



Schedule 'C' Municipal Class Environmental Assessment

Port Credit East Water and Wastewater Servicing Optimization Strategy

Environmental Study Report

Post-Filing (February 2024)

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- Appendix 3E: Cost Estimates**



LIST OF ABBREVIATIONS AND ACRONYMS

Term	Definition
ANSI	Areas of Natural and Scientific Interest
ASL	Above Sea Level
BGS	Below Ground Surface
BHRs	Built Heritage Resources
CCME	Canadian Council of Ministers of the Environment
CH	Conservation Halton
CHER	Cultural Heritage Evaluation Report
CHECPIA	Cultural Heritage Report Existing Conditions and Preliminary Impact Assessment
CHLs	Cultural Heritage Landscapes
CHSR	Cultural Heritage Screening Report
CHVI	Cultural Heritage Value or Interest
COSSARO	Committee on the Status of Species at Risk in Ontario
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CVC	Credit Valley Conservation
EA(A)	Environmental Assessment Act
EASR	Environmental Activity and Sector Registry
ECA	Environmental Compliance Approval
EPA	Environmental Protection Act
ESA	Endangered Species Act
ESR	Environmental Study Report
HCDs	Heritage Conservation Districts
HIA	Heritage Impact Assessment
LAP	Local Area Plans
MBCA	Migratory Bird Conservation Act
MCEA	Municipal Class Environmental Assessment
MCM	Ministry of Citizenship and Multiculturalism
MEA	Municipal Engineers Association
MECP	Ministry of the Environment, Conservation, and Parks
MTO	Ministry of Transportation Ontario
MTCS	Ministry of Tourism, Culture and Sport
MMAH	Ministry of Municipal Affairs and Housing
MNRF	Ministry of Natural Resources and Forestry
MOP	Mississauga Official Plan
NEP	Niagara Escarpment Plan
NHIC	Natural Heritage Information Centre
NHRM	Natural Heritage Reference Manual
OHA	Ontario Heritage Act
OP	Official Plan
ORMCP	Oak Ridges Moraine Conservation Plan



Term	Definition
IPZ	Intake Protection Zone
PDWF	Peak Dry Weather Flow
Port Credit East	Port Credit East Water and Wastewater Servicing Optimization Strategy
PPS	Provincial Policy Statement
PSW	Provincially Significant Wetland
PTTW	Permit to Take Water
PWQO	Provincial Water Quality Objectives
Region	Region of Peel
RPOP	Region of Peel Official Plan
ROW	Right-of-Way
SAR	Species at Risk
SARA	The Species at Risk Act
SARO	Species at Risk in Ontario
SPS	Sewage Pumping Station
SWH	Significant Wildlife Habitat
SWP	Source Water Protection
SWHTG	Significant Wildlife Habitat Technical Guide
SWHMIST	Significant Wildlife Habitat Mitigation Support Tool
TRCA	Toronto and Region Conservation Authority
WHPA	Wellhead Protection Areas
WTP	Water Treatment Plant
WRRF	Water Resource Recover Facility

1.0 Introduction

The Region of Peel (The Region) initiated the Port Credit East Water and Wastewater Servicing Optimization Strategy Class Environmental Assessment (EA) in November 2020 to identify, develop and implement an integrated water and wastewater optimization strategy for Port Credit East to support existing servicing needs and projected growth in the area. The study is being undertaken as a **Schedule 'C'** in accordance with the requirements of the Municipal Class EA process, prepared by the Municipal Engineers Association (MEA).

As the Region continues to grow, the pressure and level of service expectations on the existing and future water and wastewater infrastructure systems will continue to be a top priority. The existing sewage pumping stations and some of the wastewater sewers and watermains in the general Port Credit East area are experiencing operational challenges. The Elmwood Sewage Pumping Station (SPS), Hiawatha SPS, and Rosemere SPS infrastructure are facing condition, maintenance and performance issues, location conflicts, and will face further issues as the communities around the SPSs evolve and the Region implements new pumping station design standards. As the SPS systems age and receive increasing dry weather and wet weather flow, they will require additional capacity and increased maintenance to keep levels of service. However, this is becoming increasingly difficult with limited operational flexibility and redundancy in the current SPS systems.

Through this Class EA process, alternative wastewater optimization strategies were evaluated for the Port Credit East area including the Elmwood and Hiawatha SPS servicing areas, the vicinity of the Rosemere SPS and Lakeshore Road West to East from Front Street to Seneca Avenue. This Class EA process also evaluated water optimization strategies for the crossing of the Credit River and construction of a new water Pressure Zone 1 sub-transmission watermain along Lakeshore Road.



2.0 Background and Study Objectives

2.1 Study Background

The Region has undertaken several studies of the water and wastewater infrastructure components of this study in order to assess the operational status, ability to accommodate future growth, create redundancy, assess the impact of climate change, and maximize efficiencies in the system.



Figure 2-1. Study Background and Timeline

In 2015, condition assessments for the Elmwood SPS, Hiawatha SPS and Rosemere SPS were completed. The condition assessment reports identified several upgrade recommendations to address compliance issues, minor retrofits, and several maintenance items. This included the site, building exterior and interior, wet well, influent maintenance hole, process mechanical equipment, electrical equipment, instrumentation and control, ancillary equipment, among others.

In 2018, feasibility studies were completed for Elmwood and Hiawatha SPS and concluded that both pumping stations and associated linear infrastructure have some limitations. These limitations pose future challenges in accommodating anticipated ultimate flow conditions and providing the level of service required in the wastewater system.

The Elmwood SPS Feasibility Study explored several alternatives for forcemain alignments, pumping station type, emergency storage and pumping station location. The recommended servicing strategy for Elmwood SPS included: new pumping station, divided wet well and valve chamber configuration, forcemain along Elmwood Avenue towards discharge point on Lakeshore Road, and emergency storage vertical shaft.

The Hiawatha SPS Feasibility Study explored four servicing alternatives and recommended SPS upgrades and a new forcemain to Lakeshore Road (or alternative outlet location on Minnewawa Road) as the preferred servicing strategy.

In 2019, the Rosemere SPS Class EA was completed and identified the need for replacement of the station at its existing location. The Class EA did not include assessment or recommendations for the existing SPS forcemain.

In 2020, following the completion of the Front Street SPS Diversion Class EA, a feasibility study was undertaken for the proposed deep trunk sewer along Lakeshore Road. The feasibility study concluded that there is benefit for the proposed deep trunk sewer to be extended further east from Jack Darling SPS to the G.E. Booth Water Resource Recovery Facility (WRRF). The study explored construction of the sewer in phases that would allow for decommission of several sewage pumping stations along the route.

Also in 2020, the Region completed the Water and Wastewater Master Plan for the Lake-Based Systems. In the Master Plan, a new sub-transmission watermain along Lakeshore Road from Lorne Park Water Treatment Plant to A.P. Kennedy Water Treatment Plant (WTP) was identified. Lakeshore Road sub-transmission watermain (from A.P. Kennedy WTP to Front Street Project W-D-102 east of the Credit River, and from Lorne Park WTP to Front Street Project W-D-249 west of the Credit River). Crossing of the Credit River up to Elmwood Avenue is being covered through this EA.

The purpose of the new sub-transmission main is to provide further pressure zone 1 interconnectivity and support growth in the pressure zone including the Port Credit East area.

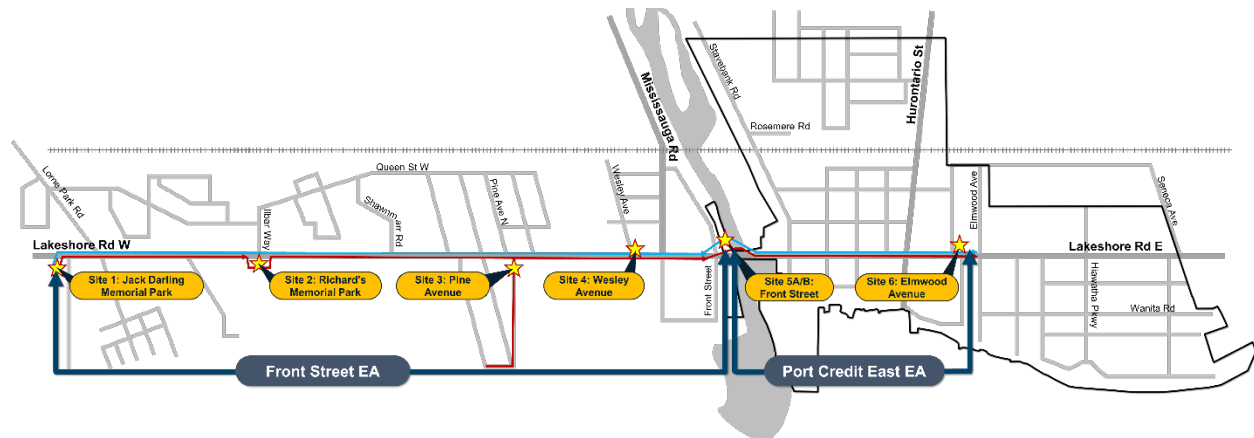


Figure 2-2. Front Street EA and Port Credit East EA Coordination

These previous works bring us to this current Class EA study, which is an essential servicing component to identify, develop and implement an integrated water and wastewater optimization strategy for Port Credit East to support existing servicing needs and projected growth in the area.

2.2 Study Area

The study area includes the combined servicing areas for the Elmwood SPS, Hiawatha SPS, vicinity of the Rosemere SPS and extends along Lakeshore Road East from Front Street on the west side of the Credit River to Seneca Avenue (Figure 2-3). The study area falls within Municipal Ward 1 in the City of Mississauga.



Figure 2-3. Study Area Extent

2.3 Study Purpose and Objectives

The primary purpose of this project is to complete a Class EA Study for the area that will:

- Satisfy the Municipal Class EA Schedule 'C' requirements.
- Ensure a balanced and informed decision-making process.
- Review the recommendations proposed in previous studies for the pumping stations, deep trunk sewer and sub-transmission watermain.
- Consider unique opportunities and challenges for water and wastewater servicing in the study area.
- Assess impacts of the proposed alternatives and select the best strategies to ensure successful implementation of the infrastructure components while providing continued servicing to the existing community.
- Ensure solution supports a long-term servicing strategy.
- Protect the environment.
- Deliver comprehensive documentation of the strategies, evaluation, and recommendations.

- Provide sufficient level of preliminary design to demonstrate the location and extents of the infrastructure, improve project lifecycle cost estimating and provide detailed implementation requirements.
- Provide meaningful engagement informed by Indigenous First Nations protocols with rights-holders and interest-holders.
- Provide effective communication and consultation with public agencies and stakeholders throughout the entire Class EA study process.

2.4 Study Components

This study has four key components as show in **Figure 2-4**:

1. New Deep Trunk Sewer on Lakeshore Road,
2. New Sub-Transmission Watermain on Lakeshore Road,
3. New Rosemere Sewage Pumping Station and associated Twinned Forcemains, and
4. Decommissioning of Elmwood and Hiawatha SPSs and associated Gravity Sewers.

Both the Lakeshore Road Sewer and Watermains (study component 1 and 2) require crossing of the Credit River.

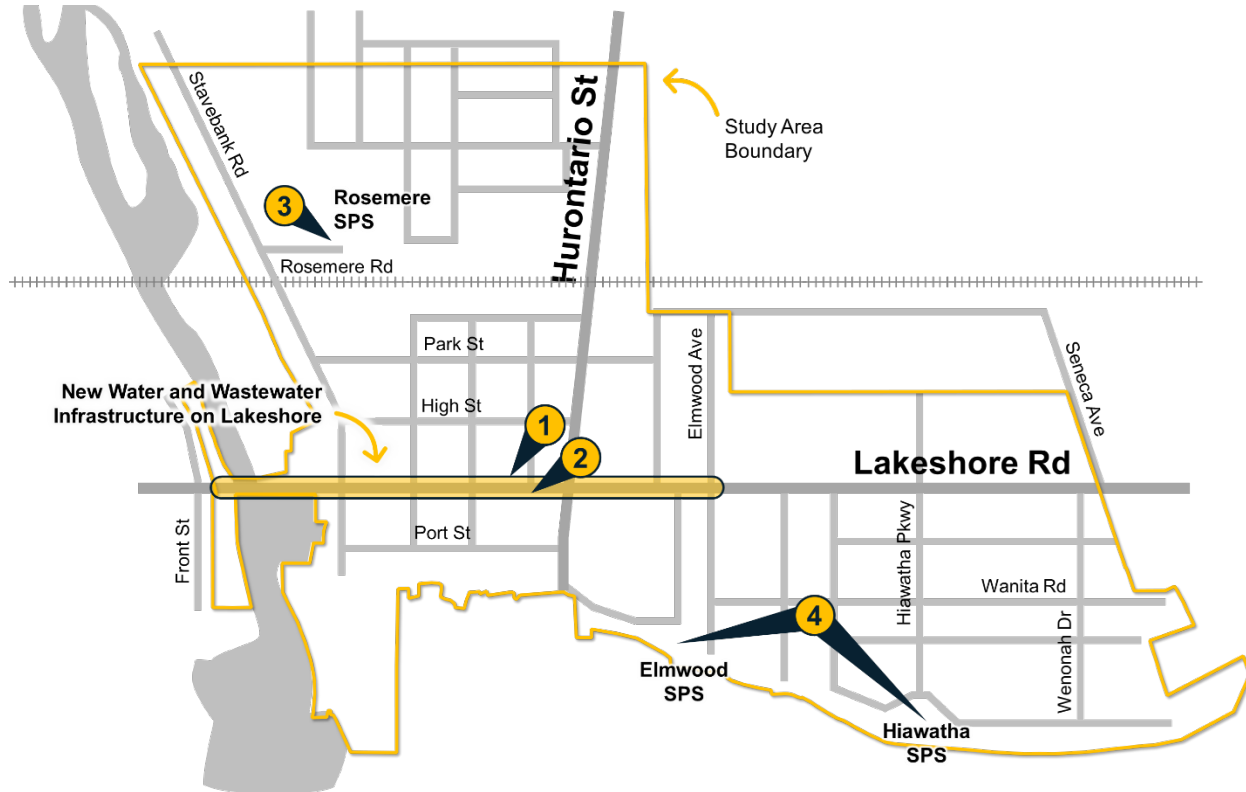


Figure 2-4. Study Components

3.0 Municipal Class Environmental Assessment Process and Objectives

The Port Credit East Water and Wastewater Servicing Optimization Strategy is being undertaken as a **Schedule 'C'** in accordance with the requirements of the Municipal Class Environmental Assessment process (October 2000, as amended in 2007, 2011, 2015, and 2023). The requirements to satisfy the selected schedule are outlined below.

3.1 Environmental Assessment Act

Ontario's *Environmental Assessment Act* (EAA) was passed in 1975 and was proclaimed in 1976. The EAA requires proponents to examine and document the environmental effects that could result from major projects or activities and their alternatives. Municipal undertakings became subject to the EAA in 1981.

The EAA's comprehensive definition of the environment are:

- Air, land or water,
- Plant and animal life, including human life,
- The social, economic and cultural conditions that influence the life of humans or a community,
- Any building, structure, machine or other device or thing made by humans,
- Any solid, liquid, gas, odour, heat, sound, vibration, or radiation resulting directly or indirectly from human activities, and,
- Any part of combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario.

The purpose of the EAA is the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation, and wise management of the environment in Ontario (*RSO1990, c.18, s.2*). An EAA must also ensure that decisions result from a rational, objective, transparent, replicable, and impartial planning process.

As set out in *Section 5(3)* of the EAA, an EA document must include the following:

- A description of the purpose of the undertaking,
- The undertaking,
- The alternative methods of carrying out the undertaking, and,
- Alternatives to the undertaking.

The EA document must also include a description of:

- The environment that will be affected or that might reasonably be expected to be affected, directly or indirectly, by the undertaking or alternatives to the undertaking,
- The effects that will be caused or that might reasonably be expected to be caused to the environment by the undertaking or alternatives to the undertaking,

- The actions necessary or that may reasonable be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment by the undertaking or alternatives to the undertaking, and,
- An evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking (*RSO 1990, c.18, s.2*).

3.2 Principles of Environmental Planning

The EAA sets a framework for a rational, objective, transparent, replicable, and impartial planning process based on the following five key principles.

- 1 Consultation with affected parties.** Consultation with the public and government review agencies is an integral part of the planning process. Consultation allows the proponent to identify and address concerns cooperatively before final decisions are made. Consultation should begin as early as possible in the planning process.
- 2 Consideration of a reasonable range of alternatives.** Alternatives include functionally different solutions, “alternatives to” the proposed undertaking and “alternative methods” of implementing the preferred strategy. The “Do Nothing” alternative must also be considered.
- 3 Identification and consideration of the effects of each alternative on all aspects of the environment.** This includes the natural, social, cultural, technical, and economic environments.
- 4 Systematic evaluation of alternatives in terms of their advantages and disadvantages, to determine their net environmental effects.** The evaluation shall increase in the level of detail as the study moves from the evaluation of “alternatives to” to the evaluation of “alternative methods”.
- 5 Provision of clean and complete documentation of the planning process followed, to allow “traceability” of decision-making with respect to the project.** The planning process must be documented in such a way that it may be repeated with similar results.



3.3 Class Environmental Assessment Process

Class Environmental Assessments (Class EAs) were approved by the Minister of the Environment in 1987 for municipal projects having predictable and mitigable impacts. The Municipal Class EA process was revised and updated in 1993, 2000, 2007, 2011, 2015, and 2023. The Class EA approach streamlines the planning and approvals process for municipal projects that are:

- Recurring,
- Similar in nature,
- Usually limited in scale,
- Predictable in the range of environmental impacts, and,
- Responsive to mitigation.

The Municipal Class EA outlines the procedures to be followed to satisfy Class EA requirements for water, wastewater, stormwater management and road projects. The process includes the following five phases:

1	Phase 1: Problem or Opportunity definition.
2	Phase 2: Identification and evaluation of alternative solutions to determine a preferred solution while taking input from the public and other stakeholders into consideration.
3	Phase 3: Examination of alternative methods of implementation of the preferred solution while taking input from the public and other stakeholders into consideration.
4	Phase 4: Documentation of the Class EA process in the form of an Environmental Study Report (ESR) for public review.
5	Phase 5: Implementation and monitoring.

Public and agency consultation are integral to the Class EA planning process. Projects subject to the Class EA process are classified into the following four “schedules” depending on the degree of the expected impacts.

Schedule A

Schedule A projects are minor or emergency operational and maintenance activities and are approved without the need for further assessment. These projects are typically smaller in scale and do not have a significant environmental effect. Examples: Repairing watermain breaks, cleaning sanitary sewers.

Schedule A+

Schedule A+ projects are also pre-approved; however, the public is to be advised prior to the project implementation. Although projects of this class do not usually have the potential for adverse environmental impacts, they tend to be broader in scale in comparison to Schedule A projects. Examples: Restoring a water treatment plant, installing a sanitary sewer in an existing road allowance.

Schedule B

Schedule B projects require a screening of alternatives for their environmental impacts and Phases 1 and 2 of the planning processes must be completed. The proponent is required to consult with the affected public and relevant review agencies. If there are still outstanding issues after the public review period, requests may be made to the Minister of the Environment, Conservation and Parks for a Section 16 Order. A Section 16 Order request involves requesting a higher level of assessment be undertaken; either to a Schedule C Class EA or an Individual EA. Provided that no significant impacts are identified and no requests for a Section 16 Order are received, Schedule B projects are approved, and work may proceed directly to implementation. Example: Increasing the depth of a municipal well, retiring a wastewater treatment plant.

Schedule C

Schedule C projects must satisfy phases 1 through 4 of the Class EA process, prior to proceeding to Phase 5 – Implementation. These projects have the potential for greater environmental impacts. Phase 3 involves the assessment of alternative methods of carrying out the project, as well as public consultation on the preferred conceptual design. Phase 4 normally includes the preparation of an Environmental Study Report (ESR) that is filed for public review.

Provided that no significant impacts are identified, and no requests for Section 16 Order are received, Schedule C projects are approved, and work can proceed to implementation. Example: Building a new water treatment plant, expanding an existing wastewater treatment plant beyond its rated capacity.

3.4 Selection of the Class EA Schedule

Based on the MCEA guidance, the anticipated complexity of this project, the interconnectivity of the strategies and facilities to the community, and stakeholder sensitivity for this project, the Region is completing this project as a **Schedule 'C'** Class EA.

The Port Credit East Water and Wastewater Servicing Optimization Strategy Class EA will satisfy Phases 1 to 4 of the Class EA process with the completion of the Environmental Study Report (ESR) and will support Phase 5 (Implementation) with completion of Preliminary Design, Costing, Phasing and Implementation Plan. This process is outlined in **Figure 3-1**.

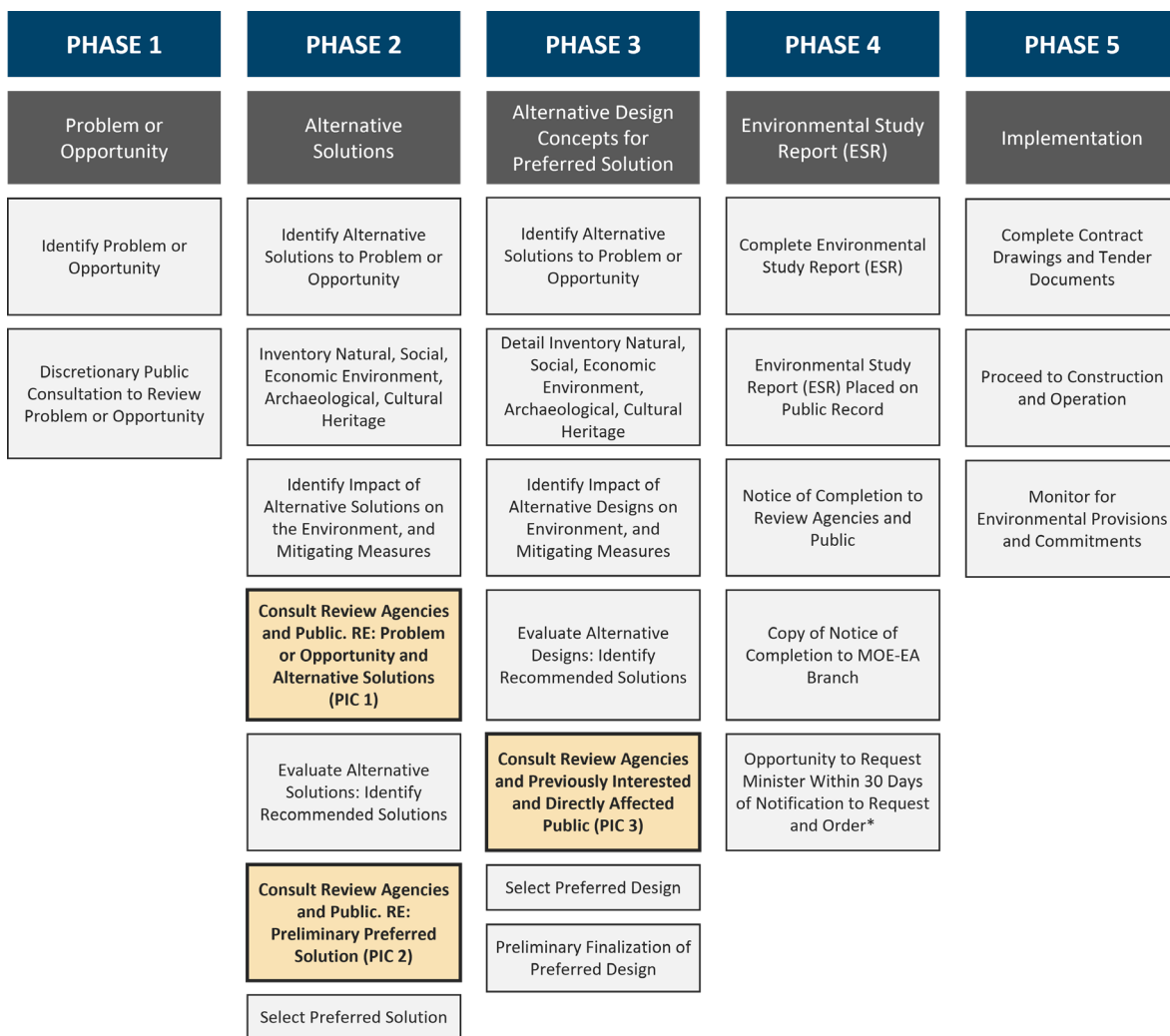


Figure 3-1. Municipal Class Environmental Assessment Process

**Note that this project was initiated before the 2023 Amendment but filed for completion after the 2023 Amendment.*

3.5 Study Commencement and Project Amendment

It is important to note that the project was previously the Elmwood and Hiawatha Wastewater Servicing Optimization Strategy, and was a Schedule 'B' Class EA, which was first issued March 12, 2020.

On November 5, 2020, an amendment to the project was made to a Schedule 'C' Class EA and further included the Rosemere SPS and the crossing of the Credit River for the proposed Lakeshore Road deep trunk sewer and watermain components.

Records of both study commencement notifications can be found in [Appendix 1A](#).

3.6 Consultation and Engagement

Agency and public consultation and participation are an important component to the success of this study and is mandated as part of the Class EA Process. Given the complexity and potentially sensitive nature of this study, it is imperative that the EA ensures meaningful consultation and extensive two-way communication with all rights holders and stakeholders to provide information, listen to, and work to address issues and concerns. Effective consultation with the public and stakeholders are used to obtain valuable comments and feedback on the overall study process, and better understand potential sensitivities and issues related to the Class EA. The overarching strategy for engagement and consultation includes several goals and objectives that go beyond simply meeting legislative requirements.

The primary goals and objectives of the consultation process are to:

- Present clear and concise information at key stages of the study process,
- Solicit community, regulatory, Regional and Local staff input,
- Identify concerns that might arise from the undertaking,
- Consider stakeholder comments when developing the preferred strategy; and,
- Meet and exceed Municipal Class EA consultation requirements.

The Consultation and Engagement Plan for the Port Credit East Class EA is driven by five key principles and can be found in **Appendix 1B**:

1. **Respect:** for all parties engaged in the process,
2. **Clear, consistent communication:** to ensure broad understanding, and that all communicators on behalf of the Class EAs are using consistent messages,
3. **Demonstrated organizational and community values:** to ensure all communications reflect the values of the Region as an organization and as a community,
4. **Transparency:** to communicate the EA process and its results openly,
5. **Flexibility:** changeable to adapt to different stakeholders, concerns and opportunities that may arise throughout the EA process.

A broad range of methods were used through the Class EA process to advise the public and stakeholders of the study and solicit input. Methods include notices, newsletters, a project website, comment forms, and public information centres (either physical or virtual).

To capture the attention of those that are directly within the vicinity of the project area, large billboards were placed at each SPS location(s) as shown in **Figure 3-2**, with a QR Code to allow for public to be able to find information quickly related to the project.



Figure 3-2. Photos of Billboards at SPS (Left to Right: Elmwood, Rosemere, Hiawatha)

A survey via mail and e-mail were also subsequently distributed to residents and businesses within the study area. The survey commenced from March 31 to May 7, 2021. Survey results are summarized as part of PIC 1 and can be found in **Appendix 1E**.

The following sections provides a summary of key consultation and engagement records. All input received were addressed, considered, and filed accordingly in the Port Credit East consultation tracking table in **Appendix 1D**.



3.6.1 Public Consultation

Public Information Centres (PICs) were held at key milestones of the Class EA process. Public notifications based on the Class EA phases. Phases 1 to 3 includes introduction of the study problem and opportunities, alternative site and servicing constraints and opportunities, and balanced evaluation concepts to address the comprehensive Port Credit East study components.

This Class EA included three PICs. Following each PIC, a summary report was developed to document notifications, presented materials, record of attendee participation, documentation of public comments received, and responses provided.

3.6.1.1 Public Information Centre No. 1

Pre-PIC No. 1 meetings were held between the project team and the stakeholder groups outlined in the table below.

Table 3-1. Pre-PIC No. 1 Meetings

Stakeholder Group	Date
City of Mississauga and Councillor Dasko	August 16, 2021
The Credit Valley Conservation Authority	August 17, 2021
Regional Technical Advisory Committee	August 18, 2021

The purpose of the Pre-PIC No. 1 meetings was to:

1. Provide update on the Schedule 'C' Class EA process,
2. Present PIC No. 1 materials
3. Receive input and confirmation on public materials, and,
4. Confirm study timing and next steps.

Due to COVID-19 public health restrictions, **PIC No. 1 was held virtually from August 25 to September 8, 2021.** PIC No. 1 presented the following:

- Background and introduction the Port Credit East study,
- The project Problem and Opportunity Statement,
- Existing project study area conditions,
- Short list of wastewater servicing alternatives, and,
- Study next steps and opportunities for public involvement.

Details on the PIC No. 1 attendance, comments received, and materials presented are provided in **Appendix 1E**.



3.6.1.2 Public Information Centre No. 2

Pre-PIC No. 2 meetings were held between the project team and the stakeholder groups outlined in the table below.

Table 3-2. Pre-PIC No. 2 Meetings

Stakeholder Group	Date
The Credit Valley Conservation Authority	April 27, 2022
City of Mississauga	April 29, 2022
Regional Technical Advisory Committee	April 29, 2022
City of Mississauga Councillor Dasko	May 16, 2022

The purpose of the Pre-PIC No. 2 meetings was to:

1. Provide update on the revised study area along with additional scope including crossing of the Credit River for the proposed Lakeshore Road deep trunk sewer and sub-transmission watermain components,
2. Incorporation of previous feedback,
3. Discuss key preliminary preferred strategies for the study components including Lakeshore trunk sewer and watermain, Rosemere SPS, Elmwood SPS, and Hiawatha SPS, and,
4. Obtain feedback on preliminary preferred strategies.

Due to COVID-19 public health restrictions, **PIC No. 2 was held virtually from May 18 to June 1, 2022.** PIC No. 2 presented the following:

- Preliminary preferred servicing strategies for the following study components
 - New Lakeshore Road deep trunk sewer,
 - New Lakeshore Road sub-transmission watermain, and,
 - Rosemere, Elmwood, and Hiawatha SPS
- Alternative sites and alignment evaluated for the water and wastewater study components,
- Study next steps and opportunities for public involvement.

Details on the PIC No. 2 attendance, comments received, and materials presented are provided in **Appendix 1F**.



3.6.1.3 Public Information Centre No. 3

Pre-PIC No. 3 meetings were held between the project team and the stakeholder groups outlined in the table below.

Table 3-3. Pre-PIC No. 3 Meetings

Stakeholder Group	Date
City of Mississauga	January 19, 2023
Credit Valley Conservation	January 20, 2023
Internal Technical Advisory Group	January 19, 2023
City of Mississauga Councillor Dasko	March 28, 2023

The purpose of the Pre-PIC No. 3 meeting was to:

1. Provide update of the study’s investigation results, impacts and mitigation strategies,
2. Outline the evaluation of the design options and alternatives,
3. Present details of the proposed shaft location options and preliminary preferred design for all study components, and,
4. Obtain feedback on the preferred design concept.

PIC No. 3 was held in-person on June 14, 2023, at the Clark Memorial Hall (161 Lakeshore Road West). PIC No. 3 presented the following:

- Preliminary preferred design for the following study components:
 - New Deep Trunk sewer on Lakeshore Road,
 - New Sub-Transmission Watermain on Lakeshore Road,
 - New Rosemere SPS and associated Twinned Forcemains, and,
 - Decommissioning of Elmwood, and Hiawatha SPS and associated Gravity Sewers.
- Alternative sites and alignments evaluated for the water and wastewater study components,
- Study next steps and opportunities for public involvement.

Details on the PIC No. 3 attendance, comments received, and materials presented are provided in **Appendix 1G**.



3.6.2 Study Completion

Upon completion of the Class EA process, a notice of completion was published and issued to all stakeholders with information on the minimum 30-day public review period. Copies of the distributed notice is provided in [Appendix 1H](#).

3.6.3 Review Period Consultation

During the public review period, comments received will be documented in the filed copy of the ESR. This section, as well as supporting [Appendix 1I](#), will be updated following the 30-day public review period to include all comments received and / or note any revisions made to the ESR.

4.0 Baseline Features and Servicing Conditions

The following section presents a review of policies, regulations, and legislations (at the federal, provincial, and local/municipal levels), as well as a review of baseline environmental features and servicing conditions that are relevant within the Port Credit East study area.

4.1 Planning and Policy Overview

This section presents a summary of Federal, Provincial, and local legislation and policies that were considered for this study.

4.1.1 Federal Legislation and Policy

4.1.1.1 Strategy for the Management of Municipal Wastewater Effluent

The Canada-wide Strategy for the Management of Municipal Wastewater Effluent was developed in 2019 by the Canadian Council of Ministers of the Environment (CCME). The strategy sets out a framework that addresses issues related to governance, wastewater facility performance, effluent quality and quantity and its associated risk and economic considerations in a way that provides consistency and clarity to the wastewater sector across Canada.

The Canada-wide Strategy for the Management of Municipal Wastewater Effluent requires the following:

- All facilities achieve minimum National Performance Standards (NPS).
- Develop and manage site-specific Effluent Discharge Objectives (EDO).
- Implement risk management activities to reduce the risks associated with combined and sanitary sewer overflows.
- Overflow frequencies for sanitary sewers do not increase due to development or redevelopment.
- Overflow frequencies for combined sewers do not increase due to development or redevelopment, unless occurring as part of an approved combined sewer overflow management plan.
- Overflow frequencies do not increase during dry weather, except during spring thaw and emergencies.
- Source control of pollutants is recommended and monitoring and reporting on effluent quality required.

4.1.1.2 Species at Risk Act

The *Species at Risk Act* (SARA) focuses on restoring and maintaining populations of species that are at risk of extinction or extirpation due to human activity such as habitat destruction, hunting, introduction of competing species, or other anthropogenic causes.

Species are designated at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) by using biological information on a species deemed to be in danger. The COSEWIC reviews research information on population and habitat status, trends and threats and applies assessment criteria based on international standards. Once a species is added to *Schedule 1 – List of Wildlife Species at Risk*, it benefits from legal protection afforded and the mandatory recovery planning required under the *Act*.

4.1.1.3 Fisheries Act

The *Fisheries Act* is a federal legislation for the protection of fish habitat from biological, physical, or chemical alterations that are harmful and/or destructive. Fisheries and Oceans Canada, in conjunction with various other agencies (Environment Canada, Ontario Ministry of Natural Resources and Forestry, and Ontario Ministry of the Environment, Conservation and Parks) are responsible for the enforcement and management of fisheries resources.

The following sections of the *Fisheries Act* are relevant to the Port Credit East study:

- **Section 20** – requirement and approval for fish passage facilities.
- **Section 22** – provision of sufficient amounts of flow at and downstream from obstructions such as dams.
- **Section 32** – prevention of the destruction of fish by means other than fishing.
- **Section 35** – prohibits harmful alteration, disruption, or destruction of fish habitat.
- **Section 35 (2)** – allows the Minister of Fisheries and Oceans to authorize harmful alteration, disruption, or destruction of fish habitat provided that no net loss of the productive capacity of fish habitat occurs.
- **Section 36** – prohibits the deposit of deleterious substances into water frequented by fish.

4.1.2 Provincial Legislation and Policy

4.1.2.1 Planning Act

The *Planning Act* establishes the rules for land use planning in Ontario and describes how land uses may be controlled in communities. The primary provincial contact for advice and information on land use planning is through the Ontario Ministry of Municipal Affairs and Housing (MMAH). The *Planning Act* also defines the respective roles and responsibilities of the province and municipalities, listed below:

Provincial Responsibility:

- Issuance of Provincial Policy Statement.
- Promotion of provincial interests.
- Preparation of provincial plans, such as the Greenbelt Plan and Growth Plan for the Greater Golden Horseshoe.
- Provide advice to municipalities and the public on land use planning issues.
- Administration of local planning controls and approvals where required.

Municipal Responsibility:

- Make local planning decisions for future communities.
- Preparation of planning documents such as official plans and zoning bylaws.
- Ensure that planning decisions and documents are consistent with the PPS and conform or do not conflict with provincial plans.
- For upper-tier municipalities (such as the Region of Peel), to act as the approval authority for their local lower-tier municipalities' official plans in place of the Ministry of Municipal Affairs and Housing.

4.1.2.2 Provincial Policy Statement

The Provincial Policy Statement (PPS) sets the policy foundation for land use planning and development in Ontario, providing guidance and support for appropriate land use planning and development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment.

The PPS contains policies relevant to infrastructure planning under policy section 1.6 including, but not limited to:

- Requirement that infrastructure shall be provided in an efficient manner that prepares for impacts of a changing climate while accommodating projected needs.
- Planning for infrastructure and public service facilities shall be financially viable over their lifecycle and available to meet current and projected needs.
- Optimization of the use of existing infrastructure and public service facilities before developing new infrastructure.



More specifically, under PPS policy section 1.6.6, it states that water and wastewater services shall:

- Accommodate forecasted growth in a manner that promotes the efficient use and optimization of existing municipal water and wastewater services.
- Ensure that these systems are provided in a manner that:
 - can be sustained by the water resources upon which such services rely,
 - prepares for the impacts of a changing climate,
 - is feasible and financially viable over their lifecycle, and,
 - protects human health and safety, and the natural environment.
- Promote water conservation and water use efficiency.
- Integrate servicing and land use considerations at all stages of the planning process.

4.1.2.3 A Place to Grow – Growth Plan for the Greater Golden Horseshoe

A Place to Grow is the Ontario government’s initiative to plan for growth and development in the province. The *Places to Grow Act, 2005* enables the development of regional growth plans that guide government investments and land use planning policies. It was most recently amended to *The Growth Plan*, through an Order in Council which came into effect in August 2020 with a change in planning horizon to 2051.

The *Growth Plan* informs decision-making regarding growth management and environmental protection in the Greater Golden Horseshoe as designated under *O. Reg. 416/05* (Growth Plan Areas). The plan advocates for complete communities, which are intentionally designed to meet community’s daily living needs by providing convenient access to an appropriate mix of jobs, local services, public service facilities, and a full range of housing to accommodate a range of incomes and household sizes.

Like other provincial plans, the *Growth Plan* builds upon the policy foundation provided by the PPS and provides additional and more specific land use planning policies to address issues facing specific geographic areas in Ontario. Where there may be a conflict, the policies of the Growth Plan take precedence over policies of the PPS.

Population and employment forecasts for the Region of Peel were defined by the Growth Plan to meet 2.28 million people and 1.07 million jobs by 2051, the distribution is shown in **Table 4-1**.

Table 4-1. Distribution of Population and Employment for the Region of Peel to 2051

Peel Region	2031	2041	2051
Population	1,770,000	1,970,000	2,280,000
Employment	880,000	970,000	1,070,000

Note: Numbers rounded to the nearest 10,000

The most recent *Growth Plan* includes the following specific density targets under policy 2.2.2.1 and policy 2.2.3.2:

- A minimum of 50 per cent of all residential development occurring annually within the Region of Peel will be within the delineated built-up area.
- 200 residents and jobs combined per hectare for each of the Downtown Brampton and Downtown Mississauga urban growth centres.
- A minimum density target that is not less than 50 residents and jobs combined per hectare for designated greenfield areas within the Region of Peel.

The most recent *Growth Plan* also provides for minimum density targets for *Major Transit Station Areas* and *Priority Transit Corridors* within the Region of Peel under policy 2.2.4.3 as follows:

- 160 residents and jobs combined per hectare for those that are served by light rail transit or bus rapid transit.
- 150 residents and jobs combined per hectare for those that are served by the GO Transit rail network.

4.1.2.4 Greenbelt Plan

The Greenbelt Plan (2017) builds upon the existing policy framework established in the Provincial Policy Statement. The purpose of the plan is to inform the decision-making process to protect agricultural lands, natural heritage and water resource systems, and to provide for a diverse range of economic and social activities related to rural communities, agriculture, tourism, recreation and resource uses.

The Greenbelt Plan includes lands within and builds upon the ecological protections provided by the Niagara Escarpment Plan (NEP) and the Oak Ridges Moraine Conservation Plan (ORMCP). The Protected Countryside lands identified in the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands covered by the NEP and the ORMCP while improving linkages between these areas and the surrounding major lake systems and watersheds.

4.1.2.5 Ontario Heritage Act

The Ministry of Citizenship and Multiculturalism (MCM)—previously the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI, 2019) and Ministry of Heritage Ministry of Tourism, Culture and Sport (MTCS, 2020)—and municipalities are enabled to designate properties or areas of cultural heritage value or interest, to conserve its significance through the *Ontario Heritage Act* (OHA).

For provincial properties, under Part III.1 of the OHA, MCM prepares the *Standards and Guidelines for the Conservation of Provincial Heritage Properties*, which outlines the criteria and process for identifying provincial heritage properties and the standards for their protection, maintenance, use and disposal. Evaluation of provincially significant properties is guided by *Ontario Regulation 10/06*. Should a property meet the criteria, demolition or disposal requires the consent from the Minister of Citizenship and Multiculturalism (MCM) may be required.

For municipal properties, under Part IV and V of the OHA, enables its council to designate a property or properties within a Heritage Conservation District Plan as being of “cultural heritage value or interest” (CHVI). Evaluation for CHVI is guided by *Ontario Regulation 9/06*. If a property meets one or more of these criteria, it may be eligible for designation under Part IV, Section 29 of the OHA. The designation is recognized through municipal by-law, and the property must be included on the register maintained by a municipal clerk. A municipality may also list a property on the register to indicate it as having potential CHVI. It is important to note that designation or listing in most cases applies to the entire property, not only individual structures, or features.

4.1.2.6 Endangered Species Act

The *Endangered Species Act* was originally written in 1971 and amended in 2008. Similar to the *Federal Species at Risk Act (SARA)*, the *Endangered Species Act* aims to provide protection to plant and animal species that are at risk of extinction or extirpation from Ontario.

Species thought to be at risk in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Ministry of Natural Resources and Forestry (MNR), species will be added to the provincial list of endangered and threatened species in compliance with the *Endangered Species Act*. The *Endangered Species Act* immediately provides habitat protection to all species listed as threatened, endangered or extirpated.

The *Endangered Species Act* provides guidance on determining whether anthropogenic activities, such as construction, could impact regulated species and considers biology and behaviour of the species, details of the activity, and how the activity may affect the species' ability to carry out its life processes.

4.1.2.7 Environmental Protection Act and Ontario Water Resources Act

The *Environmental Protection Act (EPA)* is the primary pollution control legislation in Ontario and is used with the *Water Resources Act* to protect air and water quality in Ontario. The EPA prohibits the discharge of contaminants into the environment that are likely to cause adverse effects, by establishing limits for air emissions and wastewater effluent that must not be exceeded. *Environmental Compliance Approvals* are issued under this *Act*. In addition, the *Act* controls the removal, transport, and disposal of excess soils, if they are deemed to be contaminated.

4.1.2.8 Sustainable Water and Sewage System Act

The *Sustainable Water and Sewage Systems Act* (2002) legislates financial planning and sustainability of municipal water and wastewater systems and specifies reporting requirements.

In 2010, *Bill 13, Sustainable Water and Wastewater Systems Improvement and Maintenance Act* was tabled to repeal the *Sustainable Water and Sewage Systems Act*.

Key points of *Bill 13* are as follows:

- Sets out the purposes of the *Act*, which include ensuring that public ownership of water services and wastewater services is maintained.
- Establishes the Ontario Water Board as an agent of the Crown and sets out the Board's objectives, powers and duties which relate to the regulation of water services and wastewater services.
- Sets out the responsibilities of municipalities or groups of municipalities that are designated as regulated entities by regulation.
- Regulated entities must prepare business plans for the provision of water services or wastewater services. The plan must contain, among other things, an assessment of the full cost of providing water services or wastewater services to the public and a description of how the regulated entity intends to pay this full cost.

4.1.2.9 Water Opportunities and Conservation Act

The *Water Opportunities and Conservation Act* aims to encourage water conservation, strengthen sustainable municipal water planning and make Ontario a leader in developing and selling water technologies and services. The purposes of this *Act* are as follows:

- Foster innovative water, wastewater and storm water technologies, services and practices.
- Create opportunities for economic development and clean-technology jobs in Ontario.
- Conserve and sustain water resources for present and future generations.

To further the purposes of the *Act*, the Minister of the Environment, Conservation and Parks may establish aspirational targets in respect of the conservation of water and other matters.

The *Act* requires certain municipalities, persons and entities to prepare, approve and submit to the Minister of the Environment, Conservation and Parks municipal water sustainability plans for municipal water services, municipal wastewater services and municipal storm water services under their jurisdiction. The Minister may establish performance indicators and targets for these services. The *Act* also authorizes the making of regulations requiring public agencies to prepare water conservation plans, achieve water conservation targets, and consider technologies, services and practices that promote the efficient use of water and reduce negative impacts on Ontario's water resources.

4.1.2.10 Safe Drinking Water Act and Clean Water Act

Several changes were made to Ontario's legislation and management of drinking water following Justice O'Conner's inquiry into the Walkerton E.Coli outbreak in 2000, including introduction of the *Safe Drinking Water Act and Clean Water Act*.

The *Safe Drinking Water Act* was developed in response to the Walkerton E.Coli outbreak and was adopted in 2002. The *Act* provides for the protection of human health and the prevention of drinking water hazards through the control and regulation of drinking water systems and drinking water testing.

The *Clean Water Act* was adopted in 2006 with the objective to protect existing and future sources of drinking water including rivers, lakes, and underground aquifers. Under this *Act*, Source Water Protection plans were mandated in order to identify and assess risk of threats, such as agricultural runoff and sewage, to drinking water sources. Source Water Protection Plans also document Intake Protection Zones (IPZs), which delineate high risk areas that must be protected from potential contamination.

Source Water Protection (SWP) Plans were prepared for 19 sub-watershed-based Source Protection Regions (SPR) across Ontario to protect existing and future sources and to identify areas of significant drinking water threats. The SWP Plans identifies Wellhead Protection Areas (WHPA) as well as IPZs. According to the Source Protection Plan, WHPAs are areas on the land around a municipal well. The size of WHPAs is determined by how quickly water travels underground to the well, measured in years. IPZs are areas on the water and land surrounding a municipal surface water intake.

Based on the assessment completed on the MECP's Source Water Protection web page, there are two IPZs within the Region that lie within the City of Mississauga, associated with the Arthur P. Kennedy and Lorne Park WTP. The Port Credit East study area is located within IPZ-2 of the Arthur P. Kennedy WTP.

Applicable source protection plan policies, provided in **Table 4-2**, have been considered throughout the Port Credit East study.



Table 4-2. Applicable Drinking Water Source Protection Policies

Policy No.	Policy Statement
<p>SWG-13</p>	<p>Where sanitary sewers and related pipes are in an area where the activity is, or would be, a significant drinking water threat, the Environmental Compliance Approval that governs the activity shall be reviewed or established to ensure appropriate terms and conditions so that the activity ceases to be, or does not become, a significant drinking water threat in any of the following areas:</p> <ul style="list-style-type: none"> • WHPA-A (existing, future); or • WHPA-B (VS = 10) (existing, future); or • WHPA-E (VS = 10) (existing, future); or • The remainder of an Issue Contributing Area for Nitrates or Pathogens (existing, future). <p>Not limiting any other conditions to be included in the Environmental Compliance Approval, the Issuing Director should include the following conditions, where possible:</p> <ul style="list-style-type: none"> • Requiring higher construction standard • Inspections by the owner for leaks
<p>SWG-14</p>	<p>New development dependent on sanitary sewers and related pipes, in an area where the activity would be a significant drinking water threat, shall only be permitted where it has been demonstrated by the proponent through an approved Environmental Assessment or similar planning process that the location for the sanitary sewer and related pipes is the preferred alternative and the safety of the drinking water system has been assured in any of the following areas:</p> <ul style="list-style-type: none"> • WHPA-A (future); or • WHPA-B (VS = 10) (future); or • WHPA-E (VS = 10) (future); or • The remainder of an Issue Contributing Area for Nitrates or Pathogens (future).

Source: MECP (formerly MOECC). (2015). *Approved Source Protection Plan: CTC Source Protection Region*

4.1.2.11 Conservation Authority Regulation and Policy

The legislative mandate of the Conservation Authority, as set out in Section 20 of the *Conservation Authorities Act*, is to establish and undertake programs designed to further the conservation, restoration, development, and management of natural resources.

Conservation Authorities are local agencies that protect and manage water and other natural resources at the watershed level. These agencies have several responsibilities and functions in the land use planning and development process.

The Region of Peel contains portions of five watersheds, under the jurisdiction of:

- Credit Valley Conservation Authority (CVC)
- Toronto and Region Conservation Authority (TRCA)
- Conservation Halton (CH)
- Nottawasaga Valley Conservation Authority
- Lake Simcoe Region Conservation Authority

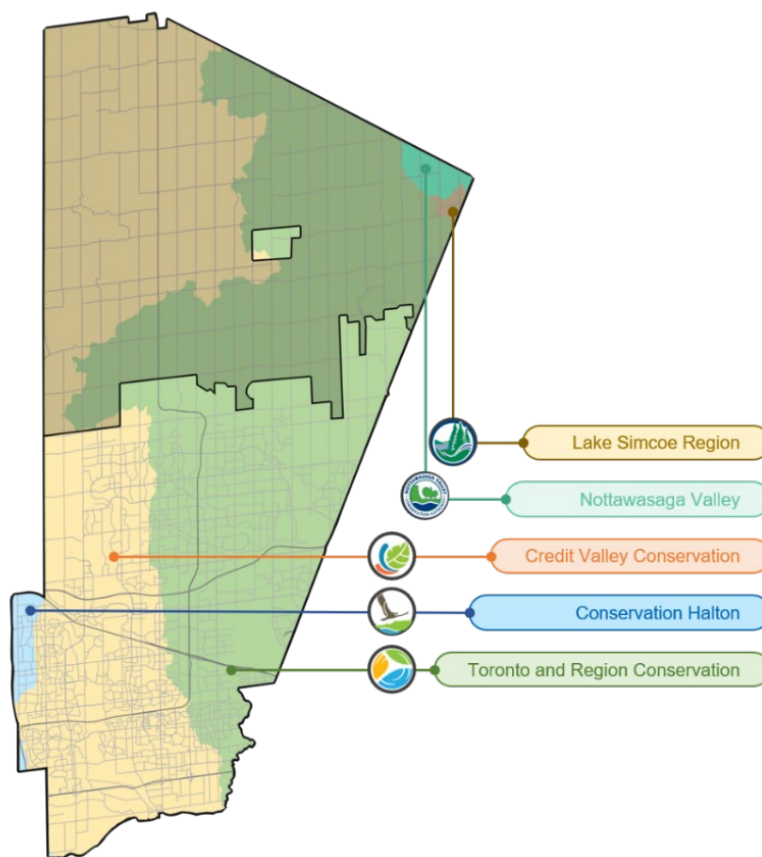


Figure 4-1. Conservation Authority Jurisdiction

The study area lies entirely within the Credit Valley Conservation Authority. **Figure 4-1** presents an overview of the Conservation Authorities within the Peel Region.

Conservation Authorities act as commenting agencies on development applications under the *Planning Act* based on regulations approved by their Board of Directors and the province.

These Conservation Authorities have agreements with partnering municipalities to provide technical services regarding matters associated with natural heritage protection, hazardous land management, and water resources.

In November 2022, the Province of Ontario passed the *More Homes Built Faster Act, 2022 (Bill 23)*. The *Bill* introduced a series of legislative changes affecting conservation authorities. The Province has stated that the purpose of these changes are:

“To accelerate housing development approvals while continuing to protect Ontario families, communities, and critical resources. The proposed changes would further focus conservation authorities on their core mandate, support faster and less costly approvals, streamline conservation authority processes, and help make land suitable for housing available for development.”

The legislative changes to the *Conservation Authorities Act* and *Planning Act* include:

1. Proposed updates to the regulation of development for the protection of people and property from natural hazards in Ontario (legislative changes).
2. Focusing conservation authorities' role in review of development related proposals and applications (comments, appeals).
3. Freezing conservation authority fees.
4. Identifying conservation authority lands suitable for housing and streamlining conservation authority severance and disposition processes that facilitate faster development.

Bill 23 received royal assent on November 28, 2022. However, many of its changes to the *Conservation Authorities Act* will not come into effect until a later date.

4.1.3 Local Municipal Legislation and Policy

4.1.3.1 Region of Peel Official Plan (RPOP)

The *Planning Act* requires municipalities to update their official plans every five years. As of April 2022, the RPOP was adopted by Regional Council. The Minister of Municipal Affairs and Housing issued a decision to approve the new RPOP with 44 modifications on November 4, 2022.

The Official Plan is key to the Region as it:

- Provides Regional Council with a long-term policy framework for decision making,
- Sets out the Regional context for more detailed planning by protecting the environment, managing resources and directing growth, and,
- Establishes the basis for providing Regional services in an efficient and effective manner.

The Official Plan includes objectives and policies around water and wastewater services. Key objectives and policies relevant to the Port Credit East study are listed below:

To provide water supply and sanitary sewer services to appropriate areas of the Region in an adequate, efficient, planned, and cost-effective manner consistent with public needs and financial realities.

The following policies contained in the RPOP were considered when identifying and assessing servicing alternatives:

- Require and provide full municipal sewage and water services to accommodate growth in the Urban System to the horizon of this Plan. The provision of full municipal sewage and water services in the Urban System will be subject to the Regional financial and physical capabilities (6.5.2).
- Ensure that no *development* requiring additional or new water supply and/or sanitary sewer services proceeds prior to the finalization of a Servicing Agreement with the Region, confirming the responsibility for, and ability to provide, appropriate facilities for water supply and sewage disposal. In the case of plans of subdivision, confirmation will be required prior to draft approval, that servicing is or will be available (6.5.3).
- Consider the financial, operational, and environmental impacts and long-term sustainability of communal wastewater and water systems (6.5.8).
- Pursue, in cooperation with the local municipalities, the public and businesses, water conservation and other strategies designed to improve the efficiency of the Region's systems and resiliency of the natural environment. (6.5.11).
- Assess and address climate change risks and vulnerabilities when developing new and replacing existing infrastructure. Infrastructure will be developed to be environmentally sustainable and assist with climate change adaptation to lessen environmental impact (6.5.13).
- Consider opportunities when designing, planning, and implementing water and wastewater services to reduce greenhouse gas emissions in accordance with provincial and Regional objectives (6.5.14).

4.1.3.2 Region of Peel Climate Change Master Plan

The Region of Peel Climate Change Master Plan (CCMP) issued in 2020 and in effect until 2030, the CCMP outlines strategies to manage Regional assets, infrastructure, and services in a changing climate. Two primary outcomes of the CCMP are:

- Reduce corporate emissions by 45% by 2030 relative to 2010 levels, and,
- Be prepared for changing climates and extreme weather events by ensuring Regional services and assets are resilient.

Supporting outcomes will enable success by providing direction to “Build Capacity,” “Invest,” and “Monitor and Report”. The pursuit of these outcomes is guided by four principles: balance, transparency, collaboration and innovation. Progress on these outcomes will be measured by the Region’s Climate Change Resiliency scorecard which assesses key factors of a climate resilient community.

These principles and objectives have been considered in the development and evaluation of solution alternatives for the Port Credit East Class EA through opportunities to address Climate Change.

4.1.3.3 City of Mississauga Official Plan

The Mississauga Official Plan (MOP) provides direction for the next stage of the city’s growth and planning policies to guide the city’s development to year 2031, as required by provincial legislation. The Mississauga Official Plan (MOP) was most recently consolidated in March 2023. The MOP is currently refining the official plan and is anticipated to be finalized end of 2023.

[Mississauga Official Plan - City of Mississauga](#)

The City’s Official Plan includes general land use designations, intensification areas and environmental features within the study area. The MOP outlines general policies as well as specific policies. Key policies relevant to the water and wastewater networks will be considered in the development of the servicing strategies including ensuring co-operation with other level of government, appropriate agencies, and the private sector, that adequate water and wastewater services are provided.

4.1.3.3.1 Natural Heritage Features

The City of Mississauga's Official Plan also designates other categories of Natural Heritage Features including:

- Natural Hazard Lands
- Natural Green Spaces
- Special Management Areas
- Residential Woodlands
- Linkages

Development or site alteration will not be permitted within or adjacent to the above listed features unless it is demonstrated that the development will not adversely affect the feature or its ecological function and opportunities for their protection, restoration, enhancement, and expansion have been identified.

Development will not be permitted unless it meets the requirements of the CVC and City policies (e.g., Erosion and Sediment Control by-law). However, development may be permitted within hazard lands if an assessment is completed to demonstrate that alternatives have been considered and development will not adversely affect the feature or its flood and erosion control function, to the satisfaction of the CVC.

4.1.3.3.2 Significant Woodlands

Significant woodlands are areas which are:

- Ecologically important in terms of features such as species composition, age of trees and stand history.
- Functionally important due to their contribution to the broader landscape because of their location, size or due to the amount of forest cover in the planning area.
- Economically important due to the site quality, species composition or past management history.

Any development or site alteration is prohibited within the Core Areas of the Greenland System, except for minor development and essential infrastructure that is authorized under the EA process. In the event that portions of the Core Area are damaged or destroyed, the natural features in the area must be rehabilitated to restore ecological function.

4.1.3.3.3 Significant Valleylands

According to the City of Mississauga, significant valleylands are associated with the main branches, major tributaries and other tributaries and watercourse corridors draining directly to Lake Ontario including:

- Credit River
- Etobicoke Creek
- Mimico Creek
- Sixteen Mile Creek

An assessment will be required if development is proposed within or adjacent to a significant valleyland. This assessment will demonstrate that all reasonable alternatives have been considered and development will not adversely affect the feature or its ecological function, to the satisfaction of the City and CVC.

4.1.3.3.4 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) is evaluated and designated based on the criteria and guidelines in the NHRM, Significant Wildlife Habitat Technical Guide (SWHTG) and Significant Wildlife Habitat Mitigation Support Tool (SWHMIST). There are four general types of SWH: seasonal concentration areas, migration corridors, rare or specialized habitats and habitat for species of conservation concern.

An assessment will be required if development is proposed within or adjacent to a SWH (within 120 metres). This assessment will demonstrate that the development will not adversely affect the feature or its ecological function.



4.1.3.4 Port Credit Local Area Plan

The Port Credit Local Area Plan (LAP) is part of the Mississauga Official Plan. This LAP provides policies for lands in south central Mississauga. The study area of this EA is within the LAP's Neighbourhood and Community Node Area. The Community Node is the focus for the surrounding neighbourhoods, having a mixture of uses, compact urban form, appropriate density and has achieved its planned function. The Community Node is an intensification corridor.

The vision was built on these guiding principles:

1. Protect and enhance the urban village character recognizing heritage resources, the main street environment, compatibility in scale, design, mixture of uses and creating focal points and landmarks.
2. Support Port Credit as a distinct waterfront community with public access to the shoreline, protected views and vistas to Lake Ontario, the Credit River and active waterfront uses.
3. Enhance the public realm by promoting and protecting the pedestrian, cyclist and transit environment, creating well connected and balanced parks and open spaces and reinforcing high quality-built form.
4. Support the preservation, restoration and enhancement of the natural environment.
5. Balance growth with existing character by directing intensification to the Community Node, along Lakeshore Road (east and west), brownfield sites and away from stable neighbourhoods. Intensification and development will respect the experience, identity and character of the surrounding context and Vision.
6. Promote a healthy and complete community by providing a range of opportunities to access transportation, housing, employment, the environment, recreational, educational, community and cultural infrastructure that can assist in meeting the day-to-day needs of resident.

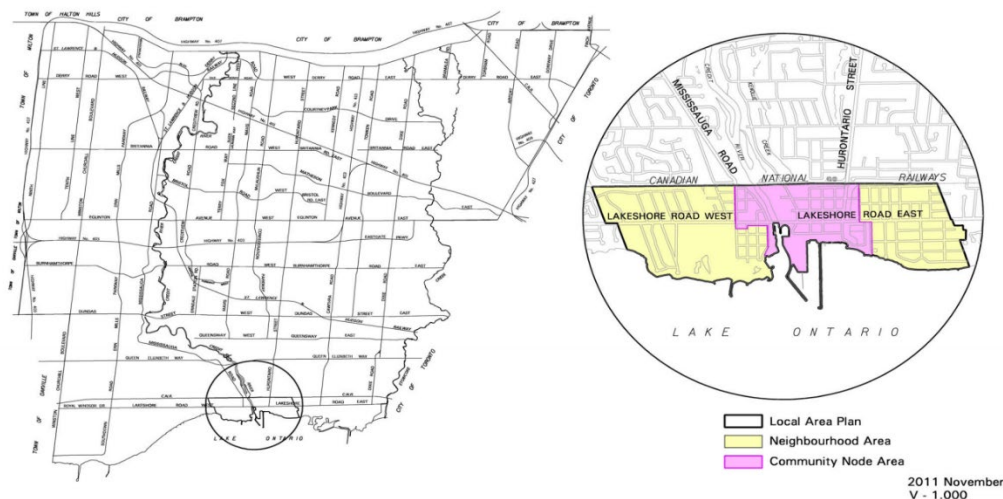


Figure 4-2. Port Credit Local Area Plan

2011 November
 V - 1.000

4.1.3.5 Waterfront Parks Strategy 2019 Refresh

This is an update to the City of Mississauga's approved 2008 Waterfront Parks Strategy. The Waterfront Trail connects all the parks and provides a cycling and pedestrian route. The vision statement of this strategy is "Life Thrives at the Water". The waterfront influences the well-being of all the communities and ecosystems along the lake edge. The Strategy's goals are as follows:

- Secure continuous public access along the edge of Lake Ontario as well as the creeks and rivers with outlets at the Lake;
- Strengthen the presence and identity of the whole waterfront parks system;
- Create high quality public spaces that are rich in amenities and flexible in their use;
- Preserve and interpret historical uses;
- Protect, enhance and expand natural heritage areas;
- Provide active and dynamic year-round destinations;
- Integrate well with, and connect to the surrounding urban fabric; and,
- Contribute to environmentally and economically sustainable development.

There are three existing parks in the Port Credit East Study Area: Hiawatha, Tall Oaks and St. Lawrence that are part of the Waterfront Parks. The waterfront parks provide communities with different types of water access and activities such as fishing, swimming, park use, etc. The Waterfront Parks Strategy recommends the following:

Hiawatha Park

- Strengthen buffers between the park and adjacent neighbours while maintaining views to the lake.
- Visually screen the Region of Peel pumping station and ensure that visual and physical public access to the park is not overwhelmed by proposed improvements to the pumping station. Consider relocating the pumping station to the northeast corner of the park in the future.

Tall Oaks Park

- Maintain the existing beach and enhance the water access for paddleboards, windsurfing and kayaks etc.
- Provide additional seating for passive lake viewing.
- Given the adjacency of the two parks, consider consolidating Tall Oaks Park into St. Lawrence Park.

St. Lawrence Park

- Encourage and extend current informal uses of the plaza, i.e., Latin dance night.
- Consider redesigning the plaza to encourage uses such as festivals, markets and potential winter skating.
- Address the perception that the south portion of St. Lawrence Park between the lake and the Regatta building is private property through additional signage, public art and additional animation.



4.1.3.6 City of Mississauga Cycling Master Plan

The City's Cycling Master Plan supports the vision of the Waterfront Trail. The vision of the Cycling Master Plan is: The City of Mississauga will be a place where people choose to cycle for recreation, fitness and daily transportation needs. Cycling will become a way of life that supports vibrant, safe and connected communities and enhances our overall health and quality of life.

The goals of the Mississauga Cycling Master Plan are as follows:

1. Improve safety for cycling;
2. Build a connected, convenient and comfortable bicycle network;
3. Increase the number of cycling trips in Mississauga; and
4. Foster a culture of cycling.

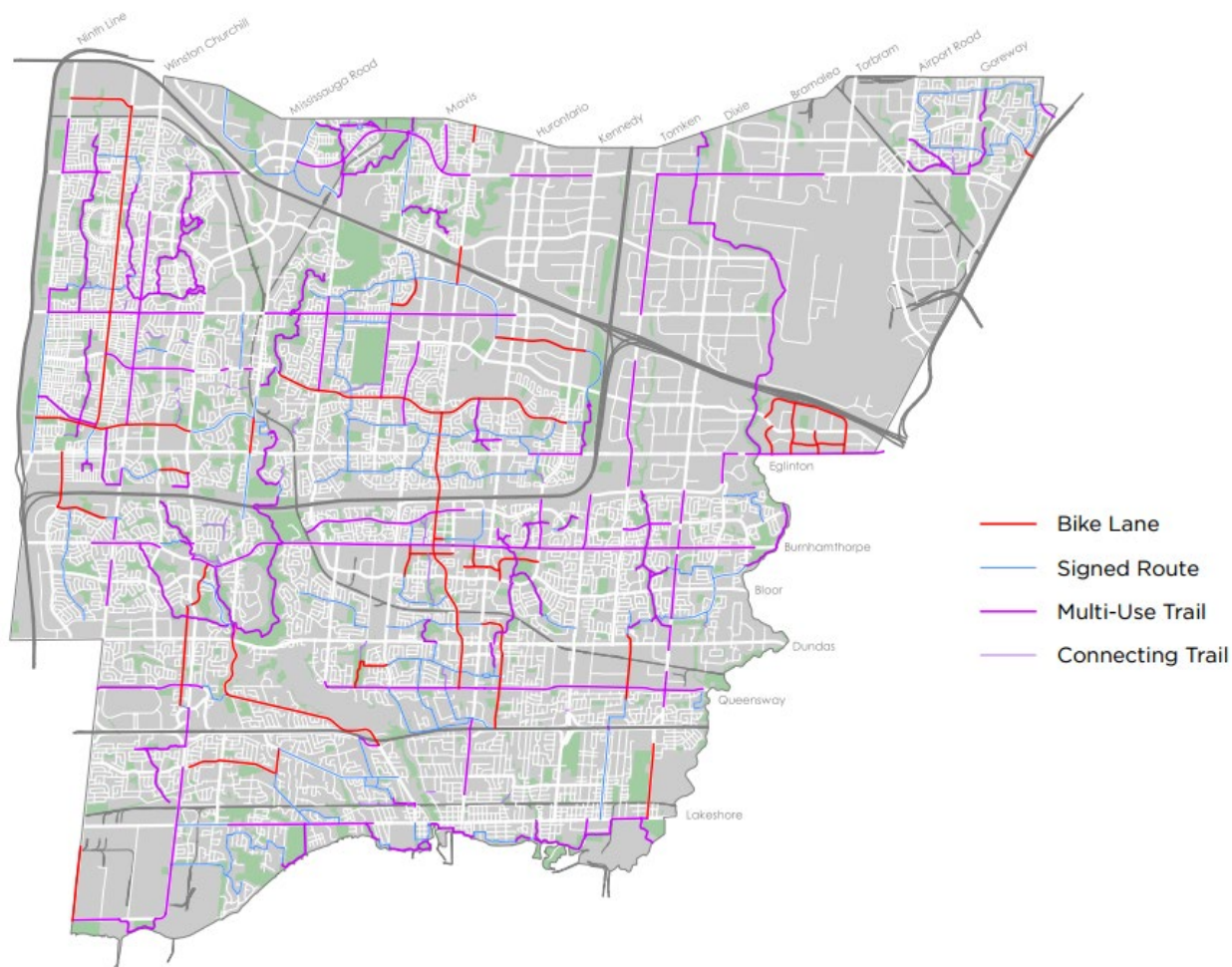


Figure 4-3. Mississauga Cycling Master Plan (2018)

4.1.3.7 Mississauga Transportation Master Plan

The Transportation Master Plan provides nearly 100 actions that the City will take to achieve their transportation goals. These actions include policies, guidelines, and standards; plans and studies; programs; procedures; and partnerships. Mississauga has six goals for transportation:

1. **Safety:** Freedom from Harm
2. **Inclusion:** Freedom from Barriers
3. **Integration:** Freedom of Choice
4. **Connectivity:** Freedom of Access
5. **Health:** Freedom to Flourish
6. **Resilience:** Freedom to Evolve

The transportation system includes infrastructure, public rights-of-way, public services, regulations that govern service providers, and people.

The EA study area encompasses a community node and is an intensification corridor, making it a focal area for a mix of residential and employment uses.

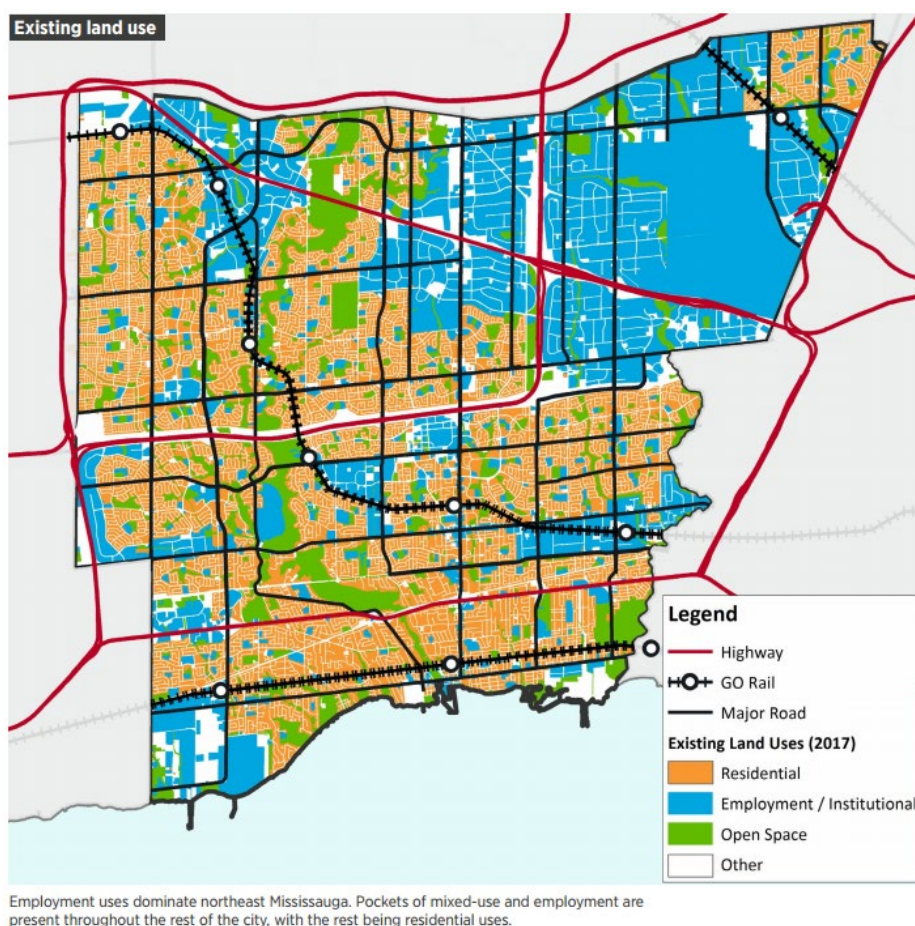


Figure 4-4. Mississauga Transportation Master Plan (2019)

4.2 Environmental Baseline Review

4.2.1 Natural Environment

The following subsections summarize the review of areas of natural and scientific interest, provincially significant wetlands, species at risk, significant wetland habitat, significant woodlands, significant valleylands, and regulated watercourses and waterbodies, and other natural heritage features in and around the Port Credit East study area. The desktop review of the natural environment for the study is provided in [Appendix 2A](#).

4.2.1.1 Areas of Natural and Scientific Interest

Areas of Natural and Scientific Interest (ANSI) are determined by the MNDMNRF using evaluation procedures developed by the province areas of land and/or water containing natural landscapes or features which have been identified as having life science or earth science (or both) values related to natural heritage protection, scientific study, or education. ANSIs are ranked by the MNDMNRF as being either provincially or regionally significant. Development may be permitted within or adjacent (i.e., within 50 metres) to a provincially significant ANSI where an assessment demonstrates that development will not adversely affect the feature of its ecological function.

Relevance to Port Credit East EA: There is no ANSI immediately within the Port Credit East study area. However, according to the Natural Heritage Information Centre (NHIC), the Credit River Coastal Marsh is directly adjacent and is just outside of the northwest portion of the study area ([Figure 4-5](#)).

4.2.1.2 Surface Water and Watercourses

Surface water features in the vicinity of the sites are part of the Credit River watershed (MNR and CVC 2002). Additionally, the Credit River bounded by Front Street and Marina Park on the west side of the river and Memorial Park on the east side is within the Port Credit East study area.

Relevance to Port Credit East EA: The following waterbody / watercourses are within the study area as shown in [Figure 4-7](#):

- Kenollie Creek
- Stavebank Creek
- Lake Ontario
- Mary Fix Creek
- Credit River

The Credit River and Lake Ontario are also major water features within the study area. The CVC regulates watercourses, waterbodies, and wetlands in the Credit River watershed. Therefore, any development proposed within CVC regulation limits will require authorization or a permit from the CVC.

4.2.1.3 Fish and Fish Habitat

There are numerous native and non-native fish species present in Lake Ontario. This includes top predator coldwater salmonids and warmwater species such as brown bullhead, sunfish, and various sportfish. There are also numerous invasive species found in the lake including zebra and quagga mussels, predatory zooplankton, round goby, tubenose goby, and sea lamprey.

The Credit River is a warmwater feature with a more coldwater / coolwater thermal regime at its confluence with Lake Ontario south of the study area. Many of the species in Lake Ontario are found at the mouth of the Credit River. It is also a well-known spawning habitat for chinook salmon, coho salmon, and rainbow trout.

Kenollie Creek and Mary Fix Creek are characterized as having warmwater thermal regimes which are generally considered to be more robust and tolerant to external effects.

SAR historically found (or potentially found) in the vicinity of the study area include deepwater culpin, shortnose cisco, Upper Great Lakes kiyi, lake sturgeon, redbreast dace, and American eel.

Relevance to Port Credit East EA: An assessment will be required if development is proposed within or adjacent (within 30 metres) to a fish habitat. This assessment will demonstrate that the development will not adversely affect the feature or its ecological function. Development should be designed to avoid or minimize adverse impacts to fish and fish habitat.

4.2.1.4 Significant Wetlands

A wetland is determined to be a provincially significant wetland (PSW) by the MNDMNR using the Ontario Wetland Evaluation System (OWES) – a science-based methodology used to evaluate and rank the relative value of wetlands. Wetlands are evaluated for significance based on a range of criteria, including biology, hydrology, societal value, and special features. Development is not permitted within a PSW as outlined under the PPS under Policy 2.1.

Relevance to Port Credit East EA: There are no mapped PSWs, other evaluated wetlands, or unevaluated wetlands that are directly within the Port Credit East study area. However, according to City of Mississauga's Official Plan Schedule 3, the southern portion of the Rosemere SPS site overlaps the 120 metre buffer zone associated with the Credit River Marshes PSW Complex. Additionally, based on the NHIC, the Rosemere site is located approximately 150 metres northeast of the complex, which is adjacent and just outside of the Port Credit Study Area (**Figure 4-5**).

4.2.1.5 Significant Woodlands

The City of Mississauga has identified significant woodlands in its jurisdiction under the Significant Natural Areas overlay (City of Mississauga 2021 – OP Schedule 3). Significant woodlands are also contained within the Core Areas designation of the Greenlands System as mapped by the Region of Peel (2021).

Relevance to Port Credit East EA: There are no Significant Natural Areas mapped within the Port Credit East study area. There are also no Core Areas of the Greenlands System present within any of the sites or study areas.

Off-site, there is a Significant Natural Area overlapping the deciduous forest immediately north of the Rosemere site (**Figure 4-5**), suggesting woodland significance.

Where development is proposed in or adjacent to a significant woodland, an assessment must be completed to demonstrate that all reasonable alternatives have been considered and development will not adversely affect the feature or its ecological function, to the satisfaction of the City of Mississauga. Vegetated setbacks may be required from the woodland dripline of significant woodlands and are determined on a case-by-case basis.

4.2.1.6 Significant Valleylands

As noted above in **Section 4.1.3.3.3**, significant valleylands are associated with the Credit River where it flows adjacent to the study area. These features are mapped as Significant Natural Areas and Natural Hazard Lands in the Official Plan. The Natural Hazard Lands surrounding the Credit River are also designated as an Urban River Valley under the Greenbelt Plan.

Relevance to Port Credit East EA: An assessment that all reasonable alternatives have been considered and development will not adversely affect the feature or its ecological function, to the satisfaction of the City of Mississauga and CVC, will be required if development is proposed within or adjacent to a significant valleyland.

4.2.1.7 Species at Risk

The natural features reports (**Appendix 2A**) include those Species at Risk (SAR) listed under federal *Species at Risk Act (SARA)* and the provincial *Endangered Species Act*, as well as species ranked S1-S3 (NHIC 2021) and regionally rare species. An assessment was conducted to determine which SAR occurred and/or had potential habitat within the Port Credit East study area. A screening of all SAR which have the potential to be found in the study area was conducted as a desktop exercise.

The screening included the following sources of information:

- Natural Heritage Information Centre (NHIC) Biodiversity Explorer geographic query for information on SAR, S1-S3, and natural areas database maintained by the Ontario Ministry of Natural Resources and Forestry (MNRF);



- MNRF mapping and existing studies
- Information and mapping available through the CVC;
- SAR mapping;
- Land Information Ontario (MNRF 2020);
- SAR Public Registry (ECCC 2020);
- Species at Risk in Ontario (SARO) List (MNRF 2020);
- Breeding Birds Atlas of Ontario (OBBA) (Cadman, et al. 2007);
- Atlas of Mammals of Ontario (Dobbyn 1994);
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2020);
- Bat Conservation International (BCI) range maps (BCI 2020);
- Ontario Butterfly Atlas (Jones et al. 2020);
- eBird species maps (eBird 2020);
- MNRF LIO Aquatic Resources Area Layer (MNRF 2020);
- Aquatic Species at Risk Maps (DFO 2020);
- Region of Peel Official Plan (Region of Peel 2018);
- Mississauga Plan and Mississauga Official Plan (City of Mississauga 2003, 2016);
- Parkway Belt West Plan (1978);
- York, Peel, Durham, Toronto and The Conservation Authorities Moraine Coalition (YPDT-CAMC) Groundwater Program database (YPDT-CAMC 2020); and,
- Existing aerial imagery.

Relevance to Port Credit East EA: Based on the desktop assessment, 13 species were designated as special concern, threatened, or endangered under the *Endangered Species Act* and *SARA* were assessed to have potential to occur within the study area. **Table 4-3** identifies the Species at Risk that have regulatory protection under the *Endangered Species Act* (threatened or endangered) and were assessed to have moderate potential to occur within the Study Area.

Table 4-3. Potential Species at Risk Summary within the Study Area

Taxon (quantity)	Species
Bird (2)	Bank Swallow, Chimney Swift
Amphibian (1)	Jefferson Salamander
Mammal (3)	Little Brown Myotis, Northern Myotis, Tri-coloured Bat
Vascular Plant (1)	Butternut

The majority of potential suitable habitat for these SAR in the study area is concentrated in the treed areas of the parks and shoreline habitat at the edges of the study area. There are also two species, Barn Swallow and Chimney Swift, which may also use anthropogenic structures for habitat.



4.2.1.8 Significant Wildlife Habitat

According to City of Mississauga's OP, SWH in the City is generally contained within the Significant Natural Areas overlay. As a result, the following candidates were identified in the study area:

- Potential bat maternity colonies associated with woodlands in the west and north portion of the study area;
- Potential shorebird migratory stopover area associated with the Lake Ontario shoreline; and,
- Potential habitat for seven rare or special concern species as noted in **Table 4-3**.

Relevance to Port Credit East EA: An assessment will be required if development is proposed within or adjacent to a SWH (within 120 metres). This assessment will demonstrate that the development will not adversely affect the feature or its ecological function. **Figure 4-6** provides a map showing the significant natural features within the study area.

4.2.1.9 Other Natural Heritage Features

The City of Mississauga's Official Plan also designates other categories of Natural Heritage Features including:

- Natural Hazard Lands
- Natural Green Spaces
- Special Management Areas
- Residential Woodlands
- Linkages

Relevance to Port Credit East EA: The study area is located adjacent to Port Credit Memorial Park (east of the Credit River) which is designated by the City as a Natural Green Space. Development or site alteration will not be permitted within or adjacent to Natural Green Spaces, unless it is demonstrated that the development will not adversely affect the feature or its ecological function and opportunities for their protection, restoration, enhancement, and expansion have been identified.

Residential areas throughout the western portion of the study area, west of the railway, is designated by the City as Residential Woodlands. Development within Residential Woodlands will have regard for how the existing tree canopy and understorey are protected and enhanced. A site development plan may be required to demonstrate the maintenance of various characteristics including topography and drainage patterns, groundwater recharge, habitat for tolerant canopy birds and urban wildlife.

Natural Hazard Lands are also associated with stream corridors and the Lake Ontario shoreline and determined to be unsafe for development due to natural processes such as flooding and erosion. These features are mapped in **Figure 4-5**.

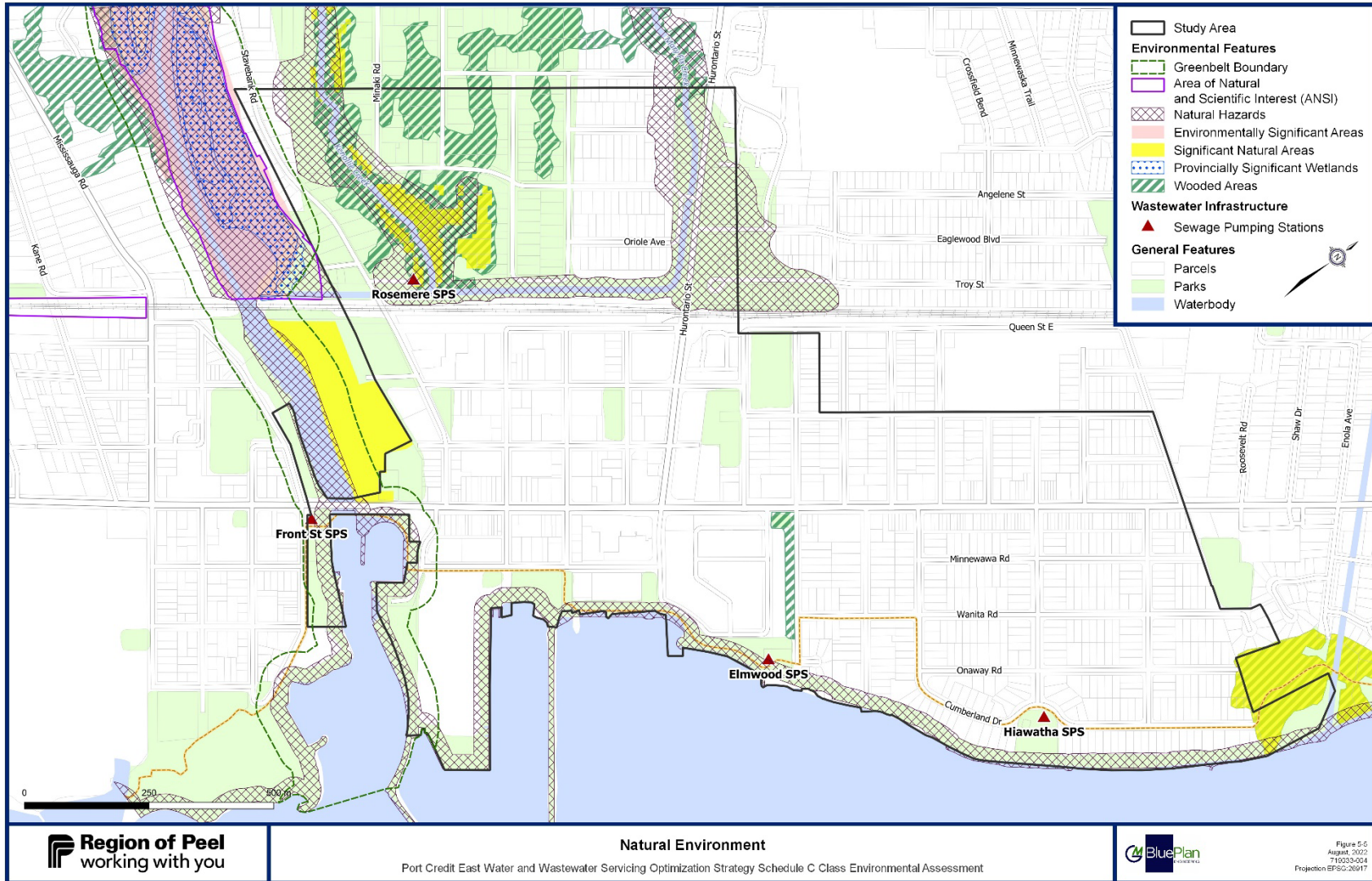


Figure 4-5. Natural Environmental Features within the Study Area

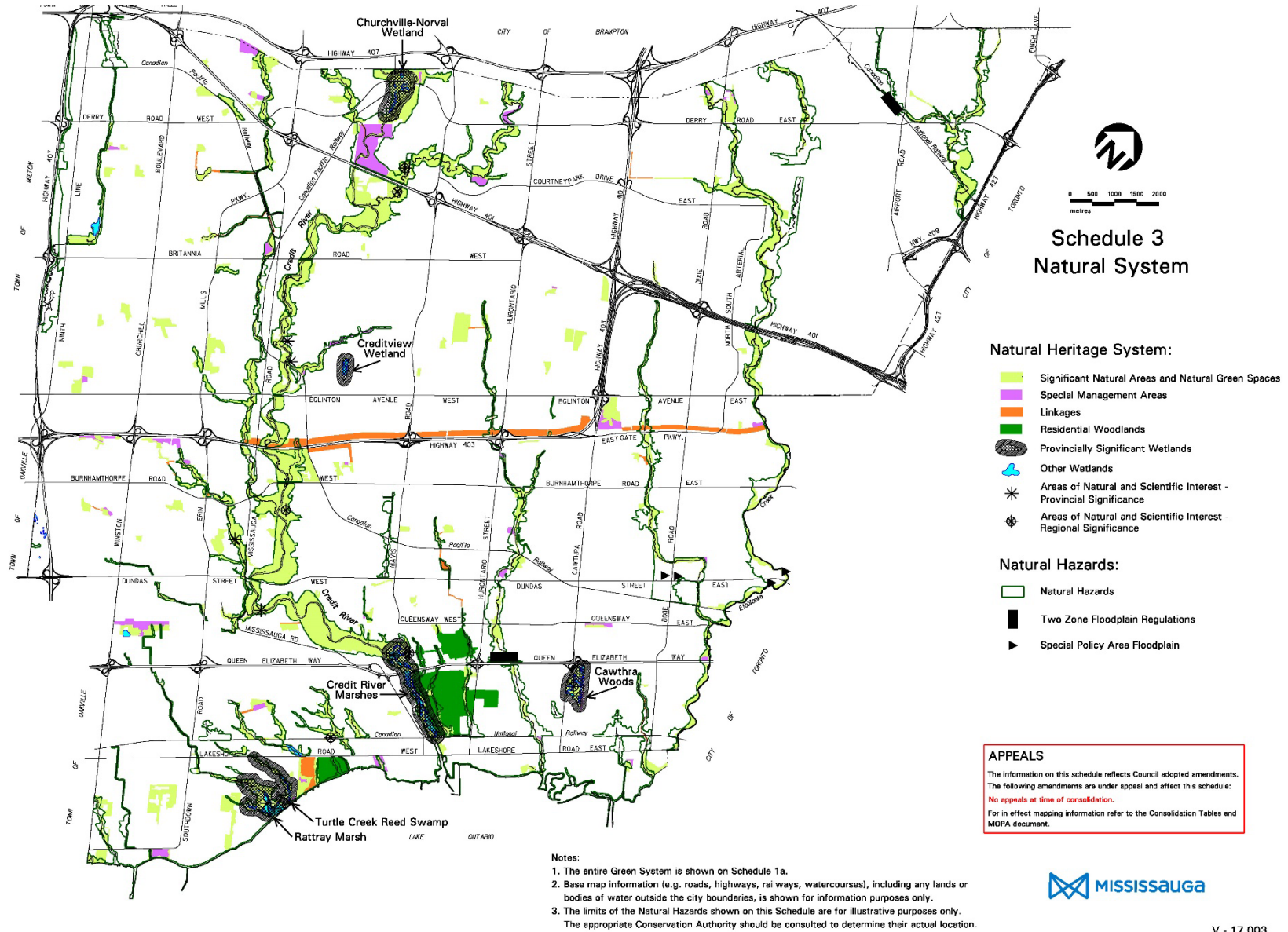


Figure 4-6. City of Mississauga Official Plan Schedule 3 – Natural System

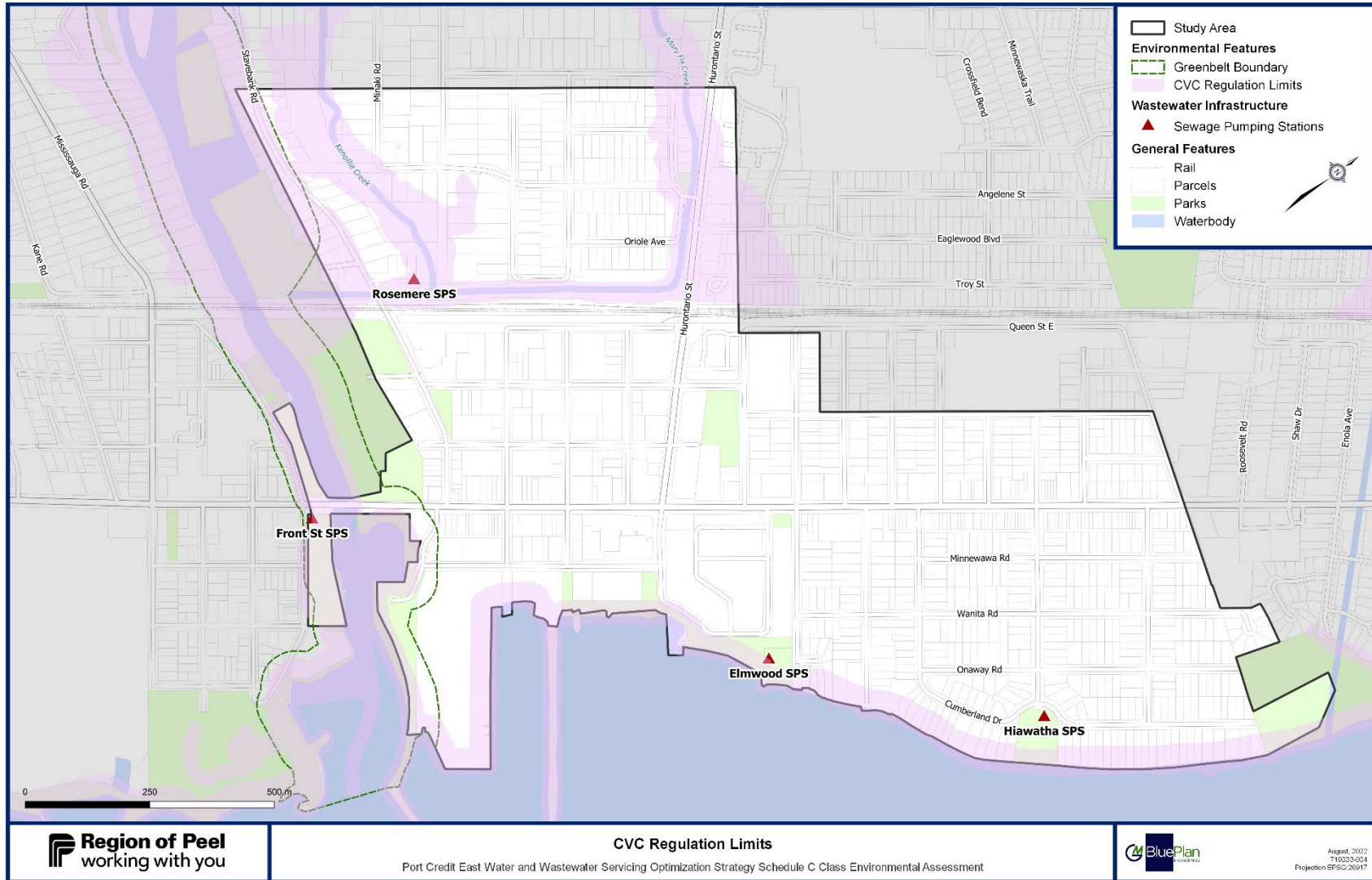


Figure 4-7. Credit Valley Conservation Authority (CVC) Regulation Limits within the Study Area

4.2.2 Physical Environment

The following subsections summarize the existing physical environment in and around the Port Credit East study area. More detailed information is provided in [Appendix 2B](#) and [Appendix 2C](#).

4.2.2.1 Geotechnical Conditions

- **Regional Geology:** The Port Credit East study area is located within the Iroquois Plain physiographic Region. The glacial Iroquois Plain consist of glaciolacustrine sediments that primarily consist of sand, silt and gravel, with a shallow cover of glacial till remaining over the bedrock.

The Georgian Bay Formation underlies the Port Credit East study area which consists mainly of blue-grey shale, containing siltstone, sandstone, and limestone interbeds. The site is located near the boundary with the Queenston Formation and some areas of the site may be underlain by the Queenston Formation. The Queenston Formation contains limestone, dolostone, and siltstone interbeds.

Near surface soils including interbedded flow till, rainout deposits and silt and clay cover the northeastern portion of the study area, while overlapping foreshore basinal and modern alluvial deposits are present in the central and southern portion of the study area.

- **Subsurface Conditions:** In general, the soil conditions at the site are anticipated to consist of varying amounts of fill materials, silt to sand to gravel deposits, underlain and interlayered by silty clay-clayey silt to silty clay deposits, underlain by glacial till deposits, and further underlain by residual soil. The glacial till deposits are generally anticipated to be comprised of gravelly, silty sand and/or sandy, gravelly silty clay containing cobbles and boulders. Near the Credit River, the till deposits thin and organic silt and/or peat deposits are anticipated, along with thicker deposits of silt to sand to gravel.

There is limited geotechnical field investigations near the proposed gravity sewer associated at the Elmwood and Hiawatha SPSs locations along Hiawatha Parkway, Wanita Road, and Elmwood Avenue South. Additional geotechnical investigation is recommended to further characterize the overburden, bedrock and groundwater conditions at these locations.

- **Bedrock Conditions:** The overburden is underlain by shale bedrock of the Georgian Bay Formation. In the previous investigations reviewed, the bedrock surface was encountered between 4.2 metres and 17.2 metres below ground surface along Lakeshore Road (i.e., near the location of the proposed Lakeshore Road Trunk Sewer and Sub-Transmission Watermain) and between 5.5 metres and 10.7 metres below ground surface north of Lakeshore Road near the Canadian Pacific Railway (i.e., near the location of the proposed Rosemere SPS and associated works).

4.2.2.2 Hydrogeological Conditions

- **Sub-Watersheds:** The study area lies within the Lower Credit River Watershed. The Credit River Watershed has two regionally significant groundwater aquifers: the Lake Ontario Shoreline East (Sub-watershed 9) and Norval to Port Credit (Sub-watershed 22). The Guelph / Amabel Formation is found throughout the watershed contains large volumes of groundwater, that supply municipal water. However, there are no groundwater supply aquifers present within the Port Credit East study area.
- **Groundwater Conditions:** According to the MECP well records, water well records were identified within the study area. Based on the well records, approximate depth to bedrock is in the range of 7.0 to 14.9 metres below ground surface (bgs), and that two primary aquifers present in the study area:
 1. Shallow unconfined or partly confined aquifer, or aquifers, and,
 2. The deep bedrock aquifer.

The area is municipally serviced, and private or domestic water wells are not found in the well records. Most of the wells found in the well records are monitoring wells.

- Excavations to a depth of >2 metres bgs at the study area are expected to encounter groundwater. Reported hydraulic conductivity for encountered silty and sandy soils range could allow for substantial groundwater inflow to an excavation, which contacts the aquifer materials. Therefore, excavations to a depth of >1 to 2 metres bgs may encounter groundwater inflow and dewatering of the aquifer below the excavation will be required to ensure excavation stability.
- **Source Water Protection:** The Credit River and Lake Ontario border the study area, and the Credit Valley Conservation (CVC) regulation limits around these waterbodies overlap the study area. Any development proposed within these features, or their regulation limits will require authorization or a permit from the CVC. According to Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Plan, portions of the study area lie within Lorne Park and Lakeview Intake Protection Zones 2 (IPZ-2) with a vulnerability score of 4.5.

The study area does not include any Wellhead Protection Areas (WHPAs). Source Protection Area maps can be found in [Figure 4-8](#), [Figure 4-9](#), and [Figure 4-10](#).

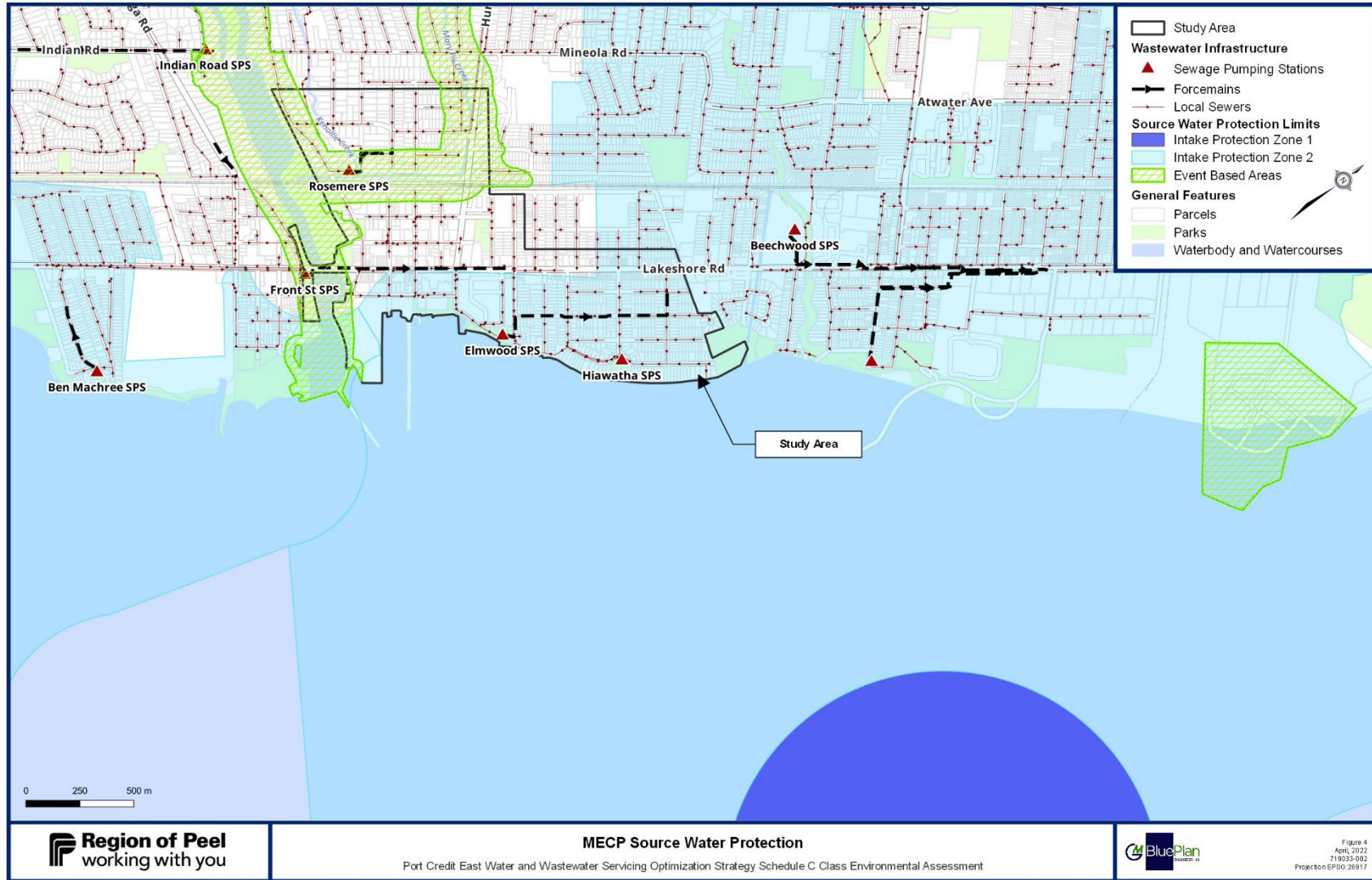


Figure 4-8. Source Water Protection EBAs and IPZs

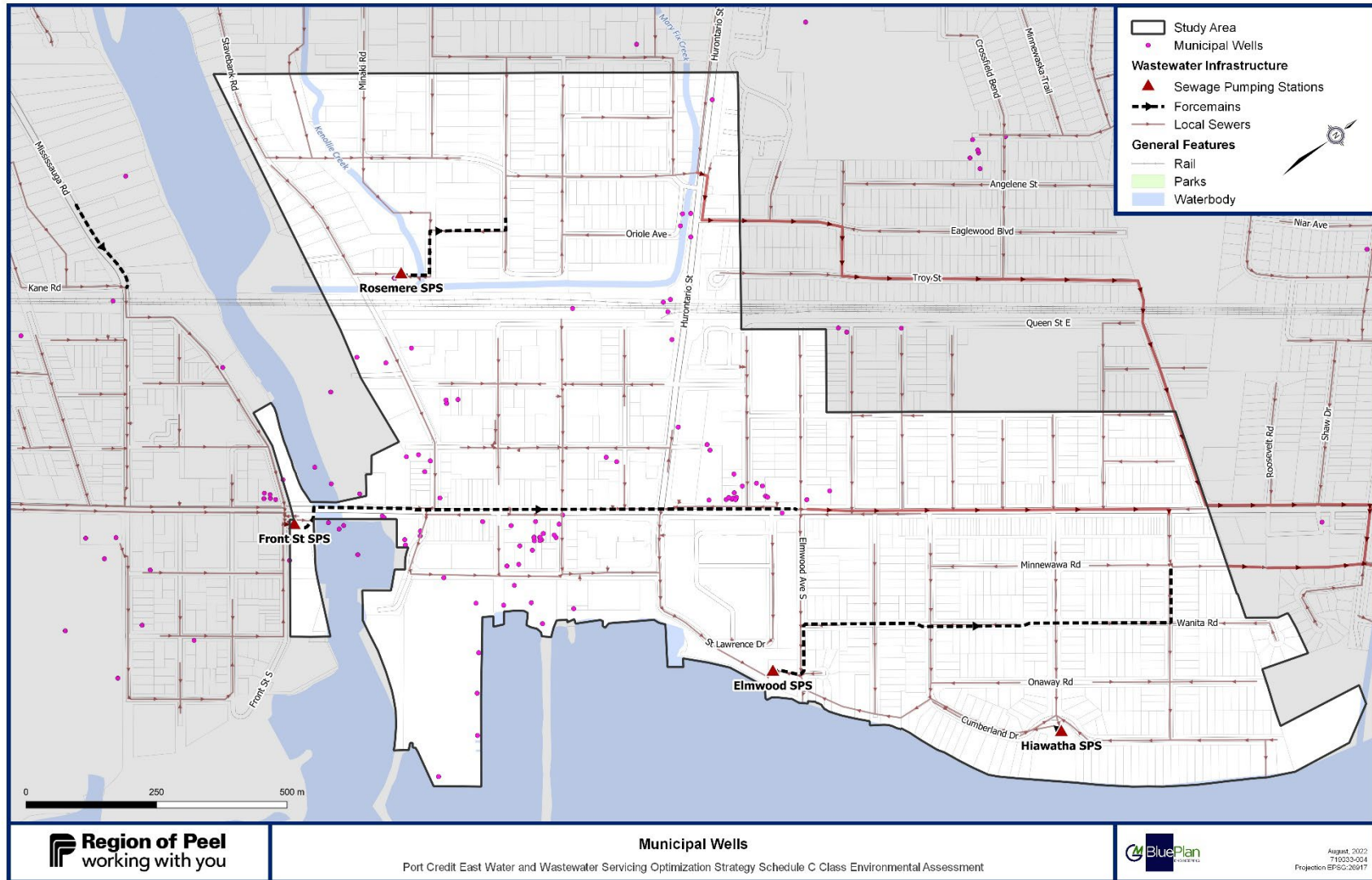


Figure 4-9. Municipal Wells within the Project Study Area

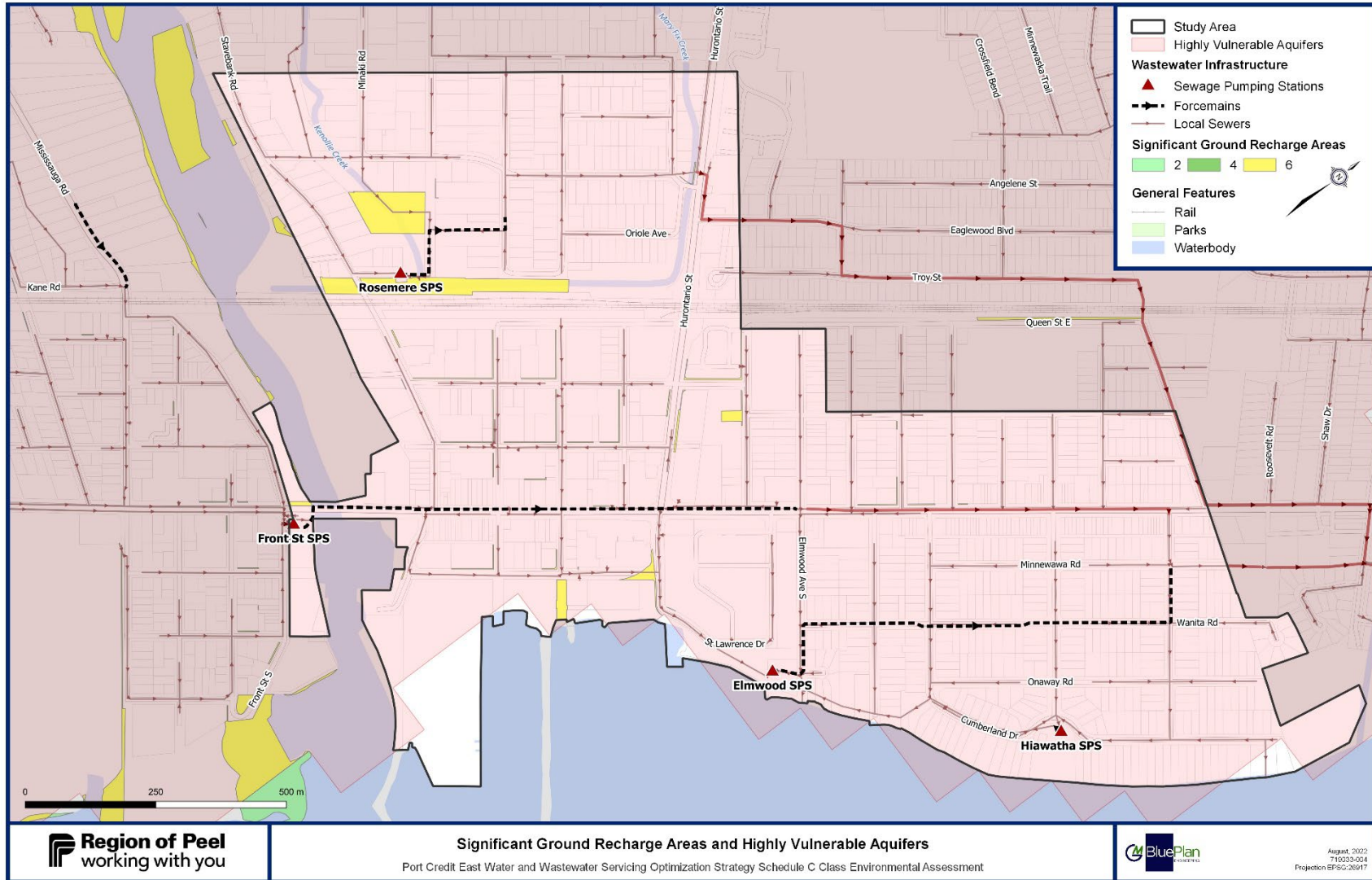


Figure 4-10. Significant Ground Recharge Areas (SGRAs) and Highly Vulnerable Aquifers (HVAs)



4.2.3 Built Environment

4.2.3.1 Socio-economic Environment and Land use

The Port Credit East study area encompasses land which has been designated for various purposes. The primary land use within the study area is residential and recreational, with pockets of commercial and institutional. The open space system predominately consists of trails and parks along the Lake Ontario Waterfront and Credit River. A land use map of the study area is provided in [Figure 4-11](#).

4.2.3.2 Intensification

As per the *Places to Grow Act*, the local municipalities have assigned areas of growth. Some areas will undergo intensification, where there will be an increase of the people per area, while other areas will experience greenfield growth. Some areas within the study area that will undergo intensification are already built-up. [Table 4-4](#) provides the growth projections (population and employment) to 2041 for the overall study area.

Table 4-4. Growth Projections from 2021-2041*

Population Growth 2021 – 2041	Employment Growth 2021 – 2041
4,956	648

**Note: Growth values based on Scenario 16 from the 2020 Master Plan for the Lake-Based Systems.*

The study area is located within the Hurontario Corridor intensification area. In addition, the Port Credit Mobility Hub have been identified as a major growth node that is projected to see redevelopment in the future of several parcels within the study area.

4.2.3.3 Cultural Heritage Resources

Cultural heritage resources include archaeological resources, built heritage resources and cultural heritage landscapes.

4.2.3.3.1 Archaeological Resources

Stage 1 Archaeological Assessment (AA) was undertaken to determine the potential to encounter archaeological resources within the study area. The assessment included a review of geographic, land use and historical information for the properties and relevant surrounding area and contacting MCM to find out whether or not there are any known archaeological sites on or near the study area. The Stage 1 Archaeological Assessment Report and mapping of areas with potential archaeological resources can be found in [Appendix 2D](#). The results indicated the need for Stage 2 AA at portions of the study area within the vicinity of St. Lawrence Park, Tall Oaks Park, Hiawatha Park, Rosemere Road, Mona Road, and Sandham Road.

Stage 2 Archaeological Assessments (AA) were undertaken at areas where Stage 1 AA had indicated archaeological potential. The result indicated presence of at least five nondiagnostic pre-contact Indigenous artifacts within Tall Oaks Park. This location is considered to have further cultural heritage value or interest (CHVI) and thus a Stage 3 AA is recommended.

However, no intrusive activity will take place within the vicinity of the identified area and therefore no further archaeological investigations are required at this time.

In the event that preferred design concept changes, then a Stage 3 AA will be undertaken prior to any ground disturbing activities. The full Stage 2 AA report can be found in [Appendix 2D](#).

4.2.3.3.2 Built Heritage Resources and Cultural Heritage Landscapes

Desktop analyses for Cultural Heritage Screening Reports (CHSR) were conducted to identify known or potential cultural heritage resources within or crossed by the study area and is based on the MCM *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes*. The purpose of the screening is to determine if subsequent cultural heritage studies such as Cultural Heritage Existing Conditions and Preliminary Impact Assessment (CHECPIA), or site-specific Cultural Heritage Evaluation Reports (CHER), or Heritage Impact Assessment (HIA), will be required. The CHSR and mapping of areas with identified resources can be found in [Appendix 2E](#). The results identified the following:

Provincial Level

- 2 Significant Cultural Heritage Landscapes protected under Parts IV or V of the OHA.
- 9 Protected Heritage Properties designated under Part IV or V of the OHA.

Municipal Level

- 67 properties listed (not designated) on the City of Mississauga's Heritage Register.
- 6 Cultural Heritage Landscapes listed (not designated) on the City of Mississauga's Inventory for Cultural Heritage Landscapes.
- 648 properties with buildings or structures 40 or more years old of potential CHVI.

A Cultural Heritage Report on Existing Conditions and Preliminary Impact Assessment (CHECPIA) was recommended from the CHSR. The CHECPIA was completed on the preferred design concept to document any negative impacts to the identified known and potential Built Heritage Resources (BHRs) and Cultural Heritage Landscapes (CHLs) in the study area.

The following areas were identified:

- Three (3) Cultural Heritage Landscapes (CHLs):
 - Mineola Neighbourhood Residential Landscape
 - Credit River Corridor Cultural Heritage Landscape

- Former Hamilton and Toronto Railway line, opened 1856 (potential CHL)
- One (1) Heritage Conservation District (HCD):
 - Old Port Credit Village Heritage Conservation District
- 25 Built Heritage Resources (BHRs)

Construction adjacent to designated CHLs or protected heritage properties under Part IV or V of the *OHA* will require an impact assessment compliant with the City of Mississauga's Heritage Impact Assessment Terms of Reference (2014) during to detailed design to recommend appropriate mitigations. A Heritage Impact Assessment (HIA) is recommended for the Mineola Neighbourhood CHL, the Credit River Corridor CHLs, and the Old Port Credit Village HCD to confirm mitigative measures.

For any construction adjacent to undesignated protected heritage properties, properties with potential CHVI, or CHLs, that cannot be feasibly avoided, vibration impacts will be monitored, and work will stop immediately if vibration thresholds are exceeded.

Figure 9-1 depicts CHLs and HCDs, and **Figure 9-2** depicts BHRs within the study area. The full CHECPIA report can be found in **Appendix 2E**.

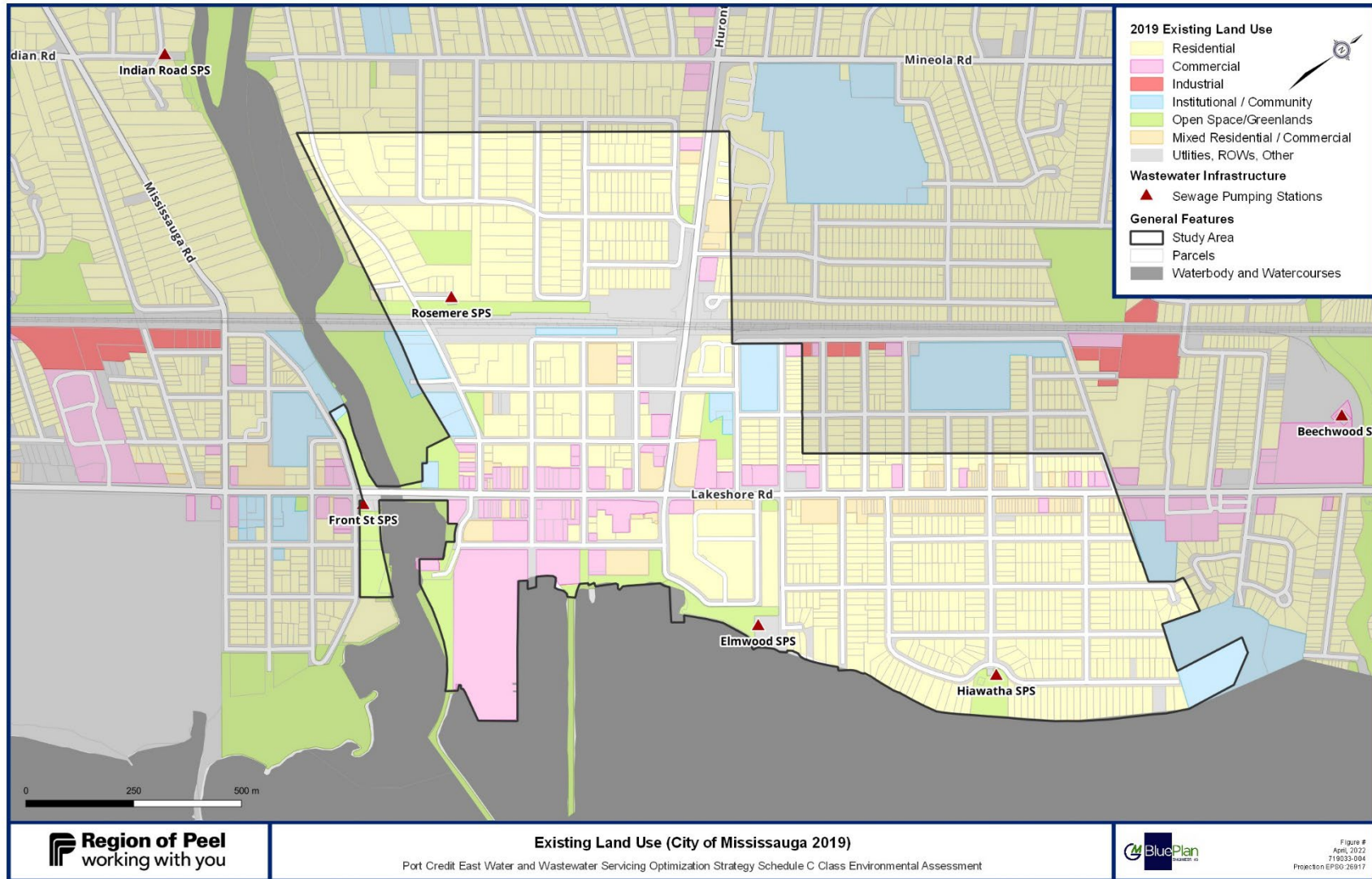


Figure 4-11. Land Use Designation within Study Area

4.3 Existing Infrastructure

4.3.1 Regional Wastewater System

The Region of Peel operates and maintains a lake-based wastewater system which services the City of Mississauga, the City of Brampton, and parts of the Town of Caledon. The system consists of two Water Resource Recovery Facilities Plants (WRRF): the G.E. Booth WRRF and the Clarkson WRRF, and three main trunk sewer systems (McVean, East, and West) which convey flows through pumping stations, forcemains, trunk, and local gravity sewers, to the treatment plants for final treatment and discharge to Lake Ontario.

Figure 4-12 provides an overview of the Region of Peel existing lake-based wastewater trunk system.

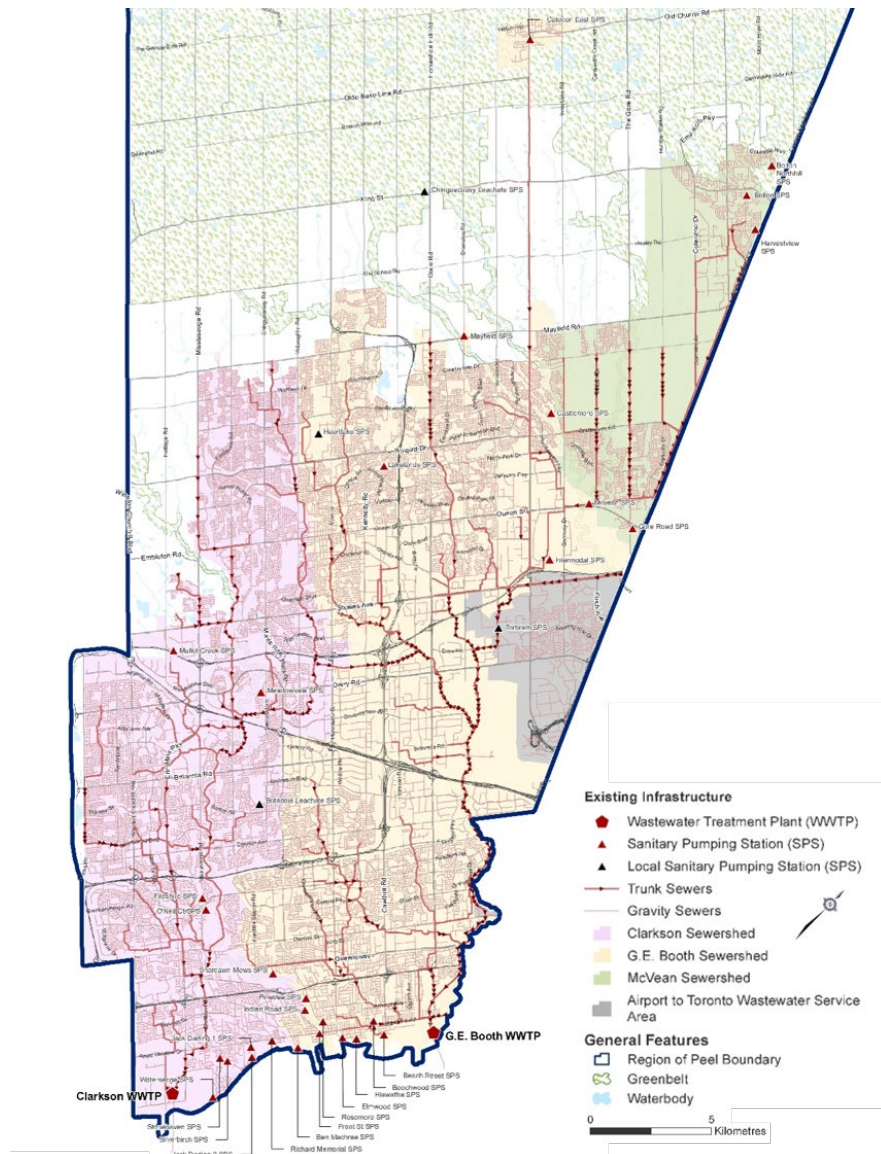


Figure 4-12. Region of Peel’s Existing Lake-Based Wastewater System

4.3.2 Existing Wastewater System

The existing wastewater infrastructure within the Port Credit East study area including its wastewater pumping stations, trunk, and gravity mains are owned, operated, and maintained by the Region of Peel. It is part of the Region east trunk system that conveys flows to the G.E. Booth WRRF. **Figure 4-14** provides a map of the wastewater infrastructure located within the study area.

4.3.2.1 Rosemere Sewage Pumping Station



The Rosemere SPS is located at 182 Rosemere Road in Mississauga, surrounded by an established residential neighborhood. It is situated at the east end of the road, a residential dead-end street extending to the east from Stavebank Road, with train tracks immediately to the south. The site includes a generator/control building, a rectangular wet well, and a circular wet well with twin submersible

sewage pumps. The raised circular concrete wet well is located along the edge of Rosemere Road and is approximately two metres northwest of the control building. A mature maple tree, site grading and the roadway narrowing approximately three metres adjacent to the wet well all restrict vehicle access to the building.

Existing Issues

The Rosemere SPS does not meet the Region's Wastewater Pumping Station Design Standards. The station has a wall hydrant provided for wet well cleaning that should be upsized to 37.5 mm. Its wet well storage capacity is less than one hour (based on peak flows) and does not have corrosion resistant liners in place. The station currently has a rubber duckbill check valve in its overflow maintenance hole but does not have flood level/overflow alarm float. A check valve is also needed in its overflow sewer. Additionally, a flood level float is also required as a backup control.

The station also requires an inlet grinder, the pipe material should be stainless steel, and there are missing flushing connections. The existing circular pre-cast wet well has corroded valves, valve operators, valve supports, and process piping. The site that Rosemere SPS is situated on lacks security fencing, the access roads need replacement, and a new flow meter chamber is required. A water meter is also recommended to be installed at the building.



Table 4-5. Rosemere Sewage Pumping Station Summary

Pumping Station	
Station Name	Rosemere SPS
Associated WRRF	G.E. Booth WRRF
Station Description	Building with combined circular precast concrete wet well and rectangular cast-in-place concrete wet well
Number of Pumps	2 submersible sewage pumps
Firm Capacity	25 L/s
Measured Capacity	24 L/s
Wet Well	
Wet Well Shape	Circular
Wet Well Dimensions	2.4 m diameter; 7.6 m deep
Forcemain	
Forcemain Diameter	200 mm
Forcemain Length	310 m
Forcemain Material	Asbestos Cement
Overflow	
Overflow (Yes/No)	Yes
Overflow Diameter	250 mm
Overflow Location	Overflow in sanitary maintenance hole discharges southeast into storm channel
Area Impacted by a Potential Sewage Overflow	Residential
Service Area	
Catchment Area	58 ha
Existing Peak Dry Weather Flow (PDWF) (Model)	9 L/s
Existing Peak Wet Weather Flow (PWWF) (Model)	32 L/s

4.3.2.2 Elmwood Sewage Pumping Station



The Elmwood SPS is located in the City of Mississauga at 60 Elmwood Avenue South within Tall Oaks Park and services an area of approximately 93 ha. A section of the Great Lakes Waterfront Trail lies within the park and serves as an access point to the pumping station.

The Elmwood pumping station consists of a single concrete wet well

with three submersible sewage pumps. Situated next to the wet well is the control building with no valve chamber or dry pit and one forcemain. The original pumping station was located at the base of Elmwood Avenue, adjacent to maintenance hole SAN-MH-1783040 which was replaced with the current pumping station in Tall Oaks Park in 1986. The station has a firm capacity of 195 L/s (capacity with the largest pump out of service), and a measured capacity of 200 L/s.

Elmwood SPS is equipped with a 200 mm diameter emergency overflow pipe to Lake Ontario. Wastewater flows from the station are discharged via a 967 metres long 450 mm diameter forcemain to a gravity sewer on Minnewawa Road. From this point, wastewater is conveyed to the Beechwood SPS and ultimately to the G.E. Booth WRRF for treatment and final discharge to Lake Ontario.

Existing Issues

The Elmwood SPS does not meet the Region's Wastewater Pumping Station Design Standards. The station has a single cell wet well with space for only three submersible pumps and there is not sufficient emergency overflow storage. The Design Standards state that stations with a capacity over 100 L/s (the firm capacity of Elmwood SPS is 195 L/s) should have split wet wells, three or more pumps, minimum storage capacity of one hour (two hours preferred) at peak flow, and all process pumps and valves located in a dry well. The station does not have a dry well or valve chamber and constructing a second wet well is not feasible due to the proximity of incoming gravity sewers.

Site access is limited as vehicles need to travel along the shared pathway. Larger capacity pumps will need to be installed and the existing station must remain in service during this construction. There is currently insufficient space in the existing building to install new equipment and maintain the existing equipment. A new structure would need to be constructed to house the pumps and valves in a dry well and a new split wet well structure.



Table 4-6. Elmwood Sewage Pumping Station Summary

Pumping Station	
Station Name	Elmwood SPS
Associated WRRF	G.E. Booth WRRF
Station Description	Building with wet well. Large size
Number of Pumps	3 submersible sewage pumps
Firm Capacity	195 L/s
Measured Capacity	200 L/s
Wet Well	
Wet Well Shape	Square
Wet Well Dimensions	5 m x 5 m x 6.4 m
Forcemain	
Forcemain Diameter	450 mm
Forcemain Length	967 m
Forcemain Material	Unknown
Overflow	
Overflow (Yes/No)	Yes
Overflow Diameter	200 mm
Overflow Location	Overflow in sanitary maintenance hole at end of Elmwood Avenue South to Lake Ontario
Area Impacted by a Potential Sewage Overflow	Residential, Community Park
Service Area	
Catchment Area	93 ha

4.3.2.3 Hiawatha Sewage Pumping Station



The Hiawatha SPS is located in the City of Mississauga at 76 Cumberland Drive within Hiawatha Park and services an area of approximately 23 ha. The pumping station is in an established residential neighbourhood along the Lake Ontario shoreline.

The Hiawatha pumping station has a rectangular wet well with twin submersible sewage

pumps and with a generator/control building on site. The station has a firm capacity of 17 L/s (capacity with the largest pump out of service), and a measured capacity of 40 L/s.

Wastewater flows from the station are discharged via 5 metres long 150 mm diameter ductile iron forcemain to a sanitary maintenance hole in the south boulevard of Cumberland Drive adjacent to the SPS. From this point, wastewater is then conveyed west through a 500 metre long 250 mm diameter gravity sewer to Elmwood SPS.

Existing Issues

There are several existing issues within the pumping station. The second pump in Hiawatha SPS has a faulty pump discharge seating which handicaps its capacity. Hydraulic modelling indicates potential for surcharging to occur in the station's downstream sewer under peak wet weather flows from Hiawatha SPS.

The flow from the Hiawatha catchment area is pumped twice prior to discharging to the gravity sewer towards G.E. Booth WRRF. Approximately 250 metres of the Hiawatha gravity sewer to Elmwood extends through a residential backyard easement along the lakeshore. This restricts access to the sewer and several homes have their sanitary laterals connected to this sewer.

The Hiawatha SPS has 10 minutes of storage at peak flow. This does not meet the Region's Wastewater Pumping Station Design Standards, which recommend a minimum of one hour (two hours preferred) of peak flow storage capacity. Additionally, the station only has one wet well. It is recommended to build a dry well to house the process valves and pumps.



Table 4-7: Hiawatha Sewage Pumping Station Summary

Pumping Station	
Station Name	Hiawatha SPS
Associated WRRF	G.E. Booth WRRF
Station Description	Building with wet well. Medium size
Number of Pumps	2 submersible sewage pumps
Firm Capacity	17 L/s
Measured Capacity	40 L/s
Wet Well	
Wet Well Shape	Rectangular
Wet Well Dimensions	3.9 m x 2.4 m x 8.4 m
Forcemain	
Forcemain Diameter	150 mm
Forcemain Length	5 m
Forcemain Material	Ductile iron
Overflow	
Overflow (Yes/No)	Yes
Overflow Diameter	200 mm
Overflow Location	Overflow in sanitary maintenance hole east end of Cumberland Drive, directly into Lake Ontario
Area Impacted by a Potential Sewage Overflow	Residential, Community Park
Service Area	
Catchment Area	23 ha

4.3.3 Regional Water System

The Region of Peel operates and maintains a lake-based water system which services the City of Mississauga, the City of Brampton and parts of the Town of Caledon. The system consists of two Water Treatment Plants (WTP): A.P. Kennedy WTP and Lorne Park WTP, transmission mains, pumping stations, reservoirs and elevated tanks. Due to the width of the Region's lake-based service area, the transmission system is divided into three main trunk systems: west, central and east. The Region's lake-based transmission and distribution systems deliver water to users through seven pressure zones separated by approximately 100-foot intervals of elevation.

Figure 4-13 provides an overview of the Region of Peel existing lake-based water trunk system.

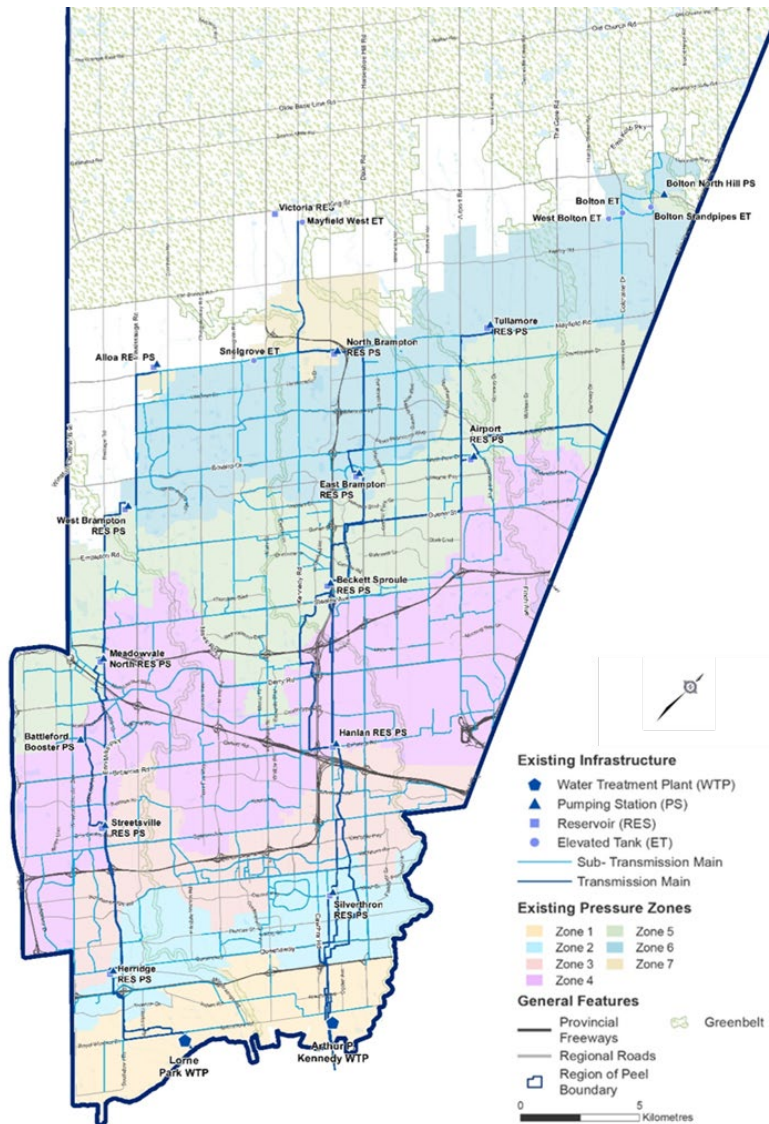


Figure 4-13. Region of Peel's Existing Lake-Based Water System

4.3.4 Existing Water System

The existing water infrastructure within the Port Credit East study area including transmission and distributions mains are owned, operated and maintained by the Region of Peel. The Port Credit East study area is located within the Region's Water Pressure Zone 1. **Figure 4-15** provides a map of the water infrastructure located within the study area.

4.3.5 Existing Stormwater System

The existing storm infrastructure within the regional road right-of-way (ROW) boundaries are owned, operated, and maintained by the Region of Peel. The storm sewers located within the municipal boundaries (e.g., along local roads) are owned, operated and maintained by the City of Mississauga. **Figure 4-16** provides a map of the regional stormwater infrastructure located within the study area.

4.3.6 Existing Utilities

A number of utilities are located within the Region of Peel. The following utility companies were included in the preliminary consultation process:

- Gas: Enbridge Gas Inc., TC Energy Corp.
- Hydro: Hydro One Networks, Alectra Utilities (formerly known as Enersource)
- Cable & Telecommunications: Rogers Cable, Bell Canada
- Other Pipelines: Trans-Northern Pipelines Inc.

Through the preliminary review, railway lines (freight and passenger) were identified within the study area. These lines are owned by Metrolinx and pass east and west just north of Lakeshore Road East. The railway lines are operated by GO Transit.

There were no identified hydroelectric stations, hydroelectric lines, hydroelectric structures, or Enbridge pipelines located within the study area. Coordination and consultation with utility companies completed throughout the study process identified during the preliminary review and consultation are shown in **Figure 4-17**.

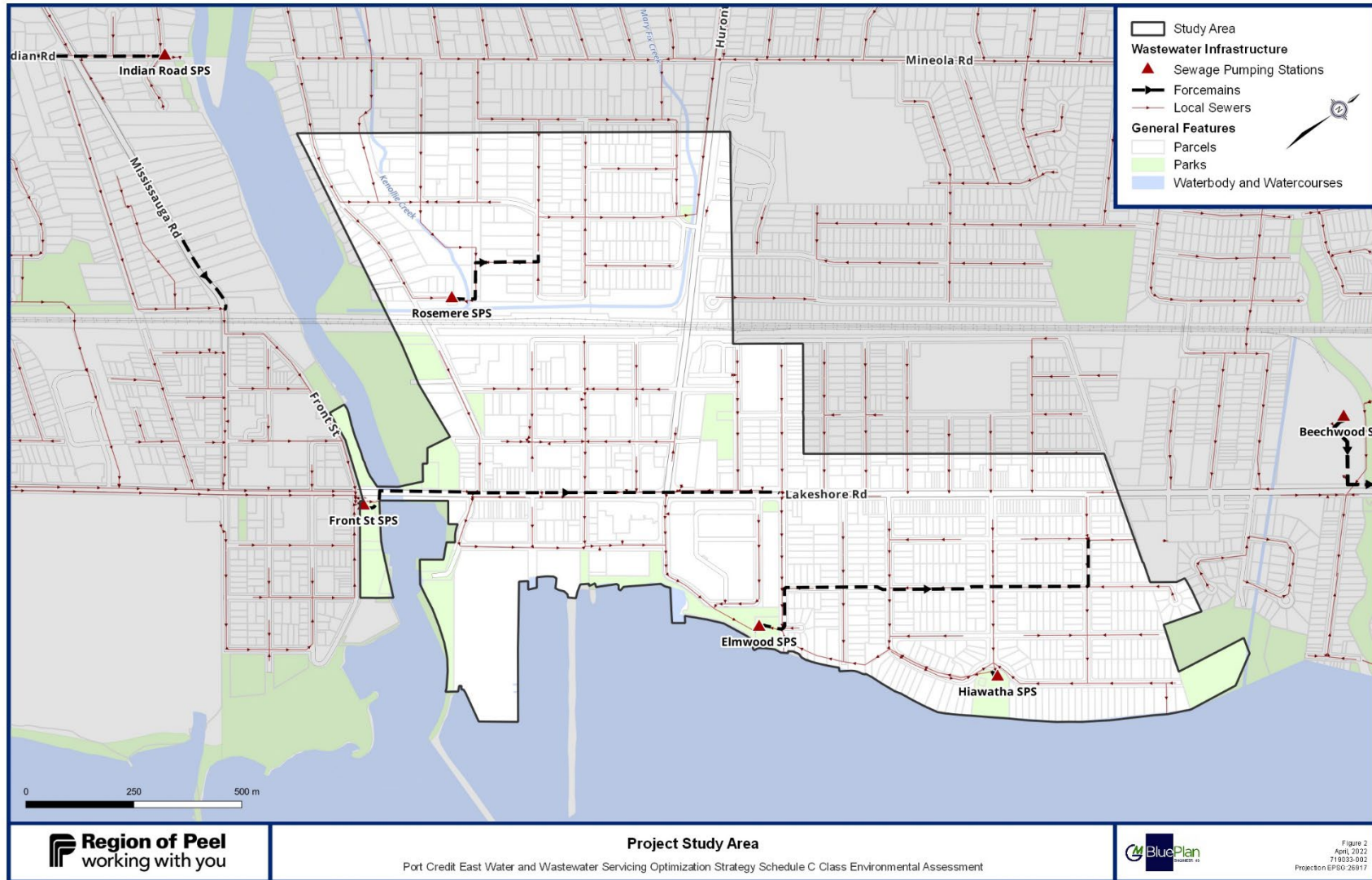


Figure 4-14. Existing Wastewater System in the Study Area

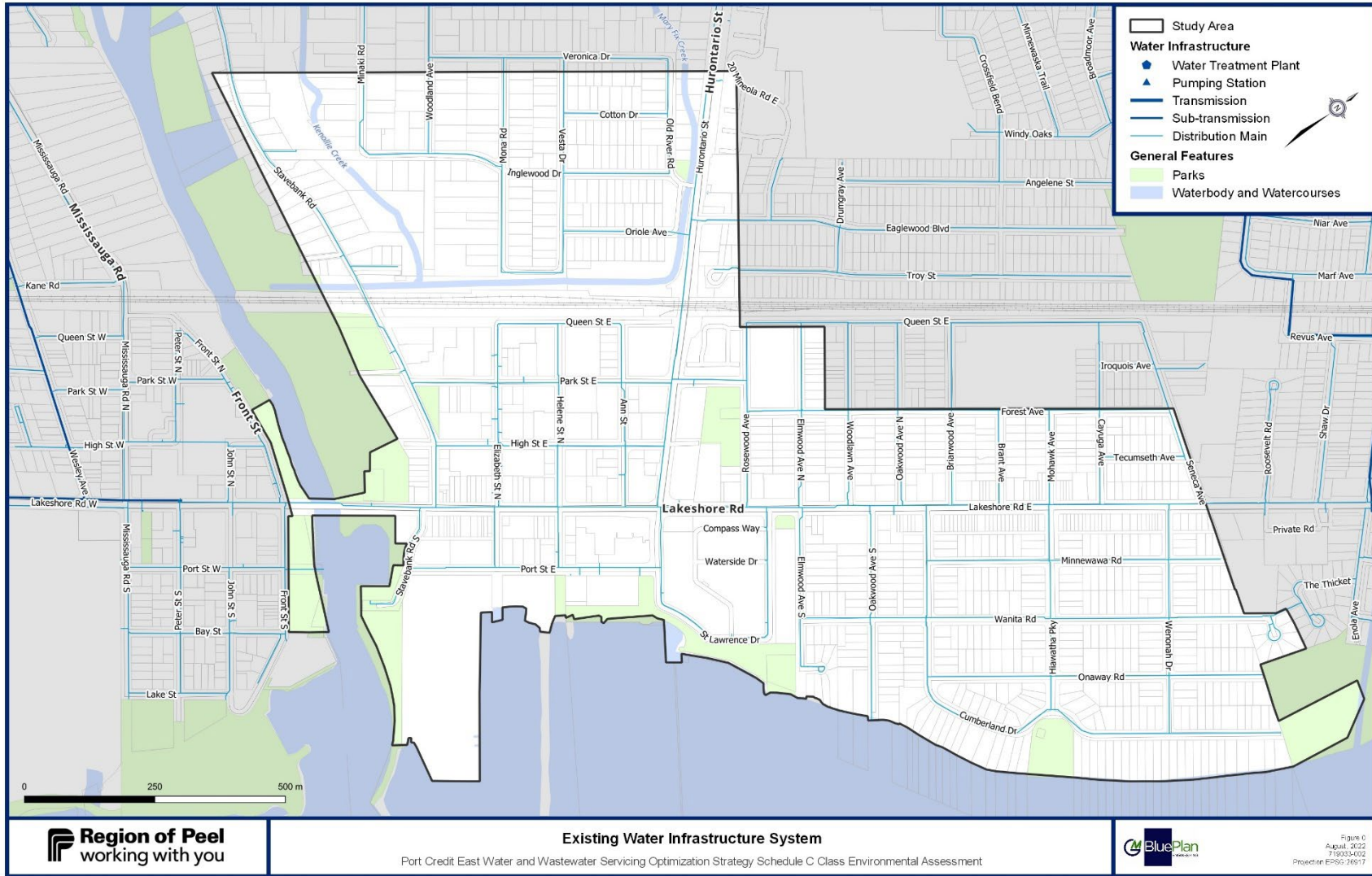


Figure 4-15. Existing Water System in the Study Area

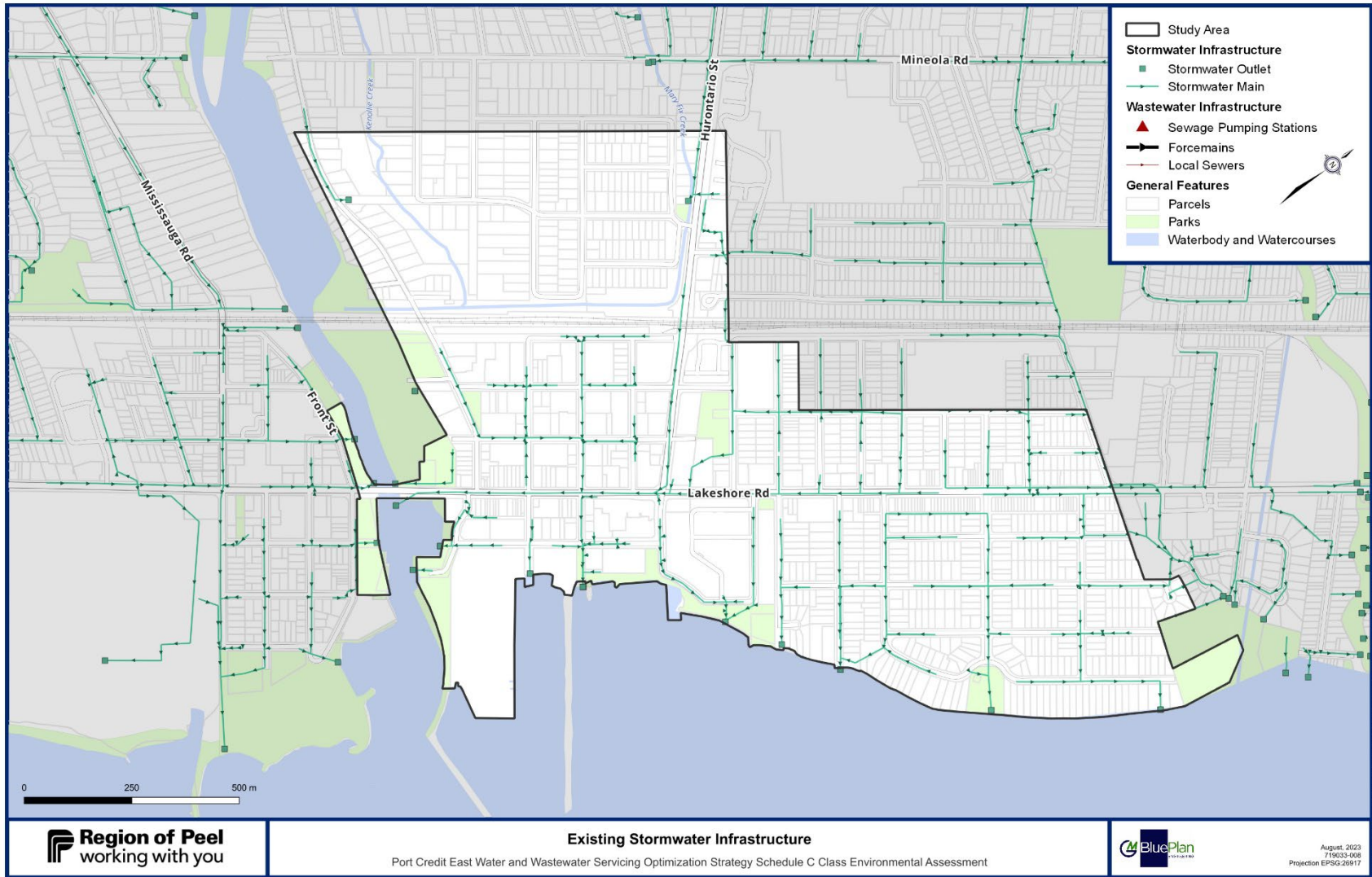


Figure 4-16. Existing Stormwater System in the Study Area

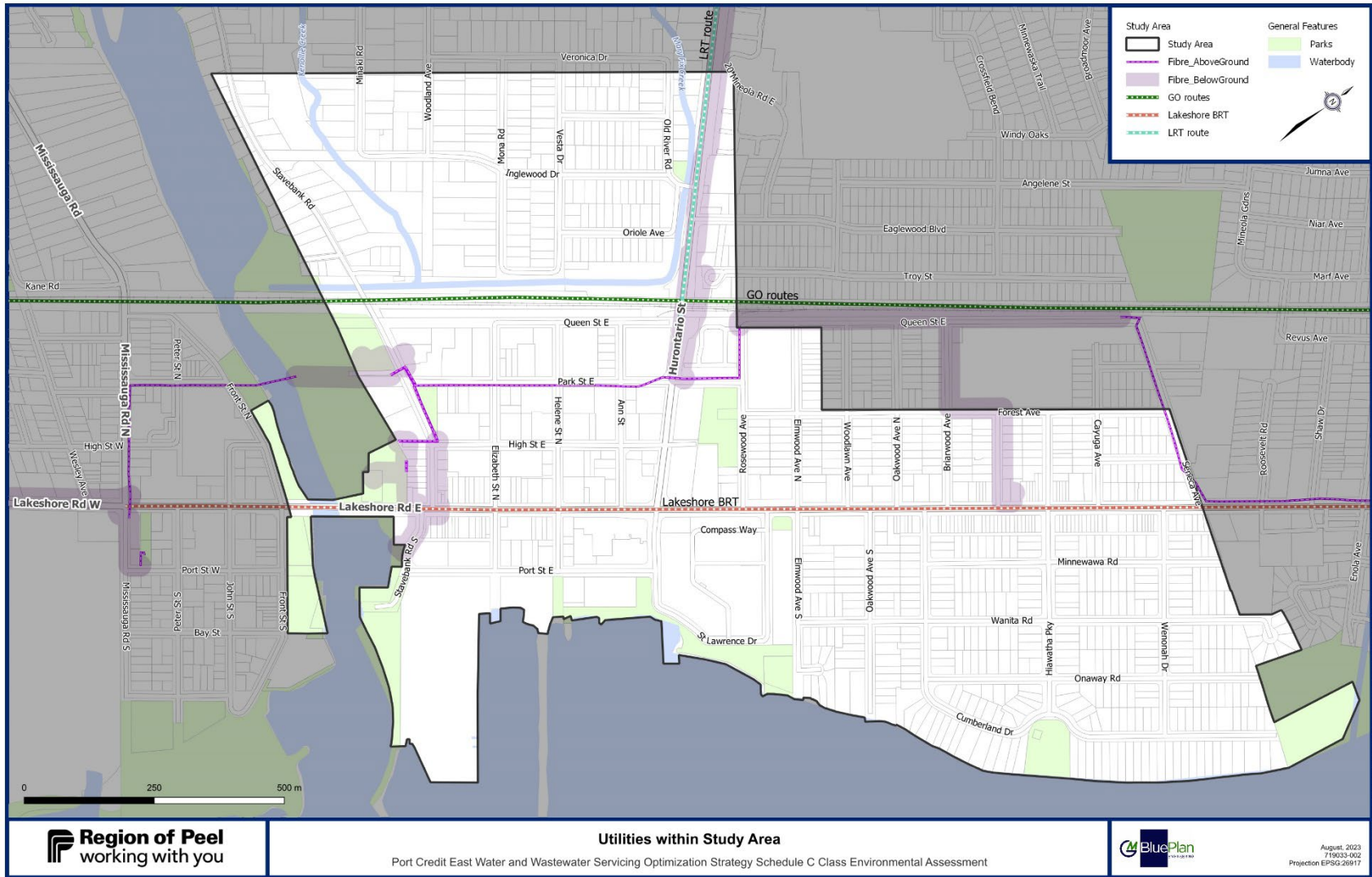


Figure 4-17. Existing Utilities in the Study Area



4.3.7 Existing Transportation Network

4.3.7.1 Road Network

The study area is located in an urban area where there is light to moderate vehicle traffic. Implementation of the preferred strategies may have potential impact to the flow of traffic within the area. **Table 4-8** provides a list of some the major local roads and local roads situated within the study area.

Table 4-8. Road Classification

Ownership	Road Classification	Road
City of Mississauga	Arterial (Local Major)	<ul style="list-style-type: none"> - Lakeshore Road East and West - Hurontario Street
City of Mississauga	Local / Street (Local Minor)	<ul style="list-style-type: none"> - Carlis Place - Cumberland Drive - Elizabeth Street North - Elmwood Avenue North and South - Front Street North - Helene Street North - Hiawatha Parkway - Minnewawa Road - Mona Road - Onaway Road - Port Street East - Rosemere Road - Rosewood Avenue - Sandham Road - St. Lawrence Drive - Stavebank Road - Vesta Drive - Wanita Road

A traffic impact assessment was completed to identify potential impacts of the project to residents and businesses in the study and surrounding area. This assessment has been completed as part of the research and investigations for the preferred strategy as documented under **Section 8.0**.



4.3.7.2 Public Transit

MiWay is the local City of Mississauga transit service provider. **Table 4-9** provides a list of main corridors and transit routes within the study area.

Table 4-9. Transit Corridors and Routes

Main Corridor	Transit Route No.
Lakeshore Road West	Route 23 Lakeshore
Hurontario Street	Route 19 Hurontario Route 19A Hurontario-Britannia Route 19B Hurontario-Cantay Route 19C Hurontario-Heartland Route 103 Hurontario Express
Cawthra Road	Route 8 Cawthra
Lorne Park	Route 14 Lorne Park Route 14A Lorne Park Industrial

There is one GO Transit train line in the north limit of the study area, namely the Lakeshore West train line. In addition, there is one GO Transit station / terminal located within the study area: the Port Credit Go Station situated near Hurontario Street and Lakeshore Road West. Additionally, there is pedestrian pathway access to the station's parking lot via Sandham Road on the northern portion of the study area.

4.3.7.3 Cycling Routes

Both Tall Oaks Park and Hiawatha Park have multi-use trails for cyclists and pedestrians. These trails act as access points to the parks.

Hiawatha Park's multi-use trail extends along the middle of the park and connects to a signed bike route along Cumberland Drive and Wanita Road which then connects to Tall Oaks Park. This signed bike route is part of the Great Lakes Waterfront Trail.

Tall Oaks Park is accessed by the paved multi-use trail for cyclists and pedestrians, part of the Great Lakes Waterfront Trail. This section of the trail extends to the west end of St. Lawrence Park, the park adjacent to Tall Oaks Park. It then connects to the rest of the Waterfront Trail along the Credit River.

There is a proposed shared cycling route as part of the City of Mississauga's long-term plan along Stavebank Road that extends from Pinetree Crescent to Lakeshore Road.

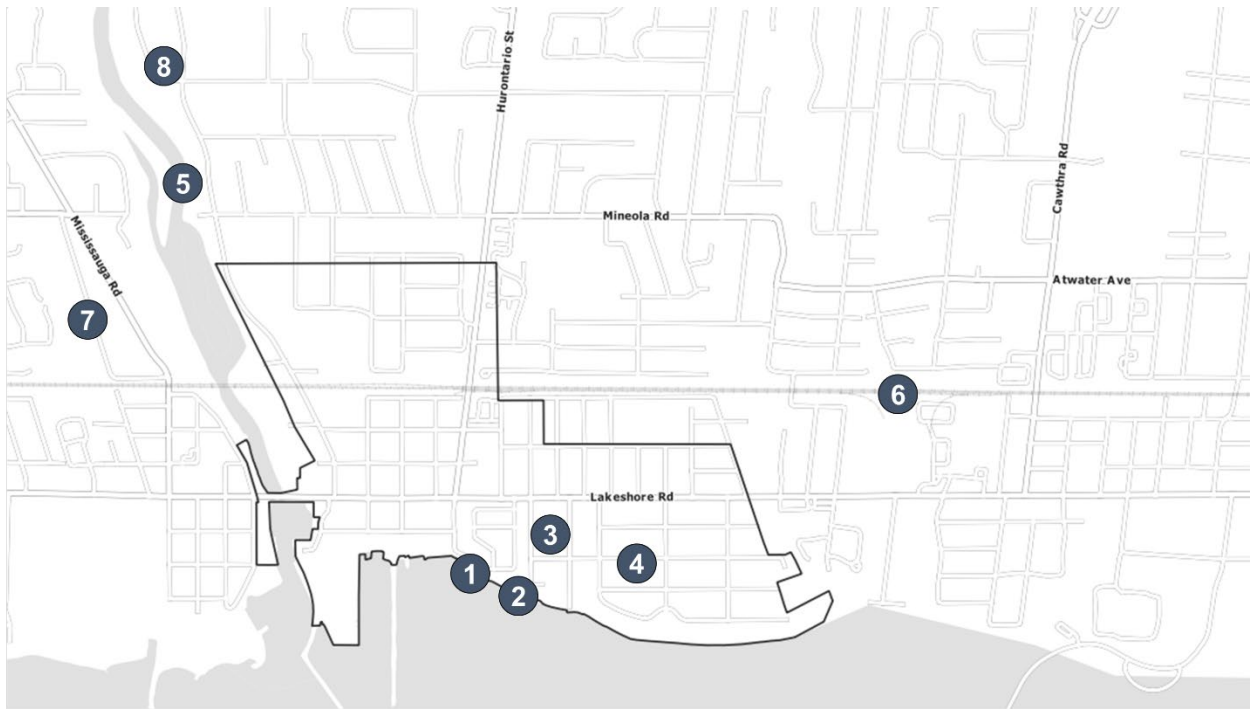
4.4 Ongoing and Future Infrastructure Projects

There are several Region of Peel projects and initiatives running concurrently within or close to the study area. The numbers on [Figure 4-18](#) correspond with the list of nearby projects listed below:

1. Overflow removal and sea wall construction south of Carlis Place (2020)
2. Completed emergency work at Elmwood SPS (2021)
3. Addendum to Front Street SPS Environmental Assessment (2021) which encompasses the Lakeshore Road deep trunk sewer (from Jack Darling SPS to Front Street). Extension of this project to East across the Credit River is covered through this EA ([Figure 2-2](#)).
4. Forcemain along Wanita Road and Wenonah Drive maintenance hole rehabilitation work (2021 / 2022)
5. Watermain extension across Credit River to Hurontario (2022)
6. Claredale Road to Beechwood SPS: abandon siphon under Cooksville Creek, upsize sewer, EA completed in 2020 (construction 2021—2022).
7. Indian Road SPS decommission and gravity sewer to Lakeshore Road, EA completed in 2020 (2021-2024)
8. Pinetree SPS upgrade

In addition to these location specific studies and initiatives, there are various other Region-wide ones:

9. Real Time Control (RTC) implementation assessment of existing sanitary trunk sewer system (ongoing)
10. Regional Flow Monitoring Program: includes 5 flow monitors within the study area (ongoing)



9 Ongoing –
Regional Flow Monitoring
Program: includes 5 flow
monitors within the study area.

10 Ongoing –
Real Time Control Implementation
Assessment of Existing Sanitary
Trunk Sewer System

Figure 4-18. Nearby Projects

5.0 Phase 1 – Problem and Opportunity Statement

5.1 Problem and Opportunity Statement

As part of Phase 1 of the Municipal Class EA process, a problem and opportunity statement provide a clear statement that identifies the opportunities and challenges that are being addressed through the study.

The problem and opportunity statement for the Port Credit East Water and Wastewater Servicing Optimization Strategy Class EA is summarized as follows:

“Develop an integrated water and wastewater optimization strategy for the Port Credit East including the Elmwood, Hiawatha and Rosemere sewage pumping stations and vicinity to support existing servicing needs and projected growth.”

The Port Credit East Water and Wastewater Servicing Optimization Class EA problem and opportunity statement considered the following strategy goals:

- Provide system capacity to meet existing and projected growth needs to 2041 and beyond,
- Provide operational flexibility for sewer maintenance, inspection, and emergency operations,
- Provide infrastructure capacity and flexibility to adapt to climate change (e.g., extreme wet weather events),
- Minimize total capital, operation and maintenance, and lifecycle costs, and,
- Minimize environmental (natural and socio-economic) impacts.

5.2 Opportunities and Constraints

Existing opportunities and constraints were identified through discussions with Regional staff as well as a baseline review and preliminary hydraulic analyses. The following opportunities were identified:

- Preference for gravity solution versus pumped flow.
- Public space enhancement.
- Meet updated sewage pumping station standards.
- Provision of emergency storage.
- Ensure overall system capacity to manage growth to 2041 and beyond.
- Operational flexibility and level of service.
- Potential to remove Hiawatha SPS flows from the Elmwood SPS catchment area.
- Proposed Front Street SPS decommission will free up capacity on the existing Lakeshore Road sewer and will construct a new deep trunk sewer to the west.
- Integration with ongoing and planned work within close proximity.

Through the study, challenges may arise therefore special considerations will be given to the following:

- **Location:** residential neighborhoods, proximity to water treatment plant intake, waterfront walking trail, park lands, sightline impacts to Lake Ontario, small local roads, visual impact, aesthetics, sight lines/views
- **Natural Environment:** proximity to Lake Ontario, creeks and Credit River, shallow groundwater, park lands, proximity to several mature trees.
- **Property:** site access, easements, multiple jurisdictions (e.g., Region of Peel, City of Mississauga), utility corridors (e.g., Ministry of Transportation Ontario (MTO), Hydro One, Enbridge)
- **SPS Configuration and Operation:** single wet well, no valve chamber or dry pit, power and utilities conflict, minimal emergency storage, lack of redundancy and operational flexibility, limited compliance with current regional standards, expansion of footprint, maintaining operation of existing stations during construction, ongoing and future rehabilitation work, and security/access.
- **Emergency Overflow:** Elmwood SPS currently has a 200 mm emergency overflow pipe located within the Intake Protection Zone 2 for the Arthur P. Kennedy WTP. Hiawatha SPS does not have emergency overflows. Rosemere SPS currently has a 250 mm emergency overflow to Kenollie Creek tributary of the Credit River.

6.0 Phase 2 – Alternative Servicing Strategies

Phase 2 of the Class EA process was undertaken to identify, develop and evaluate the alternative strategies to address the problem / opportunity statement from Phase 1. Following the baseline inventory of natural, social, economic, legal / jurisdictional, and environmental factors described in [Section 4.0](#), a long list of alternative strategies was identified, evaluated, and short listed through an extensive process to identify the preferred strategies for each of the study components noted in [Section 2.4](#).

6.1 Evaluation Process Overview

Multiple strategy alternatives were developed to satisfy the opportunity and problem statement relative to the four project components. For Phase 2, the project-specific evaluation process was developed to follow a multi-step approach to cover all study components and ensure strategies were selected in an integrated manner:

1. Evaluate Lakeshore Road Sewer Shaft Options.
2. Evaluate Lakeshore Road Sewer Alignment Options.
3. Evaluate Lakeshore Road Watermain Shaft Options.
4. Evaluate Lakeshore Road Watermain Alignment Options.
5. Based on preferred Lakeshore Road Sewer shaft location, evaluate Rosemere SPS Options.
6. Based on preferred Lakeshore Road Sewer shaft location evaluate Elmwood and Hiawatha SPSs Options.
7. Ensure that the collective preferred study component strategies align.

Once the preferred strategy was identified, Public Information Centre No. 2 was held to provide the public and stakeholders an opportunity to review the decision-making process and provide their feedback for consideration prior to confirming the preferred strategy.

An overview of the process is depicted in [Figure 6-1](#).

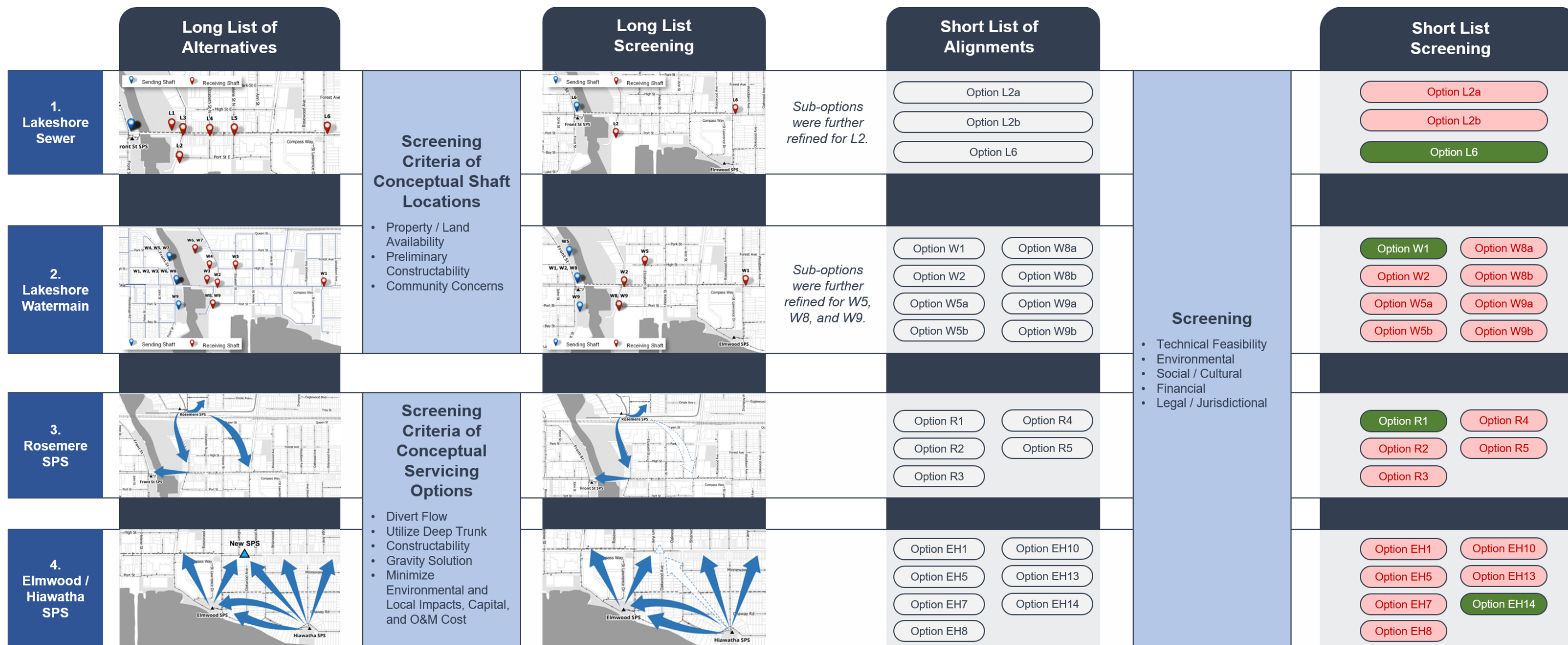


Figure 6-1. Study Components – Evaluation Process Overview (Long to Short List)

The following sections outline the key evaluated components within the study area.

6.1.1 Lakeshore Road Sewer and Watermain Evaluation Process

The preferred Lakeshore sewer and watermain strategies followed a stepped evaluation approach:

1. Identify long list of alternative shaft/construction compound location(s).
2. Screen long list of alternative shaft/construction compound location(s).
3. Identify short list of shaft/construction compound location(s) and sewer/watermain alignment(s).
4. Evaluate short list of shaft/construction compound location(s) and sewer/watermain alignment(s).
5. Select the preferred shaft/construction compound location(s) and sewer/watermain alignment(s).

As noted in the evaluation process in [Section 6.1](#), it is critical to identify and determine the preferred Lakeshore Road Sewer shaft location prior to evaluating the SPS options.

6.1.1.1 Long List Screening Criteria

The following screening criteria was applied against the long list of Lakeshore sewer and watermain crossing of the Credit River and shaft/construction compound(s) alternatives:

- Availability of property/land for shaft and construction compounds.
- Preliminary constructability review: avoidance of unnecessary/unreasonable construction challenges.
- Avoidance of route/site considered “unreasonable” that unnecessarily impacts existing and future land uses where possible.
- Address community concerns for existing and future residents, local businesses, and traffic.

The long list screening process for the Lakeshore sewer and watermain is detailed in [Section 6.2](#) and [Section 6.3](#).



6.1.1.2 Short List Evaluation Criteria

The following criteria was used to evaluate the short list of alternatives to support the selection of the preferred Lakeshore sewer and watermain servicing strategy:

Table 6-1. Short List Alternatives Evaluation Criteria

Evaluation Criteria	Description
Technical Constructability and Feasibility	<ul style="list-style-type: none"> • Ease of construction. • Compatibility with existing / planned infrastructure. • Minimize environmental and infrastructure crossings. • Minimize conflicts with existing utilities. • Provides ability to meet existing / future servicing standards. • Available servicing capacity for future growth. • Ease of access to maintain. • Operation and maintenance considerations. • Flexibility of system operations and operational security.
Environmental	<ul style="list-style-type: none"> • Minimize impacts to and impacts from climate change. • Minimize environmental crossing. • Minimize impact to environmental features, protected areas, species at risk, water features/resources, air quality, natural features and trees. • Geology, hydrogeology, and soil/groundwater contamination considerations.
Socio-Economic and Cultural	<ul style="list-style-type: none"> • Minimize impacts to community and traffic. • Maintain public accessibility during construction and operation. • Noise, vibration, dust and odour considerations. • Minimize impacts to cultural heritage and archaeological resources.
Financial	<ul style="list-style-type: none"> • Minimize capital needs costs. • Minimize operation and maintenance costs. • Lifecycle cost consideration. • Consideration of potential financial risk during construction.
Legal / Jurisdictional	<ul style="list-style-type: none"> • Land use, land size, availability, and location. • Permit requirement considerations. • Ownership, legal and jurisdictional considerations. • Compliance with applicable planning and special land use policies.

The evaluation of the short list of alternatives and the identification of the selected preferred strategy for the Lakeshore sewer and watermain are detailed in [Section 6.2](#) and [Section 6.3](#).

6.1.2 SPS Evaluation Process

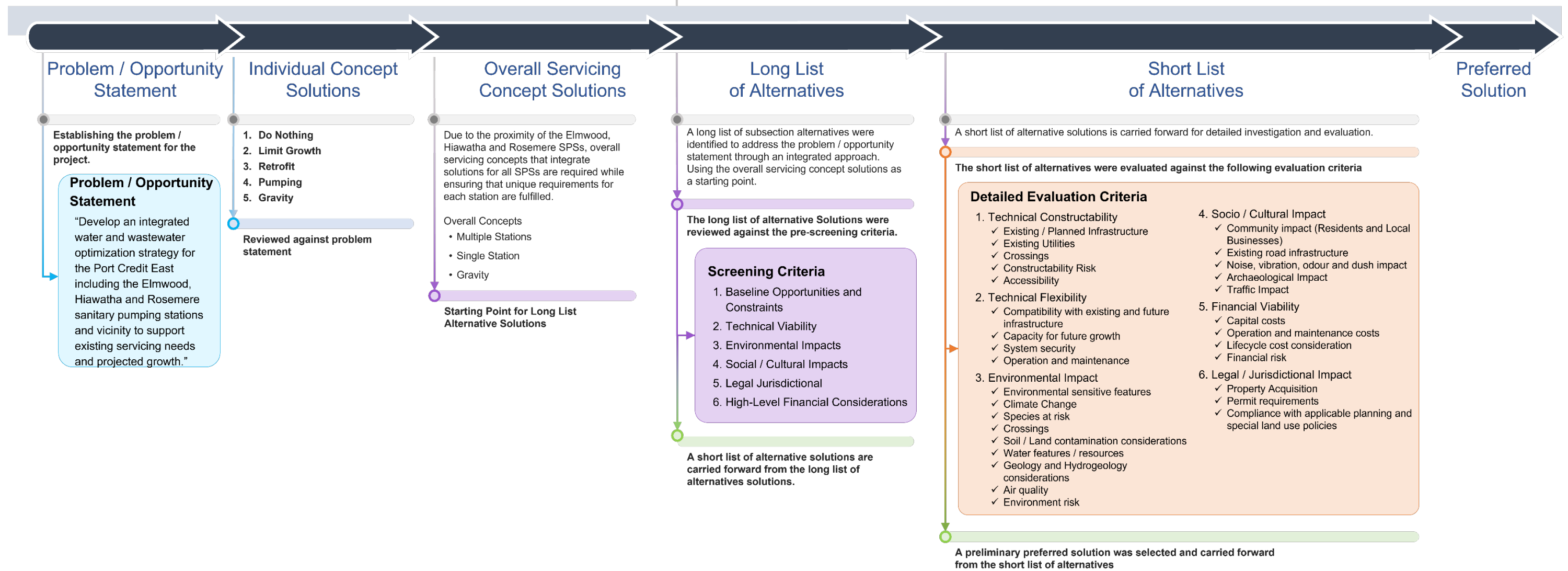
The Port Credit East SPS evaluation process is presented in **Figure 6-2**. The sections below discuss the milestone evaluations to support the selection of preferred servicing strategies for the Rosemere, Elmwood, and Hiawatha SPSs.

6.1.2.1 Individual SPS Servicing Concept Alternatives

Individual SPS servicing concept alternative strategies were reviewed against the problem and opportunity statement to meet the goals of this study. The individual SPS concept alternative strategies were:

- **Do Nothing:** This concept represents the status quo. This concept was **screened out** as it denotes the absence of new infrastructure or improvements to solve the problems identified.
- **Limit Growth:** This concept limits growth within the pumping station service areas. This concept was **screened out** because limiting growth does not solve existing infrastructure conditions and is not feasible as a long-term solution.
- **Retrofit:** This concept involves improvements to the existing pumping station and associated linear infrastructure to meet current Regional standards. This concept was **screened out** as it does not address the problem/opportunity statement and is not feasible as a long-term solution.
- **Pumping:** This concept involves continuing to pump wastewater flows from the service areas. This concept was **carried forward** as new pumping stations and forcemain alignments could be explored to address the problem/opportunity statement and are feasible as a long-term solution.
- **Gravity:** This concept aims for gravity solution(s) instead of continuing to pump wastewater flows from the service areas. This concept was **carried forward** as new linear infrastructure could be explored that could allow for existing pumping stations to be decommissioned (removed).

Figure 6-2. SPS Evaluation Process Overview



6.1.2.2 Overall SPS Servicing Concept Alternatives

Due to the proximity of the Rosemere, Elmwood, and Hiawatha SPSs, overall servicing concepts that integrate solutions for all SPSs are required while ensuring that the unique requirements for each station are fulfilled. The SPS concept alternatives evaluated included:

1. **Multiple Sewage Pumping Stations:** This concept explored keeping multiple SPS within the study area, either by maintaining the same SPS locations and forcemain alignments or by reconstructing the stations in new sites with new forcemain alignments.
2. **Single Sewage Pumping Station (Rosemere, Elmwood and Hiawatha):** This concept explored keeping on single station within the study area by constructing a new SPS that will receive the total flows from Rosemere, Elmwood, and Hiawatha SPSs. Some elements of this concept could include:
 - New SPS site.
 - New forcemain alignment.
 - Gravity sewers from Rosemere, Elmwood and Hiawatha SPSs.
3. **Gravity Solution:** This concept explored solutions that will allow for sewage flows in the study area to be conveyed by gravity sewers providing opportunities for SPS and forcemains decommission. Some elements of this concept could include:
 - SPS and forcemains decommission.
 - New gravity sewers from Elmwood, Hiawatha and Rosemere SPS to new gravity sewer outlet(s).
 - New trunk gravity sewer along Lakeshore Road.

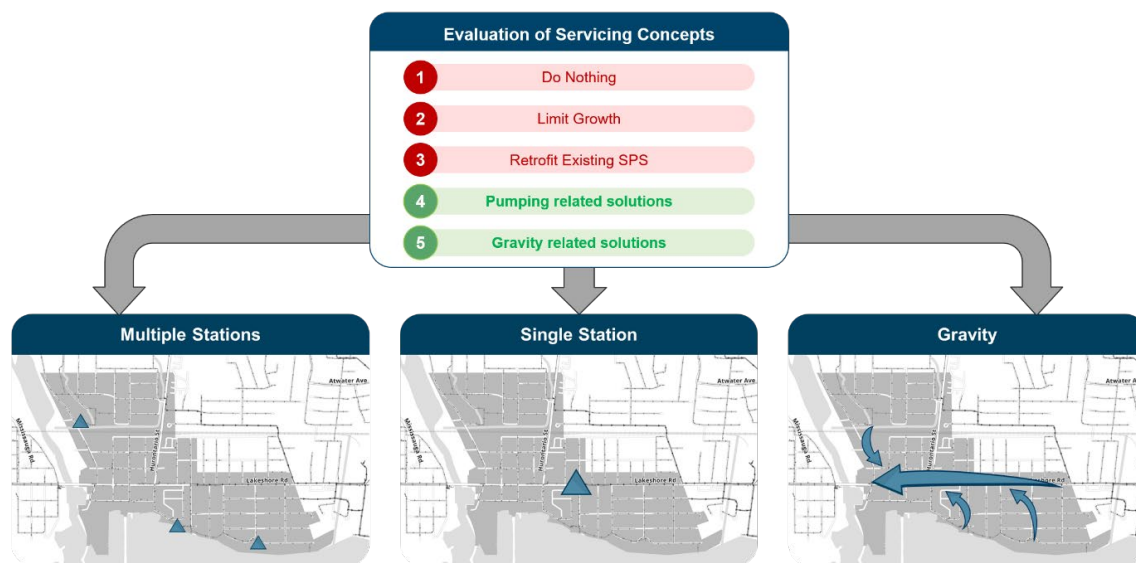


Figure 6-3. SPS Servicing Concept Alternatives

6.1.2.3 Long List SPS Alternatives Screening Criteria

Following the overall servicing concept solutions, alternative solutions for each SPS were then screened based on its existing opportunities / constraints, technical viability, environmental impacts, social / cultural impacts, legal / jurisdictional impacts, and financial considerations.

Key screening criteria included:

- Opportunity to divert flows from the Beechwood SPS and G.E. Booth WRRF catchments.
- Utilization of proposed deep trunk sewer along Lakeshore Road for gravity solutions and opportunity to decommission existing SPS.
- Avoidance of route/site considered “unreasonable” that unnecessarily impacts existing and future land uses where possible.
- Ability to service via gravity.
- Minimize potential impacts on the environment and system overflows.
- Address community concerns for existing and future residents, local businesses, and traffic.
- Minimize capital costs and operation and maintenance needs.

After screening the long list of alternative strategies, a short list of alternatives was identified for further detailed evaluation. The evaluation of alternative strategies for this study was split into two categories (Rosemere SPS and the combined Elmwood and Hiawatha SPSs) based on location and service catchment areas.

6.1.2.4 Short List SPS Alternatives Evaluation Criteria

The project team assessed the short list of alternatives using the evaluation criteria outlined in **Table 6-1** to select a preferred strategy. As part of the evaluation process (**Section 6.1**), evaluating SPS options is based on the preferred Lakeshore Road Sewer shaft location to optimize the overall collective solution.

The selected preferred strategy for the Rosemere SPS is detailed in **Section 6.4** and for Elmwood and Hiawatha SPSs is detailed in **Section 6.5**.

6.1.3 Construction Methodology

6.1.3.1 Sewer Construction

The following outlines the different construction methodologies that were assessed as part of Phase 2 of the Class EA Process.

Open-Cut Construction: Involves digging a trench to facilitate the installation of linear infrastructure (e.g., sewers, watermains). Because construction occurs on the surface over a stretch of time, open-cut construction has the potential to increase temporary traffic impacts and inconvenience to residents and businesses.

Trenchless Tunnelling Construction: Involves digging shafts and using special equipment to tunnel underground between shafts. It can be less intrusive than open-cutting minimizing traffic disruptions. The surface works for tunnelled construction are the entry and exit shafts located between tunnel drive lengths that could vary between 0.2 km and 2.1 km apart depending on the technology used. Due to the depth of the new sewers and watermain, and also to limit environmental and socio-economic impact, the majority of construction will be tunnelled underground.

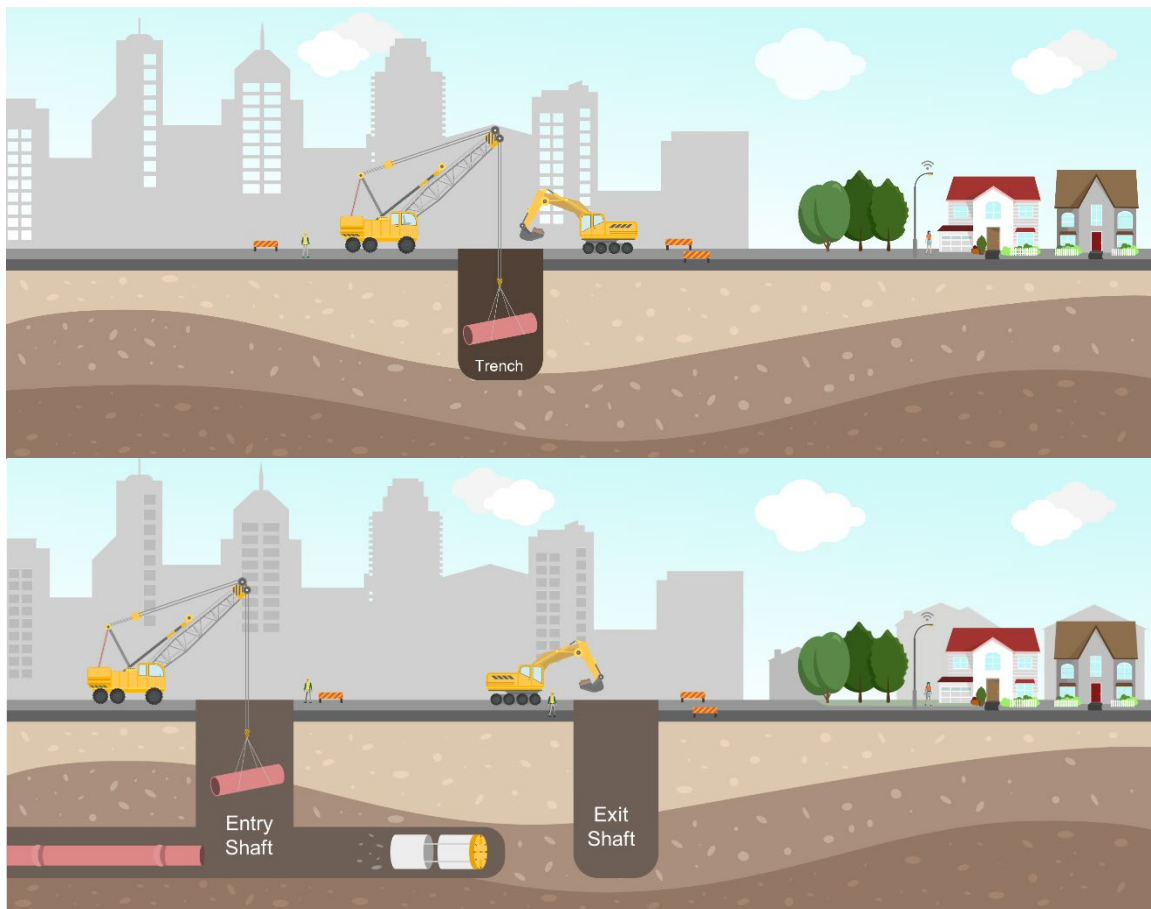


Figure 6-4. Construction Methodology - Tunnelled vs. Open Cut

From the Phase 2 alternatives evaluation, it was determined that trenchless tunnelling construction methodology was integral to the selection of the preferred strategy.

Some examples of trenchless tunneling construction include:

- **Tunnel Boring Machine (TBM)** uses specialized boring equipment to excavate beneath the surface of the road right of way and to install the sewer pipe. In contrast to microtunnelling, use of a TBM produces a larger tunnel diameter, operates at greater depths, and can accommodate longer tunnel driving lengths (that result in fewer shafts required). A TBM is suited for boring in various soil and rock strata, favouring straight alignments which minimize turns.

TBM is preferred for the construction of the deep trunk sewer and sub-transmission watermain on Lakeshore Road.

- **Microtunnelling** uses drilling technology to install underground sewer pipes. In comparison to tunnel boring machines, microtunnelling accommodates smaller diameter tunnels, operates at shallower depths, and requires an increased number of access shafts.

Microtunnelling is preferred for the construction of the gravity solution following decommissioning of the Elmwood and Hiawatha SPSs, and to ultimately connect to the new deep trunk sewer on Lakeshore Road.

- **Horizontal Directional Drilling (HDD)** uses a surface-launched drilling rig to install underground pipes in a shallow arc along a prescribed bore path. This is another trenchless method applicable when open-cut excavation is not applicable. The HDD process can be a suitable option for installing pipeline beneath obstructions such as creeks.

HDD is preferred for the installation of the twinned forcemains for the new Rosemere SPS to Sandham Road.

6.1.3.2 Shaft Construction



Figure 6-5. Typical Shaft Compound Layout

Each shaft compound site will require a staging area where construction equipment can be stored, and excavated material can be brought to the surface and hauled away.

The layouts of each compound will be optimized for safeguarding natural environmental features, underground utilities, and other mitigation measures as per design needs. Once tunnelling is complete, the staging area will be restored to its previous condition, if not, better. An example is shown in **Figure 6-5**.

6.2 Lakeshore Road Trunk Sewer

The Region of Peel’s Front Street SPS Class EA (2019) recommended construction of a new gravity trunk sewer along Lakeshore Road from Front Street SPS to Jack Darling SPS. Following this decision, an SPS Feasibility Study (2020) was completed and recommended extending this trunk sewer further east across the Credit River to Elmwood Avenue with future phases potentially extending to the G.E. Booth and Clarkson WRRF.

The Lakeshore Road trunk sewer will provide the Region ability to divert flows from east to west between G.E. Booth and Clarkson WRRF, as well as provide the opportunity to decommission several SPSs.

6.2.1 Long List of Shaft Alternatives

Six conceptual receiving and sending shaft locations were developed as shown in [Figure 6-6](#).



Figure 6-6. Lakeshore Sewer Sending and Receiving Shaft Alternatives



A summary of the long list screening results for the proposed Lakeshore trunk sewer shaft alternatives is provided in **Figure 6-7**.

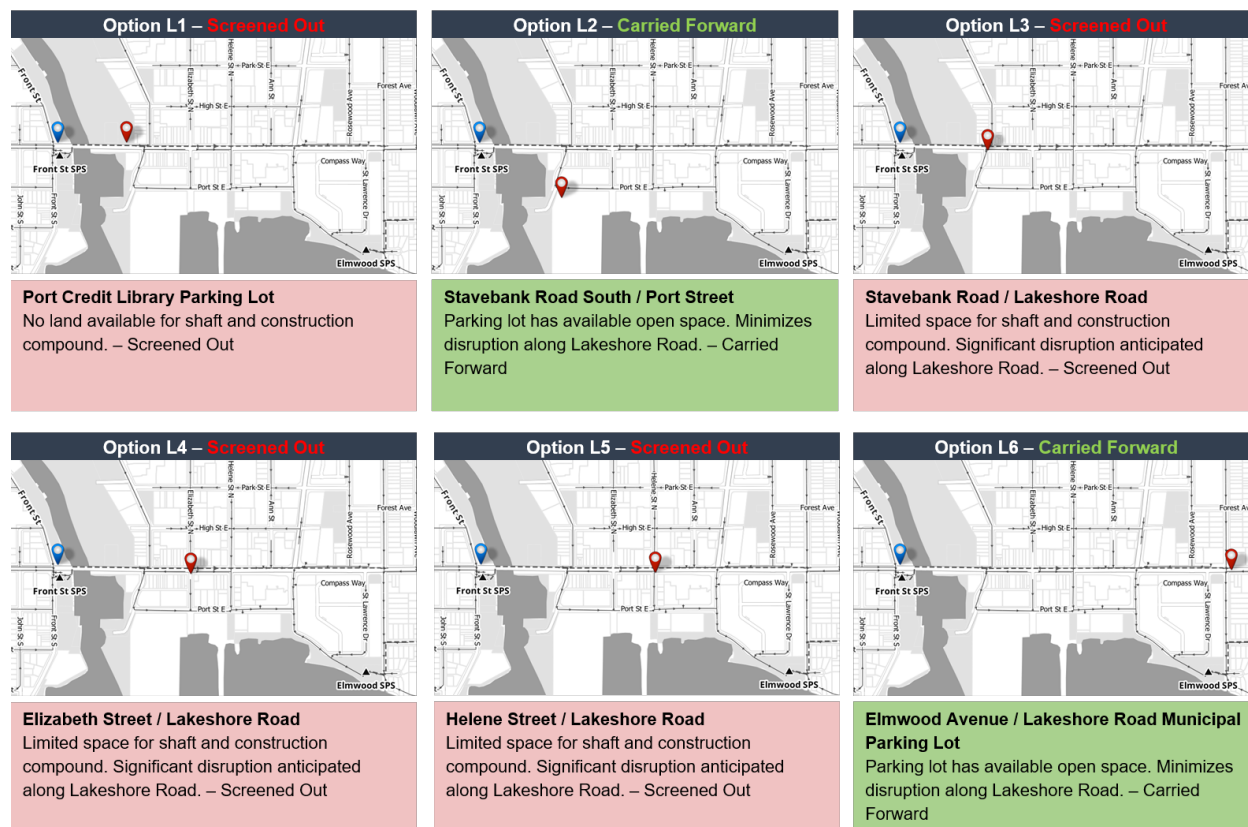


Figure 6-7. Lakeshore Road Trunk Sewer Shaft Site Long List Screening

6.2.2 Short List of Alternatives

During the screening phase of the long list of alternatives, Option L2 was further assessed to create two refined solutions, L2A and L2B. Alternative L6 remained unchanged and was carried forward for the short list assessment. The short list of the Lakeshore trunk sewer alignment alternatives is described in **Table 6-2** and shown in **Figure 6-8**.

Table 6-2. Lakeshore Trunk Sewer Short List Alignment Alternatives

Option	Description
L2A	Sewer extending east from Stavebank South along Port Street East, north along St. Lawrence Drive to Lakeshore Road, and east along Lakeshore Road to reach the Elmwood Avenue North municipal parking lot.
L2B	Sewer extending east from Stavebank South along Port Street East, south along St. Lawrence Drive, and north along Elmwood Avenue South to reach the Elmwood Avenue North. municipal parking lot.
L6	Direct sewer from Front Street along Lakeshore Road to reach the Elmwood Avenue municipal parking lot.

Table 6-3 outlines the opportunities and constraints based on the evaluation criteria presented in **Table 6-1** for each short-listed alternative, and the final assessment result. Detailed long to short list evaluation tables can be found in **Appendix 3A**.

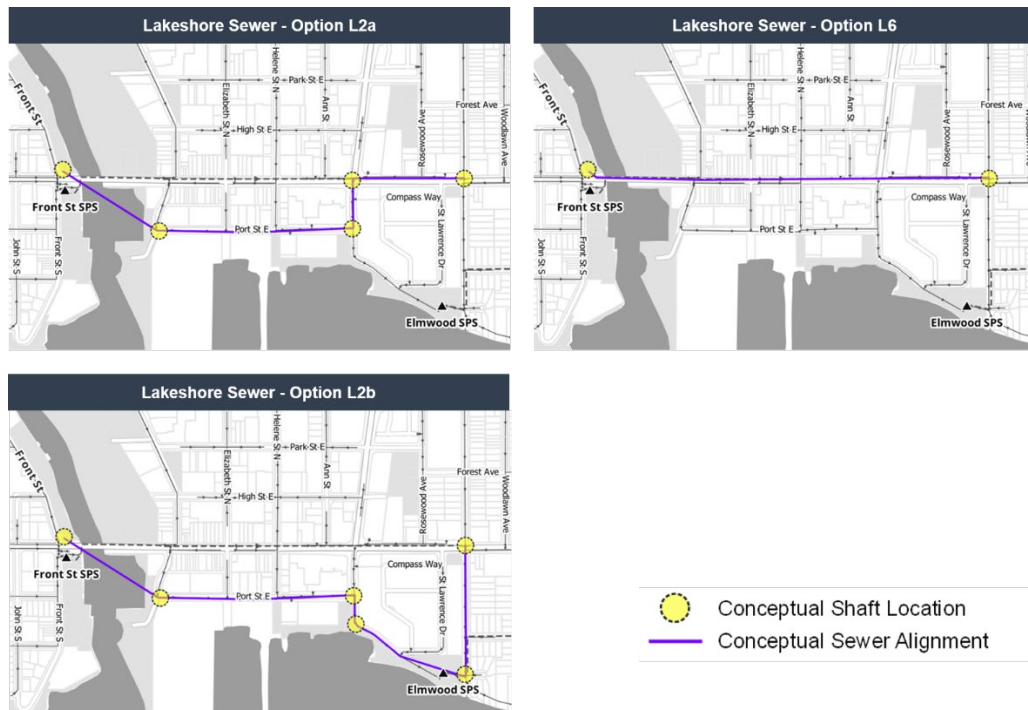


Figure 6-8. Lakeshore Trunk Sewer Short List Alignment Alternatives

6.2.3 Preferred Servicing Strategy

Out of the three short listed Lakeshore trunk sewer alignment alternatives, **Option L6: Tunnel from Marina Park east to the municipal parking lot at Elmwood Avenue North and Lakeshore Road** was carried forward as the preferred servicing strategy due to avoidance of major traffic impacts, availability of City property to facilitate construction, lower cost, and minimizing potential environmental impacts due to direct crossing of the Credit River.

The selected preferred servicing strategy for the Lakeshore Road Trunk Sewer component includes two shaft locations: Marina Park (west shaft) and at the municipal parking lot (east shaft).

6.2.3.1 Alternative Temporary Parking / Farmer's Market Location

The municipal parking lot (east shaft location) at Elmwood Avenue North and Lakeshore Road (compound ID: LAK_3) regularly hosts a farmer's market during the summer season in addition to providing public parking for the surrounding neighbourhood. To provide alternative parking options during the construction of the preferred strategy, the Harold E. Kennedy Park is being considered as a relocated parking lot during construction. Alternative location for Farmer's Market will be confirmed during detailed design prior to commencement of construction.

Table 6-3. Lakeshore Trunk Sewer Short List Alignment Alternatives Opportunities / Constraints

<p style="text-align: center;">Option L2A</p> <p>This strategy proposes a sewer extending east from Stavebank South along Port Street East, north along St. Lawrence Drive to Lakeshore Road, and east along Lakeshore Road to reach the Elmwood Avenue North Municipal Parking Lot.</p>	<p style="text-align: center;">Option L2B</p> <p>This strategy proposes a sewer extending east from Stavebank South along Port Street East, south along St. Lawrence Drive, and north along Elmwood Avenue South to reach the Elmwood Avenue North Municipal Parking Lot.</p>	<p style="text-align: center;">Option L6</p> <p>This strategy proposes a direct sewer from Front Street along Lakeshore Road to reach the Elmwood Avenue Municipal Parking Lot.</p>
<p>Opportunities</p> <ul style="list-style-type: none"> • Accessible and large open site at Port Street and Stavebank Road could facilitate a construction compound. <p>Constraints</p> <ul style="list-style-type: none"> • Requires diagonal water crossing of the Credit River and crossing under the existing marina. • Requires extra sewer length and a minimum of two (2) extra shaft compounds for the sewer to reach Lakeshore Road. This will increase impacts to residents/businesses along Port Street, St Lawrence Drive, and portions of Lakeshore Road. • Greater disturbance along Lakeshore Road due to additional shaft/construction compound at St Lawrence Drive, and Lakeshore Road. • Multiple shaft/construction sites with various owners • Loss of parking facilities during construction at Stavebank Road/Port Street and Elmwood Avenue/Lakeshore Road. • Higher cost due to increased numbers of shaft/construction compound locations and longer alignment. • Proposed construction sites are close to existing commercial/residential use increasing noise, air, and odour mitigation. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Accessible and large open site at Port Street and Stavebank Road could facilitate a construction compound. • Some shaft compounds are located away from Lakeshore Road and would reduce traffic impact. <p>Constraints</p> <ul style="list-style-type: none"> • Loss of parking facilities during construction at Stavebank Road/Port Street and Elmwood Avenue/Lakeshore Road. • Requires longer water crossing (diagonal) of the Credit River and crossing under the existing marina. • Strategy will require extra sewer length and a minimum of three (3) extra shaft compounds to get the sewer back to Lakeshore Road. This will increase impacts to residents/businesses along Port Street, St Lawrence Drive, and Elmwood Avenue. • Multiple shaft/construction sites with various owners • Higher cost due to increased number of shaft/construction compound locations and longer alignment. • Proposed construction sites are close to existing commercial/residential use increasing noise, air, and odour mitigation. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Avoids major socio-economic impacts along Lakeshore Road and requires less property for shaft locations. • Removes the need for construction along residential/major roads. • Construction impacts will be limited to the Elmwood Avenue/Lakeshore Road municipal parking lot. • Solution provides a direct crossing of Credit River within bedrock, minimizing environmental impacts. • Lower cost due to reduced number of shaft/construction compound locations and shorter sewer alignment. <p>Constraints</p> <ul style="list-style-type: none"> • Loss of parking facility during construction at Elmwood Avenue North and Lakeshore Road. • Proposed construction sites are close to existing commercial and residential land use, increasing the requirement for noise, air, and odour mitigation.
<p>Screened Out</p>	<p>Screened Out</p>	<p>Carried Forward</p>

6.3 Lakeshore Road Sub-Transmission Watermain

The Lakeshore Road sub-transmission watermain is required to support growth along the waterfront and in the Port Credit area, support operations and security of supply for pressure Zone 1, and transfer of flows between East and West water distribution systems.

6.3.1 Long List of Shaft Alternatives

Nine conceptual receiving and sending shaft locations were developed as shown in **Figure 6-9**.



Figure 6-9. Lakeshore Sub-Transmission Watermain Sending and Receiving Shaft Alternatives

A summary of the long list screening results for the proposed Lakeshore sub-transmission watermain shaft alternatives is provided in **Figure 6-10**.

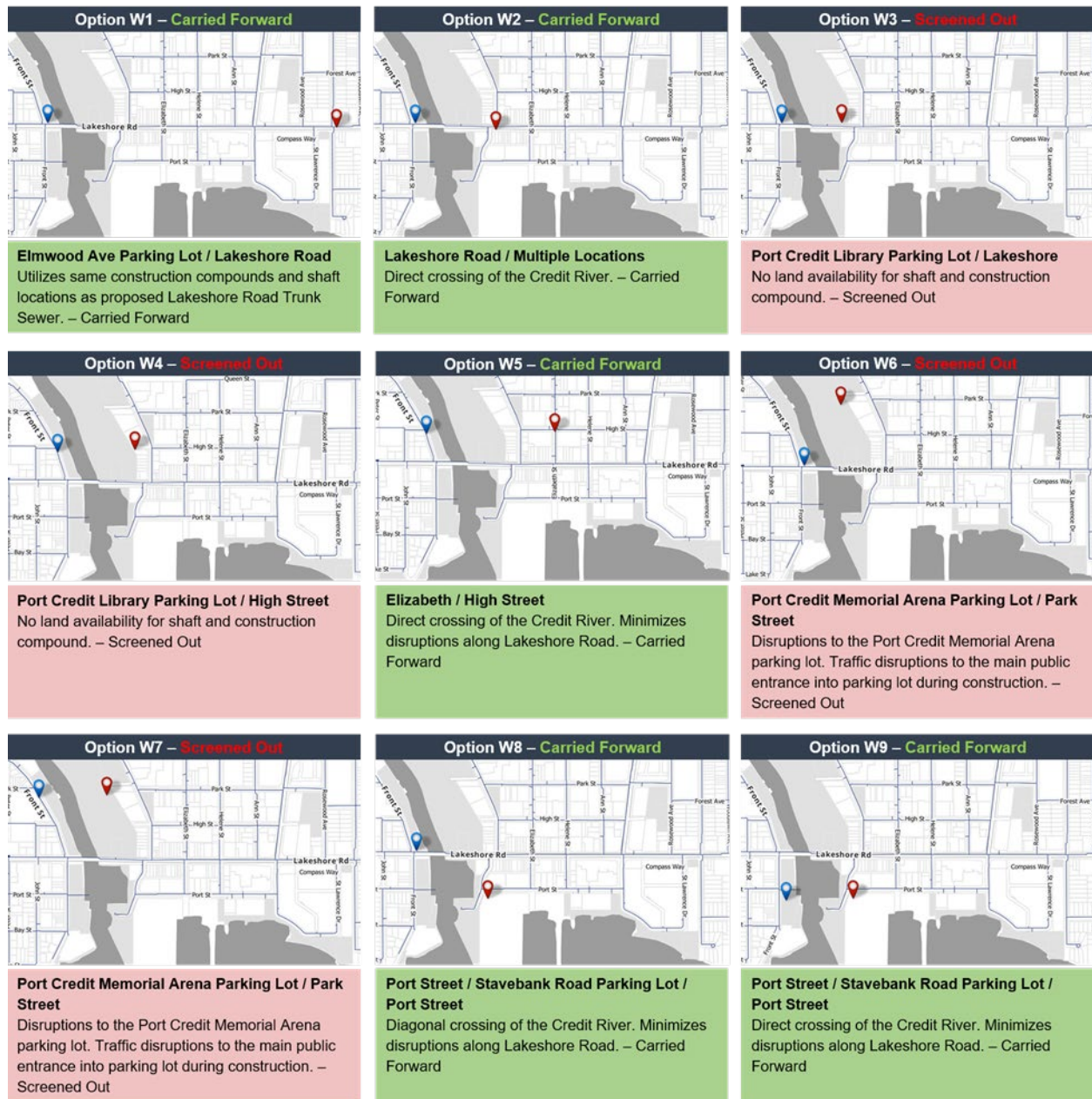


Figure 6-10. Lakeshore Road Sub-Transmission Watermain Long List Screening



6.3.2 Short List of Shaft and Alignment Alternatives

During the screening phase of the long list of shaft alternatives, Options W5, W8 and W9 were further refined to create several refined solutions. Alternatives W1 and W2 remained unchanged and were carried forward for the short-list assessment.

The short list of the Lakeshore sub-transmission watermain alignment alternatives is described in **Table 6-4** and shown in **Figure 6-11**.

Table 6-4. Lakeshore Sub-Transmission Watermain Short List Alignment Alternatives

Option	Description
W1	Shaft location at Elmwood Avenue Parking Lot / Lakeshore Road. Tunnelled solution along Lakeshore Road.
W2	Shaft location at Stavebank Road / Lakeshore Road. Opportunity for open-cut or tunnelled watermain along Lakeshore Road.
W5a	Shaft location at Elizabeth Street / High Street. Opportunity for open-cut or tunnelled watermain along High Street.
W5b	Shaft location at Elizabeth Street / High Street. Opportunity for open-cut or tunnelled watermain along High Street.
W5c	Shaft location at High Street / Rosewood Avenue / Lakeshore Road. Opportunity for tunnelled watermain along High Street.
W8a	Port Street & Stavebank Road parking lot / Port Street / Lakeshore Road. Opportunity for open-cut or tunnelled watermain along Lakeshore Road.
W8b	Port Street & Stavebank Road parking lot / Port Street / Lakeshore Road. Opportunity for open-cut or tunnelled watermain along Lakeshore Road.
W9a	Port Street & Stavebank Road parking lot / Port Street / St. Lawrence Drive / Lakeshore Road. Opportunity for open-cut or tunnelled watermain along Lakeshore Road.
W9b	Port Street & Stavebank Road parking lot / Port Street / St. Lawrence Drive / Lakeshore Road. Opportunity for open-cut or tunnelled watermain along Lakeshore Road.

Table 6-5 outlines the opportunities and constraints based on the evaluation criteria presented in **Table 6-1** for each short-listed alternative, and the final assessment result. Detailed long to short list evaluation tables can be found in **Appendix 3A**.

6.3.3 Preferred Servicing Strategy

Out of the nine short listed Lakeshore sub-transmission watermain alignment alternatives, **Option W1: Shaft location at Elmwood Avenue Parking Lot / Lakeshore Road Tunnelled Solution along Lakeshore Road** was carried forward as the preferred strategy because it utilizes the same construction compounds and shaft locations as the proposed Lakeshore trunk sewer minimizing major environmental and socio-economic disruptions.

The selected preferred servicing strategy for the Lakeshore Road Sub-Transmission Watermain component includes two shaft locations: Marina Park (west shaft) and at the municipal parking lot (east shaft).



- Conceptual Shaft Location
- Lakeshore Watermain (Tunnelled)
- Lakeshore Watermain (TBD)
- Open Cut or Tunnel Section

Figure 6-11. Lakeshore Sub-Transmission Watermain Short List Alignment Alternatives

Table 6-5. Lakeshore Sub-Transmission Watermain Short List Alignment Alternatives Opportunities / Constraints

Option W1	Option W2	Option W5a	Option W5b	Option W5c	Option W8a	Option W8b	Option W9a	Option W9b
This option considers a shaft location at Elmwood Avenue Parking Lot and Lakeshore Road with a tunnelled solution along Lakeshore Road.	This option proposes a shaft location at Stavebank Road / Lakeshore Road, presenting opportunity for open-cut or tunnelled watermain along Lakeshore Road.	A shaft location at Elizabeth Street / High Street is proposed for this option as it includes opportunity for open-cut or tunnelled watermain along High Street.	A shaft location at Elizabeth Street / High Street, providing opportunity for open-cut or tunnelled watermain along High Street.	A shaft location at High Street / Rosewood Avenue (Harold E. Kennedy Park), providing opportunity for open-cut or tunnelled watermain along Rosewood to Lakeshore Road.	Considers the use of Port Street & Stavebank Road Parking Lot / Port Street / Lakeshore Road. There is an opportunity for open-cut or tunnelled watermain along Lakeshore Road.	This solution considers the use of Port St & Stavebank Road Parking Lot / Port Street. / Lakeshore Road. There is opportunity for open-cut or tunnelled watermain along Lakeshore Road.	This option considers use of Port Street and Stavebank Road Parking Lot / Port Street / St. Lawrence Drive / Lakeshore Road. Opportunity for open-cut or tunnelled watermain along Lakeshore Road.	This proposes use of Port Street and Stavebank Road Parking Lot / Port Street / St. Lawrence Drive / Lakeshore Road. Opportunity for open-cut or tunnelled watermain along Lakeshore Road.
<p>Opportunities</p> <ul style="list-style-type: none"> Direct crossing of the Credit River. Utilizes same shaft locations and construction compounds as the Lakeshore Road trunk sewer. Avoids major socio-economic impacts along Lakeshore Road and requires less property for additional shaft locations. Removes the need for construction along residential/major roads. Construction impacts will be limited to the Elmwood Avenue/ Lakeshore Road parking lot. Significantly less disruption than open cut options. <p>Constraints</p> <ul style="list-style-type: none"> Impacts to design and construction of the Lakeshore Road trunk sewer. Limited opportunity for watermain connections along tunnel alignment. Potential complex watermain operation and maintenance due to depth. Potential need for larger permanent easement at shaft locations. Loss of parking facility during construction at Elmwood Avenue/Lakeshore Road. 	<p>Opportunities</p> <ul style="list-style-type: none"> Direct crossing of the Credit River. Construction mainly within road right of way. More opportunities for watermain connections along tunnel alignment at intermediate shaft locations and/or open cut sections. <p>Constraints</p> <ul style="list-style-type: none"> Limited availability for intermediate shaft locations along Lakeshore Road. Requires significant disruption along Lakeshore Road. Potential higher cost due to multiple shaft locations and construction compounds. 	<p>Opportunities</p> <ul style="list-style-type: none"> Direct crossing of the Credit River. Avoids crossing under bridge structure and marina. Construction mainly within road right of way. Intersection of Elizabeth Street / High Street for W5a and W5b could facilitate a construction compound to cross the river. W5a avoids construction along Lakeshore Road. W5c avoids need for shaft com at Elizabeth and High Street. <p>Constraints</p> <ul style="list-style-type: none"> Open-cut solution will require lane/road closures impacting local roads. Potential higher cost due to separate tunnel with multiple shaft locations and construction compounds. Requires additional alignment to cross Credit River, increasing impact to the natural environment. W5b and W5c requires additional disruptions along Lakeshore Road. W5c has potential to cause greater impact to local / surrounding residents, schools, and businesses, as well as senior living resident condominiums requiring additional coordination. W5c will disrupt Harold E. Kennedy Park and requires additional coordination with City of Mississauga. W5c has potential for sub-surface conflict with underground parking at Rosewood Avenue and High Street (condominiums). All options require increased easements at eastern limits of High Street as land is privately owned (condominiums). 	<p>Opportunities</p> <ul style="list-style-type: none"> Accessible and large open site at Port Street and Stavebank Road could facilitate a construction compound to cross the river. Construction mainly within road right of way. Opportunity to coordinate construction with infrastructure upgrades along Port Street. W8b avoids construction along Lakeshore Road from Hurontario Street to Lawrence Drive. W8a requires shorter alignment than W8b. <p>Constraints</p> <ul style="list-style-type: none"> Diagonal crossing of the Credit River. Does not avoid crossing under bridge structure and marina. Open-cut solution will require lane/road closures impacting local roads. Requires disruption along Lakeshore Road. Loss of parking facilities during construction at Stavebank Road/Port Street. Requires additional alignment to cross the Credit River, increasing impact to the natural environment. W8b requires longer alignment than W8a. 	<p>Opportunities</p> <ul style="list-style-type: none"> Direct crossing of the Credit River. Avoids crossing under bridge structure and existing marina Accessible and large open site at Port Street and Stavebank Road could facilitate a construction compound to cross the river. Construction mainly within road right of way. Opportunity to coordinate construction with infrastructure upgrades along Port Street. W9a requires shorter alignment than W9b. <p>Constraints</p> <ul style="list-style-type: none"> Open-cut solution will require lane/road closures impacting local roads. Requires disruption along Lakeshore Road. Loss of parking facilities during construction at Stavebank Road/Port Street. Requires additional alignment to cross the Credit River, increasing impact to the natural environment. W9b requires longer alignment than W9b. 				
<p>Carried Forward</p> <p>Selected as it utilizes same construction compounds and shaft locations as the proposed Lakeshore Sewer, avoiding major environmental and socio-economic disruptions</p>	<p>Screened Out</p> <p>Strategy has major social and cultural impacts including lane closures / traffic impacts along Lakeshore Road and limited properties available to facilitate construction.</p>	<p>Screened Out</p> <p>Strategy has major social and cultural impacts including lane closures / traffic impacts and limited properties available to facilitate construction. Alternative W5a does provide opportunity to avoid major construction impacts along Lakeshore Road.</p>			<p>Screened Out</p> <p>Strategy has major social and cultural impacts including lane closures / traffic impacts along Lakeshore Road and limited properties available to facilitate construction.</p>		<p>Screened Out</p> <p>Strategy has major social and cultural impacts including lane closures / traffic impacts along Lakeshore Road and limited properties available to facilitate construction.</p>	

6.4 Rosemere Sewage Pumping Station

The existing Rosemere SPS is an important community asset that does not meet current Regional SPS Design Standards and is facing condition, maintenance, performance, and health and safety issues that need to be addressed. A “do nothing” approach is not feasible.

A new servicing solution is required to continue operations for servicing the existing community and support future growth within the study area. This study evaluated several servicing alternatives including:

- New SPS and forcemains;
- Decommissioning of existing SPSs via gravity servicing; or
- Combination of pumping and gravity servicing.

6.4.1 Long List of Servicing Alternatives

Six conceptual servicing alternatives for the Rosemere SPS were developed. A summary of the long list screening results for the Rosemere SPS conceptual servicing alternatives is provided in **Figure 6-12**.

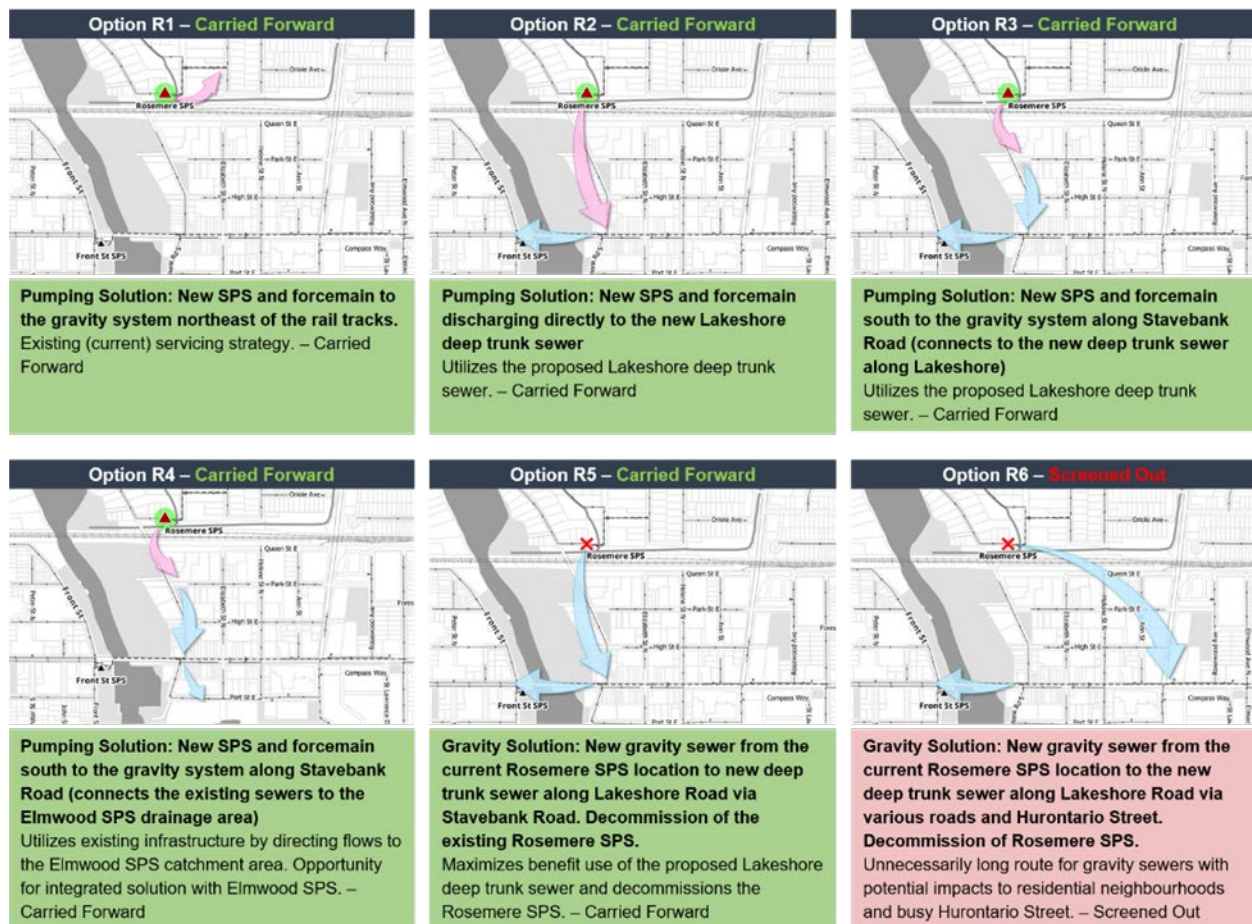


Figure 6-12. Rosemere SPS Long List of Conceptual Servicing Alternatives and Screening



6.4.2 Short List of Shaft and Alignment Alternatives

During the screening phase of the long list of shaft alternatives, option R6 was screened out and the remaining five options were carried forward for the short-list assessment.

The short list of the Rosemere SPS servicing alternatives is described in **Table 6-6** and shown in **Figure 6-13**.

Table 6-6. Rosemere SPS Short List of Servicing Alternatives

Option	Description
R1	New SPS and forcemain to the gravity system northeast of rail tracks (Pumping Solution).
R2	New SPS and forcemain discharging directly to new Lakeshore deep trunk sewer (Pumping Solution).
R3	New SPS and forcemain south to gravity system along Stavebank Road (connect to new deep trunk sewer along Lakeshore Road) (Pumping Solution).
R4	New SPS and forcemain south to gravity system along Stavebank Road (connect to existing sewers to Elmwood SPS drainage area) (Pumping Solution).
R5	New gravity sewer from the current Rosemere SPS location to new deep trunk sewer along Lakeshore Road via Stavebank Road. Decommission of existing Rosemere SPS. (Gravity Solution)

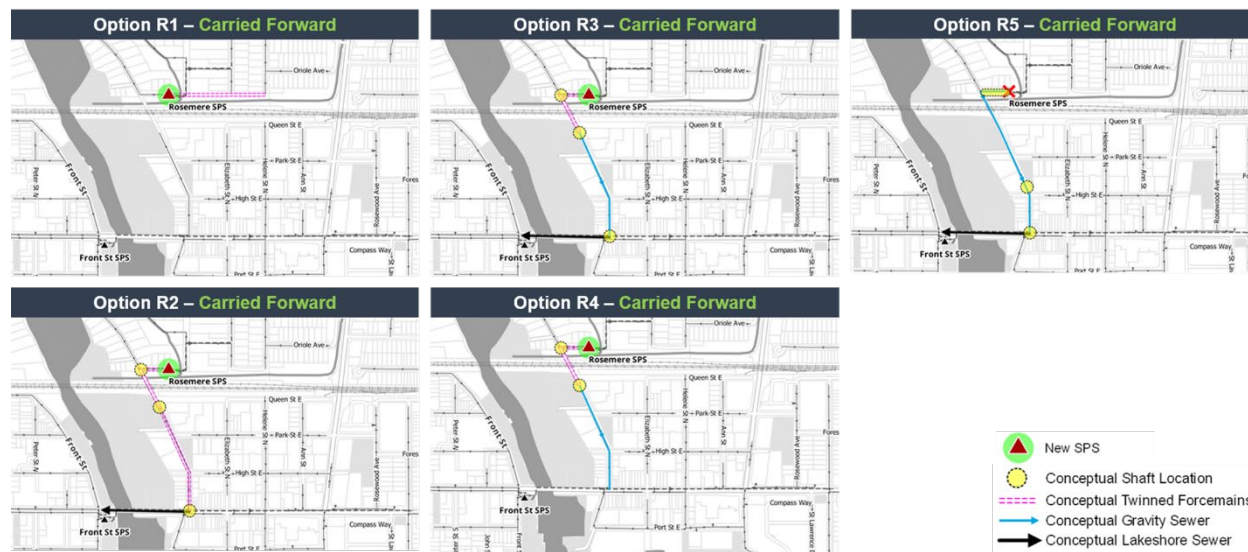


Figure 6-13. Rosemere SPS Short List of Servicing Alternatives

Table 6-7 outlines the opportunities and constraints based on the evaluation criteria presented in **Table 6-1** for each short-listed alternative, and the final assessment result. Detailed long to short list evaluation tables can be found in **Appendix 3A**.

6.4.3 Preferred Servicing Strategy

Out of the five shortlisted Rosemere SPS servicing alternatives, **Option R1: New SPS and forcemain to the gravity system northeast of rail tracks (Pumping Solution)** was carried forward as the preferred servicing strategy due to avoidance of major road closures and City property availability to facilitate construction. This strategy is required to provide continued servicing to the area including properties along Rosemere Road.

The new Rosemere SPS is needed within the next 5-10 years to replace the existing aging facility. Another component includes tunnelling new twinned forcemains between the new SPS facility on Rosemere Road to Vesta Drive, reducing surface disturbance to residents.

The selected preferred servicing strategy for the Rosemere SPS component includes replacement of the existing SPS and forcemain with a new SPS with 34 L/s Firm Capacity and associated twinned 200 mm diameter forcemains that are in line with Regional design standards. It also requires one staging area at the western limits of Rosemere Road to pull through to construct twinned forcemains to the east along Sandham Road via HDD tunnel method.

This strategy also requires removal of trees along Rosemere Road. To reduce residential property impacts, the Region is working with City of Mississauga to place required infrastructure within City land.

Table 6-7. Rosemere SPS Short List of Servicing Alternatives Opportunities and Constraints

Option R1	Option R2	Option R3	Option R4	Option R5
<p>This option considers a new pumping solution by constructing a new SPS and forcemain to connect to the gravity system northeast of the railway.</p>	<p>This option proposes a new SPS and forcemain, discharging directly to the new Lakeshore Road deep trunk sewer preferred strategy.</p>	<p>A new SPS and forcemain constructed south to the gravity system along Stavebank Road to connect to the new deep trunk sewer along Lakeshore Road.</p>	<p>A new SPS and forcemain south to the gravity system along Stavebank Road, connecting to the existing sewers to the Elmwood SPS drainage area.</p>	<p>A new gravity sewer from the current Rosemere SPS location to new deep trunk sewer along Lakeshore Road via Stavebank Road and decommissioning of the existing Rosemere SPS.</p>
<p>Opportunities</p> <ul style="list-style-type: none"> • New SPS would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Does not require interim SPS upgrades. • New forcemains (along new alignment) is further removed from residential properties that have limited space for construction activities. <p>Constraints</p> <ul style="list-style-type: none"> • Does not provide opportunity to decommission existing SPS. • Proximity to the Mary Fix Creek, Kenollie Creek and Railway. • Anticipated traffic impacts along local roads (Rosemere Road, Sandham Road). • Additional property and/or easements required due to new forcemain and larger SPS footprint. • Limited available space for shaft locations and construction compounds. • Existing forcemain alignment is located within several private properties/in-between two residential houses. 	<p>Opportunities</p> <ul style="list-style-type: none"> • New SPS would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Does not require interim SPS upgrades. • Shallow open cut construction for forcemains south of the Railway along Stavebank Road. <p>Constraints</p> <ul style="list-style-type: none"> • Does not provide opportunity to decommission existing SPS. • Requires crossing of the Mary Fix Creek and Railway. • Anticipated traffic impacts along local roads (Rosemere Road, Stavebank Road, Lakeshore Road). • Additional property and/or easements required due to larger SPS footprint. • Limited available space for shaft locations and construction compounds. 	<p>Opportunities</p> <ul style="list-style-type: none"> • New SPS would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Does not require interim SPS upgrades. • Shallow open cut construction for gravity sewers along Stavebank Road. <p>Constraints</p> <ul style="list-style-type: none"> • Does not provide opportunity to decommission existing SPS. • Requires crossing of the Mary Fix Creek and Railway. • Anticipated traffic impacts along local roads (Rosemere Road, Stavebank Road, Lakeshore Road). • Additional property and/or easements required due to larger SPS footprint. • Limited available space for shaft locations and construction compounds. 	<p>Opportunities</p> <ul style="list-style-type: none"> • New SPS would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Does not require interim SPS upgrades. • Shallow open cut construction for gravity sewers along Stavebank Road. <p>Constraints</p> <ul style="list-style-type: none"> • Does not provide opportunity to decommission existing SPS. • Requires crossing of the Mary Fix Creek and Railway. • Anticipated traffic impacts along local roads (Rosemere Road, Stavebank Road, Lakeshore Road). • Additional property and/or easements required due to larger SPS footprint. • Limited available space for shaft locations and construction compounds. • Requires upgrades of existing sewers along Stavebank Road and Port Street. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Allows for SPS decommission. • Eliminates risk for system overflows. • Minimizes long-term Operation and maintenance (O&M) needs. • Maximizes benefit use of deep trunk sewer along Lakeshore Road. <p>Constraints</p> <ul style="list-style-type: none"> • Requires crossing of the Mary Fix Creek and Railway. • Anticipated traffic impacts along local roads (Rosemere Road, Stavebank Road, Lakeshore Road). • Requires interim SPS upgrades to maintain SPS operation during construction. • Limited space for deep open cut construction. • Limited available space for shaft locations and construction compounds. Requires additional connection shaft along Lakeshore Road
<p>Carried Forward</p>	<p>Screened Out</p>	<p>Screened Out</p>	<p>Screened Out</p>	<p>Screened Out</p>

6.5 Elmwood and Hiawatha Sewage Pumping Stations

The existing Elmwood and Hiawatha SPSs do not meet current Regional SPS Design Standards and are facing condition, maintenance, performance, and health and safety issues that need to be addressed. In addition, the firm capacity of the existing SPSs cannot meet future projected flows. A “do nothing” approach is not feasible.

A new servicing solution is required to continue operations for servicing the existing community and support future growth within the study area. This study evaluated several servicing alternatives including:

- New SPS and forcemains;
- Decommissioning of existing SPSs via gravity servicing; or
- Combination of pumping and gravity servicing.

6.5.1 Long List of Servicing Alternatives

Sixteen conceptual servicing alternatives for the Elmwood and Hiawatha SPSs were developed. A summary of the long list screening results for the Elmwood and Hiawatha SPSs conceptual servicing alternatives is provided in [Figure 6-14](#).



Figure 6-14. Elmwood and Hiawatha SPSs Long List of Conceptual Servicing Alternatives and Screening



6.5.2 Short List of Shaft and Alignment Alternatives

During the screening phase of the long list of alternatives, nine conceptual servicing alternatives were screened out. The remaining seven options were carried forward for the short-list assessment.

The short list of the Elmwood and Hiawatha SPSs servicing alternatives is described in **Table 6-8** and shown in **Figure 6-15**.

Table 6-8. Elmwood and Hiawatha SPSs Short List of Servicing Alternatives

Option	Description
E1	Multiple New Sewage Pumping Stations – Elmwood SPS and Hiawatha SPS towards Beechwood SPS.
E5	Single New Sewage Pumping Station – Hiawatha SPS towards Beechwood.
E7	Single New Sewage Pumping Station – Hiawatha SPS towards new trunk sewer along Lakeshore Road.
E8	Single New Sewage Pumping Station – Hiawatha SPS towards Elmwood.
E10	Single New Sewage Pumping Station – Elmwood SPS towards new trunk sewer along Lakeshore Road.
E13	Gravity Only Solution – West Conveyance 1: Decommission of existing Elmwood SPS and Hiawatha SPS. New gravity sewers from current SPS locations to new deep trunk sewer along Lakeshore Road.
E14	Gravity Only Solution – West Conveyance 2: Decommission of existing Elmwood SPS and Hiawatha SPS. New gravity sewers from current Hiawatha SPS location to Elmwood Avenue. New gravity sewers from current Elmwood SPS location to new deep trunk sewer along Lakeshore Road.

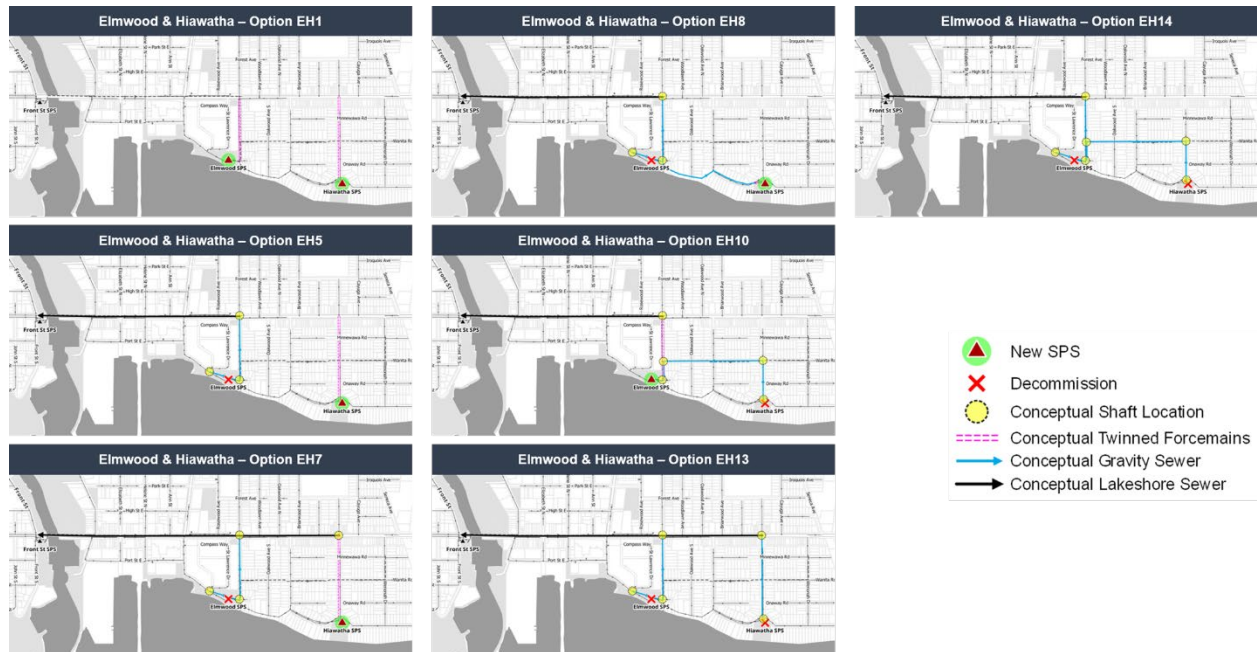


Figure 6-15. Elmwood and Hiawatha SPSs Short List of Servicing Alternatives

Table 6-9 outlines the opportunities and constraints based on the evaluation criteria presented in Table 6-1 for each short-listed alternative, and the final assessment result. Detailed long to short list evaluation tables can be found in Appendix 3A.

6.5.3 Preferred Servicing Strategy

Out of the seven short-listed Elmwood and Hiawatha SPSs servicing alternatives, **Option EH14: Gravity Only Solution – West Conveyance 2** was carried forward as the preferred servicing strategy for its ability to maximize benefit of use of proposed Lakeshore deep trunk sewer and decommissioning of the two SPSs. This solution maximizes the benefits of the new Lakeshore sewer and removes long-term operational and maintenance requirements at the two SPSs.

Additionally, this strategy allows for decommissioning (removal) of the two existing SPSs within public parks, providing additional public space. This includes Tall Oaks Park and Hiawatha Park.

The selected preferred servicing strategy for the Elmwood and Hiawatha SPSs includes decommissioning of the existing SPS at each park, and to construct gravity sewers to divert the flows to the new Lakeshore Road deep trunk sewer. This component also includes six shaft locations.

Table 6-9. Elmwood and Hiawatha SPSs Short List of Servicing Alternatives Opportunities and Constraints

Option EH1	Option EH5	Option EH7	Option EH8	Option EH10	Option EH13	Option EH14
Multiple new SPSs are proposed: Elmwood SPS and Hiawatha SPS directing flows towards Beechwood SPS.	This solution proposes a construction of a new Hiawatha SPS, directly flows towards Beechwood SPS, and the decommissioning of the Elmwood SPS.	This strategy considers the construction of a new Hiawatha SPS, directly flows to the new trunk sewer along Lakeshore Road. This option considers the decommissioning of Elmwood SPS.	This strategy considers the decommissioning of Elmwood SPS, and the construction of a new Hiawatha SPS to redirect flows towards Elmwood.	This option proposes construction of a new Elmwood SPS to redirect flows towards new trunk sewer along Lakeshore Road.	This strategy considers decommissioning of the existing Elmwood SPS and Hiawatha SPS. To provide servicing, new gravity sewers would be constructed to redirect flows from the current SPS locations to new deep trunk sewer along Lakeshore Road.	This strategy proposes decommissioning of the existing Elmwood SPS and Hiawatha SPS. New gravity sewers are proposed from current Hiawatha SPS location to Elmwood Avenue. New gravity sewers from current Elmwood SPS location to new deep trunk sewer along Lakeshore Road.
<p>Opportunities</p> <ul style="list-style-type: none"> • New SPSs would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Does not require interim SPS upgrades. • Shallow open cut construction for forcemains along new alignments. <p>Constraints</p> <ul style="list-style-type: none"> • Impacts to properties in the vicinity of the stations and along forcemain alignments. • Proximity to Lake Ontario. • Anticipated traffic impacts along local roads. • Maintain SPS operation during construction. • Additional property and/or easements required (larger SPS footprint). • Potential impacts to waterfront trail, parks, mature & memorial trees. • Does not benefit of use of deep trunk sewer along Lakeshore Road. • Long-term O&M needs. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Supports Elmwood SPS decommission. • New Hiawatha SPS would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Shallow open cut construction for forcemains along new alignments. • Provides some public space enhancements. • Reduces risk for system overflows. • Reduces long-term O&M needs. <p>Constraints</p> <ul style="list-style-type: none"> • Impacts to properties in the vicinity of the stations and along forcemain and gravity sewer alignments. • Proximity to Lake Ontario. • Anticipated traffic impacts along local roads. • Requires interim SPS upgrades. • Maintain SPS operation during construction. • Additional property and/or easements required (larger SPS footprint). • Potential impacts to waterfront trail, parks, mature & memorial trees. • Limited available space for shaft locations and construction compounds. • Partially utilizes proposed deep trunk sewer at Lakeshore Road. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Supports Elmwood SPS decommission. • New Hiawatha SPS would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Shallow open cut construction for forcemains along new alignments. • Provides some public space enhancements. • Reduces risk for system overflows. • Reduces long-term O&M needs. <p>Constraints</p> <ul style="list-style-type: none"> • Impacts to properties in the vicinity of the stations and along forcemain and gravity sewer alignments. • Proximity to Lake Ontario. • Anticipated traffic impacts along local roads. • Requires interim SPS upgrades. • Maintain SPS operation during construction. • Additional property and/or easements required (larger SPS footprint). • Potential impacts to waterfront trail, parks, mature & memorial trees. • Limited available space for shaft locations and construction compounds. • Requires additional shaft and length of Lakeshore trunk sewer to be constructed for connection from Hiawatha SPS. • Does not maximize benefit of use of deep trunk sewer along Lakeshore Road for a gravity solution. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Supports Elmwood SPS decommission. • New Hiawatha SPS would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Shallow open cut construction for forcemains along new alignments. • Provides some public space enhancements. • Reduces risk for system overflows. • Reduces long-term O&M needs. <p>Constraints</p> <ul style="list-style-type: none"> • Impacts to properties in the vicinity of the stations and along forcemain and gravity sewer alignments. • Proximity to Lake Ontario. • Anticipated traffic impacts along local roads. • Requires interim SPS upgrades. • Maintain SPS operation during construction. • Additional property and/or easements required (larger SPS footprint). • Potential impacts to waterfront trail, parks, mature & memorial trees. • Limited available space for shaft locations and construction compounds. • Does not maximize benefit of use of deep trunk sewer along Lakeshore Road for a gravity solution. • Gravity sewers from Hiawatha to Elmwood will require upgrades. Existing sewers are located within easements on private property. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Supports Hiawatha SPS decommission. • New Elmwood SPS would replace aging infrastructure and be built in accordance with new Region SPS Design Standards. • Shallow open cut construction for forcemains along new alignments. • Provides some public space enhancements. • Reduces risk for system overflows. • Less reduction of long-term O&M needs. <p>Constraints</p> <ul style="list-style-type: none"> • Impacts to properties in the vicinity of the stations and along forcemain and gravity sewer alignments. • Proximity to Lake Ontario. • Anticipated traffic impacts along local roads. • Requires interim SPS upgrades. • Maintain SPS operation during construction. • Additional property and/or easements required (larger SPS footprint). • Potential impacts to waterfront trail, parks, mature & memorial trees. • Limited available space for shaft locations and construction compounds. • Does not maximize benefit of use of deep trunk sewer along Lakeshore Road for a gravity solution. • Requires new gravity sewers from Hiawatha to Elmwood SPS which will influence the depth of the Elmwood SPS wet well. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Allows for gravity service and supports Elmwood SPS and Hiawatha SPS decommission. • Provides public space enhancements at both SPS locations. • Eliminates risk for system overflows. • Minimizes long-term O&M needs. • Maximizes benefit of use of deep trunk sewer along Lakeshore Road. <p>Constraints</p> <ul style="list-style-type: none"> • Impacts to properties in the vicinity of the stations and along gravity sewer alignments. • Proximity to Lake Ontario. • Anticipated traffic impacts along local roads. • Requires interim SPS upgrades. • Maintain SPS operation during construction. • Less additional property and/or easements required. • Potential impacts to waterfront trail, parks, mature & memorial trees. • Limited available space for shaft locations and construction compounds. 	<p>Opportunities</p> <ul style="list-style-type: none"> • Allows for gravity service and supports Elmwood SPS and Hiawatha SPS decommission. • Provides public space enhancements at both SPS locations. • Eliminates risk for system overflows. • Minimizes long-term O&M needs. • Maximizes benefit of use of deep trunk sewer along Lakeshore Road. <p>Constraints</p> <ul style="list-style-type: none"> • Impacts to properties in the vicinity of the stations and along gravity sewer alignments. • Proximity to Lake Ontario. • Anticipated traffic impacts along local roads. • Requires interim SPS upgrades. • Maintain SPS operation during construction. • Less additional property and/or easements required. • Potential impacts to waterfront trail, parks, mature & memorial trees. • Limited available space for shaft locations and construction compounds.
Screened Out	Screened Out	Screened Out	Screened Out	Screened Out	Screened Out	Carried Forward

6.6 Port Credit East Preferred Servicing Strategy

Through the evaluation, the preferred strategy was selected for each of the following project components:

1. **Lakeshore Road Trunk Sewer (2400 mm):** 2400 mm sewer within proposed 3700 mm tunnel from Marina Park east to the municipal parking lot at Elmwood Avenue North and Lakeshore Road. Temporary parking lot proposed at Harold E. Kennedy Park during construction. Strategy remains within the road right of way and traffic impact is minimized by selecting tunnelling method. **TBM is preferred for the construction of the deep trunk sewer and sub-transmission watermain on Lakeshore Road.**
2. **Lakeshore Road Sub-Transmission Watermain (750 mm):** Shared compounds with New Lakeshore Road Trunk Sewer to tunnel a 750 mm watermain within proposed 1500 mm tunnel from Marina Park to parking lot corner of Elmwood Avenue North and Lakeshore Road. Strategy remains within the road right of way and traffic impact is minimized by selecting tunnelling method. **TBM is preferred for the construction of the deep trunk sewer and sub-transmission watermain on Lakeshore Road.**
3. **Rosemere SPS (Firm Capacity 34 L/s) :** Replacement of Rosemere SPS at existing location with twinned forcemains via tunnelling extending east to Sandham Road. **HDD is preferred for the installation of the twinned 200 mm forcemains for the new Rosemere SPS to Sandham Road.**
4. **Elmwood and Hiawatha SPSs:** Both to be decommissioned, new gravity sewers via tunnelling to connect to the proposed deep trunk sewer on Lakeshore Road. **Microtunnelling is preferred for the construction of the gravity solution following decommissioning of the Elmwood and Hiawatha SPSs, and to ultimately connect to the new deep trunk on Lakeshore Road.**

The preferred servicing strategies rationale are as follows:

- Lakeshore sewer and watermain supports broader regional servicing solutions,
- Proposed Lakeshore Road deep trunk sewer provides for Elmwood and Hiawatha SPSs decommissioning,
- Tunnelled infrastructure solutions avoid major socio-economic impacts along Lakeshore Road, and,
- Strategic shaft locations and minimized shaft construction compounds reduce surface disturbances and potential socioeconomic, natural, and cultural heritage impacts.

7.0 Phase 3 – Design Concept Alternatives

Phase 3 of the Class EA process examines the alternative methods of implementing the preferred strategy while considering input from the public and other stakeholders. The objective is to determine what infrastructure is required, where it will be constructed and how. This phase includes the following:

- Identification of design concept alternatives,
- Preparation of detailed social, cultural, and environmental inventory,
- Evaluation of design concept alternatives using comprehensive evaluation criteria,
- Selection of preliminary preferred conceptual design and technologies,
- Identification of impacts and mitigation measures,
- Public Information Centre No. 3; and,
- Confirmation of the preferred conceptual design and technologies.

Detailed design concept alternatives criteria and evaluation tables can be found in [Appendix 3B](#).

7.1 Lakeshore Road Trunk Sewer and Sub-Transmission Watermain

The preferred servicing strategy on Lakeshore Road was selected through completion of Phase 2 of the Class EA process. The preferred strategy includes two shaft compound locations to facilitate the tunnel construction of a deep trunk sewer and sub-transmission watermain on Lakeshore Road from Marina Park (west of the Credit River) to the municipal parking lot to the east (located at the northeast corner of Elmwood Avenue North and Lakeshore Road).

7.1.1 Evaluation of Design Concept Alternatives

Based on the preferred servicing strategy for Lakeshore Road, there are three design concept alternatives. The evaluation of the design concept alternatives is outlined in [Table 7-1](#) below.

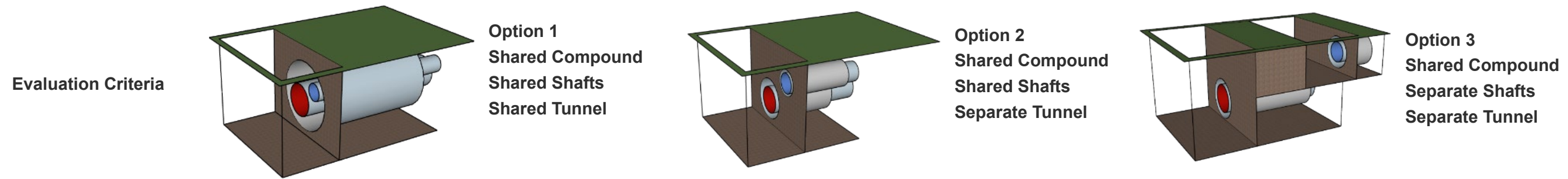
7.1.2 Preferred Design Concept

Out of the three different design alternatives, [Option 3 – shared compounds with separate shafts and tunnels](#) was ultimately selected as the preliminary preferred design concept based on the minimized construction complexity and risk, preferred operations, maintenance, lifecycle factors and flexibility in construction phasing.

Key factors for selection:

- Supports tunnelled construction of proposed deep trunk sewer and sub-transmission watermain along Lakeshore Road.
- Locations support connection of gravity sewers to allow the decommissioning of multiple SPSs (Front Street, Elmwood, and Hiawatha SPSs).
- Tunnelling allows for minimized impact to traffic, residents and businesses.
- Property is City-owned.

Table 7-1. Lakeshore Road Trunk Sewer and Sub-Transmission Watermain Alternative Design Concepts



Environmental	All three options are similar in depth. Impact to the environment (both above and below the surface) will be mitigated through detailed design.		
Social / Cultural	Option 1 is slightly preferred with regards to surrounding social / cultural impacts. Efforts to mitigate dust, noise, and vibration will be done through detailed design.	Option 2 and 3 have increased social / cultural impacts because they require two tunnel drives which have the potential for a prolonged construction period. The prolonged construction timing leads to additional dust, noise, and vibration to surrounding residents and businesses. Overall, Option 2 and 3 have the potential for increased social / cultural impact due to two separate tunnel drives.	
Technical	Option 1 has the highest technical complexity for construction and reduced flexibility for future operations and maintenance due to the shared tunnel. Option 1 is the most technically complex and has the highest probability of unpredictable risks and challenges.	Option 2 requires two tunnel drives from shared shafts, potentially prolonging construction with increased social / cultural impacts. Reduced technical complexity compared to Option 1 but with unpredictable risks / challenges due to shared shafts.	Option 3 requires two tunnel drives that could occur together or phased. Separate shafts provide opportunity for simultaneous construction, reducing the construction period compared to Option 2. Option 3 is less technically complex and offers more flexibility for future operations and maintenance.
Legal / Jurisdictional	Option 1, 2 and 3 are similar with regards to legal / jurisdictional complexity.		
Financial	Option 1 has the highest potential for increased cost of construction due to the technical complexity of a large, shared tunnel, which also increases the operational and maintenance complexities in the future (additional costs).	Although Options 2 and 3 may not have the potential for increased cost of construction due to technical complexity of a shared tunnel (like Option 1), it has the potential for increased cost of construction due to the possibility of phased installation.	
Overall Ranking	Least Preferred	Less Preferred	Most Preferred

7.2 Rosemere Sewage Pumping Station

The preferred strategy for the Rosemere SPS was selected through completion of Phase 2 of the Class EA process. This option includes the construction of a new SPS to replace the existing aging facility. It also requires two staging compound areas to facilitate the tunnel construction of twinned forcemains from the existing Rosemere SPS station on the west, to Sandham Road and Vesta Drive to the east.

The new SPS could be constructed either East or West of the existing station, as depicted in the schematic in [Figure 7-1](#).

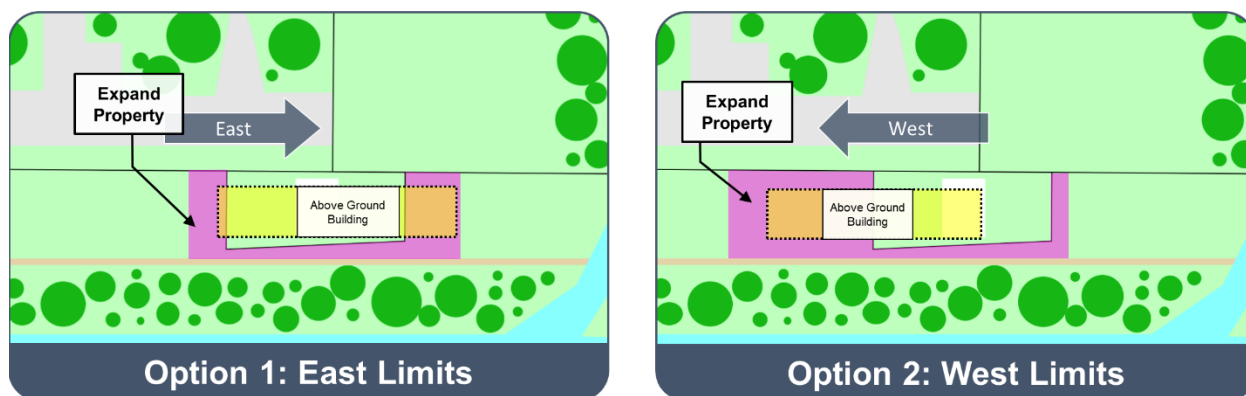


Figure 7-1. Rosemere Design Option Schematics

Each of the design options are accompanied by storage sub-options as depicted in [Figure 7-2](#).

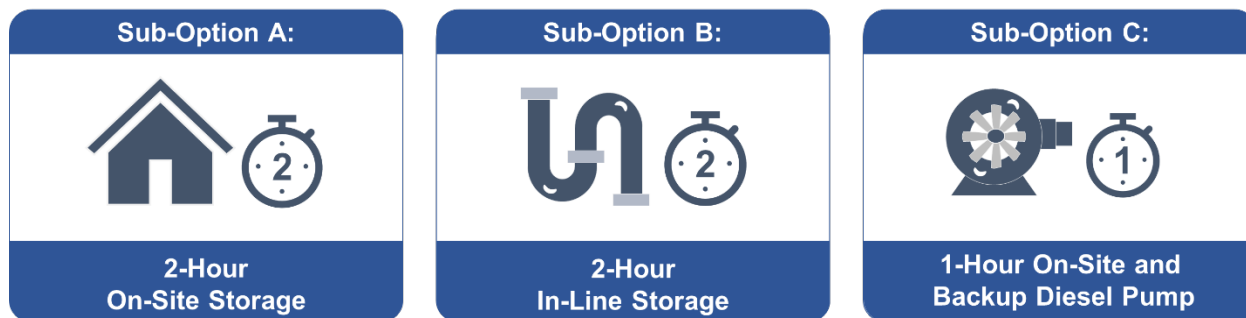


Figure 7-2. Rosemere Design Storage Sub-Option Schematics

7.2.1 Evaluation of Design Concept Alternatives

The following table outlines and evaluate the alternative design at Rosemere SPS.

Table 7-2. Rosemere SPS Alternative Design Concepts

Evaluation Criteria	Option 1a 2 Hour Storage – East Limit	Option 2a 2 Hour Storage – West Limit	Option 1b 2 Hour In-Line Storage – East Limit	Option 2b 2 Hour In-Line Storage – West Limit	Option 1c 1 Hour Backup Diesel Pump – East Limit	Option 2c 1 Hour Backup Diesel Pump – West Limit
Environmental	All options have similar environmental impacts, regardless if the property was designed to the east or west limits. Impact to the environment (both above and below the surface) will be mitigated through detailed design.					
Social / Cultural	Sub-option A and Sub-option C are similar in temporary construction impacts. However, options to the east will be less visible to existing residents than to the west.		Sub-Option B is less preferred as it will have additional air and noise impacts due to construction of in-line storage within the road right of way.		Sub-option A and Sub-option C are similar in temporary construction and aesthetic impacts. However, options to the east will be less visible to existing residents than to the west.	
Technical	All options to the east are not technically feasible due to legal / jurisdictional limitations.	Options to the west is preferred as it is more technically feasible. Additionally, Option 2a is most preferred in fulfilling 2-hour emergency storage on-site.	All options to the east are not technically feasible due to legal / jurisdictional limitations.	Options to the west are preferred as it is more technically feasible.	All options to the east are not technically feasible due to legal / jurisdictional limitations.	Options to the west are preferred as it is more technically feasible.
Legal / Jurisdictional	All east options face limitations as existing permanent easement on private land cannot be paved, which is required for construction access and future SPS maintenance.	Options to the west are preferred as it has reduced legal / jurisdictional complexity.	Sub-Option B (2-Hour in-line) requires additional road occupancy permitting and therefore is less preferred.		All east options face limitations as existing permanent easement on private land cannot be paved, which is required for construction access and future SPS maintenance.	Options to the west are preferred as it has reduced legal / jurisdictional complexity.
Financial	Sub-option A has the highest property acquisition cost.		Although Sub-option B has less property acquisition costs, it has potential for higher cost of construction for the in-line storage within the road right of way.		Although Sub-option C has less property acquisition costs, it has potential for increased operations and maintenance costs to maintain the spare backup pump.	
Overall Ranking	Not Feasible	Most Preferred	Not Feasible	Least Preferred	Not Feasible	Less Preferred

7.2.2 Preferred Design Concept

Out of six different design concept alternatives for the Rosemere SPS, **Option 2a: 2 Hour Storage – West Limit** was selected based on minimized legal and jurisdictional complexity, that allows for the access of the wet well and valve chamber during construction, as well as for future operation and maintenance. Additionally, it enables the ability for full 2-hour emergency storage on site in accordance with the new Regional SPS Design Standards.

Key factors for selection:

- Shaft locations support constructability of tunnelled twinned forcemains further removed from residential properties with limited space for construction activities.
- New SPS will replace existing aging infrastructure and be built in accordance with the Regional SPS Design Standards.
- Construction will be limited to City-owned property and road right of way.
- Twinned forcemains alignment provide the best connection point to existing infrastructure.
- Avoids disruptions on Stavebank Road and bridge crossing the Mary Fix creek and railway.

7.3 Elmwood and Hiawatha Sewage Pumping Stations

As previously noted in **Section 6.1.3**, it was determined through the completion of Phase 2 that trenchless tunnelling construction methodology was integral to the selection of the preferred strategy for Elmwood and Hiawatha SPSs.

As such, conceptual shaft locations were identified during Phase 2 of the EA process.

7.3.1 Preferred Design Concept

In Phase 3, the shafts location and construction compounds for the preferred servicing strategy were further refined. The preferred design for Elmwood and Hiawatha SPSs is further described in **Section 8.0**.

8.0 Preferred Design Concept

The preferred design concept for the Port Credit East area will improve the capacity of the water and wastewater systems within the study area while supporting the broader regional long-term servicing plan for the existing community and future growth. The preferred design concept includes the following components:

1. New Deep Trunk Sewer (2400 mm diameter) on Lakeshore Road,
2. New Sub-Transmission Watermain (750 mm diameter) on Lakeshore Road,
3. New Rosemere SPS (34 L/s firm capacity) and twinned forcemains (200 mm), and,
4. Decommissioning of Elmwood and Hiawatha SPSs and construction of new gravity sewers.

An overview of the preferred design concept including the proposed shaft compound locations are illustrated below in **Figure 8-1**. In total, there are nine shaft compound locations proposed, eight of which are evaluated under the Port Credit East EA. The shaft compound located near Front Street (at Marina Park west of the Credit River) was evaluated through the Front Street SPS EA (2019). Preliminary design drawings can be found in **Appendix 3C** (Rosemere SPS) and **Appendix 3D** (Lakeshore Watermain and Trunk, Elmwood SPS and Hiawatha SPS).

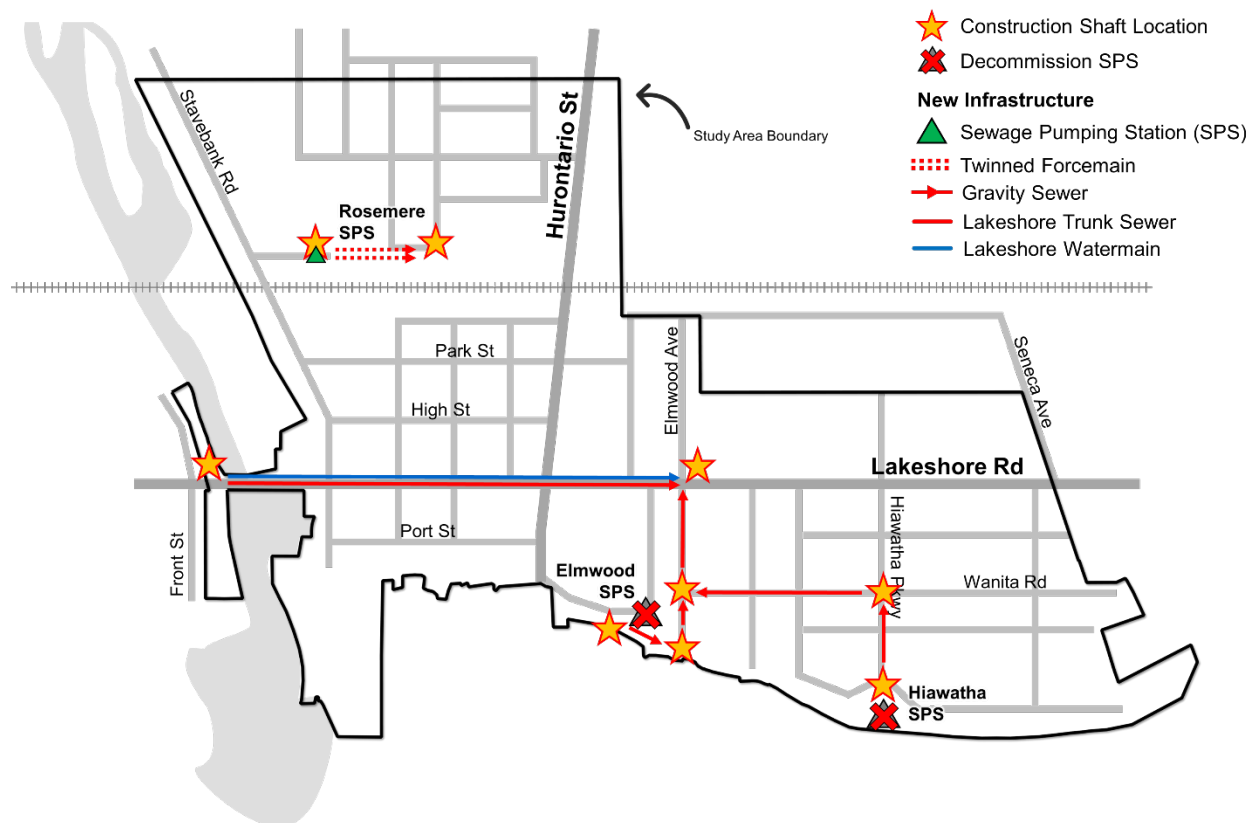


Figure 8-1. The Preferred Design Concept for Port Credit East EA.

8.1 Lakeshore Road Trunk Sewer and Sub-Transmission Watermain

The construction of a new deep trunk sewer (2400 mm sewer, currently proposed within a ~3700 mm tunnel) and sub-transmission watermain (750 mm watermain, currently proposed within a ~1500 mm tunnel) along Lakeshore Road between Front Street and Elmwood Avenue North (approximately 1.05 km in length).

The Marina Park's municipal parking lot at Lakeshore Road West and Front Street North, will be used for staging on the western extent, and the municipal parking lot in the northeast corner of Lakeshore Road East and Elmwood Avenue North will be used for staging on the eastern extent as shown in **Figure 8-2**.

Both the deep trunk sewer and sub-transmission watermain require crossing of the Credit River, as well as two separate shafts and separate tunnels that share the same construction compounds. The preliminary recommendation is for tunnelling operation to progress between the western extent to the east and will be approximately 20 metres below the Credit River riverbed. Construction sequencing to be confirmed through detailed design.

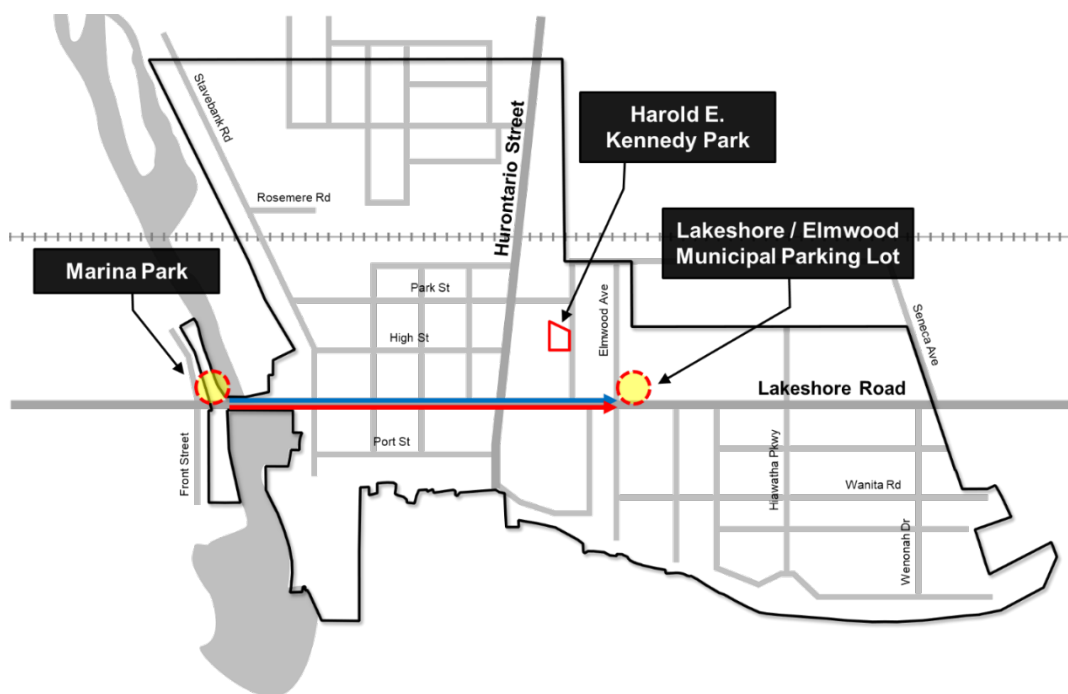


Figure 8-2. Proposed Construction Compound Locations – Lakeshore Sewer / Watermain



8.1.1 Marina Park (West Shaft)

It is important to note the design of the shaft compound layout at Marina Park is being developed through the Front Street Wastewater Pumping Station and Wastewater Diversion detailed design as shown previously in **Figure 2-2** and have been reviewed with the Port Credit East EA design to ensure technical feasibility (**Section 6.1.3**). This process helped to inform the proposed compound layout.

This shaft compound will require a Consent-to-Enter (CTE) from the City of Mississauga for the duration of the construction. Permanent easement for the proposed linear infrastructure will also be necessary for long term maintenance.

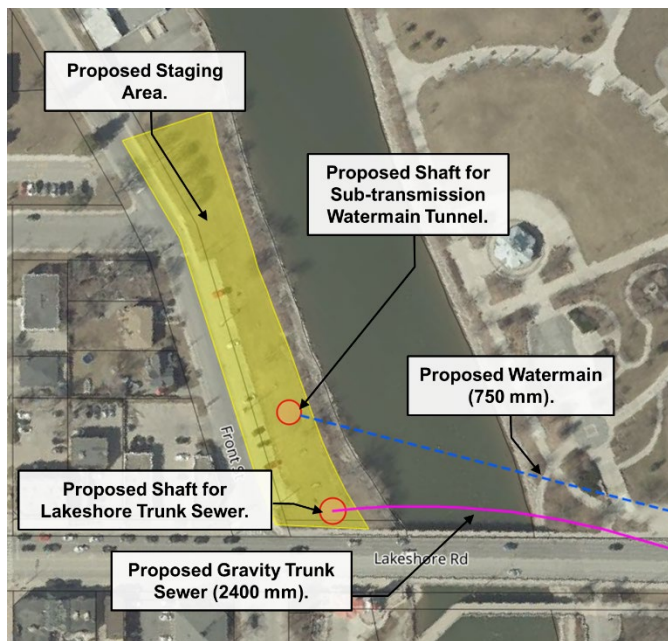


Figure 8-3. Marina Park Staging Area (Marina Park)

Additionally, approval permit is required from CVC as the proposed design takes place within the CVC's regulation limits at the Credit River.

8.1.2 Municipal Parking Lot (LAK_3)

The shaft compound at the municipal parking lot will require a CTE from the City of Mississauga for the duration of the construction. A road occupancy permit is required for the portion of the staging area that will be in the road right of way. Permanent easement will also be necessary for the proposed linear infrastructure and associated maintenance holes / chambers for long term maintenance access.

During the construction period, an alternative location is proposed at Harold E. Kennedy Park as a comparable sized alternative parking lot as shown in **Figure 8-2**. This location will be further reviewed and confirmed through detailed design.

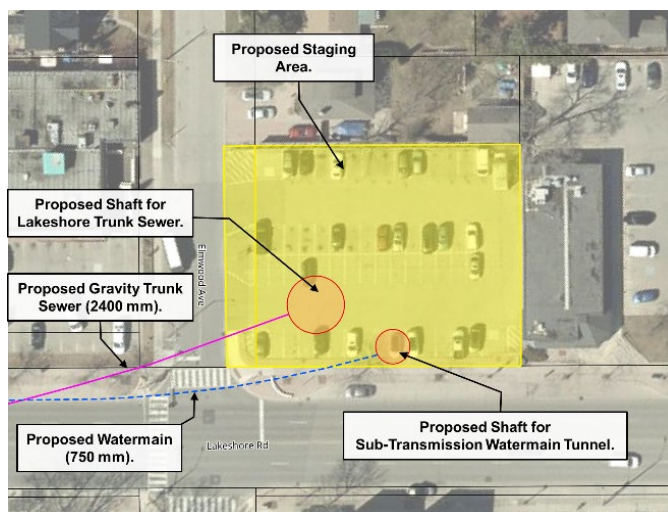


Figure 8-4. Municipal Parking Lot Staging Area (LAK_3)

8.2 Rosemere SPS

The new 34 L/s Rosemere SPS at the existing location will have twinned 200 mm diameter forcemains extending to the east to Sandham Road. The new SPS will replace existing aging infrastructure and be built in accordance with new Regional SPS Design Standards.

There will be a crossing of the at Kenollie Creek, as well as two separate shafts and separate tunnels that share the same construction compounds. Tunnelling will occur from the western extent to the east via HDD methodology and will be approximately 20 metres below Kenollie Creek the bottom of the Credit River (**Figure 8-5**).

Note that the Rosemere SPS and forcemain design and construction timing is not dependent of the remaining Port Credit East study components. Design and construction of the Rosemere SPS component can be completed independently.

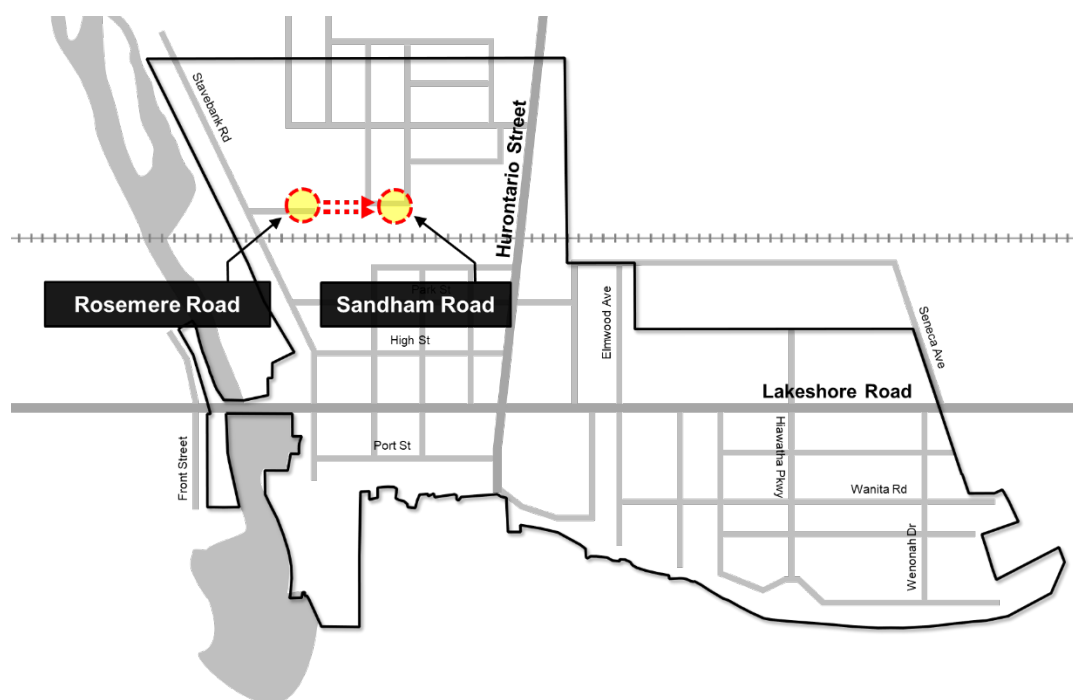


Figure 8-5. Proposed Construction Compound Locations – Rosemere SPS



8.2.1 Rosemere Road (ROS_1)

The compound location at Rosemere Road will require a Consent-to-Enter (CTE) from the City of Mississauga for the duration of the construction. A road occupancy permit is required for the portion of the staging area that will be in the road right of way. There is an existing permanent easement that will be used for the proposed linear infrastructure and associated maintenance holes / chambers for long term maintenance access.

This permanent easement is located on a private property and will be returned to its original state after construction.

Additionally, property will need to be acquired by the Region of Peel from the City of Mississauga to accommodate for the expanded footprint needed for the new Rosemere SPS. Approval permit is also required from CVC as the proposed design takes place within the CVC's regulation limits at Mary Fix Creek and Kenollie Creek. This is also required at the receiving construction staging area at ROS_2.



Figure 8-6. Rosemere Road Staging Area (ROS_1)

8.2.2 Sandham Road (ROS_2)

The compound location at Sandham Road will require a road occupancy permit as the proposed staging area is located within the road right of way.

There will be a connection to existing infrastructure required within the vicinity of Sandham Road and Vesta Drive.

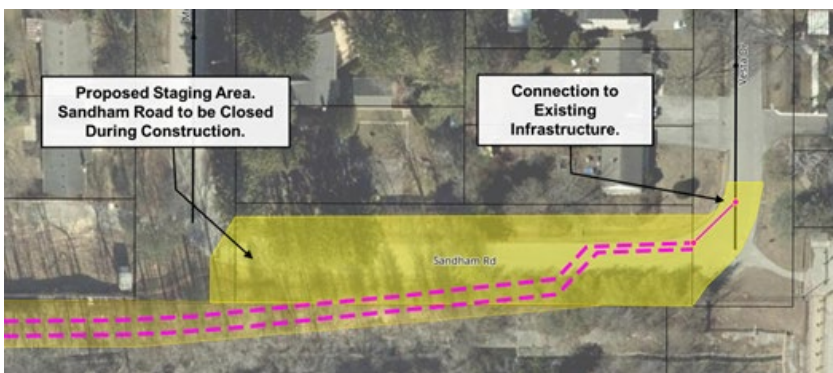


Figure 8-7. Sandham Road Staging Area (ROS_2)

8.3 Elmwood and Hiawatha SPSs

The existing Elmwood and Hiawatha SPSs will be decommissioned, and a series of proposed tunnelled gravity sewers ranging from 300 mm to 525 mm will connect the Hiawatha SPS and Elmwood SPS drainage areas to the new Lakeshore Road trunk sewer. The last connection to Lakeshore Road will incorporate an incoming diversion gravity sewer from Elmwood Avenue South to a construction compound within the road ROW at Elmwood Avenue North adjacent to the municipal parking lot.

A total of six construction compound locations are required to support constructability of the new tunnelled gravity sewers to facilitate decommissioning of the Elmwood and Hiawatha SPSs as shown in **Figure 8-8**.

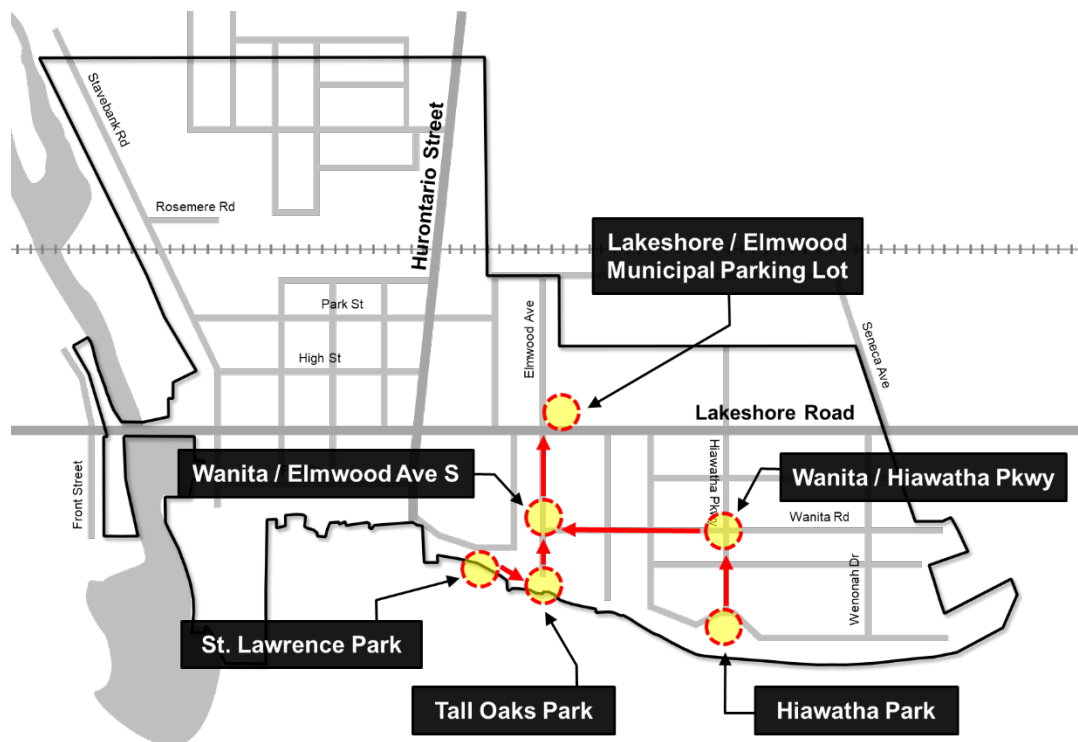


Figure 8-8. Proposed Construction Compound Locations – Elmwood and Hiawatha SPSs

The following are broken up into three (3) sections in the following order:

1. Construction associated with Elmwood SPS decommissioning.
2. Construction associated with connection to Lakeshore trunk sewer on Elmwood Avenue.
3. Construction associated with Hiawatha SPS decommissioning.

8.3.1 Elmwood SPS Decommissioning (ELM_5, ELM_6)

There are two shaft compound locations associated with the decommissioning of Elmwood SPS. Both compounds will require a Consent-to-Enter (CTE) from the City of Mississauga for the duration of the construction. A road occupancy permit is required for the portion of the staging area that will be in the road right of way.

Permanent easement will also be necessary for the proposed linear infrastructure and associated maintenance holes / chambers for long term maintenance access. Both locations will require connections to existing infrastructure.

The St. Lawrence Park (ELM_5) staging area is shown in **Figure 8-9**. The proposed gravity sewer will run from this location to the Tall Oaks Park (ELM_6) staging area shown in **Figure 8-10**.

From ELM_6, the proposed gravity sewer will run towards ELM_4 described in the next section.

Additionally, approval permit is required from CVC as the proposed design takes place within the CVC's regulation limits at Lake Ontario.

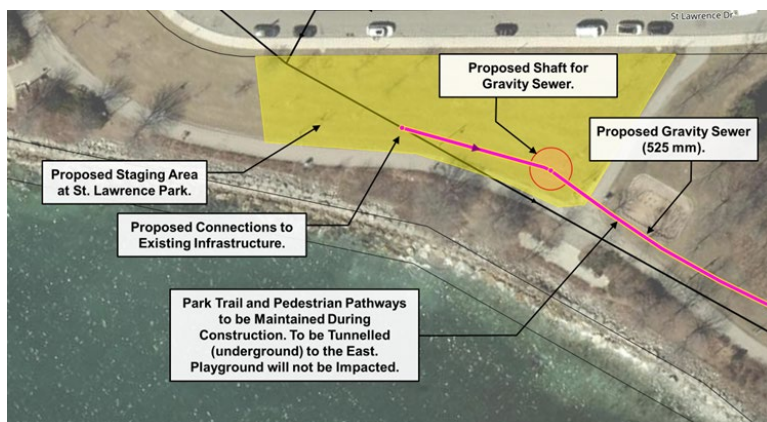


Figure 8-9. St. Lawrence Park Staging Area (ELM_5)

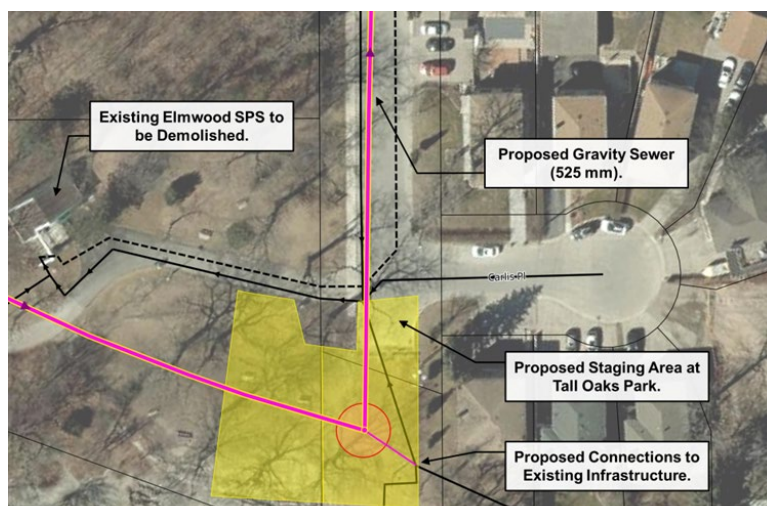


Figure 8-10. Tall Oaks Park Staging Area (ELM_6)



8.3.2 Elmwood Avenue Shaft Compounds (ELM_4, LAK_3)

There are two shaft compound locations along Elmwood Avenue. The proposed gravity sewer coming from ELM_6 will come to ELM_4 located at Wanita Road and Elmwood Avenue South as shown in **Figure 8-11**. At this location, it will also be a connecting point for the proposed gravity sewer along Wanita Road from the east, to collect flows following the decommissioning of Hiawatha SPS.

Both compounds will require a Consent-to-Enter (CTE) from the City of Mississauga for the duration of the construction. A road occupancy permit is required for the portion of the staging area that will be in the ROW.

Permanent easement will also be necessary for the proposed linear infrastructure and associated maintenance holes for long term maintenance access.

Key factors for selection were previously determined as part of Phase 2 (**Section 6.5.3**).

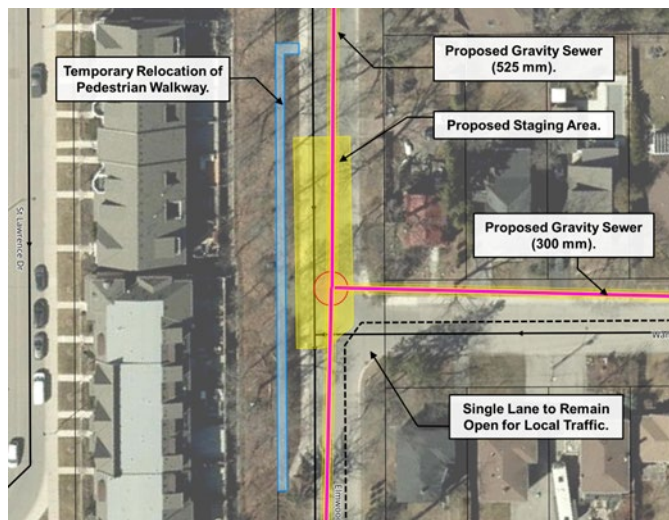


Figure 8-11. Wanita Road / Elmwood Avenue South Staging Area (ELM_4)

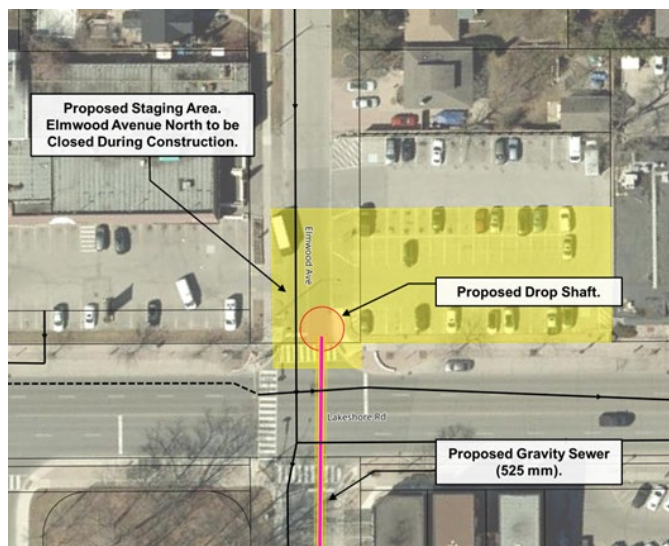


Figure 8-12. Lakeshore Road / Elmwood Avenue North Staging Area (LAK_3)



8.3.3 Hiawatha SPS Decommissioning (HIA_7, HIA_8)

There are two shaft compound locations associated with the decommissioning of Hiawatha SPS. Both compounds will require a Consent-to-Enter (CTE) from the City of Mississauga for the duration of the construction. A road occupancy permit is required for the portion of the staging area that will be in the road right of way.

Permanent easements will also be necessary for the proposed linear infrastructure and associated maintenance holes / chambers for long term maintenance access. Both locations will require connections to existing infrastructure.

The Wanita Road and Hiawatha Parkway (HIA_7) staging area is shown in **Figure 8-13**. The proposed gravity sewer run from this location to the west towards Elmwood Avenue South (ELM_4). HIA_7 will also be receiving the proposed gravity sewer coming from the south along Hiawatha Parkway, following the decommissioning of the Hiawatha SPS (HIA_8). The staging area for HIA_8 at Hiawatha Park is shown in **Figure 8-14**.

Additionally, approval permit is required from CVC as the proposed design takes place within the CVC's regulation limits at Lake Ontario at Hiawatha Park (HIA_8).

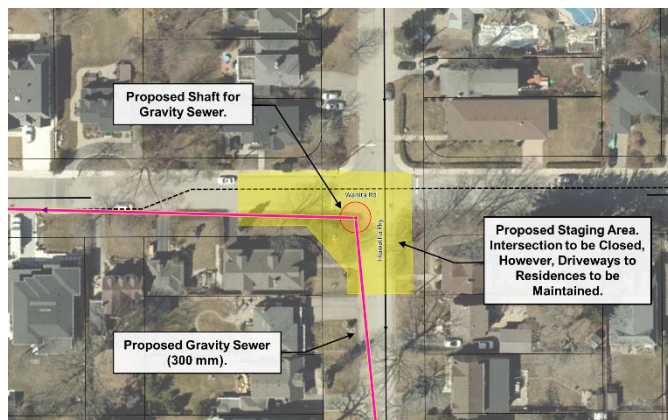


Figure 8-13. Wanita Road / Hiawatha Parkway Staging Area (HIA_7)

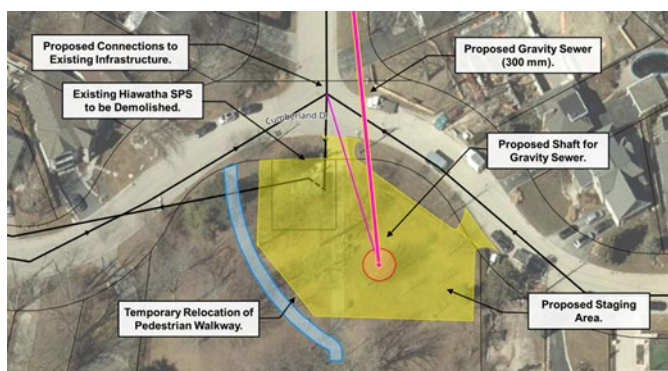


Figure 8-14. Hiawatha Park Staging Area (HIA_8)

8.4 Preferred Design Overview

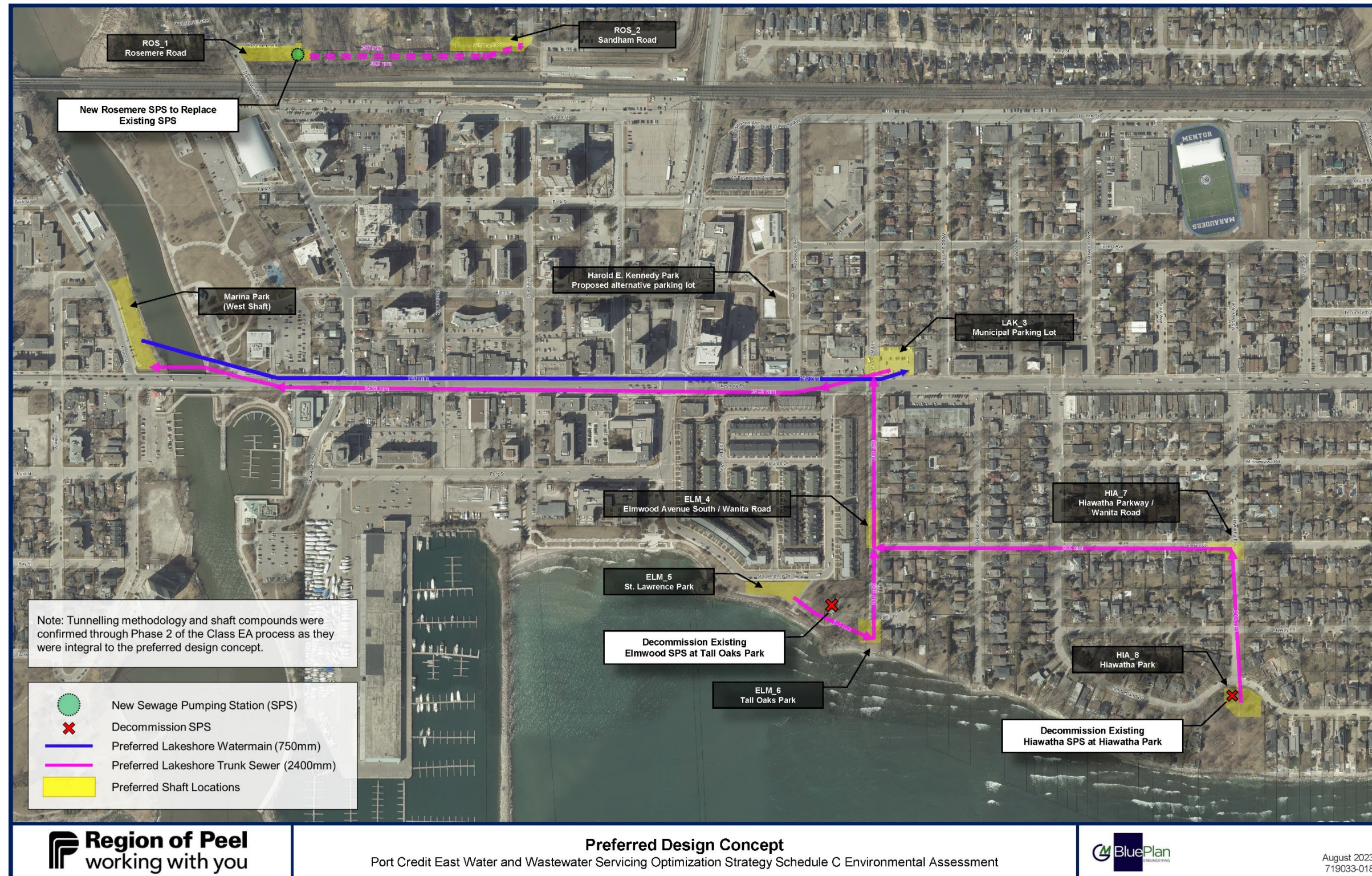


Figure 8-15. Preferred Design Concept and Recommended Tunnel Shaft Locations

8.5 Benefits of the Overall Strategy

As the Region continues to grow, the level of service expectations on the existing and future water and wastewater infrastructure systems in the general Port Credit East area are experiencing operational challenges. The preferred design concept addresses future capacity needs to 2041, as well as other benefits including:

- Short-term construction impact with long-term community benefits.
- Minimized construction impact through use of tunnelling construction technology.
- Minimized number of shaft compounds.
- Servicing solution for the existing community and future growth.
- Optimized system that protects the environment and meets new design standards.
- Optimizes working with Municipal partners (City of Mississauga) to facilitate construction while minimizing impact to private land and to the community.
- Elmwood and Hiawatha SPSs to be decommissioned, and land returned to park.
- Detailed Design will develop a Remediation Plan to compensate for potential loss of trees and vegetation due to construction.



Figure 8-16. Conceptual Depiction of Tall Oaks Park After Elmwood SPS Decommissioning



Figure 8-17. Conceptual Depiction of Hiawatha Park After Hiawatha SPS Decommissioning.

9.0 Built and Natural Environmental Impacts and Mitigation Measures

Additional studies were completed during Phase 3 of the Class EA process to support the selection of the preferred design concept noted in **Section 8.0**. The following section provides a summary of recommendations, potential impacts and associated mitigation / monitoring measures required during detailed design and construction.

9.1 Climate Change

The Region of Peel, at a Council level, have prioritized Climate Resiliency Region-wide across all services. The implications of climate change on infrastructure can be wide-ranging and can encompass numerous aspects of a project. Likewise, infrastructure upgrades, expansions, operations, and maintenance activities may increase Greenhouse Gas (GHG) emissions thereby impacting air quality and climate.

This section provides an overview of the potential impacts of climate change to the wastewater system and the potential implications of the water and wastewater system on climate change. The information was used to support the development and evaluation of alternative solutions and design concepts, as well as short and long term adaptive management practices.

9.1.1 Potential Impacts to the Water and Wastewater System

Climate conditions can have an impact on water and wastewater systems. The following provides a list of weather events and their potential impacts on the water and wastewater system.

- **High Temperatures:** an increase in temperatures can lead to water quantity and quality issues as well as an increase in water demands.
- **Drought:** a decrease in wet weather events can lead to wastewater quality issues, for example higher concentration of wastewater entering the water resource recovery facilities.
- **Freeze-Thaw Cycle:** freeze-thaw cycles can lead to damaged buried infrastructure.
- **Precipitation:** increased precipitation can lead to capacity issues in the wastewater system and an increased potential for overflows and spills to the environment.
- **Wind:** high winds can lead to increased power outages, impacting the operation of pumping stations and treatment plants.
- **Water Level:** increased water levels can lead to flooding of infrastructure.
- **Storms:** increased storm events can lead to increased power outages impacting the operation of pumping stations and treatment plants, as well as an increase of rainfall derived infiltration into the wastewater system.

In developing and assessing alternatives, the preferred design concept will endeavour to provide flexibility and redundancy for adapting to the potential climate change impacts described above.

9.1.2 Minimizing Impacts of the Project on Climate Change

The following criteria were considered, where feasible, in the evaluation process with the aim to reduce the project's potential impact on climate change:

- The use of gravity sewers to reduce the amount of GHG emissions compared to the operation of pumping stations.
- Maximize the use of existing infrastructure to minimize the need to build new infrastructure.
- Design of wastewater infrastructure for existing and future peak wet weather conditions to ensure appropriate future capacity and avoid potential surcharge and system overflows.
- Restoring natural/grassed areas back to original or enhanced natural conditions.

9.2 Natural Features and Wildlife Habitat

A Natural Environment Report was completed which included an initial desktop assessment followed by field investigations. This report evaluated potential project impacts to the natural environment and recommended mitigation measures in relation to the proposed design concept described in [Section 8.0](#). This report was provided to Indigenous Communities for review prior to ESR filing on September 28, 2023.

General Best Management Practices: to be followed during site preparation and construction to mitigate damage to natural features include the following:

- Minimize, where possible, the project footprint and duration during the detailed design phase.
- Clearly demarcate and maintain site boundaries to prevent encroachment into adjacent natural features.
- Ensure all equipment is cleaned prior to transportation and maintained free of fluid leaks, for use on the sites to avoid the spread or introduction of invasive species, or noxious weeds.
- Avoid the storage of construction materials or equipment adjacent to sensitive natural features (e.g., woodland) to minimize disturbance to these features and resident wildlife.



- Exposed surfaces should be re-stabilized and revegetated as soon as possible following disturbance, specifically within 15 days near watercourses and within 45 days in graded areas. Consider revegetating with CVC seed mix 3 (Lowland Restoration Mix) for low-lying areas and CVC Seed Mix 1 (Upland Mix) for upland areas to ensure each ecosite is returned to pre-construction condition or better. Seed mix and cover crop details are provided in the CVC Plant Selection Guideline (CVC 2018).
- Implement standard practices such as a grading plan, drainage plan, sediment and erosion controls, spill prevention, etc., during the construction phase of the project.
- Appropriate vegetation clearing techniques will be used (e.g., felling trees away from retained natural areas and watercourses).
- Cut and grubbed material shall be disposed of through chipping or other appropriate means.
- Dust control shall be completed using water, not chemical suppressants.
- Environmental inspection during construction is recommended to ensure that all mitigation measures are implemented properly, maintained and repaired. Remedial measures are to be initiated in a timely manner where warranted.

The following site-specific impacts and mitigation measures are further detailed below.

9.2.1 Surface Water Features

The following waterbody / watercourses that may be impacted by the proposed design concept as described in [Section 8.0](#) are noted in [Table 9-1](#).

Table 9-1. Surface Water Potential Impacts and Mitigation

Potential Impact	Mitigation Measure
Kenollie Creek and Mary Fix Creek - Shaft Compound Locations: ROS_1, ROS_2	- Follow general best management practices provided in Section 9.2 . - Monitoring requirements to be identified during detailed design.
Lake Ontario - Shaft Compound Locations: ELM_5, ELM_6, HIA_8	
Credit River - Shaft Compound Location: West shaft at Marina Park	

The CVC regulates watercourses, waterbodies, and wetlands in the Credit River watershed. Additionally, the preferred design concept described in [Section 8.0](#) are within the CVC regulation limits, therefore, will require authorization or a permit from the CVC as noted in [Section 4.1.2.11](#).



9.2.2 Fish and Fish Habitat

The preferred design concept as described in **Section 8.0** have the potential to indirectly impact fish and fish habitat at the water features noted in **Table 9-1**.

There will be crossing of the Credit River from Marina Park to LAK_3, as well as a crossing at Kenollie Creek from ROS_1 to ROS_2. However, there are no anticipated direct impacts at the Credit River and Kenollie Creek since tunnelling methodology is selected to install the proposed new infrastructure. Other potential impacts to fish and fish habitat are described in **Table 9-2**.

Table 9-2. Fish Habitat Potential Impacts and Mitigation

Potential Impact	Mitigation Measure
<p>Change in Habitat</p> <ul style="list-style-type: none"> - Removal, clearing/grading, and excavation of vegetation can alter habitat structure and cover, nutrient concentrations, and water temperature due to removal of shading. 	<ul style="list-style-type: none"> - Follow general best management practices provided in Section 9.2. - Monitoring requirements to be identified during detailed design. - Conduct near water work during period of low flow, avoid wet, windy/rainy periods. - Install, inspect, and maintain sediment / erosion controls. - Manage water flow such that sediments are filtered prior to entering the water. - Develop a response plan in the event of a spill / contamination. - Service and maintain equipment away from the water (>30 metres). - Storage of equipment and material in a manner that prevents leaching. - Rehabilitate site to pre-construction condition or better.
<p>Bank Instability</p> <ul style="list-style-type: none"> - Use of industrial equipment have the potential to increase bank instability leading to sediment laden runoff entering the water. - Removal, clearing/grading, and excavation of vegetation can cause bank instability. 	
<p>Equipment Leaks</p> <ul style="list-style-type: none"> - Equipment chemical leaks leading to contaminants entering the water due to use of equipment below highwater mark at Kenollie Creek. 	

9.2.3 Significant Woodlands

Direct impacts identified at the Rosemere site (primarily surrounding Kenollie Creek) are anticipated to be minimal as the majority of the significant woodland is outside of the proposed construction staging area, and therefore tree removals within the significant woodland will be minimal. Additionally, the proposed works as described in [Section 8.0](#) will be completed using trenchless methods, avoiding major impacts to significant woodlands.

Indirect impacts to adjacent vegetation during and following construction may include:

- Release of construction-generated sediment to adjacent habitats.
- Vegetation clearing / damage beyond the working area.
- Increased potential for introduction of non-native species.
- Spills of contaminants, fuels and other materials that may reach natural or semi-natural areas.
- Changes in drainage patterns (groundwater and/or surface runoff flow) that can impact dependent vegetation/wetland areas. Blocking of existing surface/subsurface drainage patterns can result in vegetation changes; an increase in downstream runoff can result in erosion impacts on receiving vegetation.

Potential indirect impacts to significant woodlands can be avoided or minimized through the implementation of mitigation measures identified in [Section 9.2](#).

A preliminary tree screening was completed at Rosemere to document tree resources that may potentially be removed. This report can be found in [Appendix 2G](#). Trees that may potentially be impacted are also found in the same appendix. These will be further refined during detailed design.

9.2.4 Significant Valleylands

Significant valleylands are associated with the Credit River where it flows adjacent to the study area. These features are mapped as Significant Natural Areas and Natural Hazard Lands in the Official Plan. The Natural Hazard Lands surrounding the Credit River are also designated as an Urban River Valley under the Greenbelt Plan. Given that the Credit River Significant Valleylands is large and defined, and the proposed works is limited to one crossing via trenchless tunnelling, the Project is not expected to have any negative impacts on the overall morphology and function of the valleylands.

General mitigation measures to minimize impacts to the Credit River and its valleylands are provided in [Section 9.2](#). Additional mitigation / monitoring measures will be determined in consultation with the CVC, as the proposed works as described in [Section 8.0](#) will require permitting for development within CVC regulation limits: ROS_1, ROS_2, ELM_5, ELM_6, and HIA_8.

9.2.5 Habitat for Endangered and Threatened Species

Field investigations found the following endangered and threatened species collectively at all shaft compound locations. Potential impacts and mitigation measures are noted in **Table 9-3**.

Mitigating Impact to Migratory Nesting Birds

The following mitigation measures shall be implemented in accordance with the *Migratory Birds Conservation Act* (MBCA):

- No active nests will be removed or disturbed in accordance with the MBCA.
- Avoid vegetation removal and activities resulting in major noise / vibration levels during the migratory bird nesting period (April 5 to August 26 in nesting zone C2; ECCC 2023) to the extent possible.
- If the nesting season cannot be avoided, a nesting survey should be conducted prior to construction. If any active nests are found during the nesting survey, a buffer will be installed around the nest to protect against disturbance. Vegetation within the protection buffer cannot be removed until the young have fledged the nest.
- If a nesting migratory bird is identified within or adjacent to the construction site and the construction activities are such that continuing construction in that area would result in a contravention of the MBCA, all activities will stop, and a qualified biologist will be contacted to discuss mitigation options.

Table 9-3. Habitat for Endangered / Threatened Species Potential Impacts and Mitigation

Potential Impact	Mitigation Measure
<p>Chimney Swift (threatened)</p> <ul style="list-style-type: none"> - Likely minimal and temporary as they are foraging visitors. - Major noise and vibration from construction. - Shaft Compound Locations: ROS_1, ROS_2, LAK_3, ELM_4, ELM_5, ELM_6, HIA_7, HIA_8, Marina Park 	<ul style="list-style-type: none"> - Major noise and vibration impact to nesting zones to be avoided during migratory nesting periods. - To stop all construction should nesting migratory birds are identified within or adjacent to the construction sites in accordance with the <i>Migratory Birds Conservation Act</i> (MBCA).
<p>Red-headed Woodpecker (endangered)</p> <ul style="list-style-type: none"> - Likely minimal and temporary impact to breeding habitat. - Major noise and vibration from construction. - Shaft Compound Locations: ROS_1, ROS_2, LAK_3, ELM_6, HIA_8 	<ul style="list-style-type: none"> - Mitigated impact to breeding habitat by selecting trenchless construction methodology by TBM. - Major noise and vibration impact to nesting zones to be avoided during migratory nesting periods. - To stop all construction should nesting migratory birds are identified within or adjacent to the construction sites in accordance with the MBCA.



Potential Impact	Mitigation Measure
<p>Butternut (endangered)</p> <ul style="list-style-type: none"> - Flagged for high potential to occur, however, not observed at any site. Areas that may have it were not accessible during field work. - Shaft Compound Locations: ROS_1, ROS_2, ELM_6 	<ul style="list-style-type: none"> - Follow general best management practices provided in Section 9.2.
<p>Kentucky Coffee-Tree (threatened)</p> <ul style="list-style-type: none"> - Observed at Elmwood, however the planted specimens were intentionally planted and therefore not protected. - Shaft Compound Location: ELM_6 	<ul style="list-style-type: none"> - Habitat for naturally occurring individuals / populations was not present in the study area.

9.2.6 Significant Wildlife Habitat

Field investigations found that there is significant wildlife habitat (SWH) for the monarch, eastern wood-pewee, wood thrush, and potentially amphibian movement corridors. Potential impacts and mitigation measures are noted in **Table 9-4**.

Table 9-4. Significant Wildlife Habitat Potential Impacts and Mitigation

Potential Impact	Mitigation Measure
<p>Monarch</p> <ul style="list-style-type: none"> - Potential minor and temporary impact to habitat of special concern and rare wildlife species. - Shaft Compound Locations: All 	<ul style="list-style-type: none"> - Consider re-vegetating disturbed areas with native seed mix including native milkweed and wildflowers. - Monitoring requirements to be identified during detailed design.
<p>Eastern Wood-Pewee and Wood Thrush</p> <ul style="list-style-type: none"> - Potential minor and temporary impact to habitat of special concern and rare wildlife species. - Shaft Compound Locations: ROS_1, ROS_2 	<ul style="list-style-type: none"> - Mitigated through selection of trenchless tunnelling, thus impact to breeding and foraging habitat are minimized. - Follow migratory bird mitigation measures as provided in Section 9.2.5. - Direct impact can be mitigated by following general best management practices provided in Section 9.2.



Potential Impact	Mitigation Measure
<p>Amphibian Movement Corridor</p> <ul style="list-style-type: none"> - Potential impacts within the planned staging area at Rosemere Road may dry out moist microclimate necessary to enable amphibian movement. - Shaft Compound Locations: ROS_1, ROS_2 	<ul style="list-style-type: none"> - Mitigated through selection of trenchless tunnelling, thus impacts to animals utilizing treed areas that support such movement corridors, are avoided. - Presence of amphibian habitat has yet to be confirmed. Should it be confirmed, mitigation measures to maintain and monitor the amphibian corridor will be developed during detailed design.

9.2.7 Natural Hazard Lands

As part of the City of Mississauga’s Official Plan, Natural Hazard Lands are associated with stream corridors and the Lake Ontario shoreline and determined to be unsafe for development. Where development is proposed within Natural Hazard Lands, uses must be limited to essential infrastructure, conservation, flood and erosion control, and passive recreation.

Development will not be permitted unless it meets the requirements of the CVC and City policies (e.g., Erosion and Sediment Control by-law). However, development may be permitted within hazard lands if an assessment is completed to demonstrate that alternatives have been considered and development will not adversely affect the feature or its flood and erosion control function, to the satisfaction of the CVC.

After the evaluation of the alternatives, it was determined that the proposed works described in **Section 8.0** are considered essential infrastructure. Therefore, it is necessary to identify appropriate mitigation measures for associated impacts on Natural Hazard Lands identified within the study area (**Table 9-5**).

Table 9-5. Natural Hazard Lands Potential Impacts and Mitigation

Potential Impact	Mitigation Measure
<p>Natural Hazards Lands</p> <ul style="list-style-type: none"> - Potential minimal impact that is small in area, located at the northeastern quadrant of Rosemere Road and Stavebank Road. - Potential impact due to erosion and scour at Kenollie Creek. - Potential shoreline flooding and erosion hazard along Lake Ontario at Tall Oaks Park. - Shaft Compound Locations: ROS_1, ELM_6 	<ul style="list-style-type: none"> - Impacts are minimized by selecting trenchless tunnelling construction. - Tree removals minimized wherever possible to maintain treed area of Natural Hazard Lands to the extent possible. - Design of infrastructure to ensure erosion and scour protection. - Upon completion of construction, the staging area will be restored / revegetated with native deciduous trees and shrubs appropriate to local ecological context.



Potential Impact	Mitigation Measure
	- Follow general best management practices provided in Section 9.2 .

9.3 Physical Environment

Based on the proposed works described in **Section 8.0**, the following sections identify potential impacts to the physical environment in and around the Port Credit East study area.

9.3.1 Geotechnical Considerations

A Geotechnical Desktop Study was completed on the preferred design concept to summarize existing subsurface soil and groundwater conditions and identify where additional geotechnical investigations are required prior to further design activities. The findings of the desktop study are outlined in **Section 4.2.2.1**.

Previous investigation noted that bedrock surface was encountered between 4.2 and 17.2 metres below ground surface (bgs) along Lakeshore Road (Marina Park to municipal parking lot at LAK_3) and between 5.5 metres and 10.7 metres bgs north of Lakeshore Road near the Canadian Pacific Railway (ROS_1 and ROS_2).

Limited existing geotechnical field investigations were reviewed in the vicinity of the Rosemere SPS and the associated twin forcemains extending east to Vesta Drive. No existing geotechnical field investigations were reviewed that were located south of Lakeshore Road near the Elmwood and Hiawatha SPSs nor the associated proposed gravity sewer connections along Hiawatha Parkway, Wanita Road, and Elmwood Avenue South.

An assessment of anticipated challenges and impacts of open-cut excavation (to be considered for utility installation and SPS construction) as well as trenchless installation of the proposed infrastructure are outlined in **Table 9-6** and **Table 9-7** respectively.

Table 9-6. Geotechnical Potential Impacts and Mitigation – Open Cut

Geotechnical Challenge	Mitigation Measure
Perched Groundwater in Fill Layers - Excavations will likely extend through fill layers that may contain perched groundwater.	Groundwater conditions should be monitored and controlled during trench excavation in all sections to protect the integrity of the trench base and maintain dry working conditions. A working concrete slab may also be considered in sensitive soils.



Geotechnical Challenge	Mitigation Measure
<p>Water-Bearing Granular Zones / Groundwater Control</p> <ul style="list-style-type: none"> - Excavations may extend below the groundwater level in the water-bearing granular soil zones (i.e., silt to sand to gravel) present within the overburden. 	<p>Design of open-cut excavations for pumping stations and trenched excavations should incorporate groundwater control to minimize the impact of dewatering on the watercourses, surrounding infrastructure and other sensitive features. SPS may need to be designed to resist hydrostatic uplift pressures (ex. anchoring, thickening of base slab).</p>
<p>Weak Cohesive Soils / Base Stability</p> <ul style="list-style-type: none"> - Weak cohesive soils are considered unsuitable founding soils, and when present near the base of the excavation can lead to base heave. If a water-bearing permeable deposit is present below the relatively impermeable cohesive soils, basal uplift is a risk. 	<p>Proposed utility inverts and founding elevations for the SPSs should be reviewed once additional borehole information is collected along the alignments to determine the anticipated soil stratigraphy of the founding soils. Sub-excavation and replacement of founding soils, thickening of utility bedding, and/or design modification to may be considered.</p>
<p>Organic Deposits</p> <ul style="list-style-type: none"> - Organic deposits encountered at the Credit River and along Lakeshore Road near the Credit River are considered unsuitable founding soils. 	<p>Sub-excavation and replacement of the organic deposits and thickening / reinforcing of the utility bedding beneath the utility inverts may be considered to reduce post-construction settlement.</p>
<p>Fine-grained Soils with Corrosion Potential</p> <ul style="list-style-type: none"> - Some soils have the potential to corrode steel and concrete over time, especially fine-grained soils such as the silts and silty clays. 	<p>Analyze soil samples for parameters that contribute to corrosion potential (i.e., pH, soluble sulphate, chlorides, electrical conductivity and resistivity). Design utility installations according to corrosion potential.</p>
<p>Presence of Cobbles and Boulders in Glacial Till</p> <ul style="list-style-type: none"> - It should be assumed that cobbles/boulders are present in the overburden and are comprised of a variety of different lithology's including native bedrock but also glacial erratics from the Canadian Shield with a wide range in strengths. 	<p>Excavating equipment with ground loosening tools such as a rock bucket, hoe ram and picks and chisels may be considered. Contract Documents should include provisions to manage the excavation and disposal of cobbles and boulders.</p>



Geotechnical Challenge	Mitigation Measure
<p>Shallow Bedrock</p> <ul style="list-style-type: none"> - Open-cut excavations for pumping stations and utility trenches may extend into hard residual soil and / or weathered bedrock. The bedrock surface was encountered as high as Elevation 78.9 metres (approximately 4 to 5 metres bgs). 	<p>Use of hydraulic excavators equipped with rock teeth and supplemented with equipment such as road-headers or hydraulic rock breakers ("hoe-ram") may be considered.</p>
<p>Credit River Crossing</p> <ul style="list-style-type: none"> - If open cut excavation is considered for the proposed watermain, river flow will have to be temporarily disrupted. 	<p>Open cut excavation will require a cofferdam to divert the creek to construct the utility in conditions suitable to implement the work and to provide for required inspection of the founding soils before placing pipe bedding, etc. The design should be reviewed by the conservation authorities to ensure it doesn't pose risks to the river and surrounding natural environment.</p>
<p>Credit River Crossing</p> <ul style="list-style-type: none"> - Soil cover thickness above the proposed watermain obverts will have to be reviewed to reduce the risk of erosion and scour. 	<p>The design of the proposed watermain should ensure that the utility will have adequate soil cover or erosion and scour protection.</p>

Table 9-7. Geotechnical Potential Impacts and Mitigation – Trenchless Installation

Geotechnical Challenge	Mitigation Measure
<p>Water-Bearing Granular Zones/Groundwater Control</p> <ul style="list-style-type: none"> - Trenchless installations will likely be proposed below the groundwater level and may extend through the water-bearing granular soil zones (i.e., silt to sand to gravel) present within the overburden. Active dewatering may be required to control groundwater. 	<p>Detailed design of the compounds and tunnel should incorporate groundwater control methods to minimize the impact of dewatering on the watercourses, surrounding infrastructure and sensitive features (ex. Circular secant pile wall).</p>



Geotechnical Challenge

Mitigation Measure

<p>Presence of Cobbles and Boulders</p> <ul style="list-style-type: none"> - It should be assumed that cobbles/boulders are present in the overburden and are comprised of a variety of different lithology's including native bedrock but also glacial erratics from the Canadian Shield with a wide range in strengths. 	<p>The presence of cobbles and/or boulders should be considered in machine selection and adopted tunnelling method through overburden if trenchless installation is considered. Contract Documents should include provisions to manage the excavation and disposal of cobbles and boulders.</p>
<p>Mixed-Face and Overburden Tunnelling</p> <ul style="list-style-type: none"> - A trenchless installation may encounter overburden and mixed-face conditions as such hybrid / dual mode tunnel boring machine (rock Tunnel Boring Machine (TBM) with slurry or Earth Pressure Balance (EPB) capability) should be considered. 	<p>Geotechnical Baseline Report to define the overburden/bedrock interface and alert the contractor about the risks associated with the mixed face conditions and tunnelling through soils.</p>
<p>In-situ Stresses and Swelling of Shale Bedrock</p> <ul style="list-style-type: none"> - Shale bedrock may experience swelling when stresses are relieved due to excavation or tunnelling. The swelling and in situ stresses in the shale bedrock may impact the temporary and permanent tunnel and shaft liner design. 	<p>Tunnel Designers should consider in situ stresses and the potential for swelling in the liner design, if trenchless installation is considered.</p>
<p>Naturally occurring BTEX and Subsurface Gases</p> <ul style="list-style-type: none"> - Naturally occurring benzene, toluene, ethylbenzene, and xylenes (collectively BTEX) and other naturally occurring subsurface gases (methane, hydrogen sulphide and carbon dioxide) have been encountered within shale bedrock and/or glacially derived till deposits. Subsurface gases can impact tunnel boring machine selection, ventilation design, tunnel spoil management and disposal options. 	<p>Tunnel spoil disposal options and worker health and safety requirements should be developed during the detailed design and incorporated into the Contract Documents.</p>
<p>Credit River Crossing</p> <ul style="list-style-type: none"> - Limited soil or bedrock cover above the tunnel obvert. 	<p>Trenchless installation may require additional intervention measures (such as pressurized face tunnel boring machine, grouting etc.) to increase the stability of the excavation and reduce the risk of frac-out at the Credit River. The additional intervention measures should be reviewed by the conservation authorities to ensure they do not pose risks to the Creek and the natural environment.</p>

The Geotechnical Report can be found in [Appendix 2B](#).

9.3.2 Hydrogeological Considerations

A Background Hydrogeological Report was completed to develop a baseline understanding of groundwater conditions and to identify potential impacts and mitigation measures. Results of the findings are outlined in [Section 4.2.2.2](#).

The Port Credit East study is located in areas with shallow groundwater levels in the range of approximately 1.2 to 1.7 metres bgs, based on MECP well records. Therefore, excavations to a depth of >2 metres bgs at the study area are expected to encounter groundwater. Reported hydraulic conductivity for encountered silty and sandy soils range could allow for substantial groundwater inflow to an excavation, which contacts the aquifer materials. Therefore, excavations to a depth of >1 to 2 metres bgs may encounter groundwater inflow and dewatering of the aquifer below the excavation will be required to ensure excavation stability.

For permanent installation of items below the water table, proper precautions should be taken to avoid uplift, groundwater instability. Potential impact to further divert groundwater routes and how much, should be assessed.

The Baseline Hydrogeological Report can be found in [Appendix 2C](#).

9.4 Built Environment

Based on the proposed works described in [Section 8.0](#), the following sections identify potential impacts to the built environment in and around the Port Credit East study area.

9.4.1 Cultural Heritage Resources

Cultural heritage resources include archaeological resources, built heritage resources and cultural heritage landscapes.

9.4.1.1 Archaeological Resources

Stage 2 Archaeological Assessments (AA) were undertaken at areas where Stage 1 AA had indicated archaeological potential. The result indicated presence of at least five nondiagnostic pre-contact Indigenous artifacts within Tall Oaks Park. This location is considered to have further cultural heritage value or interest (CHVI) and thus a Stage 3 AA is recommended.

No intrusive activity will take place within the vicinity of the identified area and therefore no further archaeological investigations are required at this time. In the event that preferred solution design changes, then a Stage 3 AA will be undertaken prior to any ground disturbing activities.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to *Section 48(1) of the Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site

immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with *Section 48(1) of the Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 (FBCSA)* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with *O.Reg 30/11* the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of the *FBCSA* related to burial sites. In situations where human remains are associated with archaeological resources, the MCM should also be notified (archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

9.4.1.2 Built Heritage Resources and Cultural Heritage Landscapes

Following the initial screening, a Cultural Heritage Report on Existing Conditions and Preliminary Impact Assessment (CHECPIA) was completed on the preferred design concept to document any negative impacts to the identified known and potential Built Heritage Resources (BHRs) and Cultural Heritage Landscapes (CHLs) in the study area.

The following areas were identified:

- Three (3) Cultural Heritage Landscapes (CHLs):
 - Mineola Neighbourhood Residential Landscape
 - Credit River Corridor Cultural Heritage Landscape
 - Former Hamilton and Toronto Railway line, opened 1856 (potential CHLs)
- One (1) Heritage Conservation District (HCD):
 - Old Port Credit Village Heritage Conservation District
- 25 Built Heritage Resources (BHRs)

Heritage Impact Assessments (HIAs) are recommended for three heritage resources: the Mineola Neighbourhood CHL, the Credit River Corridor CHLs, and the Old Port Credit Village HCD to confirm mitigative measures. Construction adjacent to designated CHLs or protected heritage properties under Part IV or V of the OHA will require an impact assessment compliant with the City of Mississauga's Heritage Impact Assessment Terms of Reference (2022) during to detailed design, prior to ground disturbance, to recommend appropriate mitigations.

For any construction adjacent to undesignated protected heritage properties, properties with potential CHVI, or CHLs, that cannot be feasibly avoided, vibration impacts will be monitored, and work will stop immediately if vibration thresholds are exceeded.

Figure 9-1 depicts CHLs and HCDs, and **Figure 9-2** depicts BHRs within the study area. The full CHECPIA report can be found in **Appendix 2E**.

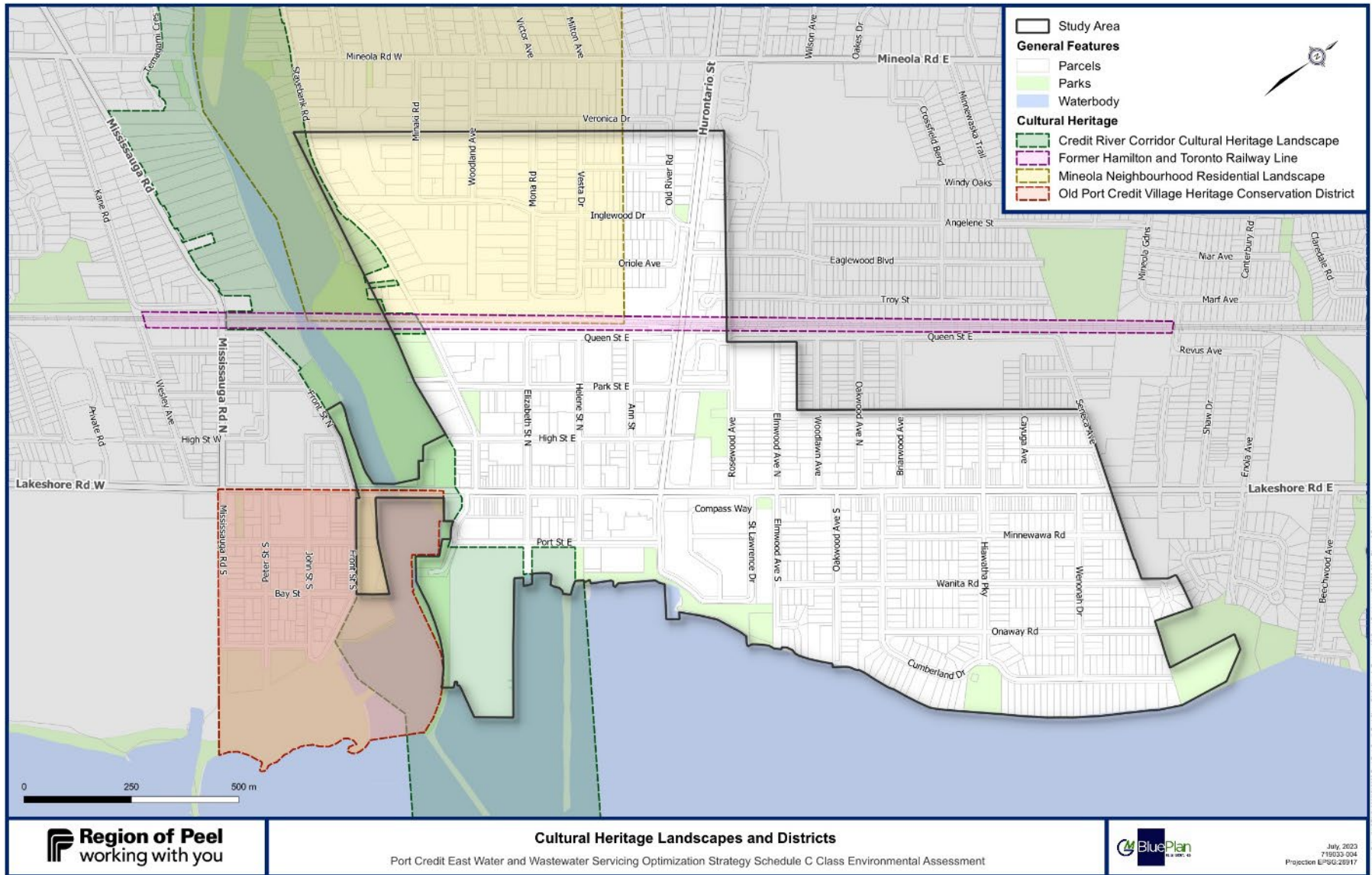


Figure 9-1. Cultural Heritage Landscapes (CHLs) and Heritage Conservation Districts (HCDs)

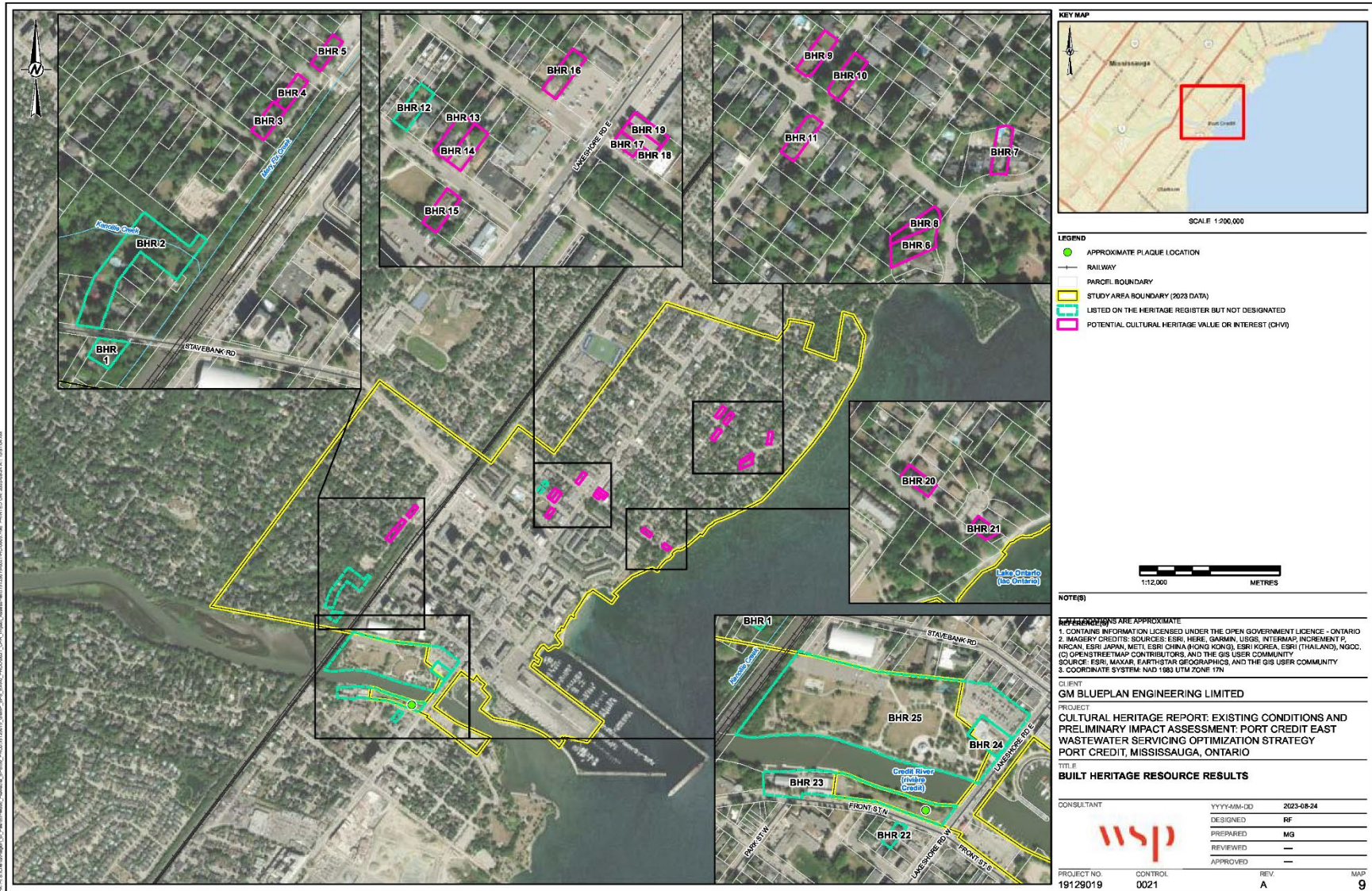


Figure 9-2. Built Heritage Resources (BHRs)

9.4.2 Contamination

A Phase One Environmental Site Assessment (ESA) was completed on each proposed shaft compound location, with up to a 100 metre buffer around each location. A Phase One ESA is conducted to support construction shaft site selection which may involve property transfer and/or easement creation. It is not required to support a Record of Site Condition (RSC) under *O. Reg. 153/04 (as amended)*.

A review of potentially contaminating activities (PCAs) within the study area was initially reviewed, as well as historical spills of potential contaminants of concern (PCOCs). Areas of Potential Environmental Concern (APEC) were then identified if a PCA was located within the vicinity of a proposed shaft location. From this assessment, 9 APECs were identified.

Shaft sites LAK_3, ROS_1, HIA_8, ELM_5 and ELM_6, are recommended for a Phase Two Environmental Site Assessment to determine, with greater certainty:

- Whether impacts are present to soil and/or groundwater,
- How the impacts may affect construction dewatering and discharge water management, and/or
- Provide soil quality assessment for the purposes of developing an Excess Soil Management Plan.

For the purposes of Excess Soil Management under *O.Reg. 406/19*:

- All sites are recommended to be investigated for soil quality (whether in a standalone investigation or as part of the Phase Two ESA)
- The following shaft sites are considered to be “enhanced investigation project areas”:
ROS_1, ELM_5, HIA_8, LAK_3.

The additional investigations should be scoped to target the environmental media and potential contaminants of concern (PCOCs) identified by this Phase One ESA and to meet requirements of *O. Reg. 406/19*. It is also recommended to obtain permission from the City of Mississauga to collect groundwater samples from Site LAK_3, provided the existing monitoring wells are accessible and are in good condition to complete the required sampling.

The full Phase One ESA can be found in [Appendix 2F](#).



9.4.3 Traffic

A Traffic Impact Assessment (TIA) was completed on the preferred design concept to summarize existing and future traffic conditions at the impacted sites with and without construction. This study also assesses traffic impacts on the adjacent roadways for the proposed construction plans, to recommend any necessary improvements to maintain acceptable traffic operations during construction.

The study found that traffic variation due to traffic redistribution is minor. All intersections and traffic movements are forecasted to continue operating at acceptable levels of service and within capacity during all peak periods. Traffic impacts are noted in [Table 9-8](#).

Table 9-8. Potential Traffic Impacts and Mitigation

Potential Impact	Mitigation Measure
Access to Homes - Minor impact to residents due to proposed lane reduction. - Shaft Compound Locations: ROS_1	- Access to residential homes to be maintained.
Loss of Public Parking - Direct impact due to space being occupied for construction. - Direct impact to Farmer’s Market hosted at the space. - Shaft Compound Locations: LAK_3	- Temporary parking lot to be located at Harold E. Kennedy Park. - Nearby street parking and other municipal parking lots available.
Increased Truck and Service Vehicle Traffic - Minor increase in trucks and service vehicles (137 approx. 8 to 10 per day). - Shaft Compound Locations: All	- Traffic to be managed via signage and traffic control persons during active construction work.

Additionally, it is recommended that Construction Management Plans to be developed as part of detailed design prior to construction. The full TIA report can be found in [Appendix 2H](#).

9.4.4 Utilities

As part of this Class EA study, consultation with utilities was completed to identify infrastructure within the study area and confirm any potential impacts during construction. Upon review, the following utilities provided information to the project team with regards to infrastructure that may be potentially impacted by the proposed works (as described in [Section 8.0](#)).

- **Bell Canada:** Identified utility within the vicinity of the proposed works at the Rosemere SPS Site, south of the proposed construction staging areas.
- **CN Rail / Metrolinx:** Railway is within the vicinity of the proposed works at the Rosemere SPS Site, south of the proposed construction staging areas. This track is operated by Metrolinx as part of the Lakeshore GO line.
- **Enbridge Gas Inc.:** Identified a vital main pipeline to be within 3 metres of the proposed works at all shaft compound locations.
- **Group Telecon:** Identified fiber network within the vicinity of the proposed works at the Rosemere SPS Site, south of the proposed construction staging areas.
- **Rogers Communications:** Identified buried utilities with a depth of 1 metre (standard depth noted within City of Mississauga). Fiber Optic Cable is present in the area of proposed construction for Elmwood and Hiawatha SPS component. An aerial plant is located within the vicinity of proposed construction at Rosemere SPS.
- **Zayo Fibre:** Utility identified within the vicinity of the proposed works at the Rosemere SPS Site, south of the proposed construction staging areas in CN-owned conduit. Exact location to be determined by contacting CN.



9.4.5 Odour and Noise

Odour and noise impacts resulting from the construction of the proposed Rosemere SPS were evaluated to identify impacts and mitigation measures to outline further commitments to be incorporated during detailed design. Impacts and mitigation measures are noted in **Table 9-9**. The Odour and Noise Mitigation Review can be found in **Appendix 2I**.

Table 9-9. Odour and Noise Impacts and Mitigation

Potential Impact	Mitigation Measure
<p>SPS Construction and Gravity Outfall of Twinned Forcemains</p> <ul style="list-style-type: none"> - Potential for odour gas to be released from the wet well. - Potential for odour gas to be released from turbulence, releasing odourous gas into the sewer headspace that may escape into the environment as fugitive emissions. - Shaft Compound Locations: ROS_1 	<ul style="list-style-type: none"> - Keep H2S in liquid phase to reduce amount of odourous gas from entering the sewer headspace. - Keep odourous gas contained within pipe. - Provide a controlled odourous gas release point with adequate ventilation and treatment. - Installation of activated carbon or a biotrickling filter is recommended for odour control as part of the Rosemere SPS. - Gravity outfall maintenance hole to be designed to SPS Regional Design Standards, with vent pipe with a passive, inline carbon. - Complete Odour Screening Report in accordance with <i>O. Reg 1/17</i> to determine need for further assessments.
<p>Construction Noise</p> <ul style="list-style-type: none"> - Short-term and moderate to high impact to residents as a result of proposed works. - Shaft Compound Locations: ROS_1 	<ul style="list-style-type: none"> - To apply the City of Mississauga Noise By-Law to be considered for both construction and long-term operation. - Set up specific working construction hours to minimize disruption (i.e., 8am – 6pm) - Notify residents during times of higher noise level (i.e., compaction, shoring installation etc.)
<p>Post-Construction Noise</p> <ul style="list-style-type: none"> - On-going impact of stand-by generator. - Minimal impact due to pump operation. - Shaft Compound Locations: ROS_1 	<ul style="list-style-type: none"> - Install generator with lower decibel ratings. - Install combustion air dampers facing away from residents. - Pumps are below grade, enclosed within the wet well and thus noise from pump is negligible.

If an Environmental Compliance Approval (ECA) amendment is required for station upgrades based on the outcome of the Odour Screening Report, a noise screening shall be completed to fulfill the requirements of the Air and Noise ECA approval submission. Based on the limited sources of noise that will be permanently in place at the proposed Rosemere SPS, an acoustic assessment is not anticipated to be required.



10.0 Design Commitments

Following approval of this Class EA study, the Region is committed to undertake the following studies and next steps during detailed design and prior to construction.

10.1 Overview of Future Study Commitments

The following table provides an overview of the future studies required at each shaft compound location during detailed design.

Table 10-1. Overview of Future Studies During Detailed Design

Shaft Site	Study Commitments
<p>ROS_1 Project Component: Rosemere SPS Location: Rosemere Road</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Scour Assessment (Kenollie Creek) - Site Development Plan - Phase Two ESA - Excess Soil Management - Aquatic and Terrestrial Species Inventory (including breeding bird survey, amphibian movement survey, bat maternity roosting habitat) - Heritage Impact Assessment - Odour Screening Report
<p>ROS_2 Project Component: Rosemere SPS Location: Sandham Road</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Phase Two ESA - Excess Soil Management - Aquatic and Terrestrial Species Inventory (including breeding bird survey, amphibian movement survey, bat maternity roosting habitat) - Heritage Impact Assessment
<p>Marina Park (West Shaft) Project Component: Lakeshore Road Location: Front Street North and Lakeshore Road West</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Heritage Impact Assessment - Cultural Heritage Evaluation Report
<p>LAK_3 Project Component: Lakeshore Road Location: Elmwood Avenue North and Lakeshore Road West</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Phase Two ESA - Excess Soil Management - Construction and Traffic Management Plan



Shaft Site	Study Commitments
<p>ELM_4 Project Component: Elmwood SPS Location: Wanita Road / Elmwood Avenue South</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Site Development Plan - Phase Two ESA - Excess Soil Management - Aquatic and Terrestrial Species Inventory (including breeding bird survey, bat maternity roosting habitat) - Construction and Traffic Management Plan
<p>ELM_5 Project Component: Elmwood SPS Location: St. Lawrence Park</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Shoreline Flooding and Erosion Hazard Assessment - Site Development Plan - Phase Two ESA - Excess Soil Management - Aquatic and Terrestrial Species Inventory (including breeding bird survey, bat maternity roosting habitat)
<p>ELM_6 Project Component: Elmwood SPS Location: Tall Oaks Park</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Site Development Plan - Phase Two ESA - Excess Soil Management - Aquatic and Terrestrial Species Inventory (including breeding bird survey, bat maternity roosting habitat)
<p>HIA_7 Project Component: Hiawatha SPS Location: Wanita Road / Hiawatha Parkway</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Site Development Plan - Phase Two ESA - Excess Soil Management - Aquatic and Terrestrial Species Inventory (including breeding bird survey, bat maternity roosting habitat)
<p>HIA_8 Project Component: Hiawatha SPS Location: Hiawatha Park</p>	<ul style="list-style-type: none"> - Geotechnical Field Investigations - Hydrogeological Field Investigations - Site Development Plan - Phase Two ESA - Excess Soil Management - Aquatic and Terrestrial Species Inventory (including breeding bird survey, bat maternity roosting habitat)

10.2 Corporate Communications

Region's Corporate Communications department will continue to inform the study contact list, residents and public via online notices and website updates, public notifications via email / mail, and via existing social medial channels as the project proceeds to detailed design.

The Region will continue to inform Ward 1 Councillor of City of Mississauga via briefing notes throughout detailed design. Region to continue to consult with the CVC throughout detailed design.

10.3 Geotechnical and Hydrogeological

Additional geotechnical investigation is recommended to further characterize the overburden, bedrock and groundwater conditions at Rosemere SPS, Elmwood / Hiawatha SPS, and at the proposed compound in the municipal parking lot (LAK_3). Additional geotechnical investigation should be designed to fill in subsurface information data gaps and to minimize risk of unforeseen ground conditions during construction. Additionally, frac-out monitoring at Kenollie Creek crossing will be required in the event of an emergency during the proposed Horizontal Directional Drilling (HDD) installation of the twinned forcemains (ROS_1 to ROS_2). The Region will develop an Emergency Response Plan to manage emergency events during construction.

Site-Specific Technical Assessment to review the Kenollie Creek slope / toe erosion hazards at Rosemere SPS location (ROS_1 to ROS_2) and further consultation with CVC during the detailed design stage is required as proposed work is within the erosion hazard limits associated with Kenollie Creek, with reference to *CVC's Slope Stability Guideline*.

Boreholes were advanced near the eastern shaft location, however, they are located along Lakeshore Road and not at the site of the proposed location (LAK_3). Additional boreholes and in-situ testing, including but not limited to pressure meter testing, should be carried out within the parking lot to minimize subsurface risks during construction.

Detailed site-specific and development specific hydrogeological investigations to explore the relationship between the proposed works described in **Section 8.0**, and local groundwater and soil conditions. In particular, the impact of groundwater and potential proximity of the silt, sand and gravel aquifers must be addressed to ensure that the proposed works do not result in temporary or long-term unstable conditions due the proposed earthworks or built structures.

Should the proposed works require temporary or permanent dewatering and / or groundwater or surface water diversion, the site-specific investigations will need to assess the impacts of the dewatering and / or diversion on the local natural and built environments. The investigations should include a determination of baseline, pre-construction conditions and provide proposed mitigation strategies to address potential impacts. These investigations should also address what permitting may be required both for the water taking and for the water disposal / discharge.

10.4 Natural Environment

Since the CVC regulates watercourses, waterbodies, and wetlands in the Credit River watershed, the Region will continue consultation with CVC to identify if any additional mitigation measures will be needed as part of the required permitting for development within CVC regulation limits.

Two additional surveys are needed at ROS_1 to characterize Amphibian Movement Corridor during detailed design. Should amphibian movements be confirmed, mitigation measures to maintain the amphibian corridor will be developed during detailed design. A breeding bird survey is required at most shaft compound locations that involve the removal of trees. Impacts to breeding birds will be minimized by following MBCA protocols as indicated in **Section 9.2.5**.

A scour assessment is required at ROS_1 at Kenollie Creek to determine appropriate scour hazard limit. Further consultation is required with CVC during the detailed design stage.

Further assessment is required regarding the Lake Ontario Shoreline Flooding and Erosion Hazards at ELM_5. During detailed design, further consultation with the City of Mississauga is necessary to provide appropriate shoreline erosion protection measures as the proposed works is within the City's ROW.

With regards to removal of trees, a site development plan may be required to demonstrate the maintenance of various characteristics including topography and drainage patterns, groundwater recharge, habitat for tolerant canopy birds and urban wildlife. This is applicable to all shaft sites. Any site stabilization or restoration plans should align with CVC's Plant Selection Guideline, Healthy Soils Guideline, and Ecosystem Offsetting Guideline.

10.5 Archaeological Resources

No additional archaeological assessments are required prior to construction. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to *Section 48(1) of the Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with *Section 48(1) of the Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 (FBCSA)* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with *O.Reg 30/11* the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of the *FBCSA* related to burial sites. In situations where human remains are associated with archaeological resources, the MCM should also be notified (archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

10.6 Built Heritage Resources and Cultural Heritage Landscapes

Heritage Impact Assessments (HIAs) are recommended for three heritage resources: the Mineola Neighbourhood CHL, the Credit River Corridor CHLs, and the Old Port Credit Village HCD to confirm mitigative measures. Construction adjacent to designated CHLs or protected heritage properties under Part IV or V of the OHA will require an impact assessment compliant with the City of Mississauga's Heritage Impact Assessment Terms of Reference (2022) during detailed design, prior to ground disturbance, to recommend appropriate mitigations.

For any construction adjacent to undesignated protected heritage properties, properties with potential CHVI, or CHLs, that cannot be feasibly avoided, vibration impacts will be monitored, and work will stop immediately if vibration thresholds are exceeded.

10.7 Contamination

Shaft sites LAK_3, ROS_1, HIA_8, ELM_5 and ELM_6 are recommended for a Phase Two Environmental Site Assessment to determine, with greater certainty:

- Whether impacts are present to soil and/or groundwater,
- How the impacts may affect construction dewatering and discharge water management, and/or
- Provide soil quality assessment for the purposes of developing an Excess Soil Management Plan.

For the purposes of Excess Soil Management under *O.Reg. 406/19*:

- All sites are recommended to be investigated for soil quality (whether in a standalone investigation or as part of the Phase Two Environmental Site Assessment)
- The following shaft sites are considered to be "enhanced investigation project areas": ROS_1, ELM_5, HIA_8, LAK_3.

The additional investigations should be scoped to target the environmental media and potential contaminants of concern (PCOCs) identified by this Phase One ESA and to meet requirements of *O. Reg. 406/19*. It is also recommended to obtain permission from the City of Mississauga to collect groundwater samples from Site LAK_3, provided the existing monitoring wells are accessible and are in good condition to complete the required sampling.

To confirm the quality of soil and groundwater at the proposed shaft locations, additional investigation involving sampling and laboratory analysis of soil and groundwater for identified PCOCs is recommended.

10.8 Traffic

Overall, traffic impacts resulting from the proposed works as described in **Section 8.0** are considered minor and are anticipated to generate minimal disruption. Appropriate Construction and Traffic Management Plan is recommended to be developed as part of detailed design prior to construction. This plan will outline temporary diversions of pedestrian walkways, traffic control persons, temporary signage, etc.

10.9 Utilities

Additional consultation and coordination will be required with the following utilities during detailed design:

- **Bell Canada:** Identified utility within the vicinity of the proposed works at the Rosemere SPS Site, south of the proposed construction staging areas. Tie-in measurements are a guideline only and physical verification may be required by applicant to determine the true separation. A minimum of 0.6 metres horizontal clearance and min 0.3 metres vertical clearance when crossing the utility should be maintained. If it is within 1 metre of the utility and when crossing, it must be hand dug.
- **CN Rail / Metrolinx:** Railway is within the vicinity of the proposed works at the Rosemere SPS Site, south of the proposed construction staging areas. This track is operated by Metrolinx as part of the Lakeshore GO line. Upon coordination with CN / Metrolinx, it was noted that if a proposed maintenance hole falls within railway zone of influence (1.5 metres away from edge of tie with downward slope of two horizontal and one vertical 2H to 1V, and vertical face of structural elements) then they shall be designed for railway Cooper E 80 loading. Preliminary coordination with CN / Metrolinx noted that the proposed infrastructure is out of the estimated zone of influence.
- **Enbridge Gas Inc.:** Identified a vital main pipeline to be within 3 metres of the proposed works at all shaft compound locations. In order to accommodate Enbridge's vital main standby requirements, gas mains are to be field located at least 5 business days prior commencement of any work and are required before ground disturbance takes place. Detailed design plans to be submitted to mark-ups@enbridge.com for approval prior to construction.
- **Group Telecon:** Identified fiber network within the vicinity of the proposed works at the Rosemere SPS Site, south of the proposed construction staging areas. Standard separation should be maintained.

- **Rogers Communications:** Identified buried utilities with a depth of 1 metre (standard depth noted within City of Mississauga). Fiber Optic Cable is present in the area of proposed construction for Elmwood and Hiawatha SPSs component. An aerial plan is located within the vicinity of proposed construction at Rosemere SPS. Construction should maintain a clearance of 0.3 metres vertically and 0.6 metres horizontally.
- **Zayo Fibre:** Utility identified within the vicinity of the proposed works at the Rosemere SPS site, south of the proposed construction staging areas in CN-owned conduit. Exact location to be determined by contacting CN.



10.10 Property Requirements

Table 10-2. Property Requirements by Shaft Compound Location

Compound No.	Property Requirements
Rosemere SPS	
ROS_1 Location: West Shaft at Rosemere Road.	<ul style="list-style-type: none"> - Region to acquire land necessary from the City of Mississauga for the construction of Rosemere SPS. - Road Occupancy Permit is required for construction staging area within the road ROW. - Consent-To-Enter is required for construction staging area with City of Mississauga owned property on the southern limits of Rosemere Road.
ROS_2 Location: East Shaft at Sandham Road.	<ul style="list-style-type: none"> - Road Occupancy Permit is required for construction staging area within the road ROW.
ROS_1 to ROS_2 Location: Along City of Mississauga property just north of the railway.	<ul style="list-style-type: none"> - Permanent easement required for twinned forcemains, and associated maintenance holes / chambers through City of Mississauga owned property for long term maintenance access.
Lakeshore Sewer and Watermain	
Marina Park Location: West Shaft at Marina Park (on the northwest corner of Lakeshore Road West and Front Street North).	<ul style="list-style-type: none"> - Permit and property requirements are coordinated under the Front Street EA. - Road Occupancy Permit is required for construction staging area within the road ROW. - Consent-To-Enter is required for construction staging area with City of Mississauga owned property on the southern limits of Rosemere Road.
LAK_3 Location: East Shaft at Municipal Parking Lot (on the northeast corner of Lakeshore Road East and Elmwood Avenue North).	<ul style="list-style-type: none"> - Road Occupancy Permit is required for construction staging area within the road ROW. - Consent-To-Enter is required for construction staging area with City of Mississauga owned property on the southern limits of Rosemere Road.
Alternative Parking Lot Location: Harold E. Kennedy Park.	<ul style="list-style-type: none"> - Consent-To-Enter is required from the City of Mississauga to utilize Harold E. Kennedy Park as alternative parking during construction.

Compound No.	Property Requirements
Marina Park to LAK_3 Location: Along Lakeshore Road.	<ul style="list-style-type: none"> - Permanent easement required for new deep trunk sewer, sub-transmission watermain, and associated maintenance holes / chambers through City of Mississauga owned property for long term maintenance access.
Elmwood and Hiawatha SPSs	
ELM_4 Location: Wanita Road / Elmwood Avenue South.	<ul style="list-style-type: none"> - Road Occupancy Permit is required for construction staging area within the road ROW.
ELM_5 Location: St. Lawrence Park.	<ul style="list-style-type: none"> - Consent-To-Enter is required for construction staging area with City of Mississauga owned property at St. Lawrence Park. - Permanent easement required for new gravity sewers, and associated maintenance holes / chambers through City of Mississauga owned property for long term maintenance access.
ELM_6 Location: Tall Oaks Park and within the road ROW south of Carlis Place.	<ul style="list-style-type: none"> - Road Occupancy Permit is required for construction staging area within the road ROW. - Consent-To-Enter is required for construction staging area with City of Mississauga owned property at Tall Oaks Park. - Permanent easement required for new gravity sewers, and associated maintenance holes / chambers through City of Mississauga owned property for long term maintenance access.
ELM_5 to ELM_6 Location: St. Lawrence Park and Tall Oaks Park.	<ul style="list-style-type: none"> - Permanent easement required for new gravity sewer and associated maintenance holes / chambers through City of Mississauga owned property (St. Lawrence Park to Tall Oaks Park) for long term maintenance access.
HIA_7 Location: Wanita Road / Hiawatha Parkway.	<ul style="list-style-type: none"> - Road Occupancy Permit is required for construction staging area within the road ROW.
HIA_8 Location: Hiawatha Park.	<ul style="list-style-type: none"> - Road Occupancy Permit is required for construction staging area within the road ROW. - Consent-To-Enter is required for construction staging area with City of Mississauga owned property at Hiawatha Park. - Permanent easement required for new gravity sewers, and associated maintenance holes / chambers through City of Mississauga owned property for long term maintenance access.

11.0 Implementation

11.1 Construction Costs and Funding

The separate Port Credit EA components (Lakeshore Trunk Sewer, Lakeshore Sub-Transmission Main, Elmwood SPS, Hiawatha SPS, Rosemere SPS) were recommended to be part of a broader Class EA Study. These components have a wide range of project drivers such as capacity to meet growth, system flexibility/redundancy, State of Good Repair (SOGR) or meeting of Region Design Standards. The Port Credit East projects are predominantly needed to service growth to 2041 and beyond. As such, project costs will likely be funded mostly through Development Charges (DCs) with some degree of costs incurred by rates funding.

Development of the Port Credit East Strategy cost estimate incorporated several approaches:

- Unit rate costing based on typical component costs using historical tender and construction information,
- Benchmarking of recent similar projects across Ontario,
- Constructability reviews utilizing Region staff and construction industry experts,
- Cost estimate peer review utilizing the project team cost estimating consultant,
- Construction price indexing review,
- Coordination with the Region engineering and finance departments, and,
- The cost of the Port Credit East Strategy is a function of multiple project components.

The total estimated project cost shown in **Table 11-1** for the Port Credit East is approximately **\$115.06 million** (indexed to the year of cashflow), which includes the following key elements:

- Pipe and maintenance hole construction of the proposed sewers and watermains,
- Decommissioning of SPSs and materials required for new SPS,
- All connection chambers and maintenance holes,
- Design / engineering and contract administration (15%), and,
- Construction contingency allowance (30%).

The cost of the preferred design concept is a function of the length of the sewer and watermain routes, depth of the pipes, number of shafts required, sewer and watermain appurtenance and other additional costs such as relocation of utilities, connection to existing pipes, pipe lining and restoration of lands following construction. Costing relating to property (e.g., property acquisition, permanent/temporary easements) will be reviewed during detailed design.

The specific construction technologies such as TBM, microtunnelling, and HDD also impact the cost estimate of the preferred design. The construction methodology, such as cast in place, pre-cast pipe, concrete pressure pipe, or concrete protective lining will be determined during detailed design and tendering phase.

Furthermore, the costs will continue to be refined and estimated with greater accuracy and detail as the projects move through detailed design and prior to tendering for construction.

It should also be noted that during 2020 and 2021, particularly influenced by conditions related to COVID-19, it has been challenging to improve the accuracy for the cost estimates as well predict forward looking indices. There has been significant fluctuation in the construction market conditions including material and equipment costs as well as tendered prices received. There is potential that these fluctuations could persist over the next several years which could further impact the program costs.

An Opinion of Probable Cost (OPC) was provided by another consultant for the Region, on the Lakeshore Sewer and Sub-Transmission Main. Detailed cost estimate can be found in [Appendix 3E](#).

Table 11-1: Port Credit East Cost Estimates

Project Components	Project Elements	Estimates
Lakeshore Road Deep Trunk Sewer	Base:	\$40.08 million
	Design / Engineering:	\$6.02 million
	Contingency:	\$12.03 million
	Total:	\$58.13 million
Lakeshore Road Sub-transmission Watermain	Base:	\$12.85 million
	Design / Engineering:	\$0.65 million
	Contingency:	\$1.28 million
	Total:	\$14.78 million
Rosemere SPS	Base:	\$9.41 million
	Design / Engineering:	\$1.42 million
	Contingency:	\$2.83 million
	Total:	\$13.66 million
Elmwood and Hiawatha SPSs	Base:	\$19.64 million
	Design / Engineering:	\$2.95 million
	Contingency:	\$5.90 million
	Total:	\$28.49 million

\$115.06 million Total

11.2 Implementation Schedule

The Region’s current anticipated implementation timeline for the Port Credit East Strategy preferred design concept is shown below in **Figure 11-1**, with the intent of an in-service date by approximately 2028. The project implementation schedule is based on successful completion of the Port Credit East Class EA in the Fall of 2023 and initiating the detailed design process in 2024.

Detailed design of the major project components necessary to divert flows from east to west will be significant engineering assignments with multi-year requirements. The design assignments will also need to account for the additional field investigations and application of permits and approvals required to support the detailed design decisions and construction.

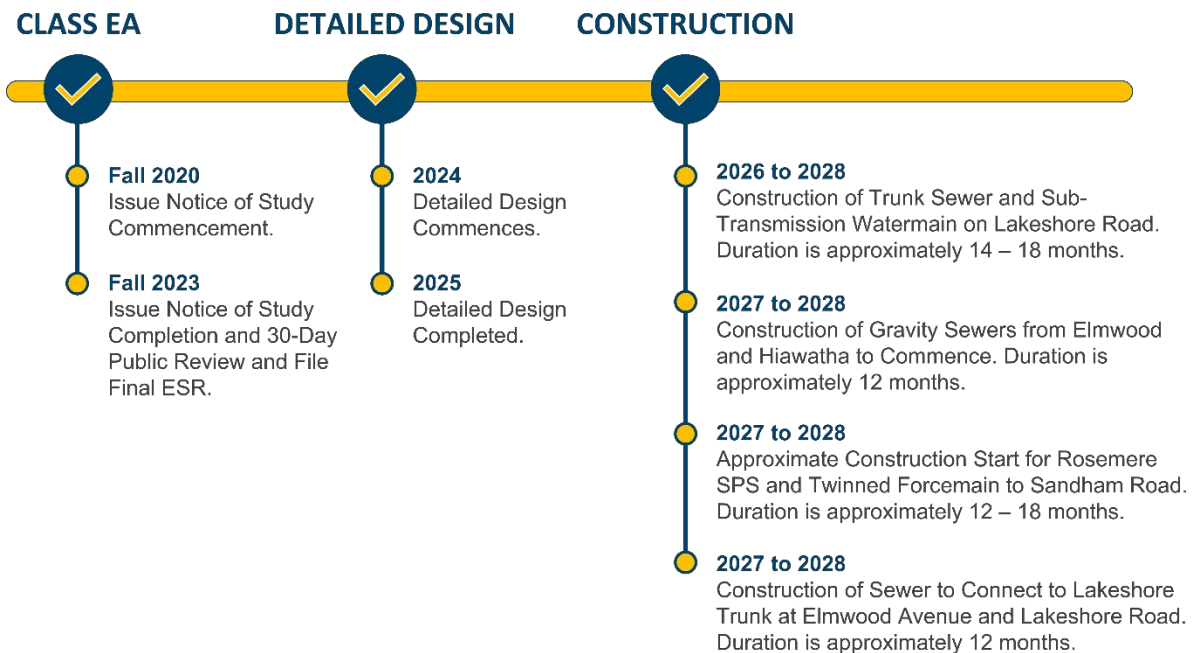


Figure 11-1. Project Implementation Timeline

Note that although the Rosemere SPS is shown as part of this timeline, the Rosemere SPS/FM Design and Construction timing is not dependent of the remaining Port Credit East Components. Design and Construction of this component can be completed independently.

11.3 Timing and Phasing

As indicated in **Section 8.0**, there are four major components to the preferred design concept for the Port Credit East area. Construction of these components will need to be planned over a multi-year timeline. The proposed works associated with Elmwood and Hiawatha SPSs component is dependent on the construction of the Lakeshore trunk sewer and water sub-transmission main. The following outlines the preliminary phasing of construction activities for the Lakeshore sewer / watermain and Elmwood / Hiawatha SPSs:

1. Construct shaft sites (Marina Park and LAK_3) to enable the construction and tunnelling of the deep trunk sewer and sub-transmission watermain along Lakeshore Road,
2. Construct and tunnel deep trunk sewer and sub-transmission watermain along Lakeshore Road,
3. Construct shaft sites (LAK_3, ELM_4, ELM_5, ELM_6, HIA_7, HIA_8) to enable the construction and tunnelling of gravity sewers to divert flows from Elmwood and Hiawatha SPSs to the west by connecting to the new deep trunk sewer on Lakeshore Road,
4. Construct and tunnel gravity sewers for Elmwood and Hiawatha project component. Connect to new deep trunk sewer along Lakeshore Road, and finally,
5. Decommissioning of Elmwood and Hiawatha SPSs.

The proposed works associated with Rosemere SPS is not dependent on other project components. However, the existing facility will need to be taken out of partial service while the new station is constructed in order to facilitate station replacement. A staged construction approach is proposed. The following outlines the phasing of construction activities for Rosemere SPS.

1. Construction of temporary SPS Controls adjacent to site,
2. Demolition of Existing Rosemere SPS Control Building only, maintain existing wet well, pumps and forcemain,
3. Construction of new forcemains from Rosemere Road to Sandham Road,
4. Connect to existing gravity sewer at the end of Vesta Drive and Sandham Road,
5. Construction of new Rosemere SPS,
6. Modifications to incoming east and west sanitary sewers,
7. Final station tie-in to upstream sanitary sewers,
8. Decommission of existing wet well and forcemains.

11.4 Permits and Approvals

The following section identifies the preliminary list of permits and approvals required from various agencies during detailed design and prior to construction for the Port Credit East strategy. This list shall be used as a reference tool during detailed design however additional permits and / or approvals may be required as construction methodologies and plans are confirmed.

As noted in **Table 11-2** below, consultation is required with the following groups to determine specific permit and approval needs prior to construction:

- Department of Fisheries and Oceans Canada (DFO)
- Ministry of the Environment, Conservation and Parks,
- Ministry of Multiculturalism and Citizenship,
- Ministry of Northern Development, Mines and Natural Resources,
- Ministry of Transportation Ontario,
- Credit Valley Conservation Authority,
- Indigenous Communities,
- Department of Fisheries and Oceans,
- City of Mississauga,
- CN Railway,
- Local Interest Groups, and,
- Utilities.

Table 11-2. Site Specific Preliminary Approvals and Permitting Requirements for Detailed Design

Consulting Agency, Municipality, or Stakeholder Group	Permit / Approval Required	Shaft Compound Location(s)	Notes
Program Component: Deep Trunk Sewer and Sub-Transmission Watermain along Lakeshore Road			
Department of Fisheries and Oceans (DFO)	Project Request for Review (RFR)	- Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3)	- A DFO Project Request for Review (RFR) is required for project work near water as per the <i>Fisheries Act</i> , for tunneled sewer and watermain crossing the Credit River. - DFO to be consulted as part of design process to ensure approval and any required mitigation measures are incorporated.
Credit Valley Conservation Authority (CVC)	Approval for construction within CVC Flood Regulation Limits at Credit River	- Marina Park (West Shaft)	- Proposed work within CVC regulation limits of the Credit River. - Approval from CVC is required prior to commencement of construction within CVC regulation limits.
Ministry of the Environment, Conservation and Parks (MECP)	Environmental Compliance Approval (ECA)	- Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3)	- ECA will be required as proposed sewers are considered a "substantial additional to the existing system". It will also be required for the removal, transport, and disposal of excess soils, if they are deemed to be contaminated. - Completed application, Pipe Data Form and supporting Design Drawings and Design Report will be required as part of the submission package.
Ministry of the Environment, Conservation and Parks (MECP)	Permit to Take Water (PTTW)	- Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3)	- PTTW will be required for construction dewatering of more than 400 m ³ /day and for long-term discharges of more than 50 m ³ /day. Depending on the receptors, water disposal/discharge may require permitting from the appropriate agencies. - Geotechnical / hydrogeological report in support of the PTTW application, Design Drawings and Design Report will be required as part of the submission package.
Ministry of the Environment, Conservation and Parks (MECP)	Approval for construction following review of additional field surveys: Species at Risk (SAR)	- Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3)	- Should habitat for SAR (monarch) be confirmed, and that its habitat is expected to be disturbed by the proposed works, authorization (via registration or permitting) under the ESA will be obtained. - Detailed design will monitor and involve MECP as required for any potential impact through construction.
Ministry of the Environment, Conservation and Parks (MECP)	Approval for construction following review of mitigation plan and additional field surveys: Significant Wildlife Habitat (SWH)	- Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3)	- Mitigation Plan to be refined during detailed design, following targeted field surveys to confirm SWH for breeding birds. - Authorization (via registration or permitting) to be obtained prior to construction.
City of Mississauga	Park Access Permit	- Marina Park (West Shaft) - Harold E. Kennedy Park (Proposed Alternate Parking Lot and Farmer's Market Location)	- To enable the access of Public Parks owned by City of Mississauga. - To enable the use of Harold E. Kennedy Park as the alternative site for the Farmer's Market when LAK_3 is closed for construction activities.
City of Mississauga	Road Occupancy Permit	- Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3)	- To enable the construction of the proposed works within the road ROW.
City of Mississauga	Consent-to-Enter	- Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3) - Harold E. Kennedy Park (Proposed Alternate Parking Lot and Farmer's Market Location)	- To enable the construction of proposed works with City of Mississauga owned properties. - To enable the use of Harold E. Kennedy Park as the alternative parking lot when LAK_3 is closed for construction activities. - To enable the use of Harold E. Kennedy Park as the alternative site for the Farmer's Market when LAK_3 is closed for construction activities.
City of Mississauga	Permanent Easement	- Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3) - Marina Park to LAK_3	- To enable the access and maintenance of Regional infrastructure within City of Mississauga owned lands. - Permanent easement required for new deep trunk sewer, sub-transmission watermain, and associated manholes / chambers through City of Mississauga owned property for long term maintenance access.
City of Mississauga	Approval for construction following review of Construction Management Plan detailing tree impacts.	- Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3) - Marina Park to LAK_3	- Construction and Traffic Management Plan to be refined during detailed design, following application process to determine appropriate Tree Preservation and Protection with the City of Mississauga, in accordance with the latest version of the City's <i>Tree Preservation & Protection Standards</i> .

Consulting Agency, Municipality, or Stakeholder Group	Permit / Approval Required	Shaft Compound Location(s)	Notes
City of Mississauga	Coordination and consultation	<ul style="list-style-type: none"> - Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3) - Harold E. Kennedy Park (Proposed Alternate Parking Lot and Farmer's Market Location) 	<ul style="list-style-type: none"> - Consultation and coordination of timing of proposed works and other construction activities. - Consultation with regards to the planned upgrades at Marina Park as part of the City's Park Master Plan. - Consultation with regards to alternate parking lot and farmer's market location at Harold E. Kennedy Park.
MiiWay	Coordination and consultation	<ul style="list-style-type: none"> - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3) 	<ul style="list-style-type: none"> - To consult and provide at least 2 weeks' notice prior to submission of a Road Occupancy Permit, regarding any potential anticipated transit impacts to infrastructure (stops or shelters) or service (routes).
Enbridge Gas Inc.	Approval for construction.	<ul style="list-style-type: none"> - Marina Park (West Shaft) - Municipal Parking Lot at Lakeshore and Elmwood Ave North (LAK_3) - Marina Park to LAK_3 	<ul style="list-style-type: none"> - Detailed design plans to be submitted to mark-ups@enbridge.com for approval prior to construction. - Gas mains are to be field located at least 5 business days prior to commencement of any work and before ground disturbance takes place.
Program Component: Rosemere SPS and Associated Twinned Forcemains from Rosemere Road to Sandham Road			
Department of Fisheries and Oceans (DFO)	Project Request for Review (RFR)	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) - Sandham Road (ROS_2) 	<ul style="list-style-type: none"> - A DFO Project Request for Review (RFR) is required for project work near water as per the <i>Fisheries Act</i>, for tunneled forcemains crossing Kenollie Creek. - DFO to be consulted as part of design process to ensure approval and any required mitigation measures are incorporated.
Credit Valley Conservation Authority (CVC)	Approval for construction within CVC Flood Regulation Limits at Mary Fix Creek	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) - Sandham Road (ROS_2) 	<ul style="list-style-type: none"> - Proposed work within CVC regulation limits of Kenollie Creek and Mary Fix Creek. - Approval from CVC is required prior to commencement of construction within CVC regulation limits.
Ministry of the Environment, Conservation and Parks (MECP)	Environmental Compliance Approval (ECA)	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) - Sandham Road (ROS_2) 	<ul style="list-style-type: none"> - ECA will be required as proposed sewers are considered a "substantial additional to the existing system". It will also be required for the removal, transport, and disposal of excess soils, if they are deemed to be contaminated. - Completed application, Pipe Data Form and supporting Design Drawings and Design Report will be required as part of the submission package.
Ministry of the Environment, Conservation and Parks (MECP)	Phase 2 ESA	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) 	<ul style="list-style-type: none"> - Phase 1 ESA completed. Phase 2 ESA to be completed prior to detailed design. Results and recommendations to be submitted along with the ECA application.
Ministry of the Environment, Conservation and Parks (MECP)	Odour Screening Report	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) 	<ul style="list-style-type: none"> - An Odour Screening Report to be completed in accordance with <i>O.Reg 1/17</i> to determine need for further assessments. - Results and recommendations to be submitted along with the ECA application.
Ministry of the Environment, Conservation and Parks (MECP)	Permit to Take Water (PTTW)	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) - Sandham Road (ROS_2) 	<ul style="list-style-type: none"> - PTTW will be required for construction dewatering of more than 400 m³/day and for long-term discharges of more than 50 m³/day. Depending on the receptors, water disposal/discharge may require permitting from the appropriate agencies. - Geotechnical / hydrogeological report in support of the PTTW application, Design Drawings and Design Report will be required as part of the submission package.
Ministry of the Environment, Conservation and Parks (MECP)	Approval for construction following review of additional field surveys: Species at Risk (SAR)	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) - Sandham Road (ROS_2) 	<ul style="list-style-type: none"> - Should habitat for SAR (monarch) be confirmed, and that its habitat is expected to be disturbed by the proposed works, authorization (via registration or permitting) under the ESA will be obtained. - Detailed design will monitor and involve MECP as required for any potential impact through construction.
Ministry of the Environment, Conservation and Parks (MECP)	Approval for construction following review of mitigation plan and additional field surveys: Significant Wildlife Habitat (SWH)	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) - Sandham Road (ROS_2) 	<ul style="list-style-type: none"> - Mitigation Plan to be refined during detailed design, following targeted field surveys to confirm amphibian movement corridors and breeding birds to confirm SWH. - Authorization (via registration or permitting) to be obtained prior to construction.
City of Mississauga	Property Acquisition	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) 	<ul style="list-style-type: none"> - To enable the construction of the new Rosemere SPS that requires a larger property footprint to meet Regional SPS Standards.
City of Mississauga	Road Occupancy Permit	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) - Sandham Road (ROS_2) 	<ul style="list-style-type: none"> - To enable the construction of the proposed works within the road ROW.
City of Mississauga	Consent-to-Enter	<ul style="list-style-type: none"> - Rosemere Road (ROS_1) 	<ul style="list-style-type: none"> - To enable the construction of proposed works with City of Mississauga owned properties.
City of Mississauga	Permanent Easement	<ul style="list-style-type: none"> - ROS_1 to ROS_2 	<ul style="list-style-type: none"> - To enable the access and maintenance of Regional infrastructure within City of Mississauga owned lands. - Permanent easement required for new twinned forcemains, and associated manholes / chambers through City of Mississauga owned property for long term maintenance access.

Consulting Agency, Municipality, or Stakeholder Group	Permit / Approval Required	Shaft Compound Location(s)	Notes
City of Mississauga	Site Plan Approval	- ROS_1 (New Rosemere SPS)	- Submission of Site Plan of the new Rosemere SPS at the 90% design stage. - Consultation with the City through Site Plan Application process and approval.
City of Mississauga	Approval for construction following review of Construction Management Plan detailing tree impacts.	- Rosemere Road (ROS_1)	- Construction and Traffic Management Plan to be refined during detailed design, following application process to determine appropriate Tree Preservation and Protection with the City of Mississauga, in accordance with the latest version of the City's <i>Tree Preservation & Protection Standards</i> .
City of Mississauga	Coordination and consultation	- Rosemere Road (ROS_1) - Sandham Road (ROS_2) - ROS_1 to ROS_2	- Consultation and coordination of timing of proposed works and other construction activities.
Enbridge Gas Inc.	Approval for construction	- Rosemere Road (ROS_1) - Sandham Road (ROS_2) - ROS_1 to ROS_2	- Detailed design plans to be submitted to mark-ups@enbridge.com for approval prior to construction. - Gas mains are to be field located at least 5 business days prior to commencement of any work and before ground disturbance takes place.
Bell Canada	Coordination at detailed design	- Rosemere Road (ROS_1)	- A minimum of 0.6 metres horizontal clearance and min 0.3 metres vertical clearance when crossing the utility should be maintained. If it is within 1 metre of the utility and when crossing, it must be hand dug. - To provide information and obtain approval prior to construction.
CN Rail / Metrolinx	Coordination at detailed design	- Rosemere Road (ROS_1) - Sandham Road (ROS_2) - ROS_1 to ROS_2	- To continue to inform CN Rail / Metrolinx during detailed design. - To provide information and obtain approval prior to construction.
Group Telecon	Coordination at detailed design	- Rosemere Road (ROS_1)	- To continue to inform Group Telecon with regards to their fiber network during detailed design.
Rogers Communications	Coordination at detailed design	- Off-site but within the vicinity of ROS_1	- Aerial plant located within the vicinity of proposed construction. A clearance of 0.3 metres vertically and 0.6 metres horizontally should be maintained. - To continue to inform Rogers Communications with regards to buried utilities during detailed design.
Program Component: Decommissioning of Elmwood / Hiawatha SPS and Construction of New Gravity Sewers			
Department of Fisheries and Oceans (DFO)	Project Request for Review (RFR)	- St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Hiawatha Park (HIA_8)	- A DFO Project Request for Review (RFR) is required for project work near water as per the <i>Fisheries Act</i> , for proposed work adjacent to Lake Ontario. - Tunnelled sewer and watermain crossing under the Credit River to be designed to have no impacts on surface water. - DFO to be consulted as part of design process to ensure approval and any required mitigation measures are incorporated.
Credit Valley Conservation Authority (CVC)	Approval for construction within CVC Flood Regulation Limits at Lake Ontario	- St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Hiawatha Park (HIA_8)	- Proposed work within CVC regulation limits of Lake Ontario. - Approval from CVC is required prior to commencement of construction within CVC regulation limits.
Ministry of the Environment, Conservation and Parks (MECP)	Environmental Compliance Approval (ECA)	- Wanita / Elmwood Ave South (ELM_4) - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Wanita / Hiawatha Parkway (HIA_7) - Hiawatha Park (HIA_8)	- ECA will be required as proposed sewers are considered a "substantial additional to the existing system". It will also be required for the removal, transport, and disposal of excess soils, if they are deemed to be contaminated. - Completed application, Pipe Data Form and supporting Design Drawings and Design Report will be required as part of the submission package.
Ministry of the Environment, Conservation and Parks (MECP)	Permit to Take Water (PTTW)	- Wanita / Elmwood Ave South (ELM_4) - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Wanita / Hiawatha Parkway (HIA_7) - Hiawatha Park (HIA_8)	- PTTW will be required for construction dewatering of more than 400 m ³ /day and for long-term discharges of more than 50 m ³ /day. Depending on the receptors, water disposal/discharge may require permitting from the appropriate agencies. - Geotechnical / hydrogeological report in support of the PTTW application, Design Drawings and Design Report will be required as part of the submission package.
Ministry of the Environment, Conservation and Parks (MECP)	Approval for construction following review of additional field surveys: Species at Risk (SAR)	- St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Hiawatha Park (HIA_8)	- Should habitat for SAR (monarch) be confirmed, and that its habitat is expected to be disturbed by the proposed works, authorization (via registration or permitting) under the ESA will be obtained. - Detailed design will monitor and involve MECP as required for any potential impact through construction.

Consulting Agency, Municipality, or Stakeholder Group	Permit / Approval Required	Shaft Compound Location(s)	Notes
Ministry of the Environment, Conservation and Parks (MECP)	Approval for construction following review of mitigation plan and additional field surveys: Significant Wildlife Habitat (SWH)	<ul style="list-style-type: none"> - Wanita / Elmwood Ave South (ELM_4) - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Wanita / Hiawatha Parkway (HIA_7) - Hiawatha Park (HIA_8) 	<ul style="list-style-type: none"> - Mitigation Plan to be refined during detailed design, following targeted field surveys to confirm SWH for breeding birds. - Authorization (via registration or permitting) to be obtained prior to construction.
City of Mississauga	Park Access Agreement	<ul style="list-style-type: none"> - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Hiawatha Park (HIA_8) 	<ul style="list-style-type: none"> - To enable the access of Public Parks owned by City of Mississauga.
City of Mississauga	Road Occupancy Permit	<ul style="list-style-type: none"> - Wanita / Elmwood Ave South (ELM_4) - Tall Oaks Park (ELM_6) - Wanita / Hiawatha Parkway (HIA_7) 	<ul style="list-style-type: none"> - To enable the construction of the proposed works within the road ROW.
City of Mississauga	Consent-to-Enter	<ul style="list-style-type: none"> - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Hiawatha Park (HIA_8) 	<ul style="list-style-type: none"> - To enable the construction of proposed works with City of Mississauga owned properties.
City of Mississauga	Permanent Easement	<ul style="list-style-type: none"> - St. Lawrence Park to Tall Oaks Park (ELM_5 to ELM_6) - Hiawatha Park (HIA_8) 	<ul style="list-style-type: none"> - To enable the access and maintenance of Regional infrastructure within City of Mississauga owned lands. - Permanent easement required for new gravity sewers, and associated manholes / chambers through City of Mississauga owned property for long term maintenance access.
City of Mississauga	Approval for construction following review of Construction Management Plan detailing tree impacts.	<ul style="list-style-type: none"> - Wanita / Elmwood Ave South (ELM_4) - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Wanita / Hiawatha Parkway (HIA_7) - Hiawatha Park (HIA_8) 	<ul style="list-style-type: none"> - Construction and Traffic Management Plan to be refined during detailed design, following application process to determine appropriate Tree Preservation and Protection with the City of Mississauga, in accordance with the latest version of the City's <i>Tree Preservation & Protection Standards</i>.
City of Mississauga	Consultation and coordination	<ul style="list-style-type: none"> - Wanita / Elmwood Ave South (ELM_4) - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Wanita / Hiawatha Parkway (HIA_7) - Hiawatha Park (HIA_8) 	<ul style="list-style-type: none"> - Consultation and coordination of timing of proposed works and other construction activities.
Enbridge Gas Inc.	Approval for construction.	<ul style="list-style-type: none"> - Wanita / Elmwood Ave South (ELM_4) - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Wanita / Hiawatha Parkway (HIA_7) - Hiawatha Park (HIA_8) 	<ul style="list-style-type: none"> - Detailed design plans to be submitted to mark-ups@enbridge.com for approval prior to construction. - Gas mains are to be field located at least 5 business days prior to commencement of any work and before ground disturbance takes place.
Rogers Communications	Coordination at detailed design	<ul style="list-style-type: none"> - Wanita / Elmwood Ave South (ELM_4) - St. Lawrence Park (ELM_5) - Tall Oaks Park (ELM_6) - Wanita / Hiawatha Parkway (HIA_7) - Hiawatha Park (HIA_8) 	<ul style="list-style-type: none"> - Fiber Optic Cables located within the vicinity of proposed construction. A clearance of 0.3 metres vertically and 0.6 metres horizontally should be maintained. - To continue to inform Rogers Communications with regards to buried utilities during detailed design.

11.4.1 Department of Fisheries and Oceans Canada (DFO)

There will be crossing of the Credit River from Marina Park to LAK_3, as well as a crossing at Kenollie Creek from ROS_1 to ROS_2. Although there are no anticipated direct impacts at Kenollie Creek since tunnelling methodology is selected to install new infrastructure, the proposed construction activities involve work near water. Therefore, under the *Fisheries Act*, a DFO Request for Review (RFR) is required.

11.4.2 Ministry of the Environment, Conservation and Parks (MECP)

An Environmental Compliance Approval (ECA) will be required as the proposed sewers are considered a “substantial addition to the existing system”. As such, a comprehensive general plan of the existing and proposed works will need to be provided to the MECP showing the following:

- All major topographic features including existing and proposed streets, contour lines, drainage areas, watercourses, municipal boundaries, land surveying data used, etc.
- The location and size of existing and proposed sewers.
- Location and nature of all existing and proposed sewage works associated with the proposed sewers, including any existing sewer overflows.
- Stormwater Management Plan, as deemed necessary during detailed design.

Engineering Drawings and Specifications – detailed plan and profile drawings for the proposed and adjacent existing sewer submitted to the MECP shall include the following:

- For the purposes of this ESR, a horizontal scale of not more than 1:1000 and a vertical scale of not more than 1:100.
- Location of streets and sewers.
- Existing and proposed ground surface, size, slope, material and class of pipe, pumping stations, maintenance holes, overflows and other appurtenances.
- Location of all known existing structure that might interfere with, or be affected by, the proposed sewers, especially any watermains and other water works.
- Details of sewer bedding and anchoring, maintenance holes and maintenance hole connections, service connections, bridge crossings, stream crossings, support structures for existing structures in the path of construction, trench bracing, etc.
- Any additional descriptive specifications and information not included in a separate specifications document that would be necessary to inform the contractor of all project requirements regarding the type and quality of construction materials.

The Region will engage the MECP in pre-consultation as part of detailed design to confirm the need and / or requirements for an Environmental Compliance Approval (ECA) associated with the proposed works and/or the management of the dewatering effluent.

For construction dewatering projects, the MECP requires that water takings greater than 50 m³/day and less than 400 m³/day be registered online through the Environmental Activity and Sector Registry (EASR) system. Construction dewatering of more than 400 m³/day and for long-term discharges of more than 50 m³/day, a Permit to Take Water (PTTW) from the MECP is required. Depending on the receptors, water disposal/discharge may require permitting.

For construction dewatering projects, the MECP requires that water takings greater than 50 m³/day and less than 400 m³/day be registered online through the Environmental Activity and Sector Registry (EASR) system.

For construction dewatering of more than 400 m³/day and for long-term discharges of more than 50 m³/day, a Permit to Take Water (PTTW) from the MECP is required. Depending on the receptors, water disposal/discharge may require permitting from the appropriate agencies.

The Region will engage the MECP to confirm potential Species at Risk (SAR) permitting and approval requirements under the ESA. Should habitat for SAR (monarch) be confirmed, and the habitat is expected to be disturbed by the proposed construction activities, authorization (registration or permitting) under the ESA will be obtained.

Mitigation Plan will be refined during detailed design following targeted field surveys to confirm significant wildlife habitat (SWH) for breeding birds (eastern wood-pewee and wood thrush).

Amphibian movement corridor will need to be investigated at Rosemere. If the presence of amphibian habitat is confirmed, mitigation measures to maintain and monitor the amphibian corridor will be developed during detailed design, authorization (registration or permitting) will be obtained.

11.4.3 City of Mississauga

Figure 11-2 below illustrates the approximate total area of approximately 500 m² that is required for the new Rosemere SPS. As noted earlier, the existing Rosemere SPS property is owned by the Region. **An additional 125 m² area of approximate land is required as part of the Rosemere SPS project component. These additional lands will need to be obtained from the City of Mississauga by the Region.** The final above ground building will be approximately 170 m².

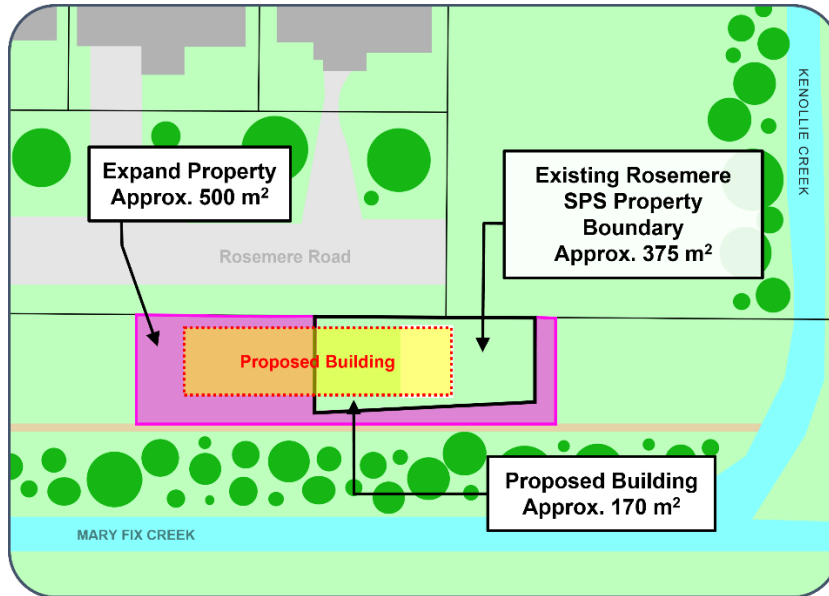


Figure 11-2. Property to Acquire for Replacement of Rosemere SPS

Prior to construction, the following are required from the City of Mississauga for proposed works described in **Section 8.2.1:**

- Road Occupancy Permit,
- Erosion and Sediment Control Permit,
- Tree Removal Permit,
- Consent-To-Enter,
- Park Access Permit, and,
- Permanent easement required for new infrastructure.

Appropriate measures shall follow *City of Mississauga's Tree Preservation and Protection Standards Guideline (latest version)*, should trees be impacted (either removed or to be protected) due to the proposed construction. Furthermore, potential tree removals will be further refined during detailed design.

The City also noted that they operate and maintain the watercourses Mary Fix Creek and Kenollie Creek on City of Mississauga owned lands within the vicinity of the Rosemere Road. It is important to ensure the City retain control of the watercourses and related infrastructure and that the proposed SPS design shall not interfere with the City's operational and maintenance works. Region to coordinate with City's Storm Drainage Coordinator prior to construction during detailed design.

In addition to the above, as more information becomes available, the Region will continue to inform and consult with the City on any identified multi-use trail and sidewalk closures, relocations and / or detours.

11.4.4 MiWay

The Region of Peel will consult with MiWay regarding any road / boulevard works (including lane disruptions) impact existing transit infrastructure (stops or shelters) or service (routes) at least two weeks prior to submission of Road Occupancy Permit. Transit related information will be provided in the Construction and Traffic Management Plan.

11.4.5 CVC

In accordance with *O.Reg 160/06*, a permit for development within the CVC regulation limits is required during construction at ROS_1, ROS_2, ELM_5, ELM_6, and HIA_8 shaft compound locations.

Decommissioning of the existing Elmwood and Hiawatha SPS also presents an excellent opportunity for restoration of ecological habitat and may be suitable locations for any required offsetting. The Lakeshore in the Port Credit area supports important ecology features including migratory landbird stopover areas. Further consultation with CVC can support in stewardship driven restoration plans.

11.4.6 Utilities

Additional consultation and coordination will be required during detailed design along with the following design commitments:

- **Bell Canada:** Tie-in measurements are a guideline only and physical verification may be required by applicant to determine the true separation. A minimum of 0.6 metres horizontal clearance and minimum 0.3 metres vertical clearance when crossing the utility should be maintained. If it is within 1 metre of the utility and when crossing, it must be hand dug.
- **Enbridge Gas Inc.:** In order to accommodate Enbridge's vital main standby requirements, gas mains are to be field located at least 5 business days prior commencement of any work and are required before ground disturbance takes place. Detailed design plans to be submitted to mark-ups@enbridge.com for approval prior to construction.
- **Group Telecon:** Standard separation should be maintained between identified fiber network and the proposed works at the Rosemere SPS Site, south of the proposed construction staging areas.
- **Rogers Communications:** Construction should maintain a clearance of 0.3 metres vertically and 0.6 metres horizontally.

Coordination to address any utility conflicts will continue directly with the utility companies and through both the Region of Peel and City of Mississauga Public Utilities Coordinating Committees (PUCCs) as part of detailed design. CVC will also need to be contacted for permits / approvals for any utility relocations identified within their regulation limit. Approval from the PUCCs will be required before any construction can be initiated.

11.4.7 Community / Property Owners / Businesses

No new temporary or permanent easements will be required on private lands. Early notification and engagement with adjacent residents and businesses is recommended during detailed design and prior to construction. Notification is recommended to include hours of operation, project contact, and duration of construction activities.

12.0 Conclusion and Recommendations

As the Region continues to grow, the pressure and level of service expectations on the existing and future water and wastewater infrastructure systems in the general Port Credit East area are experiencing operational challenges. The proposed preferred design concept addresses future capacity needs to 2041, as well as other benefits including:

- Short-term construction impact with long-term community benefits.
- Minimized construction impact through use of tunnelling construction technology.
- Minimized number of shaft compounds.
- Servicing solution for the existing community and future growth.
- Optimized system that protects the environment and meets new design standards.
- Optimizes working with Municipal partners (City of Mississauga) to facilitate construction while minimizing impact to residents and businesses.
- Elmwood and Hiawatha SPSs to be decommissioned, and land returned to park.
- Detailed Design will develop a Remediation Plan to compensate for potential loss of trees and vegetation due to construction.

The Port Credit East Class EA Study has developed a comprehensive solution that will improve the capacity within the existing study area, while supporting the broader regional long-term servicing plan for the existing community and future growth.

The preferred solution identified the following components:

1. New Deep Trunk Sewer on Lakeshore Road,
2. New Sub-Transmission Watermain on Lakeshore Road,
3. New Rosemere SPS and construction of associated twinned forcemains, and,
4. Decommissioning of Elmwood and Hiawatha SPSs and construction of new gravity sewers on Elmwood Avenue South and Wanita Road.

In total, there are nine shaft compound locations proposed, eight of which were evaluated under the Port Credit East EA. The strategy will allow for flows to be directed east towards G.E. Booth WRRF, providing a long-term solution, and freeing up capacity within the existing Port Credit East study area.

Consideration of potential impacts was included as part of the evaluation of alternatives and are isolated to only areas of surface disturbance, primarily shaft compound locations and watercourse crossings, which can be addressed by the recommended mitigation measures. Public and agency notifications were provided throughout the course of the Class EA study and to date, there were no comments received that have not already been addressed or cannot be addressed as the project proceeds through detailed design.

Following approval of this Municipal Class EA Study, it is recommended that:

- Based on property requirements identified in **Section 10.10** and **Section 11.4.3**, the Region will begin to negotiate all required property acquisition from the City of Mississauga, and any associated permits required for the construction of the project components,
- The mitigation measures identified in **Section 9.0** be confirmed and refined during detailed design and implemented during and post-construction,
- To proceed to detailed design with the understanding that further investigations are required during detailed design and permits and approvals from various agencies will be needed prior to construction,
- The Region will continue to consult and coordinate with key review agencies during detailed design including City of Mississauga, MECP, CVC, MCM, DFO and utilities to ensure design, mitigation and monitoring requirements are reviewed and approved,
- The Region will continue to engage with Indigenous rights-holders and Indigenous interest-holders, in a manner that is informed by Indigenous First Nations protocols, as the project proceeds into detailed design and construction, and,
- The Region will continue to coordinate with the City of Mississauga and MiWay regarding any transit / sidewalk / multi-use trail relocations, permits and approvals, and coordination of construction timing for any ongoing EAs within the study area.

