



BURNSIDE

**Environmental Study Report, 7th Line
from Yonge Street to 10th Sideroad,
Municipal Class Environmental
Assessment Schedule C**

**Town of Innisfil
2101 Innisfil Beach Road
Innisfil ON L9S 1A1**

**R.J. Burnside & Associates Limited
128 Wellington Street West Suite 301
Barrie ON L4N 8J6 CANADA**

**October 2019
300042232.0000**



November 14, 2019

Via: Email: Dan.Minkin@ontario.ca

Mr. Dan Minkin
Heritage Planner
Ministry of Heritage, Sport, Tourism and Culture
Industries
Culture Division | Programs and Services Branch
Heritage Planning Unit
401 Bay Street, Suite 1700
Toronto, ON M7A 0A7

Dear Mr. Minkin:

**Re: Notice of Completion Comments
7th Line (West) EA Yonge Street to 10th Sideroad
Project No.: 300042232.0000**

Thank you for your comments following the Notice of Completion and your review of the Environmental Study Report (ESR) for the 7th Line (West) Municipal Class Environmental Assessment (EA). R.J. Burnside & Associates Limited, on behalf of the Town of Innisfil (proponent) provides the following responses to the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) comments. Your comments will be addressed in this correspondence and will be provided as a cover page to update the ESR. The comments and responses are to be considered during the detailed design and implementation phase of the Project together with any ESR commitments.

Comments are summarized as follows:

Comment: The recommendations of the Stage 1 and Stage 2 archaeology reports are reflected in the body of the ESR. However, the evaluation of the alternatives and design solutions in Appendix B note potential for archaeological resources and need for Stage 2 archaeological assessment work.

Response: *The evaluation of alternatives and design solutions identified preliminary preferred solutions based on the evaluation of available information to identify potential impacts and mitigation; and to the extent necessary, to select a preliminary preferred design. Information available at that time included the Stage 1 archaeological assessment. Once the potential*

extent of earth works could be determined based on the preliminary preferred design solution, the Stage 2 archaeological assessment was completed before finalizing the preferred design solution in an effort to identify possible impacts and mitigation measures to minimize impact on the environment.

Comment: There is no mention of archaeology among the mitigation measures in Section 6.0 of the ESR, although in the context of permitting, Section 7.0 refers to the letter that MHSTCI will issue when the remaining archaeological assessment report(s) have been reviewed and deemed compliant. However, since it is impossible for an archaeological assessment to completely guarantee the absence of archaeological resources, a commitment should be undertaken for the unlikely event of encountering archaeological material during construction. Such a commitment should be to the effect that in this event, MHSTCI will be contacted, all activities impacting archaeological resources will cease immediately, and a licensed archaeologist will carry out an archaeological assessment. If human remains are encountered, the local police and the Registrar, Burials of the Ministry of Government and Consumer Services (416-326-8800) will also be contacted.

Response: Section 6.0 of the ESR is updated herein to include the following:

- *In the event of encountering archaeological material during construction, MHSTCI will be contacted, all activities impacting archaeological resources will cease immediately, and a licensed archaeologist will carry out an archaeological assessment. If human remains are encountered, the local police and the Registrar, Burials of the Ministry of Government and Consumer Services (416-326-8800) will also be contacted.*

Comment: In spite of the fact that the project may impact a cultural heritage landscape, there are no mitigation measures in Section 6.0 addressing this. Mitigation measures reflecting the recommendations of the Cultural Heritage Resource Assessment prepared by ASI (August 2018, revised March 2019) and provided in Appendix A8 should be undertaken as commitments

Response: Section 6.0 of the ESR is updated herein to include the following:

- *Construction activities and staging will be suitably planned and undertaken to avoid impacts to identified cultural heritage resources. In particular, no-go zones should be established adjacent to the identified cultural heritage resource (CHL 1) and instructions to construction crews should be issued in order to prevent impacts.*
- *Where feasible, the profile and cross section of the preferred alternative should be altered to avoid all grading and tree removals associated with CHL 1.*
- *Should avoidance of tree removals and grading adjacent to CHL 1 be determined to be infeasible, post-construction landscaping with historically-sympathetic native tree species should be employed to mitigate impacts to the heritage value of the resource. A qualified arborist or landscape architect should be consulted in this respect.*

- *Given the potential cultural heritage value of the farmscape at 2399 7th Line (CHL 1), heritage planning staff at the Town of Innisfil should be contacted to determine if a resource-specific Heritage Impact Assessment (HIA) is required;*
- *The Cultural Heritage Resource Assessment report should be submitted to Kevin Jacobs, Assistant Clerk at the Town of Innisfil and the Ministry of Tourism, Culture, and Sport for review; and*
- *Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.*

Yours truly,

R.J. Burnside & Associates Limited

A handwritten signature in black ink, appearing to read 'D. De Forest', written over a light grey rectangular background.

Deanna De Forest
Environmental Assessment Lead
DD:sc

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response to MHSTCI
14/11/2019 10:50 AM

November 8, 2019

EMAIL ONLY

Meredith Goodwin, C.E.T.
Capital Project Manager
Town of Innisfil
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Innisfil, ON L9S 1A1
mgoodwin@innisfil.ca

MHSTCI File : **0009433**
Proponent : **Town of Innisfil**
Subject : **Notice of Completion**
Project : **7th Line (West) Improvements from Yonge Street to 10th Side Road**
Location : **Innisfil, Ontario**

Dear Ms. Goodwin:

Thank you for providing the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) with the Notice of Completion for the above-referenced project. MHSTCI's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

MHSTCI has reviewed the Environmental Study Report (ESR) for this project and offers the following comments.

Archaeological Resources

We are of the understanding that archaeological assessment work completed for this project includes:

- a Stage 1 report (PIF# P450-0013-2018), recommending a Stage 2 survey for a portion of the study area, which has been reviewed and entered into the Ontario Public Register of Archaeological Reports; and
- pursuant to this finding, a Stage 2 report (PIF# P1066-0113-2019), which found no archaeological resources recommended no further investigation, which has been submitted to MHSTCI for review but for which review has not yet been completed.

This is reflected in the body of the ESR. However, the evaluations of alternatives and design solutions in Appendix B note potential for archaeological resources and need for Stage 2 archaeological assessment work.

There is no mention of archaeology among the mitigation measures in Section 6.0 of the ESR, although in the context of permitting, Section 7.0 refers to the letter that MHSTCI will issue when the remaining archaeological assessment report(s) have been reviewed and deemed compliant. However, since it is impossible for an archaeological assessment to completely guarantee the absence of archaeological resources, a commitment should be undertaken for the unlikely event of encountering archaeological material during construction. Such a commitment should be to the effect that in this event, MHSTCI will be contacted, all activities impacting archaeological resources will cease immediately, and a licensed archaeologist will carry out an archaeological assessment. If human remains are encountered, the local police and the Registrar, Burials of the Ministry of Government and Consumer Services (416-326-8800) will also be contacted.

Built Heritage Resources and Cultural Heritage Landscapes

In spite of the fact that the project may impact a cultural heritage landscape, there are no mitigation measures in Section 6.0 addressing this. Mitigation measures reflecting the recommendations of the Cultural Heritage Resource Assessment prepared by ASI (August 2018, revised March 2019) and provided in Appendix A8 should be undertaken as commitments.

Thank you for consulting MHSTCI on this project and please continue to do so throughout the EA process. If you have any questions or require clarification, do not hesitate to contact me.

Sincerely,

Dan Minkin
Heritage Planner
Dan.Minkin@Ontario.ca

Copied to: Deanna De Forest, R.J. Burnside

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MHSTCI makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MHSTCI be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MHSTCI if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the *Ontario Heritage Act* and the *Standards and Guidelines for Consultant Archaeologists*.

If human remains are encountered, all activities must cease immediately and the local police as well as the Registrar, Burials of the Ministry of Government and Consumer Services (416-326-8800) must be contacted. In situations where human remains are associated with archaeological resources, MHSTCI should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

Environmental Study Report, 7th Line from Yonge Street to 10th Sideroad, Municipal Class Environmental Assessment Schedule C

October 2019

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
3	Yes	Yes	Town of Innisfil (Town)

Record of Revisions

Rev.	Date	Description
0	May 27, 2019	Draft Environmental Study Report
1	September 10, 2019	Final Draft Environmental Study Report
2	October 8, 2019	Environmental Study Report

R.J. Burnside & Associates Limited

Report Prepared By:



Deanna De Forest, B.Sc. E.P.
Environmental Assessment Lead
DDF/DD:sp

Report Reviewed By:



Drew Davidge, P.Eng.
Project Engineer
DDF/DD:sp

May 2019

Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by The Town of Innisfil (Town) to complete a Municipal Class Environmental Assessment (MCEA) to consider options for improvement to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the 7th Line from Yonge Street to 10th Sideroad in the Town of Innisfil.

The planning of improvements was carried out in accordance with the Schedule 'C' requirements (Phases 1 to 4) of the Municipal Engineers Association Municipal Class Environmental Assessment document (October 2000, as amended in 2007, 2011 and 2015), which is approved under the Ontario *Environmental Assessment Act*.

Alternative solutions considered were refined to include;

1. Do Nothing;
2. Local Traffic Only;
3. One-Way Road;
4. Widen the Road;
5. Dead-end Road with a Turnaround; or
6. Or a combination of alternatives.

The Alternative Solutions were evaluated against the natural, social, economic and technical environment. It was determined that Option 4) Widen the Road, was the Preferred Alternative. The Preferred Alternative includes operation of 7th Line as a two-way road, fully open to the public. This section of the road would be upgraded to meet Transportation Association of Canada Geometric Design Guide for Canadian Roads based on current posted speed limits (80 km/h and 50 km/h) including widening the paved road surface to minimum standards, or shoulder in some areas, and improving the horizontal / vertical alignment. The alternative also includes improving ditching and performing regular maintenance as required, as well as repairing slopes with erosion issues and replacing culverts where required to ensure long term viability of the road.

May 2019

A key component of the study included consultation with interested stakeholders, considered broadly to include government and non-government agencies, Indigenous communities, property owners, and the general public. Consultation with stakeholders included a Notice of Commencement and Notice of Completion. In addition, two Public Open Houses (POH) were held to present project information and obtain input from interested stakeholders. A Notice of Completion will be published in the local newspapers and mailed or emailed to stakeholders, agencies and Indigenous communities that may have interest in the project. As per the requirements of the MCEA, this Environmental Study Report (ESR) is available for public review and comment for a period of 30 calendar days following the publication of the Notice of Completion.

The Notice of Completion provides the dates, times and locations where the ESR can be reviewed, and names and addresses of people to whom they can send their comments.

If concerns arise regarding this project which cannot be resolved in discussion with the Town, a person or party may request that the Minister of the Environment and Conservation Parks (MECP) make an Order for the project to comply with Part II of the *Environmental Assessment Act* (referred to as a Part II Order), which addresses Individual Environmental Assessments. Requests must be received by the Minister within 30 calendar days of the first publication of the Notice of Completion.

May 2019

Table of Contents

1.0	Introduction	1
2.0	Existing Conditions.....	3
2.1	Study Area	3
2.2	Technical Environment	3
2.2.1	Physical Condition.....	4
2.2.2	Geometry – Profile	4
2.2.3	Geotechnical	5
2.2.4	Hydrogeological	6
2.2.5	Drainage and Surface Water Flow	7
2.2.6	Stormwater	7
2.2.7	Existing Traffic.....	7
2.2.8	Utilities.....	8
2.3	Natural Environment	10
2.3.1	Physiography and Topography	10
2.3.2	Geology	10
2.3.3	Climate	11
2.3.4	Terrestrial Habitat.....	11
2.3.5	Tree Inventory	15
2.3.6	Aquatic Habitat	16
2.3.7	Significant Wildlife Habitat.....	19
2.3.8	Species at Risk.....	20
2.4	Cultural Environment	23
2.4.1	Description of Land Use	23
2.4.2	Population Growth.....	23
2.4.3	Agricultural Operations.....	23
2.4.4	Active Transportation	24
2.4.5	Provincial Policy Statement.....	24
2.4.6	Growth Plan for the Greater Golden Horseshoe	25
2.4.7	County of Simcoe Regional Official Plan.....	26
2.4.8	Town of Innisfil Official Plan	26
2.4.9	County of Simcoe, Transportation Master Plan Update (2014).....	27
2.4.10	Inspiring Innisfil 2020	27
2.4.11	Town of Innisfil, Transportation Master Plan Update (2018).....	27
2.4.12	6 th Line Environmental Assessment	28
2.4.13	Fisheries Act	28
2.4.14	Endangered Species Act.....	29
2.4.15	Migratory Bird Convention Act.....	29
2.4.16	Regulated Area	29
2.4.17	Clean Water Act -Source Water Protection.....	29
2.4.18	Cultural Heritage	31

May 2019

2.4.19	Ambient Air Quality.....	31
2.4.20	Noise	32
3.0	Municipal Class Environmental Assessment Planning Process	33
3.1	Phase 2 – Identification and Evaluation of Alternative Solutions	35
3.1.1	Addresses the Problem/Opportunity Statement	39
3.1.2	Preferred Alternative	39
3.1.3	Confirmation of the Class Environmental Assessment Project Schedule	39
3.2	Phase 3 – Identification and Evaluation of Design Alternatives for the Preferred Alternative	39
3.2.1	Road Widening.....	39
3.2.2	Road Cross-Section	40
3.2.3	Preferred Solution	40
4.0	Consultation Summary	40
4.1	Notice of Commencement	43
4.2	Public Open House	49
4.3	Notice of Completion in Phase 4.....	51
5.0	Impacts.....	51
5.1	Technical Environment	51
5.2	Natural Environment	54
5.3	Social/Cultural Environment.....	59
5.4	Financial Environment	61
6.0	Mitigation	62
7.0	Permits	71
8.0	Phase 4 – Environmental Study Report	72
9.0	Conclusions	73
10.0	References:.....	74

Figures

Figure 1:	Study Area Location.....	2
Figure 2:	Ecological Land Classification	12
Figure 3:	Aquatic Habitat Investigations and Fish Community Sampling Sites.....	17
Figure 4:	Sensitive Receptors - Air	32
Figure 5:	Sensitive Receptors - Noise.....	33
Figure 6:	Municipal Class Environmental Assessment Process Flow Chart	34

May 2019

Tables

Table 1: Summary of Existing Road Geometry 4
Table 2: 7th Line Daily Traffic Volumes Data 8
Table 3: Wildlife Species Observed 14
Table 4: Fish Community Sampling Results (August 2, 2018)..... 19
Table 5: Summary of Public Comments and Responses..... 44

Appendices

- Appendix A Existing Conditions
- Appendix B Evaluation of Alternatives
- Appendix C Consultation Record

May 2019

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In the preparation of the various instruments of service contained herein, R.J. Burnside & Associates Limited was required to use and rely upon various sources of information (including but not limited to: reports, data, drawings, observations) produced by parties other than R.J. Burnside & Associates Limited. For its part R.J. Burnside & Associates Limited has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. R.J. Burnside & Associates Limited, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third party materials and documents.

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1.0 Introduction

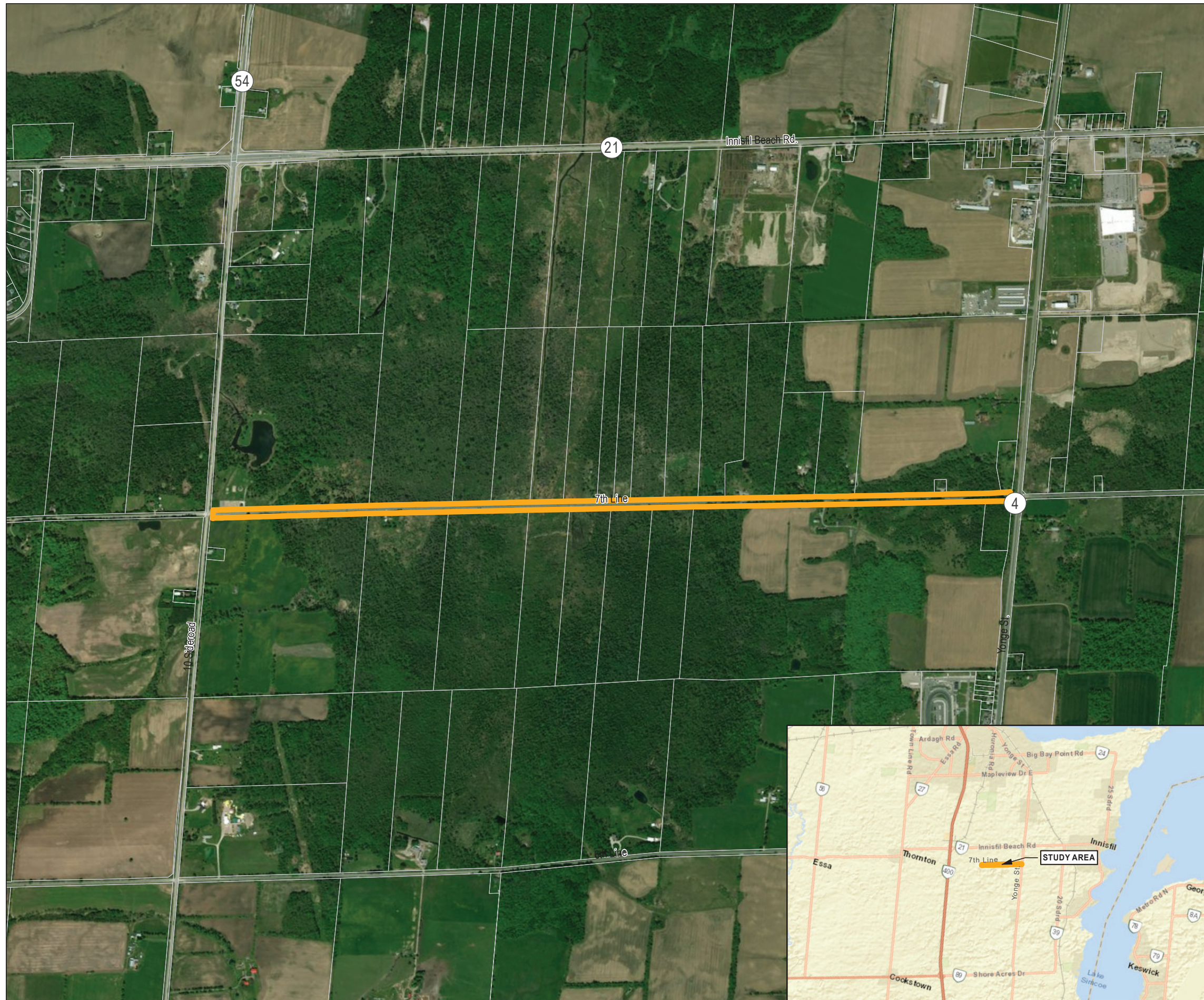
R.J. Burnside & Associates Limited (Burnside) has been retained by the Town of Innisfil (Town) to complete a Municipal Class Environmental Assessment (MCEA) to consider options for improvement to the 7th Line from Yonge Street to 10th Sideroad to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road.

The 7th Line from Yonge Street to 10th Sideroad, herein after referred to as 7th Line, is a two-lane local rural road, running east-west, approximately 3.0 km in length with a posted speed limit of 80 km/hr to 50 km/hr within the study corridor. This section of the 7th Line is classified as a local road within the Innisfil Official Plan (2018) and the Town's Transportation Master Plan Update (TMP Update) completed in 2018. The Town of Innisfil TMP Update identified the reconstruction of the road within the Study Area (Figure 1) in the medium-term horizon (2022 to 2031).

The 7th Line narrows and curves through a treed area at the east end of the Study Area where the tree-line encroaches onto the traveled road platform and there is no side clearance (shoulder) between the travelled lane and the trees, limiting sight-lines. A natural watercourse along the north side of the roadway has contributed to continuous roadside erosion and drop-offs causing maintenance and safety issues.

In the fall of 2017, the 7th Line was closed (local traffic only) due to the deteriorating road conditions and issues with respect to roadside safety. The condition of the road continued to deteriorate and large rainstorms in June 2018 caused several shoulder washouts. Subsequently, Town Staff, in consultation with local residents of the 7th Line, recommended that the road be temporarily designated as one-way in the westbound direction to allow temporary barriers to be used to reduce the width of the road in the areas experiencing significant erosion, and to reduce the amount of through traffic still using the road despite the interim road closure. Innisfil Council adopted a By-law on June 20, 2018 to temporarily permit the 7th Line to operate as a one-way road, westbound from Yonge Street to Centennial Park access (150 m west of 10th Sideroad), pending the outcome of the MCEA process.

The existing conditions, definition of the problem or opportunity, proposed alternatives, and the manner in which public notification was conducted, are summarized within this Environmental Study Report (ESR) for a Schedule C MCEA.



 Study Area

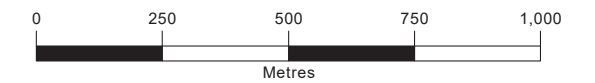
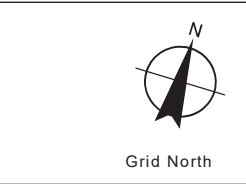
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Datum: North American 1983 CSRS	
Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°00.00"W	
False Easting: 500,000m	False Northing: 0m
Rotation: 343.2	Scale Factor: 0.99960



Client

TOWN OF INNISFIL

Figure Title

**7TH LINE EA
STUDY AREA**

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HN	DDF	2018/06/19	
Scale	Project No.		
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October 2019

2.0 Existing Conditions

2.1 Study Area

The Study Area includes the existing 7th Line road Right-of-Way (ROW), and adjacent land uses within 5 m of the ROW, from Yonge Street to the 10th Sideroad in Town of Innisfil, Ontario. Adjacent land uses consist primarily of rural residential properties and undeveloped property along the Study Area corridor, as well as an agricultural property located on the south side of the 7th Line, in the eastern portion of the Study Area. The Study Area has approximately seven active driveway accesses. A municipal park (Centennial Park) is located at the west end of the Study Area. No active commercial businesses are located within the Study Area, however there are some businesses located beyond the Study Area to the north east and south east.

The east end of the Study Area is wooded on both sides of the 7th Line with an unnamed tributary of Lovers Creek located adjacent to the north of the road and a small pond located adjacent to the south of the road. The Lovers Creek Provincially Significant Wetland (PSW) is located adjacent to the north and south of 7th Line in the western end of the Study Area. Lovers Creek and its tributaries cross the 7th Line between the 10th Line and Yonge Street at three locations in the Study Area.

The Study Area is bounded by County of Simcoe (County) road intersections at each end. At the east, Yonge Street (County Road 4) is a two-lane road with a posted speed limit of 80 km/h and is classified as a Primary Arterial (controlled access) road in the County of Simcoe Official Plan (2008). At the west end of the Study Area, 10th Sideroad (County Road 54) is a two-lane road with a posted speed limit of 80 km/hr and is classified as a Secondary Arterial road in the County of Simcoe Official Plan (2008). To the north of the Study Area, Innisfil Beach Road (County Road 21) is a two-lane road running east-west and is classified as a Primary Arterial road in the County of Simcoe Official Plan (2008). To the south of the Study Area is the 6th Line, running east-west and classified as an Arterial Road in the 2018 Town of Innisfil Official Plan.

A map of the Study Area is provided in Figure 1 above.

2.2 Technical Environment

Below is a review and summary of the technical environment for the 7th Line with regards to physical condition, geotechnical, traffic, and drainage conditions based on studies completed in support of the MCEA. For additional information on the technical environment, supporting studies are provided in Appendix A.

October 2019

2.2.1 Physical Condition

The 7th Line is a two-lane rural road running east-west with a low-class bituminous surface. The section of 7th Line that comprises the Study Area is approximately 3.0 km in length and is classified as a local road within the Town of Innisfil Official Plan (2018) and the Town's Transportation Master Plan Update (HDR, 2018),

The easterly segment is posted at 50 km/h, with a very narrow road platform (as narrow as 4.9 m in some areas) that also includes many horizontal and vertical curves. Sightlines are further limited by the tree line which encroaches up to the edge of the road platform. A natural watercourse along the north side of the roadway has contributed to continuous roadside erosion and drop-offs.

The westerly 1.8 km of 7th Line within the Study Area is relatively straight and flat with a posted speed limit of 80 km/h and a typical pavement width of 7.5 m and narrow shoulders between 0.7 m and 1.0 m in width.

2.2.2 Geometry – Profile

A topographic survey of the road ROW and 5 m either side was completed in July 2018 and an existing road profile was established for the roadway. A summary of the existing road geometry can be found in Table 1, below with the corresponding design speed information from the Transportation Association of Canada (TAC) Geometric Design Guidelines.

Table 1: Summary of Existing Road Geometry

Design Criteria	Existing Condition	Corresponding Design Speed (TAC)
Maximum Grade	Varies (Max 9.3%)	N/A - max 7% (Table 3.3.1)
Lane width (Total Road width)	2.3 to 3.5 m (4.6 to 7.0m)	N/A - 3.0 to 3.5m (Table 4.2.1)
Shoulder Width	0 to 1.5m	N/A - 1.0m min (Table 4.4.1)
Min. Rate of Vertical Curvature, K Value (Sag)	8	40 km/h (Table 3.3.2)
Min. Rate of Vertical Curvature, K Value (Crest)	5	40 km/h (Table 3.3.4)
Horizontal Radius	160 m = 60 km/h	60 km/h (Table 3.2.3)

October 2019

The existing conditions including lane and shoulder width do not meet minimum TAC design guidelines. The existing horizontal and vertical geometry would warrant a 20 to 30 km/h posted speed.

2.2.3 Geotechnical

A Geotechnical Investigation of the 7th Line characterized the subsurface conditions of the Study Area as pavement over fill and local peat, followed by native granular soils.

Seven boreholes were advanced on July 9 and 10, 2018, at locations along the 7th Line Study Area, drilled to 5.0 to 6.6 m depth. The borehole elevations indicate higher ground to the east towards Yonge Street (elevation 274 to 276 metres above sea level) and to the west towards 10th Sideroad (elevation 255 to 256 m.a.s.l.) sloping down towards Lovers Creek wetland / tributaries (elevation 249 m.a.s.l.) that run across the central part of the 7th Line.

Pavement thickness ranged from 400 to 600 mm. A fill unit was observed to extended to 1.4 to 2.1 m depth (elevation 247.5 to 275.1 m.a.s.l.) beneath the pavement structure in all boreholes. The fill was comprised of sand / silty sand / sandy silt, with trace gravel and trace clay.

A local amorphous peat layer with trace sand was encountered below the fill in the low-lying central part of the site, extending to 2.1 to 2.9 m (elevation 246.7 to 248.9 m.a.s.l.).

Below the fill and peat, a sand unit extended from 2.9 and 4.0 m depth (elevation 253.6 and 245.6 m.a.s.l.) to the 5.0 to 6.6 m depth of exploration in boreholes at the west end of the Study Area. The unit comprised sand with trace to some silt and trace gravel, grading to silty sand with silt and sand till deposit below the silty sand unit. A silt and sand till deposit was encountered below the fill unit in boreholes at the east end of the Study Area to a depth of 4.0 m to the 5.0 m depth of exploration (elevation 249.6 to 272.5 m.a.s.l.). A lower sand unit was encountered below the till in boreholes at the east end of the Study Area to the 5.0 m depth of exploration.

Groundwater was encountered at a depth ranging from 1.5 to 4.6 m below ground surface (elevation 248.2 to 270.0 m.a.s.l.). Monitoring wells were installed in three of the boreholes to permit groundwater level monitoring and sampling. The stabilized ground water table for July ranged from 1.4 to 1.7 m below existing grade (elevation 247.9 to 273.1 m.a.s.l.). There also appears to be artesian pressure in the lower sand in the east end of the Study Area.

October 2019

A limited chemical testing program was carried out to assess the geoenvironmental quality of the soil at selected sampling locations and groundwater in the wells, in order to provide comments regarding on-site reuse or off-site disposal options for excess excavated soil.

It was noted that the Sodium Absorption Ratio, concentration of Molybdenum and Petroleum Hydrocarbons (F3 and F4 fractions) in the soil samples collected from the west end of the Study Area exceeded the criteria of Table 1: Full Depth Background Site Condition Standards (SCS) of the O. Reg. 153/04, as amended, Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act* (EPA) dated April 15, 2011, considered applicable to the Study Area. The impacted material should be delineated with further soil sampling and chemical testing. All excess excavated material from the vicinity of the impacted soil shall be disposed at a receiving site where SCS comply with applicable O.Reg.153/04 criteria.

The concentration of the tested parameters in the submitted water samples were either not detected (below the method detection limit) or were within the applicable Table 1 Full Depth Background SCSs, with the exception of Petroleum Hydrocarbons (F3 fraction) in a sample from the central Study Area.

2.2.4 Hydrogeological

The hydrogeological field work was completed on July 26, 30 and 31, 2018, and included obtaining groundwater levels from all three monitoring wells and conducting three field permeability tests (slug tests) to determine the in-situ hydraulic conductivity. Water samples were collected from all three wells. The groundwater flow direction is inferred to be towards the center of the Study Area from both the east and west.

A search of Ontario MECP Water Well Records within a 250 m radius of the Study Area identified 19 well records. The records indicated that the wells were predominantly for domestic water use. One of the records indicated the well was for public water supply. The wells were drilled from 1959 to 2006. It is not known how many of these wells remain in use.

The wells typically ranged in depth from 4.6 to 59.4 m below the ground surface with fresh water encountered typically within this range. The wells were developed in layers of sand, gravel and clay. One of the well records indicated that bedrock was encountered at a depth of 156.4 m below ground surface. The bedrock comprised in limestone.

October 2019

2.2.5 Drainage and Surface Water Flow

The 7th Line crosses through a PSW as evaluated Ministry of Natural Resources and Forestry (MNRF) known as Lovers Creek Swamp. The evaluated wetland starts about 200 m east of the 10th Sideroad and continues about 2 km east.

Lovers Creek and its tributaries cross the 7th Line between the 10th Line and Yonge Street at three locations.

Surface drainage is to Lovers Creek and its tributaries, then flows to the north and / or east towards Lake Simcoe.

The Study Area is located within the Lake Simcoe Region Conservation Authority (LSRCA) watershed and nearly the entire Study Area is within the LSRCA regulated area.

2.2.6 Stormwater

Existing stormwater features within the Study Area are limited to conveyance features including roadside ditches, driveway culverts and road-crossing culverts. The tributary drainage area is not serviced by existing stormwater management facilities for quality or quantity control.

Portions of the road have been subject to erosion due to the close proximity of the existing watercourse to the road. This condition is currently repaired by the Town on an on-going reactionary basis. Roadside ditches are also not well defined in some areas.

2.2.7 Existing Traffic

Automated Traffic Recorder (ATR) counts were conducted for a continuous seven-day period between June 18 and June 24, 2018 at two locations along the study corridor to determine existing traffic volumes, vehicle classifications and speeds. Based on the results of the ATR counts, the average speeds within each section are at or near the posted speed limits (80 km/hr in the west end and 50 km/hr in the east end of the study corridor). The 85th percentile speeds are an average of 13 km/h above the posted speed (93 km/hr in the west end, 63 km/hr in the east end).

Typically, it is recommended that posted speeds be lower than the design speeds, assumed to be the 85th percentile speed. The existing horizontal and vertical geometry would warrant a 20 to 30 km/h posted speed. The road is currently built for speeds lower than the posted and operating speeds.

October 2019

The availability of historical traffic data for the Study Area is relatively limited. The Town provided daily traffic volumes from 2012, 2013, and 2014 count data. This information, together with, information from previous Road Needs Studies was reviewed and is summarized in Table 2. It is noted that the volumes counted in 2018 represent the interim road closure condition (local traffic only) that was in place at the time of the count in June 2018, and, therefore the results are not representative of normal operations.

Table 2: 7th Line Daily Traffic Volumes Data

Year	Data Source	Daily Traffic Volume
2008-2012	Town Road Needs Study Data	300-500
2012	Town of Innisfil Count	1352
2013	Town of Innisfil Count	1208
2014	Town of Innisfil Count	1299
2018	Burnside (Ontario Traffic Inc.)	445 (during interim road closure)

In addition to the ATR traffic counts taken on 7th Line, turning movement counts were undertaken at both Study Area intersections on June 18, 2018. Based on the results, the 7th Line and 10th Sideroad intersection operates well during both the a.m. and p.m. peak hours. At 7th Line and Yonge Street, the a.m. peak hour operations are good, but the p.m. peak hour shows that the eastbound movement experiences longer delay (level of service E). Since the analysis was based on traffic volumes during the interim road closure, it is expected that this delay would be even longer if the road were open to all traffic.

A review of the a.m. and p.m. peak hour videos indicates that even during the interim road closure over 55% of the traffic on 7th Line in the Study Area was through traffic, and it can be assumed that that percentage would be much higher when the road was open.

The general opinion among Town staff and local residents seems to be that people use 7th Line to avoid the traffic on Innisfil Beach Road (County Road 21) to the north as much as possible. The significant reduction in traffic volume in 2018 during the interim road closure, when access was restricted to local traffic only, compared with the traffic volume from 2014 appears to confirm this theory.

2.2.8 Utilities

Existing utility information and markups were requested from HydroOne, InnPower, Bell Canada, Rogers Communications, Enbridge Gas and InnServices (via the Town of Innisfil GID records). Information from the various utility providers was obtained in February and March of 2019. This information is summarized below.

October 2019

Electricity - Transmission

Provider: Hydro One Networks Inc.

There is one overhead Hydro One transmission line crossing 7th Line, 67 m east of 10th Sideroad. The towers are located more than 100 m from the existing ROW.

No Hydro relocation is anticipated.

Electricity- Local

Provider: InnPower

There are overhead InnPower lines and poles north and south of the roadway within the ROW. Hydro poles are located on the south side from 10th Sideroad to 2747 7th Line. There are no utility poles between No. 2747 7th Line and No. 2592 7th Line. Hydro poles are located on the North side of the road from # 2593 7th Line to Yonge Street.

Communications

Provider: Bell Canada

There are underground bell lines located along the south side of the roadway within the ROW starting 1.38 km east of 10th Sideroad.

Potential relocation of the utility based on widening of the structure and roadway will be explored further in the Preliminary Design Options.

Provider: Rogers Communications

There are no underground or overhead Rogers located within the ROW of 7th Line.

There is an underground Rogers located on County Road 4 which crosses the 7th Line at the intersection

No underground Rogers relocation is anticipated.

Gas

Provider: Enbridge

There are no underground Gas main located within the ROW of 7th Line.

There is an underground Gas main located on the west side of County Road 4.

October 2019

No underground gas relocation is required.

Municipal Water and Sanitary

Provider: InnServices

No water or sanitary sewer services are located within the Study area.

2.3 Natural Environment

Below is a review and summary of the natural environment for the 7th Line with regards to terrestrial and aquatic features and habitat conditions based on studies completed in support of the MCEA. For additional information on the natural environment, supporting studies are provided in Appendix A.

2.3.1 Physiography and Topography

The Study Area is located within the Peterborough Drumlin Field Physiographic Region. This Physiographic region is an area of shallow overburden on limestone containing approximately 3,000 drumlins and numerous other drumlinoid hills and surface fluting of the till. Like much of the Peterborough Drumlin Field Physiographic Region, the Study Area is located in a Drumlinized Till Plains Physiographic Landform, with drumlins located to the north east at Yonge Street and Innisfil Beach Road (Chapman and Putnam, 1984 and 2007).

The Study Area has an undulating topography with both Yonge Street and 10th Sideroad at a higher elevation (approximately 280 m.a.s.l. and 259 m.a.s.l., respectively) than the wide flat expanse of the large wetlands in the centre of the Study Area (approximately 250 m.a.s.l.).

2.3.2 Geology

Bedrock below the overburden is mapped as limestone, dolostone, shale, arkose, and sand stone of the Simcoe Group, Shadow Lake Formation from the Middle Ordovician period of the Paleozoic era of the Phanerozoic eon (OGSEarth). Bedrock is at about 150 to 160 m depth based on MECP well records.

Regional overburden mapping shows the soil at the site and immediate surrounding area comprises Newmarket Till (Pleistocene period) comprising sandy silt to silt sediments with high carbonate and clast content (OGSEarth).

October 2019

2.3.3 Climate

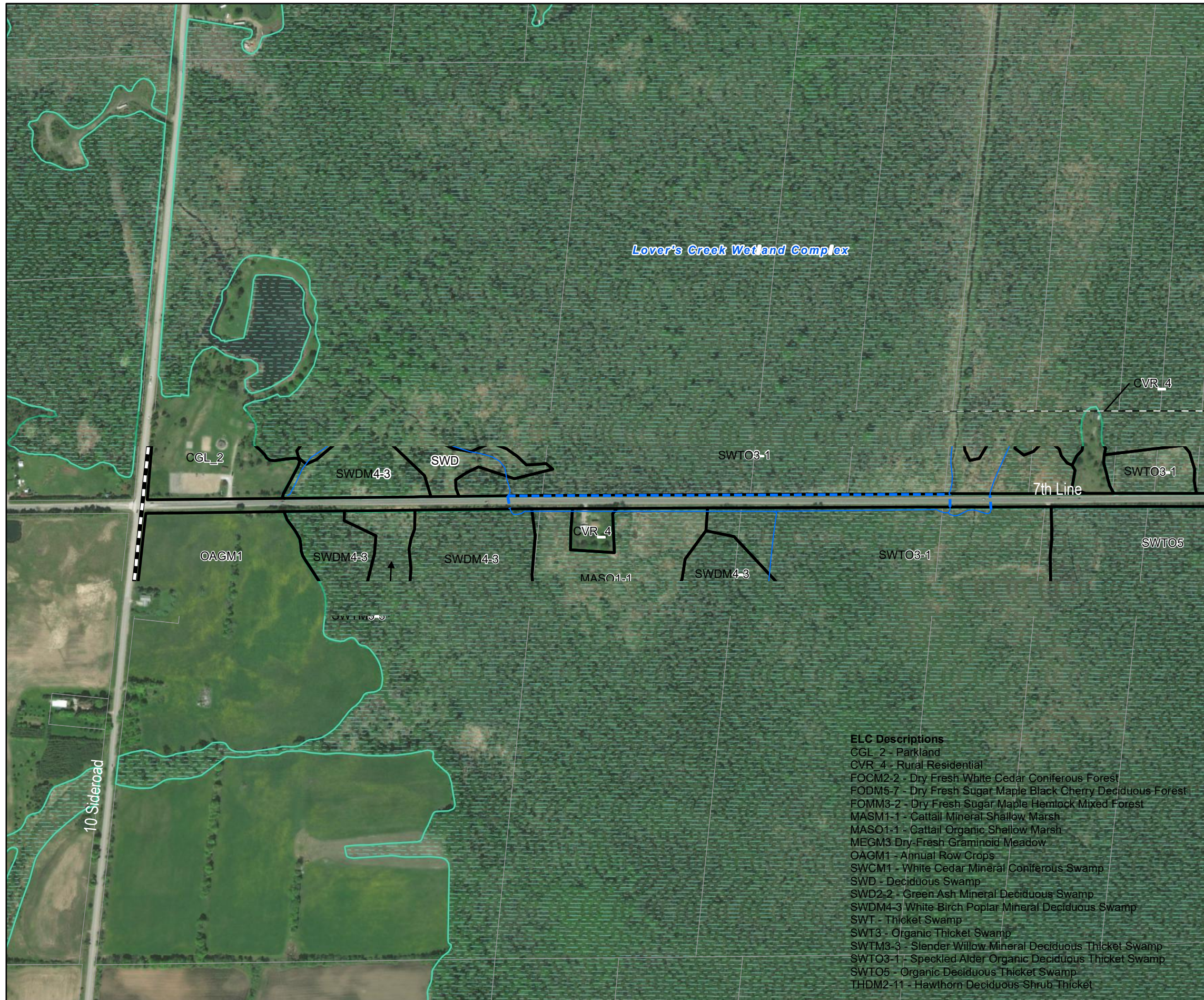
The Town of Innisfil has a humid continental climate characterized with warm and humid summers and cool winters. Local climate conditions were obtained from Environment and Climate Change Canada's Cookstown meteorological station (Station ID 6111859, Latitude 44°12'24.042" N, 79°41'41.088" W). The Cookstown air monitoring station is located about 10 km south west of the Study Area in Innisfil. According to the Canadian Climate Normals (calendar years 1981 to 2010) for this station, the mean annual temperature is estimated at 6.5°C. The warmest month of the year is July with an average temperature of 19.7°C and the coldest month is January with an average temperature of -7.9°C. The Cookstown meteorological station recorded a total average annual precipitation (snow and rain) of 826 mm, 664 mm of which was rain. Precipitation is distributed throughout the year, with most of the rain occurring between April and November. The maximum mean monthly rainfall is 81.1 mm and occurs in September.

2.3.4 Terrestrial Habitat

The 7th Line Study Area is located within a predominantly rural area, characterized by rural residential properties, agricultural land uses and natural areas consisting of upland forest and wetlands, with the west end of the Study Area passing through the Lovers Creek PSW. This PSW Complex is defined as a 1026.09 ha area complex of marshes and swamps extending from north of Big Bay Point Road in the City of Barrie (Barrie) to south of 6th Line in Innisfil and from Highway 400 in the west, to east of Yonge Street.

Vegetation communities in the Study Area were assessed and described using the Ecological Land Classification (ELC) System for Southern Ontario (Figure 2). A total of 17 vegetation communities were identified. The majority of the Study Area is swamp and marsh, with upland areas of forest. Cultural features are limited to the residential and agricultural areas near Yonge Street and 10th Sideroad.

Although not observed in the Study Area during field investigations, the Lovers Creek Provincially Significant Wetland Complex Evaluation (MNR 2010) indicates rare plant species are present within the wetland complex.



Lover's Creek Wetland Complex


7th Line


10 Sideroad


- ELC Descriptions**
- CGL_2 - Parkland
 - CVR_4 - Rural Residential
 - FOCM2-2 - Dry Fresh White Cedar Coniferous Forest
 - FODM5-7 - Dry Fresh Sugar Maple Black Cherry Deciduous Forest
 - FOMM3-2 - Dry Fresh Sugar Maple Hemlock Mixed Forest
 - MASM1-1 - Cattail Mineral Shallow Marsh
 - MASO1-1 - Cattail Organic Shallow Marsh
 - MEGM3 - Dry-Fresh Graminoid Meadow
 - OAGM1 - Annual Row Crops
 - SWCM1 - White Cedar Mineral Coniferous Swamp
 - SWD - Deciduous Swamp
 - SWD2-2 - Green Ash Mineral Deciduous Swamp
 - SWDM4-3 - White Birch Poplar Mineral Deciduous Swamp
 - SWT - Thicket Swamp
 - SWT3 - Organic Thicket Swamp
 - SWTM3-3 - Slender Willow Mineral Deciduous Thicket Swamp
 - SWTO3-1 - Speckled Alder Organic Deciduous Thicket Swamp
 - SWTO5 - Organic Deciduous Thicket Swamp
 - THDM2-11 - Hawthorn Deciduous Shrub Thicket

— Watercourse: Permanent

- - - Observed Watercourse Alignment

 Lover's Creek Provincially Significant Wetland Complex

 ELC Polygon

 ELC Study Area


Sources:

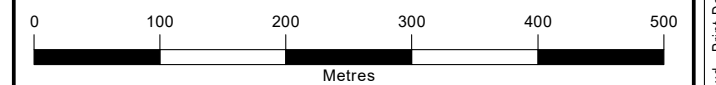
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3. Town of Innisfil.
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Datum: North American 1983		 Grid North
Coord. System: NAD 1983 UTM Zone 17N		
Projection: Transverse Mercator		
Central Meridian: 81°0'0.00"W		
False Easting: 500,000m	False Northing: 0m	
Rotation: 342.2	Scale Factor: 0.99960	



Client

TOWN OF INNISFIL

Figure Title

7TH LINE EA

ECOLOGICAL LAND CLASSIFICATION

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October 2019

Several mammals, amphibians, reptiles, insects and bird species have the potential to be located within the Study Area based on appropriate habitat available in wooded areas and wetland features.

General wildlife surveys were conducted on July 18 and 19, 2018 concurrent with a vegetation survey and ELC by a wandering transect of general coverage of the Study Area, recording all species observations and signs (e.g., tracks / trails, scat, burrows, dens, browse, vocalizations). Amphibian surveys were conducted between April 24, 2018 and June 26, 2018. Incidental wildlife observations during amphibian surveys, tree inventory, and aquatics surveys were recorded. Table 3 illustrates the wildlife species observed, or evidence of their presence was observed in the Study Area, during the ecological field surveys:

Table 3: Wildlife Species Observed

Wildlife Species Observed
Mammals
<ul style="list-style-type: none"> • Muskrat (<i>Ondatra zibethicus</i>), • <i>Mustela</i> sp. (decayed roadkill), • Eastern Grey Squirrel (<i>Sciurus carolinensis</i>) • Bat sp.
Reptiles
<ul style="list-style-type: none"> • Snapping Turtle (<i>Chelydra serpentina</i>),
Insects
<ul style="list-style-type: none"> • Monarch (<i>Danaus plexippus</i>) • Eastern Tiger Swallowtail (<i>Papilio glaucus</i>) • Fireflies (<i>Lampyridae</i>) • Cicada (<i>Cicadidae</i>) • Bees (<i>Anthophila</i>) • Flies (<i>Diptera</i>)
Amphibians
<ul style="list-style-type: none"> • American Toad (<i>Anaxyrus americanus</i>) • Spring Peeper (<i>Pseudacris crucifer</i>) • Western Chorus Frog (<i>Pseudacris triseriata</i>) • Green Frog (<i>Lithobates clamitans</i>) • Northern Leopard Frog (<i>Lithobates pipiens</i>)
Birds
<ul style="list-style-type: none"> • Eastern Wood-pewee (<i>Contopus virens</i>) • Red-winged Blackbird (<i>Agelaius phoeniceus</i>) • Yellow-rumped Warbler (<i>Setophaga coronata</i>) • Downy Woodpecker (<i>Picoides pubescens</i>)

October 2019

Wildlife Species Observed
<ul style="list-style-type: none"> • American Crow (<i>Corvus brachyrhynchos</i>) • Black Capped Chickadee (<i>Poecile atricapillus</i>) • White-throated Sparrow (<i>Zonotrichia albicollis</i>) • Veery (<i>Catharus fuscescens</i>) • Red-tailed Hawk (<i>Buteo jamaicensis</i>) • Gray Catbird (<i>Dumetella carolinensis</i>) • Mourning Dove (<i>Zenaida macroura</i>) • Barn Swallow (<i>Hirundo rustica</i>) • Cedar Waxwing (<i>Bombycilla cedrorum</i>) • American Goldfinch (<i>Spinus tristis</i>) • Chipping Sparrow (<i>Spizella passerina</i>) • Woodcock (<i>Scolopax minor</i>) • Cliff Swallow (<i>Petrochelidon pyrrhonota</i>)

2.3.5 Tree Inventory

Burnside ISA Certified Arborists undertook a review of the trees within the Study Area in July and August of 2018 which was comprised of the trees within the existing road ROW with a 10 cm Diameter at Breast Height (DBH) and greater and on lands immediately adjacent within the Study Area of the 7th Line from the 10th Side Road to Yonge Street.

White cedar (*Thuja occidentalis*) is the dominant species overall in the Study Area, representing over one third of the total individually assessed trees and all of the grouped trees. Other tree species well-represented in the Study Area include Green Ash (*Fraxinus pennsylvanica*), Sugar Maple (*Acer saccharum*) and Trembling Aspen (*Populus tremuloides*).

Trees are found within a mix of vegetation communities within the Study Area including hedgerows, forests, swamps, and thickets. These vegetation communities are mapped and further discussed in the Terrestrial Habitat Assessment Report (Appendix A).

Trees are densely clustered in the easterly limit of the ROW, in the area identified by local residents as the 'Tunnel of Trees'. Little management (i.e., tree removals and branch pruning) of trees in this area has occurred resulting in dense spacing with crowns extending across the road. White Cedar is the main species growing within this portion of the Study Area. Light suppression is the main factor affecting the condition of the White Cedar and other trees within the 'Tunnel of Trees' due to their dense growth. Emerald Ash Borer (*Agrilus planipennis*) is the significant factor associated with diminished Green, Black and White Ash condition throughout many parts of the corridor.

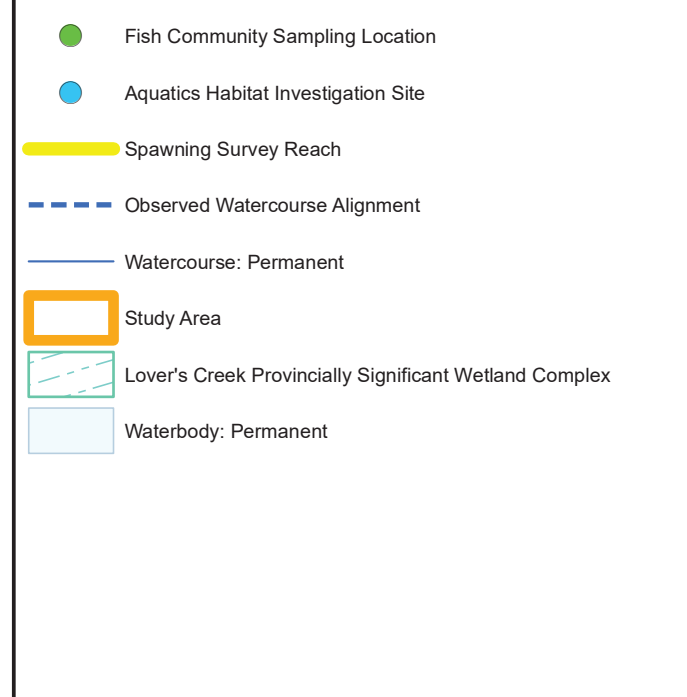
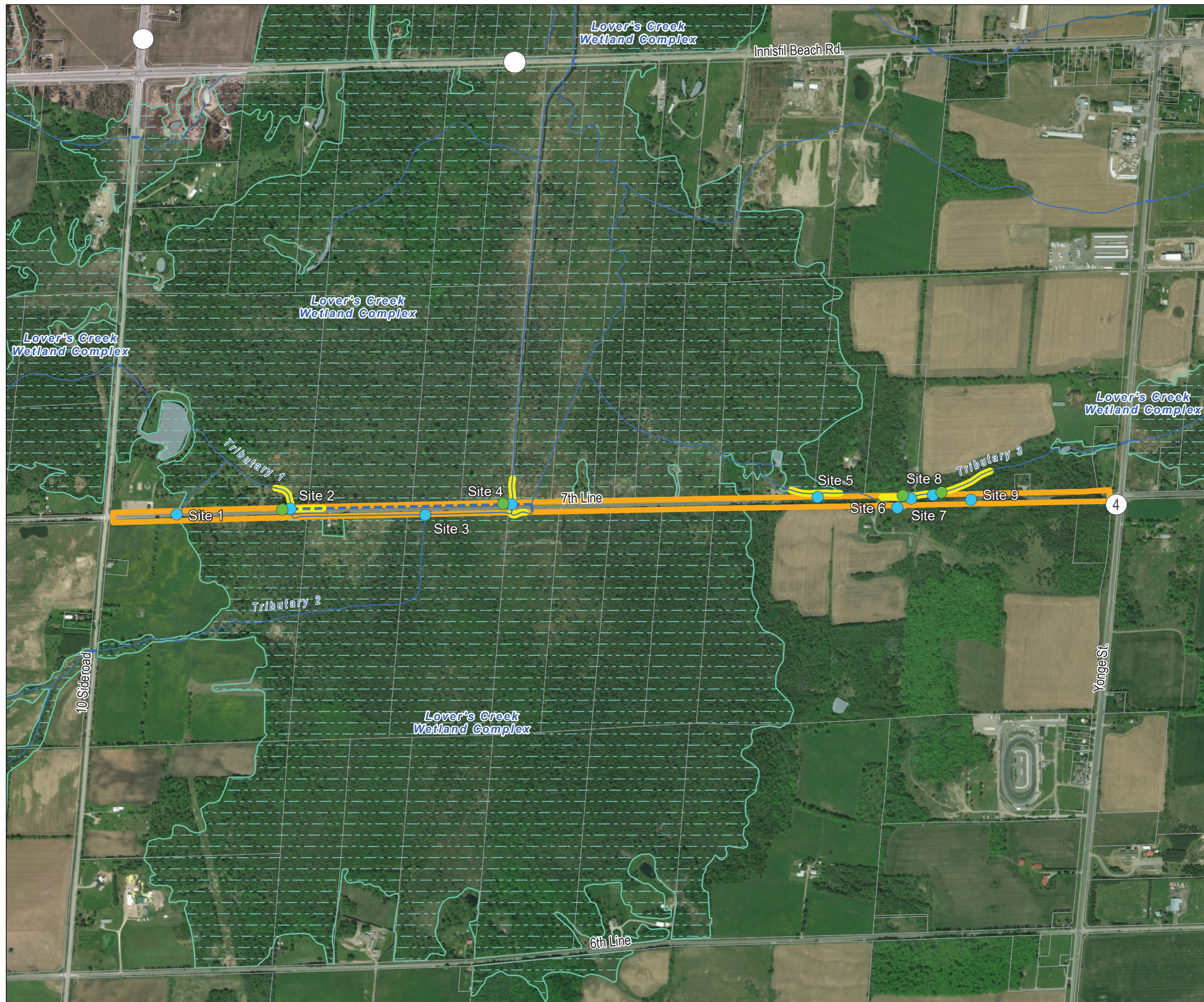
October 2019

A total of 1,348 trees, comprised of 762 surveyed trees and 586 GPS located trees, were individually inventoried and assessed within the Study Area.

2.3.6 Aquatic Habitat

The Study Area is located within the headwaters of Lovers Creek, a tributary to Lake Simcoe. The 7th Line bisects the Lovers Creek PSW that spans approximately two-thirds of the Study Area between the 10th Sideroad to Yonge Street and contains up to four watercourses within the vicinity of the Study Area, with a series of intermittent and ephemeral systems that contribute to the Lovers Creek subwatershed.

Watercourses considered both “direct” and “indirect” fish habitat are present within the Study Area and are protected under the *Fisheries Act*. The northwestern tributary, Tributary 1, is mapped as crossing 7th Line from north to south, then flowing parallel to 7th Line along the south side of the road for approximately 660 m before crossing 7th Line again northward towards Innisfil Beach Road. The southwestern tributary, Tributary 2, enters the Study Area from the southwest, then empties into the PSW Complex of the Study Area, before joining together with Tributary 1 on the south side of 7th Line, approximately 900 m east of the 10th Sideroad. The eastern tributary, Tributary 3, enters the Study Area from the east and meanders through a wooded area flowing parallel to the 7th Line along the north side of the road for approximately 800 m before turning further north to confluence with Tributary 1 and Tributary 2 between the 7th Line and Innisfil Beach Road (Figure 3). Tributary 1 and 2 are both mapped by the LSRCA as having coldwater thermal regimes. Tributary 3 is mapped as having an unknown thermal regime. Sampling results and point temperature data would suggest that thermal mapping could be updated to reflect the presence of coldwater species in Tributary 3.



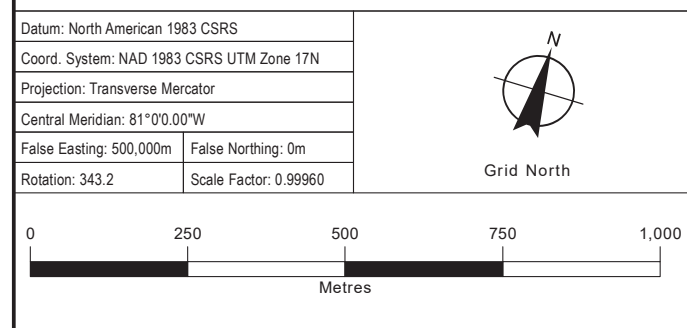
Sources:

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Figure Title

7TH LINE EA
AQUATIC HABITAT INVESTIGATIONS AND FISH COMMUNITY SAMPLING SITES

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HN	CJ	2018/11/21	
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October 2019

A combination of desktop and aerial imagery review, coupled with field investigations were utilized to determine fish and fish habitat that may be impacted by the proposed works. Investigations were conducted at culverts and meander bends within the existing road ROW that may be utilized by fish and potentially impacted by proposed works.

A total of nine survey Sites within the three main tributaries of the Study Area were established. The collection of channel morphology data and characteristics were completed at each Site during the field investigations. Fish community data available within the 2012 Subwatershed Plan for Barrie Creeks, Lovers Creek and Hewitt's Creek was reviewed. The Subwatershed Plan included fish community data collected by LSRCA in 2010 for the immediate vicinity of the Study Area. Supplemental sampling was conducted by Burnside to monitor reach utilization in the Study Area, particularly for sensitive species such as Brook Trout. Capture results yielded a representative community list which corroborated data available in the Subwatershed Plan (LSRCA, 2012) and within the Aquatic Resource Area (ARA) sampling database.

A total of 114 fish were captured after 812 seconds of electrofishing effort over four Sites and two watercourses. Fish density was highest in Tributary 1 (Sites 2 and 4) with fish species comprising of ubiquitous cyprinid species. Schools of baitfish were readily observed utilizing pool features and undercut banks throughout the downstream extent of Site 2 and within Site 4. Site 7 and Site 8 yielded lower volumes of fish but contained both cold water species (i.e., Brook Trout) and cool / warm water species (i.e., Central Mudminnow). These reaches contained a lower density of habitat utilized by fish with long areas of low productivity (i.e., shallow cobble riffles) which are likely used as migratory routes between preferred habitat (i.e., pools).

Table 4 provides a summary of the results of the fish community sampling within the Study Area. Sampling was not conducted at Site 1, Site 3, and Site 9 due to a lack of water; or Site 5 and Site 6 due to access limitations.

October 2019

Table 4: Fish Community Sampling Results (August 2, 2018)

Location	Common Name	Scientific Name	No. Captured
Site 2	Northern Redbelly Dace	<i>Chrosomus eos</i>	4
	Creek Chub	<i>Semotilus atromaculatus</i>	12
	Central Mudminnow	<i>Umbra limi</i>	15
Site 4	Northern Redbelly Dace	<i>Chrosomus eos</i>	4
	Creek Chub	<i>Semotilus atromaculatus</i>	22
	Central Mudminnow	<i>Umbra limi</i>	31
	Brook Stickleback	<i>Culaea inconstans</i>	1
	Cyprinid sp. ¹	<i>Cyprinidae</i>	13
Site 7	Brook Trout	<i>Salvelinus fontinalis</i>	2
	Central Mudminnow	<i>Umbra limi</i>	2
Site 8	Brook Trout	<i>Salvelinus fontinalis</i>	4
	Central Mudminnow	<i>Umbra limi</i>	4

¹Young of the year (YOY) Cyprinid species less than 20 mm

Overall, the four sampling Sites provided good fish habitat throughout their reaches. Tributary 1 provides high quality cyprinid habitat with low velocity and abundant cover to support a healthy population of baitfish. Conversely, Tributary 3 primarily consists of a narrower, confined channel structure with coarse substrates and moderate flow which supports a lower density fish population, including Brook Trout.

Supplemental spawning investigations were conducted in early November 2018 to document reach utilization by spawning Brook Trout at Site 2, Site 4, Site 7, and Site 8 where suitable habitat, substrates and groundwater indicators (i.e., Watercress) were observed during the initial aquatics assessment. No evidence of spawning activity (i.e., redds, test dig sites, or disturbed substrates) were observed as a result of fish activity throughout the investigation.

2.3.7 Significant Wildlife Habitat

The identification and evaluation of Significant Wildlife Habitat (SWH) is undertaken at the local planning level. Neither the Town nor the County have explicitly identified the locations of SWH in their Official Plans. The MNRF has provided information about SWH as it relates to Deer Wintering Areas in the Study Area. Determination of SWH is broadly categorized and described in the Natural Heritage Reference Manual (MNR 2010). The MNRF's Significant Wildlife Habitat Technical Guide (MNR, 2000) and Significant Wildlife Habitat Criteria Schedule for Eco-regions 6E (MNRF, 2015) are additional supplemental documents intended to assist in identifying SWH. The four categories of SWH are identified as:

- Habitats of seasonal concentrations of animals.
- Rare vegetation communities or specialized habitat for wildlife.

October 2019

- Habitat of species of conservation concern.
- Animal movement corridors.

The presence of SWH, within and adjacent to the Study Area, was evaluated based on results of field investigations. Based on this evaluation, it was confirmed that SWH for the following is present in the Study Area:

- Deer Yarding Areas - Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF.
- Deer Winter Congregation Areas - Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF.
- Turtle Nesting Areas – Nesting Snapping Turtle was observed during field surveys.
- Special Concern and Rare Wildlife Species – Confirmed breeding habitat for Monarch, Eastern Wood-pewee and Snapping Turtle was observed during field surveys.
- Deer Movement Corridors – Stratum 1 and Stratum 2 Deer Wintering Areas were confirmed present by the MNRF.

Based on the results of the amphibian breeding call survey, the lands within, and adjacent to the 7th Line ROW, do not meet the criteria for SWH in Eco-region 6E for Amphibian Breeding Habitat in woodlands or wetlands, respectively.

There is potential (unconfirmed) for SWH for the following in the Study Area:

- Bat Maternity Colonies – Unconfirmed. Taxon specific surveys would be required to confirm.
- Turtle Wintering Areas – Unconfirmed. Taxon specific surveys would be required to confirm.
- Area Sensitive Birds – Unconfirmed. The Atlas of Breeding Birds of Ontario had observations of area sensitive birds in the two 10 km squares encompassing the Study Area. Veery was the only area sensitive bird species observed incidentally during field surveys.
- Woodland Raptor Nesting Habitat – Unconfirmed. Taxon specific surveys would be required to confirm.

2.3.8 Species at Risk

Several Species at Risk (SAR) were identified through background review to have the potential to be present in the Study Area. Species at Risk, Threatened and Endangered, are species listed as protected by law under the Provincial ESA (2007) or the federal SARA (2002). Special Concern species do not have species or habitat protection under Ontario's ESA (2007) or the federal SARA (2002), however, they may receive protection by some agencies, such as provincial and national parks, or other Acts, such as the *Ontario Fish and Wildlife Conservation Act*, and the *Migratory Birds Convention Act*

October 2019

(MBCA), which prohibits the killing, capturing, injuring, harassment and trapping of specially protected species.

Potential habitat exists in the Study Area for the following Special Concern species:

- Canada Warbler (*Cardellina canadensis*)
- Common Nighthawk (*Chordeiles minor*)
- Eastern Wood-peewee
- Olive-sided Flycatcher (*Contopus cooperi*)
- Wood Thrush (*Hylocichla mustelina*),
- Monarch
- Snapping Turtle

The following Special Concern species were observed within the Study Area during the field studies completed in 2018:

- Eastern Wood-pewee
- Monarch
- Snapping Turtle

A singing male Eastern Wood-peewee was observed in the central part of the Study Area, in the thicket swamp at the edge of the road ROW.

The open meadows and roadside contain Common Milkweed, and the open marsh areas contain Swamp Milkweed. Milkweed (*Asclepias spp.*) plants are the sole food source for Monarch caterpillars. Monarch were observed foraging on nectar producing flowers including on Milkweed plants.

Snapping Turtle (Special Concern, ESA 2007) was observed actively digging nests for egg laying in the loose gravels of the shoulder of 7th Line.

Potential habitat exists in the Study Area for the following Endangered or Threatened species protected under the Provincial ESA (2007):

- Barn Swallow (Threatened)
- Blanding's Turtle (*Emydoidea blandingii*) (Threatened)
- Little Brown Myotis (*Myotis lucifugus*) (Endangered)
- Northern Myotis (*Myotis septentrionalis*) (Endangered)
- Tri-colored Bat (*Perimyotis subflavus*) (Endangered)
- Butternut (*Juglans cinerea*) (Endangered)

October 2019

The following species of Endangered and Threatened species were observed within the Study Area during the field studies completed in 2018:

- Barn Swallow
- Butternut

Review of current data and field observations indicate no records of aquatic SAR, or critical habitat for aquatic SAR species in the vicinity of the Study Area.

A single Barn Swallow and nest was observed on the side of a structure in Centennial Park on the north side of 7th Line, at 7th Line and 10th Sideroad. Barn Swallow nests and habitat up to 200 m is protected under the description of General Habitat for this species. Category 1 habitat includes the nest, which are key to reproduction and have the lowest tolerance to alteration (MNR 2013). Nests are often reused from year to year, and sometimes support multiple broods within a year (Barclay 1988). Category 2 habitat includes the 5 m immediate environs of the nest, which represents the area defended by territorial male Barn Swallows during the breeding season. This habitat has moderate tolerance to alteration. Category 3 habitat includes the foraging habitat 5 m to 200 m from the nest. Activities in General Habitat for Barn Swallow can continue as long as the function of these areas is maintained, and individuals of the species are not killed, harmed, or harassed.

Appropriate habitat for Blanding's Turtle may be present in the Wetland habitats of the PSW. However, this species is known to travel great distances (>400 m) to get to overwintering sites and therefore may be observed in any of the natural areas in the Study Area, if present. Appropriate nesting habitat exists in the gravel shoulders of 7th Line in portions adjacent to wetland communities.

Butternut, an Endangered species under the Provincial *Endangered Species Act*, 2007 (ESA), was observed in the eastern end of the Study Area. A Butternut Health Assessment determined the presence of two Category 2 Butternut trees. A Category 2 tree is one that is not affected by Butternut Canker, or is affected by Butternut Canker but the degree to which it is affected is not too advanced and retaining the tree could support the protection or recovery of Butternut in the area in which the tree is located.

Potential bat roosting habitat may be present in the forested area of Deciduous Forests (FOD), Mixedwood Forests (FOM), Coniferous Forests (FOC), Deciduous Swamp (SWD), Coniferous Swamps (SWC) present within the Study Area. Two individuals were incidentally observed foraging over the 7th Line ROW during field surveys but could not be identified to species as a result of night field conditions.

October 2019

2.4 Cultural Environment

A review of existing planning and policy data was conducted to obtain secondary source information relating to the natural and social environment within the Study Area and to provide an overview of existing policy framework in the Study Area. A review and summary cultural and archaeological conditions is provided based on studies completed in support of the MCEA. For additional information on the cultural environment, supporting studies are provided in Appendix A.

2.4.1 Description of Land Use

The predominant land uses in the Study Area are Natural Environmental Area and Agricultural Area (Town of Innisfil Official Plan, OPA No. 1, Schedule B). Several single dwelling residential properties are located in the Study Area. There are no businesses directly within the Study Area. The permitted uses of the present land designations do not allow for commercial or industrial uses and are limited to uses that are pre-existing or facilitate agriculture and fish, forestry, wildlife and conservation management. Centennial park, at the west end of the Study Area, provides recreational opportunities to residents, including a pond and pavillion, a dog park and playground, as well as snowshoeing and childrens' camps in the summer, as popular activities (Places of Innisfil). The east end of the 7th line is located through an area of trees which overhang part of the road, locally known as the 'Tunnel of Trees' and appreciated for its scenic appeal.

2.4.2 Population Growth

According to Statistics Canada 2016 census, the population of the Town of Innisfil was estimated at approximately 35,566. From 2011 to 2016 the population increased by 11%, a significant degree of growth. This compares to the provincial average of 4.6% and the national average of 5.0%. According to the County of Simcoe Official Plan, the population of the Town of Innisfil is projected to be 56,000 by 2031. Important industries in the area include sales and services, trades and equipment operators and business and administration occupations. The area has been historically rural, with a strong tradition of agriculture, but growth in Barrie and the Greater Toronto Area (GTA) has meant greater residential development in the Town in recent years.

2.4.3 Agricultural Operations

The agricultural operations within the Study Area, located along 7th Line, produce mainly cash crops (based on air photo interpretation) with no signs of livestock operations. The Town has a historical record of agricultural beginnings, with mainly cash and specialty crops.

October 2019

2.4.4 Active Transportation

There is currently no provision for active transportation within the Study Area. The existing road is narrow with poor sightlines, discouraging walking, cycling and other forms of active transportation. From review of the TMP Update and the Town of Innisfil Trails Master Plan (November 2016) there are no proposed active transportation improvements for the Study Area.

It should be noted that the Trails Master Plan recommends that Centennial Park (at the corner of 7th Line and 10th Sideroad) be connected to the Towns trail network via a future multi-use trail on the 10th Sideroad. The Trails Master Plan also recommends parallel multi-use trails on both Innisfil Beach Road and the 6th Line.

2.4.5 Provincial Policy Statement

The 2014 Provincial Policy Statement (PPS) is the complimentary policy document to the *Planning Act*, issued under Section 3 of the *Planning Act*. The PPS is more than a set of individual policies. It is to be read in its entirety and the relevant policies are to be applied to each project. The language of each policy, including the Implementation and Interpretation policies, assists the Town in understanding how the policies are to be implemented.

The PPS states that municipal projects should be directed to existing settlement areas, create stronger and improved communities, and have little to no impact on the natural features of the area. In general, projects should have consideration for future needs to ensure the benefits of the project are far-reaching. There is no implied priority in the order in which the policies appear.

Section 1.6 of the PPS contains specific guidance on Infrastructure and Public Service Facilities:

“1.6.1 Infrastructure and public services facilities shall be provided in a coordinated, efficient and cost-effective manner that considers impacts from climate changes while accommodating projected needs.

Planning for infrastructure and public service facilities shall be coordinated and integrated with land use planning so that they are:

Financially viable over their life cycle, which may be demonstrated through asset management planning; and

Available to meet current and projected needs.

October 2019

1.6.3 Before consideration is given to developing new infrastructure and public service facilities:

a) The use of existing infrastructure and public service facilities should be optimized; and

b) Opportunities for adaptive re-use should be considered, wherever feasible."

There are other policies that are relevant to the assessment of the project, particularly 1.1.1 c., 1.1.3.4, 1.6.7.1, 1.6.8.4, 1.7.1.6 and the Natural Heritage and Water policies in Section 2.

Municipal projects that demonstrate little to no impact on the natural environment and create stronger communities can be completed in accordance with municipal policies.

2.4.6 Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe (2017) (GGH) is a Provincial Plan that directs how regional growth in the GGH is to be managed to the year 2041. The plan carries policies forward from the PPS, working to reduce development sprawl and providing direction in where intensification should take place. There are several provisions within the policy that are relevant to the 7th Line Improvements. Section 3.2.2. of the Growth Plan outlines the general provisions of Transportation for the Greater Golden Horseshoe. According to this policy, the transportation system within the GGH will be planned and managed to:

a) "Provide connectivity among transportation modes for moving people and moving goods;

b) Offer a balance of transportation choices that reduces reliance upon the automobile and promotes transit and active transportation."

Section 4 of the Growth Plan details the protection of natural features within the GGH. Within the Natural Heritage System:

iii) "the removal of other natural features, not identified as key natural heritage features and key hydrologic features is avoided, where possible. Such features should be incorporated into the planning and design of the proposed use wherever possible"

Climate change is also addressed in Section 4 of the Growth Plan. According to the Growth Plan, in planning to reduce Greenhouse Gas (GHG) emissions and address the impacts of climate change, municipalities are encouraged to:

October 2019

- a) *“develop strategies to reduce greenhouse gas emissions and improve resilience through the identification of vulnerabilities to climate change, land use planning, planning for infrastructure including transit and energy, green infrastructure, and low impact development, and the conservation objectives in policy 4.2.9.1”*

The potential improvements to 7th Line help address some of the larger themes of the Growth Plan by increasing connectivity locally within the Town with careful consideration of the Natural Heritage Features which are present in the Study Area.

2.4.7 County of Simcoe Regional Official Plan

The County of Simcoe Official Plan (OP) was prepared under the *Planning Act* R.S.O 1990 c.P. 13, as amended, (*Planning Act*) of the Province of Ontario. The County of Simcoe OP provides a policy context for land use planning taking into consideration the economic, social, and environmental impacts of land use and development decisions. The Study Area is largely comprised of Greenlands and Agricultural lands. Generally, development is not permitted within significant natural heritage features except in accordance with provincial and federal requirements. The agricultural land use designation works to protect the resource of prime agricultural lands and areas by minimizing competing uses.

The designations within the County of Simcoe OP prohibit significant development in the Study Area which may create competing land uses to agriculture.

2.4.8 Town of Innisfil Official Plan

The Study Area includes the land use designations of Natural Environmental and Agricultural Areas according to Schedule B - Land Use. The Natural Environmental land designation includes those natural heritage features considered significant at the provincial, regional or local level. Within the Agricultural Area designation, uses permitted are limited to agricultural uses, secondary agricultural uses, one single detached residence as an accessory use to an agricultural operation, garden suites, and other agricultural related uses which are compatible with and supportive of the agricultural community.

In conformance with the County of Simcoe OP, the Town of Innisfil Official Plan prohibits significant commercial or residential development in the Study Area. Projects that improve municipal infrastructure are permitted under the OP and are considered for approval individually.

October 2019

2.4.9 County of Simcoe, Transportation Master Plan Update (2014)

The Transportation Master Plan for the County of Simcoe was completed in 2008. Within this report, the Town is listed as projecting large growth numbers within the County in the near future, with road network connectivity a main priority in coming years. Today, the current population in the Simcoe Area (including Barrie and Orillia) is approximately 438,000 based on 2006 Census data. With the Places to Grow legislation, the province has designated that the total population in the County of Simcoe is projected to grow to a total 667,000 people by 2031. Development controls are in place in these lands in accordance with provincial policy and the *Planning Act*.

The County of Simcoe's Transportation Master Plan (County TMP) Update (October 2014) recommended that County Road 4 (Yonge Street) north of County Road 89 be widened to four lanes and include an off-road active transportation route by 2031. There were no road improvements identified for County Road 54 (10th Sideroad) in the County TMP.

Although not identified in the County's TMP Update, an MCEA was carried out in 2015 for the widening of Innisfil Beach Road (County Road 21) from County Road 27 to County Road 39 with the conclusion that it should be widened to four lanes. Construction of the widening is underway but will be phased through 2022.

2.4.10 Inspiring Innisfil 2020

Inspiring Innisfil 2020 is a Community Strategic Plan that was created after gathering feedback from residents over the course of a year. The Plan outlines an overarching vision and goals for the community. The Plan is based upon three goals:

- *Grow*: embracing a managed level of growth
- *Connect*: creating increased transportation opportunities
- *Sustain*: sustain infrastructure and promoting environmental sustainability

Improving the safety and connectivity of 7th Line helps to fulfill the above objectives of the Plan.

2.4.11 Town of Innisfil, Transportation Master Plan Update (2018)

The Town of Innisfil Transportation Master Plan Update (Town TMP Update) was completed in May 2018. The Town's TMP Update built on the previous 2013 TMP to plan for a longer-term horizon to the year 2041.

The following recommended improvements and timeframes are worth noting in relation to this study:

October 2019

- Multi-use trail recommended on 7th Line from Yonge Street to St. Johns Road (Short Term – before 2021);
- Reconstruction of 7th Line from 10th Sideroad to 20 Sideroad (Medium Term – 2022 to 2031), which includes the segment of 7th Line under consideration in this current study;
- Signalization of the 7th Line and Yonge Street intersection is recommended (Medium Term 2022 to 2031);
- Reconstruction of 6th Line from County Road 53 to 20th Sideroad (Long Term – Beyond 2031).

It is also noted that the Town's TMP Update recommended upgrading 7th Line, east of Yonge Street, from a Major Collector to an Arterial Road classification, and that change was included in the new Town OP in 2018. The 6th Line has also been upgraded to an Arterial Road classification.

2.4.12 6th Line Environmental Assessment

In 2016, HDR completed the 6th Line MCEA for transportation improvements to 6th Line from St. John's Road to County Road 27 to support traffic growth from development in the surrounding area. As part of this MCEA, HDR utilized a detailed travel demand model to forecast 2031 travel demand for 6th Line and the surrounding road network, which included 7th Line. Various road network improvement scenarios were analyzed, both including and excluding a potential new Highway 400 interchange at 6th Line. None of the scenarios resulted in increased traffic on 7th Line within the current Study Area and the following statement was made in the Needs Analysis: Travel Demand Forecasting Memo (Appendix L in the Environmental Study Report):

“It is noted that in the West of Yonge Street Screenline, 7th Line is projected to have very little demand since it does not cross Highway 400. Even though the roadway capacity is there in the screenline, very little traffic will use this road west of Yonge Street to divert away from congestion on Innisfil Beach Road and 6th Line.”

2.4.13 Fisheries Act

Section 35(1) of the *Fisheries Act* states:

“No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery.”

October 2019

For the purposes of this Act, serious harm to fish is the death of fish or any permanent alteration to, or destruction of, fish habitat (Section 2 (2)). The Department of Fisheries and Oceans (DFO) may authorize work that may result in serious harm to fish, subject to various conditions, appropriate mitigation and restoration.

2.4.14 Endangered Species Act

Under *the Endangered Species Act*, 2007, Section 9(1):

“No person shall, (a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario list as an extirpated, endangered or threatened species.”

Furthermore, according to Section 10(1):

“No person shall damage or destroy the habitat of, (a) a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species; or (b) a species that is listed on the Species at Risk in Ontario List as an extirpated species, if the species is prescribed by the regulations for the purpose of this clause.”

2.4.15 Migratory Bird Convention Act

The “incidental take” of migratory bird nests or the disturbance, destruction or taking of the nest of a migratory bird are prohibited under Section 6 of the Migratory Bird Regulations under the authority of the MBCA. Nests’ contents (eggs and young) are protected by virtue of the MBCA which has implications on development activities that might occur during the breeding season (Canadian Wildlife Service, July 2012).

2.4.16 Regulated Area

The Study Area is located within the Regulated Area of the LSRCA. *Ontario Regulation 179/06, Lake Simcoe Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* prohibits development or alterations within the jurisdiction of the LSRCA in Regulated Areas without the permission of the conservation authority.

2.4.17 Clean Water Act -Source Water Protection

As a result of the *Clean Water Act*, (O.Reg.287/07) communities in Ontario are required to develop Source Protection Plans in order to protect their municipal sources of drinking water. These plans identify risks to local drinking water sources and develop strategies to reduce or eliminate these risks. (<http://conservationontario.ca/conservation-authorities/source-water-protection/>, accessed January 2019).

October 2019

A review of the MECP, formerly MOECC, Source Water Protection Information Atlas indicates the Study Area is located within the Lake Simcoe and Couchiching/Black River Source Protection Area.

The Study Area is not located within a Wellhead Protection Area. The size of a Wellhead Protection Area is determined by how quickly water travels underground to the well, measured in years.

The Study Area is located within an Intake Protection Zone 3 with a vulnerability scoring area of 4 – 7.9. Intake protection zones is the area on the water and land surrounding a municipal surface water intake. The size of each zone is determined by how quickly water flows to the intake, in hours. Intake Protection Zone 3 is the area furthest away from the surface water intake (water would take more than 2 hours to travel) but where activities could still have an impact on water quality.

A portion of the Study Area, at the east limit of the PSW, is considered a Significant Ground Water Recharge Area with a score of 6. Significant Groundwater Recharge Areas of high vulnerability are assessed a vulnerability score of 6 out of 10, while moderate areas are scored 4 and low areas are scored 2. A recharge area is considered significant in areas where the highest volumes of groundwater infiltrate to help maintain the water level in an aquifer that supplies a drinking water system, including private wells (South Georgian Bay Lake Simcoe Source Protection Region, Approved Source Protection Plan).

The Study Area is located within a Highly Vulnerable Aquifer. A Highly Vulnerable Aquifer is one that is particularly susceptible to contamination because of either its location near the ground surface or because of the type of overlying geological materials. The aquifer vulnerability increases as the amount of protection provided by the overlying geological materials decreases.

The *Clean Water Act* defines a “prescribed threat” as “an activity or condition that adversely affects or has the potential to adversely affect the quality or quantity of any water that is or may be used as a source of drinking water and includes an activity or condition that is prescribed by source protection regulation as a drinking water threat.”. The Province has identified 22 activities that could pose a threat if they are present in vulnerable areas, (set out in Section 1.1 of O. Reg. 287/07, under the *Clean Water Act*). The activities that are outlined as part of the proposed project are not prescribed drinking water threats and are not anticipated to pose a risk to drinking water.

October 2019

2.4.18 Cultural Heritage

A Cultural Heritage Resource Assessment (CHRA) was completed for the Study Area in August 2018 and updated in March 2019. The CHRA determined that the Study Area has a rural land use history dating back to the early nineteenth century with one cultural heritage resource farmscape, located at 2399 7th Line.

A Stage 1 and Stage 2 Archaeological Assessment of the Study Area was completed in December 2018 and June 2019, respectively. The Archaeological Assessment concluded that the Study Area was found to have no archaeological potential. No further Archaeological Assessment was recommended.

2.4.19 Ambient Air Quality

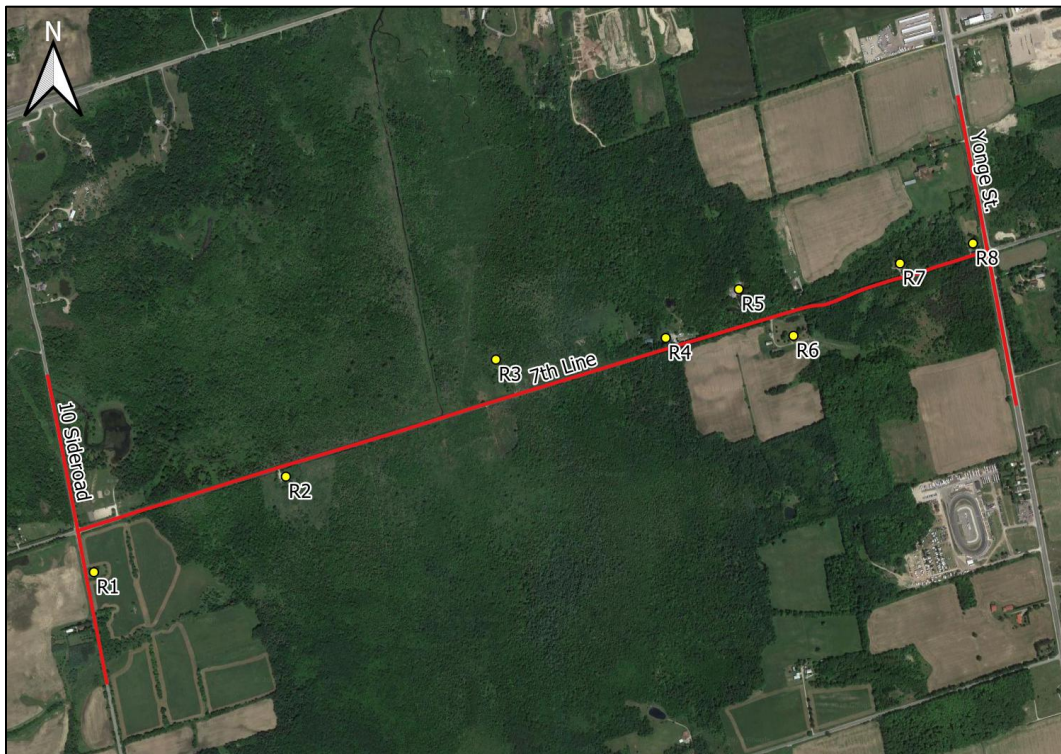
The MECP and National Air Pollution Surveillance (NAPS) Stations near the Study Area were reviewed to characterize the background air quality concentrations in the vicinity of the Study Area. MECP Barrie station was the nearest available station with the most recent data for PM_{2.5} and NO₂, while the nearest station with CO data was determined to be Toronto West. NAPS stations were Newmarket station for 1,3 butadiene and benzene and Junction Triangle Station in Toronto for acetaldehyde, acrolein, formaldehyde (2001-2005 data). Typical contaminants from automobile exhaust were evaluated including Particulate Matter (PM_{2.5} and PM₁₀), Total Suspended Particulates (TSP), Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), 1,3-butadiene, benzene, acrolein, acetaldehyde, and formaldehyde. Transportation related emissions are associated with fuel combustion, brake wear, tire wear, as well as re-suspended road dust. Ground level contaminant concentrations were predicted for three scenarios; current (2018) Scenario, including existing traffic volumes and existing roads, Future No Build (to 2038) Scenario, the projected 20 year future traffic volumes on existing roads without 7th Line road improvements, and Future Build (to 2038) Scenario, the projected 20 year future traffic volumes on roads in the Study Area with 7th Line road improvements. Predicted values were added to the existing background ambient concentrations. The resulting cumulative concentrations were compared to the applicable MECP criteria. The maximum impact of the current traffic including the amount contributed by the roads within the Study Area and background levels are below the applicable MECP criteria.

An Air Quality Impact Assessment (AQIA) was completed in May 2018 to assess whether the proposed 7th Line improvements will significantly change air quality in the Study Area.

October 2019

Residential properties are located on the north and south sides of the 7th Line. Eight residential properties were selected as representative sensitive receptors within the Study Area. All other receptors are expected to experience the same or smaller impact due to the proposed improvements. Figure 4 illustrates representative Air Sensitive Receptors within the Study Area.

Figure 4: Sensitive Receptors - Air



2.4.20 Noise

Based on aerial imagery there are twelve residential land uses near 7th Line that are considered to be noise-sensitive land uses. There are no institutional or commercial purpose sensitive land uses within the Study Area.

A Noise Study was completed to identify whether the proposed 7th Line improvements will significantly change noise levels within the Study Area and vicinity, and if any potential mitigation measures required.

Residential dwellings at 2747 and 2472 7th Line (POR02 and POR07) were determined to be the most sensitive points of reception and selected for quantitative analysis for the purpose of the Noise Assessment. These dwellings are the closest noise sensitive land uses to the 7th Line. The remainder of the buildings along the road corridor are the same distance or further from the road. Since the road noise decreases with the distance, all

October 2019

other dwellings would be expected to experience the same or lower sound levels than the selected representative receptors as a result of any proposed road improvements. Figure 5 illustrates all noise-sensitive receptors within the Study Area.

Figure 5: Sensitive Receptors - Noise



3.0 Municipal Class Environmental Assessment Planning Process

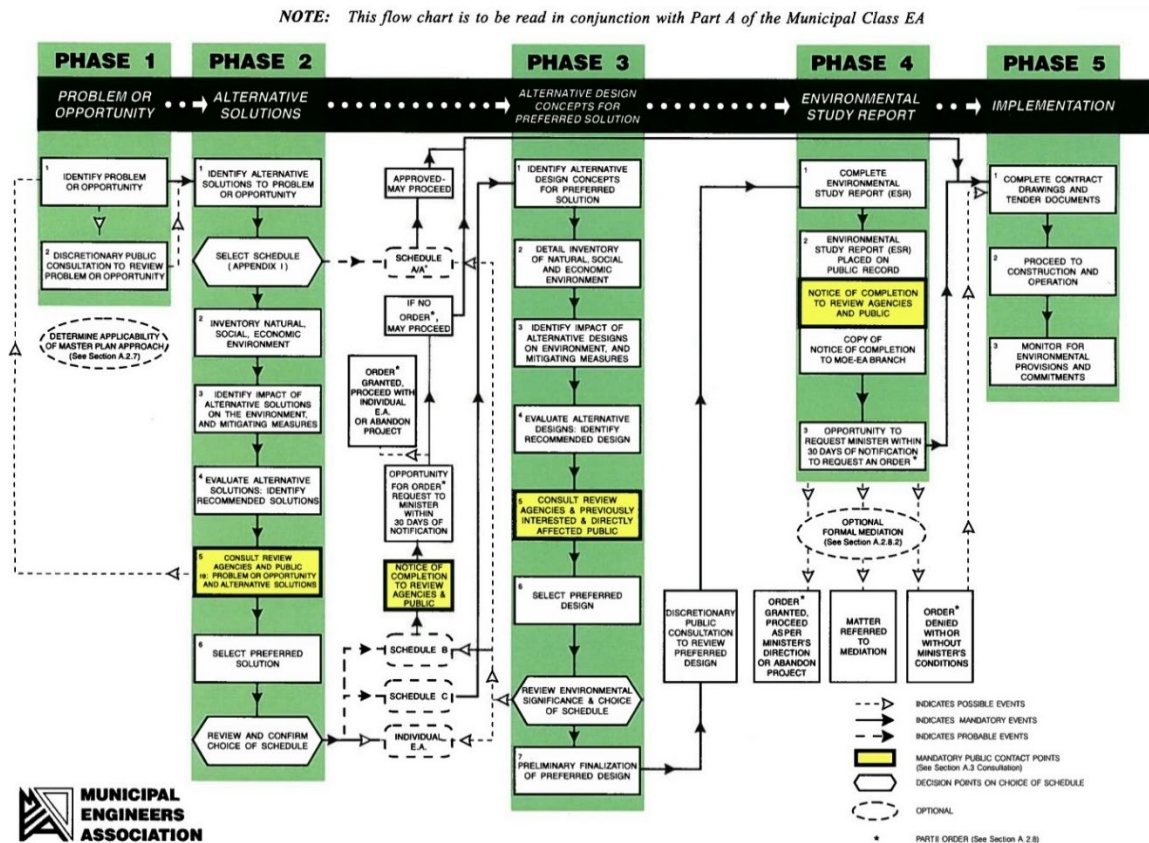
The planning of public sector projects or activities that have the potential for environmental effect is subject to an MCEA as required by Ontario's *Environmental Assessment Act*, R.S.O. 1990.

The MCEA process was developed by the Municipal Engineers Association (MEA), in consultation with the Ministry of the Environment (MOE), as an alternative method to Individual Environmental Assessments for recurring municipal projects that were similar in nature, usually limited in scale and with a predictable range of environmental impacts, which were responsive to mitigating measures. The MCEA solicits input from regulatory agencies, the municipality, Indigenous communities and the public at the local level. This process leads to an evaluation of the alternatives in view of the significance of the environmental effects, including the technical, natural, social/cultural and economic impact of a project, and the choice of effective mitigation measures.

Based on the description provided in the Municipal Engineering Association (MEA) Guide for Municipal Class EAs (2000, as amended in 2004, 2007, 2011 and 2015) for municipal road and infrastructure project activities, the alternatives being considered, and the presence of sensitive natural heritage features and the potential for environmental effect, it was determined that a Schedule 'C' MCEA with an ESR was appropriate for the undertaking of this investigation.

As a Schedule C project, project planning proceeds under the planning and documentation procedures of Phases 1 through 4 of the MCEA process (see Figure 6). Through this process, reasonable solutions identified are evaluated with input from agencies, Indigenous communities and stakeholders toward a recommendation for a preferred solution. As a minimum, public consultation is required at three stages under a Schedule C project. At the conclusion of Phase 4, the appropriate MCEA planning Schedule is confirmed and, if there are no outstanding concerns, the proponent may proceed to design and implementation.

Figure 6: Municipal Class Environmental Assessment Process Flow Chart



Phase 1 - Problem Identification

In Phase 1 of the MCEA process, the objective is to identify the problem or opportunity that the MCEA process is meant to resolve or take advantage.

The Problem/Opportunity Statement for this project has been defined as follows:

October 2019

"Following the completion of the Transportation Master Plan update (2018), the Town of Innisfil has identified the need to consider options for improvement to the 7th Line from Yonge Street to 10th Sideroad to address the road surface, road base, erosion control, drainage deficiencies, road side encroachment and associated safety risks for the continued use and maintenance of the road."

3.1 Phase 2 – Identification and Evaluation of Alternative Solutions

Phase 2 of the MCEA process requires that a municipal proponent (the Town) identify and evaluate alternative solutions to the Problem/Opportunity Statement, assessing the impact of the solutions on the general condition of the natural, social/cultural and economic environment including possible mitigating measures. For projects that are relatively straightforward, a preliminary recommended solution may be identified at this stage. At the conclusion of Phase 2, the appropriate MCEA planning Schedule is confirmed. It is also in this phase that the first mandatory consultation with review agencies and the public is initiated. (Details of the consultation activities for this project are provided in Section 4.0).

To address the Problem/Opportunity Statement identified in Section 3.1, the following Alternative Solutions have been proposed.

Alternative Solutions considered include:

1. Do Nothing
2. Local Traffic Only
3. One-Way Road
4. Widen the Road
5. Dead-end Road with Turnaround
6. Or a combination

A Table showing the Evaluation of Alternatives for each of the criteria is presented in Appendix B. A description of the Alternative Solutions and the results of the evaluation are discussed below. It should be noted that some land acquisition may be required regardless of the Preferred Alternative. Land acquisition may be required for an area in the at the east end of the Study Area on the south side of 7th Line where the existing road footprint and paved surface is located outside of the existing ROW. This will be considered as part of the Preliminary Design.

October 2019

Do Nothing

The Alternative Solution option of Do Nothing is a mandatory consideration within the MCEA process. This alternative may include the following:

- Operate as a two-way road fully open to the public.
- No construction or widening.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

This is a mandatory alternative for consideration under the MCEA and serves as a reference point for comparing other alternative solutions.

The Do Nothing alternative means to take no action in addressing the problem statement. This Alternative Solution leaves all conditions as they are and allows deterioration to continue, performing regular maintenance as required and repair slopes and washouts on a reactionary basis.

While this Alternative Solution maintains the existing road network with limited tree removal or impact to cultural features and no cost to implement, it does not address road safety concern. Costs are anticipated to increase overtime with on-going maintenance of the road. There is potential for continued siltation of adjacent watercourses and wetland communities as the road continues to deteriorate. The Town is responsible for providing a road network that is safe and which operates at an acceptable level of service. This Alternative Solution does not address the Problem Statement.

Local Traffic Only

This alternative was defined to include the following:

- Access to local traffic only, closing the road to non-local traffic.
- May include change to Private Road.
- Maintain public access to Centennial Park from 10th Sideroad.
- Provide signage to limit through traffic.
- Perform regular maintenance as required.
- Repair slopes and washouts on a reactionary basis.
- No property acquisitions.

This Alternative Solution involves limited tree removal or impact to cultural features and low cost to implement, with signs and notice to the public. However, it does not improve the connectivity of the existing road network. Closure of the road to local traffic only is difficult to enforce. It was noted during the Traffic Study that, during the interim road closure, with signs indicating local traffic only, over 55% of the traffic was through traffic.

October 2019

There is potential for continued siltation of adjacent watercourses and wetland communities as a result of washouts due to the continued road deterioration. Costs are anticipated to increase overtime with on-going maintenance of the road, which may be the responsibility of the local residents should the road be made a private road.

One-Way Road

This Alternative Solution was defined to include the following:

- Operate as a one-way road fully open to the public.
- Maintain public access to Centennial Park from 10th Sideroad and from 7th Line.
- Install appropriate signs/markings and provide public notice of the change.
- No road widening.
- Repave or rehabilitate the existing road.
- Repair slopes, upgrade ditching, and replace culverts, where required, to ensure long term viability of the road.
- Perform regular maintenance as required.
- No property acquisition.

This Alternative Solution would improve the road condition and sight-distances as well as minimizing the long-term impact to watercourses and wetland communities with repaired slopes and upgraded ditching. There would be some potential for impact to cultural features (farmscape property) and some tree and vegetation removal would be required as a result of grading. One-way access to the 7th Line limits the connectivity of the road network and increases travel time and distances for local residents. During the temporary one-way access, enforcement of the one-way has been difficult. According to local residents and South Simcoe Police, motorists continue to utilize the road for two-way traffic regardless of signs and public notification of the change. Cost for improvements are anticipated to be moderate with low costs for regular maintenance.

Widen the Road

This Alternative Solution was defined to include the following:

- Operate as a two-way road, fully open to the public.
- Upgrade road to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h and 80 km/h road based on current posted speed limits.
- East end – widen road to minimum standard width where required, improve horizontal and vertical alignment, and improve ditching.
- West end – paved shoulder and improve ditching.
- Tree clearing at east end.
- Perform regular maintenance as required.
- Repair slopes and replace culverts where required to ensure long term viability of the road.

October 2019

This Alternative Solution would improve the road condition, sight-distances, quality of the road surface and roadside safety as well as minimize the long-term impact to watercourses and wetland communities with repaired slopes and upgraded ditching. However, this Alternative Solution may require channel realignment of the adjacent watercourse at the east end of the Study Area, depending on the design. The Alternative Solution would provide connectivity of the road network, offering a parallel alternative and direct travel route in the area and access to local properties from the east or west, which may result in some increased traffic. There would be some potential impact to cultural features (farmscape property) and tree and vegetation removal would be required as a result of grading. Costs for improvements are anticipated to be high, with moderate costs for regular maintenance.

Dead-End Road with Turnaround

This Alternative Solution has been defined to include the following:

- Operate as a two-way road open to the public with no through traffic.
- Upgrade road at east end to meet Transportation Association of Canada Geometric design guidelines for a 50 km/h posted speed by widening the road and improving the horizontal/vertical alignment.
- Repair slopes and replace culverts where required to ensure long term viability of the road.
- Construct two cul-de-sac or hammer head turnarounds.
- Leave a trail/access road between the turnarounds for active transportation and emergency/maintenance vehicles.
- Some property acquisition may be required to build *cul-de-sac* or hammer head turnarounds.
- Perform regular maintenance as required.

This Alternative Solution would improve the road condition, sight-distances, quality of the road surface and roadside safety as well as minimize the long-term impact to watercourses and wetland communities with repaired slopes and upgraded ditching. However, this Alternative Solution may require channel realignment of the adjacent watercourse at the east end of the Study Area, and elsewhere, depending on the design. The Alternative Solution does not provide connectivity of the road network. Access to local properties would be two-way but restricted from one direction, either from the east or west, potentially resulting in longer travel distances. No through traffic would likely result in a reduction of traffic on the road and opportunity for improved wildlife habitat connectivity and movement across 7th Line. There would be some potential impact to cultural features (farmscape property) and tree and vegetation removal would be required as a result of grading. Property acquisition may be required. Costs for improvements are anticipated to be high, with low costs for regular maintenance due to reduced traffic use.

October 2019

3.1.1 Addresses the Problem/Opportunity Statement

Each Alternative Solution was also reviewed to determine whether it addressed the Problem/Opportunity Statement. It was concluded that the Do Nothing Alternative did not address the Statement, while the Local Traffic Only Alternative partially addressed the Statement and One-Way Road, Widen the Road and Dead-end with Turnaround Alternatives fully addressed the Statement.

3.1.2 Preferred Alternative

Following Phase 1 and 2 of the MCEA process, Widen the Road was selected as the Preferred Alternative based on the evaluation of the Alternative Solutions and feedback received during and following Public Open House #1 in November 2018. (Details of the consultation activities for this project are provided in Section 4.0).

3.1.3 Confirmation of the Class Environmental Assessment Project Schedule

At the conclusion of Phase 2, the appropriate MCEA planning Schedule is confirmed. In consideration of the potential for environmental effect of the preferred alternative and possible design alternatives, the Town proceeded with the MCEA of the project as a Schedule C undertaking.

3.2 Phase 3 – Identification and Evaluation of Design Alternatives for the Preferred Alternative

Phase 3 of the MCEA process is the identification and evaluation of Design Alternatives for the Preferred Alternative identified in Phase 2. The impact of the Design Alternatives are evaluated against the inventory of the natural, social/cultural and economic environment including possible mitigating measures, leading to a preliminary identification of a preferred design. It is also in this phase that the second mandatory consultation with review agencies and the public is initiated. (Details of the consultation activities for this project are provided in Section 4.0).

The first step in Phase 3 involves the identification of various Design Alternatives for the Preferred Alternative. Based on the Preferred Alternative, Alternative Designs are considered under Road Widening (alignment) and Road Cross Section.

3.2.1 Road Widening

The approach to road widening is based on road cross-section and design options which include three basic Design Alternatives:

- Widen on the north side only, with paved shoulders
- Widen on the south side only, with paved shoulders

October 2019

- Widen on both sides, with paved shoulders

Or a combination of these design alternatives.

3.2.2 Road Cross-Section

The road cross-section design options for widening include two Design Alternatives:

- Road Rehabilitation – pulverize existing asphalt surface, place new Granular A (gravel) and repave asphalt layers
- Road Reconstruction – excavate existing road structure and replace with new Granular B and A (gravel) and repave asphalt layers

Or a combination of these design alternatives.

Design Alternatives were evaluated for each end of the Study Area based on existing road design features and the Preferred Alternative to widen the road identified in Phase 2. The Evaluation of Design Alternatives for each of the criteria is presented in Appendix B.

3.2.3 Preferred Solution

Based on the evaluation of the Alternative Solutions and Design Alternatives, the comments received from stakeholders, agencies and interested parties, the Preferred Solution identified is to widen the road to minimum standard width with a best-fit combination of widen to the north and south side with road reconstruction. The Preferred Solution is illustrated on the drawing entitled 7th Line (West) Preferred Solution, at the end of the report.

There are existing natural and cultural constraints on both sides of the 7th Line that would be impacted by widening strictly on one side or the other, or on both sides. A “best fit” combined approach to widening was considered practical to avoid or minimize impact to adjacent features. The “best fit” is based on the local roadway width and existing ROW and considering road profiles that would minimize impact to adjacent property and natural features by limiting side slopes and utilizing guide rail.

The preferred design cross-section for the road is road reconstruction. Road reconstruction includes excavating the existing road structure and replacing it with new Granular B and A (gravel) and repaving asphalt layers.

4.0 Consultation Summary

Consultation is an important part of the MCEA process to ensure that anyone with an interest in the project has an opportunity to provide input into the Town’s decision-making process before a project is finalized.

October 2019

The Schedule C MCEA requirements include three mandatory public points of contact during the MCEA process. The mandatory points of contact for this project included a Notice of Commencement, Public Open Houses (POH) (two) and a Notice of Completion.

A project page on the Town website was established at getinvolvedinnisfil.ca/7thline to provide project information throughout the MCEA process and engage residents and the public that may have an interest in the project. Opportunity to provide input into the planning and design of the project included an online discussion forum, a dedicated email address and the opportunity to contact the project team members.

A Project Contact List was developed as a mailing list to distribute project Notices. The Project Contact List consisted of technical and provincial agencies, local interest groups, businesses, and Indigenous communities that may have an interest in the project, as well as local residents within the vicinity of the Study Area. Throughout the MCEA process, the Project Contact List was used to maintain contact information for interested stakeholders, as well as to summarize comments received about the project and responses. The comments received throughout the MCEA were considered in the evaluation of the alternatives. A copy of the Project Contact List is provided in Appendix C.

Project Notices were published in the local newspaper, the Innisfil Journal, as well as the Community Bulletin for the Town, and posted on the Town website. Notices were also mailed or emailed to those on the Project Contact List. A copy of the Notices was hand-delivered to residents of the 7th Line who live within the project Study Area. Copies of the Notices are provided in Appendix C. The Notice of Completion is published at the conclusion of the MCEA process for the project.

Local Residents

A letter was hand delivered on June 1, 2018 to local residents within the Study Area to notify them of the upcoming MCEA, and to inform them of the potential for field crews to be in the area completing environmental studies as well as to request their input on concerns, comments or issues in the Study Area by completing a questionnaire, enclosed for their feedback. Copies of the completed questionnaire were not received, however, residents provided feedback via email correspondence, including an inquiry on the purpose of aluminum tree tags observed on some of the trees along the 7th Line in the Study Area. A response to the resident noted the tree tags were placed on trees greater than 10 cm in diameter located within the ROW, as part of the tree inventory in support of the MCEA. Copies of the local resident correspondence is provided in Appendix C.

October 2019

Town and consultant Staff met with residents of 7th Line at the Town offices on June 15, 2018 to discuss plans for the 7th Line within the Study Area. A copy of the meeting minutes is provided in Appendix C. Topics of discussion included:

- The safety needs of the road within the Study Area,
- The upcoming MCEA to consider solutions to the road deterioration;
- Opportunities to provide input; and
- A temporary solution.

A temporary solution to make the 7th Line a one-way road in the Study Area was discussed. The temporary solution would allow temporary barriers to be used to reduce the width of the road in the areas experiencing significant erosion, and to reduce the amount of through traffic still using the road despite the interim road closure. Following the meeting with local residents, the Town Council adopted By-Law 089-18, as outlined in DSR-107-18 dated June 20, 2018, permitting the 7th Line to operate as a one-way road, westbound from Yonge Street to Centennial Park access (150 m west of 10th Sideroad).

Technical Advisory Committee

A Technical Advisory Committee (TAC) was established in Phase 1 of the MCEA. The TAC consisted of representatives from the County of Simcoe, engineering and planning staff of the Town, LSRCA and the MNRF. A total of five TAC meetings were planned at key points throughout the MCEA process to provide input into the planning process for the MCEA including:

- Input into alternative solutions for improvements;
- Review and discussion of results of field investigations and studies assessing the existing conditions in the Study Area;
- Review of public open house materials;
- Review of the evaluation of alternative solutions including discussion of possible impacts and mitigation measures, and
- The review of the ESR.

Copies of the minutes of the TAC meetings No. 1 through No. 4 are provided in Appendix C. TAC meeting No. 1 was an introduction to the project and input into alternative solutions. TAC meeting No. 2 was a held as a discussion of the review of field studies. TAC meetings No. 3 and No. 4 consisted of a review and mark up of public open house materials. The purpose of the TAC meeting No. 5 was to review and discuss comments on the draft ESR. TAC members declined to attend the TAC No. 5 meeting, instead any comments were provided via email. Responses to comments were provided via return email. The purpose of TAC meeting No. 5 was subsequently revised to provide an opportunity to review and discuss the Town's preliminary comments on the draft ESR.

October 2019

4.1 Notice of Commencement

The Notice of Commencement for the MCEA was published in the paper on August 9 and August 16, 2018 and distributed to those on the Project Contact List.

Following the Notice of Commencement, follow-up phone calls were placed with Indigenous communities on the Project Contact List to confirm receipt of the notice, inquire about the level of interest in the project, and determine if the communities had any concerns or questions about the project. Messages were left with those communities who could not be reached by telephone.

Comments received as a result of the Notice of Commencement generally noted requests to be removed or retained on the Project Contact List to receive future Notices, or acknowledgement that the agency or Indigenous community had no concerns with the project. Other comments included the following:

- Chippewas of Mnjikaning First Nation (Rama) – Correspondence noted they did not have any comments at this time but would like to continue to be updated on the project and would like to receive a digital copy of the MCEA when complete to review for possible concerns;
- Mowhawks of the Bay of Quinte – Correspondence noted the community's expectation that the project be implemented in an environmentally sensible manner, consistent with laws and regulations and their concern if preliminary archaeological investigations found burial remains, noting a traditional process must be followed for repatriation and re-interment of remains. A copy of the Archaeological Assessment completed for the project was requested;
- Hydro One – Provided a mark-up of hydro utility that runs through the Study Area and location of the closest towers; and
- MECP – Provided information about the topics of interest to the MECP and guidance on the MCEA process. Noted that as a Schedule C project, an Air Quality Impact Assessment is required as part of the MCEA. Correspondence indicated MECP was delegating the procedural aspects of rights-based consultation with Indigenous communities to the proponent and provided a list of three Indigenous communities to be consulted, including Beausoleil First Nation, Chippewas of Rama First Nation, Chippewas of Georgina Island First Nation. MECP requested a copy of the ESR prior to filing the final report.

A Summary of comments and responses received from the public and local residents following the Notice of Commencement, and throughout the MCEA via email and as part of an online forum on the Town website, is provided in Table 5. The comments presented in Table 5 are not reproduced in their entirety but are presented as a summary of comments organized under key themes. Copies of the comments are provided in Appendix C.

October 2019

Table 5: Summary of Public Comments and Responses

Comment	Response
One Way Road	
<ul style="list-style-type: none"> • Many drivers are still travelling in the wrong direction, putting peoples' lives at risk. • Objection to one-way as a permanent solution, given the extended travel time and inconvenience for local residents. • One-way road is inconvenient and an increase in commute and costs. • Temporary one-way solution has not been effective in reducing the amount of traffic, speed, or direction. • Creating a one-way road on 7th line will cause issues with those trying to get through to their homes and more people braking the law. • One-way road limits access to dog park. • One-way road forces snow plow to put snow on north side of the road, where most of the residences are located. • One-way road is a quick solution to the deteriorating condition of the road, some areas are too narrow to have two cars side-by-side with erosion on the shoulders making it hazardous. • Make it a one-way road, pull-up the pavement and return it to a country road. • Better one-way signs needed. • More policing and enforcement needed • Install a timed controlled traffic light system for an alternating one-way, single lane through the narrow section through the trees. • Maybe yield to on-coming traffic. Maybe ban large trucks. 	<ul style="list-style-type: none"> • Comments noted. • The MCEA process considers a number of reasonable solutions, including the one-way solution as it is currently implemented as a temporary solution. • The evaluation of alternative solutions will consider advantages & disadvantages of the alternatives & their potential impacts on environment, including the social/cultural, natural environment, financial & technical environment. Comments will be considered in evaluation. • The Town is aware that one-way measures have not been effective and additional signs and barriers were ordered, as well as a request has been made to increase police presence and enforcement of the one way. • It is the intent of the MCEA planning process to evaluate a range of alternatives for the 7th Line, look at the advantages and disadvantages, and their potential impacts, as also receive feedback from various stakeholders. One of the alternatives is a one-way road. We will be hosting the first public open house in November – date/location will be posted. • More signs were installed by the Town in August (2018). The Town has been in touch with South Simcoe Police who frequently monitor the area and are doing whatever they can to prevent traffic offences including drivers going against the traffic flow.

October 2019

Comment	Response
Widen Road – two-way traffic	
<ul style="list-style-type: none"> • Preference for two-way traffic. • Widen the road, one-way road is a safety issue. • Preference for a dead-end road. Remove the road between the last home on the east end and the last home on the west end. Return the middle section to nature. • Repair, widen and open for two-way traffic as soon as possible until IBR is improved. The 7th Line is the only real alternative to ease congestion on IBR. • Put guard rails up in the problem sections. • Decreased speed limit of 60 km/hr. • Little as possible impact to nature • Widening the road would relieve traffic but the road also needs to be repaved throughout 7th Line. • Widening the road will increase traffic, speeding and accidents at Yonge St. and 7th Line. • The decision to widen the road was taken with only a limited number of people attending the open house and online survey, which is not representative of the Innisfil inhabitants. • The term widening doesn't convey the minimum scope of the work planned and its use may imply destruction of the tree tunnel. 	<ul style="list-style-type: none"> • Comments noted. • Widening of the road is one of the alternatives. • Following the evaluation of the alternatives in Phase 1 and 2 of the MCEA process, and in consideration of public comments received, Widen the Road was carried forward as the preferred alternative in the development of design alternatives for consideration in Phase 3 of the MCEA process. • IBR & Yonge St. and IBR and 5 Sideroad are scheduled for improvements in 2019, although we will all have to live with some inconvenience for some time, the end result will be improved traffic flow. • The alternative selected as preferred among Public Open House (POH) participants is reviewed to provide an indication of an overall shared preference among participants and to provide context for the accompanying participant comments and opinions. Selection of a preferred alternative is not based solely on the comments provided by participants during the POH and POH comment period but is considered along with comments from the public, other stakeholders, the municipality and agencies in support of the evaluation of a preferred alternative against the natural, technical, social and economic environment. • The existing road width would still not meet minimum roadside clear-zone safety standards even if the speed of the road were reduced.

October 2019

Comment	Response
	<ul style="list-style-type: none"> The current posted speed limit (50 km/hr in the east end and 80 km/hr in the west end) and the classification of the 7th Line road as a local road will not change as part of this MCEA.
Tunnel of Trees	
<ul style="list-style-type: none"> Disappointed the “tunnel of trees” will be removed. Tunnel of trees should stay and make other roads main arteries. Keep country feel. Save the beauty and make the road safe. Widen most of the street and leave the tunnel of trees, reduce speed limit, install speed bumps, cameras and increased fines. Widen the road through the tunnel and winding area. We are growing and need all the east-west access to the 10th as possible. Keep speed at 50, the road a bit wider and the curves intact to the majestic feel of the forest remains. 	<ul style="list-style-type: none"> In its current condition the 7th Line does not allow for adequate lane widths for two-way traffic maintenance vehicle (snow plows), emergency vehicles (firetrucks), school buses etc. at its narrowest point within the “tree tunnel”. Based on the existing traffic using the 7th line and the proximity of the trees to the roadway, consideration of safety improvements were warranted. Road Widening is anticipated to be limited to the additional paved surface required to meet the minimum standard lane width for a two-lane rural road and required drainage ditches. Road improvements are evaluated to improve the safety and maintenance of the travelled road surface of the 7th Line. The road improvements are not intended to increase the traffic capacity of the road or develop the 7th Line or change the road classification from a local road. With improvements, it is anticipated that the centreline of the road and the existing road curves will mostly remain the same, but the height of the centerline of the road may be lowered or raised slightly, as required, to improve sightlines at two hills and one dip in the eastern portion of the road.

October 2019

Comment	Response
	<p>Impact to adjacent features will be minimized as much as possible.</p> <ul style="list-style-type: none"> • The classification of the 7th Line road as a local road will not be changed as part of this MCEA. • Road Widening is anticipated within the East end of the road (closer to Yonge Street) where the trees are encroaching into the road ROW and tree removal is required to accommodate the minimum standard lane width for a two-lane rural road and required drainage ditches. • Based on the existing road width, road widening is not required in the west end, through the PSW area. • The posted speed limit and classification of the 7th Line road as a local road and will not be changed as part of this MCEA.
Development	
<ul style="list-style-type: none"> • There is need for alternative to 6th line and Innisfil Beach Rd due to current amount of traffic and anticipated increase in traffic as a result of new medical centre at Innisfil Beach Rd and Yonge, GO stop at 6th and 20th sideroad, new hospital at 6th and Yonge St. new subdivisions in Alcona and Lefroy, more houses at Friday Harbour. • There is an increased need to access major highways as a result of new developments • The roads cannot handle the amount of new people moving here. To take away a road or make it one way is just causing more frustration for the residents and commuters of the Town. • The subdivisions have killed the small-town charm and made it a commuter 	<ul style="list-style-type: none"> • Comments noted. • The Town annually resurfaces and/or reconstruct certain road, the number of project is dictated by the approved budget –Innisfil website has information for the 2019 construction projects. • The Town does collect development charges as part of our development charges By-law. Development charges are collected when a developer is issued a building permit, which are then used to improve our infrastructure. • Since Innisfil has approximately 900 km of roadway, the Town improves roads based on the Roads Needs Study and Transportation Master Plan which identified the 7th Line as a roadway that requires

October 2019

Comment	Response
<p>town which is having adverse effects on what Innisfil once was.</p> <ul style="list-style-type: none"> • 7th Line should be widened and reopened since they keep building home off the 7th Line. • Why aren't developers paying for the improvements and widening of the roads? If there aren't any jobs in the area, then make sure the infrastructure supports making the commute better. Fix the roads, provide alternatives, give pedestrians sidewalks, put up radar cameras. • Why are there plans to spend \$5.8 million dollars to widen the 7th Line? There are other pressing projects for this town that could use the money dollars 	<p>improvements within the next few years.</p> <ul style="list-style-type: none"> • Residents are welcome to submit any traffic related requests, such as radar cameras to Customer Service, who forwards them to the Traffic Safety Advisory Committee for consideration.
Other Roads	
<ul style="list-style-type: none"> • Speeding and traffic issues on St. John's Road. • Needs enforcement at the intersection of Wester and the 7th Line. • Poor road conditions on St. John's Road. • Town should concentrate on maintaining and repairing the 7th Line between 20th and St. John's. • There should be a stop sign at St. Johns and 7th Line. • Parking and enforcement issues on St. John's pedestrian/bike lane. • Innisfil Beach Road (IBR) should be a priority. • Lights need to be installed at IBR and 20th. • Speed limits need to be reduced on IBR. 	<ul style="list-style-type: none"> • Comments noted. • Innisfil Beach Road (IBR) is under the County of Simcoe's jurisdiction; thus, the scope and timing of the improvements are controlled by the County. • The following is the projected timeline of the IBR as provided to the Town: CR21 & 53 and CR21 & 4 intersection improvements – 2019; Phase 1 (CR4 to CR39) – 2020, Phase 2 (CR4 to CR54) – 2021. • The Town has installed radar speed signs on St. Johns Road, however, speed enforcement is a police matter. • Residents can submit traffic related requests to Customer Service at the Town. Requests will be forwarded to the Traffic Advisory Committee. Otherwise, signals, stop signs etc. are implemented by engineering when warranted.

October 2019

Comment	Response
<ul style="list-style-type: none"> • Improvement to IBR should focus on light timing and fixing intersections (IBR and 20th) and access to stores. • Local residents take 7th Line if IBR is too busy. • IBR is a County Road, the Town doesn't have power over IBR. • 6th Line is important to be considering for development due to future plans for GO station and links to 400. 	<ul style="list-style-type: none"> • The section of 7th Line, from 20th Sideroad to Lake Simcoe is proceeding as a separate project with detail design and land acquisition in 2019. Utility relocation in 2020 and construction projected for 2021, providing Council's approval. The section of 7th Line & Webster Blvd. will be improved with additional turning lanes as well as the intersection with St. Johns, sight-lines will be improved.

4.2 Public Open House

Two Public Open Houses (POH) were conducted for the project. Details of the date, time, location and purpose of POH No. 1 were published in a Notice on November 15, 2018 and November 22, 2018. The POH No. 1 was held on November 27, 2018 from 4:00 p.m. to 7:00 p.m. Details of the date, time, location, and purpose of POH No. 2 were published in a Notice on March 28, 2019 and April 4, 2019. The POH No. 2 was held on April 8, 2019 from 4:00 p.m. to 7:00 p.m.

The POHs were arranged as a "drop-in" style session where representatives from the study team were available to answer questions and discuss the project with interested members of the public. Attendees were greeted upon arrival, encouraged to sign in, and provided with a comment form.

POH No. 1

As indicated on the sign-in sheets, a total of 25 people attended POH No. 1, excluding the project team members. Participants were asked to provide input to the process by completing the available comment sheets. The comment sheet included a short description of each alternative and participants were asked to select their preference between two preliminary preferred alternatives resulting from the evaluation of alternatives during Phase 2 of the MCEA process and presented at the POH No. 1. Participants were also asked for any other comments, questions or suggestions on the project and the materials presented at the POH No. 1.

Eleven comment sheets were received from local stakeholders during and following the POH No. 1 and seventeen comment sheets were received via the online survey available through the Town website. A POH No. 1 Summary Report, including the Notice of POH No. 1, presentation material and comments, suggestions, questions received, and responses is presented in Appendix C.

October 2019

The comments received during the POH No. 1 and subsequent comment period included the following themes:

- Traffic congestion in the area;
- Accommodating growth while minimizing impact to natural features, wildlife and recreational opportunities;
- Preserving natural features;
- Concern that the existing one-way road option is unsafe as users continue to drive in both directions and results in extended driving distances to reach destinations to the east of the Study Area; and
- Access to Centennial Park.

POH No. 2

A total of 27 people attended the POH No. 2, excluding the project team members, as indicated on the sign in sheets. Participants were requested to provide input to the process by completing the available comment sheets. The comment sheet included a short description of the Alternative Design Solutions for the Preferred Alternative evaluated in Phase 2 of the MCEA process. Participants were asked for comments on the Preliminary Preferred Design Solution, as well as any other comments, questions or suggestions on the project and the materials presented at the POH No. 2. Following the POH No. 2, an online poll was available through the Town website.

Four comment sheets and three emails were received from local stakeholders during and following the POH. The results of the poll indicated 78% of the 54 respondents preferred reconstruction of the 7th Line. A POH No. 2 Summary Report, including the Notice of POH No. 2, presentation material and comments, suggestions, questions received, and responses is presented in Appendix C.

The comments received during the POH#2 and subsequent comment period included the following themes:

- Preference for widening of the road with paved shoulder;
- Preference for road reconstruction;
- Clear ditches and replace culverts; and
- Concern about height of the road relative to existing driveways.

Input received during the course of the project was considered in the evaluation of the alternatives.

October 2019

4.3 Notice of Completion in Phase 4

A Notice of Completion will be published in the Innisfil Journal and mailed or emailed to stakeholders and Agencies. The Notice of Completion will provide members of the public with the dates, times and locations where the ESR can be reviewed and names and addresses of people to whom they can send their comments.

5.0 Impacts

Project activities associated with the Preferred Solution are anticipated to include asphalt application, granular placement, grading, excavation and vegetation removal in select areas associated with road reconstruction and drainage improvements including replacement of culverts.

5.1 Technical Environment

The Preferred Solution will operate as a two-way road, fully open to the public, providing connectivity within the transportation network and offer a parallel alternative route.

Physical Condition

The improvements to meet Transportation Association of Canada standards will improve sight distances and safety of the road, with improved vertical and horizontal alignment. Limiting side slopes to avoid natural features will require the need for guide rail in some locations.

Geotechnical/Hydrogeology

The fill and peat layers are not suitable to support the proposed culvert replacement. The fill and peat layers will need to be sub-excavated and replaced to remove potential for settlement, subject to geotechnical field review. A road profile grade raise of more than 0.2 m is not recommended where peat was revealed below the fill (Boreholes 2 to 4) due to the potential for gross and differential settlement.

Dewatering during construction is anticipated in order to lower the groundwater level to permit excavation in dry conditions. Creek diversion will be required for culvert replacement.

Based on the discussion above, a Permit to Take Water (PTTW) or registry on the Environmental Activity and Sector Registry (EASR) system is anticipated.

October 2019

A limited chemical testing program to assess the geoenvironmental quality of the soil at selected sampling locations and ground water in the wells advanced in the Study Area as part of the Geotechnical Assessment identified the presence of contaminants in soil and groundwater in excess of the applicable Site Condition Standard criteria. The impacted material should be delineated with further soil sampling and chemical testing. All excess excavated material from the vicinity of the impacted soil shall be disposed at a receiving site where Site Condition Standard comply with applicable O.Reg.153/04 criteria.

Drainage and Surface Water

The preferred solution is not anticipated to result in a change to the regional flood plain as the centreline elevation of the road is not anticipated to change. Changes to culverts would result in negligible changes in flood elevations. The replacement of the culvert structures with a larger-capacity culvert would allow for increased conveyance capacity below 7th Line during periods of high flow, providing resilience under changing climatic conditions.

The 7th Line is identified as a local road, which is required to convey the 25-year storm, based on Ministry of Transportation Ontario (MTO) WC-13 criteria. Based on preliminary hydrologic and hydraulic calculations, the smaller-sized culverts located in the eastern portion of the road should be replaced with similar sizes as part of the preferred road-widening solution.

The larger 1,200 mm diameter culvert does not appear to have capacity for the 25-year storm runoff generated by the large upstream catchment area. Detailed hydrologic and hydraulic modeling should be completed to determine an appropriate replacement culvert size. Attenuation within the wetland area should be determined, as it may have a significant impact on the peak flows to be conveyed by the culvert.

Stormwater

Preliminary calculations estimate a 10% increase in impervious area.

The increase in impervious area could be mitigated by providing a quantity control volume of 77 m³ and 166 m³ for the 5-year and 100-year peak flows respectively. This volume could be achieved through infiltration trenching in the south roadside ditch if soil conditions permit. The required 100-year storage volume spread along the 3 km road averages 0.06 m³ per linear meter of road.

If soil and groundwater conditions are not favourable for infiltration, the storage volume could be achieved in the south roadside ditch upstream of the existing main road crossing culvert located approximately 1.2 km east of 10th Sideroad.

October 2019

Traffic

The use of 7th Line is currently attractive to some commuters to avoid busier roads in the area. With planned County and Town road improvements (e.g., Innisfil Beach Road, Yonge Street and 6th Line widenings), the 7th Line will not be needed for additional capacity in the overall network. As such, this segment of 7th Line is not anticipated to grow beyond “local road” classification within Town’s road network.

Applying an assumed growth rate of 2.4%, which is consistent with the Transportation Master Plan, results in 2,300 vehicles per day in the 20-year horizon. Future traffic volume forecasts for the Preferred Solution are well below the theoretical capacities.

Upgrades to the County road network in the broader Study Area will lessen the amount of traffic that may divert, over the long term, to this section of 7th Line. It should be noted that the County’s improvements will result in potential diversion of traffic during the construction periods related to the implementation of the phased improvements being completed by the County. As such, the Preferred Solution may attract some additional through traffic to this section of 7th Line in the short term. Initial volumes are estimated to be 10% more than the existing traffic volumes observed prior to the interim road closure was enacted. This would equal approximately 1,430 vehicles per day. In the shorter term, additional capacity on 7th Line could be beneficial for the overall network until future network improvements are complete. The design of 7th Line should take into consideration such short and medium-term traffic demands. For example, the design of improvements for 7th Line at its approach to Yonge Street should accommodate the planned signalization of this intersection, including implementing an eastbound left turn lane, recognizing that the eastbound movement at the 7th Line and Yonge Street intersection experienced long delays even when the interim road closure was in place (i.e., when traffic on 7th Line was much lower than during normal two-way operation),.

Traffic calming is not a typically practice for rural roadways and is rarely considered on roadways with speeds greater than 60 km/hr. The Town of Innisfil adopted a Traffic Calming Policy as part of the 2018 Transportation Master Plan Update

The main components of this policy are:

- A needs evaluation and approval process that incorporates the key requirements of resident participation and agency consultation;
- Warrant criteria against which traffic calming proposals will be assessed against. The proposal must satisfy each warrant to be implemented. This will ensure that traffic calming measures are assessed objectively and implemented in appropriate circumstances;
- A ranking process that is used to prioritize the most deserving streets for installation. Ranking is based on level of speeding, traffic volume, collision history, and pedestrian and bicycling factors;

October 2019

- A description of various traffic calming measures, evaluation of their benefits and disadvantages, and recommendations for their application.

For the 7th line, it is recommended that the road be monitored and evaluated under this policy, if required, once the preferred alternative to widen the road is implemented. It should be noted that most of the permanent traffic calming measures outlined in the policy would not be implemented in a rural road such as the 7th line, however the supplemental measures outlined in the policy such as education, signage, and enforcement could be considered.

Utilities

The preferred alternative to widen the road may result in the relocation of the utility InnPower lines and poles. The extent of the relocation required will be confirmed during Detailed Design. The relocation will depend on discussions InnPower and the amount of cut/fill proposed at the pole location.

The preferred alternative to widen the road may result in the relocation of the Bell underground utility. The need to relocate should be reviewed during detailed design. The location of the Bell lines should be verified through more exact methods (locates and/or test hole) to determine if they conflict with the Detailed Design.

5.2 Natural Environment

Impacts to natural features are anticipated with excavation, grading and asphalt application as well as vegetation removal in select areas as a result of road reconstruction, improved ditches, and culvert replacement. Improvements are anticipated to be located primarily within the existing ROW with some edge encroachment into adjacent lands including impact to wooded areas with potential impact to wildlife species, Species of Special Concern, SAR and associated habitat as a result of vegetation clearing and grading. It is anticipated that direct impact to wildlife species, Species of Special Concern, SAR can be avoided through minimizing the footprint of construction and the timing of certain project activities (i.e., outside of the active season).

Vegetation

Impacts to vegetation are anticipated to include tree removal within the ROW and limited encroachment into adjacent vegetation communities within the identified grading areas of the Preferred Solution. Disturbance of soils in construction areas could allow for non-native and invasive species to establish. Where new forest and wetland edges are created impacts may include weed invasion, drying of soils and exposure of vegetation within the ground layer and understory to increased light.

October 2019

Vegetation impacts in the west end of the Study Area are anticipated to be limited to areas of improved ditching and culvert replacement. Significant tree removal and grading impacts are not anticipated within the Lovers Creek PSW in the west end of the Study Area.

The widening of the road to minimum standards and ditching in the east end of the Study Area will require the removal of approximately 8,629 m² of trees located within the ROW and immediately adjacent to the proposed work zone due to encroachments into the Minimum Tree Protection Zones (MTPZ).

The majority of grading impacts and vegetation removals are anticipated to occur within the Dry – Fresh White Cedar Coniferous Forest (FOCM2-2) (approximately 3551 m²) and the Dry – Fresh Sugar Maple Hemlock Mixed Forest (FOMM3-2) (approximately 604 m²). Impact is also anticipated within the Hawthorn Deciduous Shrub Thicket (THDM2-11) (approximately 144 m²) as well as the Green Ash Mineral Deciduous Swamp (SWD2-2) (approximately 501 m²) and White Cedar Mineral Coniferous Swamp (SWCM1) (approximately 651 m²). Some vegetation removal is anticipated in the Dry – Fresh Graminoid Meadow (MEGM3) (approximately 139 m²) and the thicket swamp (SWT3) community at the edge of the Lover's Creek Wetland. The remainder of vegetation removal is anticipated within rural residential property, mainly resulting in the removal of treed hedgerows.

Vegetation removal will require compensation/replacement of trees in a 2:1 ratio for woodlands, and a 3:1 ratio for wetland, per the requirements of the LSRCA. Impact to vegetation communities is anticipated to be temporary with minor impact to treed communities, representing less than 1% (approximately 0.8%) of the available continuous treed community in the greater area, and minor impact to the Provincially Significant Wetland, represented by less than 1% (approximately 0.005%) of the thicket swamp community at the edge of the Provincially Significant Wetland, with no significant permanent loss of wetland area anticipated. It should be noted that the extent of impact to treed and wetland communities is based on a desktop review of preliminary design and is subject to refinement during detailed design.

October 2019

Wildlife

There is potential for temporary displacement of and disturbance to wildlife and wildlife habitat during the construction phase (e.g., vegetation removals, siltation, noise, light trespass, limited movement) as well as potential for increased road mortality and mortality during construction activities (e.g., amphibians, turtles, beaver, muskrat).

Removal of natural vegetation (e.g., Forests, thickets, wetlands) may reduce available wildlife habitat. The Preferred Solution would temporarily disturb only the edges of natural vegetation communities in the footprint required for grading and culvert replacement.

Several bird species may inhabit the general Study Area. Many receive protection nationally under the MBCA.

Widening and reconstruction of the 7th Line may result in disturbance and loss of generalist species, nesting SAR migratory breeding birds and bird habitat during the construction phase, however disturbance is anticipated to be temporary and disturb only the edges of natural vegetation communities in the footprint required for grading and culvert repairs. The proposed works would be subject to timing restrictions to avoid direct impact to bird species. Vegetation and tree removal from the adjacent vegetation communities as a result of grading within the ROW and immediately adjacent areas is not expected to negatively impact habitat for bird species, given the broader extent of suitable habitat in adjacent habitats beyond the ROW.

Significant Wildlife Habitat

Deer congregation, wintering, and movement may be impacted by vegetation clearing and construction. New habitat fragmentation is not anticipated as a result of the Preferred Solution.

The wooded community within the Study Area may provide habitat for some forest area-sensitive species that require large tracts of habitat to avoid predation and effects from edge habitat. The location and estimated footprint of the Preferred Alternative is not anticipated to impact the potential habitat of forest area sensitive species as the area of trees and vegetation to be removed from the edge of these communities is not expected to have an impact on the available interior habitat within the Study Area for these species (at least 100 to 200 m from an edge).

Paving of the road shoulders may pose a risk to nesting turtles during construction and over the long term due to removal of gravel substrate that is preferred for nesting. Potential Significant Wildlife Habitat turtle wintering areas is unlikely to be impacted as no construction is proposed in areas of open water wetlands.

October 2019

Potential bat maternity roosting habitat is not anticipated to be significantly impacted as the relatively limited amount of vegetation to be removed is not expected to have a significant impact on the available overall potential habitat within the greater area for the species.

Impact to Significant Wildlife Habitat including habitat of Special Concern and Rare Wildlife Species, is discussed in the following section.

Species of Special Concern

Although species provincially listed as rare or of Special Concern do not receive legal protection under the provincial ESA or the federal *Species at Risk Act*, they may receive protection from some agencies, such as provincial and national parks, or other Acts, such as the *Ontario Fish and Wildlife Conservation Act*, which prohibits the killing, capturing, injuring, harassment and trapping of specially-protected species.

There is high potential for Snapping Turtle (Special Concern) basking/overwintering habitat in the wetland habitat present within the Study Area. Overwintering and/or basking habitat for Special Concern turtle species is unlikely to be impacted as no construction is proposed in areas of open water wetlands. Paving of the road shoulders may pose a risk to nesting turtles during construction and over the long term due to removal of gravel substrate that is preferred for nesting. The proposed works would be subject to timing restrictions to avoid direct impact to species.

Monarch (Special Concern) habitat may be temporarily removed during the construction.

Eastern Wood-pewee (Special Concern) nesting habitat may be impacted by vegetation clearing along the margins of the road. Large areas of appropriate habitat will still be available beyond the cleared areas in which appropriate Eastern Wood-pewee nesting habitat will remain.

The Preferred Solution is not anticipated to directly impact species of Special Concern with the implementation of avoidance measures, including minimizing the footprint of construction, exclusion of the construction area and timing of construction for the removal of vegetation.

October 2019

Species at Risk

Candidate SAR bat roosting habitat may be present within Dry – Fresh White Cedar Coniferous Forest (FOCM2-2) and the Dry – Fresh Sugar Maple Hemlock Mixed Forest (FOMM3-2) forested communities as well as the Green Ash Mineral Deciduous Swamp (SWD2-2) and White Cedar Mineral Coniferous Swamp (SWCM1) communities present on both sides of the 7th Line. Edge encroachments into existing vegetation and potential bat maternity roosting habitat is not anticipated to significantly impact the potential habitat of bat species as the relatively limited amount of vegetation to be removed is not expected to have a significant impact on the available overall potential habitat within the greater area for these species. Direct impact to species is to be avoided with appropriate timing of vegetation removal completed outside of the active season for bats.

There is potential for Blanding's Turtle (Threatened) basking/overwintering habitat in the wetland habitat present within the Study Area. Impacts to overwintering and/or basking habitat for turtle species is unlikely to be impacted as no construction is proposed in areas of open water wetlands. Paving of the road shoulders may pose a risk to nesting turtles during construction and over long term due to removal of gravel substrate that is preferred for nesting. The proposed works would be subject to timing restrictions to avoid direct impact to species.

The Preferred Solution is not anticipated to directly impact SAR wildlife with the implementation of avoidance measures, including minimizing the footprint of construction, exclusion of the construction area and timing of construction for the removal of vegetation.

Direct impact to SAR Butternut (Endangered) trees may be avoided with a best fit road alignment, reduced slide slope and guiderail, however, realignment and associated grading may result in indirect impacts to the tree if disturbance encroaches into more than 25% of the minimum tree protection zone. Activities that may kill, harm, or take up to a maximum of ten (10) Category 2 Butternut trees may be eligible to follow the rules in section 23.7 of Ontario Regulation 242/08, in accordance with the conditions and requirements set out in the regulation.

October 2019

Aquatic Habitat

Watercourses considered both “direct” and “indirect” fish habitat are present within the Study Area and are protected under the *Fisheries Act*. The preferred solution of Widening the Road has the potential to impact adjacent fish habitat as a result of the modification to the road embankments at the eastern end of the Study Area and the improved ditching at the western end of the Study Area. Temporary impacts resulting from culvert replacement activities also have the potential to impact fish and fish habitat through mobilized sediment during construction. These proposed works would be subject to design conditions, timing restrictions, and standard mitigation measures to avoid or minimize impacts.

Construction activities that have the potential to impact fish or fish habitat must be constructed and operated in compliance with the federal *Fisheries Act*. Any permanent alteration to fish habitat that results in negative residual effects could constitute a “*serious harm to fish and fish habitat*”. Without authorization from Fisheries and Oceans Canada (DFO), the *Fisheries Act* prohibits any work, undertaking, or activity that results in serious harm to fish that are part of a Commercial, Recreational or Aboriginal (CRA) Fishery, or to fish that support such a fishery. If a project is unable to avoid negative residual effects, then the project should be submitted to DFO for review.

Impact to Tributary 3 in the east end, which contains Brook Trout habitat, can be minimized or avoided through modifications to the road alignment, embankments and ditches. A 2:1 side slope and guide rail is proposed along this area in an effort to minimize impacts and avoid disturbance below the High Water Mark (HWM) of the watercourse. Improvements to the road embankments, channel slopes and upgraded ditching is anticipated to reduce long term impact of erosion and sediment transport to the adjacent watercourses, wetland and vegetation communities.

The construction of the Preferred Solution will occur within the regulated area of the LSRCA. Development or alterations within the jurisdiction of the LSRCA in Regulated Areas will require a permit from LSRCA under Ontario Regulation 179/06 (Lake Simcoe and Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses).

5.3 Social/Cultural Environment

The Preferred Solution will provide for a road that is safe, efficient and will be constructed in accordance with applicable planning policy including the Town’s TMP Update, Inspiring Innisfil 2020 and the County TMP Update.

The widening of the road to minimum standards in the east end of the Study Area will require the removal of trees located within the ROW, where trees are densely clustered in the area identified by local stakeholders as the ‘Tunnel of Trees’.

October 2019

Improvements will maintain a direct travel route within the area and two-way access to properties, with improved access for pedestrians and cyclists with a paved shoulder. Improvements will support existing land uses in the Study Area while providing the opportunity for improved network connectivity and overall safety of road users. Temporary impacts including access restrictions and nuisance noise are anticipated as a result of construction activities.

Noise

The Noise Impact Assessment followed the MTO Noise Guide. Future sound levels were predicted with and without the proposed road improvements to determine the potential noise impact, based on the Annual Average Daily Traffic (AADT) value forecasted 10 years into future as required by the MTO.

The increase in sound levels expected throughout the Study Area as a result of the Preferred Solution will increase less than 5 dBA. Based on the MECP interpretation of the noise impact levels, the noise impact due to the widening of the 7th Line is considered to be negligible.

Air Quality

Based on the forecasted traffic volumes, future predicted air quality levels were compared to the existing air quality levels to understand the impact of a potential road improvement on local air quality.

Air quality modelling was performed for typical contaminants from automobile exhaust for the existing, and two future scenarios. The existing scenario results show the current (2018) impact of the local roads. The Future No Build scenario predicts emissions due to traffic in the vicinity of the Study Area for the future (2038) without the proposed road widening. The Future Build scenario predicts future (2038) emissions with the proposed road widening. The results of the dispersion modelling show that the predicted ground level contaminant concentrations at all sensitive receptor locations were below the applicable MECP criteria. Based on the comparison of predicted cumulative concentrations between Future Build and Future No Build scenarios, it was determined that the change is very small and the impact on local air quality due to 7th Line widening is negligible.

The potential GHG emission effect from the proposed road widening was determined to be insignificant on a regional scale. The total annual emissions are expected to be well below 0.1% of the provincial levels. Similarly, the local impact is negligible.

Potential air quality effects associated with the construction stage is expected to be temporary and localized to the surrounding area.

October 2019

Land Acquisition

The footprint of the preferred solution is predominantly owned by the Town (municipal ROW). Some land acquisition is required in the east end of the Study Area on the south side of 7th Line where the existing road footprint and paved surface is located outside of the ROW. The final extent of the property requirements will be confirmed as part of the Preliminary Design.

Cultural Heritage

The preferred solution will result grading and tree removal adjacent to the farmscape property, located 2399 7th Line, identified in the Cultural Heritage Resource Assessment (CHRA) Report as a cultural heritage resource. The Stage 2 Study completed for the site did not identify archaeological resources within the Study Area. Impacts to archaeological resources are not anticipated.

5.4 Financial Environment

The preferred solution will incur high capital costs for construction but reduced cost for road maintenance, cost of which are anticipated to increase over time.

The estimated costs for the preferred solution are provided in Appendix B and summarized as follows:

Construction and General Works: \$3, 606,980.00

Estimate of Life-Cycle Costs

Year 1 to Year 20 Maintenance	\$130,000.00
Year 20 Rehabilitation	\$385,000.00
Year 21 to Year 30 Maintenance	<u>\$66,500.00</u>
Total Costing for a 30 Year Target Life	\$581,500.00

While the preferred solution will have the most impact in terms of construction costs, it will provide the best solution for technical factors including sight distance and platform width, and social/cultural factors including safety and access while minimizing impacts to the natural environment and meeting the objectives as provided in the Problem/ Opportunity Statement.

October 2019

6.0 Mitigation

The following mitigation measures and design approach should be implemented to mitigate negative impacts of the Preferred Solution on the environment of the Study Area. Mitigation measures are intended to direct the future detailed mitigation design that will be coordinated with the mitigation and monitoring measures included within the Detailed Design process and reporting, and within the Special Provisions section of the Tender Documents, as applicable. All Design and Construction Reports and Plans should be based on a best management approach that centers on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of the impacted areas.

Surface Water/Hydrology Sedimentation

Potential Effect

1. Potential for sediments to enter a watercourse as a result of the following project activities:
 - Stockpiling;
 - Excavation; and
 - Construction.
2. Potential for localized water quality impacts as a result of spills.

Mitigation Measures

1. The footprint of disturbed area should be minimized as much as possible; for example, vegetated buffers and setbacks should remain untouched adjacent to the watercourse wherever possible.

An Erosion and Sediment Control (ESC) Plan should be developed during Detailed Design prior to construction. Implementation of the erosion and sediment control measures should conform to recognized standard specifications, such as Ontario Provincial Standards Specification (OPSS), and the requirements of the LSRCA.

Sediment and erosion control measures (e.g., silt curtains, silt fence, rock check dams, etc.) should be installed and maintained during the work phase, until the site has been stabilized. Control measures should be inspected daily to ensure they are functioning and should be maintained as required. If control measures are not functioning properly, no further work should occur until the problem is resolved.

October 2019

Temporary mitigation measures should be installed prior to the commencement of any clearing, grubbing, excavation, filling or grading works and must be maintained on a regular basis, prior to, and after precipitation events.

In-water operation of heavy equipment should be avoided and operation on the banks, if required, minimized to the extent feasible. Stockpiled material should be stored and stabilized at least 30 m from the watercourse. All materials and equipment should be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering adjacent natural heritage features.

Impacts to water quality resulting from surface water run-off should be appropriately mitigated with mobilized sediment contained to within the boundaries of the site.

All disturbed areas of the work site should be stabilized immediately, and re-vegetated as soon as conditions allow.

2. All equipment fueling, and maintenance should occur at least 30 m from the watercourse to ensure that no deleterious substances enter the waterway.

The Contractor will be required to develop spill prevention and contingency plans for construction and operational phases of the project. Personnel will be trained in how to apply the plans, and the plans will be reviewed to strengthen their effectiveness and ensure continuous improvement. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A hydrocarbon spill response kit should be on site at all times during the work. Spills will be reported to the Ontario Spills Action Center at 1-800-268-6060.

All equipment and personal protective equipment must arrive on-site clean to prevent the potential transfer of invasive species (e.g. *Phragmites australis*) to the local environment.

Soils

Effect

1. Potential for excavation of contaminated soils.

Mitigation Measures

1. The impacted soil material should be delineated with further soil sampling and chemical testing. All excess excavated material from the vicinity of the impacted soil should be disposed at a receiving site where Site Condition Standard comply with applicable O.Reg.153/04 criteria.

October 2019

Groundwater

Effect

1. There is potential for localized groundwater quality impacts as a result of spills.
2. Potential dewatering of the work area may be required.

Mitigation Measures

1. Refueling of equipment and fuel storage should be conducted in designated areas, at least 30 m away from the watercourses and any existing wells, with spill protection provided.
2. Geotechnical conditions should be reviewed when design details are known, including final grading and service inverts are available, more fully assess groundwater requirements and the need for Site Specific Hydrogeological Site Assessment and application for a PTTW or EASR, additional investigation and/or analysis in order to finalize the geotechnical and hydrogeological recommendations.

Some groundwater at depth is under artesian pressure and may require depressurization. Dewatering systems must be designed and installed by specialists in this field. DFO is to be consulted regarding dewatering to assess for potential impacts to brook trout spawning habitats.

Additional ground level monitoring is recommended to have water levels for a year-long cycle.

Trees and Vegetation

Effect

1. Loss of trees and vegetation.
2. Grading impacts. Trees adjacent to the ROW may be subject to impacts within the rootzone and MTPZ, as a result of proposed grading and other construction activities.
3. Impact to SAR Butternut trees

October 2019

Mitigation

1. Minimize disturbance to existing vegetation. Adjust grading prior to construction to reduce impacts to trees by increasing the steepness of slopes in isolated locations, where feasible. The use of an asphalt gutter in some sections may be considered to reduce the impacts of tree removal as a result of ditching. Impacts to vegetation communities within the PSW should be avoided where possible.
2. Disturbed areas will be stabilized and re-vegetated upon project completion and restored to a pre-disturbed state where practical. Disturbed areas will be stabilized and re-vegetated with an appropriate seed mix, such as OSC Seed Simcoe County Mix (Product Code 6850) in upland areas and OSC Wet Meadow Marsh Mixture (Product Code 8195) in lowland/wetland areas, upon project completion and restored to a pre-disturbed state where practical. An appropriate seed mix will be selected based on consultation with the appropriate reviewing agency.

Installation plantings of trees, shrubs and seeding as edge management plantings where new forest and wetland edges are created to reduce impacts to trees and their associated natural features will be required. Edge management may also require pruning or selective removal of remaining trees at edges of treed communities if the trees at the exposed edges are not suitable for retention.

Trees with poor health (e.g., severe crown dieback) and trees in poor condition (e.g., severe unsupported lean) will require removal if there is a greater risk to cause injury or property damage. Green Ash that are compromised by Emerald Ash Borer may require additional vigilance during the review of retained trees.

Culturally significant properties (farmscape) and residential lands that are subject to tree removal on the adjacent ROWs may require reinstatement of native woody vegetation to compliment cultural heritage aesthetics and provide privacy.

Vegetation removal will require compensation/replacement of woodlands in a 2:1 ratio, and a 3:1 ration for wetland, per the requirements of the LSRCA. A landscape/streetscaping plan is to be developed during Detail Design in consultation with the LSRCA for aesthetics and compensation for removals.

A Detailed Mitigation Plan is required as part of the Detailed Design to address impacts or removal of trees, using a variety of native species suited to the varied site conditions.

A certified arborist is recommended to be consulted if additional removals or pruning are required once construction is underway.

October 2019

Monitoring of preserved trees throughout the construction period and before contractor demobilization is recommended to identify injuries (e.g., broken branches, exposed roots) and determine appropriate action.

Annual monitoring of the retained trees adjacent to the impacted area to manage tree risk (i.e., fell compromised trees and prune branches).

3. ESC measures must be installed prior to commencement of any grading or vegetation disturbance.

Protection measures (e.g., tree protection, erosion and sediment control) are recommended where construction is proposed to protect trees from grading impacts and when adjacent construction is occurring to prevent access, stockpile and storage within the adjacent sensitive wetland community.

Trees to be retained beyond the limit of clearing should be protected using tree protection fence installed at the dripline or grading limit, whichever provides the greatest setback from the trees. Tree protection fence (coordinated with ESC measures) should be installed at the MTPZ or further where it can be reasonably accommodated by the design. Tree groupings (e.g., clumps, rows) not assigned individual MTPZs such as the 'Tunnel of Trees' are recommended to have dripline (crown reserve) protection where reasonable.

An Environmental Inspector shall be engaged during the construction phase to review ESC measures that will also act as tree protection measures for deficiencies. Deficiencies will be resolved immediately.

No access, storage or stockpile of materials or equipment can occur within the area protected by the ESC measures.

A certified arborist should carry out or oversee the mitigation of any impacts to trees, including broken branches.

4. Impacts to SAR Butternut Trees will require a Notice of Butternut Impact Registration and compensation as per O. Reg. 242/08 if impacts (i.e. any disturbance) as the alternative chosen will be located within the 50 m protection zone around the trees.

October 2019

Wildlife/Habitat

Effect

1. Temporary displacement of and disturbance to, wildlife and wildlife habitat during the construction phase (e.g., vegetation removals, noise disturbance), including SAR. Works associated with the road improvements may also temporarily limit wildlife movement (e.g. deer, turtles, amphibians) and reduce useable habitat during the construction phase.
 - Possible minor impact to potential candidate bat maternity roosting habitat with vegetation removals along the edges of the forested communities during the construction phase.
 - Potential for disturbance or destruction of migratory breeding birds, their nests, and their habitat during the construction phase. Eastern Wood-pewee (Special Concern) nesting habitat may be impacted by vegetation clearing along the margins of the road.
 - Habitat for Monarch (Special Concern) may be temporarily removed during the construction.
 - Potential risk to nesting Snapping Turtle (Special Concern) and Blanding's Turtle (Threatened) temporarily during construction and over long term due to paving of shoulders and removal of gravel substrate that is preferred for nesting.

Mitigation

1. The footprint of the proposed disturbed area should be minimized as much as possible.

Avoid vegetation clearing during sensitive times of the year for local wildlife, such as spring and early summer (when many animals bear their young or migrate between wintering and summer habitats).

To reduce the risk of potential impact to wildlife, including Species at Risk, vegetation clearing should not be completed between April 1 to October 31 to avoid the active period for the following:

- Breeding birds – Broadly from April 1 to August 31 for most species (regardless of the calendar year).
- Monarch species – End of May through end of August. Removals of individual host plants (milkweed species) and their supporting habitat should be avoided during the active egg laying and larval stages of Monarch species.
- Turtle species – Threatened and Special Concern – Generally considered to be from May 15 to July (MNR, 2015).

October 2019

- Bat species – Considered to be between April 1 to October 31, of any calendar year (personal correspondence, B. Shirley, MNRF, 2018).

Educational material should be provided to construction personnel prior to commencement of construction works to assist personnel in identifying SAR species including, but not limited to: Snapping Turtle, Blanding's Turtle, and Butternut.

Temporary silt fence barriers are recommended to exclude wildlife (i.e., amphibians and turtles) from the earthwork and construction activities in areas adjacent to low-lying areas and potential habitat features and areas such as temporary storage/equipment areas and soil stockpiles. The design of silt fence barriers within the construction area is to be established as per MNRF Best Practices Technical Note – Reptile and Amphibian Exclusion Fencing (Version 1.1) July 2013 (MNR 2013).

Temporary exclusion fencing shall be installed to allow wildlife to leave the fenced area during vegetation clearing. Once the work area has been cleared, it can be securely fenced to prevent wildlife from returning. The excluded area shall be searched immediately following fencing installation for any wildlife (including SAR) that may have become trapped. Any wildlife shall be permitted to escape, to a suitable habitat.

In the event an animal is encountered during construction and does not move from the construction zone, the Contract Administrator shall be notified. If required, the Contract Administrator should contact a biologist to have the wildlife safely relocated. If the construction activities are such that continuing construction in the area would result in harm to wildlife, construction activities in that location shall temporarily stop and the MNRF shall be contacted for direction. Should a SAR be encountered within a construction or operational area, to ensure compliance with the ESA, all works shall stop immediately, and MECP contacted.

An Environmental Inspector shall be engaged during the construction phase to review ESC measures that protect adjacent natural features and prevent certain wildlife such as turtles from entering the work zone. Deficiencies will be resolved immediately.

Consideration should be given during Detailed Design to facilitate wildlife passage through new culvert structures to reduce road mortality for turtles and amphibians. Ideas to be considered should include but not be limited to:

- Culvert sizing and design; and
- Permanent amphibian and reptile exclusion fencing.

October 2019

Design details should be coordinated with MECP and LSRCA during Detailed Design.

MNRF shall be consulted on the appropriate mitigation measures required to preserve Deer congregation, wintering, and movement in the event of vegetation clearing and construction.

Active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the ESA, cannot be destroyed at any time of the year.

If a nesting migratory bird (or SAR protected under ESA) is identified within or adjacent to the construction site (or during operations and maintenance activities) and the activities are such that continuing works in that area would result in a contravention of the MBCA or ESA, all activities shall stop and the Contract Administrator (with assistance from an Avian Biologist) shall discuss mitigation measures with the Town. Should SAR be identified, all activities shall stop and MECP shall be contacted immediately to ensure compliance with the ESA. The Contract Administrator shall instruct the Contractor on how to proceed based on the mitigation measures established through discussions with the MECP and/or Environment Canada.

If designated areas are created during construction for the stockpiling of materials, especially fill, soil and gravel, the Contractor shall install 201 fencing around the perimeter of these areas to prevent any turtle species from entering the area and attempting to nest (turtles are attracted to these materials for nesting). Please refer to MNRF Best Practices Technical Note - Reptile and Amphibian Exclusion Fencing (Version 1.1) July 2013 (MNR 2013).

Consideration should be given during Detailed Design for restoration plans to provide turtle nesting habitat in the wetland, not on the gravel shoulder (e.g., gravel nesting islands).

Fish and Fish Habitat

Effect

1. In-water works may be required which could result in “*serious harm to fish and fish habitat*”.
2. De-watering may be required during construction.
3. Indirect impacts to fish habitat as a result of the road embankment works at the eastern end of the Study Area, improved ditching at the western end of the Study Area and culvert replacement activities through sediment and erosion.

October 2019

Mitigation Measures

1. A proponent-led Self-Assessment will be conducted by a qualified professional aquatic ecologist to determine if “serious harm to fish and fish habitat” can be avoided or adequately mitigated. If negative residual effects cannot be avoided, a request for project review should be submitted to DFO.

During Detailed Design, correspondence should be maintained with a qualified professional aquatic ecologist in the determination of appropriate mitigation measures to avoid “serious harm to fish”.

This may include, but is not limited to, developing a site-specific design strategy, minimizing alteration below the HWM, minimize ‘in-filling’ as defined by DFO, utilize native and/or appropriately sized substrates, and incorporation bioengineering bank stabilization techniques to the extent feasible.

In water work activities should be conducted in the dry, requiring work zone isolation while maintaining flow downstream. A fish salvage would be required to remove fish from the work area, prior to dewatering. A Licence to Collect Fish for Scientific Purposes (LCFSP) will be required from the MNRF prior to the salvage activities.

Near-water work and work below the HWM will adhere to the appropriate in-water work timing window to avoid potential impacts to resident and migratory fish species. Based on the habitat and species observed, an in-water timing window of July 15 to September 30 is recommended throughout the Study Area to align with the cold-water mapping of Tributary 1 and the presence of Brook Trout in Tributary 3. Vegetation clearing may need to be completed in advance of in-water work to meet vegetation clearing timing restriction.

2. Should dewatering be deemed necessary during the construction and development phases, a Monitoring and Mitigation Plan will be required to ensure that water quantity and quality is not compromised in the watercourse. This will be covered in the Detailed Design phase of the project.
3. An ESC Plan should be developed for incorporation into detailed design. Implementation of the ESC measures shall conform to recognized standard specifications, such as Ontario Provincial Standards Specification (OPSS), and the requirements of the LSRCA.

October 2019

Noise/Vibration/Air Quality/Greenhouse Gas Emissions

Effect

1. Temporary nuisance noise during construction activities. Increased dust in air, emissions from construction activities.

Mitigation

1. Noise control measures, such as restricted hours of operation, the use of appropriate machinery/mufflers, will be implemented where required. Vehicles/machinery and equipment should be in good repair, equipped with emission controls, as applicable, and operated within regulatory requirements. If required, dust control measures may include the wetting of surfaces using a non-chloride-based compound to protect water quality.

7.0 Permits

Town of Innisfil By-Law

An amending by-law will be required to remove the permission for 7th Line (west) to operate as temporary one-way road.

Permit To Take Water (PTTW)

Water taking in Ontario is governed by the *Ontario Water Resources Act* (OWRA) and the Water Taking and Transfer Regulation O. Reg. 387/040, Section 34 of the OWRA requires anyone taking more than 50,000 L/d to notify the MECP. This requirement applies to all withdrawals, whether for consumption, temporary construction dewatering or permanent drainage improvements. Projects assessed to be taking more than 50,000 L/d but less than 400,000 L/d of ground water can obtain a permit/permission online via the Environmental Activity and Sector Registry (EASR) system. If it is assessed that more than 400,000 L/d is required, then a Category 3 PTTW will be required.

Regulated Area

Development or alterations within the jurisdiction of the LSRCA in Regulated Areas will require a permit from LSRCA under Ontario Regulation 179/06 (Lake Simcoe and Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses).

October 2019

SAR Butternut

Notice of Butternut Impact Registration and compensation as per O. Reg. 242/08 will be required to be submitted to the MECP if impacts (i.e., any disturbance) within 50 m of the tree or removal will occur.

DFO Self-Assessment

Construction activities that have the potential to impact fish or fish habitat must be constructed and operated in compliance with the federal *Fisheries Act*. Without authorization from Fisheries and Oceans Canada (DFO), the *Fisheries Act* prohibits any work, undertaking, or activity that results in serious harm to fish that are part of a Commercial, Recreational or Aboriginal (CRA) Fishery, or to fish that support such a fishery. If a project is unable to avoid negative residual effects, then the project should be submitted to DFO for review. A proponent led Self-Assessment should be completed following the completion of the Detailed Design, to determine if project review is required.

If fish salvage is required to remove fish from the work area, prior to dewatering, a LCFSP will be required from the MNRF prior to the salvage activities.

Archaeology

When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport (MTCS), a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

8.0 Phase 4 – Environmental Study Report

Phase 4 of the MCEA process is the phase in which the ESR is completed for a Schedule 'C' project and submitted for public and agency review. The ESR is placed on the public record (e.g., publicly accessible municipal reading rooms, municipal websites) and accompanied by a Notice of Completion. The Notice of Completion is published in local newspapers and mailed or emailed to those individuals who have expressed an interest in the project throughout the planning phases. The Notice of Completion provides members of the public with the dates, times, and locations where the ESR can be reviewed, a deadline for their comments, and names and addresses of people to whom comments can be sent.

The intent of this ESR is to:

- Describe the project and its purpose;
- Outline the public consultation process;

October 2019

- Identify and evaluate alternative solutions;
- Evaluate and identify the environmental effects associated with alternatives;
- Select a preferred alternative based on clear, publicly vetted criteria; and
- Recommend how the selected project is to be implemented, including mitigating measures for identified effects and commitments to monitoring procedures.

Upon submission and approval of the ESR and provided there are no Part II Order requests associated with a MCEA project, the project is considered “approved” under the EA Act. The project can then proceed to finalize detailed design and construction provided that all other applicable approvals and permits have been secured.

9.0 Conclusions

During Detailed Design and Construction of the Project, the following commitments are required:

- Mitigation measures as detailed in Section 6.0; and
- The Town will be required to secure all necessary Permits and/or Authorizations required for the project, including consultation with the LSRCA with respect to working within a Regulated Area and tree compensation.

As per the requirements of the MCEA, this ESR is available for public review and comment for a period of 30 calendar days following the publication of the Notice of Completion. A copy of the Notice of Completion is provided in Appendix C. If concerns arise regarding this project which cannot be resolved in discussion with the Town, a person or party may request that the Minister of the Environment make an Order for the Project to comply with Part II of the *Environmental Assessment Act* (referred to as a Part II Order), which addresses Individual Environmental Assessments. Part II Order Requests must be submitted using a standard form available on the Provincial Forms Repository website (<http://www.forms.ssb.gov.on.ca/>). The form can be found by searching either “Part II Order” or “012 2206E” (the form ID number) on the Repository’s main page. Requests must be received by the Minister of the Environment within 30 calendar days of the first publication of the Notice of Completion. A copy of the completed form should also be sent to the Director of the Environmental Approvals Branch and to the Town of Innisfil Project Team.

If the Minister does not receive a request for a Part II Order within the 30 calendar days, then the Project will move forward to Detailed Design, approvals process and subsequent implementation of the preferred alternative.

October 2019

10.0 References:

Conservation Ontario, Drinking Water Source Protection

<http://conservationontario.ca/conservation-authorities/source-water-protection/>, accessed January 2019;

Endangered Species Act, 2007, Section 9(1);

Ministry of the Environment and Climate Change, Source Water Protection Atlas

<https://www.gisapplication.lrc.gov.on.ca/SourceWaterProtection/Index.html?site=SourceWaterProtection&viewer=SWPViewer&locale=en-US>, accessed January 2019;

Ministry of Natural Resources and Forestry, Species at Risk in Ontario, various species

<http://www.ontario.ca/environment-and-energy/species-risk-ontario-list>, accessed May 2018;

Ministry of Municipal Affairs and Housing, Provincial Policy Statement (PPS), 2014;

Ontario Ministry of Natural Resources 2013. Reptile and Amphibian Exclusion Fencing – Best Practices. Species at Risk Branch Technical Note. Version 1.1

Ontario Geological Survey. *Surficial Geology of Southern Ontario*. Ontario Geological Survey, open data, <https://www.ontario.ca/data/surficial-geology-southern-ontario>, accessed January 2018;

Ontario Geological Survey. *Bedrock Geology of Ontario*, Ontario Geological Survey, open data, <https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearch>, accessed January 2018

Ontario Regulation 179/06, Lake Simcoe and Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

Ontario Regulation. 287/07, under the Clean Water Act, 2006

South Georgian Bay Lake Simcoe Source Protection Plan, Approved, approved by MECP, January 26, 2015, amended February 15, 2018;

The County of Simcoe Official Plan, Approved December 29, 2016;

The Town of Innisfil Official Plan, approved May of 2009, March of 2010 and April of 2011.



BURNSIDE

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Appendix A

Existing Conditions

<i>'Preliminary Geotechnical//Hydrogeological Investigation Proposed Reconstruction'</i> , by PML – August 2018	A1
<i>'Stormwater Report'</i> , by Burnside, dated May 2019	A2
<i>'Traffic Assessment Report'</i> , by Burnside, dated May 2019	A3
<i>'Terrestrial Habitat Assessment'</i> , by Burnside, dated May,2019	A4
<i>'Tree Assessment Report'</i> , by Burnside, dated May 2019	A5
<i>'Aquatic Habitat Assessment'</i> , by Burnside, dated May 2019	A6
<i>'Socio-economic Assessment Report'</i> , by Burnside, dated May 2019	A7
<i>'Cultural Heritage Resource Assessment: Built Heritage Resources and Cultural Heritage Landscapes, Existing Conditions and Preliminary Impact Assessment'</i> by ASI, dated August 2018 (Rev. October, 2018 & March, 2019)	A8
Stage 1 Archaeological Assessment, by ASI, dated December 4, 2018	A9
<i>'Air Quality Impact Assessment Report'</i> , by Burnside, dated May 2019	A10
<i>'Noise Impact Assessment Report'</i> , by Burnside, dated May 2019	A11



BURNSIDE

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Appendix B

Evaluation of Alternatives

7 th Line EA – Evaluation of Alternatives	B1
7 th Line EA – Evaluation of Design Alternatives	B2
Widen and Reconstruction – Cost Estimate	B3



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Appendix C

Consultation Record

7 th Line EA – Project Contact List	C1
Class Environmental Assessment Study – Public Notices (Notice of Commencement and Notice of Completion)	C2
Local Residents (Letter, Correspondence and Meeting Minutes)	C3
Technical Advisory Committee	C4
EA Study Correspondence (Agency, Indigenous Communities and Public)	C5
Online Forum	C6
Public Open House No. 1 Summary Report	C7
Public Open House No. 2 Summary Report	C8