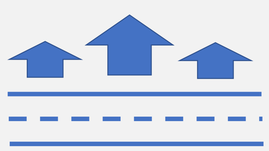
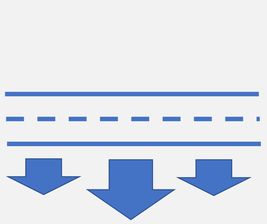
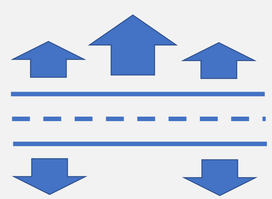
Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Evaluation Process (continued)

Criteria	Sub-Criteria	Least Preferred	Most Preferred
Transportation	Traffic Level-of-Service	Increased congestion	Reduced congestion
	Safety	No improvement to safety for all users	Improved safety for all users
	Access Management	Diminished access to driveways and side roads	Improved access to driveways and side roads
	Transit	Diminished transit service, reduced access to transit stops, and potential conflicts with other road users	Enhanced transit service and access to transit stops, and reduced potential conflicts with other road users
	Cycling	Diminished opportunity for improvement to existing facilities	Enhanced opportunity for improved cycling facilities and pedestrian space
	Pedestrians	Reduced potential space and separation of pedestrian facilities from other vehicular uses	Increased potential pedestrian space
	Emergency Services	Increase to emergency response time	Minimize emergency response time
Cost	Utility Relocations / Conflicts	Greater need for utility relocations	Lesser need for utility relocations
	Initial Capital Cost	Higher construction cost	Lower construction cost
	Life-Cycle Cost	Higher maintenance and operation cost	Lower maintenance and operating cost
Consultation	Public Preference	Lesser public support	Greater public support

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs – Widening Alignments

Do Nothing	Concept 1	Concept 2	Concept 3	Concept 4
	Widen Equally about Existing Centreline	Widen to the North	Widen to the South	Modified “Hybrid Widening Concept” to Minimize Overall Impacts
				
Maintain existing conditions – **Used for comparative purposes only since “Do Nothing” does not satisfy study objectives.**	Balanced widening of the roadway from Vondrau Drive to Hespeler Road.	Balanced widening of the roadway from Vondrau Drive to east of Boxwood Drive; Widening to the north from east of Boxwood Drive to Beaverdale Road; and Balanced widening from Beaverdale Road to Hespeler Road.	Balanced widening of the roadway from Vondrau Drive to east of Boxwood Drive; Widening to the south from east of Boxwood Drive to Beaverdale Road; and Balanced widening from Beaverdale Road to Hespeler Road.	Balanced widening of the roadway from Vondrau Drive to east of Boxwood Drive; Widening to the north from east of Boxwood Drive to east of Middle Creek; and Balanced widening from east of Middle Creek to Hespeler Road.

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs – Widening Alignments

Natural Environment: How might the alternative affect existing trees, vegetation, and wildlife?

DO NOTHING "MAINTAIN STATUS QUO"	CONCEPT NUMBER 1 WIDENING EQUALLY ABOUT EXISTING CENTRELINE	CONCEPT NUMBER 2 WIDENING TO THE NORTH	CONCEPT NUMBER 3 WIDENING TO THE SOUTH	CONCEPT NUMBER 4 MODIFIED "HYBRID WIDENING CONCEPT" TO MINIMIZE OVERALL IMPACTS
➢ No impacts on terrestrial habitat are anticipated. ➢ No impact on existing watercourses. Culvert widening is not required. ➢ Existing Provincially Significant Wetland (PSW) is unaffected ➢ No property is required for SWM facilities. ➢ Existing flow regime is maintained. Deficiencies would continue. ➢ Surface water runoff would continue to be untreated. Status quo is maintained. ➢ No impact on wildlife resources.	➢ 97 Trees and 1,675m2 of woodland vegetation are impacted. ➢ 2 Regionally significant Black Walnut Trees are directly impacted. ➢ Floodplain area impacted by transition grading is 51,740m2. ➢ Grading impacts adjacent to Hunsperger Drain is 12,400m2. ➢ Approximately 3,330m2 of Provincially Significant Wetland (PSW) is potentially impacted. ➢ A total of 0.10 ha. of private property is expected to be required for SWM facilities. ➢ Culvert widening on both sides (or full replacement) would be required at Middle Creek east of Boxwood Drive, at Speedsville Road on the Hunsperger Drain, at Middle Creek east of Speedsville Road, and at East Creek. 107m of existing culvert extensions are anticipated. ➢ Has the second highest physical impact on the Hunsperger Drain along the south side of Maple Grove Road.	➢ 92 Trees and 2,670m2 of woodland vegetation are impacted. ➢ Regionally significant Black Walnut Trees are not directly impacted. ➢ Floodplain area impacted by transition grading is 52,240m2. ➢ Grading impacts adjacent to Hunsperger Drain is 11,100m2. ➢ Approximately 3,990m2 of Provincially Significant Wetland (PSW) is potentially impacted. ➢ A total of 0.10 ha. of private property is expected to be required for SWM facilities. ➢ Culvert widening on the north side (or full replacement) would be required at Middle Creek east of Boxwood Drive, at Speedsville Road on the Hunsperger Drain, at Middle Creek east of Speedsville Road, and at East Creek. 115m of existing culvert extensions are anticipated. ➢ Has the second lowest physical impact on the Hunsperger Drain along the south side of Maple Grove Road.	➢ 105 Trees and 2,560m2 of woodland vegetation are impacted. ➢ 2 Regionally significant Black Walnut Trees are directly ➢ Floodplain area impacted by transition grading is 51,670m2. ➢ Grading impacts adjacent to Hunsperger Drain is 14,100m2. ➢ Approximately 3,600m2 of Provincially Significant Wetland (PSW) is potentially impacted. ➢ A total of 0.10 ha. of private property is expected to be required for SWM facilities. ➢ Culvert widening on the south side (or full replacement) would be required at Middle Creek east of Boxwood Drive, at Speedsville Road on the Hunsperger Drain, at Middle Creek east of Speedsville Road, and at East Creek. 106m of existing culvert extensions are anticipated. ➢ Has the greatest impact on the Hunsperger Drain and would require full reconstruction of the municipal drain	➢ 101 Trees and 2,188m2 of woodland vegetation are impacted. ➢ Regionally significant Black Walnut Trees are not directly impacted. ➢ Floodplain area impacted by transition grading is 52,390m2. ➢ Grading impacts adjacent to Hunsperger Drain is 11,300m2. ➢ Approximately 3,650m2 of Provincially Significant Wetland (PSW) is potentially impacted. ➢ A total of 0.10 ha. of private property is expected to be required for SWM facilities. ➢ Culvert widening on the north side of Maple Grove Road at Middle Creek east of Boxwood Drive, at Speedsville Road on the Hunsperger Drain, and at Middle Creek east of Speedsville Road. 111m of existing culvert extensions are anticipated. ➢ Has the least physical impact on the Hunsperger Drain along the south side of Maple Grove Road.
Does not address the Problem/Opportunity Statement	**VERY GOOD**	**GOOD**	**GOOD**	**VERY GOOD**

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs – Widening Alignments

Social Environment: How might the alternative affect residential and commercial properties abutting the road (driveways, access, property impacts, noise, air quality, and streetscaping / beautification potential) and archaeological / heritage resources?

DO NOTHING "MAINTAIN STATUS QUO"	CONCEPT NUMBER 1 WIDENING EQUALLY ABOUT EXISTING CENTRELINE	CONCEPT NUMBER 2 WIDENING TO THE NORTH	CONCEPT NUMBER 3 WIDENING TO THE SOUTH	CONCEPT NUMBER 4 MODIFIED "HYBRID WIDENING CONCEPT" TO MINIMIZE OVERALL IMPACTS
➢ No direct property impacts. Access challenges would continue to increase as area traffic volumes and delay increase. ➢ No additional property would be required. ➢ Traffic congestion and delay would extend the duration of noise impacts as traffic volumes increase. ➢ No encroachment on areas of Archaeological Potential. ➢ No opportunity for enhanced streetscaping.	➢ Widening brings traffic closer to buildings and residences, noise levels would increase and as a result may require mitigation or additional property buyouts where resident concerns cannot be mitigated. ➢ Portions of 23 Private Properties would need to be purchased. ➢ 2 properties may require a complete buyout. ➢ Including potential buyouts, the total of potentially impacted property is 2.49 ha. ➢ Approximately 860m total of noise attenuation is expected at various locations along the corridor. ➢ Areas of previously undisturbed right of way or grading encroachment beyond right of way limits must be test pitted or pedestrian surveyed to investigate for archaeological artifacts. ➢ Lands associated with three (3) Built Heritage Resources may be impacted. ➢ Opportunities for enhanced streetscaping.	➢ Widening brings traffic closer to buildings and residences, noise levels would increase and as a result may require mitigation or additional property buyouts where resident concerns cannot be mitigated. ➢ Portions of 24 Private Properties would need to be purchased. ➢ 2 properties may require a complete buyout. ➢ Including potential buyouts, the total of potentially impacted property is 2.39 ha. ➢ Approximately 860m total of noise attenuation is expected at various locations along the corridor. ➢ Areas of previously undisturbed right of way or grading encroachment beyond right of way limits must be test pitted or pedestrian surveyed to investigate for archaeological artifacts. ➢ Lands associated with three (3) Built Heritage Resources may be impacted. ➢ Opportunities for enhanced streetscaping.	➢ Widening brings traffic closer to buildings and residences, noise levels would increase and as a result may require mitigation or additional property buyouts where resident concerns cannot be mitigated. ➢ Portions of 29 Private Properties would need to be purchased. ➢ 2 properties may require a complete buyout. ➢ Including potential buyouts, the total of potentially impacted property is 2.76 ha. ➢ Approximately 860m total of noise attenuation is expected at various locations along the corridor. ➢ Areas of previously undisturbed right of way or grading encroachment beyond right of way limits must be test pitted or pedestrian surveyed to investigate for archaeological artifacts. ➢ Lands associated with three (3) Built Heritage Resources may be impacted. ➢ Opportunities for enhanced streetscaping.	➢ Widening brings traffic closer to buildings and residences, noise levels would increase and as a result may require mitigation or additional property buyouts where resident concerns cannot be mitigated. ➢ Portions of 23 Private Properties would need to be purchased. ➢ 2 properties may require a complete buyout. ➢ Including potential buyouts, the total of potentially impacted property is 2.38 ha. ➢ Approximately 860m total of noise attenuation is expected at various locations along the corridor. ➢ Areas of previously undisturbed right of way or grading encroachment beyond right of way limits must be test pitted or pedestrian surveyed to investigate for archaeological artifacts. ➢ Lands associated with three (3) Built Heritage Resources may be impacted. ➢ Opportunities for enhanced streetscaping.
Does not address the Problem/Opportunity Statement	**GOOD**	**GOOD**	**GOOD**	**VERY GOOD**

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs – Widening Alignments

Transportation: How might the alternative serve the expected vehicular, transit, pedestrian, and cycling traffic in terms of travel delay, safety, and emergency access?

DO NOTHING "MAINTAIN STATUS QUO"	CONCEPT NUMBER 1 WIDENING EQUALLY ABOUT EXISTING CENTRELINE	CONCEPT NUMBER 2 WIDENING TO THE NORTH	CONCEPT NUMBER 3 WIDENING TO THE SOUTH	CONCEPT NUMBER 4 MODIFIED "HYBRID WIDENING CONCEPT" TO MINIMIZE OVERALL IMPACTS
➢ The existing Maple Grove Road configuration does not satisfy the requirements for existing and forecasted traffic volumes. Active Transportation facilities are not fully supported by the current roadway. ➢ Existing through lanes with turn lanes at intersections would not handle forecasted traffic volumes to 2036 and 2041. ➢ Existing roadway capacity creates delay to transit service. ➢ The existing roadway configuration would impact response times due to existing and forecasted congestion and delay. ➢ Do Nothing Alternative excludes changes to pedestrian facilities and excludes additional cycling provisions.	➢ A widened Maple Grove Road including active transportation facilities on both sides would serve the current vehicle, pedestrian, and cycling needs and would agree with the Region of Waterloo Active Transportation Master Plan (ATMP). ➢ Four (4) through traffic lanes, two in each direction, plus turn lanes at intersections would accommodate forecasted traffic volumes to 2036 and 2041. ➢ Additional through traffic lane capacity, as well as potential bus stop enhancements may promote greater transit service efficiency within and through the corridor. ➢ Emergency response times are expected to improve due to overall reductions in delay and congestion because of improved traffic flow and capacity. ➢ Continuous AODA-compliant active transportation facilities on both sides can be accommodated by all concepts, except the "Do Nothing" alternative.	➢ A widened Maple Grove Road including active transportation facilities on both sides would serve the current vehicle, pedestrian, and cycling needs and would agree with the Region of Waterloo Active Transportation Master Plan (ATMP). ➢ Four (4) through traffic lanes, two in each direction, plus turn lanes at intersections would accommodate forecasted traffic volumes to 2036 and 2041. ➢ Additional through traffic lane capacity, as well as potential bus stop enhancements may promote greater transit service efficiency within and through the corridor. ➢ Emergency response times are expected to improve due to overall reductions in delay and congestion because of improved traffic flow and capacity. ➢ Continuous AODA-compliant active transportation facilities on both sides can be accommodated by all concepts, except the "Do Nothing" alternative.	➢ A widened Maple Grove Road including active transportation facilities on both sides would serve the current vehicle, pedestrian, and cycling needs and would agree with the Region of Waterloo Active Transportation Master Plan (ATMP). ➢ Four (4) through traffic lanes, two in each direction, plus turn lanes at intersections would accommodate forecasted traffic volumes to 2036 and 2041. ➢ Additional through traffic lane capacity, as well as potential bus stop enhancements may promote greater transit service efficiency within and through the corridor. ➢ Emergency response times are expected to improve due to overall reductions in delay and congestion because of improved traffic flow and capacity. ➢ Continuous AODA-compliant active transportation facilities on both sides can be accommodated by all concepts, except the "Do Nothing" alternative.	➢ A widened Maple Grove Road including active transportation facilities on both sides would serve the current vehicle, pedestrian, and cycling needs and would agree with the Region of Waterloo Active Transportation Master Plan (ATMP). ➢ Four (4) through traffic lanes, two in each direction, plus turn lanes at intersections would accommodate forecasted traffic volumes to 2036 and 2041. ➢ Additional through traffic lane capacity, as well as potential bus stop enhancements may promote greater transit service efficiency within and through the corridor. ➢ Emergency response times are expected to improve due to overall reductions in delay and congestion because of improved traffic flow and capacity. ➢ Continuous AODA-compliant active transportation facilities on both sides can be accommodated by all concepts, except the "Do Nothing" alternative.
Does not address the Problem/Opportunity Statement	**EXCELLENT**	**EXCELLENT**	**EXCELLENT**	**EXCELLENT**

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs – Widening Alignments

Cost: What is the total cost of the alternative, including the cost for road construction, utility and street-lighting relocations, property acquisitions, traffic signal and intersection improvements, and landscaping?

DO NOTHING "MAINTAIN STATUS QUO"	CONCEPT NUMBER 1 WIDENING EQUALLY ABOUT EXISTING CENTRELINE	CONCEPT NUMBER 2 WIDENING TO THE NORTH	CONCEPT NUMBER 3 WIDENING TO THE SOUTH	CONCEPT NUMBER 4 MODIFIED "HYBRID WIDENING CONCEPT" TO MINIMIZE OVERALL IMPACTS
➢ Existing Utilities are unaffected by the "Do Nothing" Alternative.	➢ No significant impacts to existing underground gas lines, watermains, sewers, or communications cables, anticipated other than minor relocations / adjustments. ➢ 47 Hydro poles, 26 Traffic Signal poles and 8 Street Light poles would have to be relocated, for a total estimated cost of **$1.84M** for utility relocations. ➢ Preliminary Total Cost Estimate, including the following: ○ Property acquisition ○ Road and Drainage Works ○ Signals/Illumination ○ Roadside Protection and Line Markings ○ Bridges & Culvert Extensions and Replacement ○ Active transportation Facilities and Landscaping ○ Engineering ➢ **TOTAL** (Excl. HST) = **$52.7M** (Including Utility Impacts)	➢ No significant impacts to existing underground gas lines, watermains, sewers, or communications cables, anticipated other than minor relocations / adjustments. ➢ 61 Hydro poles, 26 Traffic Signal poles and 10 Street Light poles would have to be relocated, for a total estimated cost of **$2.15M** for utility relocations. ➢ Preliminary Total Cost Estimate, including the following: ○ Property acquisition ○ Road and Drainage Works ○ Signals/Illumination ○ Roadside Protection and Line Markings ○ Bridges & Culvert Extensions and Replacement ○ Active transportation Facilities and Landscaping ○ Engineering ➢ **TOTAL** (Excl. HST) = **$52.6M** (Including Utility Impacts)	➢ No significant impacts to existing underground gas lines, watermains, sewers, or communications cables, anticipated other than minor relocations / adjustments. ➢ 60 Hydro poles, 26 Traffic Signal poles and 17 Street Light poles would have to be relocated, for a total estimated cost of **$2.23M** for utility relocations. ➢ Preliminary Total Cost Estimate, including the following: ○ Property acquisition ○ Road and Drainage Works ○ Signals/Illumination ○ Roadside Protection and Line Markings ○ Bridges & Culvert Extensions and Replacement ○ Active transportation Facilities and Landscaping ○ Engineering ➢ **TOTAL** (Excl. HST) = **$53.7M** (Including Utility Impacts)	➢ No significant impacts to existing underground gas lines, watermains, sewers, or communications cables, anticipated other than minor relocations / adjustments. ➢ 46 Hydro poles, 26 Traffic Signal poles and 10 Street Light poles would have to be relocated, for a total estimated cost of **$1.85M** for utility relocations. ➢ Preliminary Total Cost Estimate, including the following: ○ Property acquisition ○ Road and Drainage Works ○ Signals/Illumination ○ Roadside Protection and Line Markings ○ Bridges & Culvert Extensions and Replacement ○ Active transportation Facilities and Landscaping ○ Engineering ➢ **TOTAL** (Excl. HST) = **$52.2M** (Including Utility Impacts)
Does not address the Problem/Opportunity Statement	**GOOD**	**GOOD**	**GOOD**	**GOOD**
OVERALL EVALUATION				
OVERALL EVALUATION	**GOOD – VERY GOOD (Not Carried Forward)**	**GOOD – VERY GOOD (Not Carried Forward)**	**GOOD – VERY GOOD (Not Carried Forward)**	**GOOD – VERY GOOD (Carried Forward as Preferred Alternative Widening Concept)**

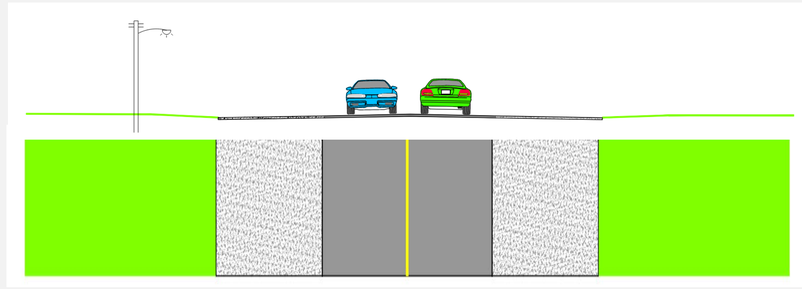
Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs – Cross-sections

Do Nothing

Reconstruction of the road in its current 2-lane rural (ditch drainage) cross-section with no active transportation facilities

No change to existing cross-section



Alternative A

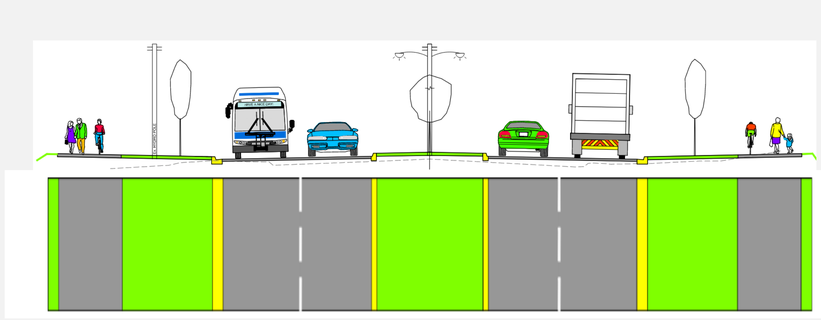
Widen the Road to 4-Lanes with Raised Centre Median, and 3.0m Multi-Use Path on both sides

5.0m raised median with concrete barrier curbs, and narrow gutter

0.6m curb and gutter, and a storm drainage system

3.0m asphalt multi-use path

Additional street lighting



Alternative B

Widen the Road to 4-Lanes with Raised Centre Median, 1.8m concrete sidewalks, and 1.7m separated roadside bike lanes with rollover curb

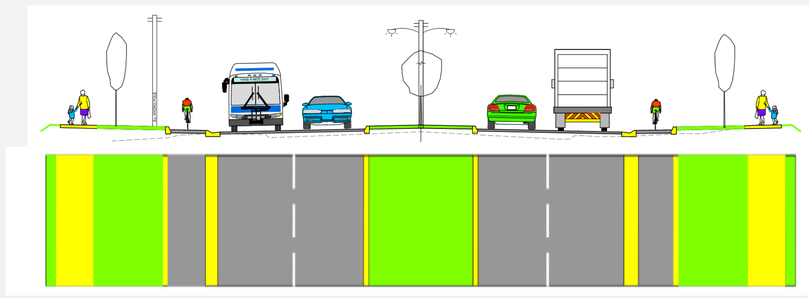
5.0m raised median with concrete barrier curbs, and narrow gutter

0.6m curb and gutter, and a storm drainage system

1.8m concrete sidewalks

1.7m separated roadside bike lanes with rollover curb

Additional street lighting



Contents:

Introduction

Study Process

Challenges / Opportunities

Alternative Solutions

Public Feedback

Preferred Solution

Alternative Designs

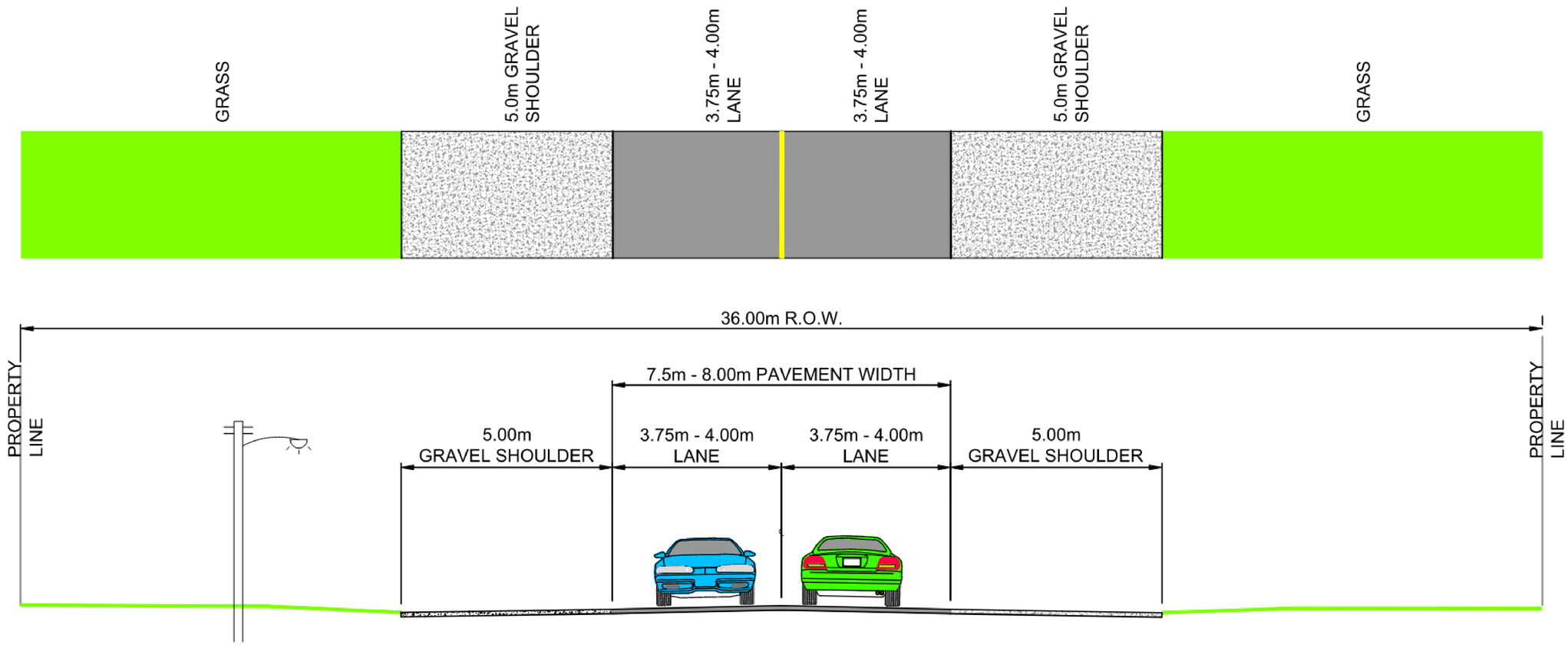
Recommended Design

Next Steps

Thank You/ Have Your Say

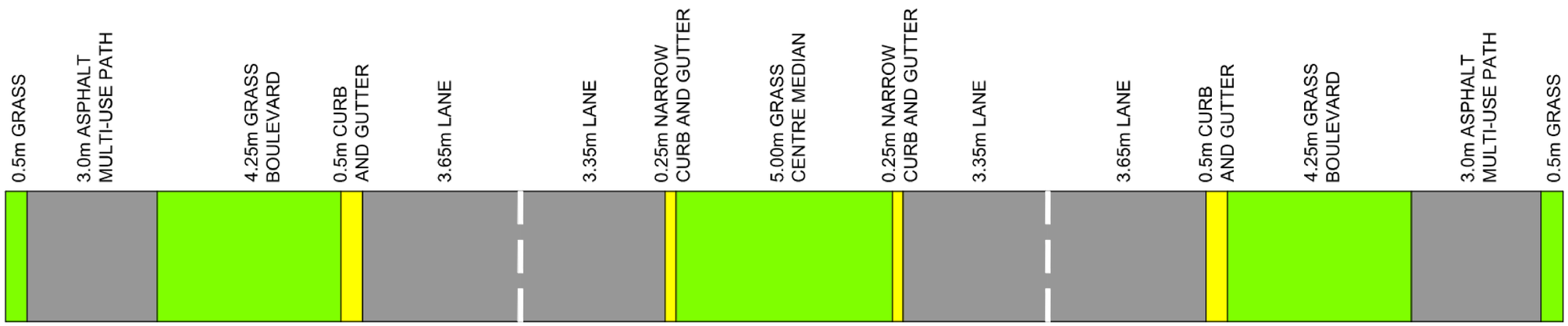
Alternative Designs – Cross-sections

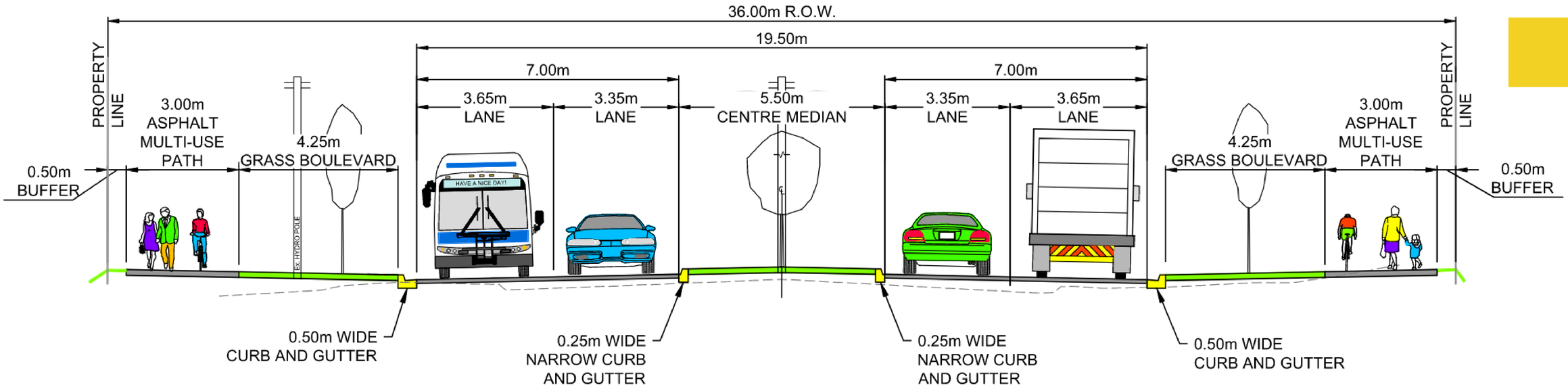
Do Nothing Alternative (Existing Conditions)



Alternative Designs – Cross-sections

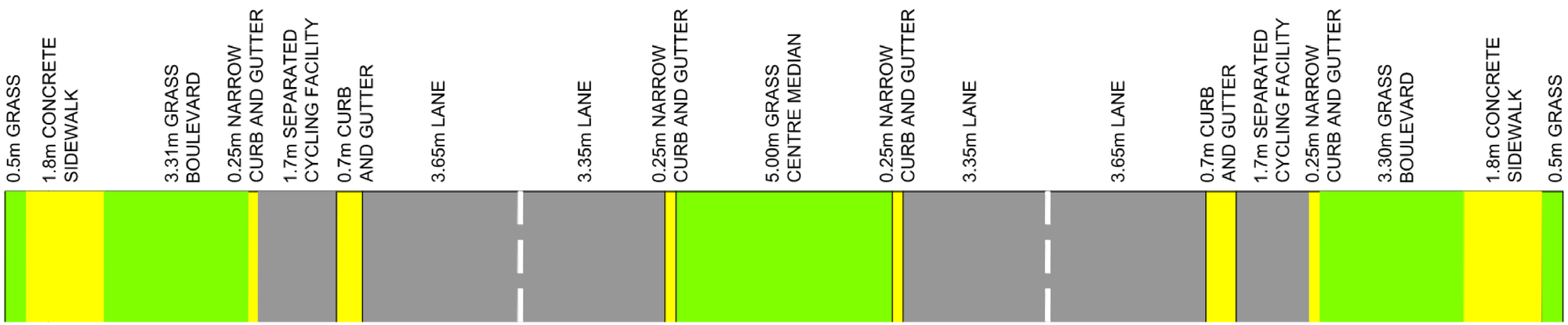
Design Alternative A – Raised Centre Median with Multi-Use Path

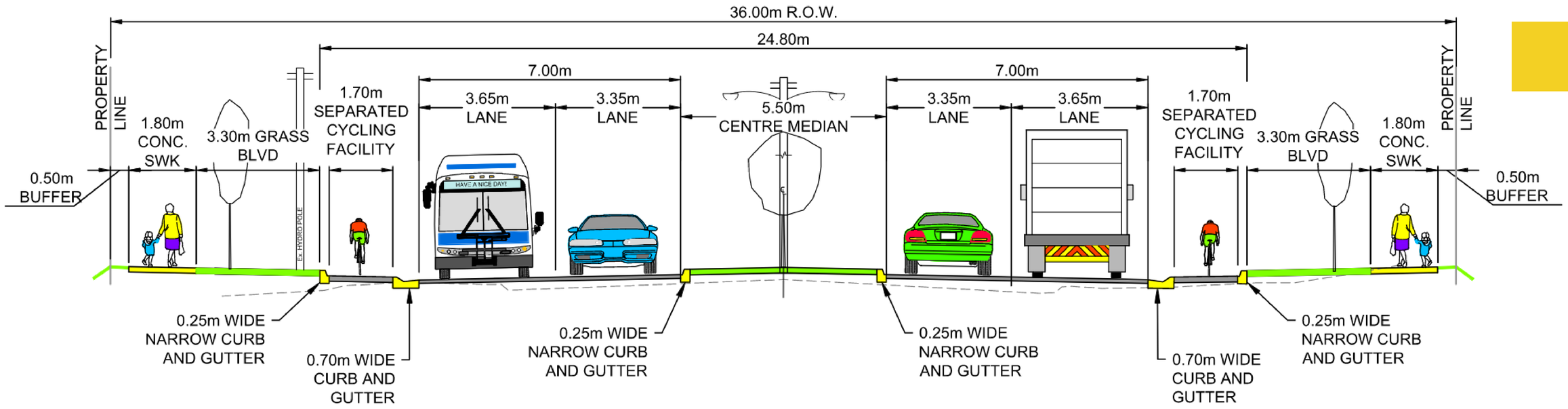




Alternative Designs – Cross-sections

Design Alternative B – Raised Centre Median with Concrete Sidewalk And a Separated Cycling Facility





Alternative Designs – Cross-sections

Natural Environment: How might the alternative affect existing trees, vegetation, and wildlife?

"DO NOTHING" RETAIN ROADWAY CROSS-SECTION IN ITS CURRENT CONFIGURATION	ALTERNATIVE A WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, AND 3.0M MULTI-USE PATH ON BOTH SIDES	ALTERNATIVE B WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, 1.8M CONCRETE SIDEWALKS, AND 1.7M SEPARATED ROADSIDE BIKE LANES WITH ROLLOVER CURB
➢ No changes to existing conditions. ➢ No removal of existing trees required. ➢ No widening of pavement; therefore, less roadway width for terrestrial wildlife crossing. ➢ Roadside ditches remain, providing infiltration of stormwater. ➢ Maintaining existing road capacity will lead to additional delay and queuing.	➢ Roadside ditches are filled in, removing benefits of sediment removal from storm water runoff. ➢ Increased storm water runoff can be mitigated with stormwater management techniques. ➢ Opportunity for tree planting in boulevard. ➢ Median provides opportunity for installing measures to capture/ infiltrate stormwater. ➢ Wider roadway increases potential for wildlife mortality. ➢ Minor encroachment into wetland and municipal drain between Hunsperger Drain crossing east of Boxwood Drive and Middle Creek east of Speedsville Road. ➢ Least total pavement area for active transportation requiring winter maintenance and de-icing. (6.0m^2/m of roadway)	➢ Roadside ditches are filled in, removing benefits of sediment removal from storm water runoff. ➢ Increased storm water runoff can be mitigated with stormwater management techniques. ➢ Opportunity for tree planting in boulevard. ➢ Median provides opportunity for installing measures to capture/ infiltrate stormwater. ➢ Wider roadway increases potential for wildlife mortality. ➢ Minor encroachment into wetland and municipal drain between Hunsperger Drain crossing east of Boxwood Drive and Middle Creek east of Speedsville Road. ➢ Mid-range total pavement area for active transportation requiring winter maintenance and de-icing. (7.0m^2/m or roadway) 17% more pavement area to maintain in comparison with Multi-use Path alternative.
EXCELLENT	**VERY GOOD**	**GOOD**

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs – Cross-sections

Social Environment: How might the alternative affect the residential and commercial properties abutting the road (driveways, access, property impacts, noise, air quality, and streetscaping / beautification potential) and archaeological / heritage resources?

"DO NOTHING" RETAIN ROADWAY CROSS-SECTION IN ITS CURRENT CONFIGURATION	ALTERNATIVE A WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, AND 3.0M MULTI-USE PATH ON BOTH SIDES	ALTERNATIVE B WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, 1.8M CONCRETE SIDEWALKS, AND 1.7M SEPARATED ROADSIDE BIKE LANES WITH ROLLOVER CURB
➢ No anticipated archaeological or cultural heritage impacts. ➢ No property acquisition required. ➢ No improvements for pedestrians, cyclists, or other recreational activities. ➢ Maintains current access to adjacent neighbourhoods, but increasing congestion exacerbates access concerns over time. ➢ Increasing traffic congestion (delay and queueing) leads to poorer relative air quality.	➢ No anticipated archaeological or cultural heritage impacts. ➢ Community benefits from new pedestrian and cycling facilities. ➢ Multi-use path provides additional comfort level for recreational cyclists and separation from vehicular traffic. ➢ Relieves traffic congestion facilitating better access to businesses and adjacent neighbourhoods. ➢ Less traffic congestion leads to better relative air quality. ➢ Cross-section does not influence property impact, noise, or air quality; widening does. ➢ Greatest amount of remaining boulevard space available for landscaping and streetscaping.	➢ No anticipated archaeological or cultural heritage impacts. ➢ Community benefits from new pedestrian and cycling facilities. ➢ Separated facilities provide additional comfort level for pedestrians and cyclists. ➢ Transit vehicles may interfere with cycling activities when patrons are boarding and alighting at the roadside. ➢ Relieves traffic congestion facilitating better access to businesses and adjacent neighbourhoods. ➢ Less traffic congestion leads to better relative air quality. ➢ Cross-section does not influence property impact, noise, or air quality; widening does. ➢ Very little remaining boulevard space available for landscaping and streetscaping.
FAIR	**VERY GOOD**	**VERY GOOD**

Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

Alternative Designs – Cross-sections

Transportation: How might the alternative serve the expected vehicular, transit, pedestrian, and cycling traffic in terms of travel delay, safety, and emergency access?

"DO NOTHING" RETAIN ROADWAY CROSS-SECTION IN ITS CURRENT CONFIGURATION	ALTERNATIVE A WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, AND 3.0M MULTI-USE PATH ON BOTH SIDES	ALTERNATIVE B WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, 1.8M CONCRETE SIDEWALKS, AND 1.7M SEPARATED ROADSIDE BIKE LANES WITH ROLLOVER CURB
➢ Does not satisfy the Region's Transportation Master Plan with respect to vehicular, pedestrian, or cycling facilities. ➢ Does not provide adequate capacity for vehicular traffic. ➢ Does not improve conditions for Emergency Services, Heavy Trucks, and Transit Vehicles. ➢ Does not improved conditions for cyclists or pedestrians.	➢ Addresses the Region's Transportation Master Plan with respect to vehicular, pedestrian, and cycling facilities. ➢ Addresses future traffic capacity needs of the corridor. ➢ Reduces congestion and improves conditions for Emergency Services, Heavy Trucks, and Transit Vehicles. ➢ Provides separation of pedestrians and cyclists from vehicular traffic. ➢ Pedestrian and cyclist conflicts may occur. ➢ Addresses transit's concerns regarding on road conflicts with cyclist during boarding and alighting activities. ➢ Raised centre median provides physical separation of bi-directional traffic, reducing collisions. ➢ Raised centre median provides potential refuge for pedestrians crossing the road mid-block. ➢ Lowest Transportation Operations/Maintenance requirements. ➢ 3.0m wide pathway can be maintained with pickup truck and plow and allows access for utility vehicles. Can be cleared adequately with single pass and entirely with two-way pass.	➢ Addresses the Region's Transportation Master Plan with respect to vehicular, pedestrian, and cycling facilities. ➢ Addresses future traffic capacity needs of the corridor. ➢ Reduces congestion and improves conditions for Emergency Services, Heavy Trucks, and Transit Vehicles. ➢ Sidewalk provides separation pedestrians from cyclists and vehicular traffic. ➢ Some separation is provided for cyclists from vehicular traffic. ➢ Transit has concerns with conflicts between cyclists and boarding and alighting activities at the roadside. ➢ Separated bike lane provides some separation from vehicular traffic, but buses stop in these lanes. ➢ Raised centre median provides physical separation of bi-directional traffic, reducing collisions. ➢ Raised centre median provides potential refuge for pedestrians crossing the road mid-block. ➢ 2nd Lowest Transportation Operations/Maintenance requirements. ➢ Two facilities require additional maintenance time and expenditure. Curb separated cycle lane has proven challenging to adequately clear for winter use.
POOR	**VERY GOOD**	**VERY GOOD**

Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

Alternative Designs – Cross-sections

Cost: What is the total cost of the alternative, including the cost for road construction, utility and street-lighting relocations, property acquisitions, traffic signal and intersection improvements, and landscaping?

"DO NOTHING" RETAIN ROADWAY CROSS-SECTION IN ITS CURRENT CONFIGURATION	ALTERNATIVE A WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, AND 3.0M MULTI-USE PATH ON BOTH SIDES	ALTERNATIVE B WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, 1.8M CONCRETE SIDEWALKS, AND 1.7M SEPARATED ROADSIDE BIKE LANES WITH ROLLOVER CURB
➢ Do Nothing has no direct Capital Cost. ➢ Increased costs for movement of goods and services as congestion increases. ➢ No change to maintenance costs for road, pedestrian/ cycling facilities, or landscaping. ➢ Increased traffic over fewer travel lanes increases frequency of required maintenance. ➢ Increased traffic volume increases congestion and may lead to increased accident frequency due to gap reduction.	➢ Cross-section unit cost is $2,100/m. (excl. utility relocation costs – see widening alternative concept evaluation – Table 1) ➢ Reduced costs for movement of goods and services as congestion decreases. ➢ Increased maintenance costs for road, pedestrian/ cycling facilities, and landscaping.	➢ Cross-section unit cost is $2,200/m. (excl. utility relocation costs – see widening alternative concept evaluation – Table 1) ➢ Reduced costs for movement of goods and services as congestion decreases. ➢ Increased maintenance costs for road, pedestrian/cycling facilities, and landscaping.
FAIR	**VERY GOOD**	**GOOD**
OVERALL EVALUATION		
FAIR	**VERY GOOD**	**GOOD**
✘	✓	✘
Not Carried Forward **Does not address Problem/Opportunity Statement**	**Carried Forward as the preferred cross-section design alternative.**	**Not Carried Forward**

Contents:
Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

Alternative Designs Evaluation Summary

Alternative Designs – Widening Alignments

DO NOTHING "MAINTAIN STATUS QUO"	CONCEPT NUMBER 1 WIDENING EQUALLY ABOUT EXISTING CENTRELINE	CONCEPT NUMBER 2 WIDENING TO THE NORTH	CONCEPT NUMBER 3 WIDENING TO THE SOUTH	CONCEPT NUMBER 4 MODIFIED "HYBRID WIDENING CONCEPT" TO MINIMIZE OVERALL IMPACTS
Does not address the Problem/Opportunity Statement	GOOD – VERY GOOD (Not Carried Forward)	GOOD – VERY GOOD (Not Carried Forward)	GOOD – VERY GOOD (Not Carried Forward)	VERY GOOD (Carried Forward as Preferred Alternative Widening Concept)

Alternative Designs – Cross-Sections

"DO NOTHING" RETAIN ROADWAY CROSS-SECTION IN ITS CURRENT CONFIGURATION	ALTERNATIVE A WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, AND 3.0M MULTI-USE PATH ON BOTH SIDES	ALTERNATIVE B WIDEN THE ROAD TO 4-LANES WITH RAISED CENTRE MEDIAN, 1.8M CONCRETE SIDEWALKS, AND 1.7M SEPARATED ROADSIDE BIKE LANES WITH ROLLOVER CURB
FAIR	VERY GOOD	GOOD
3	1	2
✗	✓	✗
Not Carried Forward Does not address Problem/Opportunity Statement	Carried Forward as the preferred cross-section design alternative. Greatest potential for Natural Environment, Social Environment, Transportation, and Cost benefits. Greatest overall boulevard area available for landscaping, snow storage, and stormwater management. Least area requiring winter maintenance and de-icing adjacent to watercourses. Least potential conflict between users and transit buses at, or near, transit stops. Lowest expected capital (construction) and operating (maintenance) cost of active transportation alternatives. Least impact on existing utilities.	Not Carried Forward 2nd most potential for Natural Environment, Social Environment, Transportation, and Cost benefits. 2nd most overall boulevard area available for landscaping, snow storage, and stormwater management. 2nd least area requiring winter maintenance and de-icing adjacent to watercourses. Greater potential for conflict between users at, or near, transit vehicle stops than Alternative 1. 2nd Lowest expected capital (construction) and operating (maintenance) cost of active transportation alternatives. 2nd least impact on existing utilities.

Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

Project Team Recommended Design Alternative

Alignment

Concept 4:

Modified "Hybrid Widen Concept" to Minimize Overall Impacts

+

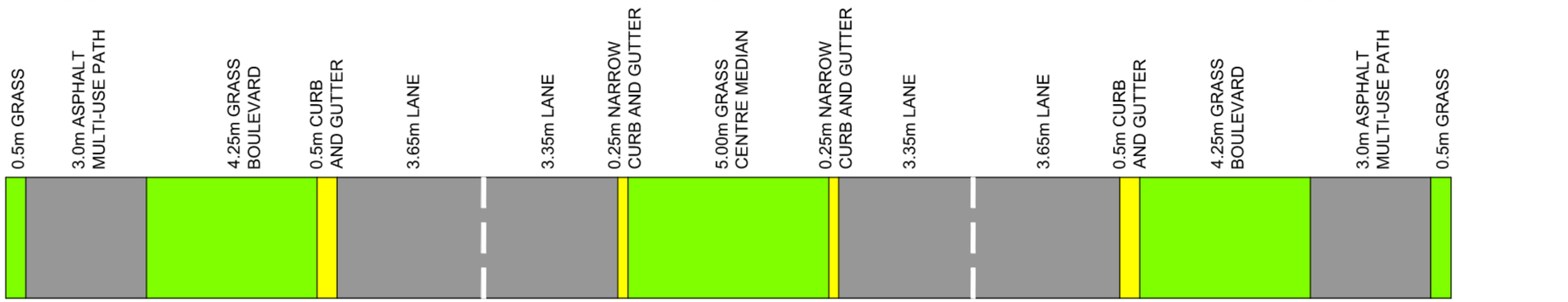
Cross-Section

Alternative A:

Widen the Road to 4-Lanes with Raised Centre Median, and 3.0m Multi-Use Path on both sides

=

Project Team Recommended Design Alternative



Contents:

Introduction

Study Process

Challenges / Opportunities

Alternative Solutions

Public Feedback

Preferred Solution

Alternative Designs

Recommended Design

Next Steps

Thank You/ Have Your Say

Next Steps

The public will have 1 remaining opportunity to provide input (i.e. Winter 2022):

Have Your Say!

ENGAGE REGION of WATERLOO

Study Webpage

engagewr.ca/cambridge-maple-grove-road

Online Survey #2

Click here to take the Survey

Submit Comments or Request to Join the Study Mailing List

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Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

Thank you for your Interest!

Have Your Say!

Comments and Study Mailing List

Submit your comments or request to join the study mailing list by contacting:

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Study Webpage

Follow the Study: engagewr.ca/cambridge-maple-grove-road

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Online Survey #2

Take the second Online Study Survey:

Click here to take the Survey

Please submit comments and/or complete the online survey by: July 30, 2021

Region of Waterloo

Contents:

Introduction
Study Process
Challenges / Opportunities
Alternative Solutions
Public Feedback
Preferred Solution
Alternative Designs
Recommended Design
Next Steps
Thank You/ Have Your Say

IBI

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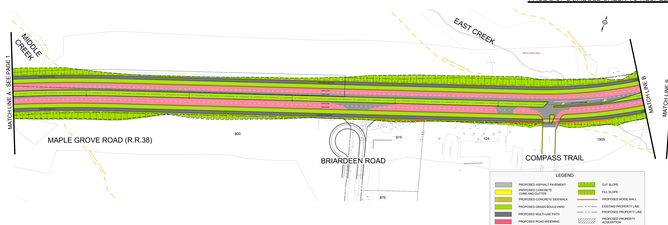
MAPLE GROVE ROAD IMPROVEMENTS AND CORRIDOR STUDY
FROM VONDRAU DRIVE TO HESPELER ROAD
PROJECT TEAM RECOMMENDED DESIGN ALTERNATIVE
PAGE 1 OF 2 (VONDRAU DRIVE TO MIDDLE CREEK)

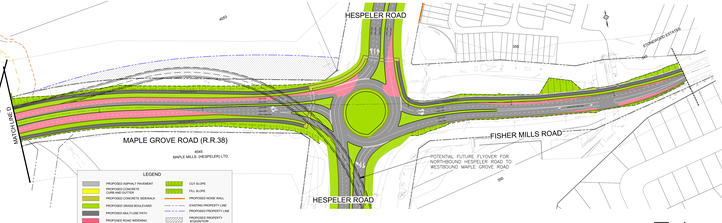
MAPLE GROVE ROAD IMPROVEMENTS AND CORRIDOR STUDY
FROM VONDRAU DRIVE TO HESPELER ROAD
PROJECT TEAM RECOMMENDED DESIGN ALTERNATIVE
PAGE 1 OF 2 (VONDRAU DRIVE TO MIDDLE CREEK)

DRAWING SCALE 1:1 : 500

MAPLE GROVE ROAD IMPROVEMENTS AND CORRIDOR STUDY
FROM VONDRAU DRIVE TO HESPELER ROAD
PROJECT TEAM RECOMMENDED DESIGN ALTERNATIVE
PAGE 2 OF 2 (MIDDLE CREEK TO HESPELER ROAD)



MAPLE GROVE ROAD IMPROVEMENTS AND CORRIDOR STUDY
FROM VONDRAU DRIVE TO HESPELER ROAD
PROJECT TEAM RECOMMENDED DESIGN ALTERNATIVE
PAGE 2 OF 2 (MIDDLE CREEK TO HESPELER ROAD)



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Comment Sheet
Regional Municipality of Waterloo
Maple Grove Road Improvements
Public Consultation Centre #2
Online Review and Comment Period – June 28 – July 30, 2021

Please complete and forward this sheet so that your comments can be considered for this project. Please email, fax, or mail your comments within the online review and comment period to:

Justin Armstrong, P. Eng.
Senior Project Manager
Region of Waterloo
150 Frederick Street, 6th Floor
Kitchener, ON N2G 4J3
Telephone: 519-575-4400 Ext. 3164
Fax: 519-575-4430
Email: JuArmstrong@regionofwaterloo.ca

John Bayley, P.Eng.
Associate Director, Practice Lead
IBI Group
410 Albert Street, Suite 101
Waterloo, ON N2L 3V3
Telephone: 519-585-2255 Ext. 63220
Email: john.bayley@ibigroup.com

Comments regarding this project:

Name:

Address:

Postal Code:

Phone: **Email:**

Collection Notice:

All comments and information received from individuals, stakeholder groups, and agencies regarding these projects and meetings are being collected to assist the Region of Waterloo in making a decision. Under the “Municipal Act”, personal information (such as name, address, telephone number, and property location) which may be included in a submission becomes part of the public record. Questions regarding collection should be forwarded to the staff member noted above

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Region of Waterloo

CLASS ENVIRONMENTAL ASSESSMENT STUDY
MAPLE GROVE ROAD (VONDRAU DRIVE TO HESPELER ROAD)

Public Consultation Centre #2
June 28, 2021 to July 30, 2021

QUESTIONNAIRE / COMMENT SHEET

1. Where do you live?

☐ City of Cambridge ☐ City of Kitchener ☐ City of Waterloo

☐ Region of Waterloo ☐ Other _____

2. How often do you travel on this section of Maple Grove Road (pre-COVID 19)?

☐ Daily ☐ Weekly ☐ Monthly ☐ Rarely

3. What is the travel mode you often use on this section of Maple Grove Road?

☐ Bus (GO Bus) ☐ Walk ☐ Bike ☐ Drive

☐ Other_____

4. What is the general purpose of your travel on this section of Maple Grove Road?

☐ Work ☐ School ☐ Recreational ☐ Other_____

5. What do you like about the Project Team Recommended Design Alternative for the Maple Grove Road Improvements Study?

6. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?

For more information, please visit our website at https://www.engagewr.ca/cambridge-maple-grove-road

Please submit your completed comment sheet to the project team members by **Friday, July 30, 2021.**

Justin Armstrong, P.Eng.
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John Bayley, P.Eng.
Project Manager
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410 Albert Street, Suite 101
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519-585-2255 ext. 63220
john.bayley@ibigroup.com

Name: _____

Address: _____

Email / Telephone: _____

Note: Personal information, as defined by the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) is collected under the authority of the Municipal Act, 2001, and in accordance with the provisions of MFIPPA. Personal information on this form will be used for the purpose of completing the CLASS ENVIRONMENTAL ASSESSMENT STUDY MAPLE GROVE ROAD (VONDRAU DRIVE TO HESPELER ROAD). The information will be used to identify public and stakeholder concerns and interest and will be documented in the Study as part of the formal Class Environmental Assessment study process. With the exception of personal information, all comments will become a part of the public record. If you have questions about this collection; use, and disclosure of this information, contact Justin Armstrong at 519-575-4400 ext. 3164 or JuArmstrong@regionofwaterloo.ca

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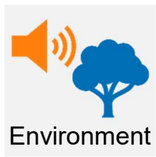
Public Comments and Project Team Responses - Public Consultation Centre #2

No.	Themes	Comment	Project Team Response
1	Active Trans. Improvement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Nothing. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Car safety around cyclists.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway (and vice versa). Studies completed by the Region of Waterloo have shown that pedestrian collision rates are reduced by approximately 40 to 60% at roundabout intersections versus comparable traffic signal intersections with similar volumes. Signalized intersections retrofitted with roundabouts have experienced approximately 40% fewer injury collisions. Retrofitting signalized intersections with roundabouts can reduce the probability of fatal collisions by nearly 100%.
2	Road Widening	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Widening to four lanes. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* None.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.
3	Road Widening	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* The road needs more capacity for cars. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* It's a little confusing in the presentation what the proposal is. It is option 6, widen from 2 lanes to 4 lanes, but is that it? If so, that's what I'm for: do nothing, but widen the road and make and shoulder and drainage enhancements that are required for the road.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. 10 Alternative Solutions were evaluated, and Option 6 Widening Maple Grove Road (*Public Consultation Centre 2 Presentation*, p. 7) was selected, by the Project Team. 4 Widening Alignments were evaluated, and Concept 4 (a) Modified "Hybrid Widening Concept" to Minimize Overall Impacts (*Public Consultation Centre 2 Presentation*, pp. 23-27) was selected, by the Project Team. 2 Cross-section Design Alternatives were evaluated, and Design Alternative A Raised Centre Median with Multi-use Path (*Public Consultation Centre 2 Presentation*, pp. 28 – 35) was selected, by the Project Team.

No.	Themes	Comment	Project Team Response
			In summary, the Recommended Design Alternative (cross-section) is to widen the road from two lanes to four lanes with a new 5.0m wide raised centre median and 3.0m wide asphalt multi-use paths on both sides. In most areas, roadside ditches will be filled in and a new curb and gutter will be installed to collect and direct water to a storm drainage system.
4		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Cycling and pedestrian facilities are a welcome addition. It is extremely unsafe to bike or walk on Maple Grove Road, which I have done on recreational bike rides to Puslinch Lake. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* The report states, “Improvements to vehicular capacity will reduce current traffic concerns.” Road widening will create more induced demand for Maple Grove and will not make a long-term difference in vehicular congestion. Instead, keeping the road to 2 lanes and investing in transit improvements (especially rush-hour service improvements geared to the employment uses in this area) would be a better use of municipal budget. The Region of Waterloo has declared a climate emergency and committed to a 50% reduction in greenhouse gas emissions by 2030. This latest decision was made by council within the last month. It should have major implications for every infrastructure project, including this one. Please keep the road to two vehicular lanes and invest in transit improvements to manage congestion.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region’s transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it’s aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. Additional vehicle traffic capacity, as well as potential bus stop enhancements are expected to promote greater transit service efficiency through the corridor.

No.	Themes	Comment	Project Team Response
5		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Separated multi-use trails beside the road.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway.
6	 	*Q. What is the travel mode you often use on this section of Maple Grove Road?* Years ago, I tried cycling but because of the inconsiderate drivers and narrow road, I gave it up because it was too dangerous. SO most often I drive to work, turning onto Boxwood Road. I also take the GRT bus sometimes. When you construct the bicycle lanes, I will again be able to cycle (after 10 years) to work. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* The new separated bicycle lanes are very important because without them, it is too dangerous to cycle along this section of Maple Grove Road. I tried it 10 years ago a few times and gave it up because of inconsiderate drivers and narrow roads. I will use the new lanes to cycle to work and for recreation. What you need to do at traffic circles through (across the Region) is not have cyclists have to cross where the pedestrians cross (a detour) but make cycling streamlined by either having the cycling lane continue through the traffic circle as the adjacent vehicle lane or lane have an access point before the traffic circle for the cyclist to get onto the right vehicle lane and go through traffic circle as a vehicle (which a bicycle is considered anyway under Ontario rules). This is missing at Franklin Blvd. and irritating to have to detour with the pedestrians (so I get onto the road instead anyway). You need to streamline cycling at the intersections, not just create a bicycle lane but have no solution at intersections. Traffic lights should also recognize a bicycle and not expect us to get off and press the button on the pole. Cycling needs to be convenient so don't treat us as pedestrians at intersections. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* In your design, I didn't see enclaves for bus stops. Right now, you have one at Compass Trail. You need to do this at Maple Grove Road and other roads across the Region, even when you have 2 lanes so the bus enters its enclave and doesn't block either lane of traffic. Learn from other countries. This is common in Europe. You should also not have bus stops right at the edge of intersections, unless the bus is in an enclave. If there is no enclave, the bus is blocking traffic behind it and making it difficult for drivers to see the vehicles on	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway. Cyclists have two choices at a roundabout, depending on their degree of comfort riding in traffic. Experienced cyclists can enter the roadway and traverse the roundabout as if they were driving a car. Less confident cyclists can dismount their bicycle and walk through the roundabout at the pedestrian crossings. Cyclist crossings at new roundabouts will be reviewed through detailed design. Many roundabouts within the Region of Waterloo include this feature. Grand River Transit (GRT) will be asked to provide input into the detailed design with respect to transit measures for the Maple Grove Road corridor, including a needs assessment during the detailed design stage of the project. This may include transit priority measures, bus bays (or enclaves), stop locations, pedestrian access, lighting, shelters and related infrastructure and how those features interact with pedestrians, cyclists, and vehicular traffic. All will be considered at that time and, where practical, will be incorporated into the detailed design. Efficiency in transit service delivery is a priority for GRT and the Region to promote transit use, satisfy the Regional Transportation Master Plan objectives, and minimize conflicts with transit vehicles which are key considerations in the review of transit provisions on all Region of Waterloo road improvement projects. Research indicates that if the Region were to modify signals from standard operating mode to flash mode at night a 50% increase in collisions could be expected. If signals were completely turned off, we would expect an even further degradation in corridor safety. Further, additional traffic controls, such as stop signs in one or both directions, would be required. While manufacturing and installing additional signage would be an extra cost, the greater cost (both

No.	Themes	Comment	Project Team Response
		intersecting roads. If someone is trying to turn left and there's a bus standing at the bus stop in my line of view (and sometimes they stay there for several minutes), it is blocking my view, I cannot see traffic coming from the left. If the bus is in its enclave (i.e. to the right of the right lane), it will no longer be blocking a person's view of any vehicles in the right lane coming from one's left as they are trying turn left. As a side note, you also need to learn to turn off traffic lights when they are not needed (e.g. no traffic at night). Canada will never reduce its carbon footprint if you waste electricity and gasoline of cars idling unnecessarily for 1 minute or more for lights to change. Ask yourself. What is the point for a car to stop at an empty intersection and wait for 1 minute or longer before the light changes? We have better things to do in life. Learn from other countries where turning off traffic lights has been around for over half a century at least. At Speedsville Rd., according to your video, you seem to increase the number of lanes to 3 lanes and then reduce them to 2 again. This practice of temporary lanes should be stopped. People don't use them anyway and it's confusing to constantly begin and then end a lane again. Be more consistent. That promotes efficiency of traffic flow and safety and prevents delinquents from using them to speed by slower traffic (since we have no enforcement in this country).	financial and environmental) would be to cover/bag signage during hours in which signals are operational. Energy usage/cost has been greatly reduced with the implementation of LED lighting. Future forecasts for traffic volumes along this section of roadway require the widening of Maple Grove Road to adequately accommodate future traffic demands. Between the proposed roundabouts at Beaverdale Road and at Hespeler Road the projected traffic volumes, merge conditions, and anticipated approach queuing warrant three lanes.
7	 	*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Getting to Guelph. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Two lanes in both directions will help at certain points of the day, for sure. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* I'm curious what steps will be taken to enable some traffic flow during construction, including whether that's limited to just asking people to just stay away and find alternate routes during that time.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. Construction traffic staging plans will be developed during the detailed design phase of this project. However, it is anticipated that the work will be staged to maintain two-way traffic along Maple Grove Road as much as possible during construction. Staging may limit the lanes to one through traffic lane in each direction during the construction phase of the project and this may result in unavoidable traffic delay. This condition will continue throughout the construction phase and is expected to result in motorist delay during construction.
8	 	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Nothing. Honestly, why are we considering such a massive widening project in the face of growing GHG emissions and a Climate Action plan that envisions shrinking VMT? Just because we slap a couple of MUTs on the outside does not mean this is an environmentally sustainable project. The idea that any of the alternative scored "good" on environmental criteria is absurd. They are all disastrous for our	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based

No.	Themes	Comment	Project Team Response
		climate, and frankly, fiscally irresponsible. Further growing the cost of maintenance for future generations. Can we stop this madness? *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* We are massively widening roads without need or thought for our future.	largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. Maple Grove Road is also a key goods movement corridor and is an Emergency Detour Route (EDR) for Highway 401. As part of this study, mitigation measures have been proposed to offset negative impacts on the natural environment and species within the study area. These measures will be further refined during the detailed design phase of this project.
9	 Road Widening Active Trans. Improvement	*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Shopping. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Wider roads. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Bike lanes.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative is to widen the road from two lanes to four lanes with a new 5.0m wide raised centre median and new 3.0m wide asphalt multi-use paths on both sides that are separated from the road by grass boulevards. Cyclists can use the new multi-use path and will be separated from vehicles on the roadway. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the roadway that will provide access for both cyclists and pedestrians along Maple Grove Road.

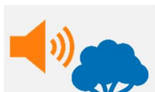
No.	Themes	Comment	Project Team Response
10	Active Trans. Improvement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Adding more bicycle and pedestrian access. Please don't forget trees and speed enforcement.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the roadway that will provide access for both cyclists and pedestrians along Maple Grove Road. The preferred alternative also provides opportunities for tree planting along the boulevard, where space is available for landscaping and streetscaping. and a landscaping plan (including trees) will be implemented through the final project phase (i.e. construction). Area residents can contact Waterloo Region Police Service (WRPS) about the Selective Traffic Enforcement Program (STEP) regarding enforcement of posted speed limits.
11	Active Trans. Improvement Roundabout	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I like that there is a trail along the road. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* I'm concerned with having to cross the large roundabouts as a pedestrian, considering the high traffic volumes.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. Studies completed by the Region of Waterloo have shown that pedestrian collision rates are reduced by approximately 40 to 60% at roundabout intersections versus comparable traffic signal intersections with similar volumes. Signalized intersections retrofitted with roundabouts have experienced approximately 40% fewer injury collisions. Retrofitting signalized intersections with roundabouts can reduce the probability of fatal collisions by nearly 100%. For more information on how to safely cross roundabouts as a pedestrian, please visit the Region of Waterloo website.

No.	Themes	Comment	Project Team Response
12		*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Errands. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Nothing, although I enjoyed a chuckle that this is considered an "improvement" until I realized this was a serious proposal. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* We are in a climate emergency and we should not be widening roads. Widened roads only induce demand; it is a self-fulfilling prophecy. Not only do more kilometers travelled by vehicles travel generate more pollution, but so does the production of asphalt and concrete. We have so many other priorities we could be putting these funds towards, like affordable housing. Plus, there is the perpetual on-going costs to plow, sweep, patch, illuminate, and enforce this stretch. Since you are going to build it anyway, at least make the lanes narrower to slow drivers down and tighten the turning radius on that ridiculous over-sized roundabout.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. As part of this study, mitigation measures have been proposed to offset negative impacts on the natural environment and species within the study area. These measures will be further refined during the detailed design phase of this project.
13		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Balances needs.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.

No.	Themes	Comment	Project Team Response
14	Active Trans. Improvement Road Widening	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Separated multi-use path. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Why a 5m median? Stated to reduce collisions, but without it, and with 60km speed limit, could have 1 lane each direction with centre turning lane, and still have room for 1 lane for transit/emergency vehicles in each direction. 4 lanes just for all vehicular traffic will ease congestion for 2 years and that's it. This is yet another project that will induce demand, and that completely ignores the climate EMERGENCY we are in.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. *Geometric Design Guidelines* (Transportation Association of Canada, 2017) indicate that access controlled (i.e. a raised median) roads greatly reduce collision rates when compared with uncontrolled (i.e. undivided, painted and/or two-way left turn lane) roads. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. A three lane road design (i.e. one through lane in each direction and a centre, two-way turning lane) does not adequately address the high volume of traffic in this critical goods movement corridor and Highway 401 Emergency Detour Route (EDR). Four through traffic lanes (two in each direction), plus turn lanes at intersections, will accommodate forecasted traffic volumes through 2041, reduce congestion, and improve conditions for Emergency Services, heavy trucks, and transit. Additional traffic capacity, as well as potential bus stop enhancements

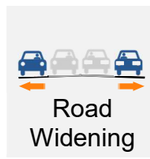
No.	Themes	Comment	Project Team Response
			are expected to promote greater transit service efficiency within and through the corridor.
15		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Yes, I am surprised not to see additional roundabouts at the other major intersections. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* None.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. As part of the study process, roundabouts were considered for all major intersections (Vondrau Drive, Boxwood Drive, Speedsville Road, Beaverdale Road, and Hespeler Road). Detailed traffic analyses and simulations were undertaken to determine minimum traffic delays and highest levels of service from a traffic operations perspective for all intersections. The intersection and corridor analyses have concluded that the proposed mix of intersection types will reduce overall delay in the corridor and enhance the overall traffic efficiency at several locations. Key intersections include those with high volume turning requirements such as the northbound to westbound left turning volumes at Speedsville Road, which will reduce traffic delay.
16	 	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* A nice big new road will be easier to drive on for a few years. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* The study reads like a thinly veiled attempt to consider alternatives while having already made the decision to widen the road from the start. It is yet another classic implementation of induced demand and kicking the can for another decade or so. There is no real information on why the road is busy or where all these cars are going and how these root causes could be addressed. Why is there no mention of a dedicated bus lane to make the buses actually desirable rather than just adding to the congestion?	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is

No.	Themes	Comment	Project Team Response
			the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. As part of the study process, alternative cross-sections were evaluated. Four through traffic lanes (two in each direction), plus turn lanes at intersections, would accommodate forecasted traffic volumes through 2041 and reduces congestion and improves conditions for Emergency Services, heavy trucks, and transit. Additional through traffic lane capacity, as well as potential bus stop enhancements may promote greater transit service efficiency within and through the corridor.
17	 	*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Shortcut away from Hwy 401. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* The heavy trucks in this area make "option a" with separated multi-use trails critical for cycling safety. I regularly ride on Manitou Rd, Columbia St, and University Ave West, where a small "roll curb" like the "option B" proposal is supposed to provide protection. It's fine for cars but is still terrifying for large trucks, especially when they're moving fast and produce a lot of wind, as they will be in this area. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* In my opinion the proposed "flyover" from Hespeler to Maple Grove would be a huge misallocation of resources.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway. To account for projected long-term traffic growth at the Hespeler Road intersection, a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only) is recommended for the ultimate condition. The initial step will be to protect the land available for future implementation of a flyover, if warranted in the future. Additional Transportation studies may be undertaken in the future to confirm the need and timing of the potential flyover. This step is considered prudent planning practice if the flyover component is deemed necessary in the future.

No.	Themes	Comment	Project Team Response
18		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Four lanes and bikes separated from roadway. Roundabouts to improve efficiency. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Need better access to neighborhoods. Not nearly enough trees along both sides of the roadway to cut down on noise and create feeling of countryside rather than more urban sprawl. This will also create less wind across the roadway. What is missing from the design is keeping the snow and melt water off the road. A swale is needed between the road and the cycling path.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The road widening from two lanes to four is expected to reduce traffic congestion, which would facilitate better access to business and adjacent neighbourhoods. The preferred alternative also provides opportunities for tree planting along the boulevard, where space is available for landscaping and streetscaping. and a landscaping plan (including trees) will be implemented through the final project phase (i.e. construction). The Recommended Design Alternative includes new curb and gutter, which will collect and direct water to a typical urban storm drainage system. Stormwater quantity and quality control measures will be reviewed and implemented during detailed design. Considerations during detailed design may include boulevard swales to enhance water quality and control, including infiltration potential and Low Impact Development features. The City of Cambridge undertakes winter maintenance on behalf of the Region for Maple Grove Road within the Project Study area. The City and Region have policies in place to reduce the use of road salt, while still adequately maintaining roadways during the winter.
		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Plans for active transit facilities. I would much rather bike than drive but it's currently deadly for anyone outside a car. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* 1. The climate crisis. You are planning to widen a road to accommodate future traffic increases when you should be designing roads that discourage driving. Active transportation and bus facilities don't require you to widen the road, unless you are making dedicated bus lanes. 2. Deadly roundabout design. Triangle shaped wedges and entry design encourage entry at speed and discourage slowing down to look for pedestrians or people on bikes.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that

No.	Themes	Comment	Project Team Response
			widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. Modern Roundabout design principles are tailored to speed reduction and speed control at the roundabout approaches and through the roundabouts. If applied appropriately, the application of those principles will achieve the desired effect of managing traffic speed while decreasing overall delay and enhancing and managing potential conflicts and collision severity between facility users. Safe driving practice and user awareness are key considerations while managing the overall risks for all users at intersections. Studies completed by the Region of Waterloo have shown that pedestrian collision rates are reduced by approximately 40 to 60% at roundabout intersections versus comparable traffic signal intersections with similar volumes. Signalized intersections retrofitted with roundabouts have experienced approximately 40% fewer injury collisions. Retrofitting signalized intersections with roundabouts can reduce the probability of fatal collisions by nearly 100%.
19	Roundabout	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* The roundabouts at Hespeler and Beaverdale. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Don't build a pedestrian walk bridge.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes separated pedestrian bridges to carry the multi-use path across Ellis Creek and remain separated from the road. The use of separate pedestrian bridges will be confirmed during detailed design, and may be more cost-effective than reconstructing the main Ellis Creek bridge (i.e. roadway bridge), to accommodate the recommended 3.0 m wide multi-use paths on both sides.

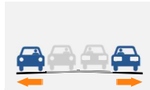
No.	Themes	Comment	Project Team Response
20	Active Trans. Improvement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Cycle path.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway.
21	Active Trans. Improvement Traffic Road Widening	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Appreciate the bike lanes BUT, just adding to one road is not that useful. No bike lanes on Hwy 24 and Fountain Street going into Cambridge is just awful. Poor pavement and no shoulders, so improve bike access so it is not just a bike lane on a road that goes nowhere. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Speedsville Rd can't be widened so all traffic should be funneled through Hwy #24 or Fountain Street. There is regularly a backup going over Speedsville Rd (heading south) and waiting for traffic light at Pinebush. How does this help with this (about 16:00-17:50)?	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes proposed improvements to the Region's Active Transportation Network. One of the future upgrades identified is the addition of a trail (boulevard or off-road) along Fountain Street between Highway 7 and Cherry Blossom Road. Bike lanes are also proposed along Fountain Street from Cherry Blossom Road to King Street East. Network linkage and connections to existing and future planned pedestrian and cycling facilities is part of the current and future studies being undertaken by the Region and local area municipalities. In general, all Regional road projects include consideration of possible improvements to the Active Transportation Network. Transportation concerns within the Region's roadway network are considered in the Reginal Transportation Master Plan and site-specific concerns are considered through additional focused study.
22	Active Trans. Improvement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Do you honestly think in an area which is heavily retailed and industrialized, a 401 area, that we are going to have active transportation? *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Bike lanes on a major arterial road that no one wants in an industrial area that no one will use.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. This includes the provision of connected Active transportation facilities for the adjacent community and the local and regional pedestrian and cycling networks.

No.	Themes	Comment	Project Team Response
			The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the roadway and provides additional comfort levels for recreational cyclists by separating the multi-use path from vehicular traffic.
23		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I like that you are considering cycling infrastructure and would love to see a separated multi-use path. The connected cycling lane on the side of roads like Manitou are good but can be quite unpleasant/intimidating on a road with a lot of traffic volume, higher speed limits, and large trucks like Maple Grove. If this road was more cyclist friendly, I would be able to use it with the new path on Allendale (thanks!) to get to Hespeler instead of driving, as I currently do. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* I can't think of any, it looks great.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway.
24		*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Shopping. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Four lanes for traffic. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Environmental Impact.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. A requirement of the Class EA process is to identify and mitigate potential environmental impacts (natural, social, and economic) associated with the road

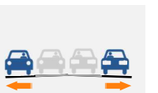
No.	Themes	Comment	Project Team Response
			widening. As part of this study, mitigation measures have been proposed to offset any negative impacts on the natural environment within the study area. These measures will be further refined during the detailed design phase of this project.
25	Active Trans. Improvement	*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Travel. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* As long as the active transportation option implemented includes a physical barrier between motor vehicles and pedestrians/cyclists I'm happy. There needs to be at minimum a normal curb (not a drivable curve like at a parking lot). At least one of the proposals has this, so that's good.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by (curb and gutter and) grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway.
26	Traffic	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Accommodate increased traffic.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken, and the Report will be included in the Environmental Study Report upon completion of this study.
27	Active Trans. Improvement Other Improvements	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* The bike paths. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* It's way too big. What is that flyover idea. It's not Disney world.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions.

No.	Themes	Comment	Project Team Response
			A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. To account for projected long-term traffic growth at the Hespeler Road intersection, a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only) is recommended for the ultimate condition. The initial step will be to protect the land available for future implementation of a flyover, if warranted in the future. Additional Transportation studies may be undertaken in the future to confirm the need and timing of the potential flyover. This step is considered prudent planning practice if the flyover component is deemed necessary in the future.
28	 	*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Reviewing Cycling Facilities and Cycling Routes. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I like the new multi-use trails. I agree it should be multi-use trails, not separated bike lanes. There will be limited pedestrian traffic in this industrial area, so limited cyclist/pedestrian conflicts. The multi-use trails will be farther away from the busy road and more pleasant to cycle on. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* This is simply not in keeping with the TransformWR greenhouse gas reduction goals just approved by all the regional municipalities. TransformWR requires an immediate change in approach. It clearly says we must build a connected network of active transport facilities for people of all abilities as soon as possible. This project is based on the old approach. That says to build good active transportation facilities whenever you do road work (which admittedly used to be a pretty progressive approach). However, the second part of that old approach is to add cycling facilities precisely where you are already doing road work, and no-where else. The old approach certainly makes progress, but not enough. This project stops at Vondrau Drive. This will leave a 400 metre gap (Fountain to Vondrau) with no cycling facility on a busy road - surrounded by brand new MUTs built in 2024-2026 from Vondrau to Hespeler and Fountain to King. That gap will vastly reduce the cycling usage along that whole route. Who knows how long it will be until that	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region

No.	Themes	Comment	Project Team Response
		stretch of road is redone? Common sense says you should at the same time have an infill cycling initiative to fill that 400 metre gap. Also, our greenhouse gas reduction goals require that roads should only be built or expanded if there is incontrovertible proof that it is necessary. The default position should be "no expansion, no new roads, just maintain what we have" - and the onus should be on the planners to clearly justify the need for an increase in car traffic capacity. It may well be justified here - but shouldn't that be a required part of the public documents, so we could question the assumptions/process? For example, is there any modelling of the impact of vastly higher carbon taxes on road usage going forward? In your chart on slide 7, the combination of new active transportation facilities and better bus service checks all three boxes. Could we achieve the required level of service by just doing those two things (and maybe some improvements at intersections as well) without expanding fully to four lanes? While I absolutely support the new MUTs, I am concerned about the impact on Fisher Mills Road cycling if the road expansion goes forward. Four lanes (and a flyover at Hespeler Road) suggests a large increase in traffic volume is in fact expected. The road expansion will most likely induce more driving in and of itself (if you build it, they will come). Some of that extra traffic will inevitably carry on to Fisher Mills, which has no cycling facility planned in this budget period (which goes to 2030). Will cycling on Fisher Mills become untenable? Maple Grove, Fisher Mills and Guelph Avenue are part of Cambridge's cycling network spine defined in its Cycling Master Plan. That spine must be fully developed to All Ages and Abilities standard if we have any hope of meeting the active transportation part of the Transform WR goal of 50% reduction in greenhouse gases by 2030. The Region should be coordinating with the City to complete that network by 2030. Ideally there should be one person in charge of completing that network ASAP, with the power to drive both Regional and municipal projects urgently. That should include infill cycling projects where necessary (maybe on Fisher Mills and/or Guelph Avenue). It could even mean that occasionally cycling needs would drive a project, pushing planned roadwork forward a bit from when the road actually requires work (I know - what a concept!).	achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. The Maple Grove Road project will tie-in with the future widening of Fountain Street North (between Maple Grove Road and Kossuth Road), currently scheduled in the Region's Transportation Capital Program for construction between 2025-2027, which includes construction of a new roundabout at the intersection of Maple Grove Road and Fountain Street. Multi-use paths are proposed along Maple Grove Road between Fountain Street and Vondrau Drive. The Region will work with the City to the extent possible to provide a seamless cycling connection to Fisher Mills Road around the same time as the Maple Grove Road construction. However, with Fisher Mills Road and Guelph Avenue being under the jurisdiction of the City of Cambridge, and Maple Grove Road being under the jurisdiction of the Region of Waterloo, it may not be possible for the construction years to line up since the improvements will be subject to the respective municipality's Council approval and budget considerations. Nevertheless, this comment is duly noted and the Region will strive to work with our City counterparts toward this goal.
29	 Active Trans. Improvement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Multi-use path for cyclists and pedestrians. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?*	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes proposed improvements to the Region's Active Transportation Network.

No.	Themes	Comment	Project Team Response
		Cycling connection at Speedsville Rd should be of ease as it serves as an important cycling connection to Guelph.	Although cycling facilities are not proposed along Speedsville Road at this time, one of the future upgrades identified is the addition of a trail (boulevard or off-road) along Fountain Street between Highway 7 and Cherry Blossom Road. In general, all Regional road projects include consideration of possible improvements to the Active Transportation Network.
30	 	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* More car lanes and separate bike lanes, also having roundabouts instead of traffic lights at some intersections.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.
31	 	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* That cycling facilities have been considered. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* It doesn't consider improvements in the cycling facilities in adjacent sections of Maple Grove Road / Fischer-Mills, especially where it passes by the highway and puts bicycles into the middle of traffic and at the intersection of King Street where no facilities exist. It doesn't propose any improvements in MUP / cycling crossings at roundabouts. Experience riding, regularly, roundabouts in WR has shown that safest way to approach on a bicycle is to be within traffic (if you are confident and traffic is light) or to dismount and aggressively put yourself into traffic once you've got their attention. Despite being able to cross, by the rules, by bicycle via MUP: cars will accelerate to cut you off or, worse, won't be looking for bicycles that are approaching at speeds of 20-30km/h (not like they're looking for pedestrians). The current method of claiming success of bicycle provisions with roundabouts as they've been implemented are simply not conducive to encouraging cyclists. This would be the ONLY connection of the Pioneer Tower area Kitchener to Cambridge. And would be the only all-season cycling connection for the North of Preston to Hespeler (as there isn't infrastructure along the full length of Eagle/Pinebush) - yet it does not appear to consider its importance in that role. There's no feed into/out of this corridor for bicycling along its length (despite the nearby trail along the Speed River), high volume of cycling that could be	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The limits of this Schedule C Class EA study are Maple Grove Road from Hespeler Road to Vondrau Drive. Work proposed separately by the Region at Fountain Street and Maple Grove Road is also acknowledged in the study. Fisher Mills Road is a local road, with changes subject to City of Cambridge approval and/or implementation, including designated cycling lanes or multi-use paths. City staff are included on the Project Team and will take comments specific to City of Cambridge interests and responsibilities forward for further consideration in this project or as a separate future consideration by City staff and Council. The intersection of Maple Grove Road and King Street East is outside the defined study limits and not a part of the scope defined for this study. The 2018 Regional Transportation Master Plan (RTMP) Update includes proposed improvements to the Region's Active Transportation Network. Some of the future upgrades identified include the following: • Addition of a trail (boulevard or off-road) along Fountain Street between Highway 7 and Cherry Blossom Road; • Addition of Bike Lanes on Fountain Street from Cherry Blossom Road to King Street East; and

No.	Themes	Comment	Project Team Response
		considered on Fountain St or Speedsville, or for efficient transition from one area of cycling infrastructure to another along its length. There's also no connection of downtown Preston into this infrastructure. There's also no cycling provisions along the length of Hespeler Rd (Hwy24) - and to go south into Cambridge, and cross the Speed River requires that you to take significant detours by bicycle.	• Addition of Bike Lanes on Maple Grove Road between King Street East and Fountain Street. In general, all Regional road projects include consideration of possible improvements to the Active Transportation Network. With regard to cyclist movements through a roundabout, cyclists have two choices at a roundabout, depending on their degree of comfort riding in traffic. Experienced cyclists can enter the roadway and traverse the roundabout as if they were driving a car. Less confident cyclists can dismount their bicycle and walk through the roundabout at the pedestrian crossings. Cyclist crossings at new roundabouts will be reviewed through detailed design. Many roundabouts within the Region of Waterloo include this feature.
32		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I agree that using concept 4 would be the best choice because it would reduce the number of private property owners that are impacted, the overall cost of the project may be reduced, and the total environment impacted would be also reduced. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* I think that the overall consideration that the project team should consider when deciding the best alternative to implementation should be to how to reduce the total daily impact to the few private property owners that live along the route, especially in the new Mattamy home subdivision that is home to many families. I also think that because the design team has considered the needs of people that use bikes by adding multi-use paths, they should also consider these bike rider and pedestrian wanting to cross Maple Grove Road along the way, especially at a roundabout where there is 6 lanes to consider at the Beaverdale Maple Grove intersection There is also the speed island trail starting at Beaverdale Rd that is popular for bikers and pedestrians to enjoy many biking from the north.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. One of the goals of the planning and design process is to minimize the impact on adjacent properties. Cyclists and pedestrians who wish to cross Maple Grove Road may cross at either a signalized intersection or one of the proposed roundabouts. Studies completed by the Region of Waterloo have shown that pedestrian collision rates are reduced by approximately 40 to 60% at roundabout intersections versus comparable traffic signal intersections with similar volumes. Signalized intersections retrofitted with roundabouts have experienced approximately 40% fewer injury collisions. Retrofitting signalized intersections with roundabouts can reduce the probability of fatal collisions by nearly 100%. Cyclist crossings at new roundabouts will be reviewed through detailed design. Many roundabouts within the Region of Waterloo include this feature. For more information on how to safely cross roundabouts as a pedestrian, please visit the Region of Waterloo website.

No.	Themes	Comment	Project Team Response
33		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I like the idea of widening this roadway. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Are two lanes going to be enough with the truck traffic? Would it be best to designate one lane for truck traffic only? This is a very busy street, with the majority of traffic being transport trucks, so the bike lanes are a concern. Are they safe enough?	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative provides additional comfort levels for recreational cyclists by separating the multi-use paths from vehicular traffic with (curb and gutter and) a grass boulevard. Within the study process, alternative cross-sections were explored. Four through traffic lanes, two in each direction, plus turn lanes at intersections, would accommodate forecasted traffic volumes through 2041 and reduce congestion and improve conditions for Emergency Services, heavy trucks, and transit. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The focused study includes consideration of existing and projected truck traffic volumes. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway.
34		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* The roundabouts are a good feature. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Constructing without too much traffic impact.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. Construction traffic staging plans will be developed during the detailed design phase of this project. However, it is anticipated that the work will be staged to maintain two-way traffic along Maple Grove Road as much as possible during construction.
35		*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I am very much in favour of any new cycling infrastructure and Maple Grove is very much in need of expansion.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.

No.	Themes	Comment	Project Team Response
36	Road Widening	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* This road is also the backup for 401 closure when there's a big accident, so it needs to be wider.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. Maple Grove Road is also a key goods movement corridor and is an Emergency Detour Route (EDR) for Highway 401. Four through traffic lanes (two in each direction), plus turn lanes at intersections, would accommodate forecasted traffic through 2041, reduce congestion, and improve conditions for Emergency Services, heavy trucks, and transit.
37	Public Engagement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I like that it was designed by professionals. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* It will be challenging to overcome the loud complaints by the public, which are just opinions. I recommend ignoring any complaints because the reasonable majority will stay silent.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.

No.	Themes	Comment	Project Team Response
38	Road Widening Active Trans. Improvement Environment	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Widening Maple Grove will improve traffic flow. Also, support designated cyclist lanes and improved transit options. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Most supportive of the proposed plans to reduce natural environmental impact. Creation of rain gardens and planting of new trees along the route should be integrated to offset impacts of destroyed green space.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. A requirement of the EA process is to identify and mitigate potential environmental impacts (natural, social, and economic) associated with the road widening, and recommend mitigating measures are included as part of this study. The preferred alternative also provides opportunities for tree planting along the boulevard, where space is available for landscaping and streetscaping. and a landscaping plan (including trees) will be implemented through the final project phase (i.e. construction).

No.	Themes	Comment	Project Team Response
39	Active Trans. Improvement Road Widening Roundabout Traffic Environment	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I like a lot of things! 1) I really like that's prioritizing active transport - both walking & cycling. It's actually dangerous on that road for pedestrians and cyclists right now so I really appreciate more people will be able to use it safely & it will encourage people to cycle & walk instead of drive. 2) I like that it has more lanes planned. The volume of cars on the road is often large & gets worse when there's an accident on the 401 as many people use it as a cut-through to the 7/8 or King, so more lanes will be helpful. 3) I love that roundabouts are incorporated! The traffic flow varies a lot and lights don't always function well (stopped with no one there, lots of people stopped but no cross-traffic, etc.) so I think this will also help with traffic flow. 4) I like that you're considering alternate ways to turn left onto Maple Grove from Hespeler Rd / Hwy24. I'm not sure if I love the idea of the flyover (it just seems really monolithic & cold & doesn't really fit the aesthetic of the area), but turning left there is actually quite dangerous and there are so many accidents so I appreciate the thinking toward incorporating a safer passage eventually. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* I'm really concerned about the surrounding water ways and farmland. As much as this is needed, I hope deep consideration is given to materials (like environmentally friendly alternatives to mined asphalt & cement products) and how to work with the local environment to preserve as much beauty & function as possible. Another consideration I would like to put forward is for wildlife corridor / safe passage elements, as there are deer, foxes, coyotes, turkeys, and more in the area that I would like to see continue to have habitat and safe passage as the traffic expands and the road gets harder to pass.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. A requirement of the EA process is to identify and mitigate potential environmental impacts (natural, social, and economic) associated with the road widening, and recommend mitigating measures to be included as part of the project. A natural environmental investigation and detailed inventory was completed as part of the study and presented to the public during the Public Consultation Centres. The details and recommendations of those studies will be included in the Environmental Study Report and placed on the public record for further review and comment, including on the Region and EngageWR websites (tentatively June 2022). At the conclusion of the study the recommendations will be carried forward for consideration during the detailed design phase that follows. Where specific mitigation measures and provisions have been recommended, they will be confirmed and incorporated into the design and construction of the corridor improvements as appropriate.

No.	Themes	Comment	Project Team Response
40	Traffic Roundabout Road Widening	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Makes sense based on anticipated traffic requirements. Solution proposed is pretty standard (2 lanes to 4; bike path, etc). It is really just filling the gap between two 4 lane roadways already in place. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Very busy road will present challenge during construction. Roundabout at Hespeler Road intersection will be a problem with large number of truck traffic and speed of traffic on both directions of Hespeler Rd. Roundabouts on smaller, lower volume cross streets shouldn't be an issue. I didn't see about the problems that are faced on Maple Grove when Hwy 8 or 401 is stopped/blocked. This becomes the by-pass.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. Maple Grove Road is also a key goods movement corridor and is an Emergency Detour Route (EDR) for Highway 401. Four through traffic lanes (two in each direction), plus turn lanes at intersections, would accommodate forecasted traffic volumes through 2041, reduce congestion, and improve conditions for Emergency Services, heavy trucks, and transit. Construction traffic staging plans will be developed during the detailed design phase of this project. However, it is anticipated that the work will be staged to maintain two-way traffic along Maple Grove Road as much as possible during construction.
41	Active Trans. Improvement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I like that there are multi-use paths on both sides of the road. I try to avoid biking on roads that don't have them. Riding on the line is too close to traffic for my comfort and the shoulders are not smooth enough most often.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway.
42	Road Widening Traffic	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I believe that widening the road is a great idea for this location. The recommended design alternative was very well thought out. As this area grows or any area in particular grows, changes need to be made to accommodate for the larger volume of traffic/people passing through. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?*	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.

No.	Themes	Comment	Project Team Response
		The only challenges that I can see is timing. Everything takes time with construction, permits, planning and I believe that this will be a long process but worth it in the end. I don't see any homeowners that live nearby not wanting this at it helps everyone.	
43	Active Trans. Improvement Traffic	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Solution A divides the bike path from the street with grass median. I think a much better solution than sharing the roadway with cars. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Traffic for Toyota Team Members will be problematic and for auto transporters caring product from the marshaling yard.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway. Construction traffic staging plans will be developed during the detailed design phase of this project. However, it is anticipated that the work will be staged to maintain two-way traffic along Maple Grove Road as much as possible during construction.
44	Road Widening Active Trans. Improvement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Widening to four lanes is long overdue and adding bike lanes is needed since the current situation is dangerous especially since the changes made at Compass Trail entrance. I am very excited to see this project get underway. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* I feel like adding a proper bike path will be a challenge since it shouldn't be one just at the side since this is a higher speed road with a high volume of transport trucks.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway.
45	Road Widening Traffic	*Q. What is the general purpose of your travel on this section of Maple Grove Road?* I live in the vicinity of the overpass at Hespeler and Maple Grove. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I do not like any alternative that requires the road widening and traffic levels. Pollution and noise levels would be increased.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions.

No.	Themes	Comment	Project Team Response
		Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward? I can't see an alternative that requires widening the road to work for my family. Other than rerouting to use an alternate pathway or upgrading other streets to accommodate the traffic.	A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. As part of this study, a Noise Study was undertaken to determine current and forecasted sound levels as per Regional policy. Noise attenuation is recommended at select locations as shown on the Public Consultation Centre 2 Display Boards.
46	 Active Trans. Improvement Traffic	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Plan A separating pedestrians and cyclists from traffic with the boulevard is great and encourages use. Potential for trees on boulevards is great. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* I would like to see traffic calming measures for adjacent residential routes during construction as people look for alternatives to get around the construction. Beaverdale Road, has 50 km/h zones that are routinely treated as highways whenever there are traffic jams in the area.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. Maple Grove Road is under the jurisdiction of the Regional Municipality of Waterloo while the adjacent local streets in the newly developed area are within the City of Cambridge's jurisdiction. Comments specific to the City's jurisdiction should be directed to the City for further consideration and response. Your comments have been shared with the City Representatives on the Project Team. The Beaverdale Road posted speed limit is 50 km/h north and south of Maple Grove Road. The City will post seasonable traffic calming signage (along the centreline) closer to the older residential development off of Beaverdale Road. Area residents can contact Waterloo Region Police Service (WRPS) about the Selective Traffic Enforcement Program (STEP) regarding enforcement of posted speed limits.

No.	Themes	Comment	Project Team Response
47	 Active Trans. Improvement	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Good idea. I walk a lot and there needs to be pedestrian sidewalk on Maple Grove as its dangerous walking on the shoulder of the road.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.
48	 Traffic Development Other Improvements	*Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* There needs to be less traffic on this road, not more lanes. This is Maple Grove Road, not Hespeler Road. There needs to be LESS traffic going through this area with the neighbourhood running adjacent here. If there's going to be too much traffic vs. the capacity the road can take, then perhaps you need to consider not putting 10 foot buildings, and high density townhomes on Maple Grove with zero amenities being proposed for current homeowners who bought into the River Mill neighbourhood. Where is the elementary school proposed 5 years ago? When is the completion date? Where are the current stop signs on compass trail so kids crossing to go to the park don't get hit when biking over from their HOMES? When will you open up Briardean again for the proposed build sites on Briardean/Maple Grove and Maple Grove/Speedsville? You need to look at the current situation and address gaps there first, before going forward and building up a higher density population in what was previously appreciated countryside and farmland.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. Maple Grove Road is also a key goods movement corridor and is an Emergency Detour Route (EDR) for Highway 401. School construction and opening should be directed to the Waterloo Region District School Board or Waterloo Catholic District School Board, as appropriate.

No.	Themes	Comment	Project Team Response
			Maple Grove Road is under the jurisdiction of the Regional Municipality of Waterloo while the adjacent local streets in the newly developed area are within the City of Cambridge's jurisdiction. Comments specific to the City's jurisdiction should be directed to the City for further consideration and response. Your comments have been shared with the City Representatives on the Project Team. The Briardean Road connection to Maple Grove Road was closed as a condition of approval for the Hunt Club Subdivision by the City of Cambridge and Region of Waterloo. Compass Trail was approved to include a connection to Maple Grove Road.
49	 	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* I like the separate multi-use lane as I believe it is the safest for cycling. I also like the proposed flyover as traffic turning left onto Maple Grove backs up on Highway 24 which causes frustration and people trying to turn on a "late yellow". *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* The place that I believe needs to be addressed is the intersection at Compass Trail. This definitely needs a traffic light as it is currently not safe with people turning all directions that have to take their life into their own hands to try to squeeze between breaks in traffic. This will become even worse when there are traffic circles instead of lights at the intersections on either side as there will no longer be breaks in the traffic. This should have been part of the development agreement with Mattamy to pay for this intersection.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. To account for projected long-term traffic growth at the Hespeler Road intersection, a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only) is recommended for the ultimate condition. The initial step will be to protect the land available for future implementation of a flyover, if warranted in the future. Additional Transportation studies may be undertaken in the future to confirm the need and timing of the potential flyover. This step is considered prudent planning practice if the flyover component is deemed necessary in the future. Traffic signal warrants at the intersection of Compass Trail and Maple Grove Road have not been met to-date. As part of detailed design, signal warrants at this location will be re-evaluated.
50	 	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Expansion of lanes including bike lanes. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Not sure why the city has waited so long to expand this section of highway since the expansion of thousands of people in homes in the area was a catalyst to this reaction. Since the expansion of the 401, there are numerous lanes of traffic that don't need to use Maple Grove Road. Not sure why the expansion didn't occur BEFORE the new homes went in on Maple Grove area, because this road sits alongside the 401 as well, not sure why this wasn't a priority earlier. However, there is another problem, this intersection of Maple Grove and Hespeler Roads has seen serious injuries and fatalities. Would expansion encourage more	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The need for improvements to and/or expansion of Maple Grove Road has been planned for some time dating back to the initial Environmental Assessment Study completed in 2004. Public projects are subject to a formal budget process and projects are prioritized based on relative need and the specific timing for that need. The upgrading of Maple Grove Road has followed an orderly planning, design, and construction process starting from west (King Street) to east (Fountain Street) and this project is the next phase of that implementation program.

No.	Themes	Comment	Project Team Response
		drivers to use this road instead of the 401? Hespeler Road is necessary, yet trucks and cars can't seem to obey the road signs of speed and using cell phones while driving. I've seen it as attended to the needs of an accident there to witness it myself. I agree with the expansion of Maple Grove, but it should have been done when the city approved all those housing units to go in. Curving drivers to slow down is another matter. Since I use Speedsville Rd. to cross the 401 to get to work, I need to use Maple Grove Road. Allowing the new subdivisions to be built and increase revenue for the city did not come with a lot of thought. In the future, it would be wise to have the city provide the infrastructure prior to building the subdivision. Great planning would have avoided this. I see it so often in the States but here in Canada, where we have an abundance of land and smart people, I rarely see it.	Due to the passage of time since the original study was completed, an update on the conditions and further opportunity for stakeholder inputs is warranted and being provided in the current study. In addition, there had been some delay because of the need to consider the next phase of the Regional Rapid Transit system and possible LRT route alternative along Maple Grove Road. The Region and the Consultant Team has proceeded expeditiously on the study during the COVID Pandemic and that has had some impact on the overall completion schedule. The Region has budgeted for the improvements in their 10 Year Capital program. Signalized intersections retrofitted with roundabouts have experienced approximately 40% fewer injury collisions. Retrofitting signalized intersections with roundabouts can reduce the probability of fatal collisions by nearly 100%. Area residents can contact Waterloo Region Police Service (WRPS) about the Selective Traffic Enforcement Program (STEP) regarding enforcement of posted speed limits.
51		*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Costco. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Road widening. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* None.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.
52	 	*Q. What is the general purpose of your travel on this section of Maple Grove Road?* Daily groceries. *Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Widening the roads and signals. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* Widening lanes and its design to make it less prone to accidents. Because of heavy traffic and speed of trucks on this road it is difficult for River Mill residents	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes a dedicated left-turn lane from Westbound Maple Grove Road to southbound Compass Trail. Traffic signal warrants at the intersection of Compass Trail and Maple Grove Road have not been met to-date. As part of detailed design, signal warrants at this location will be re-evaluated. Within the study limits, Maple Grove Road is currently posted at 70km/h for most of the corridor. However, a section of Maple Grove Road between Boxwood

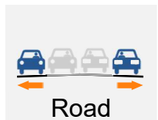
No.	Themes	Comment	Project Team Response
		to take turn sometimes it is very close call due to hill near to the turn from Maple Grove to Compass Trail. It is difficult to see the car due to hill and moreover people drive fast from both ends considering the speed limit 70 which is not correct speed. Sometimes trucks had to break suddenly, and they can't do it always. Due to increase number of houses in the community it is going to have more traffic in future hence speed limit needs to get down for safety reason and should be followed strictly. Following the speed is public responsibility but has to be enforced by city or police or design the road in such way that people consider slowing down near the community area. The community has a children park very close to the road that also should be considered for safety reason.	Drive and Beaverdale Road was recently posted at 60km/h to facilitate a new uncontrolled pedestrian crossing at Compass Trail for GRT users. Posted speed limits will be further evaluated as part of the detailed design portion of the project. Area residents can contact Waterloo Region Police Service (WRPS) about the Selective Traffic Enforcement Program (STEP) regarding enforcement of posted speed limits.
53	 	*Q. What do you like about the Project Team Recommended Design Alternative for Maple Grove Road Improvements Study?* Four lanes is really needed and I would love to see the flyover getting folks right from the 401 onto Maple Grove. The lights at Boxwood will also be essential given the volume of traffic at that intersection at any given time. The multi-use trail separate from the road would be ideal given the speed and volume of vehicles. Eliminating the left turn out of the new subdivision will make a huge difference in traffic flow. The traffic circles will also help with flow - but please build them large enough for transport trucks to move through without needing to take up both lanes as is the case currently on Hespeler Road. I appreciate the thought around environmental considerations and trying to mitigate those impacts. I sincerely hope that the proposed project with assist with proper drainage - living near Beaverdale, I can attest to how significant changes in drainage have been, first from the developments of Hunt Club and Ratcliffe, and also with the new Mattamy subdivision (and the ongoing developments) on Maple Grove. PLEASE make the no through trucks more clear onto Beaverdale and PLEASE do the work needed to mitigate traffic dumping onto Beaverdale during these developments, given that we can't get police to do any speed enforcement, and we can't get the city to add any speed limiting measures such as speed bumps. *Q. What challenges or considerations do you see with the Project Team Recommended Design Alternative that is being carried forward?* It is really unfortunate that homes right along Maple Grove (such as those at Beaverdale and Maple Grove) will be so impacted.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. To account for projected long-term traffic growth at the Hespeler Road intersection, a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only) is recommended for the ultimate condition. The initial step will be to protect the land available for future implementation of a flyover, if warranted in the future. Additional Transportation studies may be undertaken in the future to confirm the need and timing of the potential flyover. This step is considered prudent planning practice if the flyover component is deemed necessary in the future. Implementation of larger roundabouts is being considered by the Project Team, in the context of mitigating overall impacts. In most areas, roadside ditches will be filled in and a new curb and gutter will be installed to collect and direct water to a storm drainage system. Area residents can contact Waterloo Region Police Service (WRPS) about the Selective Traffic Enforcement Program (STEP) regarding enforcement of posted no through trucks (and dumping). The Beaverdale Road posted speed limit is 50 km/h north and south of Maple Grove Road. The City will post seasonable traffic calming signage (along the centreline) closer to the older residential development off of Beaverdale Road. One of the goals of the planning and design process for this project is to minimize the impact on adjacent properties. Access control (i.e. raised median) is proposed along the daycare frontage, which is expected to reduce the risk of collisions at that location.

No.	Themes	Comment	Project Team Response
		I hope that the intersection improvements slated for Speedsville and Maple Grove will take into account the dangerous in-and-out set up of the daycare on that corner.	Maple Grove Road is under the jurisdiction of the Regional Municipality of Waterloo while the adjacent local streets in the newly developed area are within the City of Cambridge's jurisdiction. Comments specific to the City's jurisdiction should be directed to the City for further consideration and response. Your comments have been shared with the City Representatives on the Project Team.
54	Public Engagement	*General Comment* This is how improvements should be done, with public input. I appreciate your approach. I have no problem with the improvements. Good job.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA.
55	Roundabout	*General Comment* Why couldn't you have roundabouts at all the intersections to keep traffic moving?	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. As part of the study process, roundabouts were considered for all major intersections (Vondrau Drive, Boxwood Drive, Speedsville Road, Beaverdale Road, and Hespeler Road). Detailed traffic analyses and simulations were undertaken to determine minimum traffic delays and highest levels of service from a traffic operations perspective for all intersections. The intersection and corridor analyses have concluded that the proposed mix of intersection types will reduce overall delay in the corridor and enhance the overall traffic efficiency at several locations. Key intersections include those with high volume turning requirements such as the northbound to westbound left turning volumes at Speedsville Road, which will reduce traffic delay.
56	Road Widening Active Trans. Improvement Development	*General Comment* Why did you not pave this properly when doing it? It has to be much wider with all the house building going on. Definitely add a bike lane or make it a bike/walking lane. We have travelled in Michigan for years and love their bike/walking lanes, where you could bike/hike from town to town, but we don't seem to know how to do that here. In fact, the stretch that was just paved on Fisher Mills, lots of room, put bike/walking lanes in. Ontario is behind the times for sure. This area is expanding too fast and you people are not keeping up. Why? Anyone knows this needs to be done now, not after the fact.	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Recommended Design Alternative includes new 3.0m wide asphalt multi-use paths on both sides of the road that are separated from the road by grass boulevards. Cyclists can use the new multi-use paths and will be separated from vehicles on the roadway. Fisher Mills Road is a local road, with changes subject to City of Cambridge approval and/or implementation, including implementing designated cycling lanes or multi-use paths.

No.	Themes	Comment	Project Team Response
57		*General Comment* Roadway changes occurred not long ago in the same area between Briardean Road and Compass Trail, and just to the east of Compass Trail. Why was that extensive work done supportive of single lane traffic only, rather than anticipating what will be necessary in the same area to support four lanes of traffic, transit, cycling and pedestrian enhancements, no matter which option(s) should be selected? The flyover for left turns onto Fisher Mills is prudent to cope with left turn issues at the intersection as they already occur. What consideration has been made, if any, regarding traffic flow to the area on Fisher Mills between Beaverdale Rd and Highway 24? Significant residential development has been proposed for that property which will impact ingress and egress to Fisher Mills. Is the traffic from that property expected to use Beaverdale Road only and not access Fisher Mills directly?	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Briardean Road connection to Maple Grove Road was closed as a condition of approval for the Hunt Club Subdivision by the City of Cambridge and Region of Waterloo. Compass Trail was approved to include a connection to Maple Grove Road. The Recommended Design Alternative includes a dedicated left-turn lane from Westbound Maple Grove Road to southbound Compass Trail. Access for potential future development at the southwest corner of the Hespeler Road and Maple Grove Road intersection is expected off of Maple Grove Road and/or Hespeler Road. Maple Grove Road is under the jurisdiction of the Regional Municipality of Waterloo while the adjacent local streets in the newly developed area are within the City of Cambridge's jurisdiction. Comments specific to the City's jurisdiction should be directed to the City for further consideration and response. Your comments have been shared with the City Representatives on the Project Team. To account for projected long-term traffic growth at the Hespeler Road intersection, a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only) is recommended for the ultimate condition. The initial step will be to protect the land available for future implementation of a flyover, if warranted in the future. Additional Transportation studies may be undertaken in the future to confirm the need and timing of the potential flyover. This step is considered prudent planning practice if the flyover component is deemed necessary in the future.

No.	Themes	Comment	Project Team Response
58	Traffic Road Widening Active Trans. Improvement Intersection Improvements Other Improvements	*General Comment* I have been looking at the EngageWR materials regarding this project. I am hoping to get a little more information. Can you answer the following questions: 1. Where are the traffic studies that suggest this requires a full four lane road? I was not involved in the previous engagement process - maybe it was produced then? I realize traffic may still be somewhat reduced due to the pandemic, but several drives along the route in the 4-5 PM rush hour recently did not suggest any need for expansion based on current traffic. What is expected to change? The Hespeler Road flyover suggests a massive volume increase is expected. As I am sure you are well aware, expanding to four lanes will in and of itself encourage increased traffic volumes. The concept of induced demand is, I hope, settled science now. We should only widen roads in the most clearcut situations that it is necessary. Where is the proof of that? 2. Based on your chart on slide 7, the combination of new active transportation facilities and improved transit checks all three boxes. Was any consideration given to the option of just doing those two things (or maybe even those two things plus some intersection improvements), and not expanding the road to four lanes? 3. Were studies done of the impact of this project on Fischer Mills Road traffic? Some of the induced extra traffic will likely be people going from Hespeler to Kitchener along Fisher Mills Road to Maple Grove Road. While I am fully in favour of new active transportation on Maple Grove, the utilization will be far below what it could be if Fisher Mills becomes even busier, with no cycling facilities. There are no plans to add cycling facilities to Fisher Mills in the current planning cycle (up to 2030). Have there been any discussions (with the city?) about new facilities on Fisher Mills? 4. Can you provide more details about the estimated cost of Alternative A vs Alternative B on slide 35? How much detail went into the analysis? The Region's Active Transportation Budget has typical costs for sidewalks, multi-use trails and other "cycling facilities" of 375, 354 and 880 thousand per km, respectively. I also have a much more detailed cost summary from Oxford County that has costs of roughly the same magnitude. In option B, you are providing both a sidewalk and a cycling facility, which should be far more expensive than option A - yet they are almost the same cost. Option A has landscaping as well - is it that costly to put landscaping in?	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. 1. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. 2. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. 3. Fisher Mills Road is a local road (i.e. City of Cambridge). Changes to Fisher Mills Road, such as the inclusion of cycling facilities, are subject to City of Cambridge approval and/or implementation. To account for projected long-term traffic growth at the Hespeler Road intersection, a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only) is recommended for the ultimate condition. The initial step will be to protect the land available for future implementation of a flyover if warranted in the future. Additional Transportation studies will be

No.	Themes	Comment	Project Team Response
			undertaken in the future to confirm the need and timing of the potential flyover. This step is considered prudent planning practice if the flyover component is deemed necessary in the future. 4. The estimated cost per metre for each Design Alternative was prepared based on typical unit costs. Estimates for this project assume the other costs are included in the respective roadway construction. The Project Team notes that cost estimates in unrelated studies may have been prepared in a different manner and may not be directly comparable to this study. Most of the estimated cost for each Design Alternative is for the road reconstruction components (i.e. asphalt, road base materials, curbs, etc.). The estimated costs for the Multi-Use Path and/or sidewalk is relatively small in comparison to the overall road costs. This leads to the overall cross-section costs for Alternative A and Alternative B being relatively similar in cost.
59		*General Comment* I am writing with regards to the Maple Grove Road development plan, more specifically immediately West of Hespeler. I have recently purchased and have moved into (REDACTED). I purchased this property with plans to enjoy quiet solitude and did a lot of planning and research prior to purchasing the property, which was time consuming and difficult to accomplish during Covid. I missed the part where Maple Grove construction was in process and was too far along where I could not cancel the purchase. However, after living here several days, I've discovered that the noise levels are unbearable and that the volume of traffic seems to be increasing especially with transport trucks and large service / cartage vehicles et cetera. I would like to have my voice go on record as to staunchly objecting future construction to widen these roads or to have them added as frequent bus routes for more through traffic. Luckily the trees have been useful, however, it is impossible to sleep and cannot open my windows due to noise levels and I have to shout to communicate in my yard. The visibility to this property is also quite upsetting as people have pulled their vehicles over on the bridge and been peering into our private space under the guise of looking at the river stream below. To recap, we have changed our entire lives to come move to your city, however, our quality of life and right to quiet enjoyment will be directly impacted by future development. Any plans to erect some privacy and noise walls between our	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. One of the goals of the planning and design process for this project is to minimize the impact on adjacent properties. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the

No.	Themes	Comment	Project Team Response
		property and the road would be GREATLY appreciated at this point. There are only so many trees I can plant and will continue to work on enhancements to protect my property and family from the noise and the imposing viewers. However, I am counting on you to do your part as well. I understand that growth and development are necessary and that we have to work with and change with the times, however, please keep us in your consideration during this process. On the record, we oppose any future development for the purpose of increasing traffic and are asking that noise and visual barriers be constructed to protect our home as soon as possible with or without the possibility of future growth. I would request to be added to any future consultations and be apprised of developments in the plan going forward.	space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. As part of this study, a Noise Study was undertaken to determine current and forecasted sound levels as per Regional policy. Noise attenuation is recommended at select locations as shown on the Public Consultation Centre 2 Display Boards, which are available on the Region and EngageWR websites. The preferred alternative also provides opportunities for tree planting along the boulevard, where space is available for landscaping and streetscaping. and a landscaping plan (including trees) will be implemented through the final project phase (i.e. construction). Please accept this as confirmation that you have been added to the Project Contact List.
60	 	*General Comment* I feel very strongly that the whole project is overkill, and that the process is being steamrollered through, without any meaningful public input. These online public forums are not for everyone, as you have to be pretty tech savvy to navigate the elaborate website and forms, and I don't think you are getting feedback from people in general. I have a number of comments. 1. Why do we need such a wide median in the center of the road, it just makes the whole road wider? 2. Why bike lanes and paths on both sides, again it makes it wider? 3. Why does it need such a massive roundabout at Beaverdale and Maple Grove, that is total overkill. How can the residents on the south side of Maple Grove even live in such close proximity to the 3-lane roundabout? Beaverdale is less busy than Fountain St., and there is never any traffic congestion at that intersection. 4. Why is there no accommodation for turning into the proposed housing development at Maple Grove and Hwy 24? Are you expecting traffic to	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that

No.	Themes	Comment	Project Team Response
	Roundabout Public Engagement Active Trans. Improvement	come to the roundabout and back again to enter the development? That is crazy. 5. Why 3 lanes on the stretch from Beaverdale to Hwy 24, this project is about expanding 1 lane to 2 lanes, not 2 lanes to 3 lanes? 6. Why even propose the huge monster fly over design at Maple Grove and Hwy 24? It's ugly and is not required. 7. The intersection between Maple Grove and Hwy 24 does not need a big roundabout. This is an accident zone and needs to be corrected immediately.	widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. 62 sets of comments were received through the Public Consultation Centre #2 review and comment period and are being responded to herein. 1. *Geometric Design Guidelines* (Transportation Association of Canada, 2017) indicate that access controlled (i.e. a raised median) roads greatly reduce collision rates when compared with uncontrolled (i.e. undivided, painted and/or two-way left turn lane) roads. 2. Active transportation facilities on both sides would serve pedestrian and cycling/rolling needs and would agree with the Region of Waterloo Active Transportation Master Plan (ATMP). Proposed facilities fit within the existing right-of-way (i.e. Region property) along the corridor. 3. As part of the study process, roundabouts were considered for all major intersections (Vondrau Drive, Boxwood Drive, Speedsville Road, Beaverdale Road, and Hespeler Road). Detailed traffic analyses and simulations were undertaken to determine minimum traffic delays and highest levels of service from a traffic operations perspective for all intersections. As a result of these studies, a 3x2 lane roundabout is recommended at the Maple Grove Road and Beaverdale Road intersection, per the Recommended Design Alternative. Between the proposed roundabouts at Beaverdale Road and at Hespeler Road the projected traffic volumes, merge conditions and anticipated approach queuing warrant the provision of three lanes. Number of lanes required impacts the size of the roundabout. One of the goals of the planning and design process for this project is to minimize the impact on adjacent properties.

No.	Themes	Comment	Project Team Response
			4. Turning lanes to proposed future developments will be addressed on a case by case basis through the development planning process in place with the City of Cambridge and the Region of Waterloo as they relate the Maple Grove Road corridor. Provision cannot be made for unapproved land development undertakings. 5. Refer to Response 3. 6. To account for projected long-term traffic growth at the Hespeler Road intersection, a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only) is recommended for the ultimate condition. The initial step will be to protect the land available for future implementation of a flyover, if warranted in the future. Additional Transportation studies may be undertaken in the future to confirm the need and timing of the potential flyover. This step is considered prudent planning practice if the flyover component is deemed necessary in the future. 7. Intersection Control Study for the Maple Grove Road and Hespeler Road intersection recommended a roundabout at this location. Signalized intersections retrofitted with roundabouts have experienced approximately 40% fewer injury collisions. Retrofitting signalized intersections with roundabouts can reduce the probability of fatal collisions by nearly 100%.
61	Driveway Access Public Engagement	*General Comment* I am very disappointed that it does not appear to me that the concerns of the property owners on Beaverdale Road have been considered in the design. What is the point of a public consultation process if the public is ignored? As one of only two residential properties within the study area with driveway access directly onto Maple Grove Road, I expect that you will not be surprised that I have several questions about how the planned widening will impact my residential property. 1. What is the logic behind building a roundabout at Beaverdale, where 5 residential properties will be impacted, and signalized intersections where there are no residential properties? To me the reverse arrangement would make more sense. Has the Region and IBI carried out a traffic volume count on Maple Grove Road since the Hwy 401 widening between Hespeler Rd and Hwy 8 was completed? Pre-Covid 19 the traffic volume	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Class Environmental Assessment process provides individuals the opportunity to provide comments and express concerns as part of the overall planning process. The comments of all respondents are valued and will form a part of the public record and the Class Environmental Assessment process and related documentation. An Environmental Study Report documenting the process will be completed and all comments received, and subsequent responses will be placed on the record for further review and public comment. 62 sets of comments were received through the Public Consultation Centre #2 review and comment period and are being responded to herein.

No.	Themes	Comment	Project Team Response
	Road Widening Roundabout Property Intersection Improvements Development Traffic	was considerably lighter at all times of the day, and is especially noticeable during the 5 pm rush hour, when traffic congestion is much less than It was before the lanes were opened. Since Covid 19 there is even less traffic unless there is a traffic jam on Hwy 401. 2. Has the planning considered how the residents in the vicinity of the planned roundabout at Beaverdale and Maple Grove will be able to enter and exit their driveways (in addition to our house there are neighbours with driveway entrances close to the roundabout location)? 3. Will left hand turns still be possible? If I want to go west on Beaverdale will I have to go to Hespeler Road to get turned around? Where will I put my garbage for pick up? Clearly it is unsafe for the trucks to stop in an active roundabout. 4. I support the reduced speed limit of 60 km/h. Specific to where my residential property faces Maple Grove Road, the road is currently 4 lanes, although that is not noted in the study document provided online. Is the only construction planned for the section between Beaverdale Road and Ellis Creek Bridge the installation of multi-use trails since this section already has 4 lanes and an urban cross section or is land acquisition planned? Why do you need 6 lanes from Beaverdale to Hwy 24, when Hwy 24 is 4 lanes? Why is a roundabout at Beaverdale Road 3 lanes? That is larger than the roundabout at Queen and Hwy 24. 5. Has the impact on wells and septic systems been evaluated? Is this report available to the homeowners? The conceptual design as presented in the video shows the roundabout at Maple Grove and Beaverdale occupying my front yard. It is not confined to the current Region of Waterloo and City of Cambridge ROW and it is clear that part of my property will be acquired to accommodate the roundabout. Are you aware that the area you are planning to acquire is my septic bed? How do you plan to replace it? Will we be getting a sanitary connect as part of the road widening? 6. Are you aware that our hydro and phone connection is located in the area of the new roundabout? What is the plan to replace those services? 7. The proposed roundabout will clearly devalue my property and make resale difficult. What is the plan to compensate me for the financial loss? 8. A new subdivision will be constructed on the south side of Maple Grove Road, between Ellis Creek and Hespeler Rd. Has access to this subdivision been considered in the study? I did not see it referenced in section 10, 11 or 12, although it is shown on Fig 3B.	The 2018 Regional Transportation Master Plan (RTMP) Update includes a proposed widening of Maple Grove Road from two to four lanes between Hespeler Road and Vondrau Drive to accommodate existing and forecasted traffic volumes, subject to further review. That recommendation was based largely on a Region-wide travel demand modeling exercise that provides high-level recommendations on roadway expansions. Active transportation facilities on both sides would serve the current pedestrian and cycling needs and would agree with the Region of Waterloo Active Transportation Master Plan (ATMP). In response to specific questions, the following is offered: 1. As part of the study process, roundabouts were considered for all major intersections (Vondrau Drive, Boxwood Drive, Speedsville Road, Beaverdale Road, and Hespeler Road). Detailed traffic analyses and simulations were undertaken to determine minimum traffic delays and highest levels of service from a traffic operations perspective for all intersections. As a result of these studies, a 3x2 lane roundabout is recommended at the Maple Grove Road and Beaverdale Road intersection, as per the Recommended Design Alternative. 2. Property access is considered in the development of alternatives and where access to landowner's property is impacted, opportunities to mitigate those impacts will be considered. If access provisions include facilities located within the regional road right-of-way those conditions will be addressed according to Regional Road access policy. The overall project is currently in the study and investigation stage and will be followed by a more in-depth review of the detailed design requirements, specific property impacts and property requirements to accommodate the works. There are provisions in place to amicably negotiate with property owners or commence an expropriation process if that cannot be achieved. As the details of the design become clearer, those discussion will be initiated. 3. The design will review impacts on specific access and where possible, provisions to maintain unhindered access will be considered. It is possible that right-in, right-out conditions will be deemed the most appropriate means of access. *Geometric Design Guidelines* (Transportation Association of Canada, 2017) indicate that access controlled (i.e. a raised median) roads greatly reduce collision rates when compared with uncontrolled (i.e. undivided, painted and/or two-way left turn lane) roads.

No.	Themes	Comment	Project Team Response
		9. How will the grade change between Maple Grove Road/Beaverdale Road and my property be handled for the roundabout construction. Will a retaining wall be required to support the roundabout?	4. A focused Transportation Study was undertaken as part of this study as the next step in the evaluation of need. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widenings are only considered for locations where absolutely necessary. With the role of Maple Grove Road in the Region's transportation network, that widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling. Between the proposed roundabouts at Beaverdale Road and at Hespeler Road the projected traffic volumes, merge conditions, and anticipated approach queuing the provision of three lanes is warranted. 5. Impacts on private septic system and municipal services will be addressed during the detailed design stage and if any displacement is required, then compensation, replacement, or modifications will be considered in negotiations with the impacted property owner(s). 6. Impacts on utilities will be addressed during the detailed design stage and if any displacement is required, then compensation, replacement, or modifications will be considered in negotiations with the impacted property owner(s). Where there are impacts, they will be communicated openly with the affected property owner(s). 7. One of the goals of the planning and design process for this project is to minimize the impact on adjacent properties and the need to acquire private property. In areas where property or temporary access is required, the property owner will be contacted directly by the Region of Waterloo legal services staff. Compensation will be provided at fair market rates based on recent similar area sales.

No.	Themes	Comment	Project Team Response
			8. Future development entrances will subject to the Regional Road Access Policy and the development approval processes of the City of Cambridge and Region of Waterloo. Until development approvals have been confirmed it would be premature to illustrate them on the plans. 9. The typical desired approach is to manage grading encroachment on to adjacent land by providing max 3:1 (Horizontal : Vertical) naturalized slope for yard maintenance, or better; but, if retaining walls are required, they will be considered during detailed design.
62		*General Comment* Is this really the best way to inform homeowner stakeholders directly when we weren't even told there would be a sign on the boulevard we maintain (i.e. no personal conversations, drawings provided to them or questions asked of them)? Have you considered your roundabout in the video cuts into the homeowner's front lawn, septic bed and hydro line at the corner of Beaverdale Road? Does the project include new sanitary sewers for the homes affected? One of the big red squares shown on the photo at the intersection of Beaverdale and Maple Grove is going through part of the septic bed for (REDACTED) with driveway access off Maple Grove Road. This may require you to purchase a part, or the entire property and pay for septic removal and city hookup for servicing. Why does the video show the road widenings to 6 lanes when it is supposed to be 4? Is there a reason the roundabout is shown right up against my house at (REDACTED)? Why do you need such a huge roundabout at Beaverdale Road? How are people supposed to exit the Mattamy subdivision and why is there no roundabout shown there? Where is the exit for the proposed subdivision corner of Hespeler Rd. & Maple Grove?	The Project Team acknowledges these comments, and they will be documented in the final study reporting (i.e. Environmental Study Report) for this Schedule C Class EA. The Class Environmental Assessment process provides individuals the opportunity to provide comments and express concerns as part of the overall planning process. The comments of all respondents are valued and will form a part of the public record and the Class Environmental Assessment process and related documentation. An Environmental Study Report documenting the process will be completed and all comments received, and subsequent responses will be placed on the record for further review and public comment. 62 sets of comments were received through the Public Consultation Centre #2 review and comment period and are being responded to herein. Hand-delivered, published (i.e. newspaper), posted (i.e. sign boards), and emailed Notices have been provided for project milestones, including Public Consultation Centres, and will be provided for Study Completion. In response to specific comments and questions, please note the following: 1. One of the goals of the planning and design process for this project is to minimize the impact on adjacent properties and the need to acquire private property. In areas where property or temporary access is required, the property owner will be contacted directly by the Region of Waterloo legal services staff. Compensation will be provided at fair market rates based on recent similar area sales. 2. As part of the study process, roundabouts were considered for all major intersections (Vondrau Drive, Boxwood Drive, Speedsville Road, Beaverdale Road, and Hespeler Road). Detailed traffic analyses and simulations were undertaken to determine minimum traffic delays and highest levels of service from a traffic operations perspective for all intersections. As a result of these studies, a 3x2 lane roundabout is

No.	Themes	Comment	Project Team Response
			recommended at the Maple Grove Road and Beaverdale Road intersection, as per the Recommended Design Alternative. Between the proposed roundabouts at Beaverdale Road and at Hespeler Road the projected traffic volumes, merge conditions and anticipated approach queuing warrant the provision of three lanes, which impacts the size of those roundabouts. 3. Property access is considered in the development of alternatives and where access to landowner's property is impacted, opportunities to mitigate those impacts will be considered. If access provisions include facilities located within the regional road right-of-way those conditions will be addressed according to Regional Road access policy. The overall project is currently in the study and investigation stage and will be followed by a more in-depth review of the detailed design requirements, specific property impacts and property requirements to accommodate the works. There are provisions in place to amicably negotiate with property owners or commence an expropriation process if that cannot be achieved. As the details of the design become clearer, those discussions will be initiated. The design will review impacts on specific access and where possible, provisions to maintain unhindered access will be considered. It is possible that right-in, right-out conditions will be deemed the most appropriate means of access. Impacts on private septic system and municipal services will be addressed at the detailed design stage and if any displacement is required, then compensation, replacement, or modifications will be considered in negotiations with the impacted property owner(s). We are not aware of any current plans of the City to provide sanitary service to the area beyond what has been included in the approved development plans. This inquiry will be directed the City representative on the Project Team for further response. Confirmation of specific utility service impacts and coordination of any necessary relocations is a typical aspect of the detailed design phase of all municipal transportation projects and those impacts and provisions to address them will be investigated fully at that time and prior to undertaking construction of the proposed works. Where there are impacts they will be communicated openly with the affected property owner(s). 4. Compass Trail was constructed to accommodate access to and from the new development area.

No.	Themes	Comment	Project Team Response
			Traffic signal warrants at the intersection of Compass Trail and Maple Grove Road have not been met to-date. It is best practice for roundabout screening to be completed only at those intersections where traffic signal warrants have been met. As part of detailed design, signal warrants at this location will be re-evaluated. Future development entrances will be subject to the Regional Road Access Policy and the development approval processes of the City of Cambridge and Region of Waterloo. Until development approvals have been confirmed it would be premature to illustrate them on the plans.

Appendix W – Cost Estimate

September 2023

Region of Waterloo
Transportation and Environmental Services - Design & Construction Division

Maple Grove Road Improvements and Corridor Study
Preliminary Cost Estimate for Preferred Alternative
Signals at Vondrau-Boxwood-Speedsville, Roundabouts at Beaverdale-Hespeler
Concept 4 - Hybrid Widening, Cross-Section Alternative A

Maple Grove Road from Fountain Street to Hespeler Road, Total Segment Length 4.35 km
City of Cambridge Side Streets, Total Segment Length 1.45 km

Summary of Segment Costs

Part	Description	Bid Price
GEN	GENERAL REQUIREMENTS	$ 1,274,600.00
A	A2. Removals	$ 7,199,597.00
B	A3. Storm Sewer and Appurtenances	$ 4,834,465.00
C	A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
D	A5. Watermain and Appurtenances	$ -
E	A6. Road Works	$ 14,239,143.70
F	A7. Streetlighting	$ 2,946,000.00
G	A8. Traffic Signals (Temporary and Permanent)	$ 1,275,000.00
H	A9. Miscellaneous/ Provisional Items	$ 783,900.00

I	A10. Contingency Allowance	$	6,256,000.00
1	Property	$	3,919,176.00
2	Utility Relocations	$	1,850,000.00
3	Landscaping (Post Construction)	$	388,000.00

Sub-Total (Part GEN Through Part 3)	$44,965,881.70
Engineering (15%)	$6,744,882.26
Sub-Total Including Engineering	$51,710,763.96
Sub-Total Including Engineering & Contingency	$51,710,763.96
Plus H.S.T. (1.76% of Sub-Total)	$910,109.45
Total	$52,620,873.40

Maple Grove Road Improvements and Corridor Study
Part GEN - General Requirements - Vondrau Drive to Hespeler Road
Preliminary Cost Estimate

Maple Grove Road from Fountain Street to Hespeler Road, Total Segment Length 4.35 km

General Requirements

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
GEN.1		Mobilization and demobilization (50/50%), entire project, complete duration.	LS	1	$ 375,300.00	$ 375,300.00
GEN.2		Provide bonding and insurance.	LS	1	$ 37,500.00	$ 37,500.00
GEN.3		Supply, installation and removal of Contract Administration field office (including privy for CA use only) for duration of contract including relocation, entire project, complete duration.	LS	1	$ 37,500.00	$ 37,500.00
GEN.4		Provide Contractor's construction layout/survey points, including checking, verification of accuracy and reporting for entire contract.	LS	1	$ 188,000.00	$ 188,000.00
GEN.5		Traffic Control and Staging - entire project, complete duration (including individual traffic control plans for ea stage).	LS	1	$ 375,000.00	$ 375,000.00
GEN.6		Test pitting for soils classification, including laboratory costs and reporting, stockpiling and protection of excavated materials.	ea	17	$ 1,000.00	$ 17,400.00
GEN.7		Provide, adjust, maintain and remove Construction Fencing for pedestrians and tree protection. OPSD 220.010 (1.2 m high orange plastic with T-bar supports, top and bottom wire).	m	8,700	$ 13.00	$ 113,100.00
GEN.8		Utility Coordination and Liaison.	LS	1	$ 18,800.00	$ 18,800.00
GEN.9		Prepare, implement, and document all requirements for a comprehensive Site Specific Health & Safety Plan, including qualified site safety officer for the duration of the project works.	LS	1	$ 37,500.00	$ 37,500.00
GEN.10		Remove, salvage and transport existing traffic signs to Region Works Yard.	ea	40	$ 100.00	$ 4,000.00
GEN.11		Remove, salvage and relocate existing traffic signs.	ea	40	$ 300.00	$ 12,000.00
GEN.12		Provide hydro approved hydro pole support.	ea	25	$ 1,500.00	$ 37,500.00
GEN.13		Contingency (Allowance) - 20%	LS	1	$ 21,000.00	$ 21,000.00
					Sub-Total – General Requirements	**$ 1,274,600.00**

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A1. General Requirements

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A1.1		Mobilization and demobilization (50/50%), entire project, complete duration.	LS		$ -	$ -
A1.2		Provide bonding and insurance.	LS		$ -	$ -
A1.3		Supply, installation and removal of Contract Administration field office (including privy for CA use only) for duration of contract including relocation, entire project, complete duration.	LS		$ -	$ -
A1.4		Provide Contractor's construction layout/survey points, including checking, verification of accuracy and reporting for entire contract.	LS		$ -	$ -
A1.5		Traffic Control and Staging - entire project, complete duration (including individual traffic control plans for ea stage).	LS		$ -	$ -
A1.6		Test pitting for soils classification, including laboratory costs and reporting, stockpiling and protection of excavated materials.	ea		$ 1,000.00	$ -
A1.7		Provide, adjust, maintain and remove Construction Fencing for pedestrians and tree protection. OPSD 220.010 (1.2 m high orange plastic with T-bar supports, top and bottom wire).	m		$ 13.00	$ -
A1.8		Utility Coordination and Liaison.	LS		$ -	$ -
A1.9		Prepare, implement, and document all requirements for a comprehensive Site Specific Health & Safety Plan, including qualified site safety officer for the duration of the project works.	LS		$ -	$ -
A1.10		Remove, salvage and transport existing traffic signs to Region Works Yard.	ea		$ 100.00	$ -
A1.11		Remove, salvage and relocate existing traffic signs.	ea		$ 300.00	$ -
A1.12		Provide hydro approved hydro pole support.	ea		$ 1,500.00	$ -
					Sub-Total – General Requirements	**$ -**

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m		$ 13.00	$ -
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m		$ 20.00	$ -
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea		$ 180.00	$ -
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea		$ 725.00	$ -
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²		$ 18.00	$ -
A2.6		Tree Cutting and Stump Removal.	ea		$ 550.00	$ -

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m		$ 38.00	$ -
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m^2		$ 5.00	$ -
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m^2		$ 60.00	$ -
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m^2		$ 5.00	$ -
A2.10.2		Driveway	m^2		$ 15.00	$ -
A2.10.3		Temporary Asphalt (from Staging)	m^2		$ 10.00	$ -
A2.10.4		Asphalt walkway	m^2		$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel driveway.	m^2		$ 5.00	$ -
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.		$ 450.00	$ -
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3		$ 14.00	$ -
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3		$ 41.00	$ -
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3		$ 215.00	$ -
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3		$ 55.00	$ -
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m		$ 47.00	$ -
A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres		$ 1.75	$ -
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3		$ 50.00	$ -
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m		$ 10.50	$ -
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2		$ 50.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea		$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2		$ 24.00	$ -
					Sub-Total – Removals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea		$ 562.00	$ -
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m		$ 25.00	$ -
A3.3		Remove and reinstate existing concrete culverts.	m		$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea		$ 136.00	$ -
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea		$ 127.00	$ -
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m		$ 234.00	$ -
A3.6.2		375mm dia. - PVC	m		$ 256.00	$ -
A3.6.3		450mm dia. - PVC	m		$ 290.00	$ -
A3.6.4		525mm dia. - Conc	m		$ 333.00	$ -
A3.6.5		600mm dia. - Conc	m		$ 382.00	$ -
A3.6.6		675mm dia. - Conc	m		$ 482.00	$ -
A3.6.7		750mm dia. - Conc	m		$ 532.00	$ -
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea		$ 5,400.00	$ -
A3.7.2		1500mm dia.	ea		$ 9,300.00	$ -
A3.7.3		1800mm dia.	ea		$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea		$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea		$ 5,000.00	$ -

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea		$ 2,105.00	$ -
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea		$ 2,330.00	$ -
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea		$ 3,940.00	$ -
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m		$ 218.00	$ -
A3.12.2		300mm dia. PVC	m		$ 265.00	$ -
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea		$ 700.00	$ -
A3.13.2		OPSD 400.080 (SICB)	ea		$ 1,170.00	$ -
A3.13.3		Self-adjusting manhole frame and cover.	ea		$ 930.00	$ -
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m		$ 24.00	$ -
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m		$ 8.00	$ -
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m		$ 6.00	$ -
					Sub-Total – Storm Sewer	**$** -

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (650mm)	t.		$ 15.00	$ -
A6.1.2		Granular base course Class "A" (150mm)	t.		$ 20.00	$ -
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.		$ 21.00	$ -
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m		$ 40.00	$ -
A6.2.2		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	0	$ 33.00	$ -
A6.2.3		Supply and install semi-mountable curb per MTOD 600.091	m		$ 70.00	$ -
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m		$ 64.00	$ -
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea		$ 355.00	$ -
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea		$ 720.00	$ -
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 300mm Granular A).	m^2		$ 60.00	$ -
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2		$ 55.00	$ -
A6.9		Supply and place Superpave 19, (2x70mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.		$ 95.00	$ -
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.		$ 101.00	$ -
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2		$ 0.60	$ -
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea		$ 85.00	$ -
A6.12.2		At Double Side Inlet Catchbasin	ea		$ 110.00	$ -
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea		$ 851.00	$ -
A6.13.2		Ex. Valve boxes	ea		$ 287.00	$ -
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea		$ 687.00	$ -
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea		$ 450.00	$ -
A6.14.2		Valve boxes	ea		$ 305.00	$ -

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A6.14.3		Fire Hydrant (in boulevard)	ea		$ 1,065.00	$ -
A6.14.4		Fire Hydrant and Lead Valve	ea		$ 642.00	$ -
A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2		$ 75.00	$ -
A6.15		Reinstatement of gravel driveway	m^2		$ 20.00	$ -
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m		$ 181.00	$ -
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f		$ 615.00	$ -
A6.18		Supply and install handrail on Earth Retaining Structures.	m		$ 445.00	$ -
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m		$ 450.00	$ -
A6.20		Supply and install guide rail as per OPSD 912.145.	m		$ 200.00	$ -
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2		$ 18.00	$ -
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2		$ 12.00	$ -
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):				
A6.24.1		Lane pavement markings	m		$ 2.00	$ -
A6.24.2		Symbols	m		$ 50.00	$ -
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):				
A6.25.1		Lane pavement markings	m		$ 1.25	$ -
A6.25.2		Symbols	m		$ 100.00	$ -
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea		$ 340.00	$ -
A6.28		Supply and install traffic signs on posts.	ea		$ 110.00	$ -
					Sub-Total – Road Works	**$** -

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	0	$ -	$ -
					Sub-Total – Street Lighting	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS		$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS		$ 0.00	$ -
A9.2		Water for compaction and dust control.	m^3		$ 18.70	$ -
A9.3		Calcium chloride for dust control (40 kg bags).	bags		$ 55.00	$ -
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.		$ 30.00	$ -
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.		$ 30.00	$ -
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.		$ 44.00	$ -
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.		$ 360.00	$ -
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.		$ 253.00	$ -
					Sub-Total – Miscellaneous/ Provisional Items	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A - Fountain Street Intersection
NOT INCLUDED IN ESTIMATE - BY OTHERS

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS		$ 0.00	$ -
					Sub-Total – Contingency Allowance	**$ -**

Part A - Fountain Street Roundabout - Summary

Section	TOTAL
A2. Removals	$ 0.00
A3. Storm Sewer and Appurtenances	$ 0.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ 0.00
A5. Watermain and Appurtenances	$ 0.00
A6. Road Works	$ 0.00
A7. Streetlighting	$ 0.00
A8. Traffic Signals (Temporary and Permanent)	$ 0.00
A9. Miscellaneous/ Provisional Items	$ 0.00
A10. Contingency Allowance	$ 0.00
Total – Part A Fountain Street Roundabout	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A1. General Requirements

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A1.1		Mobilization and demobilization (50/50%), entire project, complete duration.	LS		$ -	$ -
A1.2		Provide bonding and insurance.	LS		$ -	$ -
A1.3		Supply, installation and removal of Contract Administration field office (including privy for CA use only) for duration of contract including relocation, entire project, complete duration.	LS		$ -	$ -
A1.4		Provide Contractor's construction layout/survey points, including checking, verification of accuracy and reporting for entire contract.	LS		$ -	$ -
A1.5		Traffic Control and Staging - entire project, complete duration (including individual traffic control plans for ea stage).	LS		$ -	$ -
A1.6		Test pitting for soils classification, including laboratory costs and reporting, stockpiling and protection of excavated materials.	ea		$ 1,000.00	$ -
A1.7		Provide, adjust, maintain and remove Construction Fencing for pedestrians and tree protection. OPSD 220.010 (1.2 m high orange plastic with T-bar supports, top and bottom wire).	m		$ 13.00	$ -
A1.8		Utility Coordination and Liaison.	LS		$ -	$ -
A1.9		Prepare, implement, and document all requirements for a comprehensive Site Specific Health & Safety Plan, including qualified site safety officer for the duration of the project works.	LS		$ -	$ -
A1.10		Remove, salvage and transport existing traffic signs to Region Works Yard.	ea		$ 100.00	$ -
A1.11		Remove, salvage and relocate existing traffic signs.	ea		$ 300.00	$ -
A1.12		Provide hydro approved hydro pole support.	ea		$ 1,500.00	$ -
					Sub-Total – General Requirements	**$ -**

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m		$ 13.00	$ -
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m		$ 20.00	$ -
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea		$ 180.00	$ -
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea		$ 725.00	$ -
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²		$ 18.00	$ -
A2.6		Tree Cutting and Stump Removal.	ea		$ 550.00	$ -

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m		$ 38.00	$ -
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²		$ 5.00	$ -
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²		$ 60.00	$ -
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²		$ 5.00	$ -
A2.10.2		Driveway	m²		$ 15.00	$ -
A2.10.3		Temporary Asphalt (from Staging)	m²		$ 10.00	$ -
A2.10.4		Asphalt walkway	m²		$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²		$ 5.00	$ -
A2.11.1		Driveway	m²		$ 5.00	$ -
A2.11		Remove and dispose off-site existing gravel driveway.	m²		$ 5.00	$ -
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.		$ 450.00	$ -
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3		$ 14.00	$ -
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3		$ 41.00	$ -
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3		$ 215.00	$ -
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3		$ 55.00	$ -
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m		$ 47.00	$ -
A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres		$ 50.00	$ -
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3		$ 50.00	$ -
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m		$ 10.50	$ -
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m²		$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea		$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m²		$ 24.00	$ -

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

Sub-Total – Removals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea		$ 562.00	$ -
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m		$ 25.00	$ -
A3.3		Remove and reinstate existing concrete culverts.	m		$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea		$ 136.00	$ -
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea		$ 127.00	$ -
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m		$ 234.00	$ -
A3.6.2		375mm dia. - PVC	m		$ 256.00	$ -
A3.6.3		450mm dia. - PVC	m		$ 290.00	$ -
A3.6.4		525mm dia. - Conc	m		$ 333.00	$ -
A3.6.5		600mm dia. - Conc	m		$ 382.00	$ -
A3.6.6		675mm dia. - Conc	m		$ 482.00	$ -
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea		$ 5,400.00	$ -
A3.7.2		1500mm dia.	ea		$ 9,300.00	$ -
A3.7.3		1800mm dia.	ea		$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea		$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea		$ 5,000.00	$ -

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea		$ 2,105.00	$ -
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea		$ 2,330.00	$ -
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea		$ 3,940.00	$ -
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m		$ 218.00	$ -
A3.12.2		300mm dia. PVC	m		$ 265.00	$ -
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea		$ 700.00	$ -
A3.13.2		OPSD 400.080 (SICB)	ea		$ 1,170.00	$ -
A3.13.3		Self-adjusting manhole frame and cover.	ea		$ 930.00	$ -
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m		$ 24.00	$ -
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m		$ 8.00	$ -
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m		$ 6.00	$ -
					Sub-Total – Storm Sewer	**$** -

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (500mm)	t.		$ 15.00	$ -
A6.1.2		Granular base course Class "A" (200mm)	t.		$ 20.00	$ -
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.		$ 21.00	$ -
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m		$ 40.00	$ -
A6.2.3		Supply and install barrier curb with narrow gutter per OPSD 600.080	m		$ 33.00	$ -
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m		$ 64.00	$ -
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea		$ 355.00	$ -
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea		$ 720.00	$ -
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 150mm Granular A, 450mm Granular B).	m^2		$ 60.00	$ -
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2		$ 55.00	$ -
A6.9		Supply and place Superpave 19, (2x60mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.		$ 95.00	$ -
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.		$ 101.00	$ -
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2		$ 0.60	$ -
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea		$ 85.00	$ -
A6.12.2		At Double Side Inlet Catchbasin	ea		$ 110.00	$ -
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea		$ 851.00	$ -
A6.13.2		Ex. Valve boxes	ea		$ 287.00	$ -
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea		$ 687.00	$ -
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea		$ 450.00	$ -
A6.14.2		Valve boxes	ea		$ 305.00	$ -
A6.14.3		Fire Hydrant (in boulevard)	ea		$ 1,065.00	$ -
A6.14.4		Fire Hydrant and Lead Valve	ea		$ 642.00	$ -

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2		$ 75.00	$ -
A6.15		Reinstatement of gravel driveway	m^2		$ 20.00	$ -
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m		$ 181.00	$ -
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f		$ 615.00	$ -
A6.18		Supply and install handrail on Earth Retaining Structures.	m		$ 445.00	$ -
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m		$ 450.00	$ -
A6.20		Supply and install guide rail as per OPSD 912.145.	m		$ 200.00	$ -
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2		$ 18.00	$ -
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2		$ 12.00	$ -
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):				
A6.24.1		Lane pavement markings	m		$ 2.00	$ -
A6.24.2		Symbols	m		$ 50.00	$ -
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):				
A6.25.1		Lane pavement markings	m		$ 1.25	$ -
A6.25.2		Symbols	m		$ 100.00	$ -
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea		$ 340.00	$ -
A6.28		Supply and install traffic signs on posts.	ea		$ 110.00	$ -
					Sub-Total – Road Works	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS		$ 180,000.00	$ -
					Sub-Total – Street Lighting	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	0	$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS		$ 11,120.00	$ -
A9.2		Water for compaction and dust control.	m^3		$ 18.70	$ -
A9.3		Calcium chloride for dust control (40 kg bags).	bags		$ 55.00	$ -
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.		$ 30.00	$ -
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.		$ 30.00	$ -
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.		$ 44.00	$ -
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.		$ 360.00	$ -
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.		$ 253.00	$ -
					Sub-Total – Miscellaneous/ Provisional Items	**$ -**

Maple Grove Road Improvements and Corridor Study
Part A-B - Fountain Street to Vondrau Drive
NOT INCLUDED IN ESTIMATE - BY OTHERS

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS		$ 0.00	$ -
					Sub-Total – Contingency Allowance	**$ -**

Part A-B - Fountain Street to Vondrau Drive - Summary

Section	TOTAL
A1. General Requirements	$ -
A2. Removals	$ -
A3. Storm Sewer and Appurtenances	$ -
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ -
A7. Streetlighting	$ -
A8. Traffic Signals (Temporary and Permanent)	$ -
A9. Miscellaneous/ Provisional Items	$ -
A10. Contingency Allowance	$ -
Total – Part A-B - Fountain Street to Vondrau Drive	**$ -**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

Vondrau Drive Intersection, Sta. 3+750 to Sta. 4+008, Length = 200m
City of Cambridge Side Street, Length = 90m
Cross Section: 3-lane by 7-lane approaches, Signalized Intersection

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	348	$ 13.00	$ 4,524.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	348	$ 20.00	$ 6,960.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	6	$ 180.00	$ 1,080.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	6	$ 725.00	$ 4,350.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	1,138	$ 18.00	$ 20,484.00
A2.6		Tree Cutting and Stump Removal.	ea	7	$ 550.00	$ 3,850.00
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	84	$ 38.00	$ 3,192.00
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	1,044	$ 5.00	$ 5,220.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	70	$ 60.00	$ 4,200.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	6,510	$ 5.00	$ 32,550.00
A2.10.2		Driveway	m²	74	$ 15.00	$ 1,110.00
A2.10.3		Temporary Asphalt (from Staging)	m²	1,218	$ 10.00	$ 12,180.00
A2.10.4		Asphalt walkway	m²	196	$ 10.00	$ 1,960.00
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	1,806	$ 5.00	$ 9,030.00
A2.11.1		Driveway	m²	0	$ 5.00	$ -
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	40	$ 450.00	$ 18,000.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	7,588	$ 14.00	$ 106,232.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	225	$ 41.00	$ 9,225.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	48	$ 55.00	$ 2,640.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 50.00	$ 25,000.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	696	$ 10.50	$ 7,308.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	68	$ 11.00	$ 748.00
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	1,044	$ 24.00	$ 25,056.00
					Sub-Total – Removals	**$ 319,964.00**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	9	$ 562.00	$ 5,058.00
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	381	$ 30.00	$ 11,430.00
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	66	$ 25.00	$ 1,650.00
A3.3		Remove and reinstate existing concrete culverts.	m	0	$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	28	$ 127.00	$ 3,556.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	45	$ 234.00	$ 10,530.00
A3.6.2		375mm dia. - PVC	m	0	$ 256.00	$ -
A3.6.3		450mm dia. - PVC	m	0	$ 290.00	$ -
A3.6.4		525mm dia. - Conc	m	0	$ 333.00	$ -
A3.6.5		600mm dia. - Conc	m	0	$ 382.00	$ -
A3.6.6		675mm dia. - Conc	m	100	$ 482.00	$ 48,200.00
A3.6.7		750mm dia. - Conc	m	100	$ 532.00	$ 53,200.00
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	1	$ 5,400.00	$ 5,400.00
A3.7.2		1500mm dia.	ea	4	$ 9,300.00	$ 40,920.00
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 5,000.00	$ 20,000.00

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 2,105.00	$ 8,420.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	16	$ 2,330.00	$ 37,280.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 3,940.00	$ 15,760.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	160	$ 265.00	$ 42,400.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	696	$ 24.00	$ 16,704.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	455	$ 8.00	$ 3,640.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	455	$ 6.00	$ 2,730.00
					Sub-Total – Storm Sewer	**$ 349,250.00**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (650mm)	t.	12,597	$ 15.00	$ 188,955.00
A6.1.2		Granular base course Class "A" (150mm)	t.	2,907	$ 20.00	$ 58,140.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	74	$ 21.00	$ 1,554.00
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	590	$ 40.00	$ 23,600.00
A6.2.2		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	230	$ 33.00	$ 7,590.00
A6.2.3		Supply and install semi-mountable curb per MTOD 600.091	m	0	$ 70.00	$ -
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	0	$ 64.00	$ -
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	4	$ 355.00	$ 1,420.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	16	$ 720.00	$ 11,520.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 300mm Granular A).	m^2	1,380	$ 60.00	$ 82,800.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	348	$ 55.00	$ 19,140.00
A6.9		Supply and place Superpave 19, (2x70mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	2,713	$ 95.00	$ 257,754.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	969	$ 101.00	$ 97,869.00
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	7,752	$ 0.60	$ 4,651.20
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	1	$ 851.00	$ 851.00
A6.13.2		Ex. Valve boxes	ea	1	$ 287.00	$ 287.00
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	1	$ 687.00	$ 687.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	6	$ 450.00	$ 2,880.00
A6.14.2		Valve boxes	ea	1	$ 305.00	$ 305.00

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A6.14.3		Fire Hydrant (in boulevard)	ea	0	$ 1,065.00	$	-
A6.14.4		Fire Hydrant and Lead Valve	ea	1	$ 642.00	$	642.00
A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	74	$ 75.00	$	5,550.00
A6.15		Reinstatement of gravel driveway	m^2	0	$ 20.00	$	-
A6.15		Supply and install 200mm thick concrete for Transit Shelter pad, including 150mm Granular A	m^2	68	$ 75.00	$	5,100.00
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	696	$ 181.00	$	125,976.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	2,063	$ 18.00	$	37,134.00
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	696	$ 12.00	$	8,352.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	1,660	$ 2.00	$	3,320.00
A6.24.2		Symbols	m	12	$ 50.00	$	600.00
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	1,660	$ 1.25	$	2,075.00
A6.25.2		Symbols	m	12	$ 100.00	$	1,200.00
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	10	$ 340.00	$	3,400.00
A6.28		Supply and install traffic signs on posts.	ea	10	$ 110.00	$	1,100.00
					Sub-Total – Road Works	**$**	**954,647.20**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

10

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 174,000.00	$ 174,000.00
					Sub-Total – Street Lighting	**$ 174,000.00**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	1	$ 400,000.00	$ 400,000.00
					Sub-Total – Traffic Signals	**$ 400,000.00**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 6,960.00	$ 6,960.00
A9.2		Water for compaction and dust control.	m^3	350	$ 18.70	$ 6,545.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	170	$ 55.00	$ 9,350.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	90	$ 30.00	$ 2,700.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	90	$ 30.00	$ 2,700.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	90	$ 44.00	$ 3,960.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	40	$ 360.00	$ 14,400.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	40	$ 253.00	$ 10,120.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 56,735.00**

Maple Grove Road Improvements and Corridor Study
Part B - Vondrau Drive Intersection
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 451,000.00	$ 451,000.00
					Sub-Total – Contingency Allowance	**$ 451,000.00**

Part B - Vondrau Drive Intersection - Summary

Section	TOTAL
A2. Removals	$ 319,964.00
A3. Storm Sewer and Appurtenances	$ 349,250.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 954,647.20
A7. Streetlighting	$ 174,000.00
A8. Traffic Signals (Temporary and Permanent)	$ 400,000.00
A9. Miscellaneous/ Provisional Items	$ 56,735.00
A10. Contingency Allowance	$ 451,000.00
Total – Part B - Vondrau Drive Intersection	**$ 2,705,596.20**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

Vondrau Intersection to Boxwood Intersection Intersection, Sta. 4+008 to Sta. 4+564, Length = 556m

Cross Section: 4-lane

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	556	$ 13.00	$ 7,228.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	556	$ 20.00	$ 11,120.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	12	$ 180.00	$ 2,160.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	12	$ 725.00	$ 8,700.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	1,051	$ 18.00	$ 18,918.00
A2.6		Tree Cutting and Stump Removal.	ea	1	$ 550.00	$ 550.00
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	12	$ 38.00	$ 456.00
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	1,668	$ 5.00	$ 8,340.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	16	$ 60.00	$ 960.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	8,340	$ 5.00	$ 41,700.00
A2.10.2		Driveway	m²	0	$ 15.00	$ -
A2.10.3		Temporary Asphalt (from Staging)	m²	1,946	$ 10.00	$ 19,460.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	3,892	$ 5.00	$ 19,460.00
A2.11.1		Driveway	m²	678	$ 5.00	$ 3,390.00
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	30	$ 450.00	$ 13,500.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	12,020	$ 14.00	$ 168,280.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	2,951	$ 41.00	$ 120,991.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	24	$ 55.00	$ 1,320.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 50.00	$ 25,000.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	1,112	$ 10.50	$ 11,676.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	0	$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	1,668	$ 24.00	$ 40,032.00
					Sub-Total – Removals	**$ 538,306.00**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	12	$ 562.00	$ 6,744.00
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	609	$ 30.00	$ 18,270.00
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	0	$ 25.00	$ -
A3.3		Remove and reinstate existing concrete culverts.	m	50	$ 50.00	$ 2,500.00
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	0	$ 136.00	$ -
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	30	$ 127.00	$ 3,810.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	100	$ 234.00	$ 23,400.00
A3.6.2		375mm dia. - PVC	m	100	$ 256.00	$ 25,600.00
A3.6.3		450mm dia. - PVC	m	100	$ 290.00	$ 29,000.00
A3.6.4		525mm dia. - Conc	m	100	$ 333.00	$ 33,300.00
A3.6.5		600mm dia. - Conc	m	100	$ 382.00	$ 38,200.00
A3.6.6		675mm dia. - Conc	m	56	$ 482.00	$ 26,992.00
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	11	$ 5,400.00	$ 59,940.00
A3.7.2		1500mm dia.	ea	1	$ 9,300.00	$ 11,160.00
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 5,000.00	$ 10,000.00

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 2,105.00	$ 4,210.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	24	$ 2,330.00	$ 55,920.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 3,940.00	$ 7,880.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	240	$ 265.00	$ 63,600.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	1,112	$ 24.00	$ 26,688.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	846	$ 8.00	$ 6,768.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	846	$ 6.00	$ 5,076.00
					Sub-Total – Storm Sewer	**$ 481,158.00**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (500mm)	t.	9,730	$ 15.00	$ 145,950.00
A6.1.2		Granular base course Class "A" (200mm)	t.	3,892	$ 20.00	$ 77,840.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	678	$ 21.00	$ 14,238.00
A6.2		Supply and install concrete curbs and curb and gutter:		678		
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	1,112	$ 40.00	$ 44,480.00
A6.2.3		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	1,112	$ 33.00	$ 36,696.00
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	35	$ 64.00	$ 2,240.00
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	2	$ 355.00	$ 710.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	24	$ 720.00	$ 17,280.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 150mm Granular A, 450mm Granular B).	m^2	3,336	$ 60.00	$ 200,160.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	0	$ 55.00	$ -
A6.9		Supply and place Superpave 19, (2x60mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	2,335	$ 95.00	$ 221,844.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	973	$ 101.00	$ 98,273.00
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	7,784	$ 0.60	$ 4,670.40
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	8	$ 851.00	$ 6,808.00
A6.13.2		Ex. Valve boxes	ea	1	$ 287.00	$ 287.00
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	1	$ 687.00	$ 687.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	20	$ 450.00	$ 9,135.00
A6.14.2		Valve boxes	ea	1	$ 305.00	$ 305.00
A6.14.3		Fire Hydrant (in boulevard)	ea	1	$ 1,065.00	$ 1,065.00
A6.14.4		Fire Hydrant and Lead Valve	ea	1	$ 642.00	$ 642.00

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	303	$ 75.00	$	22,725.00
A6.15		Reinstatement of gravel driveway	m^2	123	$ 20.00	$	2,450.00
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	1,112	$ 181.00	$	201,272.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	7,951	$ 18.00	$	143,114.40
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	1,112	$ 12.00	$	13,344.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	1,112	$ 2.00	$	2,224.00
A6.24.2		Symbols	m	0	$ 50.00	$	-
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	1,112	$ 1.25	$	1,390.00
A6.25.2		Symbols	m	0	$ 100.00	$	-
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	5	$ 340.00	$	1,700.00
A6.28		Supply and install traffic signs on posts.	ea	5	$ 110.00	$	550.00
					Sub-Total – Road Works	**$**	**1,272,274.80**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 278,000.00	$ 278,000.00
					Sub-Total – Street Lighting	**$ 278,000.00**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	0	$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 11,120.00	$ 11,120.00
A9.2		Water for compaction and dust control.	m^3	560	$ 18.70	$ 10,472.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	280	$ 55.00	$ 15,400.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	140	$ 30.00	$ 4,200.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	140	$ 30.00	$ 4,200.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	140	$ 44.00	$ 6,160.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	30	$ 360.00	$ 10,800.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	30	$ 253.00	$ 7,590.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 69,942.00**

Maple Grove Road Improvements and Corridor Study
Part B-C - Vondrau Drive to Boxwood Drive
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 528,000.00	$ 528,000.00
					Sub-Total – Contingency Allowance	**$ 528,000.00**

Part B-C - Vondrau Drive to Boxwood Drive - Summary

Section	TOTAL
A2. Removals	$ 538,306.00
A3. Storm Sewer and Appurtenances	$ 481,158.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 1,272,274.80
A7. Streetlighting	$ 278,000.00
A8. Traffic Signals (Temporary and Permanent)	$ -
A9. Miscellaneous/ Provisional Items	$ 69,942.00
A10. Contingency Allowance	$ 528,000.00
Total – Part B-C - Vondrau Drive to Boxwood Drive	**$ 3,167,680.80**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

Boxwood Drive Intersection, Sta. 4+564 to Sta. 4+788
City of Cambridge Side Street, Length = 124m
Cross Section: 3-lane by 7-lane approaches, Signalized Intersection

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	349	$ 13.00	$ 4,537.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	349	$ 20.00	$ 6,980.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	6	$ 180.00	$ 1,080.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	6	$ 725.00	$ 4,350.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	719	$ 18.00	$ 12,942.00
A2.6		Tree Cutting and Stump Removal.	ea	30	$ 550.00	$ 16,500.00
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	360	$ 38.00	$ 13,680.00
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	1,047	$ 5.00	$ 5,235.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	60	$ 60.00	$ 3,600.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	5,740	$ 5.00	$ 28,700.00
A2.10.2		Driveway	m²	313	$ 15.00	$ 4,695.00
A2.10.3		Temporary Asphalt (from Staging)	m²	1,222	$ 10.00	$ 12,215.00
A2.10.4		Asphalt walkway	m²	54	$ 10.00	$ 540.00
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	1,637	$ 5.00	$ 8,185.00
A2.11.1		Driveway	m²	0	$ 5.00	$ -
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	40	$ 450.00	$ 18,000.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	7,184	$ 14.00	$ 100,576.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	246	$ 41.00	$ 10,086.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	48	$ 55.00	$ 2,640.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 50.00	$ 25,000.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	698	$ 10.50	$ 7,329.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	227	$ 11.00	$ 2,497.00
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	2	$ 100.00	$ 200.00
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	1,047	$ 24.00	$ 25,128.00
					Sub-Total – Removals	**$ 329,760.00**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	6	$ 562.00	$ 3,372.00
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	91	$ 30.00	$ 2,730.00
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	15	$ 25.00	$ 375.00
A3.3		Remove and reinstate existing concrete culverts.	m	51	$ 50.00	$ 2,550.00
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	28	$ 127.00	$ 3,556.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	309	$ 234.00	$ 72,306.00
A3.6.2		375mm dia. - PVC	m	40	$ 256.00	$ 10,240.00
A3.6.3		450mm dia. - PVC	m	0	$ 290.00	$ -
A3.6.4		525mm dia. - Conc	m	0	$ 333.00	$ -
A3.6.5		600mm dia. - Conc	m	0	$ 382.00	$ -
A3.6.6		675mm dia. - Conc	m	0	$ 482.00	$ -
A3.6.7		750mm dia. - Conc	m	0	$ 532.00	$ -
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	7	$ 5,400.00	$ 37,260.00
A3.7.2		1500mm dia.	ea	0	$ 9,300.00	$ -
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 5,000.00	$ 20,000.00

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 2,105.00	$ 8,420.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	16	$ 2,330.00	$ 37,280.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 3,940.00	$ 15,760.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	160	$ 265.00	$ 42,400.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	698	$ 24.00	$ 16,752.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	559	$ 8.00	$ 4,472.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	559	$ 6.00	$ 3,354.00
					Sub-Total – Storm Sewer	**$ 303,199.00**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (650mm)	t.	11,763	$ 15.00	$ 176,450.63
A6.1.2		Granular base course Class "A" (150mm)	t.	2,715	$ 20.00	$ 54,292.50
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	313	$ 21.00	$ 6,573.00
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	594	$ 40.00	$ 23,760.00
A6.2.2		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	394	$ 33.00	$ 13,002.00
A6.2.3		Supply and install semi-mountable curb per MTOD 600.091	m	0	$ 70.00	$ -
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	35	$ 64.00	$ 2,240.00
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	4	$ 355.00	$ 1,420.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	16	$ 720.00	$ 11,520.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 300mm Granular A).	m^2	1,170	$ 60.00	$ 70,200.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	284	$ 55.00	$ 15,620.00
A6.9		Supply and place Superpave 19, (2x70mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	2,534	$ 95.00	$ 240,696.75
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	905	$ 101.00	$ 91,392.38
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	7,239	$ 0.60	$ 4,343.40
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	7	$ 851.00	$ 5,957.00
A6.13.2		Ex. Valve boxes	ea	6	$ 287.00	$ 1,722.00
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	1	$ 687.00	$ 687.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	7	$ 450.00	$ 3,150.00
A6.14.2		Valve boxes	ea	6	$ 305.00	$ 1,830.00

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A6.14.3		Fire Hydrant (in boulevard)	ea	1	$ 1,065.00	$	1,065.00
A6.14.4		Fire Hydrant and Lead Valve	ea	1	$ 642.00	$	642.00
A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	124	$ 75.00	$	9,300.00
A6.15		Reinstatement of gravel driveway	m^2	0	$ 20.00	$	-
A6.15		Supply and install 200mm thick concrete for Transit Shelter pad, including 150mm Granular A	m^2	80	$ 75.00	$	6,000.00
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	698	$ 181.00	$	126,338.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	2,200	$ 18.00	$	39,600.00
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	698	$ 12.00	$	8,376.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	1,785	$ 2.00	$	3,570.00
A6.24.2		Symbols	m	12	$ 50.00	$	600.00
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	1,785	$ 1.25	$	2,231.25
A6.25.2		Symbols	m	12	$ 100.00	$	1,200.00
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	10	$ 340.00	$	3,400.00
A6.28		Supply and install traffic signs on posts.	ea	10	$ 110.00	$	1,100.00
					Sub-Total – Road Works	**$**	**928,473.90**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

10

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 174,500.00	$ 174,500.00
					Sub-Total – Street Lighting	**$ 174,500.00**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	1	$ 400,000.00	$ 400,000.00
					Sub-Total – Traffic Signals	**$ 400,000.00**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 6,980.00	$ 6,980.00
A9.2		Water for compaction and dust control.	m^3	350	$ 18.70	$ 6,545.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	170	$ 55.00	$ 9,350.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	90	$ 30.00	$ 2,700.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	90	$ 30.00	$ 2,700.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	90	$ 44.00	$ 3,960.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	40	$ 360.00	$ 14,400.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	40	$ 253.00	$ 10,120.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 56,755.00**

Maple Grove Road Improvements and Corridor Study
Part C - Boxwood Drive Intersection
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 439,000.00	$ 439,000.00
					Sub-Total – Contingency Allowance	**$ 439,000.00**

Part C - Boxwood Drive Intersection - Summary

Section	TOTAL
A2. Removals	$ 329,760.00
A3. Storm Sewer and Appurtenances	$ 303,199.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 928,473.90
A7. Streetlighting	$ 174,500.00
A8. Traffic Signals (Temporary and Permanent)	$ 400,000.00
A9. Miscellaneous/ Provisional Items	$ 56,755.00
A10. Contingency Allowance	$ 439,000.00
Part C - Boxwood Drive Intersection	**$ 2,631,687.90**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

Boxwood Intersection to Speedsville Intersection, Sta. 4+788 to Sta. 5+355, Length = 567m

Cross Section: 4-lane

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	567	$ 13.00	$ 7,371.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	567	$ 20.00	$ 11,340.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	12	$ 180.00	$ 2,160.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	12	$ 725.00	$ 8,700.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	4,696	$ 18.00	$ 84,528.00
A2.6		Tree Cutting and Stump Removal.	ea	0	$ 550.00	$ -
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	0	$ 38.00	$ -
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	1,701	$ 5.00	$ 8,505.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	16	$ 60.00	$ 960.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	4,536	$ 5.00	$ 22,680.00
A2.10.2		Driveway	m²	10	$ 15.00	$ 150.00
A2.10.3		Temporary Asphalt (from Staging)	m²	1,985	$ 10.00	$ 19,845.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	3,969	$ 5.00	$ 19,845.00
A2.11.1		Driveway	m²	202	$ 5.00	$ 1,010.00
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	30	$ 450.00	$ 13,500.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	11,280	$ 14.00	$ 157,920.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	7,927	$ 41.00	$ 325,007.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	24	$ 55.00	$ 1,320.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 50.00	$ 25,000.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	1,134	$ 10.50	$ 11,907.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	0	$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	1,701	$ 24.00	$ 40,824.00
					Sub-Total – Removals	**$ 777,637.00**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	0	$ 562.00	$ -
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	0	$ 30.00	$ -
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	94	$ 25.00	$ 2,350.00
A3.3		Remove and reinstate existing concrete culverts.	m	0	$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	32	$ 127.00	$ 4,064.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	100	$ 234.00	$ 23,400.00
A3.6.2		375mm dia. - PVC	m	100	$ 256.00	$ 25,600.00
A3.6.3		450mm dia. - PVC	m	100	$ 290.00	$ 29,000.00
A3.6.4		525mm dia. - Conc	m	100	$ 333.00	$ 33,300.00
A3.6.5		600mm dia. - Conc	m	100	$ 382.00	$ 38,200.00
A3.6.6		675mm dia. - Conc	m	67	$ 482.00	$ 32,294.00
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	11	$ 5,400.00	$ 59,940.00
A3.7.2		1500mm dia.	ea	2	$ 9,300.00	$ 13,950.00
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 5,000.00	$ 10,000.00

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 2,105.00	$ 4,210.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	26	$ 2,330.00	$ 60,580.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 3,940.00	$ 7,880.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	260	$ 265.00	$ 68,900.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	1,134	$ 24.00	$ 27,216.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	877	$ 8.00	$ 7,016.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	877	$ 6.00	$ 5,262.00
					Sub-Total – Storm Sewer	**$ 475,534.00**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (500mm)	t.	9,923	$ 15.00	$ 148,837.50
A6.1.2		Granular base course Class "A" (200mm)	t.	3,892	$ 20.00	$ 77,840.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	212	$ 21.00	$ 4,452.00
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	1,134	$ 40.00	$ 45,360.00
A6.2.3		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	1,134	$ 33.00	$ 37,422.00
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	35	$ 64.00	$ 2,240.00
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	2	$ 355.00	$ 710.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	26	$ 720.00	$ 18,720.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 150mm Granular A, 450mm Granular B).	m^2	3,402	$ 60.00	$ 204,120.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	0	$ 55.00	$ -
A6.9		Supply and place Superpave 19, (2x60mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	2,381	$ 95.00	$ 226,233.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	992	$ 101.00	$ 100,217.25
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	7,938	$ 0.60	$ 4,762.80
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	0	$ 851.00	$ -
A6.13.2		Ex. Valve boxes	ea	0	$ 287.00	$ -
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	1	$ 687.00	$ 687.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	13	$ 450.00	$ 5,670.00
A6.14.2		Valve boxes	ea	0	$ 305.00	$ -
A6.14.3		Fire Hydrant (in boulevard)	ea	1	$ 1,065.00	$ 1,065.00
A6.14.4		Fire Hydrant and Lead Valve	ea	0	$ 642.00	$ -

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	150	$ 75.00	$	11,250.00
A6.15		Reinstatement of gravel driveway	m^2	0	$ 20.00	$	-
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	1,134	$ 181.00	$	205,254.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	8,108	$ 18.00	$	145,945.80
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	1,134	$ 12.00	$	13,608.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	1,134	$ 2.00	$	2,268.00
A6.24.2		Symbols	m	0	$ 50.00	$	-
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	1,134	$ 1.25	$	1,417.50
A6.25.2		Symbols	m	0	$ 100.00	$	-
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	5	$ 340.00	$	1,700.00
A6.28		Supply and install traffic signs on posts.	ea	5	$ 110.00	$	550.00
					Sub-Total – Road Works	**$**	**1,260,524.85**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 283,500.00	$ 283,500.00
					Sub-Total – Street Lighting	**$ 283,500.00**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	0	$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 11,340.00	$ 11,340.00
A9.2		Water for compaction and dust control.	m^3	570	$ 18.70	$ 10,659.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	280	$ 55.00	$ 15,400.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	140	$ 30.00	$ 4,200.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	140	$ 30.00	$ 4,200.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	140	$ 44.00	$ 6,160.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	30	$ 360.00	$ 10,800.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	30	$ 253.00	$ 7,590.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 70,349.00**

Maple Grove Road Improvements and Corridor Study
Part C-D - Boxwood Drive to Speedsville Road
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 574,000.00	$ 574,000.00
					Sub-Total – Contingency Allowance	**$ 574,000.00**

Part C-D - Boxwood Drive to Speedsville Road - Summary

Section	TOTAL
A2. Removals	$ 777,637.00
A3. Storm Sewer and Appurtenances	$ 475,534.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 1,260,524.85
A7. Streetlighting	$ 283,500.00
A8. Traffic Signals (Temporary and Permanent)	$ -
A9. Miscellaneous/ Provisional Items	$ 70,349.00
A10. Contingency Allowance	$ 574,000.00
Total – Part C-D - Boxwood Drive to Speedsville Road	**$ 3,441,544.85**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

Speedsville Road Intersection, Sta. 5+355 to Sta. 5+577, Length = 222m
City of Cambridge Side Street, Length = 601m
Cross Section: 6-lane to 8-lane approaches, Signalized Intersection

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	823	$ 13.00	$ 10,699.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	823	$ 20.00	$ 16,460.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	16	$ 180.00	$ 2,880.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	16	$ 725.00	$ 11,600.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	2,482	$ 18.00	$ 44,676.00
A2.6		Tree Cutting and Stump Removal.	ea	1	$ 550.00	$ 550.00
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	12	$ 38.00	$ 456.00
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	2,469	$ 5.00	$ 12,345.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	70	$ 60.00	$ 4,200.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	13,455	$ 5.00	$ 67,275.00
A2.10.2		Driveway	m²	186	$ 15.00	$ 2,790.00
A2.10.3		Temporary Asphalt (from Staging)	m²	2,881	$ 10.00	$ 28,805.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	1,554	$ 5.00	$ 7,770.00
A2.11.1		Driveway	m²	0	$ 5.00	$ -
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	40	$ 450.00	$ 18,000.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	12,273	$ 14.00	$ 171,822.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	4,762	$ 41.00	$ 195,242.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	48	$ 55.00	$ 2,640.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 50.00	$ 25,000.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	1,646	$ 10.50	$ 17,283.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	0	$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	2,469	$ 24.00	$ 59,256.00
					Sub-Total – Removals	**$ 714,814.00**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	0	$ 562.00	$ -
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	0	$ 30.00	$ -
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	15	$ 25.00	$ 375.00
A3.3		Remove and reinstate existing concrete culverts.	m	0	$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	48	$ 127.00	$ 6,096.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	601	$ 234.00	$ 140,634.00
A3.6.2		375mm dia. - PVC	m	0	$ 256.00	$ -
A3.6.3		450mm dia. - PVC	m	0	$ 290.00	$ -
A3.6.4		525mm dia. - Conc	m	0	$ 333.00	$ -
A3.6.5		600mm dia. - Conc	m	0	$ 382.00	$ -
A3.6.6		675mm dia. - Conc	m	100	$ 482.00	$ 48,200.00
A3.6.7		750mm dia. - Conc	m	122	$ 532.00	$ 64,904.00
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	13	$ 5,400.00	$ 72,360.00
A3.7.2		1500mm dia.	ea	5	$ 9,300.00	$ 45,570.00
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 5,000.00	$ 20,000.00

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 2,105.00	$ 8,420.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	36	$ 2,330.00	$ 83,880.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 3,940.00	$ 15,760.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	360	$ 265.00	$ 95,400.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	1,646	$ 24.00	$ 39,504.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	1,233	$ 8.00	$ 9,864.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	1,233	$ 6.00	$ 7,398.00
					Sub-Total – Storm Sewer	**$ 680,737.00**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (650mm)	t.	27,571	$ 15.00	$ 413,570.63
A6.1.2		Granular base course Class "A" (150mm)	t.	6,363	$ 20.00	$ 127,252.50
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	186	$ 21.00	$ 3,906.00
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	1,476	$ 40.00	$ 59,040.00
A6.2.2		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	350	$ 33.00	$ 11,550.00
A6.2.3		Supply and install semi-mountable curb per MTOD 600.091	m	0	$ 70.00	$ -
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	10	$ 64.00	$ 640.00
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	4	$ 355.00	$ 1,420.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	36	$ 720.00	$ 25,920.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 300mm Granular A).	m^2	1,050	$ 60.00	$ 63,000.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	284	$ 55.00	$ 15,620.00
A6.9		Supply and place Superpave 19, (2x70mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	5,938	$ 95.00	$ 564,152.75
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	2,121	$ 101.00	$ 214,208.38
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	16,967	$ 0.60	$ 10,180.20
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	0	$ 851.00	$ -
A6.13.2		Ex. Valve boxes	ea	0	$ 287.00	$ -
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	1	$ 687.00	$ 687.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	18	$ 450.00	$ 8,235.00
A6.14.2		Valve boxes	ea	0	$ 305.00	$ -

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A6.14.3		Fire Hydrant (in boulevard)	ea	1	$ 1,065.00	$	1,065.00
A6.14.4		Fire Hydrant and Lead Valve	ea	0	$ 642.00	$	-
A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	54	$ 75.00	$	4,050.00
A6.15		Reinstatement of gravel driveway	m^2	0	$ 20.00	$	-
A6.15		Supply and install 200mm thick concrete for Transit Shelter pad, including 150mm Granular A	m^2	0	$ 75.00	$	-
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	1,646	$ 181.00	$	297,926.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	2,459	$ 18.00	$	44,262.00
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	1,646	$ 12.00	$	19,752.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	1,970	$ 2.00	$	3,940.00
A6.24.2		Symbols	m	12	$ 50.00	$	600.00
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	1,970	$ 1.25	$	2,462.50
A6.25.2		Symbols	m	12	$ 100.00	$	1,200.00
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	10	$ 340.00	$	3,400.00
A6.28		Supply and install traffic signs on posts.	ea	10	$ 110.00	$	1,100.00
					Sub-Total – Road Works	**$**	**1,899,334.95**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

10

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 411,500.00	$ 411,500.00
					Sub-Total – Street Lighting	**$ 411,500.00**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	1	$ 400,000.00	$ 400,000.00
					Sub-Total – Traffic Signals	**$ 400,000.00**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 16,460.00	$ 16,460.00
A9.2		Water for compaction and dust control.	m^3	820	$ 18.70	$ 15,334.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	410	$ 55.00	$ 22,550.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	210	$ 30.00	$ 6,300.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	210	$ 30.00	$ 6,300.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	210	$ 44.00	$ 9,240.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	40	$ 360.00	$ 14,400.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	40	$ 253.00	$ 10,120.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 100,704.00**

Maple Grove Road Improvements and Corridor Study
Part D - Speedsville Road Intersection
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 841,000.00	$ 841,000.00
					Sub-Total – Contingency Allowance	**$ 841,000.00**

Part D - Speedsville Road Intersection - Summary

Section	TOTAL
A2. Removals	$ 714,814.00
A3. Storm Sewer and Appurtenances	$ 680,737.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 1,899,334.95
A7. Streetlighting	$ 411,500.00
A8. Traffic Signals (Temporary and Permanent)	$ 400,000.00
A9. Miscellaneous/ Provisional Items	$ 100,704.00
A10. Contingency Allowance	$ 841,000.00
Total – Part D - Speedsville Road Intersection	**$ 5,048,089.95**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

Speedsville Intersection to Old Maple Grove Intersection, Sta. 5+577 to Sta. 6+453, Length = 876m

Cross Section: 4-lane

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	876	$ 13.00	$ 11,388.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	876	$ 20.00	$ 17,520.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	18	$ 180.00	$ 3,240.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	18	$ 725.00	$ 13,050.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	5,124	$ 18.00	$ 92,232.00
A2.6		Tree Cutting and Stump Removal.	ea	6	$ 550.00	$ 3,300.00
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	72	$ 38.00	$ 2,736.00
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	2,628	$ 5.00	$ 13,140.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	30	$ 60.00	$ 1,800.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	17,520	$ 5.00	$ 87,600.00
A2.10.2		Driveway	m²	401	$ 15.00	$ 6,015.00
A2.10.3		Temporary Asphalt (from Staging)	m²	3,066	$ 10.00	$ 30,660.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	6,132	$ 5.00	$ 30,660.00
A2.11.1		Driveway	m²	176	$ 5.00	$ 880.00
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	30	$ 450.00	$ 13,500.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	16,387	$ 14.00	$ 229,418.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	15,272	$ 41.00	$ 626,152.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	24	$ 55.00	$ 1,320.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 50.00	$ 25,000.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	1,752	$ 10.50	$ 18,396.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	0	$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	2,628	$ 24.00	$ 63,072.00
					Sub-Total – Removals	**$ 1,306,144.00**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	2	$ 562.00	$ 1,124.00
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	25	$ 30.00	$ 750.00
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	245	$ 25.00	$ 6,125.00
A3.3		Remove and reinstate existing concrete culverts.	m	0	$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	44	$ 127.00	$ 5,588.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	200	$ 234.00	$ 46,800.00
A3.6.2		375mm dia. - PVC	m	200	$ 256.00	$ 51,200.00
A3.6.3		450mm dia. - PVC	m	200	$ 290.00	$ 58,000.00
A3.6.4		525mm dia. - Conc	m	142	$ 333.00	$ 47,286.00
A3.6.5		600mm dia. - Conc	m	100	$ 382.00	$ 38,200.00
A3.6.6		675mm dia. - Conc	m	34	$ 482.00	$ 16,388.00
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	19	$ 5,400.00	$ 100,980.00
A3.7.2		1500mm dia.	ea	1	$ 9,300.00	$ 7,440.00
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 5,000.00	$ 10,000.00

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 2,105.00	$ 4,210.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	38	$ 2,330.00	$ 88,540.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 3,940.00	$ 7,880.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	380	$ 265.00	$ 100,700.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	1,752	$ 24.00	$ 42,048.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	1,306	$ 8.00	$ 10,448.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	1,306	$ 6.00	$ 7,836.00
					Sub-Total – Storm Sewer	**$ 673,915.00**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (500mm)	t.	15,330	$ 15.00	$ 229,950.00
A6.1.2		Granular base course Class "A" (200mm)	t.	3,892	$ 20.00	$ 77,840.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	577	$ 21.00	$ 12,117.00
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	1,752	$ 40.00	$ 70,080.00
A6.2.3		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	1,752	$ 33.00	$ 57,816.00
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	50	$ 64.00	$ 3,200.00
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	2	$ 355.00	$ 710.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	38	$ 720.00	$ 27,360.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 150mm Granular A, 450mm Granular B).	m^2	5,256	$ 60.00	$ 315,360.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	0	$ 55.00	$ -
A6.9		Supply and place Superpave 19, (2x60mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	3,679	$ 95.00	$ 349,524.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	1,533	$ 101.00	$ 154,833.00
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	12,264	$ 0.60	$ 7,358.40
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	1	$ 851.00	$ 851.00
A6.13.2		Ex. Valve boxes	ea	6	$ 287.00	$ 1,722.00
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	1	$ 687.00	$ 687.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	21	$ 450.00	$ 9,225.00
A6.14.2		Valve boxes	ea	6	$ 305.00	$ 1,830.00
A6.14.3		Fire Hydrant (in boulevard)	ea	1	$ 1,065.00	$ 1,065.00
A6.14.4		Fire Hydrant and Lead Valve	ea		$ 642.00	$ -

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	149	$ 75.00	$	11,175.00
A6.15		Reinstatement of gravel driveway	m^2	176	$ 20.00	$	3,520.00
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	1,752	$ 181.00	$	317,112.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	12,527	$ 18.00	$	225,482.40
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	1,752	$ 12.00	$	21,024.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	1,752	$ 2.00	$	3,504.00
A6.24.2		Symbols	m	0	$ 50.00	$	-
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	1,752	$ 1.25	$	2,190.00
A6.25.2		Symbols	m	0	$ 100.00	$	-
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	5	$ 340.00	$	1,700.00
A6.28		Supply and install traffic signs on posts.	ea	5	$ 110.00	$	550.00
					Sub-Total – Road Works	**$**	**1,907,980.80**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 438,000.00	$ 438,000.00
					Sub-Total – Street Lighting	**$ 438,000.00**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	1	$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 17,520.00	$ 17,520.00
A9.2		Water for compaction and dust control.	m^3	880	$ 18.70	$ 16,456.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	440	$ 55.00	$ 24,200.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	220	$ 30.00	$ 6,600.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	220	$ 30.00	$ 6,600.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	220	$ 44.00	$ 9,680.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	30	$ 360.00	$ 10,800.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	30	$ 253.00	$ 7,590.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 99,446.00**

Maple Grove Road Improvements and Corridor Study
Part D-E - Speedsville Road to Old Maple Grove Road
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 885,000.00	$ 885,000.00
					Sub-Total – Contingency Allowance	**$ 885,000.00**

Part D-E - Speedsville Road to Old Maple Grove Road

Section	TOTAL
A2. Removals	$ 1,306,144.00
A3. Storm Sewer and Appurtenances	$ 673,915.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 1,907,980.80
A7. Streetlighting	$ 438,000.00
A8. Traffic Signals (Temporary and Permanent)	$ -
A9. Miscellaneous/ Provisional Items	$ 99,446.00
A10. Contingency Allowance	$ 885,000.00
Total – Part D-E - Speedsville Road to Old Maple Grove Road	**$ 5,310,485.80**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

Old Maple Grove Road Intersection, Sta. 6+453 to Sta. 6+645

Cross Section: 4-lane by 4-lane approaches, Closed-Off Intersection

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	192	$ 13.00	$ 2,496.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	192	$ 20.00	$ 3,840.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	4	$ 180.00	$ 720.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	4	$ 725.00	$ 2,900.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	1,920	$ 18.00	$ 34,560.00
A2.6		Tree Cutting and Stump Removal.	ea	0	$ 550.00	$ -
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	0	$ 38.00	$ -
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	576	$ 5.00	$ 2,880.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	49	$ 60.00	$ 2,940.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	3,840	$ 5.00	$ 19,200.00
A2.10.2		Driveway	m²	0	$ 15.00	$ -
A2.10.3		Temporary Asphalt (from Staging)	m²	672	$ 10.00	$ 6,720.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	0	$ 5.00	$ -
A2.11.1		Driveway	m²	0	$ 5.00	$ -
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	40	$ 450.00	$ 18,000.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	3,016	$ 14.00	$ 42,224.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	3,556	$ 41.00	$ 145,796.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	48	$ 55.00	$ 2,640.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 50.00	$ 25,000.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	384	$ 10.50	$ 4,032.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	0	$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	576	$ 24.00	$ 13,824.00
					Sub-Total – Removals	**$ 342,837.00**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	0	$ 562.00	$ -
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	0	$ 30.00	$ -
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	41	$ 25.00	$ 1,025.00
A3.3		Remove and reinstate existing concrete culverts.	m	0	$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	20	$ 127.00	$ 2,540.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	120	$ 234.00	$ 28,080.00
A3.6.2		375mm dia. - PVC	m	0	$ 256.00	$ -
A3.6.3		450mm dia. - PVC	m	0	$ 290.00	$ -
A3.6.4		525mm dia. - Conc	m	196	$ 333.00	$ 65,268.00
A3.6.5		600mm dia. - Conc	m	0	$ 382.00	$ -
A3.6.6		675mm dia. - Conc	m	0	$ 482.00	$ -
A3.6.7		750mm dia. - Conc	m	0	$ 532.00	$ -
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	3	$ 5,400.00	$ 14,580.00
A3.7.2		1500mm dia.	ea	0	$ 9,300.00	$ -
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 5,000.00	$ 20,000.00

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 2,105.00	$ 8,420.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	8	$ 2,330.00	$ 18,640.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 3,940.00	$ 15,760.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	80	$ 265.00	$ 21,200.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	384	$ 24.00	$ 9,216.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	446	$ 8.00	$ 3,568.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	446	$ 6.00	$ 2,676.00
					Sub-Total – Storm Sewer	**$ 233,345.00**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (650mm)	t.	4,368	$ 15.00	$ 65,520.00
A6.1.2		Granular base course Class "A" (150mm)	t.	1,008	$ 20.00	$ 20,160.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	0	$ 21.00	$ -
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	384	$ 40.00	$ 15,360.00
A6.2.2		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	384	$ 33.00	$ 12,672.00
A6.2.3		Supply and install semi-mountable curb per MTOD 600.091	m	0	$ 70.00	$ -
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	0	$ 64.00	$ -
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	4	$ 355.00	$ 1,420.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	8	$ 720.00	$ 5,760.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 300mm Granular A).	m^2	1,152	$ 60.00	$ 69,120.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	0	$ 55.00	$ -
A6.9		Supply and place Superpave 19, (2x70mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	941	$ 95.00	$ 89,376.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	336	$ 101.00	$ 33,936.00
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	2,688	$ 0.60	$ 1,612.80
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	0	$ 851.00	$ -
A6.13.2		Ex. Valve boxes	ea	0	$ 287.00	$ -
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	1	$ 687.00	$ 687.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	2.7	$ 450.00	$ 1,215.00
A6.14.2		Valve boxes	ea	0	$ 305.00	$ -

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A6.14.3		Fire Hydrant (in boulevard)	ea	1	$ 1,065.00	$	1,065.00
A6.14.4		Fire Hydrant and Lead Valve	ea	0	$ 642.00	$	-
A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	0	$ 75.00	$	-
A6.15		Reinstatement of gravel driveway	m^2	0	$ 20.00	$	-
A6.15		Supply and install 200mm thick concrete for Transit Shelter pad, including 150mm Granular A	m^2	0	$ 75.00	$	-
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	384	$ 181.00	$	69,504.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	1,326	$ 18.00	$	23,868.00
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	384	$ 12.00	$	4,608.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	1,120	$ 2.00	$	2,240.00
A6.24.2		Symbols	m	10	$ 50.00	$	500.00
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	1,120	$ 1.25	$	1,400.00
A6.25.2		Symbols	m	10	$ 100.00	$	1,000.00
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	5	$ 340.00	$	1,700.00
A6.28		Supply and install traffic signs on posts.	ea	5	$ 110.00	$	550.00
					Sub-Total – Road Works	**$**	**423,468.80**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

10

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 96,000.00	$ 96,000.00
					Sub-Total – Street Lighting	**$ 96,000.00**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary Only)	LS	1	$ 75,000.00	$ 75,000.00
					Sub-Total – Traffic Signals	**$ 75,000.00**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 3,840.00	$ 3,840.00
A9.2		Water for compaction and dust control.	m^3	190	$ 18.70	$ 3,553.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	100	$ 55.00	$ 5,500.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	50	$ 30.00	$ 1,500.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	50	$ 30.00	$ 1,500.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	50	$ 44.00	$ 2,200.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	40	$ 360.00	$ 14,400.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	40	$ 253.00	$ 10,120.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 42,613.00**

Maple Grove Road Improvements and Corridor Study
Part E - Old Maple Grove Road Intersection
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 243,000.00	$ 243,000.00
					Sub-Total – Contingency Allowance	**$ 243,000.00**

Part E - Old Maple Grove Road Intersection

Section	TOTAL
A2. Removals	$ 342,837.00
A3. Storm Sewer and Appurtenances	$ 233,345.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 423,468.80
A7. Streetlighting	$ 96,000.00
A8. Traffic Signals (Temporary and Permanent)	$ 75,000.00
A9. Miscellaneous/ Provisional Items	$ 42,613.00
A10. Contingency Allowance	$ 243,000.00
Total – Part E - Old Maple Grove Road Intersection	**$ 1,456,263.80**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

Old Maple Grove Intersection to Beaverdale Intersection, Sta. 6+645 to Sta. 6+994, Length = 349m

Cross Section: 4-lane

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	349	$ 13.00	$ 4,537.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	349	$ 20.00	$ 6,980.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	6	$ 180.00	$ 1,080.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	6	$ 725.00	$ 4,350.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	3,772	$ 18.00	$ 67,896.00
A2.6		Tree Cutting and Stump Removal.	ea	0	$ 550.00	$ -
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	0	$ 38.00	$ -
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	1,047	$ 5.00	$ 5,235.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	30	$ 60.00	$ 1,800.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	6,980	$ 5.00	$ 34,900.00
A2.10.2		Driveway	m²	0	$ 15.00	$ -
A2.10.3		Temporary Asphalt (from Staging)	m²	1,222	$ 10.00	$ 12,215.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	2,443	$ 5.00	$ 12,215.00
A2.11.1		Driveway	m²	228	$ 5.00	$ 1,140.00
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	30	$ 450.00	$ 13,500.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	5,907	$ 14.00	$ 82,698.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	4,127	$ 41.00	$ 169,207.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	24	$ 55.00	$ 1,320.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 31.00	$ 15,500.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	698	$ 10.50	$ 7,329.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	0	$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	1,047	$ 24.00	$ 25,128.00
					Sub-Total – Removals	**$ 482,095.00**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	0	$ 562.00	$ -
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	0	$ 30.00	$ -
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	60	$ 25.00	$ 1,500.00
A3.3		Remove and reinstate existing concrete culverts.	m	0	$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	22	$ 127.00	$ 2,794.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	100	$ 234.00	$ 23,400.00
A3.6.2		375mm dia. - PVC	m	100	$ 256.00	$ 25,600.00
A3.6.3		450mm dia. - PVC	m	100	$ 290.00	$ 29,000.00
A3.6.4		525mm dia. - Conc	m	49	$ 333.00	$ 16,317.00
A3.6.5		600mm dia. - Conc	m	0	$ 382.00	$ -
A3.6.6		675mm dia. - Conc	m	0	$ 482.00	$ -
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	8	$ 5,400.00	$ 42,120.00
A3.7.2		1500mm dia.	ea	0	$ 9,300.00	$ -
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 5,000.00	$ 10,000.00

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 2,105.00	$ 4,210.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	16	$ 2,330.00	$ 37,280.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 3,940.00	$ 7,880.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	160	$ 265.00	$ 42,400.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	698	$ 24.00	$ 16,752.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	559	$ 8.00	$ 4,472.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	559	$ 6.00	$ 3,354.00
					Sub-Total – Storm Sewer	**$ 289,451.00**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (500mm)	t.	6,108	$ 15.00	$ 91,612.50
A6.1.2		Granular base course Class "A" (200mm)	t.	3,892	$ 20.00	$ 77,840.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	228	$ 21.00	$ 4,788.00
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	698	$ 40.00	$ 27,920.00
A6.2.3		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	698	$ 33.00	$ 23,034.00
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	16	$ 64.00	$ 1,024.00
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	2	$ 355.00	$ 710.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	16	$ 720.00	$ 11,520.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 150mm Granular A, 450mm Granular B).	m^2	2,094	$ 60.00	$ 125,640.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	0	$ 55.00	$ -
A6.9		Supply and place Superpave 19, (2x60mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	1,466	$ 95.00	$ 139,251.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	611	$ 101.00	$ 61,685.75
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	4,886	$ 0.60	$ 2,931.60
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	0	$ 851.00	$ -
A6.13.2		Ex. Valve boxes	ea	0	$ 287.00	$ -
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	2	$ 687.00	$ 1,374.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	8	$ 450.00	$ 3,510.00
A6.14.2		Valve boxes	ea	0	$ 305.00	$ -
A6.14.3		Fire Hydrant (in boulevard)	ea	2	$ 1,065.00	$ 2,130.00
A6.14.4		Fire Hydrant and Lead Valve	ea	0	$ 642.00	$ -

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	143	$ 75.00	$	10,725.00
A6.15		Reinstatement of gravel driveway	m^2	0	$ 20.00	$	-
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	698	$ 181.00	$	126,338.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	4,991	$ 18.00	$	89,832.60
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	698	$ 12.00	$	8,376.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	698	$ 2.00	$	1,396.00
A6.24.2		Symbols	m	0	$ 50.00	$	-
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	698	$ 1.25	$	872.50
A6.25.2		Symbols	m	0	$ 100.00	$	-
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	5	$ 340.00	$	1,700.00
A6.28		Supply and install traffic signs on posts.	ea	5	$ 110.00	$	550.00
					Sub-Total – Road Works	**$**	**814,955.95**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 174,500.00	$ 174,500.00
					Sub-Total – Street Lighting	**$ 174,500.00**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	0	$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 6,980.00	$ 6,980.00
A9.2		Water for compaction and dust control.	m^3	350	$ 18.70	$ 6,545.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	170	$ 55.00	$ 9,350.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	90	$ 30.00	$ 2,700.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	90	$ 30.00	$ 2,700.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	90	$ 44.00	$ 3,960.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	30	$ 360.00	$ 10,800.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	30	$ 253.00	$ 7,590.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 50,625.00**

Maple Grove Road Improvements and Corridor Study
Part E-F- Old Maple Grove Road to Beaverdale Road
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 362,000.00	$ 362,000.00
					Sub-Total – Contingency Allowance	**$ 362,000.00**

Part E-F - Old Maple Grove Road to Beaverdale Road

Section	TOTAL
A2. Removals	$ 482,095.00
A3. Storm Sewer and Appurtenances	$ 289,451.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 814,955.95
A7. Streetlighting	$ 174,500.00
A8. Traffic Signals (Temporary and Permanent)	$ -
A9. Miscellaneous/ Provisional Items	$ 50,625.00
A10. Contingency Allowance	$ 362,000.00
Total – Part E-F - Old Maple Grove Road to Beaverdale Road	**$ 2,173,626.95**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

Beaverdale Intersection, Sta. 6+994 to Sta. 7+212
City of Cambridge Side Street, Length = 280m
Cross Section: 6-lane by 4-lane approaches, 3-lane by 2-lane roundabout

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	498	$ 13.00	$ 6,474.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	498	$ 20.00	$ 9,960.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	10	$ 180.00	$ 1,800.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	10	$ 725.00	$ 7,250.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	1,787	$ 18.00	$ 32,166.00
A2.6		Tree Cutting and Stump Removal.	ea	21	$ 550.00	$ 11,550.00
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	252	$ 38.00	$ 9,576.00
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	1,494	$ 5.00	$ 7,470.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	70	$ 60.00	$ 4,200.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	8,560	$ 5.00	$ 42,800.00
A2.10.2		Driveway	m²	686	$ 15.00	$ 10,290.00
A2.10.3		Temporary Asphalt (from Staging)	m²	1,743	$ 10.00	$ 17,430.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	1,526	$ 5.00	$ 7,630.00
A2.11.1		Driveway	m²	71	$ 5.00	$ 355.00
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	40	$ 450.00	$ 18,000.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	7,321	$ 14.00	$ 102,494.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	4,845	$ 41.00	$ 198,645.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	48	$ 55.00	$ 2,640.00

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00
A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 31.00	$ 15,500.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	996	$ 10.50	$ 10,458.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	0	$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	1,494	$ 24.00	$ 35,856.00
					Sub-Total – Removals	**$ 567,609.00**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	14	$ 562.00	$ 7,868.00
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	400	$ 30.00	$ 12,000.00
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	15	$ 25.00	$ 375.00
A3.3		Remove and reinstate existing concrete culverts.	m		$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	34	$ 127.00	$ 4,318.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	250	$ 234.00	$ 58,500.00
A3.6.2		375mm dia. - PVC	m	0	$ 256.00	$ -
A3.6.3		450mm dia. - PVC	m	0	$ 290.00	$ -
A3.6.4		525mm dia. - Conc	m	0	$ 333.00	$ -
A3.6.5		600mm dia. - Conc	m	100	$ 382.00	$ 38,200.00
A3.6.6		675mm dia. - Conc	m	18	$ 482.00	$ 8,676.00
A3.6.7		750mm dia. - Conc	m		$ 532.00	$ -
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	6	$ 5,400.00	$ 30,240.00
A3.7.2		1500mm dia.	ea	0	$ 9,300.00	$ 3,720.00
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 5,000.00	$ 20,000.00

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 2,105.00	$ 8,420.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	22	$ 2,330.00	$ 51,260.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 3,940.00	$ 15,760.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	220	$ 265.00	$ 58,300.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	996	$ 24.00	$ 23,904.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	638	$ 8.00	$ 5,104.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	638	$ 6.00	$ 3,828.00
					Sub-Total – Storm Sewer	**$ 372,845.00**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
				Sub-Total – Sanitary Sewer/Forcemain		**$ -**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (650mm)	t.	19,403	$ 15.00	$ 291,037.50
A6.1.2		Granular base course Class "A" (150mm)	t.	4,478	$ 20.00	$ 89,550.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	757	$ 21.00	$ 15,897.00
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	907	$ 40.00	$ 36,280.00
A6.2.2		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	527	$ 33.00	$ 17,391.00
A6.2.3		Supply and install semi-mountable curb per MTOD 600.091	m	116	$ 70.00	$ 8,120.00
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	30	$ 64.00	$ 1,920.00
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	4	$ 355.00	$ 1,420.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	22	$ 720.00	$ 15,840.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 300mm Granular A).	m^2	774	$ 60.00	$ 46,440.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	1,200	$ 55.00	$ 66,000.00
A6.6		Supply and install 150mm thick plain broom finished coloured concrete flatwork including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding:	m^2	477	$ 55.00	$ 26,235.00
A6.9		Supply and place Superpave 19, (2x70mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	4,179	$ 95.00	$ 397,005.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	1,493	$ 101.00	$ 150,742.50
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	11,940	$ 0.60	$ 7,164.00
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	1	$ 851.00	$ 851.00
A6.13.2		Ex. Valve boxes	ea	6	$ 287.00	$ 1,722.00

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	2	$ 687.00	$ 1,374.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	7	$ 450.00	$ 3,150.00
A6.14.2		Valve boxes	ea	6	$ 305.00	$ 1,830.00
A6.14.3		Fire Hydrant (in boulevard)	ea	1	$ 1,065.00	$ 1,065.00
A6.14.4		Fire Hydrant and Lead Valve	ea	1	$ 642.00	$ 642.00
A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	556	$ 75.00	$ 41,700.00
A6.15		Reinstatement of gravel driveway	m^2	0	$ 20.00	$ -
A6.15		Supply and install 200mm thick concrete for Transit Shelter pad, including 150mm Granular A	m^2	0	$ 75.00	$ -
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	996	$ 181.00	$ 180,276.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$ -
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$ -
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$ -
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$ -
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	3,707	$ 18.00	$ 66,726.00
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	996	$ 12.00	$ 11,952.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):				
A6.24.1		Lane pavement markings	m	465	$ 2.00	$ 930.00
A6.24.2		Symbols	m	20	$ 50.00	$ 1,000.00
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):				
A6.25.1		Lane pavement markings	m	465	$ 1.25	$ 581.25
A6.25.2		Symbols	m	20	$ 100.00	$ 2,000.00
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	10	$ 340.00	$ 3,400.00
A6.28		Supply and install traffic signs on posts.	ea	10	$ 110.00	$ 1,100.00
					Sub-Total – Road Works	**$ 1,491,536.25**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

10

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 249,000.00	$ 249,000.00
					Sub-Total – Street Lighting	**$ 249,000.00**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	0	$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 9,960.00	$ 9,960.00
A9.2		Water for compaction and dust control.	m^3	500	$ 18.70	$ 9,350.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	250	$ 55.00	$ 13,750.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	120	$ 30.00	$ 3,600.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	120	$ 30.00	$ 3,600.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	120	$ 44.00	$ 5,280.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	40	$ 360.00	$ 14,400.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	40	$ 253.00	$ 10,120.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 70,060.00**

Maple Grove Road Improvements and Corridor Study
Part F- Beaverdale Road Intersection
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 550,000.00	$ 550,000.00
					Sub-Total – Contingency Allowance	**$ 550,000.00**

Part F - Beaverdale Road Intersection

Section	TOTAL
A2. Removals	$ 567,609.00
A3. Storm Sewer and Appurtenances	$ 372,845.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 1,491,536.25
A7. Streetlighting	$ 249,000.00
A8. Traffic Signals (Temporary and Permanent)	$ -
A9. Miscellaneous/ Provisional Items	$ 70,060.00
A10. Contingency Allowance	$ 550,000.00
Total – Part F - Beaverdale Road Intersection	**$ 3,301,050.25**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

Beaverdale Intersection to Hespeler Intersection, Sta. 7+212 to Sta. 7+726, Length = 514m

Cross Section: 4-lane

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	514	$ 13.00	$ 6,682.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	514	$ 20.00	$ 10,280.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	10	$ 180.00	$ 1,800.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	10	$ 725.00	$ 7,250.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	3,889	$ 18.00	$ 70,002.00
A2.6		Tree Cutting and Stump Removal.	ea	10	$ 550.00	$ 5,500.00
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	120	$ 38.00	$ 4,560.00
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	1,542	$ 5.00	$ 7,710.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	30	$ 60.00	$ 1,800.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	10,280	$ 5.00	$ 51,400.00
A2.10.2		Driveway	m²	51	$ 15.00	$ 765.00
A2.10.3		Temporary Asphalt (from Staging)	m²	1,799	$ 10.00	$ 17,990.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	3,598	$ 5.00	$ 17,990.00
A2.11.1		Driveway	m²	234	$ 5.00	$ 1,170.00
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	30	$ 450.00	$ 13,500.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	7,188	$ 14.00	$ 100,632.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	14,686	$ 41.00	$ 602,126.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	24	$ 55.00	$ 1,320.00
A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 31.00	$ 15,500.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	1,028	$ 10.50	$ 10,794.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	0	$ 11.00	$ -
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	1,542	$ 24.00	$ 37,008.00
					Sub-Total – Removals	**$ 1,000,844.00**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	7	$ 562.00	$ 3,934.00
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	174	$ 30.00	$ 5,220.00
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	48	$ 25.00	$ 1,200.00
A3.3		Remove and reinstate existing concrete culverts.	m		$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	28	$ 127.00	$ 3,556.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	100	$ 234.00	$ 23,400.00
A3.6.2		375mm dia. - PVC	m	100	$ 256.00	$ 25,600.00
A3.6.3		450mm dia. - PVC	m	100	$ 290.00	$ 29,000.00
A3.6.4		525mm dia. - Conc	m	100	$ 333.00	$ 33,300.00
A3.6.5		600mm dia. - Conc	m	100	$ 382.00	$ 38,200.00
A3.6.6		675mm dia. - Conc	m	14	$ 482.00	$ 6,748.00
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	11	$ 5,400.00	$ 59,940.00
A3.7.2		1500mm dia.	ea	0	$ 9,300.00	$ 2,790.00
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 5,000.00	$ 10,000.00

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 2,105.00	$ 4,210.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	22	$ 2,330.00	$ 51,260.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	2	$ 3,940.00	$ 7,880.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	220	$ 265.00	$ 58,300.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	1,028	$ 24.00	$ 24,672.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	784	$ 8.00	$ 6,272.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	784	$ 6.00	$ 4,704.00
					Sub-Total – Storm Sewer	**$ 422,558.00**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
					Sub-Total – Sanitary Sewer/Forcemain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (500mm)	t.	8,995	$ 15.00	$ 134,925.00
A6.1.2		Granular base course Class "A" (200mm)	t.	3,892	$ 20.00	$ 77,840.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	285	$ 21.00	$ 5,985.00
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	1,028	$ 40.00	$ 41,120.00
A6.2.3		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	1,028	$ 33.00	$ 33,924.00
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	20	$ 64.00	$ 1,280.00
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	2	$ 355.00	$ 710.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	22	$ 720.00	$ 15,840.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 150mm Granular A, 450mm Granular B).	m^2	3,084	$ 60.00	$ 185,040.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	0	$ 55.00	$ -
A6.9		Supply and place Superpave 19, (2x60mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	2,159	$ 95.00	$ 205,086.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	900	$ 101.00	$ 90,849.50
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	7,196	$ 0.60	$ 4,317.60
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	8	$ 851.00	$ 6,808.00
A6.13.2		Ex. Valve boxes	ea	0	$ 287.00	$ -
A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	3	$ 687.00	$ 2,061.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:				
A6.14.1		Manholes/Catchbasins	ea	19	$ 450.00	$ 8,730.00
A6.14.2		Valve boxes	ea	0	$ 305.00	$ -
A6.14.3		Fire Hydrant (in boulevard)	ea	3	$ 1,065.00	$ 3,195.00
A6.14.4		Fire Hydrant and Lead Valve	ea	0	$ 642.00	$ -

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	51	$ 75.00	$	3,825.00
A6.15		Reinstatement of gravel driveway	m^2	115	$ 20.00	$	2,300.00
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	1,028	$ 181.00	$	186,068.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	7,350	$ 18.00	$	132,303.60
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	1,028	$ 12.00	$	12,336.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	1,028	$ 2.00	$	2,056.00
A6.24.2		Symbols	m	0	$ 50.00	$	-
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	1,028	$ 1.25	$	1,285.00
A6.25.2		Symbols	m	0	$ 100.00	$	-
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	5	$ 340.00	$	1,700.00
A6.28		Supply and install traffic signs on posts.	ea	5	$ 110.00	$	550.00
					Sub-Total – Road Works	**$**	**1,160,329.70**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 257,000.00	$ 257,000.00
					Sub-Total – Street Lighting	**$ 257,000.00**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	1	$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A9. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A9.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 10,280.00	$ 10,280.00
A9.2		Water for compaction and dust control.	m^3	510	$ 18.70	$ 9,537.00
A9.3		Calcium chloride for dust control (40 kg bags).	bags	260	$ 55.00	$ 14,300.00
A9.4		Replacement of unsuitable pipe subgrade material				
A9.4.1		Imported Granular "A", including disposal of surplus material off-site.	t.	130	$ 30.00	$ 3,900.00
A9.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	130	$ 30.00	$ 3,900.00
A9.4.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	130	$ 44.00	$ 5,720.00
A9.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	30	$ 360.00	$ 10,800.00
A9.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	30	$ 253.00	$ 7,590.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 66,027.00**

Maple Grove Road Improvements and Corridor Study
Part F-G - Beaverdale Road to Hespeler Road Intersection
Preliminary Cost Estimate

A10. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A10.1		Contingency (Allowance) - 20%	LS	1	$ 581,000.00	$ 581,000.00
					Sub-Total – Contingency Allowance	**$ 581,000.00**

Part F-G - Beaverdale Road to Hespeler Road - Summary

Section	TOTAL
A2. Removals	$ 1,000,844.00
A3. Storm Sewer and Appurtenances	$ 422,558.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 1,160,329.70
A7. Streetlighting	$ 257,000.00
A8. Traffic Signals (Temporary and Permanent)	$ -
A9. Miscellaneous/ Provisional Items	$ 66,027.00
A10. Contingency Allowance	$ 581,000.00
Total – Part F-G - Beaverdale Road to Hespeler Road	**$ 3,487,758.70**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

Hespeler Road Intersection, Sta. 7+726 to Sta. 8+173, Length = 447m
City of Cambridge Side Street, Length = 373m
Cross Section: 4-lane to 6-lane approaches, 3-lane by 2-lane Roundabout

A1. General Requirements

(Included in Section GEN)

A2. Removals

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A2.1		Supply and install Standard Duty Silt Fence per OPSD 219.110 (Provisional).	m	820	$ 13.00	$ 10,660.00
A2.2		Supply and install Heavy Duty Silt Fence per OPSD 219.130 (Provisional).	m	820	$ 20.00	$ 16,400.00
A2.3		Supply and install Straw Bales per OPSD 219.180 (Provisional).	ea	16	$ 180.00	$ 2,880.00
A2.4		Supply and install Rock Check Dams per OPSD 219.211 (Provisional).	ea	16	$ 725.00	$ 11,600.00
A2.5		Clearing and grubbing – existing shrubs (Entire project) < 100 mm DBH	m²	7,126	$ 18.00	$ 128,268.00
A2.6		Tree Cutting and Stump Removal.	ea	3	$ 550.00	$ 1,650.00
A2.7		Establishment of Tree Protection Zone - supply and install tree preservation hoarding.	m	36	$ 38.00	$ 1,368.00
A2.8		Obliterate existing pavement markings for traffic control and staging. (Provisional)	m²	2,460	$ 5.00	$ 12,300.00
A2.9		Roadway - Partial Depth (Milling 50-60 mm depth for butt joints and transitions at project limits both interim and ultimate).	m²	100	$ 60.00	$ 6,000.00
A2.10		Full Depth asphalt removal and disposal (full depth) off-site (including sawcutting):				
A2.10.1		Roadway	m²	20,500	$ 5.00	$ 102,500.00
A2.10.2		Driveway	m²	0	$ 15.00	$ -
A2.10.3		Temporary Asphalt (from Staging)	m²	2,870	$ 10.00	$ 28,700.00
A2.10.4		Asphalt walkway	m²	0	$ 10.00	$ -
A2.11		Remove and dispose off-site existing gravel:				
A2.11.1		Shoulder	m²	5,740	$ 5.00	$ 28,700.00
A2.11.1		Driveway	m²	0	$ 5.00	$ -
A2.12		Expose Existing Utilities as directed by the Contract Administrator using:	hr.	40	$ 450.00	$ 18,000.00
A2.13		Earth Grading - Cut (Including on-site fine grading and disposal of surplus off-site).	m^3	15,640	$ 14.00	$ 218,960.00
A2.14		Earth Grading - Structural Fill (Including Import) (Provisional).	m^3	2,760	$ 41.00	$ 113,160.00
A2.15		Controlled Density Fill (U-Fill) for trench and pipe filling as directed by the Contract Administrator. (Provisional)	m^3	25	$ 215.00	$ 5,375.00
A2.16		Sub-excavate unsuitable material and provide imported fill material in sewer trench or subgrade, including off-site disposal of surplus excavated material. (Provisional)	m^3	48	$ 55.00	$ 2,640.00

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A2.17		Supply, Install, secure, maintain, relocate and remove " Fast Fence" for material management purposes and stockpile segragation. (Provisional)	m	20	$ 47.00	$ 940.00
A2.18		Extract and store excess groundwater in environmental tanks for trench dewatering and analysis as directed by the environmental engineer including cleaning and disposal of all wastewater. 5,000 l. polytanks. (Provisional)	litres	5,000	$ 1.75	$ 8,750.00
A2.19		Soil Management (including polytarping, as required), additional cost to item A2.12. Dispose of all material designated as inert fill per O.Reg 153/04 Table 1 (in-place measurement). (Provisional)	m^3	500	$ 31.00	$ 15,500.00
A2.23		Remove and dispose of existing curb and/or curb and gutter, all types and sizes including saw cutting.	m	1,640	$ 10.50	$ 17,220.00
A2.24		Remove and dispose of existing concrete sidewalk, crosswalk, driveway or bus pad.	m^2	816	$ 11.00	$ 8,976.00
A2.27		Remove, salvage, store and reinstate existing business message signboards.	ea	0	$ 100.00	$ -
A2.29		Construct temporary granular access for pedestrians where and as required including removal and restoration (min. 150mm compacted Granular 'A').	m^2	2,460	$ 24.00	$ 59,040.00
					Sub-Total – Removals	**$ 819,587.00**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A3. Storm Sewer and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A3.1		Remove and dispose of existing storm structures. (All types and sizes)	ea	9	$ 562.00	$ 5,058.00
A3.2		Remove and dispose of existing storm pipe, all types and sizes, including mainline, service leads and catchbasin leads.	m	126	$ 30.00	$ 3,780.00
A3.3		Remove and dispose of existing corrugated steel pipe (CSP) culverts.	m	107	$ 25.00	$ 2,675.00
A3.3		Remove and reinstate existing concrete culverts.	m	0	$ 50.00	$ -
A3.4		Supply and install Siltsack® or approved equivalent at existing structures in completed pavement area. (Provisional)	ea	2	$ 136.00	$ 272.00
A3.5		Install, maintain and remove Siltsack® or approved equivalent at new catchbasin manholes and catchbasins (See Contract drawings and details).	ea	48	$ 127.00	$ 6,096.00
A3.6		Supply and install new storm sewer pipe including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.6.1		300mm dia. - PVC	m	224	$ 234.00	$ 52,416.00
A3.6.2		375mm dia. - PVC	m	200	$ 256.00	$ 51,200.00
A3.6.3		450mm dia. - PVC	m	200	$ 290.00	$ 58,000.00
A3.6.4		525mm dia. - Conc	m	100	$ 333.00	$ 33,300.00
A3.6.5		600mm dia. - Conc	m	30	$ 382.00	$ 11,460.00
A3.6.6		675mm dia. - Conc	m	0	$ 482.00	$ -
A3.6.7		750mm dia. - Conc	m	0	$ 532.00	$ -
A3.7		Supply and install pre-cast concrete storm sewer manhole structures with frame and cover per OPSD as noted and c/w frame, self-adjusting cover set to base asphalt, any required benching, additional details as necessary and granular backfill, depth as per Dwgs. (Pro-rated payment):				
A3.7.1		1200mm dia.	ea	5	$ 5,400.00	$ 27,000.00
A3.7.2		1500mm dia.	ea	0	$ 9,300.00	$ -
A3.7.3		1800mm dia.	ea	0	$ 12,400.00	$ -
A3.7.4		2400mm dia.	ea	0	$ 25,000.00	$ -
A3.8		Supply and install pre-cast concrete double ditch inlet catchbasins (DDI) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 5,000.00	$ 20,000.00

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A3.9		Supply and install pre-cast concrete single catchbasins (CB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 2,105.00	$ 8,420.00
A3.10		Supply and install pre-cast concrete single side inlet catchbasins (SICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	36	$ 2,330.00	$ 83,880.00
A3.11		Supply and install pre-cast concrete double side inlet single catchbasins (DSICB) including adjustment to finished grade, excavation and off-site disposal of excess materials, backfill with suitable native materials complete with frame and cover. (Pro-rated Payment)	ea	4	$ 3,940.00	$ 15,760.00
A3.12		Supply and install catchbasin leads including Class "B" bedding and cover material, and suitable native backfill, including connections to existing pipes and structures as required and by approved methods including coring into existing structures:				
A3.12.1		250mm dia. PVC	m	50	$ 218.00	$ 10,900.00
A3.12.2		300mm dia. PVC	m	360	$ 265.00	$ 95,400.00
A3.13		Supply and install catchbasin frame and cover as replacement on existing structures (Provisional):				
A3.13.1		OPSD 400.010 (CB)	ea	1	$ 700.00	$ 700.00
A3.13.2		OPSD 400.080 (SICB)	ea	5	$ 1,170.00	$ 5,850.00
A3.13.3		Self-adjusting manhole frame and cover.	ea	5	$ 930.00	$ 4,650.00
A3.14		Supply and install perforated roadway 150mm dia. subdrain c/w geotextile sock, concrete sand bedding and connections to all catchbasins, manholes and sewers, c/w 2.0 m non-perforated segment at connection to each structure.	m	1,640	$ 24.00	$ 39,360.00
A3.17		Provide CCTV inspection for initial acceptance of storm sewers and laterals, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	1,164	$ 8.00	$ 9,312.00
A3.18		Provide CCTV inspection of storm sewers for final acceptance at the end of maintenance period, including cleaning, flushing and delivery of 2 DVD copies of report and video (satisfactory to the Contract Administrator)	m	1,164	$ 6.00	$ 6,984.00
					Sub-Total – Storm Sewer	**$ 552,473.00**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A4. Sanitary Sewer/Forcemain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A4.1					$ -	$ -
A4.2					$ -	$ -
A4.3					$ -	$ -
A4.4					$ -	$ -
A4.5					$ -	$ -
A4.6					$ -	$ -
A4.7					$ -	$ -
				Sub-Total – Sanitary Sewer/Forcemain		**$ -**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A5. Watermain and Appurtenances

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A5.1					$ -	$ -
A5.2					$ -	$ -
A5.3					$ -	$ -
A5.4					$ -	$ -
A5.5					$ -	$ -
A5.6					$ -	$ -
					Sub-Total – Watermain	**$ -**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A6. Road Works

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A6.1		Supply, place, grade and compact granular base courses for roadway:				
A6.1.1		Granular sub-base course Class "B" (650mm)	t.	28,438	$ 15.00	$ 426,562.50
A6.1.2		Granular base course Class "A" (150mm)	t.	6,563	$ 20.00	$ 131,250.00
A6.1.3		Temporary granular base course Class "A" (150mm) for temporary walkways and driveways.	t.	0	$ 21.00	$ -
A6.2		Supply and install concrete curbs and curb and gutter:				
A6.2.1		Supply and install standard non-reinforced curb and gutter per OPSD 600.040	m	1,430	$ 40.00	$ 57,200.00
A6.2.2		Supply and install barrier curb with narrow gutter per OPSD 600.080	m	1,407	$ 33.00	$ 46,431.00
A6.2.3		Supply and install semi-mountable curb per MTOD 600.091	m	144	$ 70.00	$ 10,080.00
A6.2.5		Additional cost for reinforced concrete curb at commercial driveways.	m	0	$ 64.00	$ -
A6.3		Supply and install Concrete Curb and Gutter fill-ins at catchbasins and double catchbasins, including asphalt removal and disposal off-site.	ea	4	$ 355.00	$ 1,420.00
A6.4		Supply and install concrete spillway (45 deg.) as per OPSD 605.010 c/w rip-rap and geotextile as per contract drawings.	ea	36	$ 720.00	$ 25,920.00
A6.5		Supply and install Heavy Duty Multi-Use Trail including asphalt and granulars (40mm HL-3, 50mm HL-4 Asphalt, 300mm Granular A).	m^2	1,422	$ 60.00	$ 85,320.00
A6.6		Supply and install 125 mm thickness plain broom finished concrete (sidewalk and medians) including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding	m^2	24	$ 55.00	$ 1,320.00
A6.9		Supply and place Superpave 19, (2x70mm) for Base Course. Base course paving will be placed in echelon using a material transfer vehicle (remix hopper).	t.	6,125	$ 95.00	$ 581,875.00
A6.6		Supply and install 150mm thick plain broom finished coloured concrete flatwork including saw cut joints and deck-o-foam expansion and 150mm thick Granular "A" bedding:	m^2	508	$ 55.00	$ 27,940.00
A6.10		Supply and place Superpave 12.5, (1x50mm) Category "D" PG 64-28 surface course. Surface Paving will be placed in echelon using a material transfer vehicle (remix hopper):	t.	2,188	$ 101.00	$ 220,937.50
A6.11		Supply and place tack coat (Application rate of 0.3 kg/2 m)	m^2	17,500	$ 0.60	$ 10,500.00
A6.12		Temporary Asphalt Curb and Gutter (PG 64-28, SP12.5) at catchbasins and double catchbasins (Provisional):				
A6.12.1		At Single Side Inlet Catchbasin	ea	1	$ 85.00	$ 85.00
A6.12.2		At Double Side Inlet Catchbasin	ea	1	$ 110.00	$ 110.00
A6.13		Adjust existing ironworks to base asphalt elevation grade:				
A6.13.1		Ex. Manholes/Catchbasins, including new Frame and Grate/Cover	ea	1	$ 851.00	$ 851.00
A6.13.2		Ex. Valve boxes	ea	0	$ 287.00	$ -

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A6.13.3		Ex. Fire Hydrant and Lead Valve	ea	1	$ 687.00	$	687.00
A6.14		Adjust pre-existing and new ironworks to surface asphalt grade:					
A6.14.1		Manholes/Catchbasins	ea	1	$ 450.00	$	450.00
A6.14.2		Valve boxes	ea	0	$ 305.00	$	-
A6.14.3		Fire Hydrant (in boulevard)	ea	0	$ 1,065.00	$	-
A6.14.4		Fire Hydrant and Lead Valve	ea	1	$ 642.00	$	642.00
A6.15		Reinstatement of commercial asphalt driveway (300mm Granular B + 150mm Granular A + 50mm HL-4 asphalt + 40mm HL-3 asphalt)	m^2	0	$ 75.00	$	-
A6.15		Reinstatement of gravel driveway	m^2	0	$ 20.00	$	-
A6.15		Supply and install 200mm thick concrete for Transit Shelter pad, including 150mm Granular A	m^2	0	$ 75.00	$	-
A6.16		Supply and install enhanced grass swale c/w rip-rap, including geotextile, topsoil and sod as per detail in Contract drawings.	m	1,640	$ 181.00	$	296,840.00
A6.17		Supply and place new pre-cast Unit wall, Wallstone Grande ™ or approved equal, (including sealed engineering drawings by Contractor/Supplier):	sq.m.f	0	$ 615.00	$	-
A6.18		Supply and install handrail on Earth Retaining Structures.	m	0	$ 445.00	$	-
A6.19		Supply and install 3.0 m high wooden noise wall as per detail in the contract drawings.	m	0	$ 450.00	$	-
A6.20		Supply and install guide rail as per OPSD 912.145.	m	0	$ 200.00	$	-
A6.22		Imported Screened Topsoil and No. 1 Nursery Sod, 150mm depth in boulevards, medians and property frontages within the ROW.	m^2	8,930	$ 18.00	$	160,740.00
A6.23		Imported Screened Topsoil, 150mm depth, and hydroseed in property frontages beyond the limit of grading. Outside ROW within grading limit.	m^2	1,640	$ 12.00	$	19,680.00
A6.24		Supply and install pavement markings, on base asphalt (2 applications for temporary markings):					
A6.24.1		Lane pavement markings	m	2,454	$ 2.00	$	4,908.00
A6.24.2		Symbols	m	42	$ 50.00	$	2,100.00
A6.25		Supply and install pavement markings, on surface asphalt (durable permanent markings):					
A6.25.1		Lane pavement markings	m	2,454	$ 1.25	$	3,067.50
A6.25.2		Symbols	m	42	$ 100.00	$	4,200.00
A6.26		Supply and install posts for traffic signs direct buried in the soft surface (landscaped) locations:	ea	10	$ 340.00	$	3,400.00
A6.28		Supply and install traffic signs on posts.	ea	10	$ 110.00	$	1,100.00
					Sub-Total – Road Works	**$**	**2,125,616.50**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

10

A7. Streetlighting

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A7.1		Streetlighting	LS	1	$ 410,000.00	$ 410,000.00
					Sub-Total – Street Lighting	**$ 410,000.00**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A8. Traffic Signals (Temporary and Permanent)

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A8.1		Traffic Signals (Temporary and Permanent)	LS	0	$ -	$ -
					Sub-Total – Traffic Signals	**$ -**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A10. Miscellaneous/ Provisional Items

Item No.	Spec. No.	Item	Unit	Quantity	Unit Price	Total
A10.1		Provide pick up and disposal of garbage and waste/recycling (cardboard) dumpsters placed at side streets - two locations per stage. Entire contract duration.	LS	1	$ 16,400.00	$ 16,400.00
A10.2		Water for compaction and dust control.	m^3	820	$ 18.70	$ 15,334.00
A10.3		Calcium chloride for dust control (40 kg bags).	bags	410	$ 55.00	$ 22,550.00
A10.4		Replacement of unsuitable pipe subgrade material				
A9.10.1		Imported Granular "A", including disposal of surplus material off-site.	t.	210	$ 30.00	$ 6,300.00
A10.4.2		Imported Granular "B", including disposal of surplus material off-site.	t.	210	$ 30.00	$ 6,300.00
A9.10.3		Imported Clear Stone (19mm) c/w filter cloth surround, including disposal of surplus material off-site.	t.	210	$ 44.00	$ 9,240.00
A10.5		Expose existing utilities or soil for sampling purposes prior to construction including temporary restoration (cold mix) and standby time.	hr.	40	$ 360.00	$ 14,400.00
A10.6		Vacuum excavation and disposal of earth as directed by the Contract Administrator including travel time to/ from the jobsite and disposal.	hr.	40	$ 253.00	$ 10,120.00
					Sub-Total – Miscellaneous/ Provisional Items	**$ 100,644.00**

Maple Grove Road Improvements and Corridor Study
Part G2 - Hespeler Road Intersection
Preliminary Cost Estimate

A11. Contingency Allowance

Item No.		Item	Unit	Quantity	Unit Price	Total
A11.1		Contingency (Allowance) - 20%	LS	1	$ 802,000.00	$ 802,000.00
					Sub-Total – Contingency Allowance	**$ 802,000.00**

Part G - Hespeler Road Intersection

Section	TOTAL
A2. Removals	$ 819,587.00
A3. Storm Sewer and Appurtenances	$ 552,473.00
A4. Sanitary Sewer/Forcemain and Appurtenances	$ -
A5. Watermain and Appurtenances	$ -
A6. Road Works	$ 2,125,616.50
A7. Streetlighting	$ 410,000.00
A8. Traffic Signals (Temporary and Permanent)	$ -
A10. Miscellaneous/ Provisional Items	$ 100,644.00
A11. Contingency Allowance	$ 802,000.00
Total – Part G - Hespeler Road Intersection	**$ 4,810,320.50**

Appendix X – Regional Committees / Council Reports

September 2023

Region of Waterloo

Transportation and Environmental Services

Design and Construction

To:	Vice-Chair Sue Foxton and Members of the Planning and Works Committee
Meeting Date:	May 10, 2022
Report Title:	Project Approval – Maple Grove Road (Regional Road 38) Improvements, Hespeler Road (Regional Road 24) to Vondrau Drive, City of Cambridge

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1. Recommendations:

That the Regional Municipality of Waterloo take the following actions with respect to the Schedule C Class Environmental Assessment for Maple Grove Road (Regional Road No. 38) Improvements, from Hespeler Road (Regional Road No. 24) to Vondrau Drive, in the City of Cambridge:

a) Approve the Project Team Recommended Design Alternative for the proposed construction and widening of Maple Grove Road (Regional Road No. 38) from Hespeler Road (Regional Road No. 24) to Vondrau Drive, as described in Report TES-DCS-22-16 dated May 10, 2022; and

b) Direct staff to file a Notice of Completion with the Ministry of the Environment, Conservation and Parks (MECP) and place the Environmental Study Report on the public record for a review period of 30 days.

2. Purpose / Issue:

In order to complete the study phase for Maple Grove Road Improvements between Hespeler Road and Vondrau Drive (Appendix A) and proceed to detailed design and construction, Regional Council approval is required for staff to proceed with the Recommendations described in Report TES-DCS-22-16.

3. Strategic Plan:

This project meets the 2019-2023 Corporate Strategic Plan objectives under Strategic Focus Area 2, Sustainable Transportation to: increase participation in active forms of transportation (cycling and walking); and improve road safety for all users – drivers, cyclists, pedestrians, horses and buggies.

4. Key Considerations:

a) Recommended Design Alternative

The Region has conducted a Schedule C Class Environmental Assessment study for Maple Grove Road from Hespeler Road to Vondrau Drive, in the City of Cambridge. This included the assessment of several design alternatives.

The Recommended Design Alternative is to widen Maple Grove Road from two lanes to four lanes with a new 5.0 metre wide raised centre median and 3.0 metre wide asphalt multi-use path on both sides of Maple Grove Road (Appendix B). New curb and gutter, storm sewers, and new street lighting are also included.

It is recommended that:

- roundabouts be constructed at the intersections with Hespeler Road and Beaverdale Road;
- the intersections at Speedsville Road and Vondrau Drive remain signalized;
- the intersection at Boxwood Drive be signalized; and
- Old Maple Grove Road be converted to a cul-de-sac (Appendix C).

It is recommended that noise walls be constructed subject to detailed design as shown in Appendix D.

The Project Team evaluation of design alternatives has been summarized in Appendix E.

Supporting studies conducted during the Environmental Assessment have been summarized in Appendix F.

b) Hespeler Road Grade-separated Flyover

To account for projected long-term traffic growth at the Hespeler Road intersection, a grade-separated flyover from northbound Hespeler Road to westbound Maple Grove Road (for northbound to westbound movements only) may be recommended for the ultimate condition (Appendix G). The initial step will be to protect the land available for future implementation of a flyover, if warranted in the future. Additional Transportation studies may be undertaken in the future to confirm the need and timing of the potential flyover. This step is considered prudent planning practice if the flyover component is deemed necessary in the future.

5. Background:

The 2018 Regional Transportation Master Plan Update has identified this section of Maple Grove Road for widening from 2 to 4 lanes to provide road improvements for traffic growth and active transportation improvements for pedestrians and cyclists, as well as transit, along the corridor.

Maple Grove Road is a key goods movement corridor and an Emergency Detour Route (EDR) for Highway 401. Widening Maple Grove Road will accommodate growth in the area and provide an efficient corridor for goods movement.

Currently there are no active transportation facilities within this section of Maple Grove Road and there is some transit use, which started in 2014 (Route 203 iXpress). Adding active transportation facilities and improved transit will provide users more options and better connections along this corridor.

The 2018 Regional Transportation Master Plan Update fulfills the requirements of the first two phases of the Maple Grove Road Class EA by: (1) establishing the need and justification for Maple Grove Road improvements and (2) evaluating alternative methods of addressing corridor needs, including stakeholder consultation.

This study was conducted as a Schedule C Municipal Class Environmental Assessment (EA) project, which applies to larger, more complex projects with the potential for significant environmental impacts (natural, social, cultural, and economic) and requires multiple opportunities for public input.

The Project Team evaluated multiple Preliminary Alternative Solutions and selected widening Maple Grove Road to satisfy corridor needs.

In addition to Do Nothing, the Project Team evaluated two (2) Cross-section Design Alternatives and selected Design Alternative A Raised Centre Median with Multi-use Path (Appendix B) as the Recommended Alternative for Regional Council endorsement. The key difference between alternatives included separation of the cycling facility component of the active transportation facility from road traffic. Widening away from, or around, environmental constraints was also implemented to minimize overall environmental criteria impacts.

6. Area Municipality Communication and Public/Stakeholder Engagement:

The planning and design for this project was directed by staff from the Region of Waterloo and City of Cambridge, along with Region of Waterloo (Cambridge) Councillor Karl Kiefer and City of Cambridge (Ward 1) Councillor Donna Reid. The consulting engineering firm IBI Group provided planning and preliminary design services during the study phase of this project.

First Nations, the – Haudenosaunee, Mississaugas of the Credit First Nation, and Six Nations of the Grand River – received notices at all project milestones. Distribution of the Stage 1 Archaeological Assessment report occurred on January 26, 2022 via email. There remain no outstanding comments or questions from the First Nations with respect to the Stage 1 Archaeological Assessment report. The First Nations will be contacted to coordinate Stage 2 fieldwork, and subsequently report review, following Ministry of Heritage, Sport, Tourism and Culture Industries' acceptance of the Stage 1 report.

The Maple Grove Road Improvements Class EA Study included Two (2) Public Consultation Centres (PCCs). Notice included newspaper advertisement, as well as mailed, hand delivered, and/or emailed notice to adjacent property owners, residents, businesses, authorities, and agencies.

EngageWR hosted Public Consultation Centre No. 1 (PCC No. 1) as an information review and comment period between July 27, 2020 and August 17, 2020 and provided information on the project need, environment, preliminary alternatives, and evaluation criteria. PCC No. 1 had:

- 8 Engaged visitors (participated in questionnaire or left comments);
- 60 Informed visitors (viewed documents, images, or multiple pages – includes Engaged visitors); and
- 97 Aware visitors (viewed at least 1 page – includes Informed and Engaged visitors).

The Project Team received comments expressing both support for and concerns about widening the road and providing active transportation facilities. Supportive comments acknowledged the benefits of accommodating growth in the area and facilitating alternate modes of transportation (i.e. transit and active transportation facilities), with a preference for a multi-use path buffered from the roadway. The most common themes, based on number or frequency, of concerned comments were:

- Minimizing impact to existing development (i.e. noise and property);
- Improve and separate active transportation facilities; and
- Improve traffic operations at busy intersections.

In response to those comments, the Project Team noted that the Region has a Noise Policy and Land Acquisition guideline, which have been summarized as applicable to this study (Appendix H).

EngageWR hosted Public Consultation Centre No. 2 (PCC No. 2) as an information review and comment period between June 28, 2021 and July 30, 2021 and provided information on the project needs and environment. PCC No. 2 had:

- 62 Engaged visitors (participated in questionnaire or left comments);
- 125 Informed visitors (viewed documents, images, or multiple pages – includes Engaged visitors); and
- 254 Aware visitors (viewed at least 1 page – includes Informed and Engaged visitors).

Comments received widely support the need for traffic improvements, as well as pedestrian, cycling, and transit facilities along the corridor. The most common themes, based on number or frequency, of concerned comments were:

- Minimizing impact to existing development (i.e. noise and property);
- Minimizing impact to neighbouring development (i.e. existing); and
- Minimizing natural environment impacts.

The Region and EngageWR websites include Public Consultation Centre Comments and Project Team Responses.

Staff presented the Project Team Recommended Alternative Design Concept to the Region's Active Transportation Advisory Committee (ATAC) on March 15, 2022. ATAC endorsed the Project Team Recommended alternative: i.e. multi-use path along both sides of Maple Grove Road.

7. Financial Implications:

The approved 2022 – 2031 Transportation Capital Program includes a budget of $44.545 million the Maple Grove Road Improvements under Project No. 07116, to be funded $17.395 million by Regional Development Charges (RDC) and $27.150 million by Debentures (RDC).

Construction timing is subject to receipt of all technical and financial approvals, relocation of utilities, and land acquisition, and will be reviewed and revised as necessary during the preparation of the 2023 Ten Year Transportation Capital Program.

8. Conclusion / Next Steps:

Subject to Regional Council approval of the Recommended Alternative Design Concept, staff will file a Notice of Study Completion on the public record for a 30-day review period. Notice of filing will include newspaper advertisement, hand-delivered, mailed, and emailed notices, as well as on the Region and EngageWR websites.

Subject to Regional Council approval of the Recommended Alternative Design Concept, it is anticipated that this Class EA Environmental Study Report will be completed and filed in June 2022 with detailed design and utility relocations, being completed in 2022 and 2023 respectively.

Because Maple Grove Road between Hespeler Road and Vondrau Drive is more than four (4) kilometres long, construction is planned to be completed in three (3) phases over the 2023 to 2025 construction seasons. Two-way traffic will be maintained for the majority of construction. In order to mitigate traffic impacts on the local road network due to construction, Maple Grove Road Improvements phasing will be coordinated with other planned projects in the area, including:

- Maple Grove Multi-use Path, King to Fountain (2024), and
- Fountain Street Improvements, Maple Grove to Kossuth (2025 – 26).

9. Attachments / Links:

Appendix A: Key Plan

Appendix B: Project Team Recommended Design Alternative A (Cross-Section)

Appendix C: Project Team Recommended Intersection Types

Appendix D: Project Team Recommended Noise Wall

Appendix E: Project Team Evaluation of Design Alternatives

Appendix F: Summary of Supporting Studies (Docs #4008486)

Appendix G: Hespeler Road Grade-separated Flyover

Appendix H: Summary of Noise Policy and Property Acquisition Process (Docs #4008539)

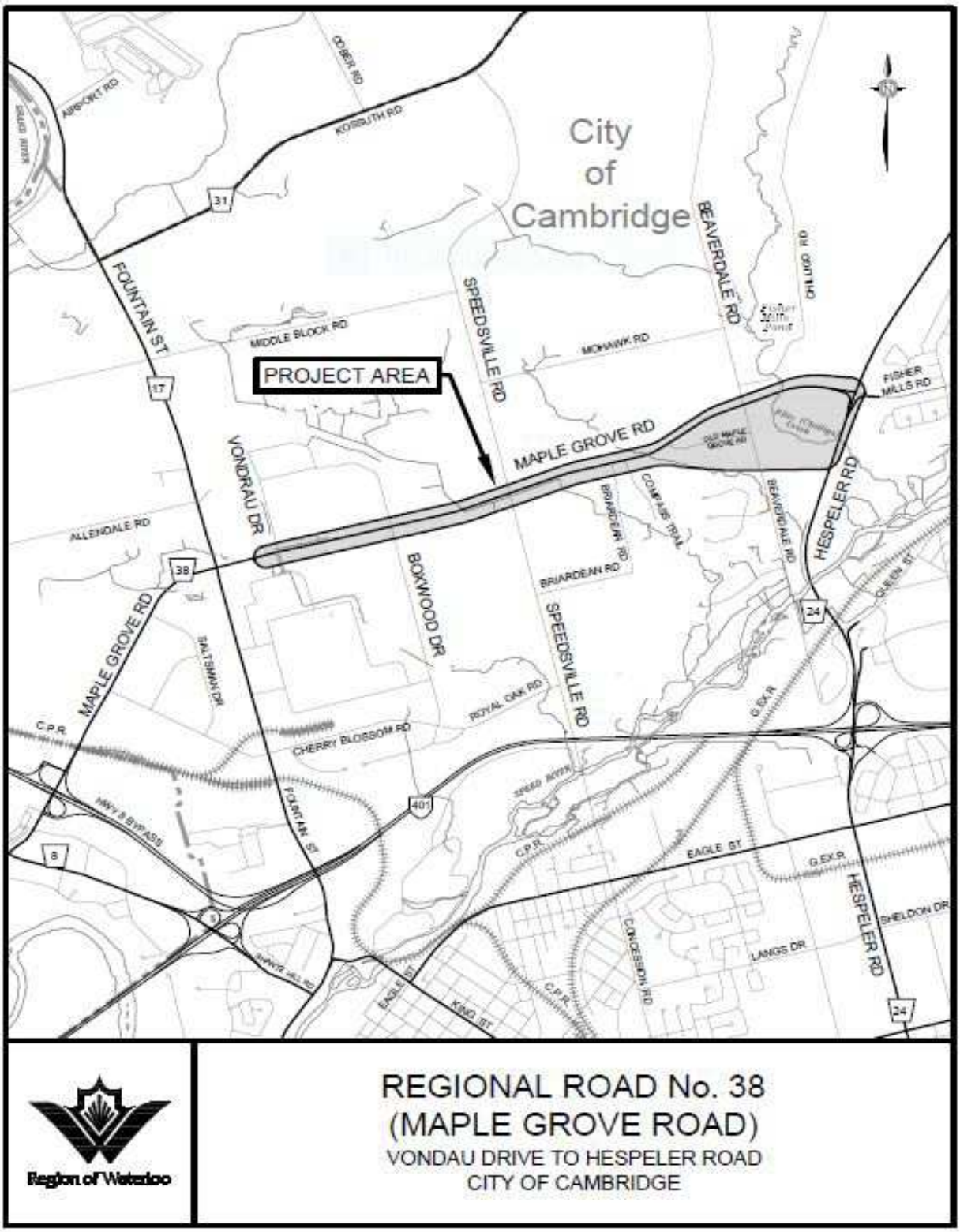
Prepared By: **Justin Armstrong**, Senior Engineer, Design & Construction

Marcos Kroker, Head, Design & Construction

Reviewed By: **Phil Bauer**, Director, Design & Construction

Approved By: **Thomas Schmidt**, Commissioner, TES

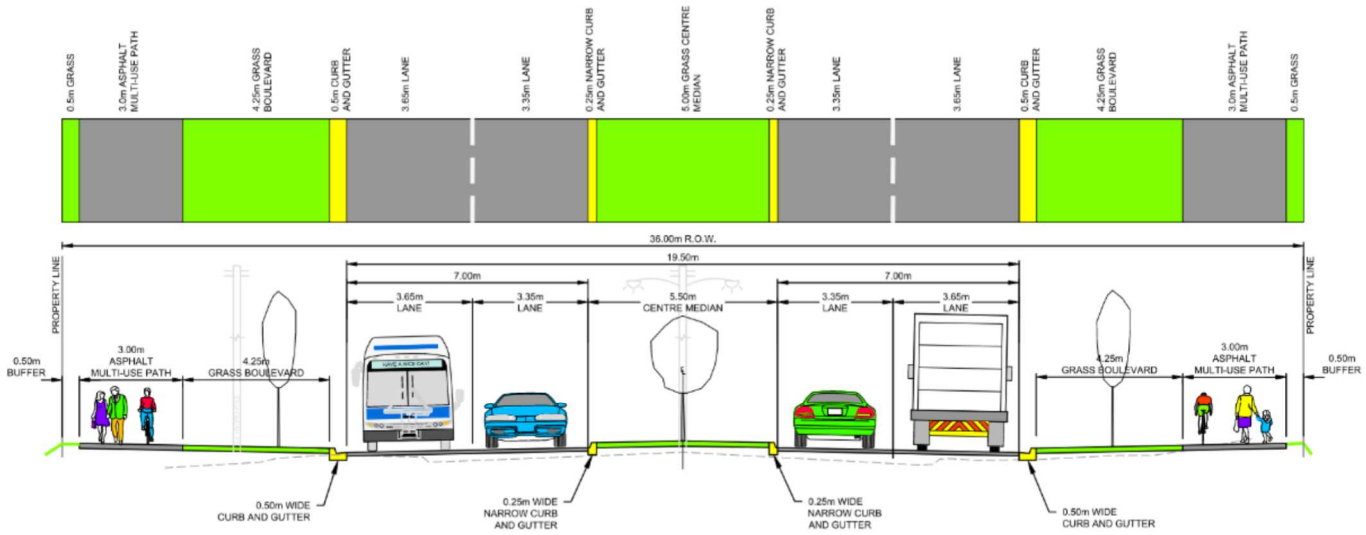
Appendix A: Key Plan



Appendix B: Project Team Recommended Design Alternative A (Cross-Section)

Widen the Road to 4-lanes with a 5.0m wide Raised Centre Median and Add Multi-use Path (MUP)

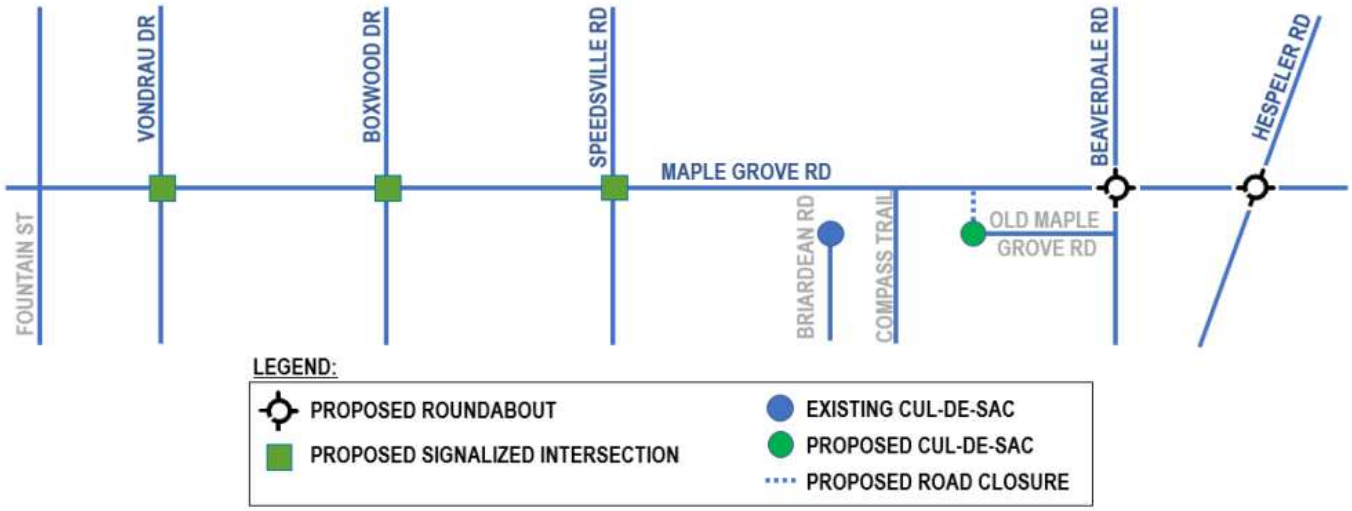
Design Alternative A - Raised Centre Median with Multi-Use-Path



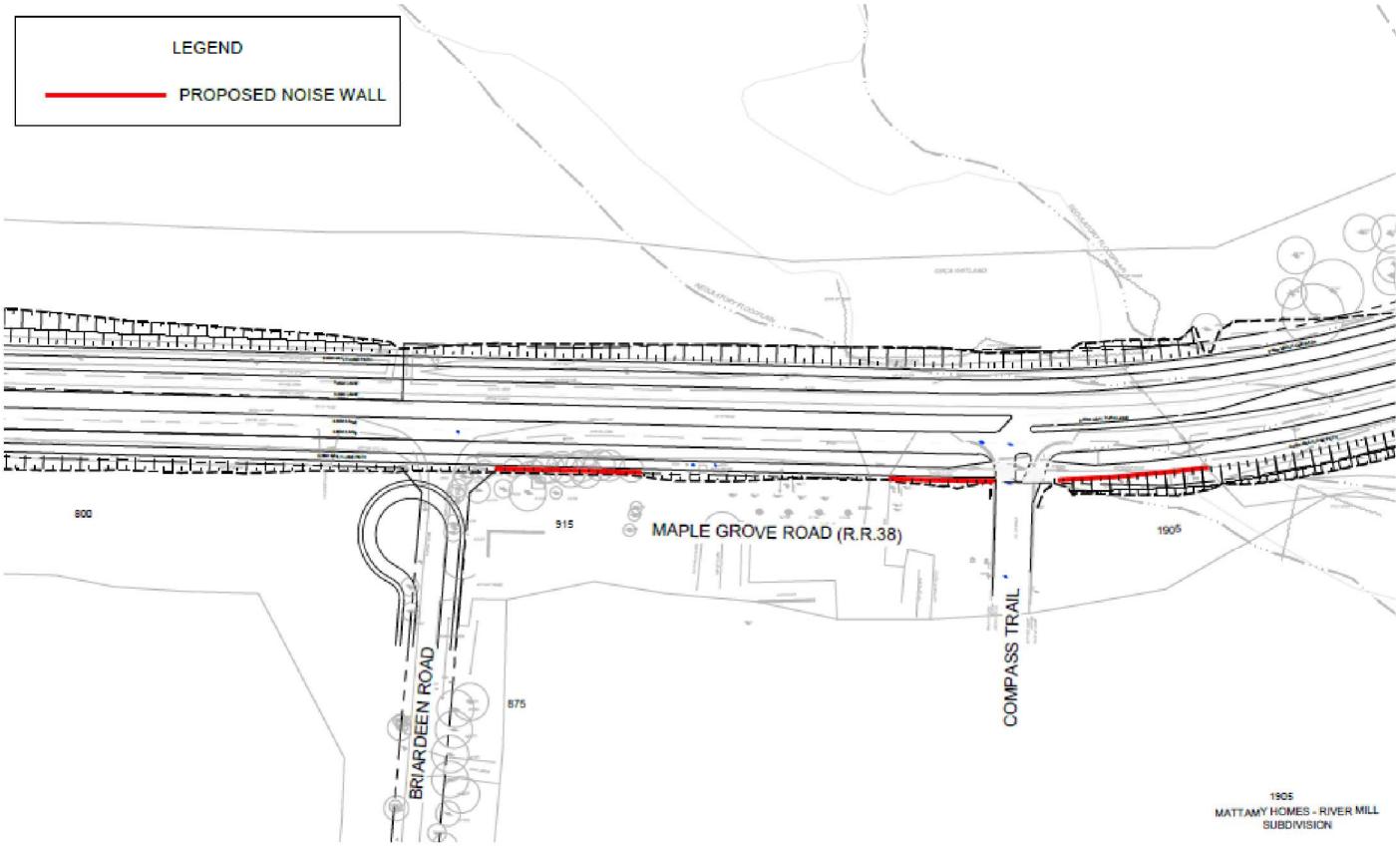
IBI

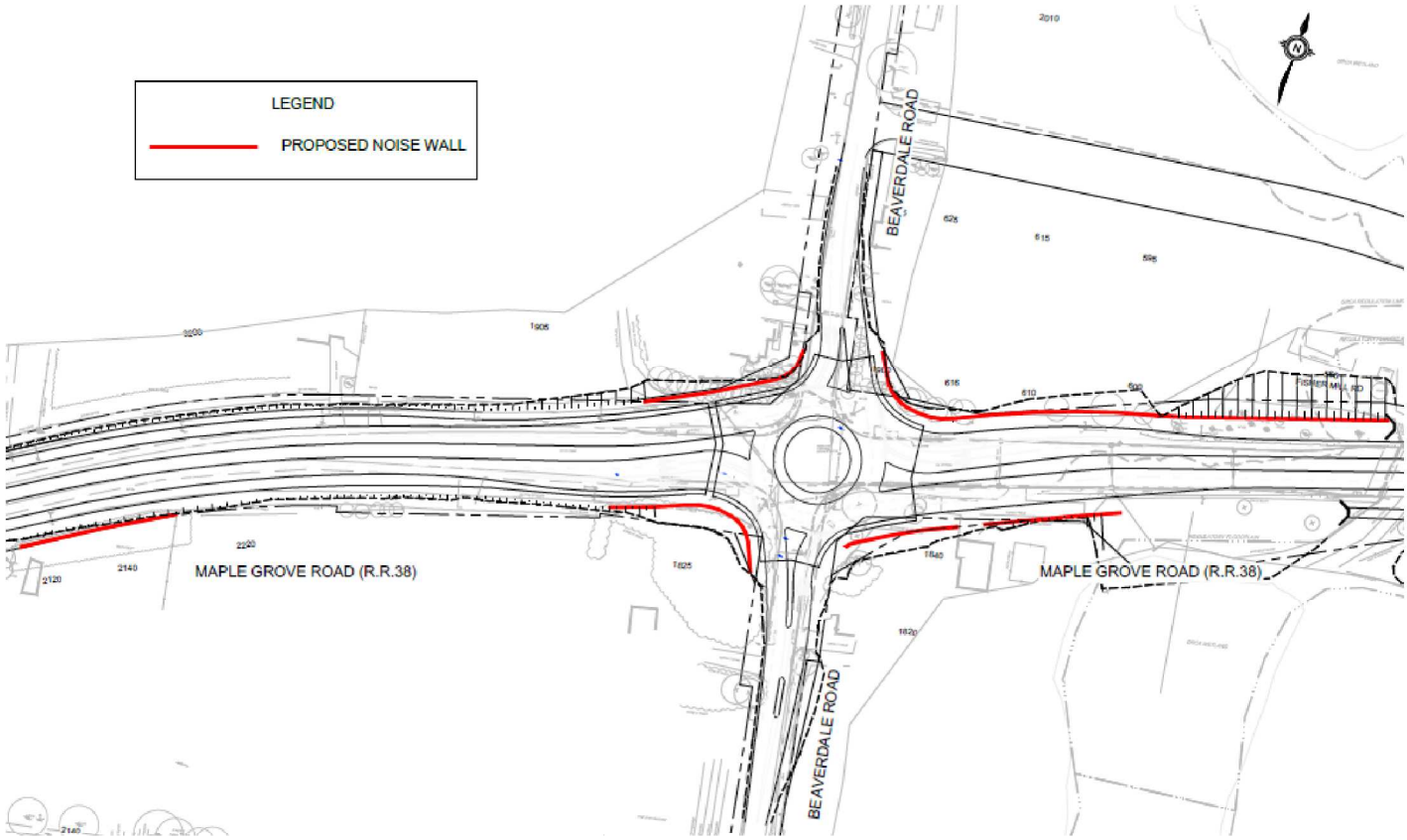
Region of Waterloo

Appendix C: Project Team Recommended Intersection Types



Appendix D: Project Team Recommended Design Noise Wall




LEGEND
PROPOSED NOISE WALL
BEAVERDALE ROAD
MAPLE GROVE ROAD (R.R.38)
MAPLE GROVE ROAD (R.R.38)
BEAVERDALE ROAD

Appendix E: Project Team Evaluation of Design Alternatives

		Design Alternatives		
		Do Nothing	Alternative A – Multi-use Path (MUP)	Alternative B – Sidewalk and Separated (On-road) Bike Lane
Evaluation Criteria	Natural Environment	Excellent	Very good	Good
	Socio-economic Environment	Fair	Very good	Very good
	Transportation	Poor	Very good	Very good
	Cost	Fair	Very good	Good
	Overall	Fair	Very good	Good
	Preferred	No	Yes	No

*Widening Maple Grove Road to 4-lanes and raised centre median are common to Alternatives A and B, but not Do Nothing.

Appendix G: Hespeler Road Grade-separated Flyover

Appendix F: Summary of Supporting Studies

a) Natural Environment Studies

The Region remains committed to achieving our stated climate action goals and minimizing greenhouse gas emissions at a Regional level. To that end, roadway widening is only considered for locations where absolutely necessary.

As part of the environmental inventory for the project, an Environmental Impact Study (EIS) for the natural environment was completed. The EIS includes: terrestrial surveys, vegetation surveys, breeding bird surveys, nocturnal bird surveys, an anuran call survey, bat habitat assessment, aquatic habitat assessment, and fish community sampling. Review includes areas of concern under the jurisdiction of the Grand River Conservation Authority and includes existing natural features such as Ellis Creek, Middle Creek/Hunsperger Drain, East Creek, and Provincially Significant Wetlands within or adjacent to the Maple Grove Road corridor.

A detailed tree inventory was completed within the study area. The existing trees were assessed for overall health and significance, which will be documented in the Environmental Study Report (ESR) and included in tree protection plans to be acknowledged during the future detailed design phase of the project. Where trees may be impacted or removed, a compensation strategy will be developed as part of the tree management and landscaping design during detailed design. Any vegetation clearing required for the recommended design alternative will occur outside of the seasonal nesting window for birds listed under the Migratory Birds Convention Act.

Information gathered through background review and field investigations, combined with technical input from reviewing agencies, was used to inform the evaluation of alternatives from a natural environment perspective, as well as determining mitigation strategies to avoid or minimize impacts to natural heritage.

Potential wildlife or habitat impacts are identified in final reporting (i.e. the Environmental Study Report) complete with mitigating measures, which will be submitted to the Ministry of the Environment, Conservation and Parks (MECP) and addressed during the future detailed design phase of the project.

Following detailed design, but prior to construction, approvals from review agencies (i.e. MECP, Grand River Conservation Authority, et al, as applicable) are required.

b) Noise Study

As part of this study, a Noise Study determined current and forecasted sound levels per Regional policy. Based on preliminary modelling, noise attenuation (e.g. wall, berm, etc.) is recommended in some locations, as presented to the public in Public Consultation Centre No. 2 (Appendix D).

c) Property Impacts and Acquisition

One of the goals of the planning and design process is to minimize the impact on adjacent properties and the need to acquire private property.

Raised centre median may impact up to seven (7) existing property accesses:

- 4045 Maple Grove Road;
- 1840 Beaverdale Road;
- 3200 Maple Grove Road;
- 3180 Maple Grove Road;
- 800 Briardean Road;
- 1000 Maple Grove Road; and
- 800 Maple Grove Road.

It is expected that the combination of new roundabouts at Hespeler Road and Beaverdale Road, as well as permitting u-turns using an advanced turning signal phase at Speedsville Road, Boxwood Drive, and Vondrau Drive will add one (1) to three (3) minutes to the trip, depending on trip origin/destination and traffic. Mitigating measures for impacted accesses will be finalized through detailed design on a case-by-case basis, including consultation with impacted property owners.

Preliminary review of the existing road allowance indicates that along the Maple Grove Road corridor, there are some areas where the existing road right-of-way will need to be widened in order to accommodate required improvements. In addition, there are locations at intersections where an expanded traffic control signalized intersection or a roundabout will require additional property. Property requirements will be confirmed through detailed design.

The Region may need to obtain temporary access at some locations along the right-of-way limit for construction grading activities, which will be confirmed through detailed design. In areas where property or temporary access is required, the property owner will be contacted directly by the Region of Waterloo's Land

Purchasing Officer. Compensation would be provided at fair market rates based on recent similar area sales. The Region's property acquisition process (Appendix H) will be followed.

d) Improve Traffic Operations (Transportation)

Maple Grove Road is a primary goods movement corridor in the corridor and a Community Connector in the *Context Sensitive Regional Transportation Corridor Design Guidelines*. As such, the proposed widening is necessary to facilitate the projected growth of industrial activity (and associated high levels of heavy truck activity) along Maple Grove Road, the space to support high quality transit services, and the anticipated growth in travel to and from the Region of Waterloo International Airport. Maple Grove Road is the most suitable corridor for addressing those future travel demands, rather than placing additional stressors on the alternative (less suitable) routes in this area of the Region. The corridor can be developed to accommodate both the heightened traffic demands and the requisite infrastructure to help the Region achieve it's aggressive targets to get less people using personal automobile and more people using transit, cycling, and walking/rolling.

Greater transit service efficiency through the corridor is expected from additional vehicle traffic capacity and potential bus stop enhancement.

A focused Transportation Study was undertaken as part of this study. The Transportation Study concluded that the Maple Grove Road widening is necessary. The full Transportation Study report will be included in the Environmental Study Report upon completion of this study. The focused study includes consideration of existing and projected truck traffic volumes.

As part of the study process, roundabouts were considered for all major intersections (Vondrau Drive, Boxwood Drive, Speedsville Road, Beaverdale Road, and Hespeler Road). Detailed traffic analyses and simulations were completed to determine minimum traffic delays and highest levels of service from a traffic operations perspective for all intersections. The intersection and corridor analyses have concluded that the Project Team recommended mix of intersection types will reduce overall delay in the corridor and enhance the overall traffic efficiency at several locations.

The study included modeling intersection types based on existing and forecasted traffic. Four through traffic lanes, two in each direction, plus turn lanes at intersections, accommodates forecasted traffic volumes through 2041, reduces congestion, and improves conditions for Emergency Services, heavy trucks, and transit.

Appendix H: Summary of Region Noise Policy and Property Acquisition Process

Summary of Region Noise Policy

The Region's Noise Policy includes three Parts:

Part A: **New development** impacted by existing roads and railways.

Part B: **Existing development** impacted by proposed Regional road widening.

Part C: **Existing development** impacted by noise from existing Regional roads.

Since there is no new development proposed, only **Parts B or C** may apply to this project.

The Maple Grove Road Class Environmental Assessment from Vondrau Drive to Hespeler Road is proposing to:

- ✓ **Widen** Maple Grove Road between Vondrau Drive and Hespeler Road – therefore Part B applies.
  - Noise is calculated at a residence **outdoor living area** – typically defined as the backyard or patio within 3 metres of the rear wall of a residential unit.
  - Noise is calculated using a Ministry of the Environment, Conservation and Parks (MECP) model that calculates a 16-hour average noise level for the outdoor living area based on several factors, such as traffic volumes, distance from the outdoor living area to the centre of the road, and elevation differences between the outdoor living area to the centre of the road. The noise level used in the policy is not based on peak levels that may be recorded at a given location/time.

Part B of Region Noise Policy – Road Widening

The Region will consider designing and constructing a noise barrier if:

- ✓ The projected noise level in 10 years is calculated to exceed 65 dBa; or
- ✓ The projected noise level in 10 years is calculated to exceed 60 dBa and increase the existing noise level by 5dBa or more.

By constructing a noise barrier, projected noise is required to be calculated to be reduced to 60 dBa or less and reduced by 5dBa or more.

Part C of Region Noise Policy – No Road Widening – Existing Condition

The Region will consider cost-sharing (50-50) noise barrier design and construction if:

- ✓ A resident raises a noise concern; and
- ✓ Existing noise levels are calculated to exceed 60dBa.

If two-thirds (2/3) of affected property owners representing at least 50% of the property value are in agreement to build a noise barrier, all property owners will be responsible to pay 50% of the noise barrier cost (based on length of wall installed along their property line) with payments charged over a period of ten (10) years (in accordance with Local Improvement Act).

Residents may also decide to take other measures such as installing a privacy fence, air conditioning, and/or window improvements at their own expense.

Property Acquisition Process Information Sheet

The following information is provided as a general overview of the property acquisition process and is not legal advice. Further, the steps, timing, and processes can vary depending on the individual circumstances of each case.

Once the Class Environmental Assessment is complete and the Environmental Study Report outlining the Recommended Design Concept has been approved, the property acquisition process and the efforts of Regional Real Estate staff will focus on preparation for acquiring the required lands to implement the approved design. Regional staff cannot make fundamental amendments or changes to the approved design concept.

Property Impact Plans

After the project has been approved and as it approaches final design, the project planners will generate drawings and sketches indicating what lands and interests need to be acquired from each affected property to undertake the project. These drawing are referred to as Property Impact Plans (PIP).

Initial Owner Contact by Regional Real Estate Staff

Once the PIPs are finalized and available, Regional Real Estate staff will retain an independent appraiser to provide preliminary valuations of the land requirements and their effect on the value of the property. As this process nears completion Real Estate staff will contact the affected property owner/s by telephone and mail to introduce themselves and set-up initial meetings to discuss the project, appraisals, and proposed acquisitions.

Initial Meetings

The initial meeting is attended by the project engineer and the assigned real estate staff person to brief the owner on the project, what part of their lands are to be acquired or will be affected, what work will be undertaken, when, with what equipment, etc. and to answer any questions. The primary purpose of the meeting is to listen to the owner and identify issues, concerns, effects of the proposed acquisition on remaining lands and businesses that can be feasibly mitigated and/or compensated, and how the remaining property may be restored. These discussions may require additional meetings. The goal of staff is to work with the owner to reach mutually agreeable solutions.

Goal – Fair and Equitable Settlement for All Parties

The goal is always to reach a fair and equitable agreement for both the property owner and the Region. Such an agreement will provide compensation for the fair market value of the lands and address the project impacts (such as repairing or replacing landscaping, fencing, paving, etc.) such that the property owner will receive the value of the lands acquired and the restoration of their remaining property to the condition it was prior to the Project.

The initial meetings will form the basis of an initial offer of settlement or agreement of

purchase and sale for the required lands or interests.

Steps Toward Offer of Settlement or Agreement of Purchase and Sale

The general steps toward such an offer are as follows:

1) the Region will obtain an independent appraisal of the fair market value of the lands and interests to be acquired, and an appraisal of any effect on the value of the rest of the property resulting from the acquisition of the required lands and interests;
2) compensation will be estimated and/or works to minimize other effects will be defined and agreed to by the property owner and the Region;
3) reasonable costs of the owner will be included in any compensation settlement;
4) an offer with a purchase price and any other compensation or works in lieu of compensation will be submitted to the property owner for consideration; and
5) an Agreement will be finalized with any additional discussion, valuations, etc. as may be required.

Depending on the amount of compensation, agreements may require the approval of Council. The approval is undertaken in Closed Session which is not open to the public to ensure a level of confidentiality.

Expropriation

Due to the time constraints of these projects, it is the practice of the Region to commence the expropriation process in parallel with the negotiation process to ensure that lands and interests are acquired in time for commencement of the Project. Typically, over 90% of all required lands and interests are acquired through the negotiation process. Even after lands and interests have been acquired through expropriation an agreement on compensation can be reached through negotiation, this is usually referred to as a 'settlement agreement'.

Put simply, an expropriation is the transfer of lands or an easement to a governmental authority for reasonable compensation, including payment of fair market value for the transferred lands, without the consent of the property owner being required. In the case of expropriations by municipalities such as the Region of Waterloo, the process set out in the Ontario *Expropriations Act* must be followed to ensure that the rights of the property owners provided under that *Act* are protected.

For information on the expropriation process, please refer to 'Expropriation Information Sheet'.

The following information is provided as a general overview of the expropriation process and is not legal advice. For complete information, reference should be made to the Ontario *Expropriations Act* as well as the more detailed information in the Notices provided under that *Act*.

Expropriation Information Sheet

What is Expropriation?

Governmental authorities such as municipalities, school boards, and the provincial and federal governments undertake many projects which require them to obtain land from private property owners. In the case of the Regional Municipality of Waterloo, projects such as the construction or improvement of Regional Roads sometimes require the purchase of land from private property owners. In many cases, the Region of Waterloo only needs a small portion of the private property owner's lands or an easement for related purposes such as utilities, although in certain instances, entire properties are required.

Usually the governmental authority is able to buy the land required for a project through a negotiated process with the affected property owners. Sometimes, however, the expropriation process must be used in order to ensure that the land is obtained within a specific timeline. Put simply, an expropriation is the transfer of lands or an easement to a governmental authority for reasonable compensation, including payment of fair market value for the transferred lands, without the consent of the property owner being required. In the case of expropriations by municipalities such as the Region of Waterloo, the process set out in the Ontario **Expropriations Act** must be followed to ensure that the rights of the property owners provided under that *Act* are protected.

Important Note: The Region of Waterloo tries in all instances to obtain lands needed for its projects through a negotiated agreement on mutually acceptable terms. Sometimes, the Region of Waterloo will start the expropriation process while negotiations are underway. This dual approach is necessary to ensure that the Region of Waterloo will have possession of all of the lands needed to start a construction project on schedule. However, it is important to note that Regional staff continues to make every effort to reach a negotiated purchase of the required lands on mutually agreeable terms while the expropriation process is ongoing. If agreement is reached, expropriation proceedings can be discontinued and the land transferred to the Region of Waterloo in exchange for payment of the agreed-upon compensation.

What is the process of the Region of Waterloo under the Expropriations Act?

- Regional Council considers a request to begin an application under the ***Expropriations Act*** to obtain land and/or an easement for a specific Regional project. No decision is made at this meeting to expropriate the land. This step is simply direction for the Region of Waterloo to provide a "Notice of Application for Approval to Expropriate" to affected property owners that the process has started to seek approval to expropriate the land.
- As stated in the Notice, affected property owners have 30 days to request a Hearing to consider whether the requested expropriation is "fair, sound and reasonably

necessary in the achievement of the objectives" of the Region of Waterloo. This Hearing is conducted by a provincially-appointed Inquiry Officer. Prior to the Hearing, the Region of Waterloo must serve the property owner with a Notice setting out its reasons or grounds for the proposed expropriation. **Compensation for lands is not determined at this Hearing.** The Inquiry Officer can order the Region of Waterloo to pay the property owner up to $200.00 as compensation for the property owner's costs in participating in this Hearing, regardless of the outcome of the Hearing.

- If a Hearing is held, a written report is provided by the Inquiry Officer to the property owner and the Region of Waterloo. Council must consider the Report within 90 days of receiving it. The Report is not binding on Council and Council may or may not accept the findings of the Report. After consideration of the Report, Council may or may not approve the expropriation of the land or grant approval with modifications. A property owner may wish to make written and/or verbal submissions to Council at the time that it is considering the Report.
- If no Hearing is requested by the property owner, then Council may approve the expropriation of the land after expiry of a 30 day period following service of the Notice of Application for Approval to Expropriate.
- If Council approves the expropriation then, within 3 months of this approval, the Region of Waterloo must register a Plan at the Land Registry Office that describes the expropriated lands. The registration of this Plan automatically transfers title of the lands to the Region of Waterloo, instead of by a Deed signed by the property owner.
- Within 30 days of registration of the Plan, the Region of Waterloo must serve a Notice of Expropriation on the affected property owner advising of the expropriation. Within 30 days of this Notice, the property owner may serve the Region of Waterloo with a Notice of Election selecting the valuation date under the *Expropriations Act* for calculation of the compensation.
- In order to obtain possession of the expropriated lands, the Region of Waterloo must also serve a Notice of Possession setting out the date that possession of the land is required by the Region of Waterloo. This date has to be 3 months or more from the date that this Notice of Possession is served on the affected property owner.

Within 3 months of registration of the Plan, the Region of Waterloo must provide the affected property owner with payment for the full amount of the appraised fair market value of the expropriated land or easement and a copy of the appraisal report on which the value is based. If the property owner disagrees with this amount, and/or claims other compensation and/or costs under the *Expropriations Act*, the compensation and/or costs matter may be referred to a provincially-appointed Board of Negotiation in an effort to reach a mediated settlement and/or an appeal may be made to the Ontario Municipal Board (OMB) for a decision. In any event, the Region of Waterloo continues

in its efforts to reach a negotiated settlement with the affected property owner prior to the OMB making a decision.