ENVIRONMENTAL STUDY REPORT

TOWN OF INNISFIL

7th Line Improvements

Municipal Class Environmental Assessment
Schedule "C"

APRIL 2019

AINLEY FILE # 217024

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THE PUBLIC RECORD

This project has followed the Schedule 'C' planning and design process in accordance with the Municipal Class Environmental Assessment (Oct. 2000, as amended 2007, 2011 & 2015). This Environmental Study Report (ESR) has been prepared to document the Class EA process and by this Notice is being placed in the public record for review and comment. A digital copy of the ESR is available on the Town's website at www.innisfil.ca/7thea. A hard copy of the document is also available for review during regular business hours at the following locations:

Town of Innisfil
2101 Innisfil Beach Rd.
Innisfil, ON L9S 1A1
Hours:
Mon. to Fri. 8:30 - 4:30 pm
Sat. 9:00 a.m. – 12.00 p.m.

Innisfil IdeaLAB & Library
967 Innisfil Beach Road
Innisfil, ON L9S 1V3
Hours: Tues. to Fri. 9:30 a.m. - 9:00 p.m.
Sat. 10:00 a.m. - 5:00 p.m.
Sun. 1:00 p.m. – 5:00 p.m.

In accordance with the Schedule 'C' Municipal Class Environmental Assessment process, this Environmental Study Report (ESR) will be made available for a 30 day public review period starting **April 11, 2019** and ending **May 11, 2019** If concerns regarding this project cannot be resolved with the municipality, 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. Requests for a Part II Order must be submitted in writing to the Minister of Environment at the address listed below by **May 11, 2019**. A duplicate copy of the request must also be forwarded to the Director of the Environmental Assessment and Permissions Branch and Ms. Magdalena Koehler of the Town of Innisfil at the addresses shown below:

Minister of Environment
Ministry of the Environment, Conservation and Parks
Ferguson Block, 77 Wellesley St. W,
11th Floor
Toronto ON M7A 2T5
Fax: 416-314-8452
Minister.MECP@ontario.ca

Director, Environmental Assessment and Permissions Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Ave W, 1st Floor
Toronto ON M4V 1P5
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EXECUTIVE SUMMARY

In April 2017, the Town of Innisfil initiated a Schedule 'C' Municipal Class Environmental Assessment (Class EA) to facilitate improvements to a 3km segment of the 7th Line, extending from the 20th Sideroad to Lake Simcoe. This project was initiated to accommodate future growth in the Alcona area and to address capacity and operational deficiencies affecting the subject corridor. The proposed improvements also present an opportunity to provide active transportation infrastructure as well as update current municipal water and wastewater servicing.

The project study area is located within a rural and urbanized mixed environment and is not within an area that is subject to the Greenbelt Plan (2017), the Niagara Escarpment Plan (2017) or the Oak Ridges Moraine Conservation Plan (2017). There are no Provincially Significant Wetlands (PSW) or Areas of Natural & Scientific Interest (ANSI) within or adjacent to the subject study area. A portion of the subject study area is located within an area regulated by the Lake Simcoe Region Conservation Authority (LSRCA). Banks Creek is the closest water feature, running adjacent to the 7th Line and crossing under at several points. The section of Banks Creek on the north side of the 7th Line, east of Webster Boulevard, functions as the road ditch. The reconstruction of the 7th Line includes the proposal to realign 910m of Banks Creek on the north side of the roadway, approximately 8.0m northward. The proposed development can be completed with no negative impact to significant natural heritage features or related functions and relocating the watercourse is anticipated to result in beneficial effects for fish habitat. Additional work is required to assess the health of Butternut (Endangered) trees located adjacent to the limit of disturbance to determine if permitting under Ontario's Endangered Species Act (ESA) is required.

A Cultural Heritage Resource Assessment completed for the project study area identified two Built Heritage Resources (BHR) and three Cultural Heritage Landscapes (CHL) within the area of study. A Stage 1 Archaeological Assessment was completed that revealed nine previously registered archaeological sites located within a 1.0 km radius of the study area. Some areas outside of the right-of-way were found to exhibit archaeological potential. As such, a Stage 2 level of assessment will be required in localized areas where work is proposed beyond the existing right-of-way.

During Phase 2 of the Class EA process, five alternative solutions were presented to the public at Public Open House (POH) No. 1 held October 11, 2017. Following the receipt of input from interested parties, the Preferred Solution was selected and three design options to implement it were presented at a second POH held March 28, 2018. Comments submitted during the Class EA process focused on, traffic capacity, active transportation, vegetation loss, Banks Creek rehabilitation, and safety.

The final Recommended Plan proposes the reconstruction of the transportation corridor with a three-lane urban cross-section from 20th Sideroad to east of Webster Boulevard and transforming to a two-lane urban cross-section the remainder of the way to St. Johns Road. The Recommended Plan also includes proposed work to rehabilitate the section of Banks Creek on the north side of 7th Line east of Webster Boulevard that is directly adjacent to 7th Line. A multi-use trail is recommended on the north side of the 7th Line from St. Johns Road to 20th Sideroad.

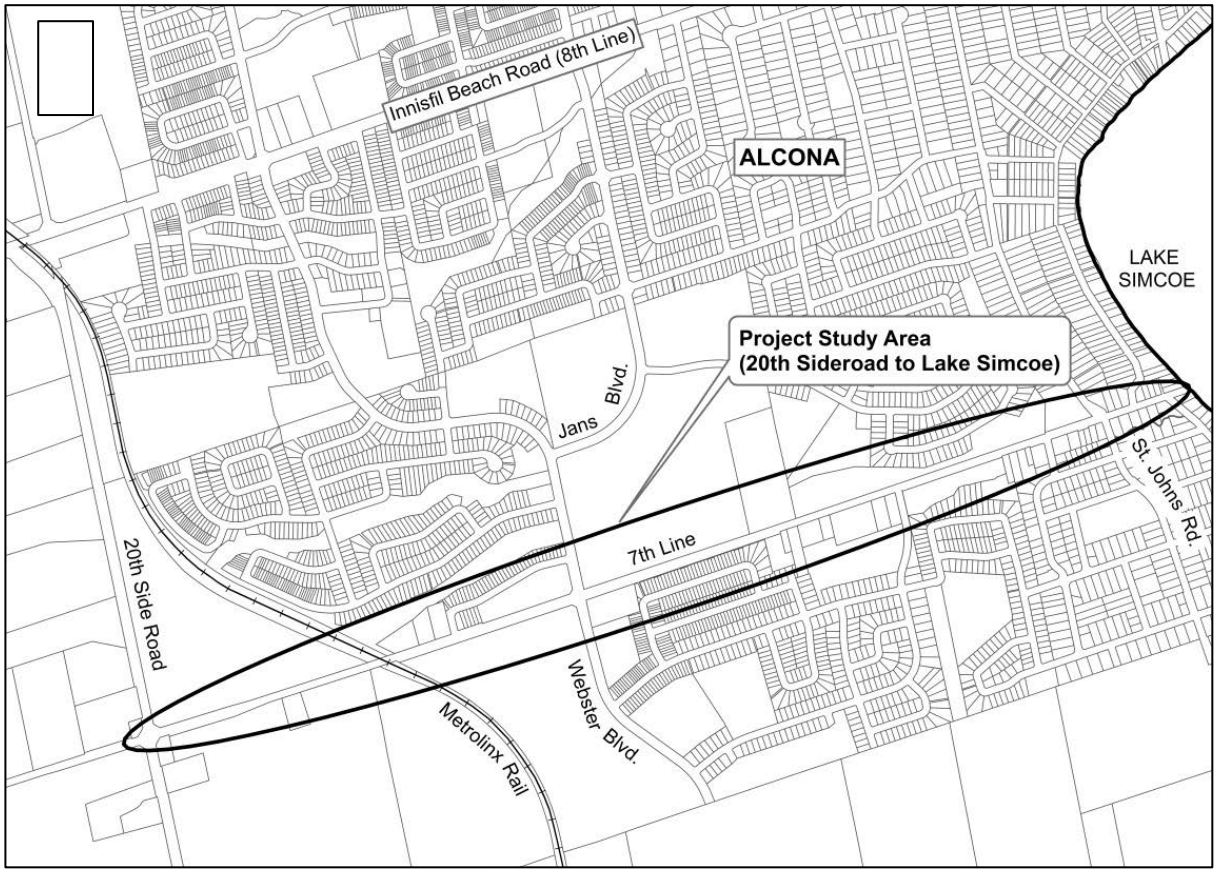
Overall, this project is expected to improve traffic flow, expand the Town's active transportation network, and provide overall improvements to water quality in Banks Creek. Mitigation will be needed to address standard construction related impacts such as sediment and erosion control, accidental spillage, disposal requirements for surplus excavated material, noise, traffic management and property access during construction. It is anticipated that impacts will not be significant and any potential for impact can be reduced through the implementation of appropriate mitigation.

1.0 PROJECT OVERVIEW

1.1 Introduction

In April 2017, the Town of Innisfil retained the services of the Ainley Group to undertake a Schedule 'C' Municipal Class Environmental Assessment (Class EA) to facilitate improvements to the 7th Line extending from the 20th Sideroad to Lake Simcoe, a distance of approximately 3.0 km, as illustrated in Figure 1. This project was initiated to accommodate future growth in the Alcona area and to address capacity and operational deficiencies affecting the subject corridor. As part of this project, improvements will be made to the existing road cross-section and intersections including provisions for active transportation (i.e. walking, cycling etc.) and municipal servicing.

Figure 1: Project Study Area



1.2 Environmental Assessment Process

The purpose of the Ontario Environmental Assessment Act (OEAA) is to provide for "…the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment." The term "environment" is broadly defined and includes the built, natural, socio-economic, and cultural environments. The OEAA applies to provincial ministries and agencies, municipalities and public bodies (i.e. Conservation Authorities and Metrolinx).

The Class EA is a planning process that has been approved under the OEAA for a class or group of undertakings. A Class EA follows an approved process designed to protect the environment and ensure compliance with the OEAA. A municipality is required to complete a Municipal Class Environmental Assessment before infrastructure improvements can be undertaken. Projects that are identified in the Class EA can proceed to implementation without further approval under the Act provided the approved Class EA planning process is followed.

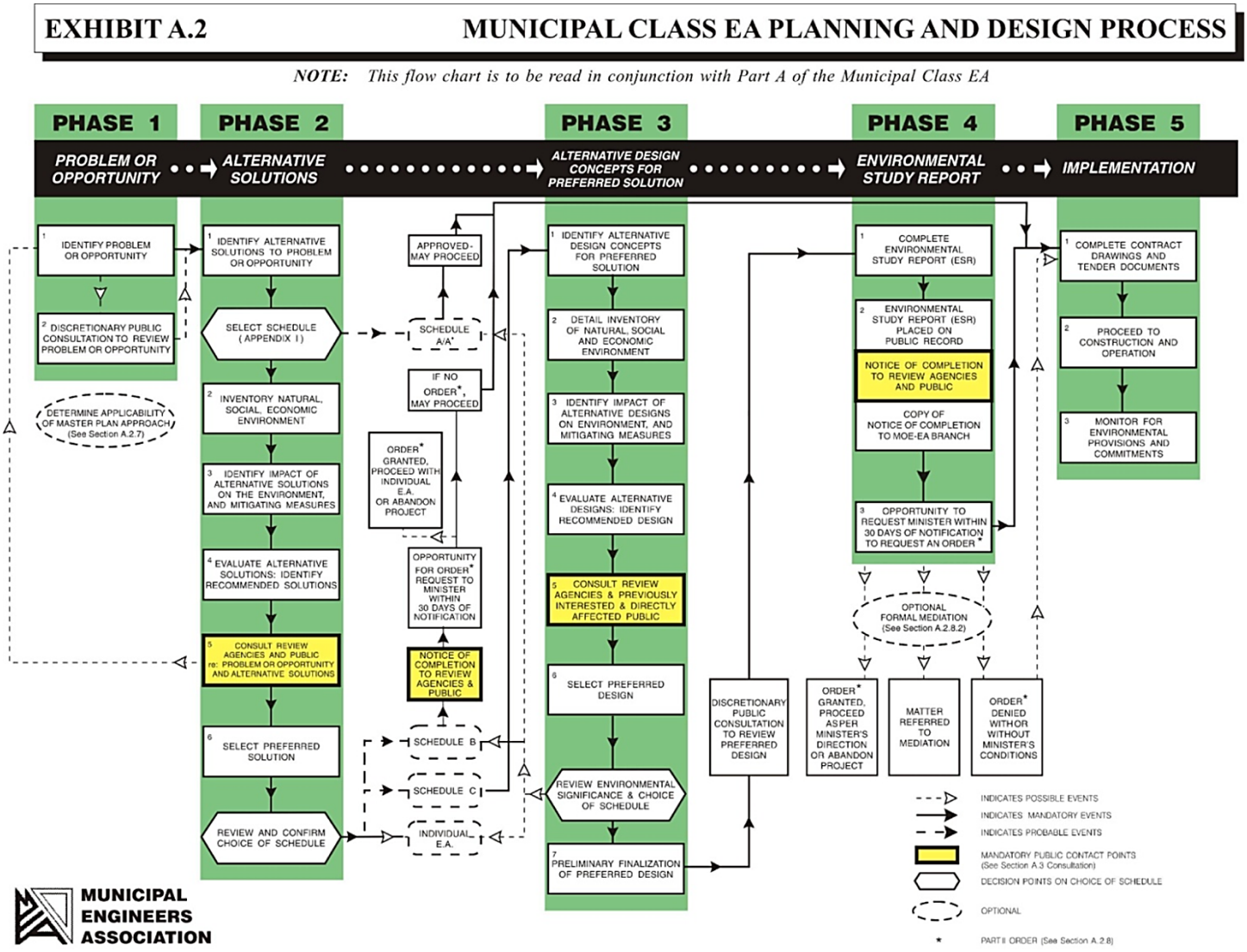
Since the scope of work for this project involves a change in the number of lanes and since capital costs could potentially be in excess of $2.4 million, this project constitutes a Schedule "C" project in accordance with the Municipal Class Environmental Assessment document. The proponent for this project is the Town of Innisfil.

Schedule 'C' projects require completion of Phases 1 to 4, with implementation during Phase 5. The MCEA flow chart, included as Figure 2, illustrates the Class EA process and steps required for each phase. The process requires the evaluation of potential solutions and design concepts so as to select a suitable approach that will address the problem and / or opportunity, but also keep impacts to a minimum. The end goal is to select a solution that will address the problem, but create the least amount of impact on the area environment.

Consultation is an integral part of an environmental assessment. Opportunity is provided throughout the process for members of the public, key stakeholders, external agencies and Aboriginal communities and agencies to provide input during the Class EA process.

The specific Class EA tasks completed for this project are further detailed below:

Figure 2: Municipal Class Environmental Assessment Flow Chart



Phases 1 & 2

- Identify the problem/opportunity;
- Inventory the existing environment (physical, natural, social and economic);
- Develop alternative solutions to address the problem(s);
- Evaluate impacts of the proposed alternatives on the existing environment;
- Schedule Public Open House No. 1;
- Select the Preferred Solution in consideration of comments received.

Phases 3 & 4

- Establish alternative design concepts to implement the Preferred Solution as selected at the close of Phase 2;
- Evaluate the impacts of the proposed alternative designs on the existing environment;
- Schedule Public Open House No. 2;
- Select the Preferred Design in consideration of comments received;
- Develop a suitable mitigation strategy to minimize potential environmental effects;
- Prepare an Environmental Study Report (ESR) to document the Class EA process;
- File the ESR for a 30 day public review period.

Phase 5 - Implementation

- Complete the detailed design and prepare the contract drawings and tender documents and proceed to construction.
- Monitor for environmental provisions and commitments.

1.3 The Canadian Environmental Assessment Act

The Canadian Environmental Assessment Act was updated in 2012. The work proposed does not constitute a Designated Project under the revised Act and the project is not taking place on Federal lands. Therefore, a federal Environmental Assessment is not required for this undertaking.

1.4 Project Team

The project team involved in the completion of this Schedule 'C' Class EA includes the following:

Town of Innisfil

- Ms. Magdalena Koehler, C.E.T., CAPM, Capital Project Manager
- Ms. Carolina Cautillo, Project Manager, Roads, Traffic, & Transportation

Ainley Group

- Mr. Steve Fournier, P. Eng., Project Manager
- Ms. Andrea Potter, B.E.S., Environmental Planner
- Ms. Jodi Moore, Environmental Planning Assistant
- Mr. Nathanael Couperus, Engineering Assistant
- Ms. Jody Marks, Environmental Planning Assistant

Technical Advisory Committee (TAC)

Representatives from the listed organizations were invited to form the TAC. Their expertise were sought to provide technical review and recommendations on specific components related to the 7th Line Improvements. Throughout the Class EA process, a total of 4 meetings were held with TAC members. A copy of each meeting's minutes can be found in Appendix 'N' of this report.

- Town of Innisfil
- County of Simcoe
- Metrolinx
- Enbridge Gas
- Lake Simcoe Region Conservation Authority
- InnServices Utilities Inc.
- InnPower Corporation
- Bell Canada
- Rogers Telecommunications Inc.

1.5 Purpose of this Report

The purpose of this Environmental Study Report (ESR) is to document the Schedule 'C' Class EA planning process completed for this project. This report identifies the deficiencies affecting the subject study area and the rationale for this Class EA. The alternatives considered to address the existing deficiencies are summarized as well as the evaluation of these alternatives and the decision making process leading to selection of the preferred solution. This report describes the existing project environment (physical, natural, socio-economic, and cultural), the potential for environmental impact, and the mitigation strategy proposed. Consultation completed during this process is also included for discussion in this report.

2.0 PLANNING CONTEXT

This section of the report provides a discussion of the provincial and municipal planning policy that guides land use planning and infrastructure development in Ontario. This section provides a discussion of the provincial and municipal planning documents that are applicable to this Municipal Class EA. This report will demonstrate how this project is consistent with these policies.

2.1 Provincial Policy Statement

The Provincial Policy Statement (PPS) is issued under the authority of Section 3 of the Planning Act and came into effect on April 30, 2014. The PPS outlines provincial policies relating to land use planning and development. The policies provide for the efficient use of land, environmental protection and future sustainability. Growth is to be directed away from significant resources and focused within settlement areas. Land is to be managed to achieve an efficient use that accommodates both existing and future needs but also limits environmental impacts. The Planning Act requires that land use planning decisions be consistent with the policy statements issued under the Act. Some of the key policies applicable to this project are identified below:

- **Section 1.0 Settlement Areas**
  - **S. 1.1.3.1:** "Settlement areas shall be the focus of growth and development, and their vitality and regeneration shall be promoted."
  - **S. 1.1.3.3:** "Planning authorities shall identify appropriate locations and promote opportunities for intensification and redevelopment where this can be accommodated taking into account existing building stock or areas, including brownfield sites, and the availability of suitable existing or planned infrastructure and public service facilities required to accommodate projected needs."

- **Section 1.6 Infrastructure and Public Service Facilities**
  - **S. 1.6.1:** "Infrastructure, electricity generation facilities and transmission and distribution systems, and public service facilities shall be provided in a coordinated, efficient and cost-effective manner that considers impacts from climate change while accommodating projected needs. Planning for

infrastructure, electricity generation facilities and transmission and distribution systems, and public service facilities shall be coordinated and integrated with land use planning so that they are:

a) financially viable over their life cycle, which may be demonstrated through asset management planning; and
b) available to meet current and projected needs."

- **S. 1.6.6.1:** "Planning for sewage and water services shall direct and accommodate expected growth or development in a manner that promotes the efficient use and optimization of existing municipal sewage services and municipal water services…"
- **S. 1.6.6.7:** "Planning for stormwater management shall minimize or where possible, prevent increase in contaminant loads; minimize changes in water balance and erosion; not increase risks to human health and safety and property damage; maximize the extent and function of vegetative and pervious surfaces; and promote stormwater management best practices, including stormwater attenuation and re-use, and low impact development."

- **Section 2.1 Natural Heritage**
  - **S. 2.1.1:** "Natural features and areas shall be protected for the long term."

- **Section 2.6 Cultural Heritage and Archaeology**
  - **S. 2.6.1:** "Significant built heritage resources and significant cultural heritage landscapes shall be conserved."

The Study Area for this Class EA is located within the Alcona Settlement Area in the Town of Innisfil. This Class EA was initiated to complete improvements to transportation and servicing infrastructure that will assist the Town in accommodating growth. As the current project is following a Municipal Class Environmental Assessment process, consideration is being given to the potential to impact the physical, natural, socio-economic and cultural environment prior to selection of the preferred design. Various studies have been completed to obtain a better

understanding of the existing conditions of the study area so that impacts can be properly assessed and appropriate mitigation can be developed. The various studies focused on:

- Traffic Counts
- Natural Heritage
- Geotechnical
- Noise Impacts
- Hydrogeological
- Archaeological
- Cultural Heritage
- Fluvial Geomorphic

This Class EA process will assist in completing infrastructure improvements in a manner that is both cost effective and environmentally responsible. The proposed undertaking is consistent with the policies of the Provincial Policy Statement, 2014.

2.2 Growth Plan

Under the Places to Grow Act (2005), regional Growth Plans have been developed to manage long-term growth and infrastructure renewal throughout the province. The *Growth Plan for the Greater Golden Horseshoe (2017)* (Growth Plan) is the document that provides direction for the Town of Innisfil in this regard. The Growth Plan is a long-term plan that promotes the revitalization of downtown cores and the creation of "complete communities" that have all amenities, housing and employment in one location with the goal of eliminating urban sprawl, reducing traffic congestion and protecting important features such as farmland and environmentally sensitive areas.

Regional and local municipalities are required to comply with the policies of the Growth Plan and are to manage growth through their respective Official Plan documents using the population and employment growth forecasts contained in the Growth Plan. The Province of Ontario, through its *Growth Plan for the Greater Golden Horseshoe (2017)*, has allocated a population of 56,000 for the Town of Innisfil by the year 2031. The existing population is approximately 37,000. Alcona is designated as a Primary Settlement Area in the aforementioned Growth Plan and a large portion of the forecasted population for the municipality will be directed to this

community. The Town of Innisfil is currently updating its Official Plan (2009) and recently updated the Transportation Master Plan (2018) to accommodate the growth planned for the municipality. This Class EA will provide the necessary infrastructure and servicing improvements that will assist the Town in accommodating anticipated growth.

2.3 County of Simcoe Official Plan

At the regional level, provincial policy is implemented through the County of Simcoe's Official Plan document. The County's Official Plan promotes the wise use of the County's resources & natural heritage features as well as the efficient use of land, cost-effective servicing, economic sustainability, and public health & safety.

2.4 Town of Innisfil Official Plan (2011)

The stated purpose of the Official Plan is to state the long term vision for the Town, delineate a municipal structure as the framework for future growth, set out goals and objectives which will contribute to the achievement of the vision and municipal structure, and provide land use policies of a local nature to facilitate decision making by Council, public agencies, and private interests with regard to the use and development of land within the Town.

The Official Plan also aims to ensure that the timing of the development within the Town coincides with its ability to provide the required services in order to avoid undue strain on the municipality and on the residents of the municipality. Such required services may include municipal infrastructure, roads, schools, parks, libraries and other services necessary for the new development. As illustrated in Figures 3 and 4, the Project Study Area is designated as Rural Land Use and existing urban settlement area.

Figure 3: Town of Innisfil Official Plan Schedule B: Land Use

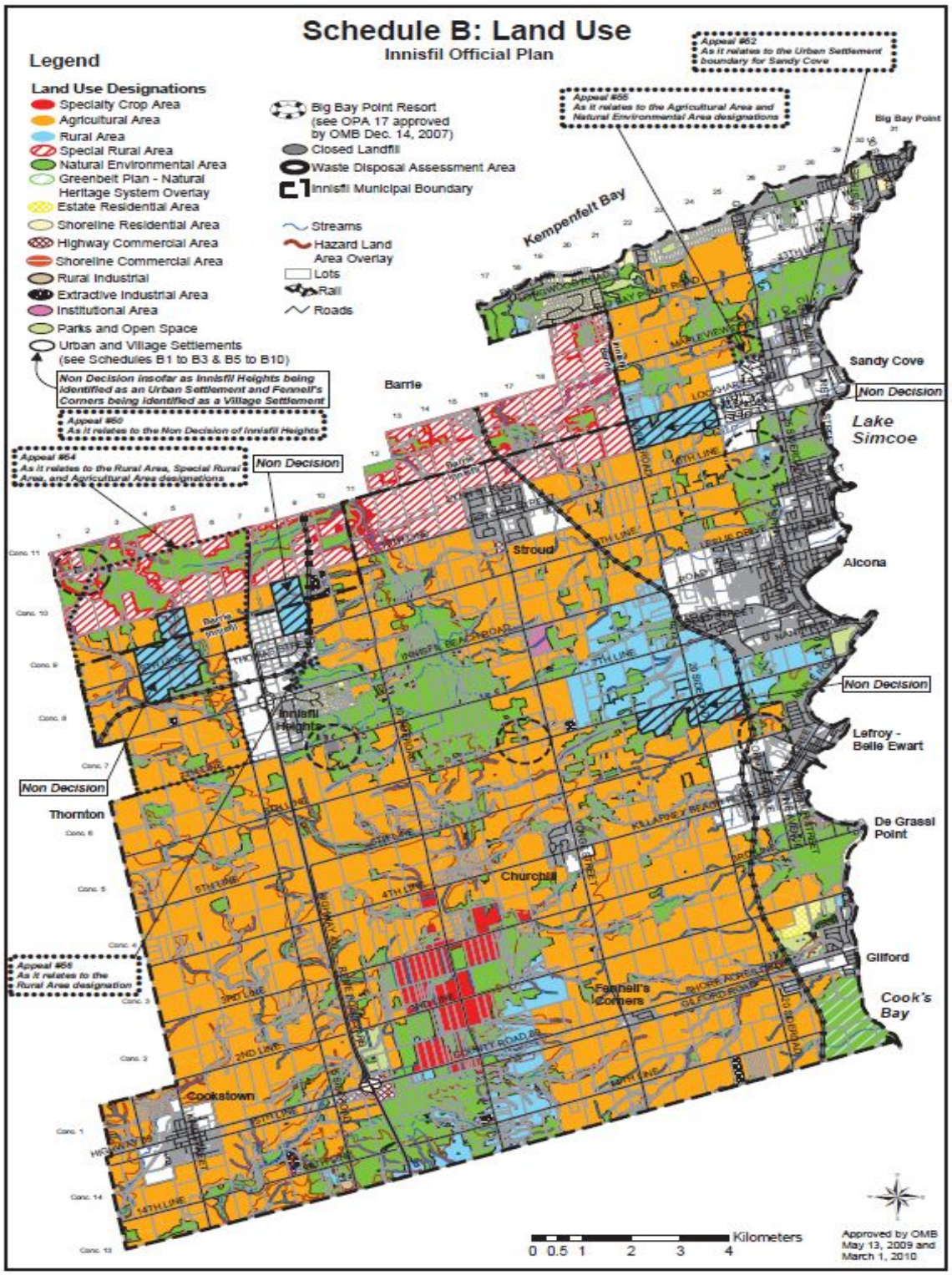
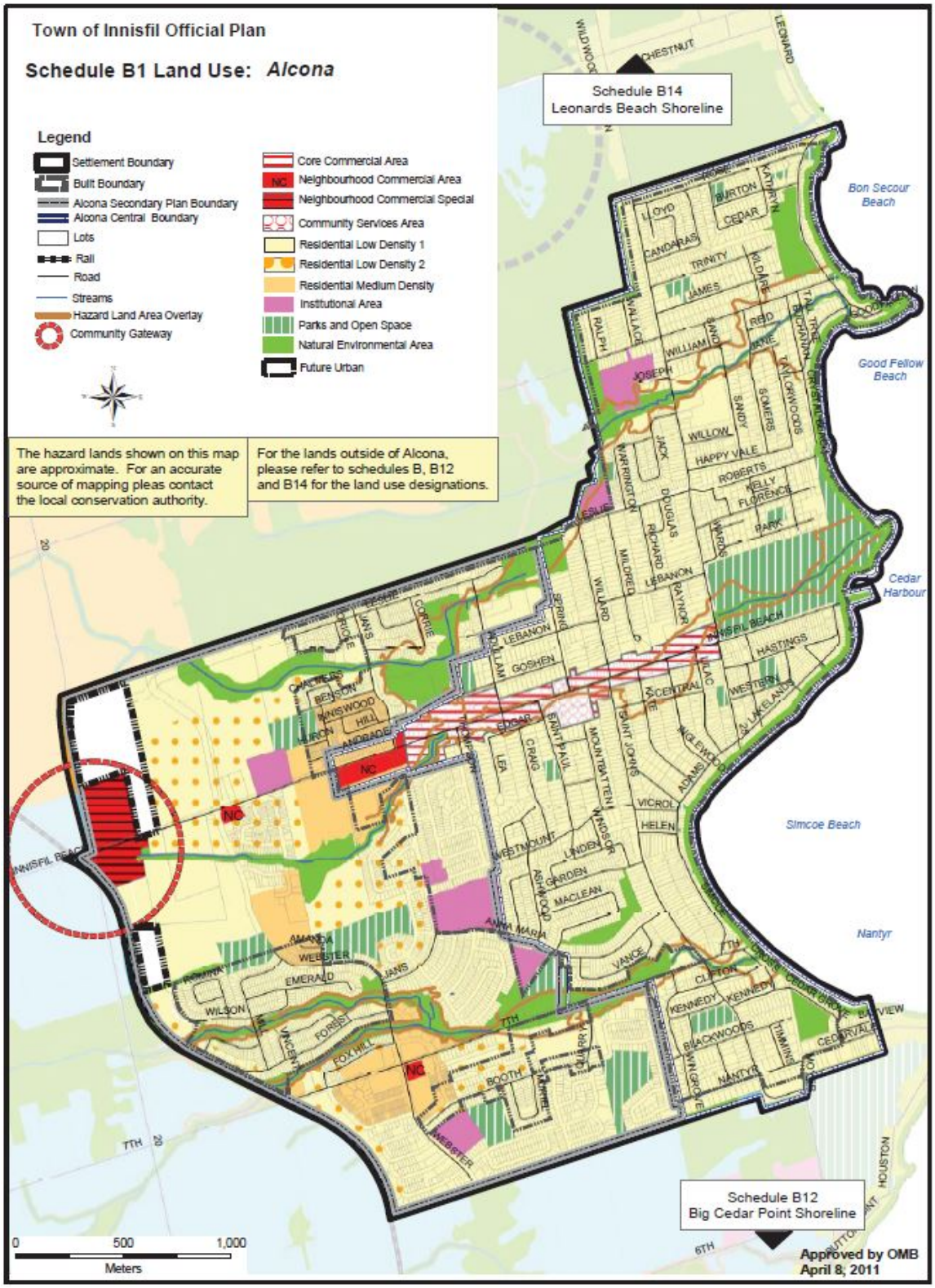


Figure 4: Town of Innisfil Official Plan Schedule B1 Land Use: Alcona



2.5 Lake Simcoe Region Conservation Authority

Portions of the project study area are located within an area regulated by the Lake Simcoe Region Conservation Authority (LSRCA) and a permit will be required from this agency to undertake works in this area.

There are two key LSRCA guidance documents that include the *LSRCA Watershed Development Guidelines* (LSRCA, April 2015)) and the *LSRCA Technical Guidelines for Stormwater Management Submissions* (LSRCA, June 2016). The *LSRCA Watershed Development Guidelines* outline the role of the conservation authority in the management of stormwater under the Conservation Authorities Act and the Planning Act. These guidelines provide direction relating to standards and requirements associated with the LSRCA approvals. The *LSRCA Technical Guidelines for Stormwater Management Submissions (LSRCA, June 2016)* provides technical guidance in the design of stormwater management infrastructure and report preparation.

Consideration was given to both of the aforementioned documents in the development of this Class EA and the LSRCA was actively consulted during this process. Ontario Regulation 172/06 subsection 2(e) permits the construction of public infrastructure that has been approved through a satisfactory Environmental Assessment process.

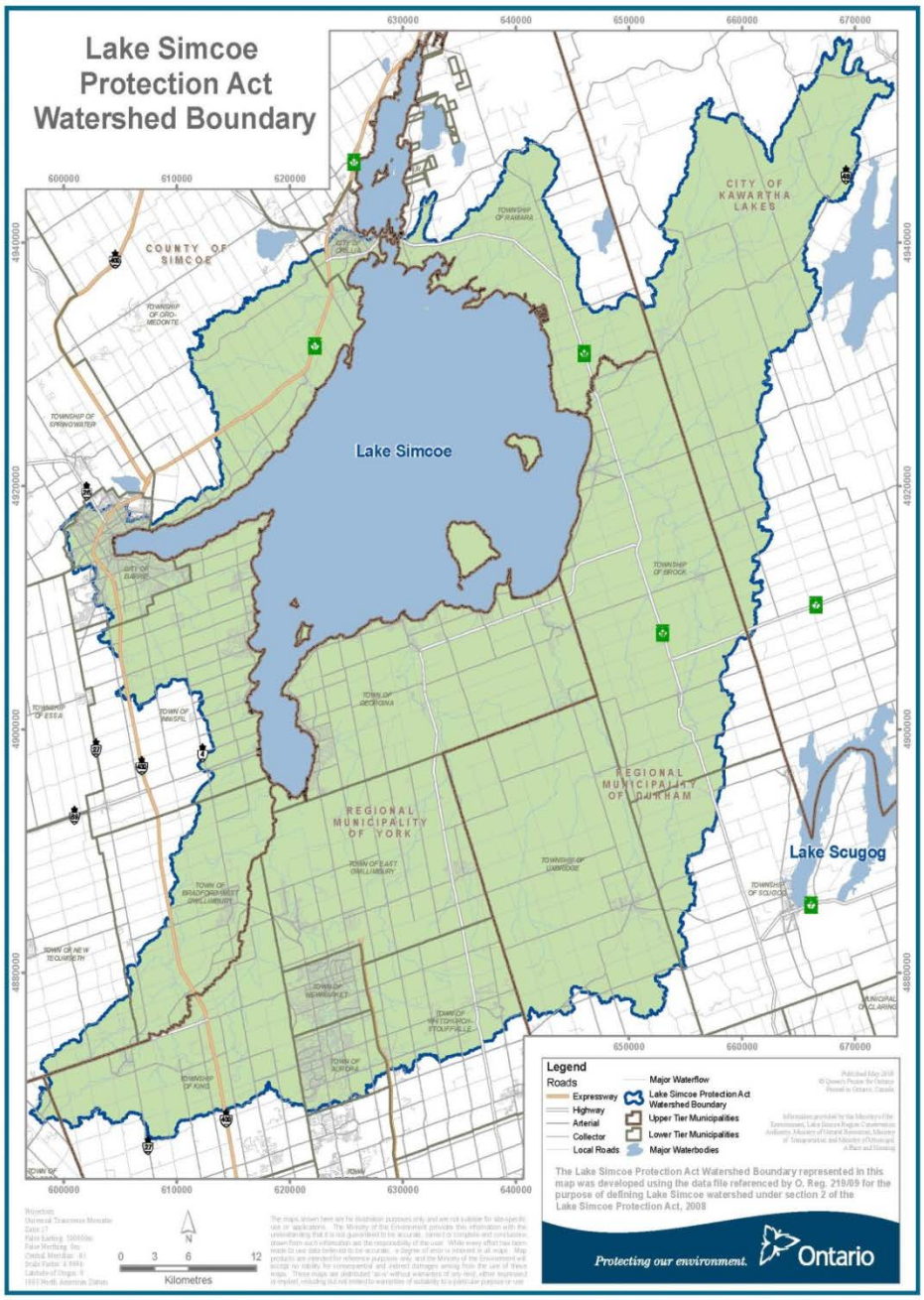
2.6 Stormwater Management Planning and Design Manual (2003)

This *Stormwater Management Planning and Design Manual* (MOECC, 2003) provides technical and procedural guidance in the planning, design, and review of stormwater management practices. This document was utilized in the design of the drainage improvements completed for this project. In April 2017, the Ministry of Environment, Conservation and Parks (MECP), formally the Ministry of Environment and Climate Change (MOECC), released the *Low Impact Development (LID) Stormwater Management Guidance Manual* that outlines an innovative approach to the management of stormwater. The document is currently in draft format and while it has not yet been formalized, it was also reviewed in the context of the current Class EA. The use of LID features are being considered in the design, where possible.

2.7 Lake Simcoe Protection Plan (2003)

The Lake Simcoe Protection Plan (LSPP) was developed to protect and restore the ecological health of the Lake Simcoe watershed. As shown in Figure 5, the subject study area is located within the limits of the Lake Simcoe Protection Act Watershed Boundary and is therefore subject to the requirements of the Act.

Figure 5: Lake Simcoe Protection Act Watershed Boundary



The Lake Simcoe Protection Act (2008) is the legislation that provides for the establishment of the LSPP and any amendments. It addresses environmental concerns in Lake Simcoe and its watershed by encouraging action to address ecosystem threats (i.e. excessive phosphorus) and identifying new threats including invasive species and climate change. The Lake Simcoe Protection Act (2008) also provides for the protection and restoration of shorelines and wetlands, as well as the restoration of the health of fish and other aquatic species.

2.8 Source Protection Plan

The purpose of the Clean Water Act (2006) is to protect drinking water at the source and to safeguard human health and the environment. It aims to protect existing and future drinking water sources. It ensures that municipal drinking water supplies are protected through prevention by the development of a watershed-based source protection plan. The source protection plans identify vulnerable areas within each municipality such as Wellhead Protection Areas (WHPA) and Intake Protection Zones (IPZ). Source protection plans provide policies to address existing and future risks to municipal drinking water sources within these vulnerable areas.

This EA project is subject to the South Georgian Bay Lake Simcoe Source Protection Plan and is within the Lake Simcoe and Couchiching/Black River Source Protection Area. The South Georgian Bay Lake Simcoe Source Protection Plan was reviewed to confirm if the subject study area is located within a designated vulnerable area. Consideration was given to whether the works proposed have the potential to adversely affect the quality or quantity of a drinking water source. When a Class EA undertaking proposes an activity that is a threat to drinking water, it must conform to the policies in the Source Protection Area (SPA) that address significant risks to drinking water and must have regard for policies that address moderate or low risks. Upon further investigation, it was found that the project is not located within a Wellhead Protection Area, Significant Groundwater Recharge Area, Intake Protection Zone, or a Highly Vulnerable Aquifer. This is presented in more detail in Section 5.2.6.

2.9 Climate Change

The MECP has recently finalized a document entitled *"Considering Climate Change in the Environmental Assessment Process (2017)"* that provides guidance relating to the ministry's expectations for considering climate change during the environmental assessment process. The

document is now a part of the Environmental Assessment program's Guides and Codes of Practice. The environmental assessment of proposed undertakings is to consider how a project might impact climate change and how climate change may impact a project. Climate change was considered during the course of this Class EA and is discussed further in Section 13.0 of this document.

3.0 RATIONALE FOR THIS PROJECT

This section of the report identifies the existing deficiencies affecting the project study area and discusses the existing and future traffic capacity requirements.

3.1 Existing Infrastructure Deficiencies

3.1.1 Pavement Structure Deficiencies:

As illustrated in Figure 6, the existing pavement structure is in poor condition. Alligator cracking, longitudinal and transverse cracking, and pavement edge cracking are severe in some locations. Ride quality is considered to be fair to poor.

Figure 6: Existing 7th Line Pavement Structure Deterioration

3.1.2 Active Transportation Deficiencies:

There are no existing sidewalks or bicycle lanes on either side of the corridor as shown in Figure 7, except for a 150 m segment of sidewalk on the south side of the 7th Line between Webster Boulevard and the pedestrian access to Lamstone Street.

Figure 7: Existing 7th Line Road Cross-section with No Sidewalks

3.1.3 Servicing Deficiencies

The Inn Services has identified the need to extend the sanitary trunk sewer system from Quarry Drive to just east of Webster Boulevard to accommodate future developments on the north side of the 7th Line.

3.1.4 Intersection Deficiencies

Existing intersection configuration and control at the intersections of the 7th Line and the 20th Sideroad and the 7th Line and Webster Boulevard will not be able to accommodate future development in the immediate area. Sightline deficiencies were also noted at the intersection of the 7th Line and St. Johns Road where the horizontal alignment of St. Johns Road and the existing vegetation within the road right of way reduces visibility to the north and south along St. Johns Road.

3.2 Problem / Opportunity Statement

The Town of Innisfil has initiated this Municipal Class Environmental Assessment to accommodate future growth in the Alcona area and to address traffic capacity and operational deficiencies affecting the subject corridor. Addressing the aforementioned problem also provides an opportunity to:

- Provide for active transportation (i.e. walking, cycling etc.) and improve safety;
- Address pavement structure deficiencies;
- Address drainage and stormwater management concerns; and
- Accommodate long term municipal servicing requirements.

4.0 TRAFFIC REQUIREMENTS

A traffic analysis was completed by Ainley Group as part of this Class EA to assess the transportation requirements for the subject study area under existing conditions (2017) and in the future for the horizon year of 2027, which was assumed to be the buildout timeline for adjacent area development. Consideration was given to general background growth and specific developments proposed within the area. In addition to specific area development traffic, a 3% annual growth rate was applied to the background north south traffic on the 20th Sideroad for a 2027, 10 year horizon traffic analysis. A copy of the Traffic Analysis is included in its entirety in Appendix 'A' of this report.

4.1 Future Development Blocks

The segment of the study area from the existing railway corridor east to Lake Simcoe is located within the limits of the Alcona Settlement Area. Although one can expect a moderate background growth in the general area, the main inputs in developing traffic projections along the 7th Line in the study area between St. Johns Road and 20th Sideroad is the eventual completion of the various plan of subdivisions adjacent to the 7th line. There are a number of developments planned within the Alcona area as illustrated in Figure 8. Area 1 is outside of the current Alcona Settlement Area boundary.

Figure 8: Future Development in the Alcona Area

Area No.	Description	No. of Units
1	Alcona South Secondary Plan Expansion Lands	912*
2	San Diego 2 Phase 3	466
3	DIAM Fox Hill Condo	22
4	DIAM Fox Hill Condo	40
5	DIAM Fox Hill Condo	78
6	Grand Sierra	404

*This number is an approximation made only for the purpose of this Class EA, based on area and typical land use density. It has no status in the Town of Innisfil's long term planning.

4.2 Average Annual Daily Traffic (Existing and Projected)

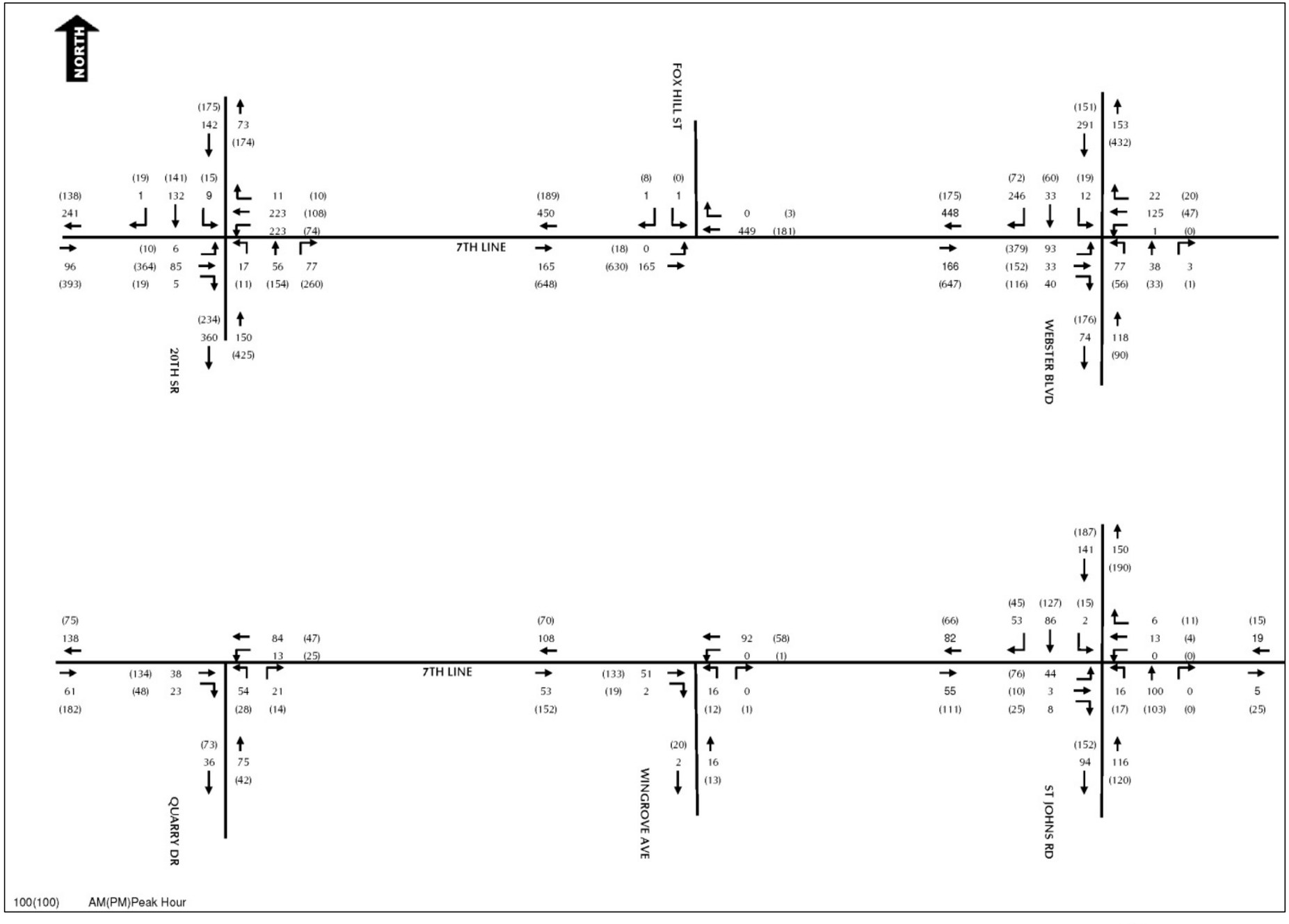
Trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual for Single Family Detached (code 210) and Townhouses (Code 230) were applied to estimate trips to and from the six developments listed in Figure 8. Trip distribution was derived from observed traffic movements at the intersection of the 7th line and Webster Boulevard, at the 7th Line and the 20th Sideroad, and at the 7th line and Quarry Drive. A summary of the traffic count data is provided in Figure 9 and in Appendix A. Estimates of the number of units in the various developments in Areas 2 through 6 are based on available preliminary plans of subdivision. Estimates of the number of units in Area 1 are based on the Town of Innisfil Planning Department's estimate of population density and area.

The intersection of the 7th Line and Webster Boulevard serves a substantial residential area with no outlet to the south (6th Line) and an indirect route to other outlets to or from the 7th Line at Quarry Drive. This traffic isolation provided some insight into trip destination because this intersection serves a considerable area with minimal traffic leakage to the west or south and little opportunity of traffic leakage to the east. This pattern, combined with the observation that there is very little traffic making the westbound to northbound movement at the intersection of the 7th Line and Webster Boulevard or the 7th Line at the 20th Sideroad, provided a reasonable model on which to estimate traffic distribution for traffic resulting from further area development. Using existing traffic movements at the 7th Line intersection with Webster Boulevard as representative of future development traffic, the trip distribution is estimated as 3% to the East, 65% to the West and 32% to the North. The west and east traffic distribution values contain some portion of the southbound traffic. The southbound traffic can be approximated by observing existing traffic at the intersections of the 7th Line and the 20th Sideroad and at the 7th Line and St. Johns Road. At the intersection of the 7th Line and St. Johns Road, relatively few vehicles turn south and not more than 25 vehicles during the PM peak hour traffic. At the intersection of the 7th Line and the 20th Sideroad, very little traffic turns north, with turning traffic relatively evenly divided between west and south. Therefore, the 3% to and from the east, 65% to and from the west and 32% to and from the north becomes 3% to and from the east, 35% west, 32% to and from the north and 30% to and from the south, respectively, at the intersection of the 7th Line and the 20th Sideroad.

The future extension of Webster Boulevard to the 6th Line and the proposed Metrolinx station near the intersection of Webster Boulevard and the 6th Line will have an impact on the future traffic distributions. The southern portion of the future developable Area 1 on Figure 8 will also have a north/south link to the 6th Line. These north/south links will draw some of the transit related traffic and reduce projections to westbound to southbound movement and northbound to eastbound movement at the intersection of the 7th Line and the 20th Sideroad. To simulate this change in traffic flow, at this intersection, the traffic from Area 1 to the 7th Line is reduced by 10% by reducing the westbound to southbound movement at the intersection of the 7th Line and the 20th Sideroad by that amount.

Figure 9 shows the AM and PM peak hour traffic along the 7th line within the Study Area as counted on June 6, 2017. These traffic volumes are used as base volumes to which the traffic projections for the future six area developments are added.

Figure 9: 2017 Traffic Volumes



4.3 Trip Generation

The following summary in Table 1 provides an estimate of trip generation associated with the various blocks in Figure 8. For most of the blocks, the number of single family residential homes and the number of townhouses are known. For Area 1, this information is unavailable. For the purposes of this analysis, it was assumed that Area 1 would consist of 80% single family and 20% town homes, which is similar to the other developments in the area.*

Trip generation rates are based on *ITE Trip Generation Manual* 8th edition for Single Family Residential (code 210) and Townhouse (code 230) for weekdays, as outlined in Table 1. For residential areas, weekday peak hours represent the critical traffic periods. The relatively small amount of commercial areas in the local area developments will result in the weekday peak hour traffic being the critical traffic period and the weekend peak hour traffic was not analyzed.

Table 1: Trip Generation Rates

	TRIP ENDS	TRAFFIC SPLIT
Single Family Detached (per unit)		
AM peak	0.77/unit	26% in, 74% out
PM peak	1.02/unit	64% in, 36% out
Townhouse (per unit)		
AM peak	0.44/unit	19% in, 81% out
PM peak	0.52/unit	64% in, 36% out

Area 1 (Alcona South Secondary Plan Expansion Area)

This block is estimated to contain approximately 912 residential units with approximately 730 single family detached houses and 182 Townhouses.* This estimate is based on land use and proposed development density as provided by the Town of Innisfil Planning Department.

AM peak (trip end)

(730x0.77) + (182x0.44) = 642 trips (161 entering, 481 leaving)

PM peak (trip end)

(730x1.02) + (180x0.52) = 839 trips (537 entering, 302 leaving)

*These numbers are an approximation made only for the purpose of this Class EA, based on area and typical land use density. It has no status in the Town of Innisfil's long term planning.

Area 2 (San Diego Homes 2 Phase 3)

A draft plan of subdivision has been submitted for this area consisting of approximately 187 single family detached houses and 140 townhouses / condominium units. Access to area 2 will be by way of Webster Boulevard.

AM peak (trip end)

(187x0.77) + (140x0.44) = 206 trips (49 entering, 157 leaving)

PM peak (trip end)

(187x1.02)+ (140x0.52) = 264 trips (169 entering, 95 leaving)

Area 3

This block is a proposed 22-unit Townhouse development. It will have a single entrance onto the 7th line.

AM peak (trip end)

(22x0.44)= 10 trips (2 entering, 8 leaving)

PM peak (trip end)

(22x0.52)= 11 trips (7 entering, 4 leaving)

Area 4

This block is a proposed 40-unit Townhouse development. It will have a single entrance onto the 7th Line.

AM peak (trip end)

(40x0.44)= 18 trips (3 entering, 15 leaving)

PM peak (trip end)

(40x0.52)= 21 trips (13 entering, 8 leaving)

Area 5

This block is a proposed 78-unit Townhouse development it has an entrance onto Fox Hill Street, but no direct access to the 7th Line.

AM peak (trip end)

(78x0.44)= 34 trips (6 entering, 28 leaving)

PM peak (trip end)

(78x0.52)= 41 trips (26 entering, 15 leaving)

Area 6 (Grand Sierra)

A plan of subdivision has been submitted for this area consisting of approximately 310 single family detached and 94 townhouses. This development has no direct access to the 7th Line. Access to the 7th Line will be via Webster Avenue.

AM peak (trip end)

(310x0.77) + (94x0.44) = 280 trips (70 entering, 210 leaving)

PM peak (trip end)

(310x1.02) + (94x0.52) =365 trips (233 entering, 132 leaving)

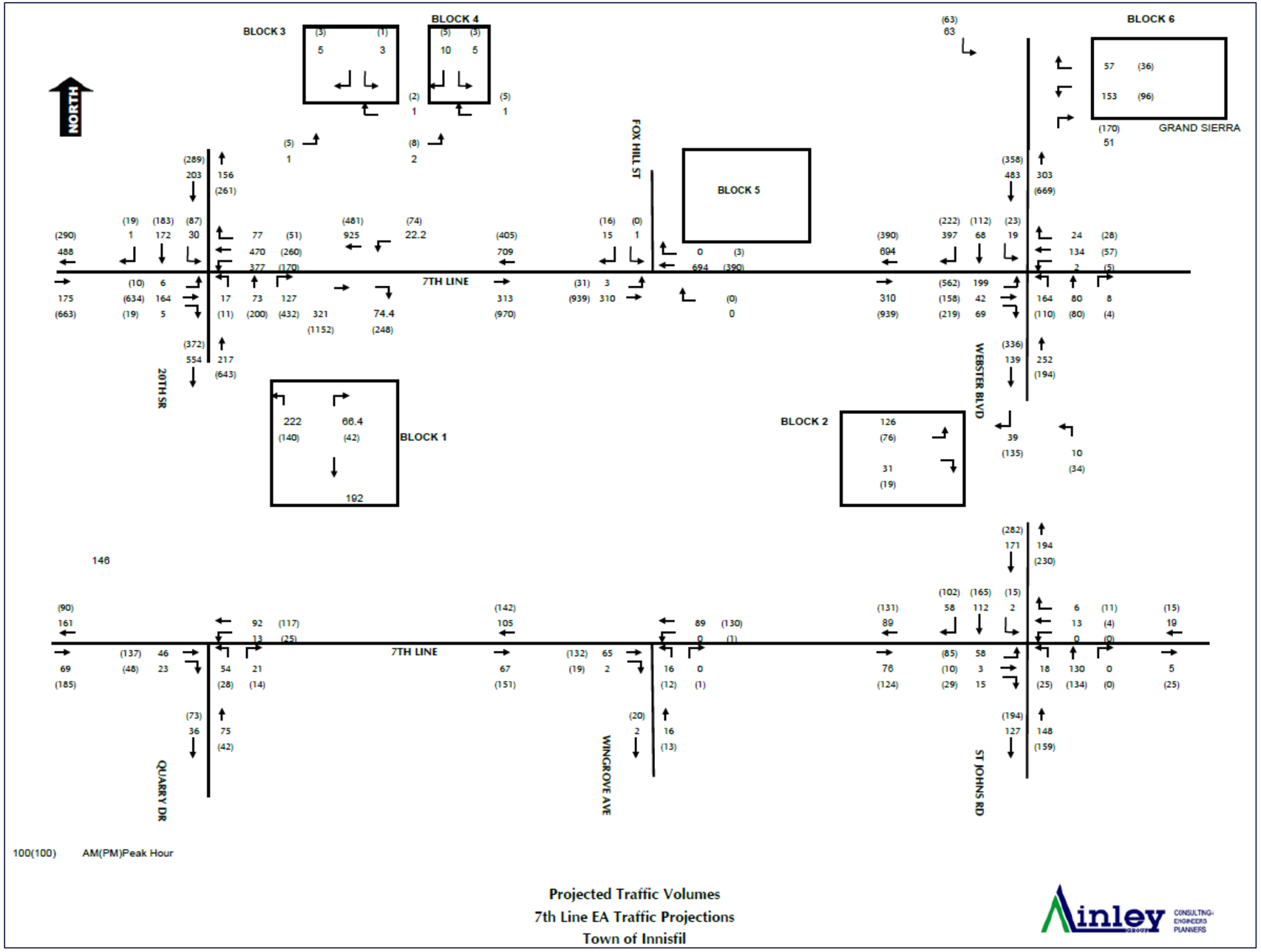
4.4 Trip Distribution

The traffic projections are routed through the study area as follows:

- 3% to/from the east
- 35% to/from the west
- 32% to/from the north
- 30% to/from the south

The position of the various future developments along the 7th Line affects the routing for the various areas described above. Trip assignments are provided for each of the areas shown on Figure 10. It is assumed that Area 1 will include an additional north/south link between the 7th Line and the 6th Line. It is further assumed that 40% of trip ends will access Area 1 via the 6th Line and 60% via the 7th Line.

Figure 10: Projected Traffic Volumes



4.5 Intersection Operations Analysis

Following the trip assignment for the various near future developments, and assuming a 10-year horizon with 3% traffic growth per year applied to 20th Sideroad and St. John's Road total traffic projections were developed for the intersections along 7th Line between 20th Sideroad and St. John's Road. The existing intersections were analyzed based on current lane configurations and control method for current peak hour traffic volumes. For signalized intersections, the signal timing was optimised. Figure 11 illustrates the intersection operations in 2017 and presents the projected intersection operations both based on the current configuration and with proposed improvements.

The intersection analysis demonstrates that the segment of the 7th Line between Webster Boulevard and St. Johns Road will operate very well as a two-lane road within the study horizon. The analysis further demonstrates that the existing intersections at Quarry Drive and Wingrove Avenue do not require additional turn lanes. There are sight line issues at the intersection of St. Johns Road and the 7th Line, but field investigations show this problem can be addressed by removal of vegetation within the road right of way in the northeast quadrant of the intersection.

The portion of the 7th Line between the 20th Sideroad and Webster Boulevard will require improvements at the existing signalized intersections at 20th Sideroad and at Webster Boulevard. The intersection analysis and left turn lane warrant analysis indicate that the intersection of Fox Hill Street and the 7th Line will require a left turn lane for the eastbound to northbound movement. The left turn warrant analysis also shows that any entrances along the 7th Line between Webster Boulevard and the 20th Sideroad will require a left turn lane. The heavy through movements on the 7th Line renders the delay imposed by even a small number of left turn movements unacceptable. Webster Boulevard is 450m from the Metrolinx crossing. Left turn lanes are required at Webster Boulevard and Fox Hill Street to accommodate development of Area 2 (Fig. 8) San Diego 2 Phase 3 and the development of Area 6 Alcona South Secondary Plan Expansion Lands.

Figure 11: Intersection Operations

2017 Intersection Operations

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
7th Line & 20th Sideroad	all	signal	13.2	B		23.4	C	
	EBL		13.4	B	0.02	12.4	B	0.02
	EBT-R		14.2	B	0.17	18.0	B	0.64
	WBL		10.3	B	0.36	11.1	B	0.21
	WBT-R		9.4	A	0.28	9.0	A	0.15
	NBL		18.3	B	0.04	17.4	B	0.03
	NBT-R		18.4	B	0.31	37.4	D	0.87
	SBL		18.6	B	0.03	27.4	C	0.09
	SBT-R		17.7	B	0.27	16.9	B	0.31
7th Line & Fox Hill St	EBL	free	0	A	-	7.6	A	0.01
	SB	stop	11.6	B	0.00	9.3	A	0.01
7th Line & Webster Blvd	all	signal	12.2	B		13.7	B	
	EB		8.5	A	0.25	13.0	B	0.77
	WB		8.3	A	0.19	5.2	A	0.07
	NBL		18.6	B	0.27	20.0	C	0.20
	NBT-R		11.3	B	0.08	16.1	B	0.10
	SBL		11.6	B	0.02	16.6	B	0.05
	SBT-R		14.8	B	0.62	17.9	B	0.41
7th Line & Quarry Dr.	NB	stop	9.6	A	0.10	10.1	B	0.06
	WBL	free	7.4	A	0.01	7.6	A	0.02
7th Line & Wingrove Ave.	NB	stop	9.4	A	0.02	9.7	A	0.02
	WBL	free	0	A	-	7.5	A	0.00
7th Line & St Johns Road	NBL	free	7.7	A	0.01	7.8	A	0.01
	EB	stop	11.1	B	0.09	12.3	B	0.20
	WB		10.6	B	0.03	9.7	A	0.02
	SBL	free	7.4	A	0.00	7.5	A	0.01

Projected Traffic Intersection Operations (Existing) Configuration

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
7th Line & 20th Sideroad	all	signal	14.1	B		66.6	E	
	EBL		6.8	A	0.02	11.0	B	0.02
	EBT-R		7.6	A	0.19	28.9	C	0.87
	WBL		14.3	B	0.70	186.6	F	1.28
	WBT-R		11.5	B	0.63	13.8	B	0.42
	NBL		17.2	B	0.06	14.5	B	0.03
	NBT-R		20.5	C	0.51	110.9	F	1.15
	SBL		17.5	B	0.11	93.5	F	0.94
	SBT-R		19.5	B	0.42	16.8	B	0.35
7th Line & Fox Hill St	EBL	free	9.1	A	0.01	8.2	A	0.03
	SB	stop	14.1	B	0.04	12.0	B	0.03
7th Line & Webster Blvd	all	signal	24.9	C		162.7	F	
	EB		26	C	0.82	214.2	F	1.45
	WB		10.7	B	0.28	5.7	A	0.10
	NBL		28.8	C	0.77	114.5	F	1.02
	NBT-R		22	C	0.15	21	C	0.25
	SBL		9.6	A	0.05	20.1	C	0.09
	SBT-R		30.1	C	0.89	92.9	F	1.07
7th Line & Quarry Dr.	NB	stop	9.6	A	0.10	10.1	B	0.06
	WBL	free	7.4	A	0.01	7.6	A	0.02
7th Line & Wingrove Ave.	NB	stop	9.4	A	0.02	9.7	A	0.02
	WBL	free	0	A	-	7.5	A	0.00
7th Line & St Johns Road	NBL	free	7.7	A	0.01	7.8	A	0.01
	EB	stop	11.1	B	0.09	12.3	B	0.20
	WB		10.6	B	0.03	9.7	A	0.02
	SBL	free	7.4	A	0.00	7.5	A	0.01

Projected Traffic Intersection Operations with Improvements

Intersection		Control	AM Peak Hour			PM Peak Hour		
			Delays(s)	LOS	v/c	Delays(s)	LOS	v/c
7th Line & 20th Sideroad	all	signal	11.9	B		24.5	C	
	EBL		6.4	A	0.02	12.3	B	0.02
	EBT-R		7.2	A	0.19	31.4	C	0.88
	WBL		13.4	B	0.69	14.3	B	0.56
	WBT-R		10.8	B	0.62	6.9	A	0.30
	NBL		17.4	B	0.06	25.9	C	0.06
	NBT-R		18.1	B	0.18	31.9	C	0.60
	NBR		0.01	A	0.09	22.2	C	0.65
	SBL		17.7	B	0.10	30.3	C	0.48
	SBT-R		19.9	B	0.44	32.5	C	0.61
7th Line & Fox Hill St	EBL	free	9.1	A	0.01	8.2	A	0.03
	SB	stop	14.1	B	0.04	11.9	B	0.03
7th Line & Webster Blvd	all	signal	11.0	B		13.6	B	
	EB-L		12.4	B	0.49	10.3	B	0.71
	EBT-R		10.3	B	0.20	6.5	A	0.40
	WBL		9.4	A	0.01	14.8	B	0.02
	WBT-R		10.5	B	0.24	15.5	B	0.13
	NBL		10.4	B	0.38	27.9	C	0.51
	NBT-R		10.1	B	0.11	25.2	C	0.28
	SBL		9.6	A	0.05	24.0	C	0.10
	SBT		9.9	A	0.12	25.9	C	0.37
	SBR		0.1	A	0.24	0.10	A	0.16
7th Line & Quarry Dr.	NB	stop	9.6	A	0.10	10.1	B	0.06
	WBL	free	7.4	A	0.01	7.6	A	0.02
7th Line & Wingrove Ave.	NB	stop	9.4	A	0.02	9.7	A	0.02
	WBL	free	0	A	-	7.5	A	0.00
7th Line & St Johns Road	NBL	free	7.7	A	0.01	7.8	A	0.01
	EB	stop	11.1	B	0.09	12.3	B	0.20
	WB		10.6	B	0.03	9.7	A	0.02
	SBL	free	7.4	A	0.00	7.5	A	0.01

NOTE:
LOS – Level of Service
S – Seconds
v/c – volume to capacity

Level of Service 'A': Free flow of traffic
Level of Service 'B': Reasonably free flow of traffic
Level of Service 'C': Stable flow, at or near free flow of traffic
Level of Service 'D': Approaching unstable flow of traffic
Level of Service 'E': Unstable flow of traffic, operating at capacity
Level of Service 'F': Traffic flow breakdown

The storage length for traffic waiting to make the eastbound to northbound movement at Webster Boulevard would be approximately 90 m, plus a development taper of 100 m. The left turn lane at Fox Hill Street would be 30m, with a development taper of 100 m and a runout taper of 100 m. Considering a new entrance may be required for the DIAM development between Fox Hill Street and the Metrolinx crossing, and that there may be an entrance for Previn Court Phase 2 between Fox Hill Street and Webster Boulevard, both of which would require similar storage lengths and development tapers, it is simpler to assume a three lane section will be required rather than adjusting the road width between intersections. At this time, no details are available about the design or timing of these future developments.

The distance between the 20th Sideroad and Metrolinx crossing is approximately 660 m. The left turn lane for westbound to southbound traffic will be approximately 75 m with a 115m development taper. Although outside the current settlement boundary, it is expected that should the boundary ever be extended, development will occur along the south side of the 7th Line between the 20th Sideroad and Metrolinx crossing. This development would likely include a roadway warranting a left turn storage requirement of approximately 35 m and a taper development length of 115 m. These two left turn requirements add up to approximately 340 m. Depending on the position of the DIAM entrance, part of DIAM's left turn lane may be developed west of the Metrolinx crossing, which may use up to 400 m of the 660 m separation between the Metrolinx Crossing and the 20th Sideroad. Again, it is proposed that the roadway width be held constant at three lanes rather than varying the width between entrances and intersections with individual left turn lanes and tapers.

4.5.1 Proposed Intersection Improvements

The table labeled as '**Projected Traffic Intersection Operations with Improvements**' in Figure 11 provides the Level of Service (LOS) achieved for the various intersections including background growth and new development in the immediate area. Excellent to very good Levels of Service are attained with the proposed intersection improvements on the 7th Line at Webster Boulevard, Fox Hill Street and the 20th Sideroad.

The proposed intersection improvements are listed as follows:

- At Fox Hill Street, the improvement consists of a separate left turn lane for the eastbound to northbound movement.
- At the 20th Sideroad, the improvement consists of the addition of a separate right turn lane for the northbound to eastbound movement and provision of a protected left for the east and westbound left turns.
- At the 7th Line and Webster Boulevard, a separate left turn lane is proposed for the east and west approaches and a protected left phase is proposed for the eastbound to northbound movement. A right turn lane is also warranted for the eastbound to southbound movement.

5.0 EXISTING CONDITIONS

This section provides an inventory of the existing physical, natural, socio-economic and cultural environment associated with the project study area. This inventory was established through the completion of field investigations, a review of existing engineering drawings, and background reports. The following investigations were also completed to assist in defining the existing conditions within the study area:

- Stage 1 Archaeological Assessment — ASI
- Cultural Heritage Resource Assessment — Ainley Group
- Cultural Heritage Impact Assessment — ASI
- Natural Heritage Review — Azimuth Environmental
- Hydrogeological Report — GeoPro Consulting Ltd.
- Geotechnical Report — GeoPro Consulting Ltd.
- Noise Assessment — Valcoustics Canada Ltd.
- Banks Creek Fluvial Assessment — Water's Edge Environmental Solutions

5.1 Physical Environment

5.1.1 Transportation Network

The Town of Innisfil Transportation Master Plan classifies the 7th Line as a Major Collector road. The corridor is currently designed as follows:

- Road Cross-section: The existing corridor provides two travel lanes that range in width from 3.5 m to 3.75 m with 2.5 m wide gravel shoulders.
- Active Transportation: There are no existing sidewalks or bicycle lanes on either side of the corridor except for a 150 m segment of sidewalk on the south side of 7th Line between Webster Boulevard and eastward to a pedestrian access to Lamstone Street.
- Speed Limit: The existing speed limit from the 20th Sideroad to the railway corridor is 80 km/hr. The speed limit is reduced to 50 km/hr from the railway corridor east to Lake Simcoe.
- Intersection Control: Signal controlled intersections are located at the 20th Sideroad and at Webster Boulevard. All remaining intersections are stop controlled.
- Railway Crossing: There is an existing Metrolinx rail corridor that crosses the 7th Line within the project study area approximately 650 m east of the 20th Sideroad. Metrolinx has initiated a Transit Project Assessment Process in accordance with the Environmental Assessment Act to undertake improvements to the corridor from Toronto to Barrie that will include the addition of a second track and electrification.

Figure 12: Existing Metrolinx Rail Corridor

5.1.2 Water and Sanitary Servicing Infrastructure

As illustrated in Figure 12, there are existing sanitary sewers and watermains within the eastern portion of the study area.

5.1.3 Utilities

Utilities within the subject corridor include local hydro utility of InnPower Corporation, Bell Canada, Rogers Telecommunications Inc., and Enbridge Gas, with all having been consulted as part of this process as members of the Technical Advisory Committee.

Figure 13: Existing Servicing

5.2 Existing Natural Environment

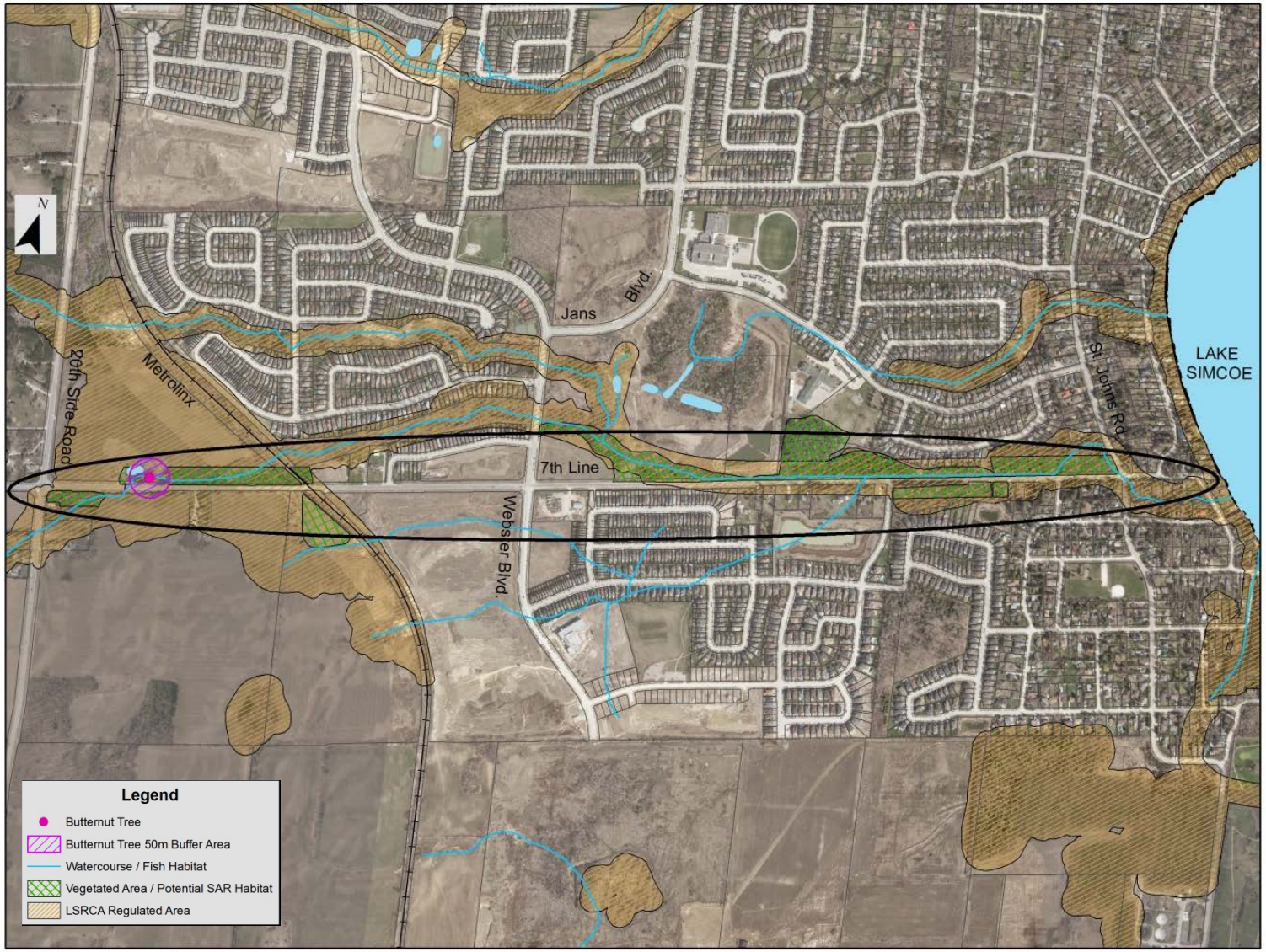
To assist in the development of the environmental inventory, Azimuth Environmental Consulting Inc. (Azimuth), on behalf of Ainley Group, completed an inventory of the natural heritage features present within the area of study. The Lake Simcoe Region Conservation Authority (LSRCA) was consulted to confirm the scope of study necessary prior to initiation. The assessment included:

- Three evening amphibian (frog & toad) surveys on April 18, May 10, and June 20, 2017
- Two dawn breeding bird surveys on June 7th and 22, 2017
- Two vegetation surveys on June 7th and 22, 2017

The area was reviewed for the presence of wildlife (i.e. birds, mammals, reptiles, and amphibians) and their habitat through an examination of tracks, scat, and vocalizations. Azimuth also completed a Species at Risk (SAR) screening for both terrestrial and aquatic species. All relevant background material was reviewed, which included information from the Natural Heritage Information Centre (NHIC) as well as data provided by the Ministry of Natural Resources & Forestry (MNRF) Midhurst District Office. The project study area was assessed for the presence of SAR and SAR habitat based upon background information received and field observations. During the field surveys, habitat types were compared with the habitat suitable for SAR reported by NHIC to be present within the area. The field studies included an assessment of the existing aquatic habitat conditions found within the study area to confirm the existence of fish and fish habitat. Aquatic field surveys were completed in the spring (April 25, 2017) and summer (July 13, 2017). The aforementioned assessments are documented in the *7th Line Improvements Environmental Impact Study* (Azimuth, January 2018), included in Appendix 'B' of this report. The sub-sections that follow provide an inventory of the existing natural environment associated with the project study area.

The locations of key environmental features are illustrated in Figure 14.

Figure 14: LSRCA Regulated Area and Environmental Constraints



5.2.1 Designated Areas

The site is not within an area that is subject to the Greenbelt Plan (2017), the Niagara Escarpment Plan (2017) or the Oak Ridges Moraine Conservation Plan (2017). There are no Provincially Significant Wetlands (PSW) or Areas of Natural & Scientific Interest (ANSI) within or adjacent to the subject study area. A portion of the subject study area is located within an area regulated by the LSRCA as shown in Figure 14.

5.2.2 Vegetation

A single Butternut Trees (Endangered) were observed in the northeast quadrant of the intersection of 20th Sideroad / 7th Line, approximately 255 m from the intersection. Design will have to give consideration to the trees and a 50 m buffer area since any work proposed within a 50 m radius of the tree has the potential for impact. Alternatively, a replacement compensation plan may be developed. Two other Butternut trees were observed on the north side of the 7th Line approximately 250m west of Quarry Drive. All other vegetation within the study area and in proximity is considered to be common.

5.2.3 Wildlife

Area wildlife was determined to consist primarily of those species accustomed to a more urbanized environment. Based on direct observation and / or a review of tracks, scat, and vocalizations the following species are expected to be present within the project study area:

- Mammals – Red Squirrel, Eastern Chipmunk, White-tailed Deer, and Muskrat
- Birds – A total of 43 birds were identified in the study area
- Reptiles/Amphibians – Green frog

5.2.4 Species at Risk

A Species at Risk (SAR) screening was completed for the project study area. A review was made of the Ontario Breeding Bird Atlas, Ontario Reptile and Amphibian Atlas, Fisheries and Oceans Canada Aquatic Species at Risk Mapping and Natural Heritage Information Centre.

A number of species, as noted below, were identified as having the potential to be in the area of the project and adjacent lands:

- Mammals: Little Brown Myotis (Endangered = END), Northern Myotis (END), and Tri-colored Bat (END);
- Birds: Eastern Wood-pewee (Special Concern = SC) and Wood Thrush (SC);
- Plants: Butternut (END); and,
- Insects: Monarch (SC).

Habitat types found within the study area were compared with the habitat of Species at Risk reported to be present within the area. Of the above noted species, habitat for the following was observed within the limits of the project or on adjacent lands:

- Bat Species (Endangered): Areas of woodland adjacent the corridor to the north and south has the potential to provide roosting habitat for Endangered bat species. Large cavity features may be considered both habitat for Endangered bat species and significant bat maternity roosting habitat. If mature trees are to be removed, additional surveys will be required to confirm habitat potential.
- Butternut (Endangered): DNA testing confirmed two of the trees as Butternut and not hybrids. Tissue from the third tree was not viable, but is speculated to likely also be a pure Butternut and not a hybrid.

Other than Butternut trees, none of the above noted species were observed during the field surveys. A general search of structures for Barn Swallow nest was completed during the field survey. No plant species of federal or provincial rarity were observed.

5.2.5 Fish and Fish Habitat

One watercourse is present within the limits of the project, Banks Creek. This watercourse flows in an easterly direction and outlets into Lake Simcoe. The watercourse crosses the 7th Line approximately 180 m east of the 20th Sideroad. From approximately 400 m east of Webster Boulevard to St. Johns Road, the watercourse runs parallel to the 7th Line on the north side. The top of bank for this stretch is less than 3.0 m from the gravel shoulder of the road. The watercourse then crosses the 7th Line from north to south, at the intersection of the 7th Line and St. Johns Road, via a culvert.

Based on MNRF background information and the 2017 Azimuth field survey, it was determined that this location provides permanent, direct fish habitat for coldwater fish species. There are historical records of Brook Trout being present in Banks Creek. The system is not known to contain salmonids and does not contain aquatic SAR presently, or any known population of Brook Trout. Banks Creek has been impacted by the effects of urban land use and proximity to the 7th Line.

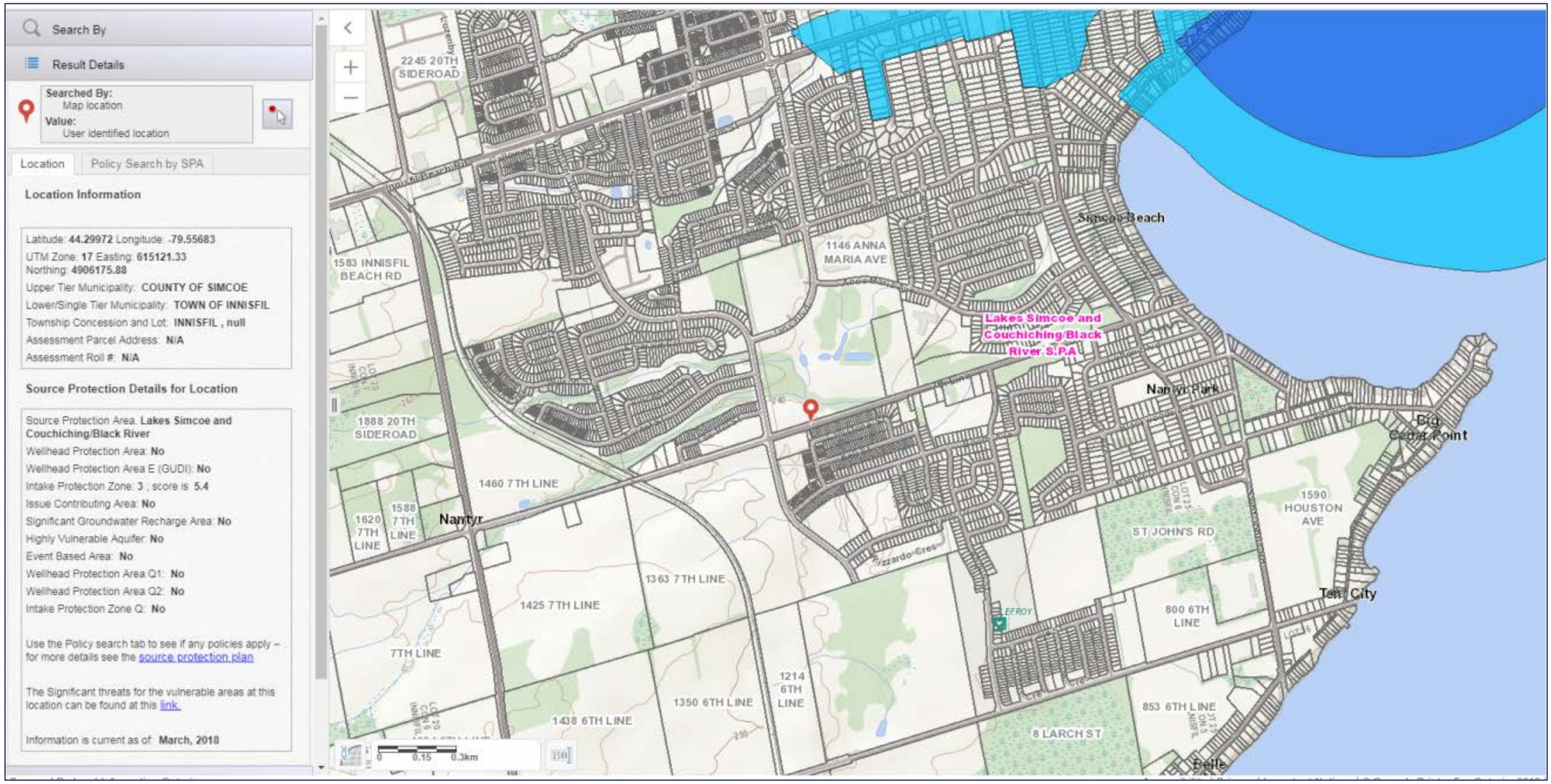
5.2.6 Groundwater

This project is subject to the South Georgian Bay Lake Simcoe Source Protection Plan and is within the Lake Simcoe and Couchiching/Black River Source Protection Area. The MECP's Source Protection Atlas was consulted to determine if the project is located within a vulnerable area. As illustrated in Figure 15, the project is not located within a Wellhead Protection Area, Significant Groundwater Recharge Area, Intake Protection Zone, or a Highly Vulnerable Aquifer.

A hydrogeological assessment was completed for this project by GeoPro Consulting Limited for the purposes of characterizing the subsurface soil and groundwater conditions and to determine preliminary dewatering rates and groundwater control. As part of the investigation a total of 47 boreholes were advanced in July 2017 with monitoring wells installed in four of the boreholes. Twelve test pits were also excavated in the areas where widening of the corridor was proposed. It is anticipated that groundwater dewatering will be required to complete construction along the segment between St. Johns Road and 300 m west of Quarry Drive, a length of approximately 1 km. Based on preliminary information, dewatering rates are expected to be 17,700,000 L/day with a zone of influence estimated to range from 126 m to 189 m. Given that rates are expected to exceed 400,000 L/day, a Category 3 Permit to Take Water (PTTW) will be required from the Ministry of Environment, Conservation and Park.

A search of the MECP Water Well Records database confirmed that there are a total of 82 water wells within a 500 m radius of the project. Of these, 24 domestic wells are located within the estimated zone of influence. There is the potential for construction dewatering to influence the use of the well by lowering area water levels during construction.

Figure 15: Environmental Constraints



(MOECC Source Water Protection Atlas, 2018)

Groundwater sampling completed as part of the hydrogeological review confirmed that there were no exceedances of Provincial Water Quality Objectives (PWQO) for metals in the samples tested. No potential point sources of contamination (i.e. existing gas stations, auto garages, or dry cleaners) were observed in proximity to the project.

Dewatering activities have the potential to cause ground settlement or subsidence when groundwater levels are lowered in soil deposits, stresses will be increased which can result in consolidation and settlement. The hydrogeological investigation determined that there is the potential that residential houses and roadways located within the zone of influence could be impacted by construction dewatering. Pre-construction surveys of the adjacent buildings are to be undertaken as part of detailed design. The full hydrogeological report produced by GeoPro can be found in Appendix 'C' of this report.

5.2.7 Surface Water / Drainage

Banks Creek abuts the 7th Line for much of the study area and crosses the 7th Line at two locations within the project study area. Surface water diversions may be necessary to complete municipal servicing reconstruction. There is the potential to impact Banks Creek as a result of the proposed improvements and construction dewatering and / or as a point of discharge.

5.2.8 Soils and Topography

The study area is located within the Peterborough Drumlin Field and Simcoe Lowlands physiographic region of Ontario. The Peterborough Drumlin Field extends from Simcoe County east to Hastings County and is generally characterized by rolling till plains overlying limestone bedrock. The Simcoe Lowlands physiographic region consists of low-lying belts of sand plain bordering Georgian Bay and Lake Simcoe.

As per the geotechnical investigation completed for this project, the subsurface soils generally consist of sandy / silty soils lacking cohesion, glacial till or cohesive clayey silt deposits. A copy of the Geotechnical Report (GeoPro Consulting Limited, January 2018) is included in Appendix 'D'.

5.2.9 Contamination / Waste Management

No gas stations, auto garages, dry cleaners or other operations of environmental concern were identified in proximity to the project. The results from the chemical analyses of the groundwater samples indicated there were no exceedances of PWQO for metals.

As part of the geotechnical investigation, nine asphalt cores were taken and tested to determine if asbestos fibers are present in the existing asphalt concrete. The results of the analysis were negative and the asphalt concrete is not considered asbestos-containing material. Select soil samples were also taken and tested to establish the chemical quality of the subsurface soils. A total of 36 soil samples were analyzed under Ontario Regulation 153/04 ("O. Reg. 153/04"), as amended for:

- Metals and Inorganics
- Electrical Conductivity (EC)
- Sodium Absorption Ratios
- PHCs and Volatile Organic Compounds (VOC)

At the time of sampling there was one sample that showed olfactory evidence of environmental impact such as staining or odors observed. The soil sampling results were compared to the following MECP "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*", April 15, 2011, tables as follows to determine if levels exceed provincial site condition standards:

- Table 1 Full Depth Background Site Condition Standards for All Types of Property Use (Residential/Parkland/Institutional/Industrial/Commercial/Community) (Table 1 Standards);
- Table 2 Full Depth Generic Site Condition Standards for Potable Groundwater Condition (Table 2 Standards); and
- Table 3 Full Depth Generic Site Condition Standards in a Non-potable Groundwater Condition. (Table 3 Standards).
- Test results from the 36 soil samples taken revealed that concentrations of Electrical Conductivity (EC) and / or Sodium Absorption Ratios in the soil samples frequently exceeded levels permitted in MECP Table 1, Table 2, and Table 3. Elevated levels of EC and Sodium Absorption Ratios are often attributed to the application of de-icing salt on

the road. Given that some of the excess material to be generated during construction may be contaminated by salt it will need to be managed responsibly and disposed of properly. One sample exceeded VOC levels permitted in MECP Table 1. Material from this isolated area on the north shoulder of the road near Station 2+260 (approximately 100 m east of Quarry Drive intersection) will be removed and disposed of at a licensed site.

5.3 Existing Socio-Economic Environment

5.3.1 Area Land Use

Land use within the study area is primarily residential with a number of lots fronting directly onto the corridor at the eastern half of the study area. There is one municipal park (i.e. Anna Maria Park) located on the north side of the 7th Line, west of St. Johns Road. Lands south of the park towards the 7th Line are categorized as Open Space. Lands to the east of the railway corridor to Lake Simcoe are within the limits of the Alcona Settlement Area. Lands west of the railway corridor to the 20th Sideroad are within the Alcona South Secondary Plan area. While these lands are currently used for agricultural purposes, they form part of the Alcona Expansion Area.

5.3.2 Noise

The eastern half of the study area consists primarily of residential land use. Land use west of the railway, to the 20th Sideroad is primarily vacant, agricultural lands with a couple of residences located at the southeast quadrant of the intersection of the 20th Sideroad and the 7th Line. As such, the main noise-sensitive areas are the residential properties located within the Settlement Area and the few residences located west of the tracks. There are no hospitals, nursing homes or other noise-sensitive land uses within the study area or in proximity.

As part of this project, a noise impact assessment was completed to determine the expected traffic noise impacts resulting from the proposed improvements as well as from construction. The review was documented in a Noise Impact Assessment (Valcoustics Canada Ltd., June 2018). A copy of the report is included in Appendix ‘E’. The report concluded that no noise mitigation measures are required.

5.4 Cultural Environment

5.4.1 Archaeological Resources

A Stage 1 Archaeological Assessment was completed for this Class EA that revealed that there are nine previously registered archaeological sites located within a 1.0 km radius of the study area. Lands within the existing corridor are considered to be disturbed and cleared of archaeological potential. However, some areas outside of the right-of-way were found to exhibit archaeological potential. As such, a Stage 2 level of assessment will be required in localized areas where work is proposed beyond the existing right-of-way. Permits to Enter were obtained during the Class EA process to initiate Stage 2 level of assessment, however, due to inclement weather field investigations were not able to occur. Therefore, all Stage 2 archaeological assessment work will be completed during detailed design. A copy of the Stage 1 Archaeological report is included in Appendix 'F'. Figures 9-12 within the Stage 1 Archaeological Assessment report identify approximate areas where Stage 2 assessment is recommended prior to road improvement work. Additional Stage 2 work will be required prior to any excavation as part of defining the cut/fill balance area within the floodplain to meet stormwater management guidelines.

5.4.2 Built Heritage and Cultural Heritage Landscapes

A Cultural Heritage Resource Impact Assessment was completed for this Class EA that identified five potential cultural heritage resources within or adjacent to the study area. Two sites are potential built heritage resources (BHR) and three are potential cultural heritage landscapes (CHL). They have been identified as the following:

- The former Nantyr School - 1497 7th Line (BHR1) – The building was constructed in 1875 of river stone. While somewhat altered on the exterior, it retains original features such as a (school) bell tower. It is now a private residence.
- Farmstead including dwelling at 1363 7th Line (BHR2) – A dwelling along with outbuildings and a barn are on the site. The dwelling may be 19th century construction.
- Stand of lilacs (north side of the 7th Line near east of Webster Boulevard) (CHL1) – The presence of lilac bushes contribute to the rural character of 7th Line.

- Views along 7th Line East to Lake Simcoe (CHL2) – The views to Lake Simcoe provide a focal point when travelling east along 7th Line.
- 'Cottage Community' (CHL3) – A remnant 'cottage' community exists at the east end of 7th Line which speaks to the type of development that developed along this end of the 7th Line beginning in the late 19th century.

Of the built heritage sites, BHR1 is considered to be of high potential and BHR2 of low potential. Therefore a Cultural Heritage Impact Assessment was completed for BHR1 (1497 7th Line) to document existing conditions and identify heritage attributes in order to develop appropriate mitigation measures. All three of the cultural heritage landscapes are considered to be of low potential. A copy of the Cultural Heritage Resource Assessment and Heritage Impact Assessment are included in Appendix 'G1 and G2'.

6.0 PHASE 1 & 2 PROPOSED ALTERNATIVE SOLUTIONS

As part of Phase 2 of the Class EA process, five alternative solutions were developed to address the aforementioned deficiencies. Alternatives 2 to 5 also propose intersection and servicing improvements (i.e. water, sanitary and storm sewer) and provisions for active transportation (i.e. pedestrians & cyclists). These alternatives were presented to the public at Public Open House No. 1, hosted by the municipality on Wednesday, October 11, 2017.

6.1 Alternatives Under Consideration

6.1.1 Alternative 1

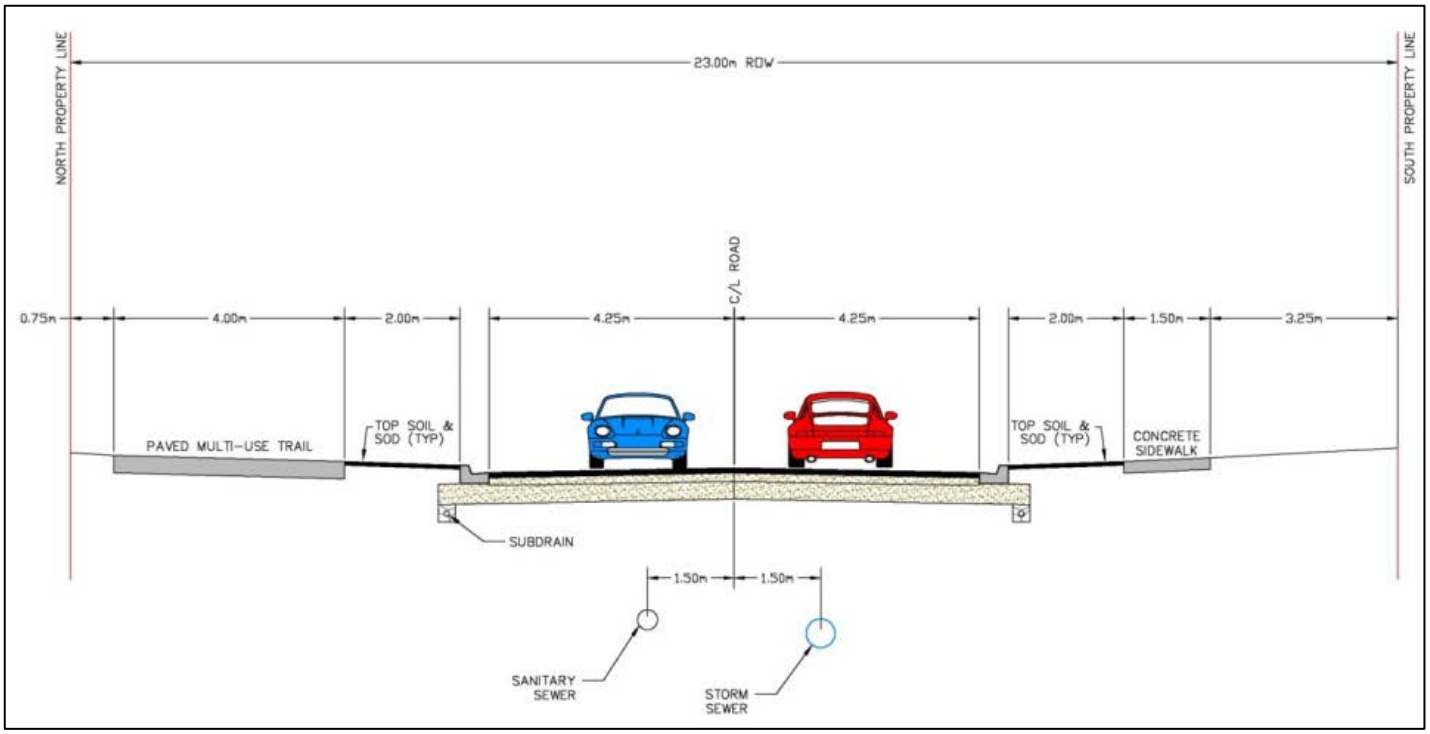
This is a "Do Nothing" option that proposes no changes or modifications to existing infrastructure within the study area. The corridor would continue to function as-is.

6.1.2 Alternative 2

As illustrated in Figure 16, this alternative proposes to reconstruct the 7th Line to a two-lane, urban cross-section providing the following:

- Two 4.25 m wide travel lanes
- A 4.0 m wide paved multi-use trail on the north side of corridor from the 20th Sideroad to St. Johns Road.
- A 1.5 m sidewalk on the south side of corridor from the 20th Sideroad to just east of Webster Boulevard.
- Servicing Improvements.
- Intersection Improvements.

Figure 16: Alternative 2

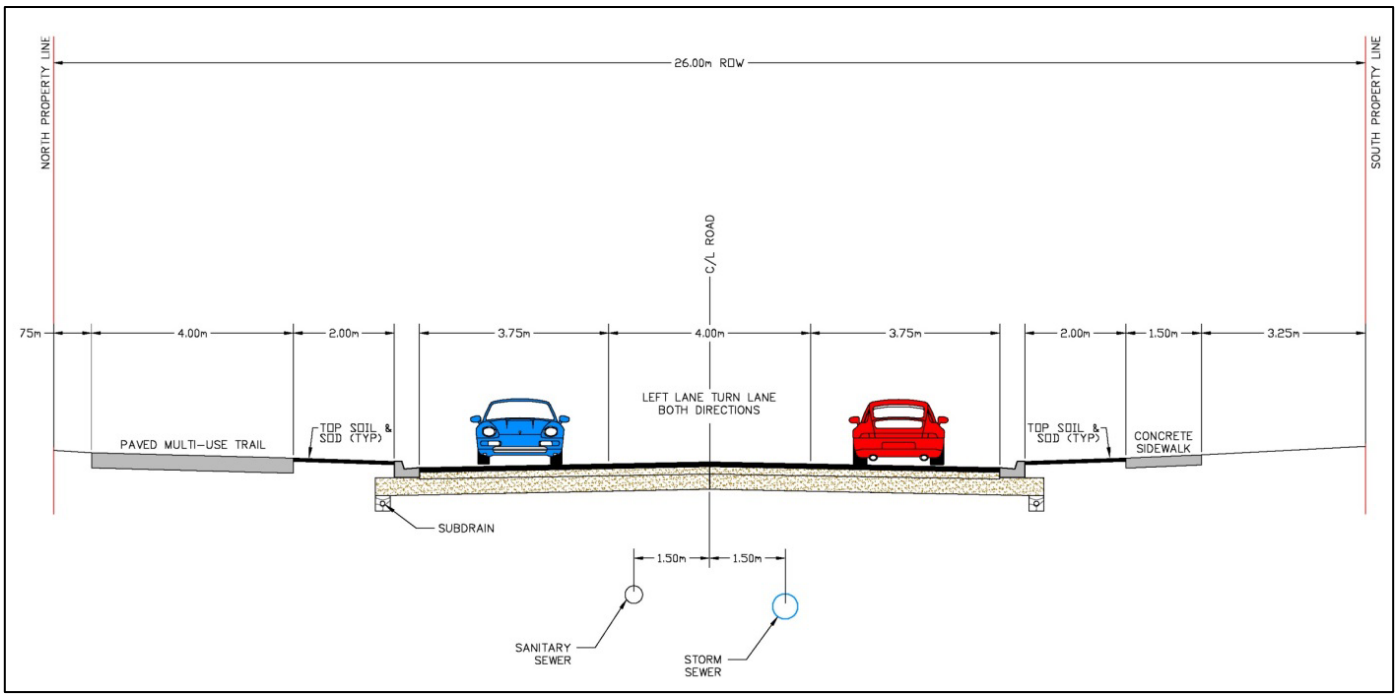


6.1.3 Alternative 3

As illustrated in Figure 17, this alternative also proposes to reconstruct the 7th Line to two travel lanes, but with a slightly different cross-section, as follows:

- Two 3.75 m wide travel lanes and one 4.0 m continuous center turn lane
- A 4.0 m wide paved multi-use trail on north side of corridor from 20th Sideroad to St. Johns Road.
- A 1.5 m sidewalk on south side of corridor from the 20th Sideroad to just east of Webster Boulevard.
- Servicing Improvements.
- Intersection Improvements.

Figure 17: Alternative 3

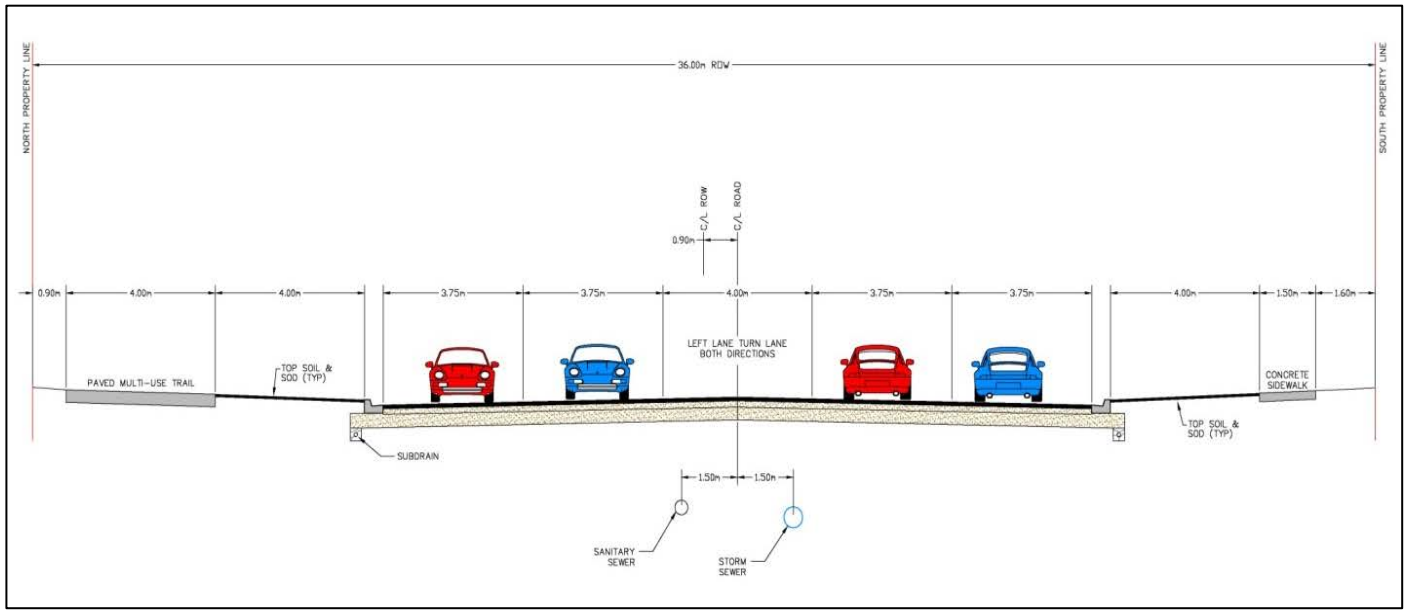


6.1.4 Alternative 4

As illustrated in Figure 18, this alternative also proposes to reconstruct the 7th Line to two lanes, but with another variation in the cross-section as follows:

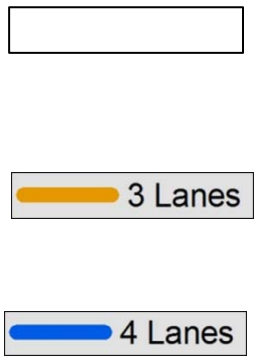
- Four 3.75 m wide travel lanes and one 4.0 m continuous center turn lane
- A 4.0 m wide paved multi-use trail on north side of corridor from 20th Sideroad to St. Johns Road.
- A 1.5 m sidewalk on south side of corridor from the 20th Sideroad to just east of Webster Boulevard.
- Servicing improvements.
- Intersection improvements.

Figure 18: Alternative 4



6.1.5 Alternative 5

As illustrated in Figure 19, this alternative proposes a combination of the alternatives 2 to 4 as follows:



- Two 4.25 m wide travel lanes from just east of Webster Boulevard to St. Johns Road.
- Two 3.75 m wide travel lanes and a 3.5 m wide left turn lane for a segment east of Webster Boulevard.
- Four 3.75 m wide travel lanes from the 20th Sideroad to Webster Boulevard and one 4.0 m center turn lane, where required.

Figure 19: Alternative 5

This alternative also includes the following:

- A 4.0 m wide paved multi-use trail on north side of corridor from the 20th Sideroad to St. Johns Road.
- A 1.5 m sidewalk on the south side of corridor from the 20th Sideroad to just east of Webster Boulevard.
- Servicing Improvements.
- Intersection Improvements.

7.0 EVALUATION OF ALTERNATIVES

7.1 Phase 2: Evaluation of Impacts

In order to select the preferred solution, an evaluation matrix was developed using key criteria to compare each of the alternatives under consideration and to evaluate their potential to impact the area environment (physical, natural, socio-economic, and cultural). Table 2 identifies the criteria used for this evaluation.

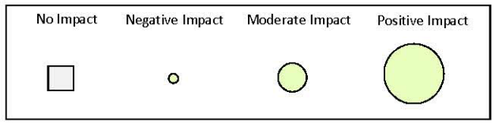
Table 2: Phase 2 Evaluation Criteria

Criteria	
Technical Environment	**Natural Environment**
Future Traffic Capacity	Terrestrial Wildlife (including Species at Risk)
Active Transportation	Fisheries / Aquatic
Safety	Vegetation
Municipal Services (sanitary, water, storm)	Surface Water / Drainage
Utilities	Groundwater
Social Environment	**Cultural Environment**
Land Use Planning Objectives	Archaeological Resources
Property Impacts	Built Heritage Resources
Aesthetics	**Economic Environment**
Residential	Property Acquisition Costs
Area Businesses	Construction Costs
Noise and Vibration	Operation/Maintenance Costs
Air Quality	

The Phase 2 Evaluation Matrix completed for this project is shown in Tables 3 and 4. The Evaluation Matrix provides a simplified, visual comparison of the potential for each alternative to impact the study area environment (physical, natural, socio-economic and cultural). A large circle indicates that an alternative will have a more positive impact on a specific criterion. The evaluation matrix used a visual comparison to illustrate the positive and negative impacts associated with each alternative. A small circle indicates that the proposed alternative creates a negative impact and is therefore a least preferred option. Conversely, a large circle indicates a positive impact and therefore a more preferred option. A square was used to demonstrate that the impact from a specific alternative would have no impact. An alternative with an increased number of large circles indicates a more preferable alternative that addresses deficiencies, but minimizes negative impacts to the area environment.

Table 3: Public Open House No. 1 Evaluation Matrix Part A

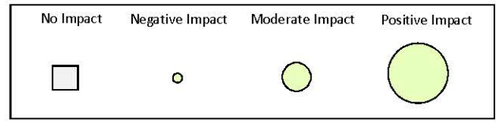
The table below provides a simplified, visual comparison of the potential for each alternative to impact the study area environment (physical, natural, socio-economic and cultural). An increased number of larger circles indicates that an alternative will have a reduced potential for negative impact.



EVALUATION CRITERIA	ALT 1 Do Nothing	ALT 2 Two Lanes	ALT 3 Three Lanes	ALT 4 Four Lanes	ALT 5 Combination	DESCRIPTION OF EFFECTS
TECHNICAL ENVIRONMENT						
Future Traffic Capacity Will the alternative address capacity requirements						Alt. 1 proposes no changes so the corridor would continue to function 'as is'. Alt. 2 does not provide sufficient capacity. Alt. 3 will provide sufficient capacity for only portions of the study area. Alt. 4 proposes 4 lanes and will provide more capacity than required for some segments of the corridor. Alt. 5 proposes a combination so it will more efficiently address capacity requirements.
Active Transportation Will the alternative provide for pedestrians and cyclists						Alt. 1 proposes no improvements so this alternative will not accommodate active transportation. Alts. 2-5 include provisions to address active transportation requirements.
Safety Will the alternative address safety concerns						Alt. 1 proposes no improvements so the corridor will continue to function 'as is'. Alt. 2 proposes two lanes which is significantly under capacity for the segment between the 20th Sideroad and Webster Blvd. which may not improve safety. Alts. 3-5 will improve safety.
Municipal Services (sanitary, water, storm) Will the alternative accommodate servicing requirements.						Alt. 1 proposes no changes to existing municipal services and is considered to have a negative impact in this regard since it will not accommodate future development. Alts. 2-5 propose improvements to existing servicing and will accommodate future development and are therefore considered to have a positive impact.
Utilities Will the alternative impact existing utilities (i.e. relocation)						Alt. 1 proposes no improvements so there is no impact to utilities from this option. Alt. 2 proposes two lanes similar to the existing so there is minimal potential to impact existing utilities. Alt. 4 proposes the widest cross-section so there is increased potential for impacts in this regard. Alt. 5 proposes some combination of Alts. 2-4 and therefore the cross-section could potentially be adjusted at certain locations to minimize impacts to utilities, as required.
NATURAL ENVIRONMENT						
Terrestrial Wildlife (including Species at Risk) Potential to impact area wildlife and SAR						Alt. 1 proposes no improvements so there is no potential to impact area widlife. Alt. 4 proposes the widest cross-section so this option will have the greatest potential for impact. Alts. 2 and 3 require this least amount of expansion beyond the right-of-way and are considered to have a moderate potential for impact in comparison to the other alternatives. Alt. 5 proposes some combination of Alts. 2-4 and there is the potential that the cross-section could be adjusted at certain locations to minimize impacts to lands adjacent the corridor.
Fisheries / Aquatic Potential to impact fish habitat and aquatic features						Alt. 1 proposes no improvements so there is no potential to impact area watercourses or fish habitat. Alt. 4 proposes the widest cross-section so this option will have the greatest potential for impact. Alts. 2 and 3 require this least amount of expansion beyond the right-of-way and are considered to have a moderate potential for impact in comparison to the other alternatives. Alt. 5 proposes some combination of Alts. 2-4 and there is the potential that the cross-section could be adjusted at certain locations to minimize impacts to the adjacent watercourse.
Vegetation Potential to impact existing vegetation						Alt. 1 proposes no improvements so there is no potential to impact existing vegetation. Alt. 4 proposes the widest cross-section so this option will have the greatest potential for impact. Alts. 2 and 3 require this least amount of expansion beyond the right-of-way and are considered to have a moderate potential for impact in comparison to the other alternatives. Alt. 5 proposes some combination of Alts. 2-4 and there is the potential that the cross-section could be adjusted at certain locations to minimize impacts to existing vegetation.
Surface Water / Drainage Potential to impact surface water and area drainage						Alt. 1 proposes no improvements and therefore any issues with existing drainage will continue. Alts. 2-5 propose improvements to existing drainage infrastructure and are considered to result in a positive impact in this regard.
Groundwater Potential to impact area groundwater resources						Alt. 1 proposes no construction so there is no potential to impact area groundwater. As Alts. 2-5 propose a reconstruction of the existing corridor and there is potential to impact groundwater during construction dewatering.

Table 4: Public Open House No. 1 Evaluation Matrix Part B

The table below provides a simplified, visual comparison of the potential for each alternative to impact the study area environment (physical, natural, socio-economic and cultural). An increased number of larger circles indicates that an alternative will have a reduced potential for negative impact.



EVALUATION CRITERIA	ALT 1 Do Nothing	ALT 2 Two Lanes	ALT 3 Three Lanes	ALT 4 Four Lanes	ALT 5 Combination	DESCRIPTION OF EFFECTS
SOCIAL ENVIRONMENT						
Land Use Planning Objectives Is alternative in accordance with planning objectives						Alt. 1 proposes no improvements which will not address future development and is therefore not in accordance with land use planning objectives. Alt. 2 does not address capacity requirements . Alt. 3 provides sufficient capacity for only portions of the study area. Alts. 4 and 5 will provide the necessary capacity and operational improvements accommodate development planned for the area and is in accordance with land use planning objectives.
Property Impacts Will the alternative require property acquisition						Alt. 1 proposes no construction so no property is required. Alt. 4 has the widest cross-section and therefore the greatest impacts in this regard. Alts. 2, 3 and 5 will have a moderate impact.
Aesthetics Will the alternative impact the area visually						Alts. 2-5 propose improvements and urbanization of the corridor which will improve the overall appearance of the area by addressing the deteriorating condition of the existing pavement and adding boulevard trees and landscaping. Alt. 1 proposes no improvements so the corridor will continue to deteriorate and this option will therefore have a negative impact in this regard.
Residential Will the alternative impact area residences and access						As Alts. 2-5 propose reconstruction there will be temporary impacts during the construction period relating to property access; however, measures can be implemented to minimize impacts. As Alt. 1 proposes no construction there will be no impacts in this regard.
Areas Businesses Will the alternative impact area commercial operations						As Alts. 2-5 propose reconstruction there will be temporary impacts during the construction period relating to property access; however, measures can be implemented to minimize impacts. As Alt. 1 proposes no construction there will be no impacts in this regard.
Noise and Vibration Will the alternative impact noise levels during construction and the long term						Alt. 1 does not propose construction so noise will not be an issue . Alt. 2 proposes the same number of lanes as existing so there will be only minor noise impacts during construction. Alts. 3-5 propose an increase in the number of lanes so there may be an increase in noise (this will be confirmed through a Noise Impact Study).
Air Quality Will the alternative impact air quality						Alt. 1 does not propose any improvements so over the long term congestion could impact air quality. Alt. 2 proposes the same number of lanes as existing and it is not expected that there would be a significant change in air quality over existing conditions. Alt. 3-5 propose an increase in the number of lanes; however, it is not expected that this would result in significant impacts to air quality.
CULTURAL ENVIRONMENT						
Archaeological Will the alternative impact area archaeological resources						Since the study area has been subject to previous disturbance it is unlikely that the area has any remaining archaeological potential; however, a Stage 2 archaeological assessment will be completed to confirm the existence of any significant resources. Alts. 2-5 are expected to have a similar potential for impact in this regard.
Built Heritage & Cultural Heritage Landscapes Will the alternative impact area built heritage resources						As Alt. 1 does not propose construction there is no potential to impact area built heritage resources. Alts. 2 & 3 are expected to have a similar impact in this regard. As Alt. 4 proposes the widest cross-section there is increased potential for impact. As Alt. 5 proposes some combination of Alts. 2-4 there is the potential that the cross-section could be adjusted, as necessary, to minimize impacts.
ECONOMIC ENVIRONMENT						
Property Acquisition Costs Will the alternative require property acquisition						Since Alt. 1 proposes no improvements there will be no costs in this regard. Alt. 2 will have the least amount of property acquisition of the options under consideration. Alts. 3 & 5 will have a moderate impact in this regard. Alt. 4 will require the most amount of property acquisition.
Construction Costs Will the alternative be expensive to construct						Alt. 4 proposes the widest cross-section and is expected to be the most costly of the alternatives under consideration.
Operating & Maintenance Costs Will the alternative be expensive to maintain						Alt. 1 propose no improvements, but it will incur greater operating/maintenance costs over time as compared to Alts. 2-5 as the infrastructure continues to deteriorate. Alts. 4 & 5 may have higher operating/maintenance costs associated with the four lane cross-section in comparison to Alts. 2 & 3.

7.2 Phase 2 Input Received

This section provides a brief summary of comments received following Public Open House No. 1 as they pertain to the evaluation of the alternatives and selection of the Preferred Solution. For a more complete summary of the consultation program completed for this project, and additional details pertaining to comments received, please refer to Section 11.0. The comments received indicate that the most favourable option was Alternative 5. Respondents were generally supportive of improving the subject corridor. The key concerns are summarized below.

- In favour of keeping the forest (green space) protected and maintaining the "cottage feel" of the area. Naturalized areas, forested parkland, and greenspace are needed in this area.
- Issues identified at the intersection of the 7th Line and St. Johns Road relating to blind spots and a potential increase of vehicular traffic. Residents inquired if the design proposed will address this aspect.
- Supportive of preferred solution (i.e. Alt. 5) provided all studies regarding wildlife, agricultural, and historical have been done.
- A Council Member and Town employee expressed a concern relating to 4 lanes merging into 2 lanes at the 7th line and 20th Sideroad. The 4 lanes were only reasonable if they extended west of 20th Sideroad to Yonge Street with improvements along this route. The advantages of using LID (Low Impact Development) measures for stormwater management were also noted.
- Cedar trees that currently provide privacy between residents on Booth Avenue are a concern if removed as there will be significant loss of privacy.
- Street lights from Webster Boulevard to St. Johns Road would be beneficial.
- Concern with property impacts to 1497 7th Line (i.e. southeast quadrant 7th Line/20th Sideroad). Existing access to the 7th Line from this location is also dangerous.
- The speed limit along 20th Sideroad between 6th Line and the 7th Line should be reduced to 60 km/h.

8.0 SELECTION OF THE PREFERRED SOLUTION

Following POH No. 1 and a review of comments received Alternative 5 was selected as the Preferred Solution involving a combination of Alternatives 2 – 4. Table 5 provides a brief summary of the rationale for this selection.

Table 5: Selection of Preferred Solution

ALTERNATIVE SOLUTIONS PRESENTED AT POH 1		RATIONALE FOR SELECTION
ALTERNATIVE 1 'DO NOTHING'	✖	This alternative is not being carried forward because it does not address capacity or operational deficiencies and does not accommodate future development.
ALTERNATIVE 2 – TWO LANES Reconstruct 7th Line to an urban cross-section with two travel lanes for the entire length.	✖	This alternative is not being carried forward because it does not address capacity and operational deficiencies. An increase in the number of lanes would be required at some point in the future.
ALTERNATIVE 3 – THREE LANES Reconstruct 7th Line to an urban cross-section with two travel lanes and one continuous centre turn lane for the entire length.	✖	This option will address capacity and operational deficiencies, but traffic analysis has confirmed that three lanes is not warranted for the full length of the project. Three lanes at the east end of the study area will require property acquisition and result in increased impacts to adjacent properties. This alternative was therefore not carried forward.
ALTERNATVE 4 – FOUR LANES Reconstruct 7th line to an urban cross-section with four travel lanes and a left turn lane, where required.	✖	While this alternative will fully address capacity and operational deficiencies, traffic analysis indicates that four lanes for the entire project length is not warranted within the design horizon. This alternative has the largest construction footprint and will require property acquisition and utility relocation. It has an increased potential to impact existing natural heritage features (i.e. vegetation, the watercourse, fish and fish habitat etc.) and will be the most costly option to implement. This alternative was therefore not carried forward.
ALTERNATIVE 5 – COMBINATION Some combination of Alternatives 2 through 4.	✓	**PHASE 2 PREFERRED SOLUTION:** • **This option will more efficiently address future traffic capacity requirements since the cross-section is increased only where needed and reduced where not required.** • **It will fully provide for Active Transportation (i.e. pedestrians and cycling).** • **Increasing the number of lanes to three, only where necessary, will reduce the need for property acquisition, minimize utility relocation and reduce the potential to impact natural features (i.e. vegetation, the watercourse, fish and fish habitat etc.).** • **Costs associated with property acquisition and construction costs will be more reasonable.**

The Preferred Solution, Alternative 5, was modified slightly from that presented at POH No.1 to reflect comments received and the results of the updated traffic analysis data for future developments in the area. The number of required lanes at the west end of the study area was reduced from four lanes to three lanes. The width of the multi-use trail was also reduced from 4.0 m to 3.0 m.

As such, the revised Preferred Solution proposes the following:

- Three lanes from the 20th Sideroad to east of Webster Boulevard.
- Two lanes from east of Webster Boulevard to St. Johns Road.
- Multi-use Trail and Sidewalks.
- Servicing and Intersection Improvements.

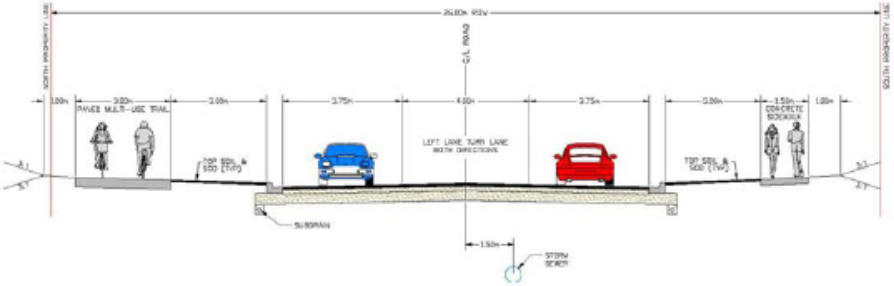
9.0 PHASE 3 DESIGN ALTERNATIVES

9.1 Description of Design Alternatives

As part of Phase 3 of the Class EA process various design alternatives are developed to implement the Preferred Solution(s) selected at the close of Phase 2. Three design options were presented to the public at POH No. 2 on Wednesday, March 28, 2018. Details of each design alternative are further detailed in Figures 20 to 22.

Figure 20: Design Alternative 1

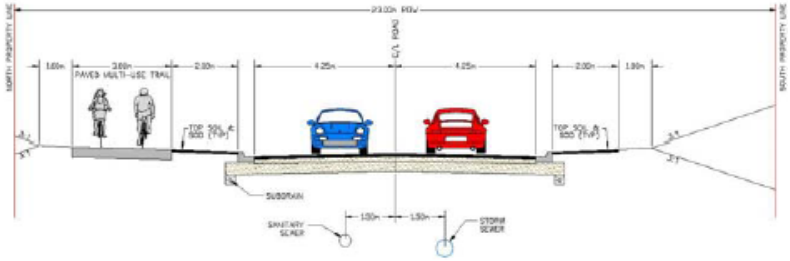
Three Lane Urban Cross-Section
From 20th Sideroad to East of Webster Blvd.



Reconstruct this segment to a 3 lane urban cross-section providing:

- Two 3.75 m wide travel lanes
- One 4.0 m wide continuous centre turn lane
- 3.0 m multi-use trail north side with 3.0 m offset from back of curb.
- 1.5 m sidewalk south side with 3.0 m offset from back of curb.

Two Lane Urban Cross-Section
From Webster Blvd. to St. John's Rd.

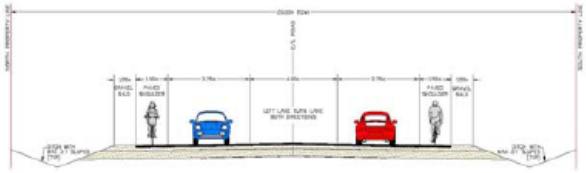


Reconstruct this segment to a 2 lane urban cross-section providing:

- Two 4.25 m wide travel lanes
- 3.0 m multi-use trail north side with 2.0 m offset from back of curb.
- No sidewalks.

Figure 21: Design Alternative 2

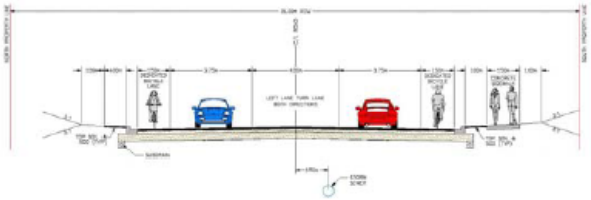
Three Lane Rural Cross-Section From 20th Sideroad to Metrolinx Rail Corridor



Reconstruct this segment to a 3 lane rural cross-section providing:

- Two 3.75 m wide travel lanes
- One 4.0 m wide continuous centre turn lane
- 1.5 m paved shoulders in lieu of multi-use trail
- 1.0 m gravel shoulders

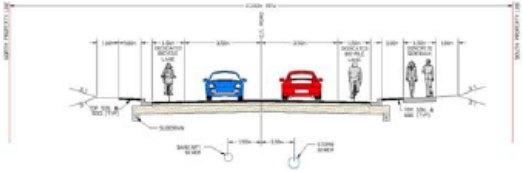
Three Lane Urban Cross-Section From Metrolinx Rail Corridor to East of Webster Blvd.



Reconstruct this segment to a 3 lane urban cross-section providing:

- Two 3.75 m wide travel lanes
- One 4.0 m wide continuous centre turn lane
- 1.5 m sidewalk south side
- 1.5 m dedicated bike lanes both sides of corridor in lieu of multi-use trail

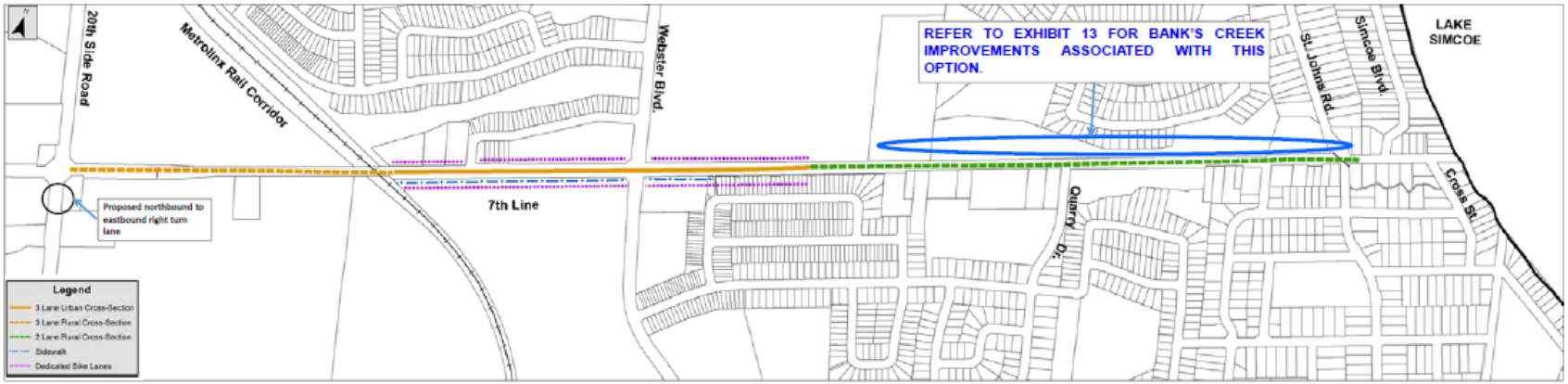
Two Lane Urban Cross-Section From Webster Blvd. to St. John's Rd.



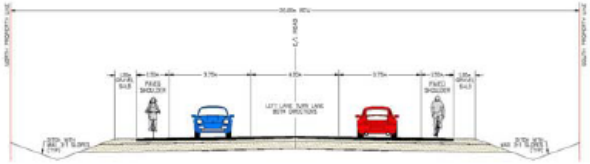
Reconstruct this segment to a 2 lane urban cross-section providing:

- Two 3.50 m wide travel lanes
- 1.5 m sidewalk south side
- 1.5 m dedicated bike lanes both sides of corridor in lieu of multi-use trail
- 1.0 m boulevard

Figure 22: Design Alternative 3



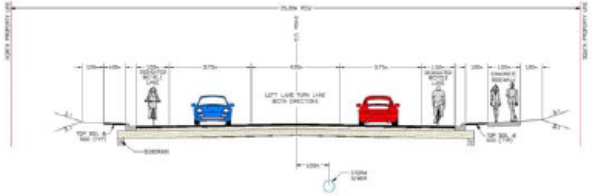
Three Lane Rural Cross-Section From 20th Sideroad to Metrolinx Rail Corridor



Reconstruct this segment to a 3 lane rural cross-section providing:

- Two 3.75 m wide travel lanes
- One 4.0 m wide continuous centre turn lane
- 1.5 m paved shoulders in lieu of multi-use trail
- 1.0 m gravel shoulders

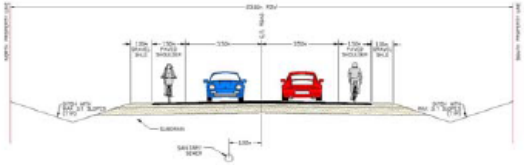
Three Lane Urban Cross-Section From Metrolinx Rail Corridor to East of Webster Blvd.



Reconstruct this segment to a 3 lane urban cross-section providing:

- Two 3.75 m wide travel lanes
- One 4.0 m wide continuous centre turn lane
- 1.5 m dedicated bike lanes in lieu of multi-use trail

Two Lane Rural Cross-Section From Webster Blvd. to St. John's Rd.



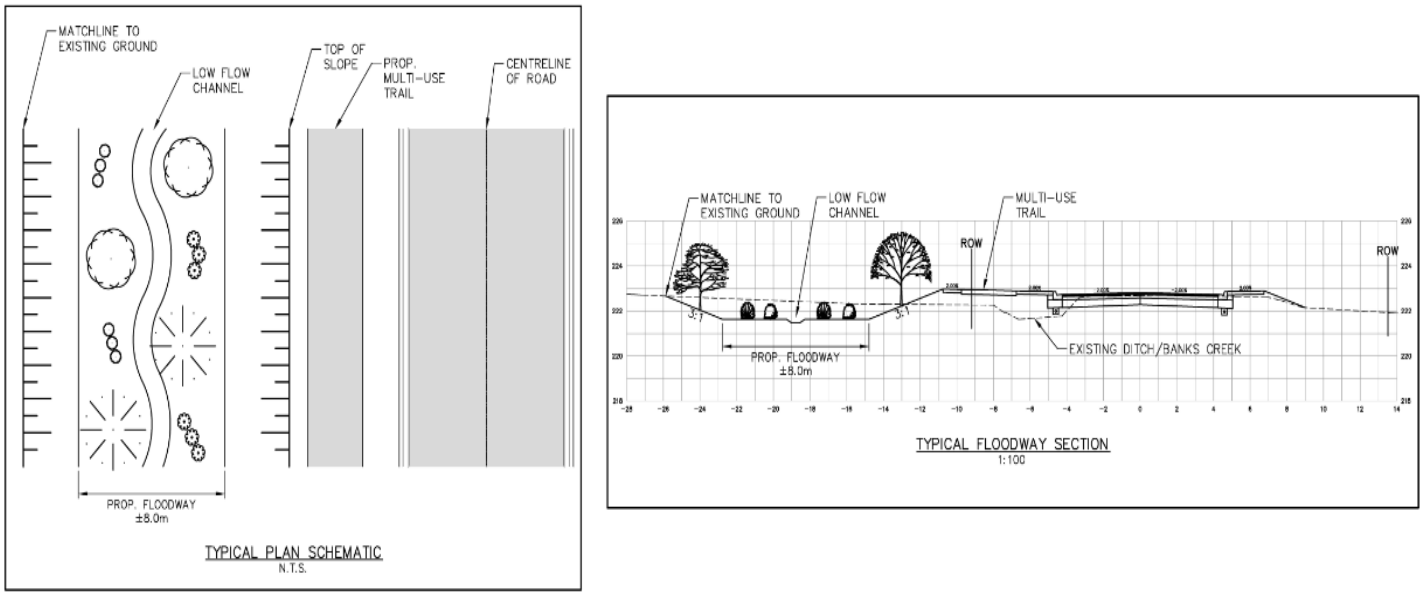
Reconstruct this segment to a 2 lane rural cross-section providing:

- Two 3.5 m wide travel lanes
- 1.5 m paved shoulders in lieu of multi-use trail
- 1.0 m gravel shoulders

9.2 Banks Creek Improvements

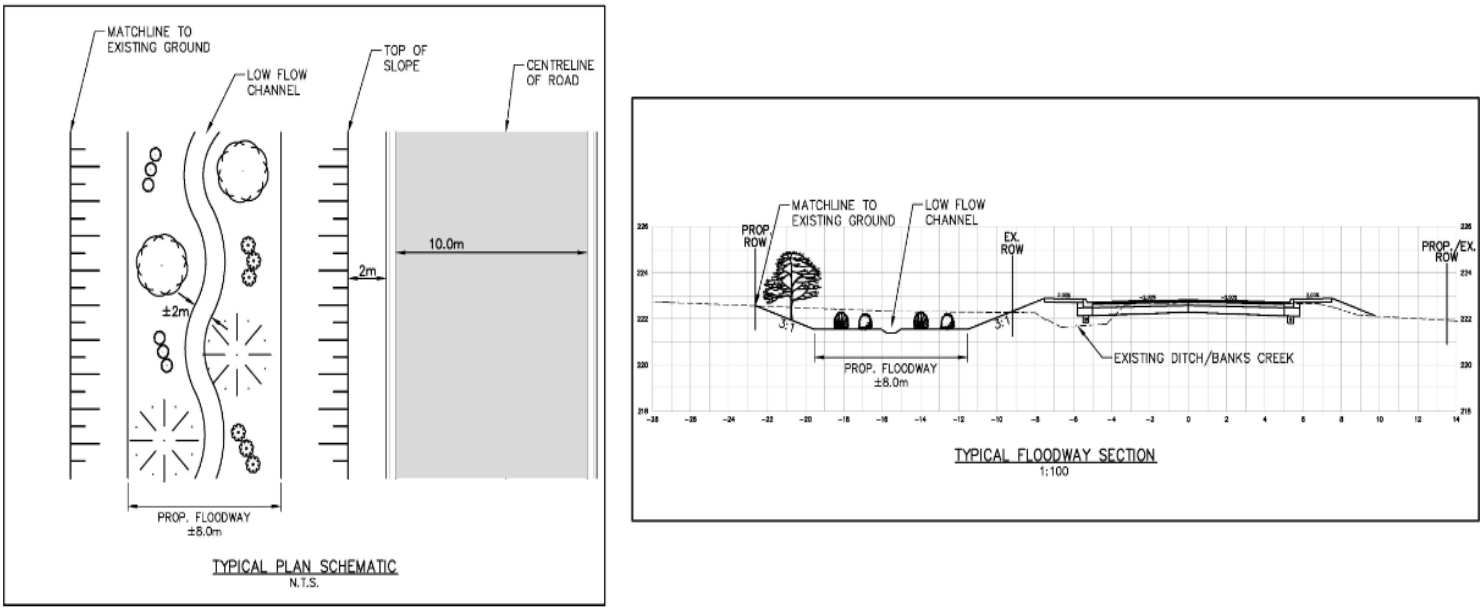
As part of the Preferred Solution, a component of the Preferred Solution involves the rehabilitation of a segment of Banks Creek. Three design options were presented to the public at POH No. 2 on Wednesday, March 28, 2018. Details of each design alternative are further detailed in Figures 23 to 25.

Figure 23: Design Alternative 1 for Banks Creek Improvements



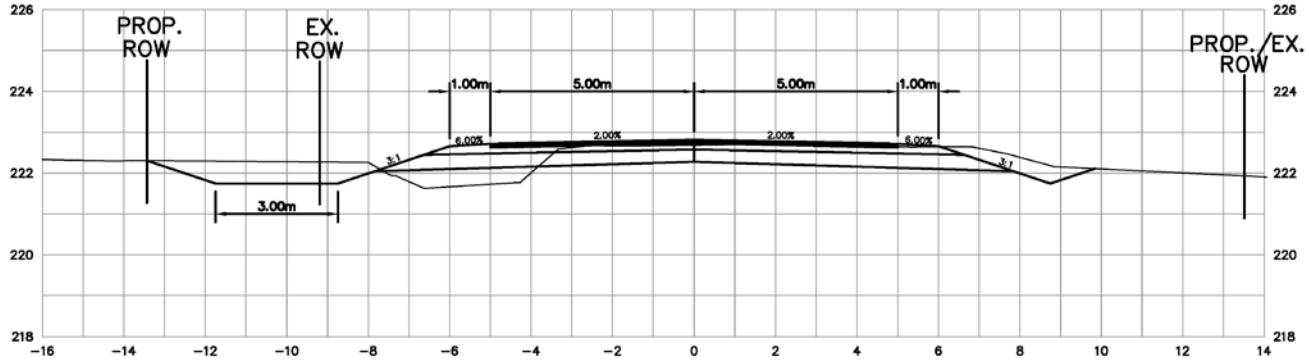
- In an effort to improve the quality of Banks Creek and the associated fish habitat, Design Alternative 1 proposes a shift of approximately 1.0 km of the watercourse north for a distance of approximately 12.0 m.
- Naturalization of the channel will be completed, including an increased separation distance between the roadway and the creek, resulting in improved fish habitat.
- While the proposed channel reconstruction will improve the watercourse, it will require extensive vegetation removals. Landscape plans can be implemented post construction to assist in re-naturalizing the area.
- A Department of Fisheries and Oceans (DFO) Authorization will be required to complete these improvements.

Figure 24: Design Alternative 2 for Banks Creek Improvements



- With Design Alternative 2, a 1.0 km (approximate) segment of watercourse would need to shift approximately 8.0 m north to accommodate the reconstruction.
- Naturalization of the channel would be completed; however, the separation distance between the watercourse and roadway would not be as extensive as Design Alternative 1.
- Alternative 2 will improve the watercourse and the associated fish habitat and it will not require as extensive vegetation removals as Design Alternative 1.
- A Department of Fisheries and Oceans (DFO) Authorization will be required to complete these improvements.

Figure 25: Design Alternative 3 for Banks Creek Improvements



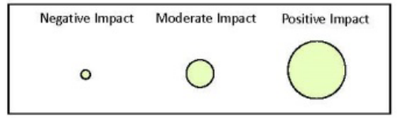
- The above figure is of a typical two lane road cross section. Figure 25 illustrates the shift in right-of-way (prop. ROW)
- A 1.0 km (approximate) segment of watercourse would need to shift approximately 4.0 m north to accommodate the reconstruction. The watercourse would continue to be located immediately adjacent to the roadway post construction.
- For Alternative 3, the construction footprint is reduced as to minimize impacts to adjacent properties and natural heritage features.
- A DFO Authorization will be required to complete the relocation of the watercourse.

9.3 Evaluation of Design Alternatives

To assist in the selection of the Preferred Design during Phase 3 of the Class EA process, the aforementioned design options were evaluated to assess their potential to impact the study area environment (physical, natural, social, cultural and economic) so as to obtain an understanding of the advantages and disadvantages associated with each option. An evaluation matrix was developed to compare each alternative using criteria considered relevant to the project. The evaluation criterion was updated from those used in the Phase 2 evaluation to include impacts to climate change. Similar to the Phase 2 evaluation, a visual comparison was used to illustrate the positive and negative impacts associated with each alternative as illustrated in Tables 6 and 7. A small circle indicates that an alternative will create a negative impact and is therefore a least preferred option. Conversely, a large circle indicates a positive effect and is therefore a more preferred option. An alternative with an increased number of large circles indicates a more preferable alternative that addresses deficiencies, but minimizes negative impacts.

Table 6: Public Open House No. 2 Evaluation Matrix Part A

The table below provides a simplified, visual comparison of the potential for each design alternative to impact the study area environment (physical, natural, socio-economic and cultural). An increased number of larger circles indicates that an alternative will have a reduced potential for negative impact.



DESIGN ALT 1: FULLY URBANIZED CROSS-SECTION (LARGEST FOOTPRINT) WITH MULTI-USE TRAIL + BANK'S CREEK NATURALIZATION + EXTENSIVE SHIFT OF BANK'S CREEK

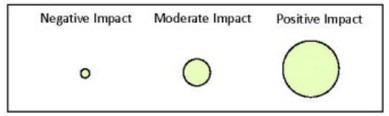
DESIGN ALT 2: INTERMEDIATE FOOTPRINT + BANK'S CREEK NATURALIZATION + MODERATE SHIFT OF BANK'S CREEK

DESIGN ALT 3: SMALLEST FOOTPRINT + MINOR SHIFT OF BANK'S CREEK

EVALUATION CRITERIA	DESIGN ALT 1	DESIGN ALT 2	DESIGN ALT 3	DESCRIPTION OF EFFECTS
TECHNICAL ENVIRONMENT				
Future Traffic Capacity Will the alternative address capacity requirements?				All three options will equally address traffic capacity requirements.
Active Transportation Will the alternative provide for pedestrians and cyclists?				Design Alt. 1 will fully provide for active transportation since it provides both a multi-use trail and a sidewalk. Design Alts. 2 & 3 provide bike lanes as paved shoulders within the corridor and sidewalks.
Safety Will the alternative address safety concerns?				All three design alternatives will equally address safety.
Municipal Services (sanitary, water, storm) Will the alternative accommodate servicing requirements?				All three design alternatives will equally address servicing requirements.
Utilities Will the alternative impact existing utilities (i.e. relocation)?				Design Alt. 1 will have the largest construction footprint and will require utility relocation. Design Alts. 2 & 3 will have a moderate impact in this regard.
NATURAL ENVIRONMENT				
Terrestrial Wildlife (including Species at Risk) Potential to impact area wildlife and SAR				As Design Alt. 1 will have the largest construction footprint and proposes more extensive channel relocation it will have an increased potential to impact area wildlife through loss of vegetation and disruption during construction; however, mitigation can be utilized to keep impacts to a minimum. Design Alts. 2 and 3 will have more moderate impacts in this regard.
Fisheries / Aquatic Potential to impact fish habitat and aquatic features				While there will be temporary impacts during construction with any of the alternatives, Design Alt. 1 proposes naturalization and a relocation of Bank's Creek providing an increased separation distance from the roadway resulting in improved fish habitat. Alt. 3 will continue to flow immediately beside the corridor post construction. Design Alt. 2 will provide naturalization of the channel but the separation distance between the road and the watercourse will not be as extensive as Design Alt. 1.
Vegetation Potential to impact existing vegetation				Design Alt. 1 has the largest footprint and will require extensive vegetation removals to accommodate the channel naturalization and will therefore have greatest impact to area vegetation. Design Alts. 2 & 3 will have a moderate impact in this regard.
Surface Water / Drainage Potential to impact surface water and area drainage				Design Alt. 1 will have the most positive impact in this regard since it proposes full urbanization and includes a stormwater management pond for quality and quantity control. Design Alt. 2 also proposes urbanization but does not include a stormwater pond. Design Alt. 3 proposes a small segment of urbanization and will utilize mainly ditch drainage with no stormwater management pond.
Groundwater Potential to impact area groundwater resources				The study area is not within a wellhead protection area. All three options will have a low potential to impact area groundwater.
Climate Change How does the alternative impact climate change and how does climate change impact the alternative?				All three options are expected to have a similar impact on climate change. While the improvements proposed will address capacity deficiencies, the anticipated increase in vehicle emissions is not expected to be significant or result in substantial increases in green house gases over existing conditions. While vegetation removal is required landscaping will be completed post construction which will contribute to replacement of vegetative cover necessary to assist in the removal of carbon dioxide. The stormwater management improvements (i.e. urbanization & storm ponds) as well as the use of Low Impact Development measures (i.e. infiltration galleries) will assist in maintaining infiltration and reducing the impacts from increased temperature s and extreme rain events.
Air Quality Will the alternative impact air quality?				All three design alternatives propose an increase in the number of lanes at the west end of the study area only, in an area that is largely vacant. The improvements proposed are not expected to result in a significant change in air quality over existing conditions.

Table 7: Public Open House No. 2 Evaluation Matrix Part B

The table below provides a simplified, visual comparison of the potential for each alternative to impact the study area environment (physical, natural, socio-economic and cultural). An increased number of larger circles indicates that an alternative will have a reduced potential for negative impact.



FULLY URBANIZED CROSS-SECTION (LARGEST FOOTPRINT) WITH MULTI-USE TRAIL + BANK'S CREEK NATURALIZATION + EXTENSIVE SHIFT OF BANK'S CREEK

INTERMEDIATE FOOTPRINT + BANK'S CREEK NATURALIZATION + MODERATE SHIFT OF BANK'S CREEK

SMALLEST FOOTPRINT + MINOR SHIFT OF BANK'S CREEK

EVALUATION CRITERIA	DESIGN ALT 1	DESIGN ALT 2	DESIGN ALT 3	DESCRIPTION OF EFFECTS
SOCIAL ENVIRONMENT				
Land Use Planning Objectives Is alternative in accordance with planning objectives?	●	○	○	All three alternatives propose improvements that will address future development requirements and are therefore in accordance with land use planning objectives; however, Design Alt. 1 is more compatible with future development expansion westwards.
Property Impacts Will the alternative require property acquisition?	◦	○	○	Design Alt. 1 proposes the widest construction footprint and will require the most amount of property. Design Alts. 2 & 3 will require less property acquisition than Design Alt. 1.
Aesthetics Will the alternative impact the area visually?	●	●	●	All three alternatives propose a reconstruction which will improve the overall appearance of the area by addressing the deteriorating condition of the existing pavement and by adding boulevard trees and landscaping.
Residential Will the alternative impact area residences and access?	◦	○	○	As all three alternatives propose a reconstruction there will be temporary impacts during the construction period relating to property access; however, measures can be implemented to minimize impacts.
Areas Businesses Will the alternative impact area commercial operations?	○	○	○	As all three alternatives propose a reconstruction there will be temporary impacts during the construction period; however, measures can be implemented to minimize impacts.
Noise and Vibration Will the alternative impact noise levels during construction and the long term?	○	○	○	All three alternatives propose an increase from two to three lanes at the west end of the study limits, in an area that is largely vacant. It is not expected that the proposed improvements will result in a significant increase in noise. The application of standard noise mitigation during construction will assist in reducing noise impacts during the construction period.
CULTURAL ENVIRONMENT				
Archaeological Will the alternative impact area archaeological resources?	○	○	○	A Stage 1 archaeological report has confirmed that all lands within the municipal right-of-way have been subject to previous disturbance and are therefore cleared of archaeological concerns. A Stage 2 assessment is being completed for localized areas outside of the existing municipal right –of-way that will be subject to construction.
Built Heritage & Cultural Heritage Landscapes Will the alternative impact area built heritage resources?	○	○	○	There will be no direct impacts to built heritage resources with any of the alternatives. Cultural Heritage Landscapes may be temporarily affected during construction; however, mitigation will assist in keeping impacts to a minimum.
ECONOMIC ENVIRONMENT				
Property Acquisition Costs Will the alternative require property acquisition?	◦	○	○	All three design alternatives will require property acquisition; however, Design Alt. 1 will be the most extensive.
Construction Costs Will the alternative be expensive to construct?	◦	○	○	Design Alt. 1 will be the most costly to implement. Design Alts. 2 & 3 will be less costly and are expected to be relatively similar.
Operating & Maintenance Costs Will the alternative be expensive to maintain?	○	○	○	All three design alternatives will have similar operating and maintenance costs.

9.4 Phase 3 Input Received

This section provides a brief summary of comments received following POH No. 2 as they pertain to the evaluation of the alternatives and in selection of the Preferred Solution. For a more complete summary of the consultation program completed for this project and additional details pertaining to comments received, please refer to Section 11.0. The key concerns are summarized below:

- Being able to utilize the Multi-use trail the entire length of the Project area was considered to be favourable.
- The speed limit for the Project length should be considered for the populated area and then from Metrolinx to the 20th Sideroad. In general, the proposed posted speed of 50 km/hr from St. Johns Road to the crossing of the Metrolinx crossing and 60 km/hr from the Metrolinx crossing to the 20th Sideroad was well received.
- Members of the community who reside on Vance Crescent are not in favor of removing portions of the treed area located behind their houses along the 7th Line.
- Developers with land between 20th Sideroad and the Metrolinx crossing strongly questioned the conclusion of the Town's Master Servicing Plan to not extend watermain along the 7th Line west of Webster Boulevard.
- Several developers attended or were represented at the POH and all advised the submission of a Permission to Enter as that most efficient method to enter property to complete road improvements. They were more willing to tie into the new boulevard grades rather than giving up additional ROW. Properties discussed are part of Areas 1, 3-6 previously shown in Figure 8.

The project team gave consideration to the above comments and re-visited certain aspects of design to determine if improvements could be made and / or if site specific mitigation was warranted to address other issues. An additional meeting was held with the LSRCA to present the Town's preliminary Preferred Design and obtain their input. This meeting was held on August 16, 2018, full meeting minutes can be found in Appendix 'N'. The LSRCA advised the following:

- The design could incorporate more LID features in the boulevards to help with achieving post-construction to pre-construction runoff storage needs.

- That detail design of the channel realignment should consider more natural retaining structures, such as vegetated revetments or crib walls, for the areas that are not considered a pinch point.
- The LSRCA will follow their ecological offsetting plan, with the ratio for woodland habitat being 2:1 replacement. Having the compensation work done within that same area or sub watershed of the project work is also ideal.

9.5 Selection of the Preferred Design

Following the completion of POH No. 2 on March 28, 2018 and the receipt of input from interested parties, the Town of Innisfil selected Design Alternative 1 as the Preferred Design for the following reasons:

- This option will efficiently address future traffic capacity requirements.
- It will provide for Active Transportation (e.g. pedestrians and cycling)
- It will provide improvements to Banks Creek, including improved fish habitat.
- The proposed urbanization of the corridor will provide improvements to stormwater management in terms of water quality and quantity.

10.0 DETAILS OF THE RECOMMENDED PLAN

This section provides additional details regarding the Preferred Design Option 1 which, as noted, is the Town's Recommended Plan for moving forward to address the deficiencies affecting subject corridor. Copies of the preliminary drawings are included in Appendix 'H'.

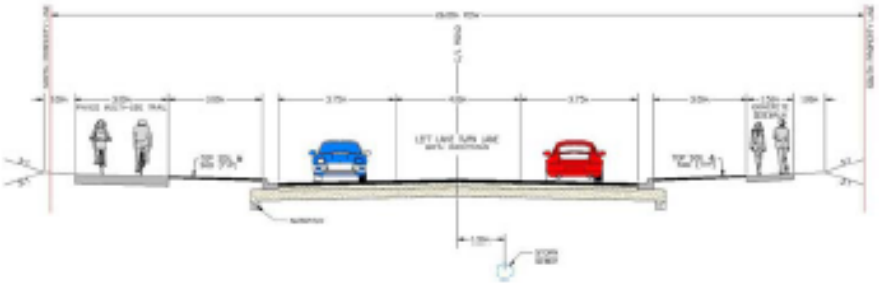
10.1 Road Cross-section

The 7th Line will be reconstructed to a three lane urban cross-section from the 20th Sideroad east past Webster's Boulevard where it will change into a two lane cross-section. Details are shown in more detail in Figure 26.

Figure 26: Road Cross-Section of Recommended Plan

Fully Urbanized Cross-section with Multi-use Trail + Bank's Creek Naturalization

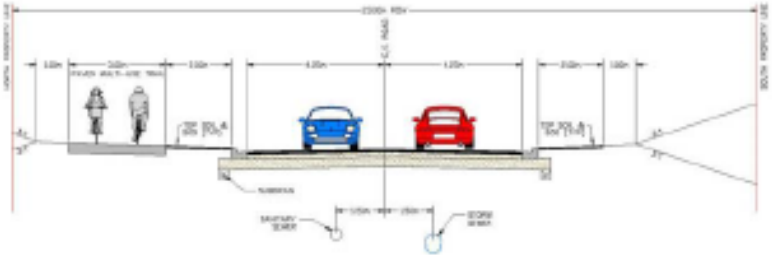
Three Lane Urban Cross-Section
From 20th Sideroad to East of Webster Blvd.



Reconstruct this segment to a 3 lane urban cross-section providing:

- Two 3.75 m wide travel lanes
- One 4.0 m wide continuous centre turn lane
- 3.0 m multi-use trail north side with 3.0 m offset from back of curb.
- 1.5 m sidewalk south side with 3.0 m offset from back of curb.

Two Lane Urban Cross-Section
From Webster Blvd. to St. John's Rd.



Reconstruct this segment to a 2 lane urban cross-section providing:

- Two 4.25 m wide travel lanes
- 3.0 m multi-use trail north side with 2.0 m offset from back of curb.
- No sidewalks.

10.2 Intersection Improvements

Excellent to very good Levels of Service are attained with the proposed intersection improvements on the 7th Line at Webster Boulevard, Fox Hill Street and at the 20th Sideroad.

- At Fox Hill Street, the improvement consists of a separate left turn lane for the eastbound to northbound movement.
- At the 20th Sideroad, the improvement consists of the addition of a separate right turn lane for the northbound to eastbound movement and provision of a protected left for the east and westbound left turns.
- At the 7th Line and Webster Boulevard, a separate left turn lane is provided for the east and west approaches and a protected left phase is provided for the eastbound to northbound movement and a separate right turn lane is provided for the eastbound to southbound movement.

10.3 Stormwater Management

The 7th Line will be reconstructed with an urbanized cross-section with curb and gutter and storm sewer. Existing stormwater infrastructure will be expanded upon to meet the requirement of post construction hydrologic flows and hydraulic capacity based on current agency guidelines and stormwater management policies. There are four key aspects to be considered in the drainage strategy for the 7th Line improvements:

- Balanced cut - fill within the floodplain
- Quality Control
- Control of first 25 mm flush from impervious areas
- Control runoff to pre-road improvement rates

The estimated surplus of fill within the floodplain for the preferred solution is approximately 3600m^3. To balance cut and fill volumes, it is proposed that additional excavation be completed in the existing field in the northeast quadrant of the intersection of the 7th Line and the 20th Sideroad. The excavation will be provided between the floodplain elevations and the elevation of the nearby or adjacent drainage course of Banks Creek. The volume for the cut-fill balance is based on a floodplain level between the Metrolinx crossing and the 20th Sideroad of 250 metres AMSL (above mean sea level). The land required for the cut – fill balance excavation will be purchased. The volume of cut required and the location will be determined during detailed design, but the proposed area offers some flexibility in

providing the necessary cut. The owner of the property is currently investigating the current floodplain model and outlet configuration. If their study is successful in redefining and lowering the flood line, then they would have more developable area. The lowering of the flood line also reduces the fill within the floodplain of this project. A very preliminary estimate of the required cut was made from the preliminary design road cross-section rolls and the projected flood line levels provided by the developer's engineers. The required cut would be reduced to approximately 600 to 800 m^3. The area required for this reduced excavation could also be accommodated in the northeast quadrant.

Quality control of run-off will be achieved by a variety of methods including:

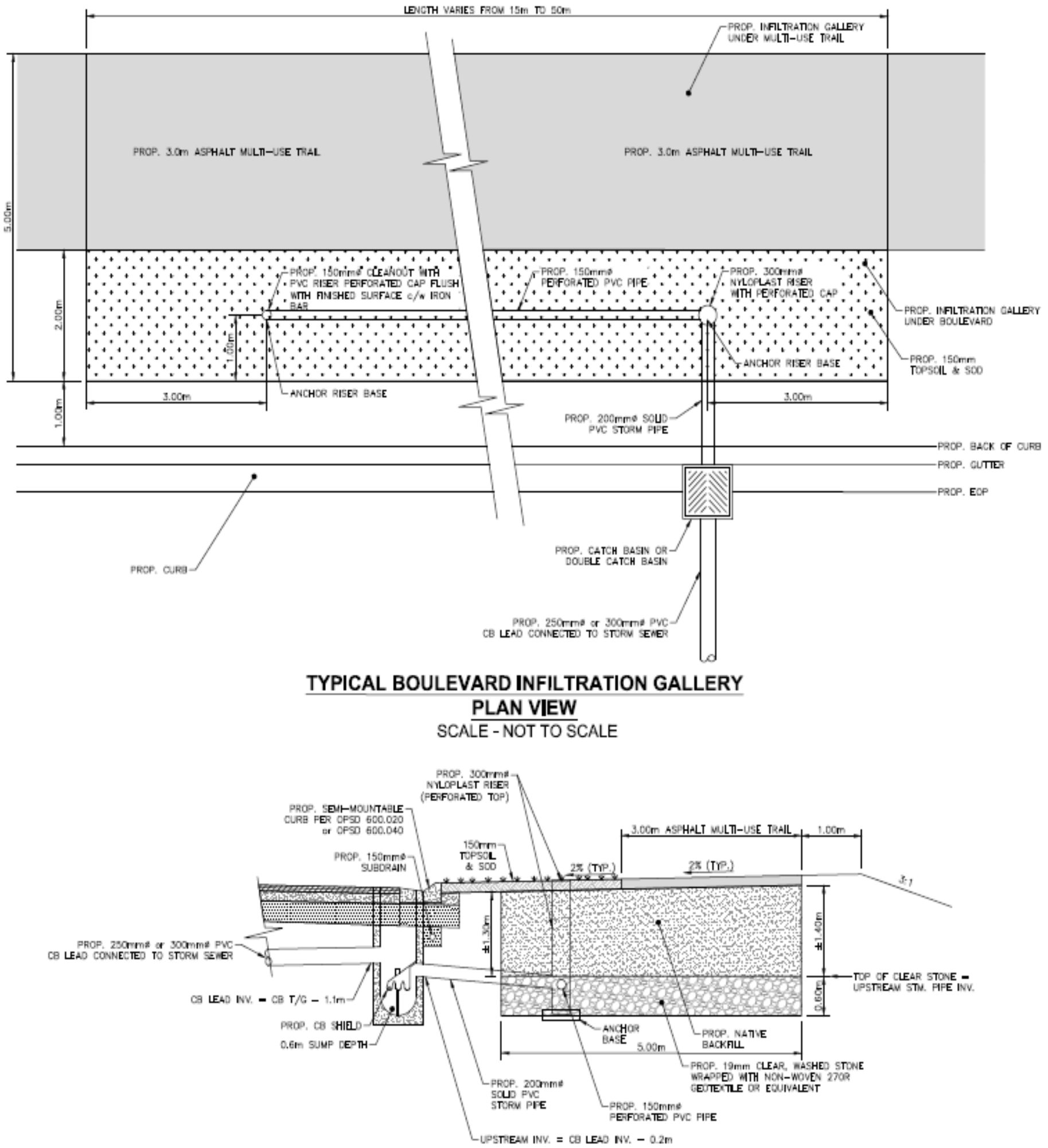
- A typical erosion and sediment control plan to be implemented during construction
- Placement of 0.6 m sumps in the catchbasins
- CB Shields for all of the catchbasins
- Rehabilitation of an 800 m segment of Banks Creek that improves offset from the roadway and removes direct drainage of road shoulder to the creek and infiltration of first 25 mm flush from new impermeable surfaces.

The preferred solution retains the existing grass lined ditch along the south side of the road between Quarry Drive and St. Johns Road.

To provide for the infiltration of the first 25 mm flush from new impervious surfaces, infiltration galleries have been designed along the project. The implementation of Low Impact Development (LID) features is a more modern approach to stormwater management that attempts to manage runoff at the source instead of conveying it to an alternate location as is traditionally done. Due to groundwater levels the galleries are concentrated in the western 2/3 of the project area. The chosen locations of the galleries have at least 1.0 m separation to the water table. On the current preliminary plan and profile drawings, the galleries are positioned within the road boulevard and measure 5 m wide on the north side of the road and 4 m wide on the south side. The galleries consist of a clear stone layer approximately 0.6 m thick wrapped in filter fabric, with the top of the clear stone 1 to 1.2 m below ground surface. Assuming a void ratio of 1/3, this provides 1 m^3 of infiltration per metre of gallery on the north side and 0.8 m^3 of infiltration per metre on the south side. The galleries are fed from the catchbasins on the road to a perforated pipe within the gallery. Figure 27 provides a schematic of the infiltration gallery design option described. When the capacity of the gallery is met it backflows to the catchbasin and on to the storm sewer. Nylo-plast risers are provided in the boulevard to monitor how the

gallery is functioning. To accommodate the first 25 mm flush from new impervious surfaces, infiltration of stormwater quantities of 360 m^3 is required. An alternative solution that can be further refined in detailed design would use an 800 mm diameter perforated CSP as part of the storage for infiltration and reduce the clear stone gallery width to approximately 2 m. The gallery would be feed through drops or slots in the curb line to a gently depressed grass area between back of curb and multi-use trail or generally within the boulevard. Figure 28 provides a schematic of the alternative infiltration gallery design just described.

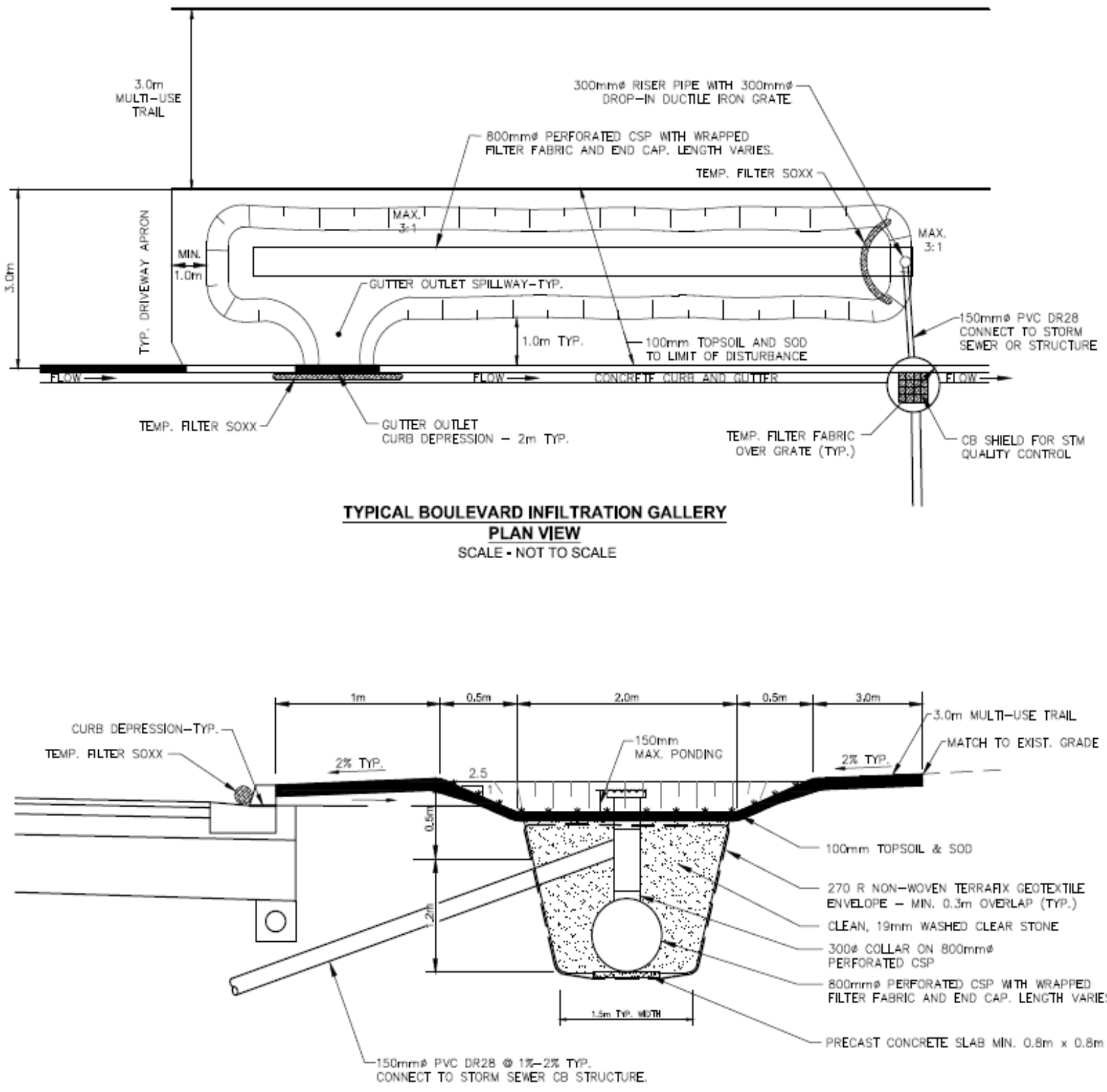
Figure 27: Infiltration Gallery Design Option 1



TYPICAL BOULEVARD INFILTRATION GALLERY
PLAN VIEW
SCALE - NOT TO SCALE

TYPICAL BOULEVARD INFILTRATION GALLERY
CROSS-SECTION VIEW
SCALE - NOT TO SCALE

Figure 28: Infiltration Gallery Design Option 2



Preliminary analysis of required storm runoff storage and attenuation identified a need for 1020 m^3 of storage. The preliminary strategy included a new stormwater management (SWM) pond in the northeast quadrant of the intersection of the 7th Line and Webster Boulevard, and expansion of the Grand Sierra Homes existing triangular SWM Pond by approximately 420 m^3. The strategy also included the option of a new SWM Pond in the field in the northeast quadrant of the intersection of the 7th Line and the 20th Sideroad or a shared pond with a future development on the south side of the 7th Line near that location. Consultation with agency groups led to the preferred design to increase the infiltration galleries rather than the addition of SWM ponds. By increasing the number of infiltration galleries and using those features as runoff storage that is fully infiltrated, the need for the new SWM ponds have been eliminated and the required expansion of the existing Grand Sierra Homes' SWM Pond has been reduced from 420 m^3 to approximately 150 m^3. The plans currently show an overall length of infiltration gallery of approximately 962 m with a storage volume of approximately 887 m^3. The position of the galleries is shown in the plan view of the Plan and Profile drawings in Appendix 'H'.

10.4 Banks Creek Rehabilitation

The recommended plan proposes to realign 910 m of Banks Creek northward, on average a distance of 8.0 m. A fluvial geomorphology expert was consulted to ensure that the realignment of Banks Creek was feasible within the physical land available. The completion of the assessment concluded that a bankfull channel width of at least 3.1 m would be required to create a fluvially stable alignment. The fluvial assessment suggested riffle and pool locations for the new channel, based on an approximate bankfull channel width of no less than 3.1 m and pool depth of 0.65 m. The fluvial geomorphology report along with the most up to date drawings can be found in Appendix 'I' of this report.

As the impacts of the channel relocation cannot be mitigated, the proposal to realign Banks Creek will require review and approval from DFO in accordance with the Federal *Fisheries Act.* In an effort to minimize any impacts of the channel realignment, the construction will occur in two phases. The first phase would involve the preservation of the existing channel to the south while building the new channel to the north. The second phase would then allow time for any seeds or planted vegetation to establish and disturbed soils to settle. Once established, the flow of Banks Creek will directed into the newly constructed channel and the former channel decommissioned.

Recommendations from the fluvial assessment indicated that channel banks should be reinforced with bioengineering solutions to limit risks of erosion. In addition, to provide adequate reinforcement of channel banks, the design proposes sections of retaining wall structures in five locations.

10.5 Utility Relocations

Further coordination with InnPower Corporation, Enbridge Gas, Bell Canada, and Rogers Telecommunications Inc. will be required during the detailed design phase regarding minor relocation requirements.

10.6 Servicing Improvements

The sanitary sewer is to be extended 400 m west of its current location at the intersection of the 7th Line and Quarry Drive. The new road grade will require lowering portions of the watermain between St. Johns Road and Webster Boulevard to provide adequate depth cover.

10.7 Construction Staging / Traffic Management

To minimize impacts to area residents and businesses, detailed design will include the design of construction staging to maintain traffic flow and property access during construction.

10.8 Property Acquisition / Easements

No additional property is required along the south side of the 7th Line between St Johns Road and Webster Boulevard to accommodate the road improvements. Significant ROW widening is required along the north side the 7th Line along this segment to accommodate the road reconstruction and the proposed rehabilitation of Banks Creek. In some areas, the required ROW widening is approximately 15 m. The lands required along the north side are currently owned by the municipality. The extent of the additional ROW requirements does not extend to the private lands in the northeast quadrant of the intersection of Webster Boulevard and the 7th Line except for proposed daylighting triangles of 10 m by 10 m.

Between Webster Boulevard and the Metrolinx crossing a 2 m ROW widening is required on the south side of the 7th Line to accommodate the proposed right turn lane. That ROW requirement extends approximately 100 m west of the intersection. Between Fox Hill Street and the Metrolinx

crossing on the north side of the 7th Line, a 3 m ROW widening is required. Between the Metrolinx crossing and the 20th Sideroad, significant ROW widening is required on both sides of the road. In some areas a 36 m ROW is required.

Additional property is required between the Metrolinx crossing and the 20th Sideroad to provide an area of excavation to accomplish a cut – fill balance. As a preliminary design and, assuming a floodplain elevation of approximately 250 m, a volume of approximately 3500 m^3 needs to be replaced in the floodplain. This could be accomplished on the north side of the 7th Line between the Metrolinx crossing and the 20th Sideroad. However, the landowner is currently pursuing a study and strategy that may reduce the floodplain level. If successful, the fill from the proposed road improvements would be reduced to approximately 600 to 800 m^3. This could be accomplished by a much reduced excavation area. The Town will continue to consult with the landowner to select an area for the cut – fill balance satisfactory to the landowner's long term needs.

10.9 Preliminary Construction Cost Estimate

As illustrated in Table 8, the preliminary construction cost estimate for the reconstruction of the 7th Line is estimated to be approximately $10,540,000.00.

Table 8: Preliminary Construction; Cost Estimate

Preferred Design Cost Estimate	
Construction Component	**Cost Estimate**
SITE WORKS	$1,234,400.00
REMOVALS	$113,330.00
ROAD RECONSTRUCTION	$4,966,300.00
SANITARY SEWER	$215,750.00
WATERMAIN	$285,900.00
STORM SEWER	$1,932,500.00
LANDSCAPING	$581,500.00
SUBTOTAL	$9,329,680.00
H.S.T. (13%):	$1,212,858.40
TOTAL	$10,542,538.40

11.0 CONSULTATION

11.1 Points of Contact

As per Section A.3.5.3 of the Municipal Class EA, a minimum of three points of contact are required for a Schedule 'C' project. For this undertaking four points of contact were completed as follows:

- Contact Point No. 1 - Notice of Commencement
- Contact Point No. 2 - Notice of Public Open House No. 1
- Contact Point No. 3 - Notice of Public Open House No. 2
- Contact Point No. 4 - Notice of Completion

During each point of contact, notification was provided to the public, relevant agencies and Indigenous communities. The following sections provide additional details associated with each point of contact.

Table 9: Key Consultation Contact Points

Contact Point	Notification Issued
Notice of Commencement	▪ The purpose of this notice was to introduce the project, provide background information on the improvements required, identify the Class EA process, and define the project study area. ▪ Notice published in the local newspaper *Innisfil Examiner* in the April 28, 2017 and May 5, 2017 editions. ▪ Notice posted on the Town of Innisfil website. ▪ Copy of notice was mailed to area residents within the notification area on May 10, 2017. ▪ A letter and copy of the notice was issued by the Ainley Group on May 10, 2017 to relevant agencies and Indigenous communities. ▪ **A copy of all correspondence is included in Appendix 'J' of this report.**
Notice of Public Open House No. 1	▪ The purpose of this notice was advised of the scheduling of Public Open House No. 1 to present the alternative solutions under consideration. ▪ Public Open House No. 1 was held Wednesday, October 11, 2017 at the Town Hall Community Rooms from 4:00 pm to 7:00 pm. ▪ Notice published in the local newspaper *Innisfil Examiner* in the September 22, 2017, September 29, 2017 and October 6, 2017 editions. ▪ Notice posted on the Town of Innisfil website. ▪ Copy of notice was mailed to area residents within the notification area on September 18, 2017. ▪ A letter and copy of the notice was issued by the Ainley Group on September 18, 2017 to relevant agencies and Indigenous communities. ▪ **A copy of all correspondence is included in Appendix 'K' of this report.**

Contact Point	Notification Issued
Notice of Public Open House No. 2	▪ This notice identified the Preferred Solution that was selected following POH No. 1 and advised of the scheduling of a second Public Open House to present the alternative design concepts under consideration to implement the Preferred Solution. ▪ Public Open House No. 2 was held Wednesday, March 28, 2018 at the Town Hall Community Rooms from 4:00 pm to 7:00 pm. ▪ Notice published in the local newspaper *Innisfil Examiner* in the March 15, 2018 and March 22, 2018 editions. ▪ Notice posted on the Town of Innisfil website. ▪ Copy of notice was mailed to area residents within the notification area on March 7, 2018. ▪ A letter and copy of the notice was issued by the Ainley Group on March 7, 2018 to relevant agencies and Indigenous communities by the Ainley Group. ▪ **A copy of all correspondence is included in Appendix 'L' of this report.**
Notice of Completion	▪ This notice announced the completion of the Class EA process and identified the locations available to review the Environmental Study Report. ▪ The notice also provided direction for the submission of a Part II Order request. ▪ Notice published in the local newspaper *Innisfil Examiner* on April 11, 2019 and April 18, 2019. ▪ Notice posted on the Town of Innisfil website. ▪ A letter and copy of the notice was issued by the Ainley Group on April 1, 2019 to relevant agencies and Indigenous communities. ▪ **A copy of all correspondence is included in Appendix 'M' of this report.**

11.2 Consultation with Indigenous Communities

Using The Aboriginal and Treaty Rights Information System (ATRIS), a contact list was developed for Indigenous community consultation. The following communities received the project Notice of Commencement:

- Curve Lake First Nations
- Missisaugas of the Credit First Nation
- Ammjiwnaang First Nation
- Wasauksing First Nation
- The Métis Nation of Ontario
- Moon River Métis Council
- Georgian Bay Métis Council
- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation

A number of Indigenous communities responded to the Notice of Commencement. The communities of Curve Lake, Missisaugas of the Credit First Nation, Ammjiwnaang First Nation, and Wasauksing First Nation all responded that the project was either outside of their Traditional Treaty land, or they did not foresee any concerns with the proposed project. These Indigenous communities, as requested in correspondence, were removed from the project contact list. A full copy of all comments received in regards to the Notice of Commencement can be found in Appendix 'J'.

Subsequently, the Ministry of Environment, Conservation and Parks (MECP) was contacted to confirm which Indigenous communities should be contacted as part of this project as per the current protocol. In accordance with the MECP direction and the information noted above, the contact list was adjusted and the following communities continued to be consulted as part of this process:

- The Métis Nation of Ontario
- Moon River Métis Council
- Georgian Bay Métis Council
- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation

In addition to the above, the Ministry of Indigenous Affairs (formerly Ministry of Indigenous Affairs Relations & Reconciliation) was also contacted. Indigenous & Northern Affairs Canada (formerly Aboriginal Affairs & Northern Development Canada), a federal agency, was not contacted since the project was not taking place on Indigenous lands.

All notification issued to Indigenous agencies and communities were sent by registered mail so as to confirm receipt. The Chippewas of Rama First Nation were the only Indigenous community to respond following issue of the Notice of POH No. 1 and POH No. 2 as shown in Table 10. Their letter(s) acknowledged receipt of the notice and indicated that it was shared with Council and forwarded to the Williams Treaties First Nation Process Co-ordinator/Negotiator who would take action if necessary. At the present time, there remain no outstanding Indigenous issues or concerns relating to this project. All items are considered to be addressed.

Table 10: Indigenous Agency and Community Comment Summary

INDIGENOUS COMMUNITY	COMMENTS RECEIVED	RESPONSE / ACTION
Chippewas of Rama First Nation 5884 Rama Road, Suite 200 Rama, ON L3V 6H6 Chief Rodney Nogonash Hollie Nolan, Executive Assistant to the Chief, Administration hollien@ramafirstnation.ca 705-325-3611, ext. 1216	**Comment received via email June 2, 2017** "Thank you for your letter re: Town of Innisfil – 7th Line Improvements – Schedule 'C' Municipal Class Environmental Assessment – Notice of Study Commencement. Please be advised that we reviewed your letter. I have shared it with Council and we've forwarded the information to Karry Sandy McKenzie, Williams Treaties First Nation Process Co-ordinator/Negotiator. Ms. McKenzie will review your letter and take the necessary action if required. In the interim, should you wish to contact Ms. McKenzie directly, please do so at k.a.sandy-mckenzie@rogers.com"	Comment Noted. No further action required.
Chippewas of Rama First Nation 5884 Rama Road, Suite 200 Rama, ON L3V 6H6 Chief Rodney Nogonash Hollie Nolan, Executive Assistant to the Chief, Administration hollien@ramafirstnation.ca 705-325-3611, ext. 1216	**Comment received via email October 4, 2017** "Thank you for your letter re: Town of Innisfil – 7th Line Improvements – Schedule 'C' Municipal Class Environmental Assessment – Notice of Public Open House No. 1. Please be advised that we reviewed your letter. I have shared it with Council and we've forwarded the information to Karry Sandy McKenzie, Williams Treaties First Nation Process Co-ordinator/Negotiator. Ms. McKenzie will review your letter and take the necessary action if required. In the interim, should you wish to contact Ms. McKenzie directly, please do so at k.a.sandy-mckenzie@rogers.com"	Comment Noted. No further action required.
Chippewas of Rama First Nation 5884 Rama Road, Suite 200 Rama, ON L3V 6H6 **Cathy Edney,** Communications Manager Tel: 705-325-3611, ext. 1416	**Comment received via email March 15, 2018** "Thank you for your notice regarding this Public Open House. At this time, we have no questions or comments related to this project. Please continue to keep us informed as you move forward."	Comment Noted. No further action required.

11.3 Consultation with External Agencies

As identified in Table 11, a number of agencies were contacted regarding this project. During the course of the project comments were submitted by the Ministry of Environment, Conservation and Parks and the Ministry of Tourism, Culture and Sport (MTCS) and municipal committees. Agency comments are summarized in Table 12 along with the action taken to address their concerns. At the present time, there remain no outstanding agency issues or concerns relating to this project. All items are considered to be addressed.

Table 11: External Agency List of Contacts

Provincial & Federal Agencies	Local Government and Other Agencies	Utilities
▪ Environment Canada ▪ Ministry of Environment, Conservation and Parks ▪ Ministry of Environment Barrie District Office ▪ Ministry of Tourism, Culture & Sport ▪ Ministry of Natural Resources & Forestry Midhurst District Office ▪ Ontario Ministry of Agriculture, Food and Rural Affairs ▪ Metrolinx/GO Transit ▪ Transport Canada ▪ Ministry of Municipal Affairs and Housing ▪ Infrastructure Ontario	▪ Lake Simcoe Region Conservation Authority ▪ County of Simcoe City of Barrie ▪ Simcoe Muskoka Catholic District School Board ▪ Simcoe County District School Board ▪ Conseil Scolaire Viamonde ▪ Association Franco-Ontarienne Des Conseils Scolaires Catholiques ▪ Simcoe County Student Transportation Consortium ▪ Simcoe County Historical Association ▪ County of Simcoe Paramedic Services ▪ Royal Victoria Regional Health Centre ▪ Innisfil Fire Rescue Services ▪ City of Barrie, Fire & Emergency Service Department ▪ City of Barrie Police Service ▪ South Simcoe Police ▪ Ontario Provincial Police, Operational Policy and Strategic Planning Bureau ▪ Greater Innisfil Chamber of Commerce ▪ Cookstown and District Chamber of Commerce ▪ Innisfil District Association ▪ Alcona Beach Club Inc. ▪ Degrassi Cove Association ▪ Innisfil Creek Golf Course ▪ Innisfil Heritage Committee ▪ Gilmore and Gilmore Professional Corporation ▪ Georgian College ▪ BonSecour Track and Trail Snowmobile Club ▪ Barrie Cycling Club ▪ Ontario Cycling Association ▪ Ontario Federation of Agriculture	▪ Enbridge Gas ▪ Rogers Telecommunications Inc. ▪ Bell Canada ▪ Innpower Corporation

Table 12: External Agency Comment Summary

KEY AGENCY COMMENTS	HOW ADDRESSED
MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS (MECP)	
MECP indicated that the following Indigenous agencies/communities should be contacted regarding the project: o The Métis Nation of Ontario o Moon Rive Métis Council o Georgian Bay Métis Council o Beausoleil First Nation o Chippewas of Georgina Island First Nation o Chippewas of Rama First Nation MECP identified the following areas of interest relating to the project that must be addressed: o Ecosystem Protection and Restoration o Air Quality, Dust and Noise o Surface Water o Groundwater o Contaminated Soils o Servicing and Facilities o Mitigation and Monitoring o Planning and Policy o Consultation o Class EA Process o Aboriginal Communities A hard copy of the ESR is to be sent to the MECP when the Notice of Completion is issued for the 30 day review period.	▪ The items identified by MECP were addressed in the ESR prepared for this project. ▪ As per MECP request, a digital copy of the ESR will be circulated to the MECP with the Notice of Completion and a hard copy forwarded upon request.
TRANSPORT CANADA	
Please note Transport Canada **does not** require receipt of all individual or Class EA related notifications. We are requesting project proponents to self-assess if their project: 1. Will interact with a federal property and/or waterway by reviewing the	• Transport Canada removed from Contact List July 7, 2017. Transport Canada will continue to be consulted, as required.

Directory of Federal Real Property, available at www.tbs-sct.gc.ca/dfrp-rbif/; **and** 2. Will require approval and/or authorization under any Acts administered by Transport Canada* available at http://www.tc.gc.ca/eng/acts-regulations/menu.htm. Projects that will occur on federal property prior to exercising a power, performing a function or duty in relation to that project, will be subject to a determination of the likelihood of significant adverse environmental effects, per Section 67 of the *Canadian Environmental Assessment Act, 2012*. If the aforementioned does not apply, the Environmental Assessment program should not be included in any further correspondence and will not receive a response.	

11.4 Consultation with the Public

The public mailing list was provided by the municipality and data extracted from the Municipality's Geographical Information System database. Any public parties interested in receiving information pertaining to the project were also added the contact list. As indicated, two public meetings were hosted by the municipality during the course of this Class EA. The following sections detail the public comments received at the key contact points and the action taken to address individual concerns.

11.4.1 Notice of Study Commencement

This notice was issued early in the process in May 2017 to introduce the project, specify the Class EA Schedule, identify the problem / opportunity and define the project study area. Only two public comments were received in response to the Notice of Commencement. Both comments were in regards to updating correct mailing addresses.

11.4.2 Public Open House No. 1

The notice advised the public of the scheduling of a Public Open House. Public input was encouraged and direction provided for the submission of comments. During Phase 2 of the Class EA process, an informal drop-in style Public Open House was held Wednesday, October 11, 2017 at the Town Hall Community Rooms from 4:00 p.m. to 7:00 p.m. to provide details regarding the project. A total of 33 exhibits were displayed that provided information pertaining to the Class EA process, project background, the problem / opportunity, the alternative solutions under consideration and the evaluation completed. A plan view drawing with satellite imagery was displayed for Alternative 5 (combination). The extent of impact associated with the two and three lane options at key locations was also identified on this drawing. Cross-sections for key locations were also available for review. Comment sheets were made available at the POH and the public was advised that the POH material was available on the Town's website.

The following members of the Project Team were in attendance and available to answer questions:

Magdalena Koehler	Town of Innisfil, Capital Project Manager
Carolina Cautillo	Town of Innisfil, Project Manager, Roads, Traffic & Transportation
Steve Fournier	Ainley Group, Project Engineer

Andrea Potter	Ainley Group, Environmental Planner
Jodi Moore	Ainley Group, Environmental Planning Assistant

The meeting was well attended with a total of 43 people having signed in. Attendees included property owners in the area of the project and land developers, as well as representatives from the Town of Innisfil, a number of Councillors, and the media. Table 11 provides a summary of the public comments received in response to this POH and presents the municipal response to demonstrate how the concerns were addressed. Copies of the POH exhibits, the public comments submitted during this period, and the municipal responses are included in Appendix 'K' of this report.

Following the completion of POH No. 1 and a review of all comments received, Alternative 5 was chosen as the Preferred Solution. Respondent letters were issued December 22, 2017 and included a cover letter and the individual comment with associated municipal response.

Table 13: POH No. 1 Summary of Comments and Municipal Response

PUBLIC OPEN HOUSE NO. 1 SUMMARY OF COMMENTS AND HOW ADDRESSED DURING CLASS EA PROCESS
TRAFFIC
▪ ***"4-way stop needed at the intersection of 7th line and St. Johns (cannot see north travelling traffic when making a left turn from 7th line)."*** ▪ ***"Most of the development is West of St. Johns, however, the intersection at the 7th line and St. Johns should be a major concern as it has very poor sightlines, in particular the South-West corner. There will be an increase of traffic at this intersection. Add to this the fact that there are currently no stops on St. Johns between IBR and Ewart St to slow or stop traffic. A traffic light should be considered; or at the least a flashing 4 way stop."*** ▪ ***"7th Line and St. Johns is a busy intersection with only a 2 way stop. Turning north onto St. Johns is often a blind turn (dangerous!). A 4 way stop would be much safer."*** ▪ ***"Improve intersection of St. Johns and 7th. Poor site line."*** RESPONSE: A traffic analysis was completed for this location which determined that neither traffic signals nor auxiliary turn lanes are warranted for this intersection. As part of this project, the sight lines at the intersection of St. Johns and 7th Line were reviewed. Following a site visit, it was determined that the limited sight lines can be addressed by cutting back some of the existing vegetation at that intersection within the road allowance. The matter has been referred to the municipality's Public Works Department who will take appropriate action to improve the sight lines at that intersection. ▪ **"The speed along 20th, from 6th line north to 7th should be reduced to 60 (and they will still go 70!)"**

PUBLIC OPEN HOUSE NO. 1
SUMMARY OF COMMENTS AND HOW ADDRESSED DURING CLASS EA PROCESS

RESPONSE: Speed limits along 7th Line from the 20th Sideroad heading east to the railway corridor will be 60 km/hr. From the railway corridor east to St. Johns Road the speed limit will be 50 km/hr.

- ***"My concern is the S/E corner of 7th Line and 20th Sideroad around the Nantyr School (old historic building / a home!). Leaving this property by car is dangerous at most times."***

RESPONSE: At this time, the alternatives being investigated along the school's frontage on 7th Line may leave the existing driveway unaffected.

- ***"Until we have 4 lanes on the 6th and a Clover leaf at the 400 what impact will this have?"***

RESPONSE: Our traffic analysis indicates there will be a heavy left turn movement for westbound traffic on 7th Line to turn south onto 20th Sideroad and this movement is provided with a separate left turn lane. The anticipated destination of this heavy movement is to the 6th Line and the proposed Go Station or westward on 6th Line to Highway 400.

- ***"I wonder the impact of the 4 lanes merging into 2 again at the 7th and 20th? Also where are we directing them to? Will there be improvements, 7th and Yonge to the 10th?"***

RESPONSE: The transition from the four lane alternative to two lanes as you proceed westward across the intersection of 20th Sideroad and 7th Line would have the curb lane of the westbound traffic on 7th Line turning right onto the 20th Sideroad northbound lane. There will be a single westbound through lane across 20th Sideroad. Eastbound on 20th Sideroad through the intersection is a single through lane and the second eastbound lane is developed from the right turn lane for northbound traffic on the 20th Sideroad to proceed east on 7th Line. Therefore, the lane balance is maintained across the intersection east to west. At this time based on additional traffic information received we are focusing more on a two lane road with left turn lane between Webster Boulevard and 20th Sideroad.

- ***"Given that the section of the 7th Line is more established on both sides of the road from Webster Boulevard to St. Johns Sideroad, compared to the section between Webster Boulevard and 20th Sideroad, we would suggest limiting widening and impacts in this area as much as possible. We note that our medium density residential blocks are physically constrained by the creek and existing infrastructure. Therefore, we are highly opposed to any widening that requires a strip of frontage. To decrease the cross-section, we would recommend that Muliti-Use Trail be decreased substantially from the proposed 4.0m but maintain a sufficient separation buffer from the roadway. We'd prefer sidewalk on the north side of the 7th Line from Webster and westward. We'd also suggest maintaining the two lanes throughout the section between Webster Blvd and St. Johns road and maintaining the 50 km/h speed limit. We would like the traffic to be slower and safer with the added benefit of less noise pollution in the existing area. From the railway track and west, the speed limit could be increased and we would support the 4 lane design in this section."***

PUBLIC OPEN HOUSE NO. 1
SUMMARY OF COMMENTS AND HOW ADDRESSED DURING CLASS EA PROCESS

RESPONSE: Our current design strategy for the portion between the 7th Line from Webster Boulevard to St. Johns Road, on the south side of the road, requires little or no additional right-of-way. We have shifted the centerline within the right of way to minimize impacts on the north and south side of the road. On the north side of the road, the addition of the multi-use trail will require extension of the right-of-way limit into the Town owned parkland area. At this time it does not appear that we will be extending into developable areas of the Grand Sierra property. The current design strategy proposes a two lane road from Webster Boulevard to St. Johns Road with a left turn lane at the approach to Webster Boulevard and a multi-use trail on the north side. A sidewalk is also proposed on the south side that extends to the Previn Court pedestrian entrance (approximately 150 m east of Webster Boulevard). At this time it appears that we do not need additional property from the planned development in the northeast quadrant of the Webster Boulevard and the 7th Line intersection. Regarding speed limits, at this time we are proposing a speed limit of 60 km/h from the 20th Sideroad to the Metrolinx crossing and a 50 km/h posted speed limit east of the railway crossing to the lake.

VEGETATION REMOVAL - PRIVACY

- **"Concerned over the loss of privacy on the 7th, behind 970 Booth. The cedars create most of the privacy."**

RESPONSE: As presented at POH 1, Alternative 5 proposing a variation in the number of lanes (i.e. 2, 3 and 4 lanes), is the preliminary preferred solution. At the present time, the tree line providing the screening appears to be outside the limit of disturbance and will remain.

- **"As per telephone call with Jodi Moore (Ainley Group) December 12, 2017 – Could the Development leave a row of trees abutting the 7th Line?"**

RESPONSE: The design of the 7th Line will attempt to minimize the loss of existing vegetation and a landscaping plan will be developed during the detailed design phase that will provide for the planting of boulevard trees. However, we are also looking at naturalizing Banks Creek where it is directly adjacent to the 7th Line. We will be weighing the pros and cons of that naturalization with Lake Simcoe Region Conservation Authority (LSRCA).

GREENSPACE AND MULTI USE TRAIL

- ***"Need naturalized areas, forested parkland green space in this area – possible Grand Sierra space beside Nature Trail – wide open space."***

RESPONSE: Please note that the focus of this project is the 7th Line corridor and any comments regarding the addition of green space to area developments is outside the scope of this Class EA. For your information, the Grand Sierra residential development approved draft plan does provide open space along Banks Creek on the south side of the development.

- ***Although we are unsure if the trail goes through our lands, either way, we oppose this trail. The Alcona Developers' Group already have a proposed trail that links through the open space block in this draft plan. Furthermore, this trail is shown on what would be the rear yard of future houses. Furthermore, this trail is not identified on the Innisfil Trails Master Plan, November 2016. However, we would be willing to analyse other pedestrian linkages."***

PUBLIC OPEN HOUSE NO. 1
SUMMARY OF COMMENTS AND HOW ADDRESSED DURING CLASS EA PROCESS

- ***"Alternative 5 looks good. Currently there is a trail between the houses on Vance Crescent and Banks Creek that many people use to access St. Francis Catholic School. It would be good if the multi-use trail connected to the trail to the school (a bridge over the creek?)"***
- ***"Allocating green space / green belt lands to proposed developments, where both an existing storm water management pond resides and a proposed trail may exist, connecting 7th to Anna Maria and Nantyr High School. Simcoe County has very few Green lands and the opportunity exists there and other developments to allow/encourage green space and responsible land use."***

RESPONSE: The proposed multi-use trail along the north side of the 7th Line provides an opportunity for improved connectivity with Anna Maria Avenue. The routing of the north / south link is not part of this Class EA. A Secondary Trail is proposed within the Grand Sierra residential development and the Town owned lands as per the Town's Trail Master Plan. This trail is outside of the scope of this Class EA and was shown on the Public Open House (POH) material for information purposes only. It will be constructed as part of the development or as a separate capital project. The Active Innisfil Trail Master Plan can be accessed at the following location:
https://innisfil.ca/mygovernment/planningforourfuture/ActiveInnisfil

NATURAL HERITAGE

- ***"As long as all studies regarding wildlife, agricultural and historical have been done and adhered to. The preferred seems it will work."***
- ***"Proper and responsible management of existing water ways and streams within the auspices of the LSRCA and Town EA"***

RESPONSE: This undertaking is being completed as a Schedule 'C' project in accordance with the Municipal Class Environmental Assessment (Oct. 2000, as amended 2007, 2011 & 2015). This project will follow an approved planning and design process under the Environmental Assessment Act that requires that consideration be given to environmental impacts and that any negative effects are properly mitigated, as necessary. The term "environment" is broadly defined and includes the built, natural, socio-economic and cultural environments. Please note that a number of studies have been initiated to establish an inventory of the existing conditions within the project study area and to identify any sensitive environmental features that need to be given consideration in the design of the project. The Lake Simcoe Region Conservation Authority (LSRCA) is also being actively consulted and is providing input into the design of the project and in the development of appropriate mitigation.

- ***"Use LID stormwater – visit LSCRA site for project improvements in Newmarket – great examples. St. Gardens."***

RESPONSE: The LSRCA is being actively consulted and is providing input into the design of the project and in the development of appropriate mitigation. LSRCA is also an active member of this project's Technical Advisory Committee. Low Impact Development measures will be implemented where possible.

- ***"…important fish habitat stream."***

PUBLIC OPEN HOUSE NO. 1
SUMMARY OF COMMENTS AND HOW ADDRESSED DURING CLASS EA PROCESS

RESPONSE: As part of this project, a natural heritage review was completed that included a review of fish and fish habitat. The design is attempting to minimize impacts to existing watercourses and mitigation will be developed to reduce the potential to impact fish and fish habitat.

- ***"Move water course on North. Fix water course along St. John to Lake"***

RESPONSE: This project is reviewing the watercourse from approximately west of Quarry Drive to St. Johns Road. At the present time the location immediately abuts the roadway and this project is giving consideration to shifting the watercourse north in this general area to increase the separation distance between the watercourse and the roadway which will be an improvement over existing conditions. The Lake Simcoe Region Conservation Authority (LSRCA) is providing input into the design of this project including any improvements to the watercourse. The segment of the watercourse east of St. Johns Road to the lake is outside the limits of the current project.

- ***"I was shocked to see that a residential development would be constructed in what I was told by San Diego Homes as conservation land that would never be built on."***

RESPONSE: The draft plan approved residential development located at the northeast quadrant of the intersection of Webster Boulevard and the 7th Line does provide open space on lands abutting Banks Creek (on the south side of the development) amongst 308 single family units, 46 street townhouses, 50 condo townhouses on the subject lands.

STORMWATER AND UTILITIES

- ***"Slide 27 shows a proposed SWM pond on out lands. We would oppose this due to the above mentioned constraints this area has and the impacts on the development that this causes."***

RESPONSE: Please note that the locations as presented at the Public Open House are preliminary. We will give your comments consideration as we proceed through this process and continue with the preliminary design of the stormwater requirements.

- ***"Slide 26 correctly shows a sanitary sewer that needs to be extended from Quarry Drive to our site. We would like to also like to advise that a future 200 PVC watermain may need to cross the road at the end of our future court (alongside the existing sanitary and storm sewers) and tie into the existing 300 watermain to create a loop from the watermain on Webster blvd, if required."***

RESPONSE: We acknowledge your comment regarding the watermain. We will request that InnServices runs its water distribution model to determine if a looped system is required between Webster Boulevard and the 7th Line, along your proposed cul-de-sac.

- ***"Possible problem Previn storm water with expansion."***

RESPONSE: Issues related to the Previn Court Subdivision are outside the scope of this Class EA; however, the design of the next phase of the Previn Court subdivision will take into account any necessary stormwater requirements.

PUBLIC OPEN HOUSE NO. 1
SUMMARY OF COMMENTS AND HOW ADDRESSED DURING CLASS EA PROCESS

- ***"Should the Bank Creek be re-aligned toward the east of our lands, or flow increased, we would like to ensure that those downstream modifications do not affect the flows and regional flood lines upstream and consequently affecting our developable land. Furthermore, we would oppose any re-alignment of the creek northerly in front of our property given that the storm water pond exists and any affects moving the creek would have on our lands."***

RESPONSE: A stormwater management report will be prepared and the design of the Banks Creek channel will endeavour to maintain the status quo for floodlines. We are actively consulting the Lake Simcoe Region Conservation Authority (LSRCA) regarding improvements to Banks Creek. They have expressed some interest in the naturalization of the channel where there is sufficient room. It is understood that in areas of limited room, such as the area near the existing Sierra Homes stormwater management pond and just east where the Vance Crescent lots back onto the 7th Line, that the opportunity for channel naturalization will be limited.

ROAD DESIGN

- **"*Mix of lanes, 4 and transition, works only if extended from 20th to Yonge St for traffic flow"***
- ***"At least three lanes 20 – St. John".***

RESPONSE: The transition from four lanes to two lanes as you proceed westward across the intersection of 20th Sideroad and the 7th Line will have the curb lane of the westbound traffic on the 7th Line turning right onto the 20th Sideroad northbound lane. There will be a single westbound through lane across 20th Sideroad. Eastbound on 20th Sideroad through the intersection is a single through lane and the second eastbound lane is developed from the right turn lane for northbound traffic on the 20th Sideroad to proceed east on the 7th Line. Therefore, the lane balance is maintained across the intersection east to west.

Based on existing and future traffic capacity requirements, the design team has confirmed that three lanes is necessary for only a portion of the corridor extending from the 20th Sideroad to just east of Webster Boulevard. For the remainder of the study area, a two lane cross-section will satisfactorily accommodate future traffic volumes. Extending three lanes for the full length of the corridor is unnecessary and would require additional property acquisition at certain locations which will have an increased potential for impact.

- ***"Streetlights from Webster Blvd to St. Johns Road."***

RESPONSE: Street lights will be provided as part of the street urbanization along with storm sewer, curb and gutter and multi-use trail within the section of the 7th Line extending from Webster Boulevard to St. Johns Road.

- ***The metal rail line (guiderail) along the farm field on the 20th, opposite the school, should be along the school property!"***

RESPONSE: The preliminary analysis indicates that a right-turn lane is required on the 20th Sideroad which may require extension of the guiderail northwards across the frontage of the property at 1497 7th Line (i.e. Nantyr School).

11.4.3 Public Open House No. 2

The municipality hosted a second Public Open House on Wednesday, March 28, 2018 at the Town Hall Community Rooms from 4:00 p.m. to 7:00 p.m. using the same informal, drop-in style format as the first POH. A total of 25 exhibits were displayed that provided information pertaining to the Class EA process and project background. The exhibits also outlined the selection of the Phase 2 Preferred Solution and presentation of the design options developed for the Preferred Solution as part of Phase 3 of the Class EA process. A plan view drawing of Design Option 1 with satellite imagery was displayed for the entire Project area and a second drawing was provided showing Design Option 3 of the Banks Creek Section. Comment sheets were provided and the public was advised that the POH material would be available for download from the Town's website after the date of the POH. The following members of the Project Team were in attendance and available to answer questions:

Magdalena Koehler	Town of Innisfil, Capital Project Manager
Carolina Cautillo	Town of Innisfil, Project Manager, Roads, Traffic & Transportation
Steve Fournier	Ainley Group, Project Engineer
Jodi Moore	Ainley Group, Environmental Planning Assistant
Nathanael Couperus	Ainley Group, Engineering Assistant

A total of 36 people signed in. Attendees included property owners in the area of the project and land developers, as well as representatives from the Town of Innisfil, a number of Councillors, and the media.

A response to comments received was not issued until the Project Team had a consultation meeting with LSRCA to provide input into the design of the Preferred Solution. Table 14 provides a summary of the comments received and the associated municipal response. As some comments were quite lengthy, they have been paraphrased to include key points. Response packages were issued October 22, 2018. Each response package included a cover letter and a response to the inquirer's individual comments. The response package also included information regarding the next steps in the completion of the Class EA process.

A copy of the POH No. 2 exhibits, the public comments submitted during this period and the municipal responses are included in Appendix 'L' of this report.

Table 14: POH No 2. Summary of Comments and Municipal Response

PUBLIC OPEN HOUSE NO. 2 SUMMARY OF COMMENTS AND HOW ADDRESSED DURING CLASS EA PROCESS
DESIGN
▪ ***Design Alt # 1 is preferred.*** ▪ ***"I'm in favour of # 1 Design Alternative, I like having sidewalk and Multi use trail, I like the environmental improvement to Banks Creek."*** ▪ ***"Phase 2 Preferred Solution – Design Alternative 1 with fully urban cross-section."*** ▪ ***"Preference is Design Alternative 3 however, would prefer only 2 lanes Webster to St. John."*** RESPONSE: Following POH No. 2 and a review of comments received, Design Alternative 1 as presented at POH No. 2 has been selected as the Preferred Design. As such, a three lane urban cross-section will be constructed from 20th Sideroad to east of Webster Boulevard and a two lane urban cross-section will be constructed from east of Webster Boulevard to St. Johns Road. ▪ ***"Please do Phase 2 preferred solution with design alternative 1 with urban cross section. Whatever you decide please give us a multi-use 3m path from St. Johns to 20th Sideroad. Good Work!!!"*** RESPONSE: Comment Noted. Design Option 1 has been selected as the Preferred Design and as such, a 3.0 m multi-use trail will be constructed as part of this project from the 20th Sideroad to St. Johns Road. ▪ ***"Can you advise if there is a sidewalk going in on the North side of 7th from St. Johns to Webster?"*** ▪ ***On the whole, I do feel like this project will offer my family and I something positive. We will definitely use this stretch of 7th a lot over the coming years and having something like a dedicated bike lane would make me feel much safer than the current gravel shoulders."*** RESPONSE: As indicated, Design Option 1 has been selected as the Preferred Design. As such, there will be a 3.0 m multi-use trail on the north side and a 1.5 m sidewalk on the south side of the corridor from the 20th Sideroad to east of Webster Boulevard and a 3.0 m wide multi-use trail on the north side of the corridor from east of Webster Boulevard to St. Johns Road. These measures will provide improved safety for active transportation (i.e. pedestrians and cyclists) in the area. ▪ ***"Possibly using Design 1 for most of the project, but for this 120 m stretch, using something more in line with Design 3. When talking about a 3 km stretch of road, it is hard to find one solution that works for the whole thing. There was mention at the meeting on March 28th of retaining walls, adjustment to the lane/trail spacing, and adjusting the slopes of the creek bed walls, all of which could be used to reduce the impact for this small percentage of the entire project. Also the travel lanes for design alternative 1are 4.25 m wide from Webster Blvd to St. Johns Rd. In the other design alternatives the lanes are 3.5 m wide for this section. The extra 1.5 metres seems***

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unnecessary and this width could be reduced to minimize the impact to the north side of the corridor for this stretch of 7th Line. Please consider these options."

RESPONSE: As you have indicated Alternative 5 (Combination) was selected as the Preferred Solution following POH No. 1 during Phase 2 of the Class EA process. Following POH No. 2 and a review of comments received, Design Alternative 1 was selected as the Preferred Design to implement that solution as part of Phase 3 of the Class EA process. This option gives consideration to the developed nature of the eastern half of the project limits by reducing the road cross-section from three to two lanes in an attempt to minimize impacts, but is also strikes a balance in efficiently addressing future traffic capacity requirements, but also providing for Active Transportation (i.e. pedestrians and cycling). As indicated, the design has also been modified further, where possible, at a couple of locations along the corridor to minimize the loss of existing vegetation through the construction of retaining walls.

- ***With the County of Simcoe reconstruction of Innisfil Beach Road from 5th Sideroad to 20th Sideroad, in the design and construction, a multi-use trail is proposed in the rebuild. If the 7th line improvements included this type of trail, in the future, it could interconnect northbound on 20th Sideroad. These sections of trail could be the start of a complete interconnecting Town multi-trail system; as well as, being part of a County-wide trail network. As for the benefit for the Innisfil residents, this trail addition could result in connecting the lakeshore community via Innisfil's 20th Sideroad. In time, establishing 'spur links' could connect the villages of Churchill and Stroud, the Innisfil Heights and Hwy 400 neighbourhood to tie all points to the Innisfil Recreation Center (aka YMCA)."***
- ***"Alternative 3 with two lane rural cross section from Webster Blvd. to St. Johns Rd., providing 1.5m paved shoulders in lieu of multi-use trail and 1.0 m gravel shoulders, is the best solution and keeps impacts to a minimum. Banks Creek currently provides adequate storm water drainage during wet seasons and inclement weather."***

RESPONSE: Design Alternative 1 as presented at POH No. 2 has been selected as the Preferred Design. As such, a 3.0 m multi-use trail will be constructed on the north side of the corridor from the 20th Sideroad to St. Johns Road. This is in accordance with the Town's Trail Master Plan (November 2016) and will contribute to improved trail connectivity in the area of Alcona. The proposed urbanization of the corridor will provide improvements to stormwater management in terms of water quality and quantity.

BANKS CREEK REHABILITATION

- ***"You are opening this area directly behind my house to way more people traffic and possible theft. This is not addressed in your plans."***
- ***"Now people have access to my back yard!!! Privacy: this plan totally eliminates privacy, I paid a premium for this lot. Loss of house value!!! Makes no sense to clear cut a mature treed area – no sense financially or aesthetically. You are about to destroy the natural area of my property"***
- ***"I have a concern from a resident about clear cutting behind Vance Crescent for road improvements. To my knowledge there is no widening of the road their or sidewalk if I remember correctly?"***
- ***"Make no sense to 'clear cut' financially or aesthetically. I paid a premium for this lot***

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– devalue my home. Privacy: You are eliminating all the privacy the area now provides.

- ***"By clear cutting you are increasing the noise level immensely. Trees as they are provide buffer from road; people and other noise. I am not impressed with the lack of consideration for those of us directly affected."***
- ***"The Ontario Environmental Assessment Act affirms that protection of conservation must be provided. Trilliums, bats, pileated wood peckers and many other vegetation and wildlife species that currently reside in the natural environment located on the north side of the 7th Line will be impacted the least. Residents who own adjacent properties will continue to maintain some of their tranquil natural environment and privacy."***
- ***"I would like to add my voice of opposition to clear cutting a section of mature trees to widen the 7th Line. I believe there must be a better way to minimize the number of trees being cut down for this purpose. The trees act as a natural noise barrier never mind the potential damage to the live stream along the edge of the tree line. I have lived in the area for almost 30 years and do not wish to see such a drastic change made to this natural area."***
- ***"I would like to express my strong disagreement with some of the proposed design options for the 7th Line improvements. My specific concerns are the cutting down (clear cutting) of the trees on the north side of 7th line and south of Vance Crescent. We bought our house a little over two years ago, and were overjoyed with what we had found - a nice house on a quiet crescent surrounded by trees and green space. It is quiet because of the noise reduction the trees provide, it is shady and cool because the trees are so large, it is private because of the visual barrier the trees provide of the road, and it is relaxing because of the birds singing and squirrels running. I realize that landscaping will be done to improve the area once construction is complete, but it would take decades to get back to the density of vegetation that we have now. On top of this, I have several other concerns. One would be privacy/security with increased foot traffic and decreased visual barriers."***
- ***"One never knows what will or won't be developed around their home as time goes on, but with the property in question being too small for houses, and being under the control of the Lake Simcoe Region Conservation Authority we never imagined we would lose the vegetation that was a significant factor in our decision to purchase our home."***

RESPONSE: As part of this Class EA, the subject study area was assessed in accordance with Provincial Policy and guidelines to establish an inventory of the natural heritage features present. The area was reviewed for the presence of wildlife (i.e. birds, mammals, reptiles, and amphibians) and their habitat and included a Species at Risk (SAR) screening for both terrestrial and aquatic species. Area vegetation was also reviewed for Species at Risk (i.e. Butternut Tree) and to determine if there are any areas that function as Significant Wildlife Habitat and / or if there are any vegetated areas that could be considered Significant Woodlands. During the field survey habitat types were compared with the habitat of Species at Risk reported to be present within the area. Banks Creek was also assessed for the presence of fish and fish habitat. It was through this review that Banks Creek was identified as providing direct fish habitat and subsequently discussions commenced with the Lake Simcoe Region Conservation Authority (LSRCA) on a possible rehabilitation of the watercourse. The potential to impact area natural heritage features is being

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given consideration as part of this Class EA process and in accordance with the Ontario Environmental Assessment Act.

The impacts to area vegetation are not solely for accommodating road improvements. Banks Creek currently abuts the corridor and the watercourse top-of-bank is less than 3.0 m from the gravel shoulder of the road for a large section of the study area. During the course of this Class EA, the watercourse was assessed and confirmed to provide permanent, direct fish habitat. As such, Banks Creek is currently a ditch and the improvements proposed will increase the separation distance from the roadway and create a more naturalized channel which will ultimately improve water quality and fish habitat.

Following POH No. 2 and a review of comments received, Design Alternative 1 has been selected as the Preferred Design. However, the design has been modified, where possible, at a couple of locations along the corridor to minimize the loss of existing vegetation. This includes the construction of a retaining wall at certain key locations that will allow a strip of existing mature vegetation to remain. Given the proposed retaining wall and remaining existing vegetation a privacy fence will not be required.

Please keep in mind that the municipal park area that abuts a number of Vance Crescent homes will continue to remain as parkland and the lands in the municipal park on the south side of the retaining wall be utilized to create a naturalized watercourse to improve Banks Creek. While some vegetation will need to be removed during construction, a Landscaping Plan will be developed during the detailed design phase to provide for restoration of the area, including the re-planting of vegetation. Please also note that a permit will be required from the Lake Simcoe Region Conservation Authority (LSRCA) to complete the works proposed which will include woodland compensation in accordance with the LSRCA's Ecological Offsetting Plan.

The design modifications as discussed will assist in minimizing the loss of vegetation that abuts the rear yard of your home and the area will continue to provide privacy and maintain the aesthetics of the area.

With regard to noise, please note that as part of this Class EA, a noise assessment was completed to determine the potential for impact from the proposed improvements. The noise assessment concluded that the improvement of the 7th Line between 20 Sideroad and Lake Simcoe will result in insignificant noise impacts of less than 1 dBA. Daytime sound levels are expected to be below 65 dBA and noise mitigation measures are not required in accordance with Provincial guidelines.

- ***"My third concern would be over disturbance to the soil, and the ability to regrow the same type of vegetation. Removing vegetation and the associated root structures, to me, opens the door to more erosion. This seems like it would make things like creating a meandering creek, and the re-establishment of trees difficult."***

RESPONSE: Sediment and erosion control will be addressed during construction through the implementation of appropriate mitigation. During detailed design a Landscaping Plan will be developed to provide for restoration post construction, including the re-planting of vegetation. The

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existing conditions at the site will be considered in the selection of suitable vegetation for the area.

- **"Would want massive tree planting along 7th Line."**

RESPONSE: It is acknowledged that some vegetation removal will be required to accommodate the improvements proposed. Please keep in mind that during detailed design a Landscaping Plan will be developed that will assist in replacing some of the vegetation to be removed. Please also note that a permit will be required from the Lake Simcoe Region Conservation Authority (LSRCA) to complete the works proposed which will include woodland compensation in accordance with the LSRCA's Ecological Offsetting Plan.

CULTURAL HERITAGE

- ***"I would like to express to you, the importance of the School House property. The property owner has a regard and treats all his trees, and especially the one's along the side of the 20th and to his gate on the 7th line, as his "Babies". Progress and future development we know about. Surely there must be a better solution."***

RESPONSE: As you know, the subject property is located in the southeast quadrant of the intersection of 7th Line and 20th Sideroad. The 7th Line abuts the property on the north side and the 20th Sideroad abuts the property at the west side. Following POH No. 1, the Preferred Solution was modified slightly to reflect comments received and updated traffic analysis data for future developments in the area. The number of required lanes at the west end of the study area was reduced from four lanes to three lanes and the width of the multi-use trail was also reduced from 4.0 m to 3.0 m. These design alterations eliminate the need to acquire property in the southeast quadrant of the intersection of the 7th Line and the 20th Sideroad abutting the 7th Line. The design at this location can be contained within the existing municipal right-of-way.

As you mentioned, the Ainley Group Project Manager, Mr. Steve Fournier, personally met with [redacted] on site to discuss potential impacts associated with this project. For impacts resulting from the 20th Sideroad improvements, it was agreed that the design should consider a retaining wall and guide rail so as to eliminate encroachment beyond the property line from the 20th Sideroad. The drawing was revised and Mr. Fournier visited with [redacted] a second time on March 20th, 2018 to confirm that this alteration would eliminate impacts to his property. This revised design was reflected in each of the Design Options presented at Public Open House No. 2 on March 28, 2018.

Following POH No. 2 and a review of comments received, Design Option 1 has been selected as the Preferred Design. In summary, improvements as proposed with Option 1 will not require encroachment onto [redacted] property from either the 7th Line or from the 20th Sideroad.

GENERAL

- ***"There is no place on the town website for updates or drawings for residents to put in comments."***

RESPONSE: Please note that the presentation material from both Public Open House No. 1 and 2 are available on the municipality's website www.innisfil.ca/7thea. The direction for the submission of comments was identified on the POH material.

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▪ ***"I just checked again and the updated plans still don't seem to be up on the Innisfil.ca website. I was actually looking for a link to the comment sheet that was available at the open house to direct my neighbours to. Is that something that can be added to the website quickly? Or is there another way for people who didn't make it there last week to submit feedback?"***
RESPONSE: POH 1 material was available after October 11, 2017. POH 2 information was uploaded on April 2, 2018.
FLOODING
▪ ***"During heavy rains the creek to the rear of our property floods its Banks and makes a mess of adjoining properties. The cause of this problem is the restriction placed on the water flow by the small bridge on Lakeshore Road. Since a major undertaking regarding road work seems incomplete without also repairing the associated bridge problem, I suggest that this too be included in the construction project."***
RESPONSE: A separate Class Environmental Assessment has been initiated to complete improvements to the subject bridge. For more information please contact the Project Manager: Ms. Amber Leal, Email: aleal@innisfil.ca Tel: 705-436-3740 ext. 3246.

12.0 MITIGATION

12.1 Natural Environment

12.1.1 Fish and Fish Habitat

Banks Creek is a coldwater watercourse that provides direct fish habitat. The following measures will assist in minimizing impacts to fish and fish habitat:

- To protect fish during the spawning period, no in-water work is permitted between October 1 and July 1. This timing restriction applies to in-water work and near water work that has the potential to result in serious harm to fish under the Federal *Fisheries Act.* The coldwater timing restriction was historically been applied based on the past occurrence of fall spawning Brook Trout. Should project scheduling require that creek work occur October 1 to March 31, then a request can be made to MNRF to confirm if the system continues to be managed for Brook Trout, despite their lack of occurrence for many years. If MNRF is in agreement with a coolwater timing window, then no water

work will be permitted from April 1 to July 1. MNRF should be re-consulted in detail design to confirm appropriateness of timing.

- Channel design to be completed by a qualified fluvial geomorphologist that includes diversified habitat conditions, meandering stable profile, and promotes natural fluvial processes to the extent possible.
- Retaining wall design should integrate bioengineering to integrate hardscaping for armouring with 'greening' that affords bank stability as well as naturalized elements where retaining is required.
- Fish removal and relocation will be required prior to site dewatering in Banks Creek during the process of implementing the channel realignment. Fish relocation will include fish salvage and relocation downstream the work area, and must be completed by a qualified fisheries biologist with an MNRF issued Licence to Collect Fish for Scientific Purposes secured prior to construction.
- Diligent application of sediment and erosion controls will be required for all construction activities occurring in or around the creek to minimize the extent of accidental or unavoidable impacts to fish habitat, and alleviate the risk of sediment entering the creek and natural areas.
- Dewatering activities are expected to be required during some component of the project. In detail design, the contractor will be required as part of the contract to adhere to a water quality management plan to ensure that sediment-laden water does not enter Banks Creek. Any siltation control structures (traps or bags) must be maintained as required, and designed to accommodate expected volumes of discharge throughout the construction period.
- In detail design it is recommended that the culvert design include substrate through the culvert length, and a low flow channel. The culvert should be evaluated to ensure that fish passage continues to occur post construction. The culvert should be sized appropriately to satisfy drainage criteria, and the structure should be embedded to promote natural channel processes.

12.1.2 Vegetation

The following measures will assist in minimizing impacts to area vegetation during construction:

- All areas disturbed during construction should be restored as soon as possible following the completion of earthworks. It will be up to the contractor to complete the task in accordance with approved guidelines through re-vegetation of all excavated and erodible soils using a layer of topsoil and type of soil guard (i.e. geotextile) to minimize the potential for erosion and sediment to enter adjacent waterbodies.
- All sediment and erosion controls will need to be maintained until vegetation has been re-established to sufficiently stabilize disturbed soils. Proper sediment and erosion control procedures will be required to be outlined as a component of the Special Provisions in the contract documents for this project.
- The limits of construction should be defined with fencing to minimize intrusion into unnecessary areas.
- In detail design, the areas of disturbance will need to be confirmed, and those areas restored through the design and implementation of a restoration plan. All planting specifications are to include native species, compatible and consistent with the ecological communities currently in the study area.

12.1.3 Wildlife and Species at Risk (SAR)

The following mitigation measures will assist in the protection of area wildlife and SAR during construction:

- Removal of trees and ground cover vegetation should be completed during the winter months to avoid impact to migratory breeding birds and bats. Based on Environment Canada guidance with respect to birds, and MNRF guidance with respect to bats, vegetation removal should only occur between November 1 and March 31.
- A Butternut Health Assessment (BHA) should be completed prior to any site alteration or development. The BHA is required in order to establish if any of the trees have a health status requiring considerations of potential for harm/impact to habitat, as per ESA regulations.

12.1.4 Surface Water

Stormwater at the 7th Line is currently untreated, and discharges overland directly to Banks Creek. The drainage strategy being developed aims to satisfy both water quality and quantity control. During construction there is the potential to impact surface water through the accidental spillage of harmful substances from refueling and/or equipment maintenance. It is anticipated that impacts to surface water during construction will be minimal provided the following standard measures for working in and around water are followed:

- Silt controls are to be installed and monitored to ensure that exposed soils are not susceptible to erosion following precipitation events.
- Erosion and sediment control measures must be maintained throughout construction and until vegetation is reestablished post construction.
- Stockpiled material should be stored a minimum of 30 m from a waterbody with adequate sediment and erosion controls installed.
- OPSS 805 Construction Specification for Temporary Erosion and Sediment Control Measures.

12.1.5 Groundwater

The hydrogeological investigation indicated there were some domestic wells located within the estimated zone of influence and they may be susceptible to potential settlement or subsidence due to the temporary dewatering. The following measures are recommended to be carried out before and during the temporary dewatering:

- Prior to the dewatering activities, a temporary dewatering plan shall be prepared by a selected contractor for GeoPro's review.
- A well water monitoring program (including water level and water quality) could be conducted on the accessible water well(s) during the development. In addition, the site contact information would be given to the well owners for emergency purposes, and temporary provision of potable water would be made available in case that the unexpected lowering of water levels causes the malfunction of the water wells near the Site.
- It should be necessary to carry out a pre-development condition survey, and install settlement monitoring monuments for the existing buildings and roadway within the estimated radius of influence.

- The above settlement monitoring monuments should be surveyed prior to the dewatering to establish a baseline, and surveyed on a daily basis during the dewatering. The survey results will be provided to the geotechnical engineer of GeoPro for evaluation. The estimated potential and actual settlements should also be reviewed by a structural engineer to assess the potential damage to the existing structures.
- If the settlement monitoring indicates an undesirable deformation, the dewatering will have to be stopped or reduced to a lower rate, and alternative measures may be considered for the excavation, which should be approved by the geotechnical engineer and project team.

12.1.6 Air Quality

The following standard mitigation measures will assist in reducing impacts to air quality:

- The Contractor will utilize best management practices during construction to maintain air quality through construction and include no unnecessary idling of vehicles during construction.
- Stockpiles of soil, sand and aggregate should be covered.
- Construction sites and access road shall be regularly cleaned to remove debris and dust caused by construction.
- Appropriate dust suppressants shall be applied to control dust generated by construction activities.

12.2 Socio-Economic Environment

12.2.1 Land Use

As the project is located in a rural area, land use is largely residential with agricultural use present at the western limits. It will be important to minimize impacts to area residences by maintaining traffic flow and property access. The following measures will assist in keeping impacts to a minimum:

- Construction shall utilize measures to minimize impacts to local traffic to the extent feasible and to maintain access during construction.
- Entrances are to be kept open except when construction activities are taking place in front of the entrance.

12.2.2 Noise

The proposed roadway improvement of the 7th Line between 20th Sideroad and Lake Simcoe will result in insignificant long term noise impacts of less than 1 dBA. Thus, noise mitigation measures are not required as part of the proposed 7th Line improvements in accordance with the Ontario Ministry of Transportation's *Environmental Guide for Noise*. There is the potential for increased noise during the construction period; however, the disturbance will be temporary and can be minimized through implementation of the following measures:

- Construction should adhere to the municipality's noise by-law (By-law No. 122-16).
- Equipment should be maintained in an operating condition that prevents unnecessary noise, including, but not limited to, non-defective muffler systems, properly secured components, and the lubrication of moving parts.
- The idling of equipment should be restricted to the minimum necessary to perform the specified work.

12.2.3 Servicing and Utilities

Continued contact with utility companies during construction will assist in reducing impacts to existing utility infrastructure and ensure that service can be maintained during construction. In detail design, the sanitary crossing should include a review of the appropriate depth below the channel invert, and an evaluation of the constructability plan. Installation by open cut versus drilling can have very different scheduling and cost requirements and will require assessment.

12.2.4 Contamination and Waste Management

Based on the results of the geotechnical investigation, detailed design and construction will need to address salt impacts and the proper disposal of potentially contaminated material.

The following measures will assist in addressing contamination and waste management during the period of construction:

- The removal and movement of soil should follow the recommendations as outlined in the *Management of Excess Soil – A Guide for Best Management Practices* document prepared by the MECP.
- If potential contamination is encountered the appropriate tests will need to be undertaken to confirm the contaminant present and its levels. If the soils are

contaminated, disposal will need to be consistent with Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up.

- Soil materials to be used on site must be inspected during excavation for indication of variance in composition or any chemical/environmental constraints. If conditions indicate significant variations, further chemical analyses should be carried out.
- Where the Contractor manages excess earth as disposable fill, the Contractor shall take into account the possibility of salt impacts and ensure that the material is managed responsibly and in an environmentally appropriate manner. Should any contaminated materials be encountered during the undertaking, caution will be exercised while handling and disposing of contaminated materials in accordance with provincial regulations, and Ontario Ministry of Transportation (MTO) practices (as governed by OPSS 180 or the most current standard at the time of construction).

12.3 Cultural Environment

12.3.1 Archaeological Resources

The Stage 1 background study determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 assessment. Subsequent to the results and recommendations of the Stage 2 assessment, mitigation measures will be developed and incorporated into the Contract Documents.

The remainder of the Study Area has been subjected to deep soil disturbance events; however, the following should be incorporated into the Contract Documents to provide direction in the event that deeply buried archaeological material is encountered during construction:

- In the event that previously unknown or unassessed deeply buried archaeological resources are uncovered during construction, the contractor shall immediately notify the Contract Administrator (CA). Work shall remain suspended within the subject area until otherwise directed by the Contract Administrator in writing. The Contract Administrator will contact the Town of Innisfil representative who will confirm the need to engage a licensed consultant archaeologist to carry out any archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act.

- In the event that human remains are encountered during construction, the contractor shall immediately notify the Contract Administrator. Work shall remain suspended within the subject area until otherwise directed by the Contract Administrator in writing. The CA will contact the Municipal representative who will notify the police, coroner and the Registrar of the Bereavement Authority of Ontario.

12.3.2 Built Heritage Resources

Since construction will be confined to within the existing right-of-way in areas in close proximity to identified heritage resources, there is a low potential to impact existing cultural heritage resources. The following mitigation will assist in keeping impacts to a minimum:

- Staging and construction activities should be suitably planned to avoid impacts to an adjacent identified resource.
- Establish no-go zones adjacent to all identified cultural heritage resources with temporary fencing adjacent to the limits of work to prevent construction-related impacts. Instructions should be issued to construction crews in order to prevent impacts to existing resources.

13.0 CLIMATE CHANGE

Climate change concerns relate to the increased concentration of greenhouse gases in the atmosphere which can result in a rise in the global mean surface temperature. Increased temperatures worldwide are creating changes in climate that is resulting in extreme weather events. The rise of greenhouse gas emissions is influencing climate patterns, hydrology, ecosystems, and ocean chemistry.

There are two approaches to address climate change. These are 1) reducing a project's impact on climate change (climate change mitigation) and 2) increasing the local ecosystem's resilience to climate change (climate change adaptation). However, before a mitigation or adaptation strategy can be established, the potential for the project to impact climate change and the potential impact that climate change may have on a project must be considered. This section of the report will discuss the aforementioned aspects in relation to this project utilizing a qualitative approach.

13.1 Potential for Project to Impact Climate Change

The current undertaking is a small-scale project involving the reconstruction of an existing corridor. As it is a transportation project, the impacts to climate change relate to vehicular greenhouse gas emissions. The reconstruction will maintain an adequate level of service post construction with minimal delays and it is not expected that the emission of greenhouse gases will significantly increase over existing conditions. This project will complete improvements that will make the Alcona Area more pedestrian friendly which could potentially decrease vehicular use and result in a reduction in vehicular greenhouse gas emissions.

13.2 Potential for Climate Change to Impact this Project

Climate change has the potential to result in increased storm events that can lead to flooding. As part of this project a segment of Banks Creek will be rehabilitated and relocated approximately 8 m north from the 7th Line. Currently, Banks Creek functions as the road side ditch, with the potential for overtopping the bank and flooding the 7th Line. This undertaking is expected to make the area less vulnerable to climate change. The project is not expected to result in a disruption to lands or waters associated with Indigenous cultural resources.

14.0 PERMITS AND APPROVALS

During detailed design, permits and approvals will need to be acquired from the following agencies:

- Lake Simcoe Region Conservation Authority
- Department of Fisheries and Oceans
- Reevaluate the limit of disturbance and confirm impacts to Butternut. Reaffirm approval requirements (if any) under the ESA in consultation with MNRF.
- Any temporary exemptions to the noise control by-law for the Town of Innisfil (By-law No. 122-16)
- Permit to Take Water for temporary dewatering will be required issued by MECP
- Permits to Enter for Stage 2 Archaeological Assessment

15.0 MONITORING

Information pertaining to environmental impact and mitigation will be incorporated into the Construction Documents. The Contract Administrator will make certain that environmental protection measures as identified are implemented during construction. In the event that an environmental issue develops during construction, the appropriate personnel (i.e. relevant government agencies, the Consultant environmental specialists etc.) will be available to assist.

Monitoring will be conducted by on-site construction and inspection staff to make certain that environmental protection measures are being implemented and are effective. Any repairs to protection measures will be made in a timely fashion. Monitoring following construction will be completed, as required.

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