Environmental Assessment and Preliminary Design for Drainage Improvements of Highway 50 from Mayfield Road to Healey Road

Project File Report

Final

December 2022

Prepared for:

arva

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Region of Peel
working with you

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December 2022 RVA 194615

Region of Peel
10 Peel Centre Drive
Brampton, ON L6T 4B9

Attention: Syeda Banuri, M.Eng., P.Eng.

Re: Environmental Assessment and Preliminary Design for Drainage Improvements of Highway 50 from Mayfield Road to Healey Road
Project File Report – Final

Please find enclosed the final draft Project File Report (PFR) for the Schedule B Environmental Assessment and Preliminary Design for Drainage Improvements of Highway 50 from Mayfield Road to Healey Road, completed by R.V. Anderson Associates Limited.

This Class Environmental Assessment was conducted in accordance with Schedule B requirements for Municipal Class Environmental Assessments. Distribution of a Notice of Completion to stakeholders and as a general advertisement is required with an invitation for public review of the PFR to address comments and concerns. If no requests are received by the Minister of Environment, Conservation and Parks within sixty calendar days of filing the Notice of Study Completion, the Region of Peel may implement the study recommendations and proceed to detailed design.

We deeply appreciate this opportunity and input received from the Region of Peel throughout the study. If you have any questions, please do not hesitate to contact the undersigned by email or at 905 – 685 – 5049 ext. 4211.

Yours very truly,

R.V. ANDERSON ASSOCIATES LIMITED

Andrew McGregor, MCIP, RPP
Senior Planner, EA & Approvals

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Final

Region of Peel

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Environmental Assessment and Preliminary Design for Drainage Improvements of Highway 50 from Mayfield Road to Healey Road

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EXECUTIVE SUMMARY

The Region of Peel is planning for the construction of drainage improvements and upgrades required for failing culverts along Highway 50 between Healey Road and Mayfield Road. In addressing the need to upgrade drainage infrastructure, enhance safety, and protect property, additional consideration was provided to better accommodate cyclist and pedestrian facilities for various transportation facility users. All reasonable alternatives were evaluated with recommendations made to minimize impacts to adjacent businesses and the surrounding environment.

Various technical studies were completed to assess the existing conditions and potential impacts of the alternatives being considered. Studies included: Topographic Survey, Traffic Impact Assessment, Natural Heritage Assessment Cultural Heritage Assessment – Built Heritage Resources, Stage 1 Archaeological Assessment, Phase I Environmental Site Assessment, Geotechnical Investigation Report, Hydrogeological Investigation Report, Fluvial Geomorphology and Hydraulic Assessments, Low Impact Design (LID) Strategy, and Preliminary Drainage and Stormwater Management Assessment. The project team incorporated the study outcome findings into the evaluations of the alternative solutions throughout the phases of the study.

This report summarizes the Class Environmental Assessment (EA) that was undertaken to address identified drainage and stormwater management deficiencies and active transportation facility connectivity for Highway 50 between Mayfield Road and Healey Road, in the Town of Caledon. The study area is outlined in **Figure ES 1**.

EA Phase 1 ~ Problem / Opportunity Statement

In accordance with Phase 1 requirements of the Municipal Class Environmental Assessment process for a Schedule B project, a problem / opportunity statement was prepared following the assessment of the existing conditions within the study area to identify the various problems and opportunities to be addressed by the study.

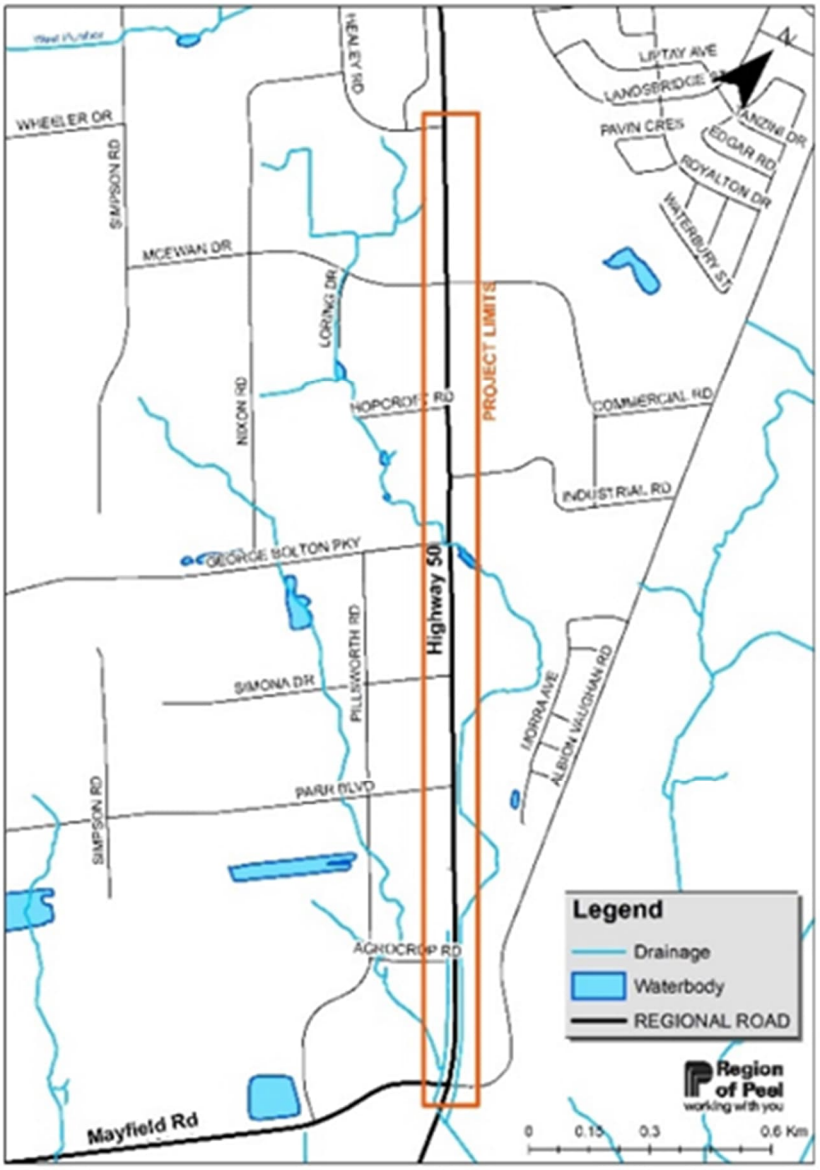


Figure ES1 – Study Area and Local Roads

The study problem / opportunity statement developed for the project is summarized as follows:

Condition assessments of road drainage infrastructure, completed prior to the study by the Region of Peel and following commencement by the consultant RV Anderson Associates, identified the need for improvements to culverts and drainage ditches along both sides of Highway 50 from Healey Road to Mayfield Road / Albion Vaughan Road intersections. The culvert crossings and drainage ditches are in poor condition and require replacement. The undertaking of this Class EA was initiated to address roadway drainage and stormwater

management improvements through the application of best industry practices, in consideration of adaptation to climate change impacts and in compliance with existing and future regulatory requirements as required to accommodate existing and future growth of the study area.

In addressing the drainage infrastructure requirements, options to improve pedestrian and cyclist facilities and connectivity through the roadway were to be developed, in consideration of the Region's Sustainable Transportation Strategy (STS).

EA Phase 2 ~ Alternative Solutions

The evaluation of alternatives was completed in Phase 2 accordance with Schedule B Class EA requirements. Alternative solutions were reviewed for stormwater management infrastructure and active transportation facilities as follows:

Stormwater Management (SWM)

1. Do Nothing
2. Culvert Replacements and Sewer Upgrades
3. Stormwater Management Pond
4. Bioretention Facilities
5. Permeable Pavement
6. Oil and Grit Separator Units
7. Superpipe Storage
8. Infiltration Trenches
9. Enhanced Ditches
10. Catchbasin Shields

Active Transportation (AT)

1. Do Nothing
2. Cycle Track East Side
3. Cycle Track West Side
4. Multi - Use Path (MUP) East Side
5. Multi - Use Path (MUP) West Side
6. Cycle Tracks East and West Sides
7. Multi - Use Path (MUP) West Side and Sidewalk East Side

Based on a comparative evaluation undertaken using criteria representing the broad definition of the environment, as described in the Environmental Assessment Act (the Act), and incorporating feedback from the public and agencies, the preferred solutions are identified as follows:

Stormwater Management (SWM)

Implement a combination of culvert replacements and sewer upgrades, infiltration trenches, bioretention facilities (bioswales or bioswale boxes), oil and grit separator units and catchbasin shields.

The recommended drainage and SWM improvements ensure that the proposed improvements neutralize any increase in impervious surface area and control the runoff in accordance with the Region of Peel, Toronto, and Region Conservation Authority (TRCA), and Town of Caledon stormwater management (SWM) requirements. The recommended drainage infrastructure improvements were developed to:

- Ensure no increased risk of flooding to downstream properties and / or infrastructure.
- Design any proposed sewer to convey 10 – year return period storm runoff.
- Where applicable, promote infiltration within the road right - of - way (ROW).

Active Transportation (AT)

Install a multi - use path (MUP) to accommodate both pedestrians and cyclists along the west side and new sidewalk on the east side of the corridor from George Bolton Parkway intersection, connecting with existing sidewalk north of 12599 Highway 50.

Impacts, Mitigation and Monitoring

The key impacts associated with the implementation of the proposed solution and general mitigation measures required have been identified. In addition to the mitigation measures identified in the report, additional work will be required following the Class EA, prior to construction. During detailed design, findings from the Class EA will be confirmed through additional investigations, planning and consultation with the public and technical agencies.

The recommended works and necessary road closures have the potential to impact access to businesses and private property throughout the corridor. Business and private property owners are to be notified well in advance of the start of construction to anticipated work schedules and how impacts to property access will be mitigated.

Construction Timing and Cost Estimates

Construction of the proposed works is anticipated to commence in Q2 / Q3, 2025. The anticipated timeline for the proposed works follows a tentative four - year schedule. A preliminary cost estimate has been prepared for the construction of the recommendations. The preliminary cost estimate to complete the proposed works is $13,121,890.00 taxes excluded. This estimate includes design, administrative costs, installation, storm sewer infrastructure, culverts, low impact development (LID), property costs, utility relocations, traffic signals, active transportation facilities, sidewalk, landscaping, and engineering fees.

1 INTRODUCTION AND BACKGROUND

1.1 Introduction

R.V. Anderson Associates Limited (RVA), on behalf of the Region of Peel, has completed a schedule B Municipal Class Environmental Assessment (MCEA) and preliminary design to assess low impact development (LID) stormwater management and drainage infrastructure improvements required for the roadside drainage ditches and culvert crossings on Highway 50, (Highway 50) from Mayfield Road to Healey Road, in the Town of Caledon. The Region has identified several driveway culverts that are failing along Highway 50 (2.5 km approximate length).

In addressing the need for drainage and stormwater management improvements along the corridor, options to improve pedestrian and cyclist facilities were considered. The Environmental Assessment (EA) study included multi - use path (MUP), cycle track and sidewalk options on both sides of Highway 50 to support active transportation as per the Region's 'Sustainable Transportation Strategy' (STS).

The Class EA was completed in accordance with the requirements of Schedule B of the Municipal Engineers Association (MEA) Municipal Environment Assessment (October 2000, amended in 2007, 2011 & 2015).

1.2 Study Area

The study area, as outlined in **Figure 1.1**, includes Highway 50, from Mayfield Road to Healey Road, in the Town of Caledon.

The intersection of Highway 50 at Mayfield Road / Albion Vaughan Road is located at the northeast corner of the City of Brampton divisional boundary. The Highway 50 at Mayfield Road / Albion Vaughan Road intersection is the regional boundary division between the Region of Peel to the west and the Regional Municipality of York (York Region) to the east. It is also the municipal borderline between the City of Brampton to the west and the City of Vaughan to the east. In addition, Highway 50 at Mayfield Road / Albion Vaughan Road marks the municipal border division between the City of Brampton and the Town of Caledon.

Figure 1.1 – Study Area

1.3 Study Objectives

The study was undertaken to review opportunities to address failing drainage ditches and culverts identified to be at the end of their service life. In developing the study recommendations, best management practices (BMPs) were considered to develop effective stormwater management (SWM) that comply with current and future regulatory and climate change requirements.

Condition assessments, completed in 2017 by the Region of Peel, for stormwater management infrastructure (culverts and storm sewers) determined limit of failure and end of service life conditions for existing structures along both sides of the urbanized Highway 50 roadway sections.

The Region acquired the assets in “as is” condition over twenty years ago from the Ministry of Transportation (MTO). Disturbance to businesses, environmental hazards and property damage from flooding are imminent without improvements to the stormwater drainage system because of increasingly severe weather events threatening public safety.

As planned development in the Region of Peel continues, the need to provide alternative transportation modes, including active transportation facilities, for

pedestrians and cyclists has been identified. The corridor is located within an area specifically designated as requiring improvements per the Region's STS.

As such, the overall study objectives are to develop a solution that addresses the identified drainage, stormwater management and active transportation needs along the corridor by:

- Providing excellent service to current residents, future community members and business owners from the Region of Peel, with a viable design solution complying with the regulatory framework.
- Mitigating, monitoring, protecting, and enhancing the environments as defined in the Environmental Assessment through effective planning and resource management.
- Encouraging stakeholder, public, and technical agency consultation. Inviting participation throughout the alternative solutions refinement and key development stages for the project.
- Identifying potential impacts during construction to existing residents, businesses, industrial areas, and surrounding environments from disturbances. Developing strategies to mitigate and reduce anticipated works.

1.4 Background and Previously Completed Studies

As part of this EA other projects along Highway 50, including the Columbia Way EA and 50 from Castlemore Road to Mayfield Road and Mayfield Road from Highway 50 to Coleraine Drive, which also included planned active transportation improvements. were considered. Policies and plans directed by the Province of Ontario, local municipalities and Metrolinx were incorporated to integrate various interests into alternatives and satisfy requirements.

1.4.1 Provincial Policy Statement

The Provincial Policy Statement (PPS, Ministry of Municipal Affairs and Housing (MMAH), 2020) sets the policy direction for regulating development and land use planning in the province. Both provincial and local land - use planning decisions build on the PPS and its relevant policies. This report deals specifically with the policies contained in Part V, Section 1.3 (Employment), Section 1.5 (Public Spaces, Recreation, Parks, Trails, and Open Space), Section 1.6 (Infrastructure and Public Service Facilities), Section 1.7 (Long - Term Economic Prosperity) and

Section 1.8 (Energy Conservation, Air Quality and Climate Change). The study was directed to address improvements required to protect to meet current and projected needs in preparation of climate change impacts.

Section 1.5.1 of the PPS directs promotion of healthy active communities through accessible public recreation, "including facilities, trails and linkages, and planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, foster social interaction and facilitate active transportation and community connectivity."

Section 1.6.7 emphasizes safety, energy efficiency, multimodal transportation systems to maintain connectivity among transportation systems, "connections which cross jurisdictional boundaries," and active transportation.

The PPS additionally outlines directives for resource management associated with the project as included in Section 2.2 (Water) and 2.6 (Cultural Heritage and Archaeology), directed at the protection of water quality and quantity, and conservation of significant built heritage resources and significant cultural heritage landscapes.

Developments are planned alongside the objectives of the PPS to reduce the costs and risks to residents of Ontario from anthropogenic and natural hazards as outlined in Section 3 (Protecting Public Health and Safety).

To accommodate climate, change the PPS uses a preventative approach to direct "*development away from areas of natural and human - made hazards*" which " supports "*financial well - being over the long term, protects public health and safety, and minimizes cost, risk and social disruption.*" The impacts of a changing climate are defined by the Province of Ontario as:

"*The present and future consequences from changes in weather patterns at local and regional levels including extreme weather events and increased climate variability*." These consequences are amplified through development and land use changes. Development is defined as:

Changes in "*land use, or the construction of buildings and structures requiring approval under the Planning Act* (*but does not include activities that create or maintain infrastructure authorized under an environmental assessment process*)."

The project includes maintenance works for infrastructure, "*physical structures that form the foundation for development*" including, transit and transportation corridors and facilities, and stormwater management systems.

The environmental assessed process supports the recommendations of the PPS in determining methods to identify, address and mitigate negative impacts:

"In regard to policy 1.6.6.4 and 1.6.6.5, potential risks to human health and safety and degradation to the quality and quantity of water, sensitive surface water features and sensitive ground water features, and their related hydrologic functions, due to single, multiple or successive development. Negative impacts should be assessed through environmental studies including hydrogeological or water quality impact assessments, in accordance with provincial standards.

Regarding policy 2.2, degradation to the quality and quantity of water, sensitive surface water features and sensitive ground water features, and their related hydrologic functions, due to single, multiple, or successive development or site alteration activities.

c) in regard to fish habitat, any permanent alteration to, or destruction of fish habitat, except where, in conjunction with the appropriate authorities, it has been authorized under the Fisheries Act.

and d) in regard to other natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities."

1.4.2 Bolton Queen Street Corridor Study

TOWN OF CALEDON – 2019

The Town of Caledon completed the *Bolton Queen Street Corridor Study* in 2019, which identified land use and design opportunities along the Highway 50 corridor. The study framework provided sustainable transportation objectives for Bolton. Design opportunities to establish formal maintained active transportation pathways and bridge gaps were identified in the report.

To service current and future populations along the Highway 50 study area, the *Bolton Queen Street Corridor Study* suggested sidewalks at a minimum width of two metres and designated cycle tracks. Opportunities identified will improve safety, bridge the existing gap at the Mayfield Road intersection, enhance streetscaping, incorporate street trees and improve the overall experience of the corridor.

1.4.3 Bolton Community Improvement Plan,

TOWN OF CALEDON – 2019 – 2022

The Town of Caledon completed the *Bolton Community Improvement Plan*, to support community objectives and detail investments for infrastructure improvements. The Plan identified the Highway 50 project area as a strategic corridor and gateway for multimodal movement within the community. The Region of Peel in partnership with the Town of Caledon will oversee improvements to pedestrian and active transportation facilities together. Recommendations for improvements to local and regional transportation networks included implementation of marked and signalled crossings, introduction of medians and installation of crossing signals.

1.4.4 Sustainable Transportation Strategy (STS)

REGION OF PEEL – 2018

The Region of Peel *Sustainable Transportation Strategy 2018*, initiated in 2016, outlined the requirements necessary to provide sustainable systems. The report addressed long - term transportation needs and planned growth issues. The STS is a part of the Long - Range Transportation Plan update.

The Region of Peel identified the protection of vulnerable users from increases in truck volume as a priority along the corridor. The plan described active transportation improvements as necessary to strengthen the multimodal function of roads, influence development, accommodate future populations, create transportation opportunities, increase employment access options and service growth in the area.

The *Sustainable Transportation Strategy* recommended improvements to the active transportation facilities in and around the Highway 50 EA study area which included:

- Separated cycling facilities along major truck corridors including design features at intersections to improve comfort and safety for all road users.
- Connected facilities along Highway 50 between Mayfield Road and Healey Road.
- Proposed cycle tracks along Highway 50 within the study area as part of the proposed long term cycling network.

This study identified the importance of a connection to the 204 – space carpool lot at Mayfield Road, which connects the Bolton GO bus route to the Malton GO

Station, continues further along to Union Station, joins Brampton's Züm network and meets York Region Transit routes.

1.4.5 STS: Active Transportation Implementation Plan 2022

REGION OF PEEL – 2018 – 2022

The *Sustainable Transportation Strategy (STS) 2018 – 2022,* completed by the Region of Peel, included recommendations to address long - term transportation and growth - related issues in the Region. The STS identified strategies and targets to develop sustainable modes of transportation and provide infrastructure to support active transportation.

The *Sustainable Transportation Strategy* identified 2.5 kilometres of Highway 50, from Mayfield Road to Healey Road, as a pedestrian improvement corridor. The section of the study area along Highway 50 was selected as a target area to support enhanced walkability. Installation of additional pedestrian infrastructures will expand connections with adjacent active transportation networks.

1.4.6 Town of Caledon Transportation Master Plan

TOWN OF CALEDON – 2017

Completed by the Town of Caledon in 2017, the *Caledon Transportation Master Plan* identified and addressed the transportation needs of the Town to the year 2031. The master plan noted heavy truck traffic along the corridor and requested alternate means for pedestrians to access shops. The Plan identified improvements to Highway 50 which included, the road network and intersection of George Bolton Parkway and paved shoulder along Healey Road within the study area. Improvements were based on forecasted traffic volumes to 2031. The inclusion of transportation facilities for all modes and users, and traffic calming measures, were recommended as necessary requirements to foster the "complete streets" concept.

1.4.7 Caledon Transportation Needs Study Update

REGION OF PEEL / TOWN OF CALEDON – 2009

The Caledon Transportation Needs Study was completed by the Town of Caledon and the Region of Peel in 2004. The study updated, assessed, and identified potential transportation improvements needed to accommodate future traffic demand in the Town of Caledon. The *Caledon Transportation Needs Study Update* identified long - term improvements required by 2031 to address peak period traffic

congestion along the roadway networks, ensure reasonable safety and improve east - west capacity within Bolton.

1.5 Municipal Class Environmental Assessment

This study was conducted in accordance with the requirements of the Municipal Class Environmental Assessment (MCEA) – Schedule B, which is an approved process under the *Environmental Assessment Act*. The framework for the Class EA process, illustrated in

Figure 1.2, is a legislated planning process consisting of five phases, as determined by the nature of each project, where mandatory points of public contact are included. The focus of the framework is to ensure a comprehensive and transparent decision - making process.

The MCEA is broken down into five potential phases:

- Phase 1 – Identification and statement of problem / opportunity.
- Phase 2 – Identification of alternative solutions, evaluation, and selection of preferred solutions.
- Phase 3 – Identification of alternative design concepts, evaluation, and selection of preferred design concepts.
- Phase 4 – Completion of an Environmental Study Report (ESR) for placement on public record for review.
- Phase 5 – Project implementation. Undertake contract drawings and tender documents for the project, commence construction works and proceed with project operations.

The Highway 50 EA and Preliminary Design for Drainage Improvements was categorized as a Schedule B study, requiring completion of Phases 1 and 2 of the MCEA design process. Prior to proceeding with Phase 5 (Final Design and Implementation), completion of a Project File Report is required to document the planning process undertaken. Provided as the final deliverable, this report documents each project phase and outlines actions taken to satisfy the Municipal Class Environmental Assessment Planning and Design Process requirements.

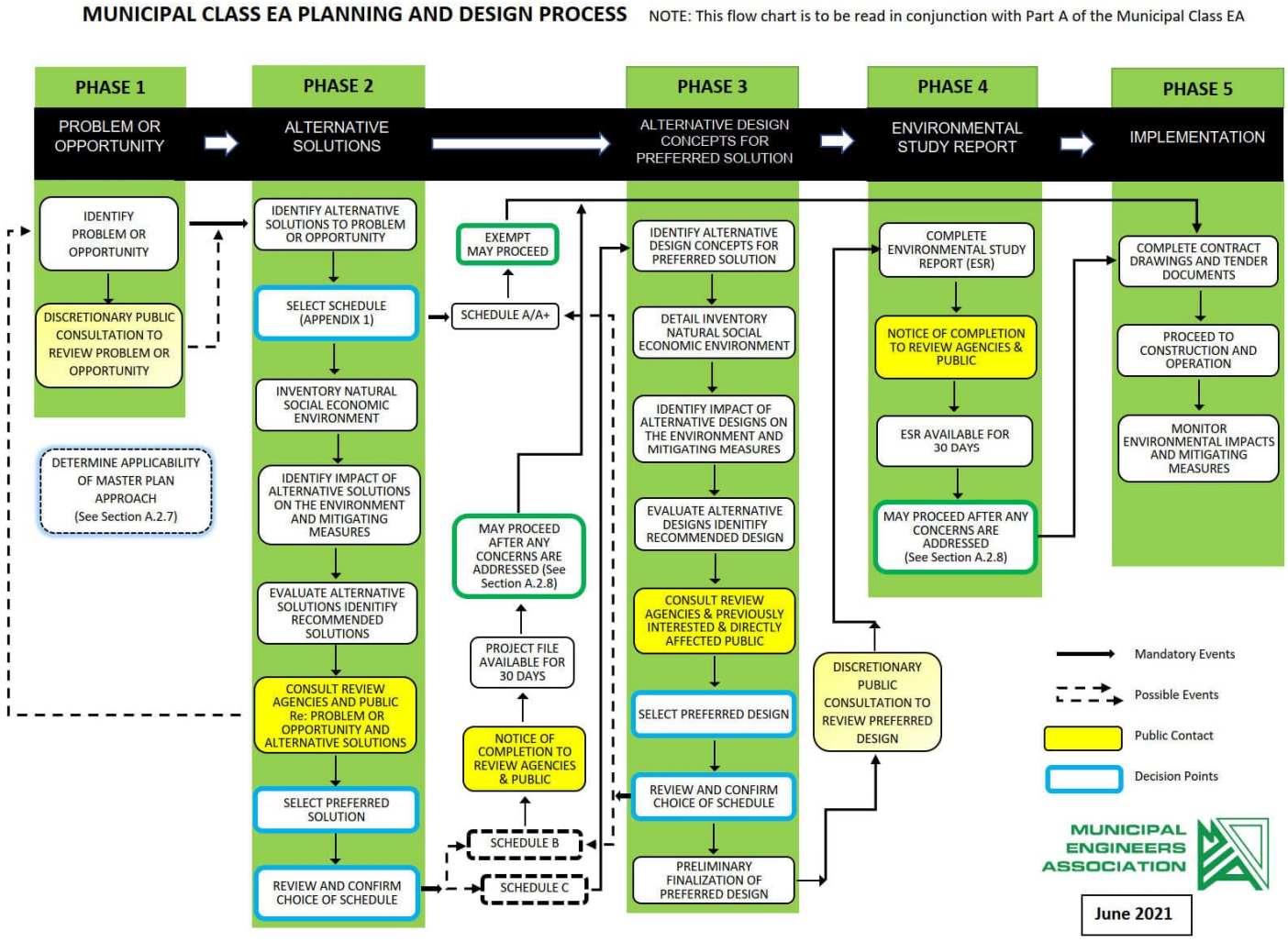


Figure 1.2 – MCEA Design Process

(MUNICIPAL ENGINEERS ASSOCIATION, 2015)

1.6 Section 16 Requests

Anyone with concerns related to any aspect of the study may express such concerns in writing to the Region of Peel within the 30 – calendar day review period following the Notice of Study Completion. For this study, the Region of Peel extended the review period to 45 – calendar days. All comments and concerns should be sent directly to the Project Manager at the Region of Peel.

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring an individual / comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), **only on the grounds that the requested order may prevent, mitigate, or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights**. Requests on other grounds will not be considered. Requests should include the full name and contact information of the person making the request for the ministry.

Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual / comprehensive environmental assessment), how an order may prevent, mitigate, or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.

The request should be sent in writing or by email to:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and
Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

Please also send requests to the Region of Peel by mail or by e - mail.

1.7 Study Schedule

The EA study was initiated in July 2019. Key dates throughout the study are identified in **Table 1.1.**

Table 1.1 – Study Schedule

EA Stage	Date
Notice of Study Commencement	June 25, 2020
Notice of Public Information Centre 1	April 22, 2021
Public Information Centre (PIC) 1	April 29, 2021
Notice of Public Information Centre 2	March 10, 2022
Public Information Centre (PIC) 2	March 17, 2022
Notice of Study Completion	December 1, 2022

1.8 Study Organization

The Class Environmental Assessment study was carried out by a consulting team lead by R.V. Anderson Associates Limited (RVA) on behalf of the Region of Peel. The Project Team consists of several multidisciplinary specialists outlined below:

Region of Peel:

- Syeda Banuri – Project Manager, Infrastructure Programming and Studies

Consulting Team:

- R.V. Anderson Associates Limited – Lead Consultant, Public Consultation, Drainage and Stormwater Management, Active Transportation Planning, Structural and Engineering
- Tham Surveying Limited – Topographic Survey
- Archaeoworks Inc. – Archaeology and Cultural Heritage Assessments

- Matrix Solutions Inc. – Fluvial Geomorphology and Hydraulic Assessments
- Thurber Engineering Limited – Geotechnical, Hydrogeological and Contaminated Soil Assessments
- LGL Limited – Natural Heritage Assessment

1.9 Consultation Requirements

Public Consultation is a key feature of environmental assessment planning projects. Input received from the public and various stakeholder groups, potentially affected Indigenous stakeholders, as well as from provincial ministries, agencies ((provincial ministries, agencies, and authorities), and authorities can generate meaningful dialogue between the project planners and the public. This consultation promotes idea exchanges and expands the available information base, in support of comprehensive decision - making during the study.

Various Indigenous stakeholders, government agencies, authorities, and Interest groups were informed of the Class Environmental Assessment study. notices of study commencement, public information centres, project updates and study completion were distributed through direct mailings (paper and electronic) to stakeholders and agencies, local newspaper advertisements, and letters delivered to property owners in the study area. The Notice of Study Completion will be distributed in the same manner to all previously identified individuals at the appropriate time.

A complete list of Indigenous stakeholders, and special Interest groups contacted as part of the study can be found in **Appendix 1**.

1.9.1 Contact with Stakeholders

As per the MCEA, public and stakeholder consultation for a Schedule B Class EA is required prior to selection of the preferred solutions and follows completion of the Project File, prior to initiation of the final project stage, detailed contract drawing completion and commencement of construction. Notification of Study Commencement and Notice of Public Information Centres were distributed by means of several methods. Alternate forms included:

General Public

- All notices were posted on the Region of Peel project website at: https//www.peelregion.ca/public–works/environmental–assessments/caledon/highway50.asp
- PIC 1 notices published in Caledon Enterprise and Caledon Citizen (local newspapers). PIC 2 notices published in Mississauga News, Brampton Guardian, Caledon Enterprise, and Caledon Citizen (local newspapers).

Residents and Businesses within the Study Area

- Notices were mailed to all property residents and businesses within the study area.
- The final number provided to Canada Post was 2,300 units.

Indigenous Stakeholders, Technical Agencies, Local Interest Groups

- Notices were sent by email two weeks prior to PICs or by mail if no email was provided by the contact.
- Upon completion of the project, after fulfillment of all EA requirements, a Notice of Study Completion will be sent by email or mail.

Study Mailing List (stakeholders who submitted comments during the study or indicated interest in the project)

- Notices sent by email two weeks in advance of PIC.
- Upon completion of the project and after all EA requirements area fulfilled a Notice of Completion will be sent by email.

Please refer to **Appendix 1** for copies of the published notifications and the stakeholder list.

2 EXISTING CONDITIONS

2.1 Tributary Areas, Outlets, and Drainage Patterns

Catchment boundaries for the entire project area were put together through information received from the Region, Town of Caledon, and existing hydraulic assessment models. For the Highway 50 right - of - way, these areas were confirmed through localized road survey.

2.2 Condition of Receiving Watercourses

Existing watercourses receiving drainage from Highway 50, Healey Road, Mayfield Road, and external areas within the project limits are located within the Humber River watershed, as well as the Rainbow Creek and Robinson Creek subwatersheds. These existing watercourses flow primarily across scattered woody riparian cover.

Rainbow Creek and Robinson Creek are intermittent watercourses regarded as warmwater habitat by the TRCA. However, the TRCA has indicated that all watercourses within the study area currently have a Redside Dace timing window (July 1st – September 15th).

2.3 Roadway Drainage and Stormwater Management

RVA's Stormwater Management and Hydraulic Analysis Team prepared a Preliminary Drainage and Stormwater Management Report documenting existing drainage conditions within the study area for the purpose of developing a stormwater management strategy to address water quantity and quality - related stormwater runoff impacts associated with the proposed improvements. The existing storm drainage system of Highway 50 consists of roadside ditches and culverts as shown in **Figure 1.3**, **Figure 1.4**., and the full SWM Report with drawings enclosed in the SWM Report **Appendix B** and Maps **Appendix D** found in **Appendix 2**. The report considered a 10 – year design storm event and a 100 – year storm event to understand the effect of flooding within the Highway 50 right - of - way (ROW).

Roadway drainage is primarily conveyed by storm sewers along the east side of the road. Ditches and culverts on either side of the road convey external drainage to the west side road ditch, including an area to the north where railway tracks cross the corridor. Existing sewers discharge directly to Robinson Creek at George

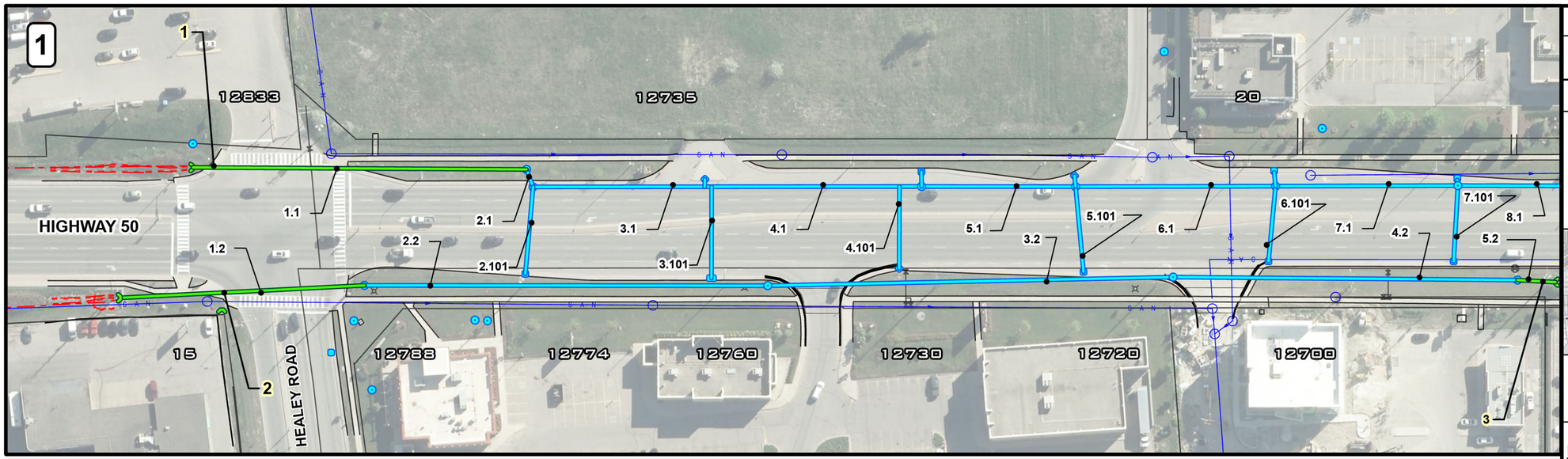
Bolton Parkway and Simona Drive. No quantity or quality controls were provided for the existing road drainage.

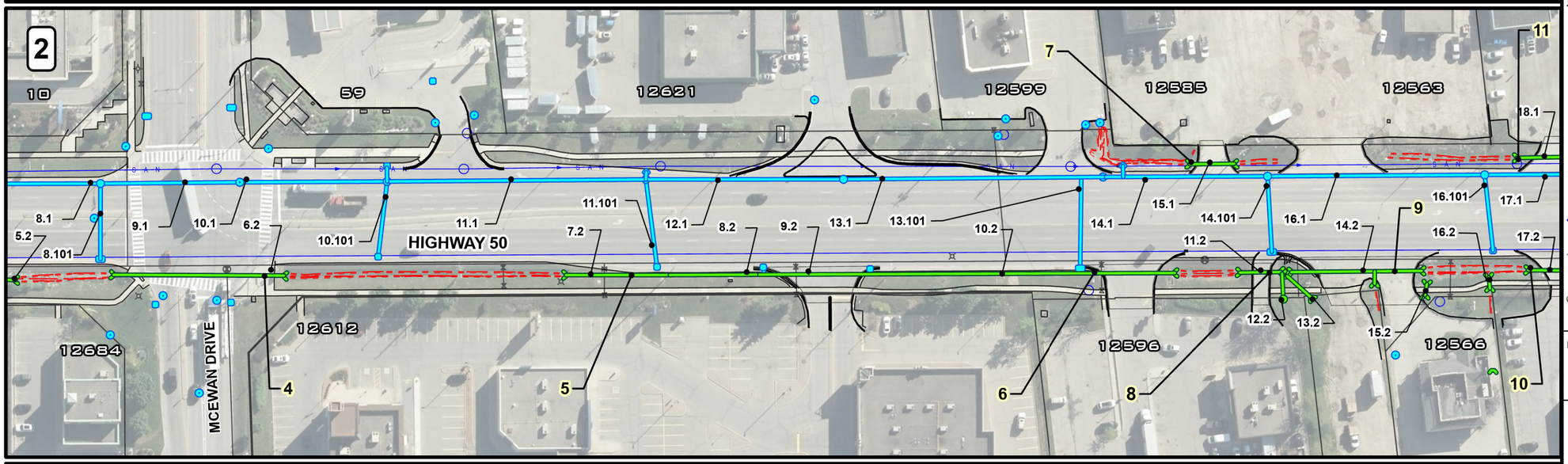
Condition assessments of road drainage infrastructure completed by the Region of Peel confirmed the need for improvements of seventeen culverts on the east and west sides of the corridor from Healey Road to Mayfield Road / Albion Vaughan Road. RVA visually inspected the condition of all culverts within the study project limits and confirmed the Region of Peel survey results.

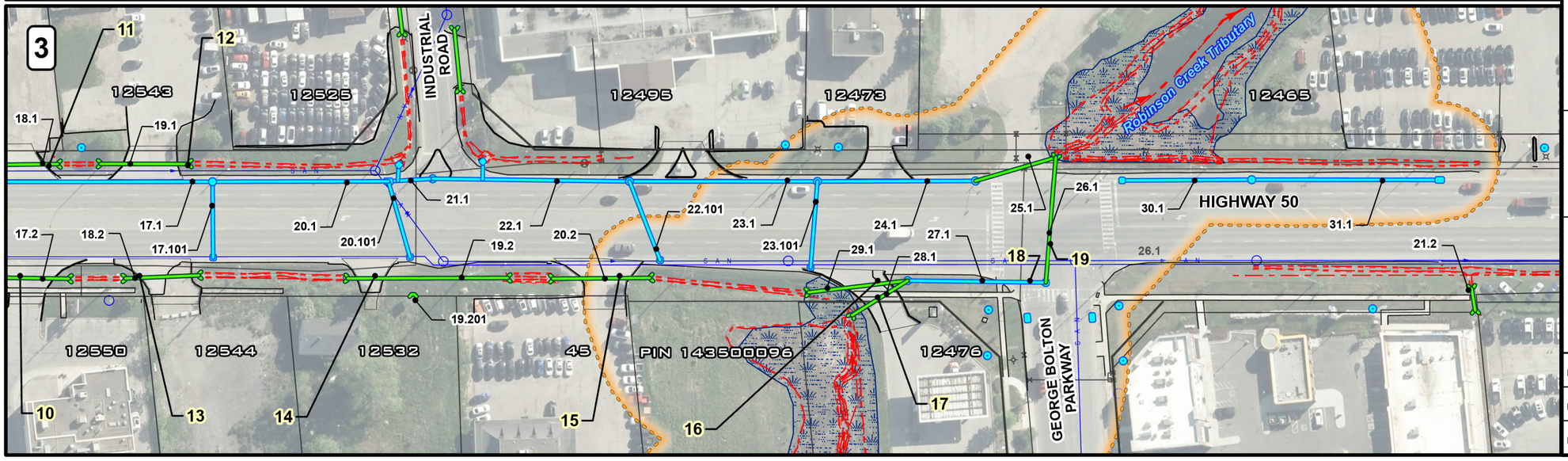
The Region determined that a total of seventeen culverts require improvements. RVA inspected all culverts within the corridor and identified a total of twenty - one culverts that were deficient due to wear out of a total of thirty - four culverts evaluated within the project study area. Further desktop and hydraulic analysis identified additional culverts that may be at the end of service life. RVA suggests that in total, twenty - three culverts may require improvements due to either wear or lack of hydraulic capacity, and additional three culverts will require replacement due to the proposed EA works. The culverts are in conflict with the proposed active transportation facilities. One additional culvert removal is anticipated as part of the Highway 50 / Mayfield Road project to the south. The existing information for the roadway culverts and reason for replacement are summarized in **Table 7.1**. Additional information regarding the existing culverts, include hydraulic capacity and existing hydraulic results as available in **Appendix 2.**

Culverts asset ID numbers span 1 through 35 with no assignment to asset ID number 22. The existing information for the roadway culverts and reasons for replacement are summarized in **Table 7.1.** which includes existing and proposed culvert sizing, material, and replacement rationale. Hydraulic capacity and existing hydraulic results provided in the Storm Water Management report included in **Appendix 2**. Existing culverts shown below in **Figure 1.3**.and **Figure 1.4**. Additional numbering provided for all culvert and sewer infrastructure is included for reference. Based on all criteria and condition assessments, replacement was recommended for twenty - eight culverts and sewers in total due to interference with proposed active transportation facilities, structural deficiency, lack of hydraulic capacity or from wear.

Survey findings and information on roadway culverts are summarized in **Table 5** – **1** and also included in the Stormwater Management Report (**Appendix 2)** and the Fluvial Geomorphological and Hydraulic Assessment Report (**Appendix 6)**. Existing storm sewer infrastructure within the study limit s illustrated below in **Figures 1.3** and **1.4**.





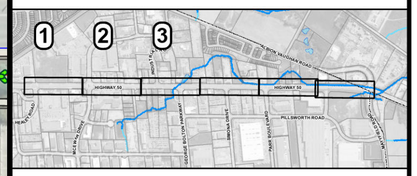


ENVIRONMENTAL ASSESSMENT

Map Group 1: Existing Storm Water Infrastructure Within North Section of the Highway 50 Project

DATA SOURCES

Map Credit:
Peel Region2020, TRCA



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LEGEND

- 123 PROPERTY INDEX NUMBER (PIN)
- WETLAND
- WATERCOURSE
- CHANNEL
- SAN SANITARY SEWER
- WATERMAIN
- 12 7 REPLACEMENT ASSET ID #
- TRCA O. REG. 166/06
- CULVERT
- STORM SEWER
- MANHOLE
- CATCHBASIN
- 12 7 ASSET ID #

Designed by	Approved by
rva	AM MAD

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10 0 10 20 30 40 m
HORIZONTAL SCALE

Region of Peel
working with you

HIGHWAY 50 (QUEEN STREET)

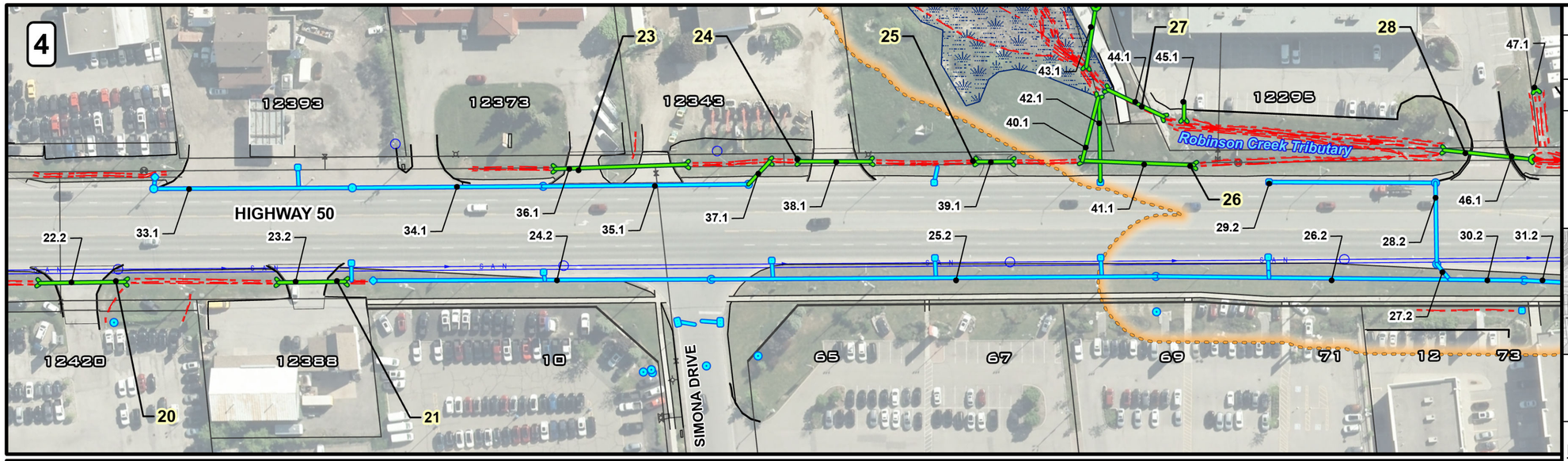
FROM MAYFIELD ROAD TO HEALEY ROAD

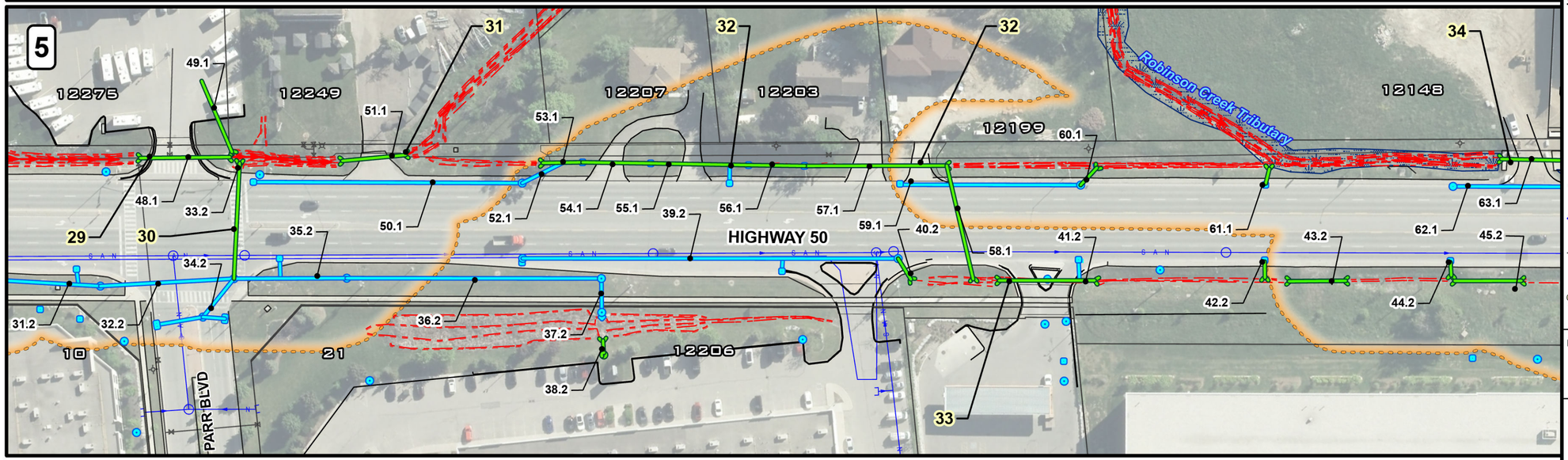
EXISTING CULVERTS AND STORMWATER INFRASTRUCTURE - NORTH LIMIT

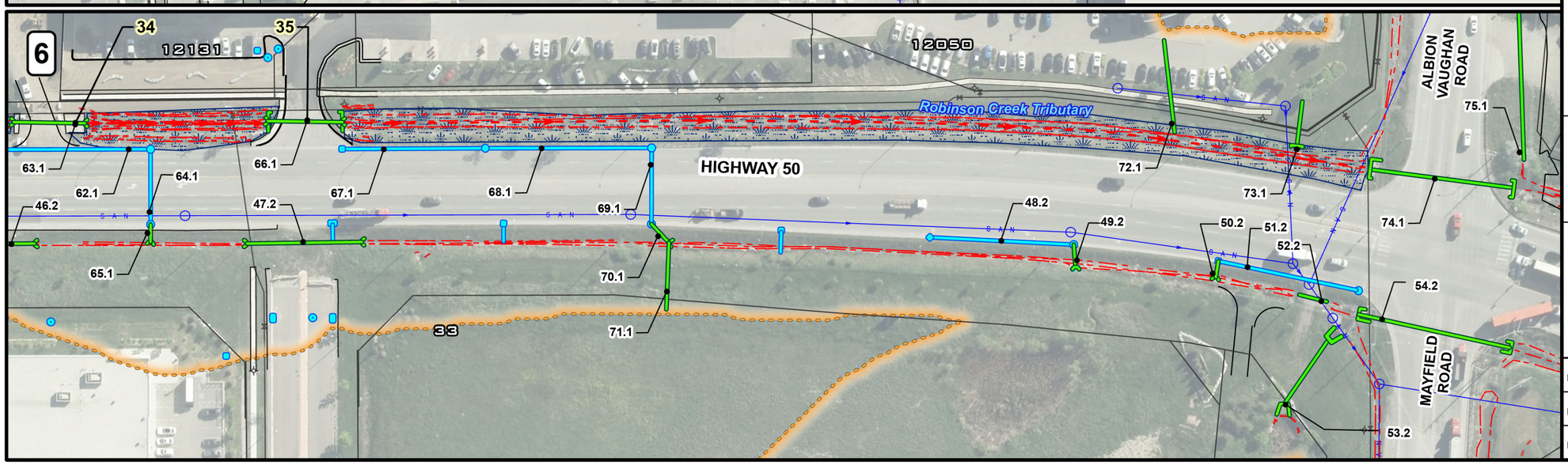
STORM WATER MANAGEMENT IMPROVEMENTS

STA. 14 + 300 +/- **TO STA. 12 + 000 +/-**

Page	1 of 2	Project No. (REGION OF PEEL)	#18 - 4860
Drawn by	CER	Project No. (rva)	#194615
Date	11 / 2022		





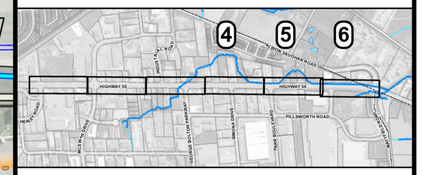


ENVIRONMENTAL ASSESSMENT

Map Group 2: Existing Storm Water Infrastructure Within South Section of the Highway 50 Project

DATA SOURCES

Map Credit:
Peel Region2020, TRCA



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LEGEND

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10 0 10 20 30 40 m
HORIZONTAL SCALE

Region of Peel
working with you

HIGHWAY 50 (QUEEN STREET)

FROM MAYFIELD ROAD TO HEALEY ROAD

EXISTING CULVERTS AND STORMWATER INFRASTRUCTURE - SOUTH LIMIT

STORM WATER MANAGEMENT IMPROVEMENTS

STA. 14 + 300 +/- **TO STA. 12 + 000 +/-**

Page	2 of 2	Project No. (REGION OF PEEL)	#18 - 4860
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Date	11 / 2022		

2.4 Transportation Facilities

Under existing conditions, Highway 50 is a fully urbanized five lane road with two general purpose lanes per direction and a single centre two - way left - turn lane with a posted speed limit of 60 km / hr. From the south limits to the north, the corridor contains five major (signalized) intersections with pedestrian crossings; Mayfield Road / Albion Vaughan Road at Highway 50, Parr Boulevard, George Bolton Parkway, McEwan Drive and Healey Road, as well as three minor (non - signalized) intersections; Simona Drive, Industrial Road, and Hopcroft Road. The corridor also provides access to adjacent commercial properties.

The roadway consists of a mix of rural and urban cross - section segments, and an incomplete pedestrian network with intermittent sidewalk along the west side of the road. Between Healey Road and Hopcroft Road, discontinuous sections of sidewalk exist on the east side. The fragmented nature of the pedestrian transportation network led the Region of Peel to identify the area as a pedestrian improvement corridor as detailed in the 2018 – 2022 Sustainable Transportation Strategy (STS). There are currently no dedicated cyclist amenities along the corridor.

At the southernmost limit of the study area approximately 250 metres of sidewalk extends along the east side adjacent to the dealership property located at 12131 Highway 50. Extending south from the north driveway entrance, the sidewalk abruptly stops at a terminal end about 40 metres short from the Mayfield Road / Albion Vaughan Road intersection at Highway 50 where Robinson Creek Tributary is conveyed through wetland into a box culvert under the roadway. Another stretch of sidewalk paralleling the west side for 550 metres spans from properties 12206 Highway 50 to the north and south and 12388 Highway 50 to the north where a 120 metre interruption exists between another sidewalk section 150 metres long. Sidewalks parallel the east and west sides of Highway 50 south from Healey Road for 620 metres and 770 metres respectively.

2.5 Utilities and Underground Infrastructure

Along the boulevard of Highway 50, existing utilities and infrastructure include hydro poles, cable, underground gas, and watermains. Existing sanitary mains parallel the Highway 50 along sections of the roadway with sewer crossings located south of Healey Road, near Industrial Road north of George Bolton

Parkway, and north of Mayfield Road / Albion Vaughan Road at Highway 50 intersection.

2.6 Social and Economic Environments

The intersection of Mayfield Road / Albion Vaughan Road at Highway 50, at the southern limit of the study area, delineates the municipal boundary between the Town of Caledon to the north and the City of Brampton to the south. In the Region of Peel 2014 Plan, the land uses highlighted for the study area are predominantly commercial and industrial, with some residential to the northeast. Additional land uses include institutional and farmland property designations.

Properties located adjacent to the Highway 50 roadway primarily consist of commercial and industrial: multiple gas stations; autobody shops; car dealerships; manufacturing operations; commercial trucking terminals; retail stores; and restaurants. Observed along the corridor to a lesser extent are Institutional and community: churches; schools; education centers; parkland; residential; and agricultural designations near the east limits of the study area.

As per the 2015, 2016 and 2021 Region of Peel census data, accessed from the Peel Data Centre and Neighbourhood Information Tool, the land area of the tract the project is situated in is 1.939 square kilometres. The dwelling density is estimated at 777 per square kilometre and there are 1,508 private dwellings. The population of the area where the project is located was estimated at 4,115 in 2016 and 4,630 in 2021, an increase of 12.5 %. In 2020, the percent of the population under 14 years of age is 16.2%, aged 15 to 64 is 72.4 % and over 65 years of age is 11.4%.

Of the 1,508 households, 6 % are estimated as multigenerational. The English language is spoken by an estimated 97.5 % of the population. Multilingual individuals were estimated to make up approximately 12.5 % of the total population. The five predominant additional languages spoken included Italian (5.44 %), Punjabi (1.44 %), Spanish (1.11 %), Polish (0.78 %) and Assyrian Neo - Aramaic (0.78 %).

In the Caledon area, employment industries in order of highest to lowest percent of employed residents included construction, manufacturing, retail trade, educational services, and professional, scientific and technical services respectively.

2.7 Natural Environment

A Natural Heritage Report, prepared by LGL, documented existing environmental conditions within the study area and potential effects of the proposed project works on natural heritage features. Findings from the Natural Heritage Report are summarized in the sections below. The full report is provided in **Appendix 3**.

2.7.1 Physiography and Soils

The study area is located within a physiographic region consisting of till plain characterized as flat in topography. The predominant soils within the study limits consist of Peel Clay characterized as imperfectly drained, smooth, gently sloping topography and stone - free **(Appendix 3, Section 2.1)**.

2.7.2 Aquatic Habitats and Communities

Within the study area are the headwaters of Robinson Creek part of the Humber River watershed under the jurisdiction of the Toronto and Region Conservation Authority (TRCA). The Robinson Creek Tributary and contributing roadside ditches have the potential to support indirect (intermittent, seasonably variable) and direct (permanent, year - round) fish habitat. During the dry summer months fish populations are supported by year - round permanent standing pools at sections along the channel. The watercourse and floodplain extents within the study limits are regulated by O. Reg. 166 / 06, TRCA: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

The watercourse crosses from the northwest to southeast side of Highway 50 conveyed through culverts and sewer beneath the George Bolton Parkway intersection. Information obtained from Land Information Ontario (LIO) and the Humber River Fisheries Management Plan identified the southern reaches paralleling Highway 50 as Small Riverine Warmwater Habitat managed for Darter species. The permanently to intermittently flowing channels drain to potentially significant wildlife habitat south of the project limits of Mayfield Road / Albion Vaughan Road at Highway 50 intersection.

Two assessments were completed in the spring and summer of 2020. Flow was observed during the spring inspection in April along a 0.3 metre to 1 metre wetted channel located northwest of George Bolton Parkway. Channel bed materials included fines (silt and clay), placed rip rap, rubble, and gravel. Vegetated cover was provided by a *Typha* (Cattail) community dominated with *Phragmites* (European Common Reed). No fish were observed in either of the spring or

summer inspections. Potential fish habitat included an approximate 0.5 m deep pool located at the concrete box culvert outlet and a downstream pond to the east.

The channel proceeds along a large curve to the east and south, then emerges through a large cattail marsh and returns to a large roadside ditch along the east of Highway 50, between Simona Drive and Parr Boulevard (approximately 400 metres). The watercourse then functioned as a roadside ditch with cattails in the channel and manicured grass surrounding. The roadside ditch channel conveyed flow at the time of both field investigations. The ditch extends over 200 metres before meandering to the east and south and back to another roadside ditch along the east side 300 metres to the south.

Below is a summary of the areas that contained potential direct fish habitat due to flow observations:

- Northwest ditch supported potential direct fish habitat for approximately 25 metres north and less than 50 metres west of the culvert.
- Southwest ditch supported potential direct fish habitat for approximately 50 metres west and approximately 25 metres south of the culvert before being diverted under Highway 50 by another culvert.

Previous fish sampling completed by LGL south of the study area identified Brook Stickleback (Culaea inconstans) and Creek Chub (Semotilus atromaculatus) in the channel. These are both warmwater forage fish species which are tolerant to disturbance.

2.7.3 Vegetation Communities

The field investigations determined the boundaries of vegetation communities and botanical surveys were conducted. The vegetation communities were classified according to the Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Plant species status was reviewed for Ontario, Region of Peel and the Toronto and Region Conservation Authority.

Vegetation within the study area consisted of manicured lawns with planted trees and shrubs. Naturalized vegetation was limited to small linear Dry - Moist Old Field Meadow (CUM1 – 1) communities adjacent to the Highway 50 right - of - way (ROW) and Mineral Shallow Marsh (MAS2 – 1 and MAS) communities associated with the watercourses in the study area.

In general, these cultural meadow communities are comprised of a high proportion of non - native, disturbance tolerant plant species that are adapted to persist in areas that are regularly disturbed including species that are adapted to high light conditions, limited soil moisture and species that are tolerant of salt spray. These communities are of low quality. Several small shallow marsh communities were identified within the study area, these communities are associated with the riparian habitat of the watercourses and are dominated by cattails (Typha sp.) or common reed (Phragmites australis).

All the vegetation communities identified in the study area are considered widespread and common in Ontario and are secure globally. A total of 51 plant species have been recorded within the study area. Of the 51 plant species identified, 19 (37 %) plant species identified are native to Ontario and 32 (63 %) plant species are considered introduced and non - native to Ontario.

No plant species that are regulated under the Ontario Endangered Species Act (ESA) or the Canada Species at Risk Act (SARA) were encountered during LGL's botanical investigation within the study area (those plant species regulated as Endangered, Threatened, or Special Concern).

2.7.4 Tree Inventory

Scattered trees and semi - natural vegetation occurred within proximity to the roadway which could be impacted. The vegetation communities assessed served as poor habitat for wildlife, and as such limited impacts to wildlife or their habitat is expected.

2.7.5 Wildlife and Wildlife Habitat

Field surveys were conducted twice during the summer of 2020 as documented in the Natural Heritage Report (**Appendix 3**) to investigate the presence of existing wildlife species and characterize wildlife habitat distribution along the Highway 50 corridor. The investigations were focussed within and adjacent to the ROW. Methods to identify species composition within the area included calls and tracks, direct observations, two targeted breeding bird surveys and desktop analysis. Secondary data collected from the Natural Heritage Information Centre (MNRF) was used to screen for rare species records to supplement the primary observations.

The study area is highly disturbed dominated by various anthropogenic settings and mixture of land use areas with maintained grass throughout. Small inclusions

of semi - natural features, a pond, marsh, and cultural meadow communities. A small pond was noted near the intersection of Highway 50 and George Bolton Parkway. Wildlife and wildlife habitat were found distributed across the entire study area. Several small intermittent watercourse features had sparse vegetation and limited capacity to support wildlife or be considered as potential wildlife habitat.

Highly disturbed vegetation communities were found with limited capacity to provide wildlife habitat. Species identified are generally considered urban and tolerant to disturbed habitats resulting from anthropogenic activities.

Two species of mammals and sixteen bird species, eighteen total, were verified through calls and sightings. Breeding evidence was obtained for all observed birds which included confirmation of a single species (individual sighted carrying food for its young), suspected in eight species, and seven species with potential to breed within the study area. Species which were most encountered across the study area were species associated with open - country, anthropogenic, and forest edge habitat types. No bird species at risk were recorded during targeted surveys. No bird nests were identified within culvert structures found across the study area. None of the bird species recorded were considered area - sensitive and / or interior species according to the Significant Wildlife Habitat Technical Guide.

2.7.6 Species at Risk (SAR)

Ten recorded bird species are protected under the *Migratory Birds Convention Act* (MBCA) and a single bird species is protected under the *Fish and Wildlife Conservation Act* (FWCA). Five bird species are not afforded any legislative protection. Each of the two mammal species identified are afforded protection under the FWCA.

Of the 18 wildlife species recorded within the study area, none were found to be regulated under the Ontario *Endangered Species Act*, 2007 (ESA) or the federal *Species at Risk Act* (SARA). The Natural Heritage Report concluded as a result of the highly anthropogenic nature of the study area, and no species at risk being identified during targeted surveys, the probability of finding SAR is unlikely and not expected within the study area. The report stated, "A review of the NHIC (Natural Heritage Information Centre) database for rare species records contained no element occurrences for wildlife species at risk within the vicinity of the study area." TAC correspondence indicated that provincially four species are regulated and may require permitting. No of the listed species were identified in the investigations in the field.

2.7.7 Designated Natural Areas

Designated natural areas include areas identified for protection by the Ontario Ministry of Natural Resources and Forestry, Toronto and Region Conservation, Regional Municipality of Peel, and the Town of Caledon.

No provincially or locally designated parks, conservation areas, reserves, Provincially Significant Wetlands (PSWs), Areas of Natural or Scientific Interest (ANSIs), or Environmentally Significant / Sensitive Areas (ESAs) on lands within 120 m of the study area.

Natural Heritage Resource Manual (MNR (Ministry of Natural Resources), 2010) describes natural heritage features of significance, and areas where development and site alteration are not permitted. No natural heritage system features or areas are located within the study area guided by approaches developed in the directives of the Growth Plan for the Greater Golden Horseshoe (2017), Oak Ridges Moraine Conservation Plan (2017), Niagara Escarpment Plan (2017), Greenbelt Plan (2017) or Lake Simcoe Protection Plan (2014).

2.8 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Resource Assessment of the study area was undertaken to evaluate the cultural heritage significance of the study area and assess impacts of the proposed undertaking in consideration of its determined cultural heritage value. Based on research and site investigation it has been determined that there are no built heritage resources or cultural heritage landscapes within the study area. The complete Cultural Heritage Evaluation report is provided in **Appendix 4.**

2.9 Archaeological Resources

A Stage 1 Archaeological Assessment was conducted for the study Area corridor as per the requirements of the EA to identify any potential areas of significance where artifacts may be recovered and determine possible impacts to resources. The complete Stage 1 Archaeological Assessment report is provided in **Appendix 5** with findings summarized below.

The Stage 1 Archaeological Assessment determined the entirety of the study corridor was previously subject to similar assessments as required by earlier project works carried out in the area and the report confirmed that within the project limits the activities are on lands classified as heavily disturbed. No impacts

anticipated from construction activities along the study corridor length, and no concerns to warrant additional review or further assessment found.

2.10 Fluvial Geomorphology and Hydraulic Conditions

A Fluvial Geomorphology and Hydraulic Assessment of the study area was completed to document the existing condition and constraints of the natural watercourse within the study area, West Robinson Creek. Findings of the report are summarized below. The complete Fluvial Geomorphology and Hydraulic Assessment report is provided in **Appendix 6**.

In - field geomorphic crossing assessments of the eight existing stream crossings (Culverts 1 to 8) along Highway 50 between George Bolton Parkway and Mayfield Road were completed. The stream crossing assessment collected data specific to the channel and crossing structures within the vicinity of the roadway. Evidence of potential channel - related issues were documented near the crossing (e.g., bank erosion, bed scour, debris trapping, and fish passage). Information regarding crossing type, material, shape, dimensions, and structural conditions were also recorded.

Based on Ontario Ministry of Transportation's Highway Drainage Design Standards (MTO 2008, Section SD 12), used for arterial and collector roads adjacent to watercourses, new culverts paralleling watercourses should be designed to convey 100 – year flows and 0.5 metre freeboard maintained to the top of the adjacent road subgrade. Modeled results of existing conditions showed that culverts numbered 1 through 7 experienced driveways overtopping during high flow events an indication that capacities were below standard. Culverts 1, 5, 6, and 7 additionally overtopped onto Highway 50 while culverts 2, 3, 4, and 8 did not reach the roadway. Culvert 8 was the only culvert that did not experience submergence or overtopping for all modelled events.

2.11 Subsurface and Groundwater

Preliminary geotechnical and hydrogeological investigations were undertaken to confirm the surface, subsurface and groundwater conditions in the study area. Findings of the reports are included in this section. The completed Preliminary Geotechnical Investigation and Hydrogeological Reports are provided in **Appendix 7** and **Appendix 9,** respectively.

2.11.1 Pavement Conditions

The subsurface stratigraphy encountered in the boreholes typically comprised a surficial pavement structure underlain by sand fill and further underlain by native silty clay till. Details of the soil stratigraphy, based on the conditions encountered in the boreholes, was given in the Geotechnical Report in **Appendix 7**.

2.11.2 Groundwater

A hydrogeological investigation was completed concurrently with a geotechnical investigation provided in **Appendix 9**. The water level elevations in the monitoring wells ranged from 223.65 metres to 243.67 metres. Groundwater levels indicated that shallow groundwater flows from northwest to southeast toward the tributary of Humber River, following local topography.

2.11.3 Groundwater Quality

A review of the analytical results indicated that all groundwater samples exceeded the storm sewer discharge criteria for total suspended solids (TSS) and manganese. Some samples also exceeded the storm sewer discharge criteria for total Kjeldahl Nitrogen. All other tested parameters met the Peel Storm Sewer Use By - law criteria.

One of the groundwater samples collected exceeded the By - law 53 – 2010 criteria for sanitary sewers for TSS. All other analyzed parameters met the applicable water quality criteria.

Based on conditions typically encountered for open excavations in till, it is expected that groundwater would require treatment prior to direct discharge into surface water or any sewers. Treatment to remove suspended sediment and associated metals, and adjustment of temperature if discharging to surface water, would be the minimum requirements. Where feasible, it is recommended that groundwater should be discharged at least 30 metres away from any surface water bodies.

2.11.4 Hydraulic Conductivity

Slug tests conducted in selected monitoring wells show the estimated in - situ K values for the silty clay till materials ranging from 9.8 × 10 – 10 m / s to 5.2 × 10 – 7 m / s. The geometric mean of the slug tests conducted solely in the silty clay till is 1.1 x 10 – 8 m / s.

2.11.5 Contaminated Soil Assessment

A contaminated soils assessment was carried out and Phase I environmental site assessment (ESA) completed to identify evidence of actual and / or potential contamination within or adjacent to the study area. Impacts to the subsurface conditions and the management of materials generated during the proposed construction works were considered. Findings of the assessment are summarized below. The complete Phase I ESA report is provided in **Appendix 8**.

A total of seventy - four potential sources of contamination were identified in surrounding areas where migration of deleterious substances onto the Site was possible. Forty - one of the contamination sources were evaluated as a high risk for potential impact to the Site subsurface conditions. The potential sources included:

- Commercial operations: underground and aboveground fuel storage tanks; gas stations; car dealerships; service garages; vehicle repair; autobody shops; vehicle storage; parking; car washes; transformers; printing shops; and paint shops.

- Releases of substances: oils (fuel, hydraulic, motor, transformers, and transmission); diesel; gasoline fuels; photography chemicals; coolant; antifreeze; multiple waste generators; lumber suppliers (factory and mills with potential wood preservation); chemical suppliers; testing laboratories; maintenance operations (equipment and vehicles).

- Manufacturing of various products: measuring, medical and controlling devices; pharmaceuticals; medicine; energy wires; cables; concrete materials testing; concrete measuring equipment; machinery; computer equipment; magnetic media; optical media; chemical products; stationary products; and transformers.

The contaminants of potential concern associated with the potential sources of contamination included: metals and inorganics, petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene, xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) and organochlorine (OCs) pesticides. A subsurface investigation for soil and groundwater within the excavation depths of the proposed construction works, with sampling and analysis involved, would be required to confirm, or refute the potential for contamination of subsurface conditions underlying the Site.

3 PROBLEM / OPPORTUNITY STATEMENT

Requirements of the Municipal Class Environmental Assessment (MCEA) design process for a Schedule B project, include preparation of a problem / opportunity statement to identify in detail the various problems and opportunities to be addressed throughout the study. In essence, the problem / opportunity statement outlines the need and justification for the overall project and establishes the general parameters, or scope, of the study.

The problem / opportunity statement was developed following the assessment of the existing conditions within the study area, as described in Section 2, along with having discussions with Region of Peel staff regarding municipal servicing and infrastructure needs; and through consultation with the public and technical agencies undertaken throughout the study.

The study problem / opportunity statement developed for the project is as follows:

Condition assessments of road drainage infrastructure, completed prior to the study by the Region of Peel and following commencement by the consultant RV Anderson Associates, identified the need for improvements to culverts and drainage ditches along both sides of Highway 50 from Healey Road to Mayfield Road / Albion Vaughan Road intersections. The culvert crossings and drainage ditches are in poor condition and require replacement. The undertaking of this Class EA was initiated to address roadway drainage and stormwater management improvements through the application of best industry practices, in consideration of adaptation to climate change impacts and in compliance with existing and future regulatory requirements as required to accommodate existing and future growth of the study area.

In addressing the drainage infrastructure requirements, options to improve connectivity of pedestrian and cyclist facilities through the roadway were developed, in consideration of the Region of Peel Sustainable Transportation Strategy (STS).

4 STORMWATER OBJECTIVES

4.1 Water Quantity

The objective of the SWM report for drainage infrastructure improvements on Highway 50 from Mayfield Road to Healey Road is to assess the EA recommended solutions that will address the following:

- Ensure no increased risk of flooding to downstream properties and / or infrastructure.
- Design any proposed sewer to convey 10 – year return period storm runoff.
- Where applicable, promote infiltration within the road right - of - way.

Best management practices (BMP) were utilized when evaluating the proposed LID measures. No road widening is proposed as part of this project and no significant increase in impervious area is proposed, relative to the contributing drainage area. No specific quantity control measures are proposed as no increase in peak flows is anticipated due to the proposed construction of sidewalk and MUP.

4.2 Water Quality, Erosion, and Sediment Control

The objective for water quality and erosion and sediment control for this project is to provide best efforts to treat stormwater runoff from Highway 50. A combination of different Low Impact Development (LID) techniques to provide a basic level treatment (60 % Total Suspended Solids (TSS) removal) are proposed. To improve water quality in the postcondition Oil Grit Separators (OGS), bioretention facilities, and catch basin shields were included in the study recommendations. No significant increase in impervious area is proposed as part of the EA design and therefore no increase in peak flows is anticipated. Additionally, since the increase in imperviousness is negligible in the postcondition, the TSS loading is approximately the same as precondition. LID measures are proposed to provide an improvement over existing condition only.

The MECP is in the process of issuing a Stormwater CLI ECA to the Region of Peel. The Stormwater CLI ECA covers storm assets servicing regional roads, namely storm sewers, ditches, SWM facilities and LID, and Stormwater Pumping Stations. The Stormwater CLI ECA sets forth conditions for alterations to the

stormwater system as well as ongoing operation of the system. The ECA comes with criteria for design of alterations to the Region's existing stormwater system. At the time of completion of the EA study, the CLI ECA template and criteria were not available, therefore the EA recommendations do not guarantee compliance with the CLI ECA conditions and criteria. It is recommended that at the Detailed Design Stage, the Engineering Consultant re - assess the EA recommendations against the CLI ECA criteria and make the necessary adjustments and changes to the stormwater recommendations to comply

4.3 Water Balance

Water balance was not considered to be an objective for this project. Since no road widening is proposed along Highway 50 from Mayfield Road to Healey Road, there is a negligible increase in the percent of impervious surface in the postcondition as compared to the precondition.

5 HYDRAULIC MODELLLING

An InfoWorks model was created to model the creek, ditches, culverts, and sewers to assess the existing drainage conditions of Highway 50. The creek, ditch and culvert information were obtained from the TRCA's HEC - RAS model updated by Matrix Solutions Inc. The HEC - RAS model also included design flows for the creek. In addition, an InfoWorks model was also obtained from the Region. This InfoWorks model consisted of partial road subcatchment data as well as design storm and sewer information.

The InfoWorks model that was created by RVA combined the information obtained from the updated HEC - RAS and the existing InfoWorks models. Two scenarios were created in the RVA InfoWorks model for assessment: (1) the existing / precondition, and (2) the EA recommended condition. The following sections describe in detail how the RVA InfoWorks model was developed.

5.1 Design Storm

The design storm used in this project was obtained through the Region's InfoWorks Model. The design storm was developed using the Chicago Distribution storm for a duration of four hours using a five - minute time step. All sewers and roadside culverts were designed to convey the 10 – year design storm event. A 100 – year storm event was also modelled and run to understand the effect of flooding, if any, within the Highway 50 right - of - way.

6 ALTERNATIVE SOLUTIONS

Under Phase 2 of the MCEA design process, all reasonable solutions to address the problem / opportunity statement objectives were identified and described. Inclusion of a "Do Nothing" option was required to assess an alternative that considers no changes to existing conditions.

6.1 Assessment Criteria and Evaluation Methodology

The Project Team considered criteria that represent the broad definition of the environment as described in the EA Act to comparatively evaluate the alternative solutions. The general evaluation criteria used in evaluating the alternative solutions are outlined in **Table 4.1** below.

Table 6.1 – Evaluation Criteria

CRITERIA	DESCRIPTION
Technical	Are the technical requirements of the project addressed (Water Quantity, Water Quality, Drainage and Erosion Control Measures)?
Traffic Operations and Safety	Are the existing and future pedestrian and cycling traffic needs served (Sustainable Transportation Strategy, Active Transportation, Connectivity, etc.)?
Social Environment	What are the impacts on the local community (e.g., land use compatibility, local businesses, property requirements, access restrictions, etc.)?
Natural Environment and Climate Change	Are existing terrestrial and aquatic habitat affected (wildlife, fisheries, and vegetation)? Are climate change impacts addressed?
Cultural Heritage	Are Indigenous stakeholders, cultural heritage resources, and / or archeological resources affected?
Costs	What are the costs (capital cost, utility relocations, property acquisitions, etc.)? What are the operation and maintenance cost impacts?

General inventories of the technical, natural, social, cultural, and economic environments were prepared, and potential environmental impacts were determined for each alternative. When this information was compiled, net positive and negative effects were identified, alternatives were evaluated and recommended solutions for Stormwater Management (SWM) and Active Transportation (AT) selected. The recommended solutions were then presented to Indigenous stakeholders, public, stakeholders, agencies, and Region of Peel Technical Advisory Committee to solicit input for the selection of a "preferred solution"

6.2 Evaluation Methodology and Ranking System

The project team comparatively ranked each alternative solution from least desirable to most desirable, for each of the criteria described in Section 4.1, to determine the preferred solutions. **Figure 4.1** illustrates the pie chart rating scale generated through ranked scores for criteria components used in the evaluation of alternative solutions described in this section**.**

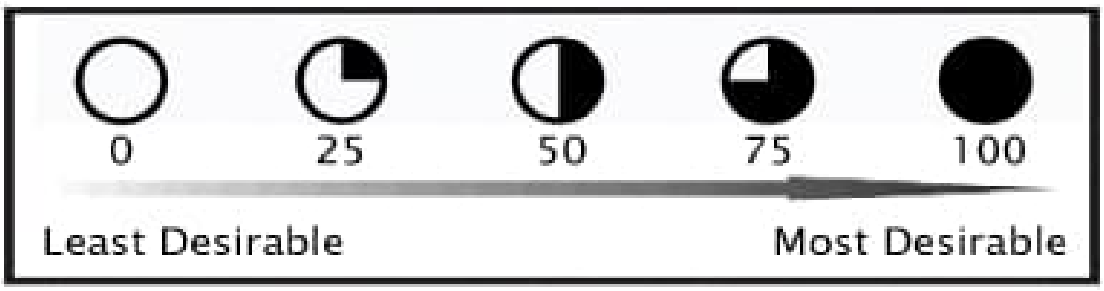


Figure 6.1 – Alternative Solutions Ranking System

6.3 Drainage and Stormwater Management Recommended

This section documents the options considered to address the drainage and stormwater management improvements identified by the problem / opportunity statement for the Highway 50 corridor, from intersection at Mayfield Road / Albion Vaughan Road approximately 2.5 kilometres north to Healey Road.

Alternatives developed through the Class EA study were explored in consideration of the need to minimize impacts of development and urbanization to the natural

water cycle of Robinson Creek, potential hazards associated with flood risk, water quality, erosion, groundwater recharge, and natural heritage features.

SWM alternatives scored lower if any impacts to the respective environmental category under consideration was identified. Due to the minimal amount of property available the footprint of the proposed alternatives was a key consideration. Size limitations imposed by existing infrastructure, private property, sensitive features, and utilities caused significant challenges to implement improvements and reach quality and quantity targets. Additional constraints resulted from the required active transportation component competing for available space along the corridor. Consideration of all factors together was necessary to find opportunities in alternatives that scored the highest overall.

6.3.1 Description of SWM Alternative Solutions

SWM Alternative 1 – Do Nothing: Drainage and stormwater management facilities within the study area remain as is. As a result, culverts and drainage ditches will continue to deteriorate (**Figure 4.2**). Risks to property and safety are considerable. This alternative does not address the problem / opportunity statement. The first alternative, “Do Nothing” was required for consideration under the MCEA design process as a baseline for the comparison of subsequent alternative solutions proposed. The design of the storm sewer system is subject to conditions of the forthcoming CLI ECA.

Figure 6.2 – SWM Alternative 1 Do Nothing

SWM Alternative 2 – Culvert Replacements and Sewer Upgrades: Upsize entrance culverts through the EA study area to mitigate flooding risks near driveways and improve storm water conveyance along roadside drainage facilities to receiving watercourses (**Figure 6.3**). The second alternative, "culvert replacements and sewer upgrades," includes new storm sewers and upgrades of existing infrastructure. Improvements were identified for selected locations along the corridor in support active transportation facilities and sidewalk connections where limited space was available for installation of alternatives. Upgrades and replacements of deficient culverts will eliminate capacity issues within the storm conveyance network. No stormwater management control proposed.

Figure 6.3 – SWM Alternative 2 Replacements and Upgrade

SWM Alternative 3 – Stormwater Management Pond: Construct a stormwater management pond outside of the Highway 50 ROW or enhance the existing pond located at George Bolton Parkway intersection. SWM Ponds control and treat surface runoff from impervious areas (**Figure 6.4**). Stormwater ponds with landscaping features are a community asset, enhance removal of pollutants, and encourage settlement of suspended solids. A large basin is required for storage or detention, to slow the flow velocity and provide opportunity for particles to settle out. Through coordination with other adjacent projects, it was determined space was unavailable for new construction and the existing pond on private property had insufficient capacity.

Figure 6.4 – SWM Alternative 3 Stormwater Management Pond

SWM Alternative 4 – Bioretention Facilities: Construction of bioretention facilities within the available boulevard space (**Figure 6.5**). This option would use specially selected vegetation species, tolerant to wet conditions or saturated soils, planted within an engineered soil mixture to promote infiltration and treatment of captured storm water. Bioretention facilities use perforated pipe systems and filter media to provide treatment of stormwater drainage and slow the drawdown time. bioretention facilities are best suited to manage the stormwater from lower volume, smaller magnitude, and higher frequency rainfall events. Also referred to as bioswales, bioretention boxes, rain gardens and dry swales.

Figure 6.5 – SWM Alternative 4 Bioretention Facilities

SWM Alternative 5 – Permeable Pavement: Permeable pavements include block pavers which will reduce the impervious surface within the Highway 50 corridor and allow for at source infiltration (**Figure 6.6**). Inclusion of permeable pavers reduces peak flows, runoff volume and pollutant load to storm sewers and outlets.

Figure 6.6 – SWM Alternative 5 Permeable Pavement

Inclusion of permeable pavers reduces peak flows, decreases runoff volume, and lowers pollutant load to storm sewers and outlets. Spaces between pavers direct stormwater through a stone reservoir which allows temporary detention before infiltration into the soil beneath. Areas with high traffic volumes and heavy loads are unsuited for permeable pavements. They perform best in parking lots, driveways, walkways, and low traffic areas. Permeable pavements require extensive maintenance to clean the cells and remain operational.

SWM Alternative 6 – Oil and Grit Separator Units: Oil / Grit Separator Units (OGS) provide end of pipe treatment of storm water by removing larger suspended sediment particles before discharge to the receiving watercourse (**Figure 6.7**). This option provides a small footprint solution to quality control, however, no reduction in quantity of stormwater runoff is achieved. OGS control stormwater effectively in urban areas where limited property is available to implement other alternatives.

Due to the installation within existing infrastructure OGS provide spill control and pre - treatment as part of a treatment train approach. At design capacity, a standalone OGS can remove fifty percent of total suspended solids (TSS).

Figure 6.7 – SWM Alternative 6 Oil and Grit Separators

SWM Alternative 7 – Superpipe Storage: Superpipe storage uses oversized storm sewer pipes to provide storage volume for collected stormwater (**Figure 6.8**). A control maintenance hole at the downstream end of the superpipe storage utilizes an orifice plate, or orifice tube, to reduce the peak flow discharge.

Figure 6.8 – SWM Alternative 7 Superpipe Storage

SWM Alternative 8 – Infiltration Trenches: Infiltration trenches store and direct runoff from the storm sewer (**Figure 6.9**). The infiltration trenches allow water to slowly infiltrate into the ground, reducing runoff volume, peak flows, and pollutant loads at outlets. This option can be incorporated as an end - of - pipe solution or as an at source solution with connection to catchbasins (CBs). This option does not provide quality control, nor does it reduce storm water runoff volume.

Figure 6.9 – SWM Alternative 8 Infiltration Trenches

SWM Alternative 9 – Enhanced Ditches: Open channels designed for conveyance, treatment, and attenuation of stormwater runoff (**Figure 6.10**). Enhanced ditches utilize a wide flat bottom ditch, with shallow side slopes to reduce the velocity and depth of water to promote increased infiltration and sediment removal.

Figure 6.10 – SWM Alternative 9 Enhanced Ditches

In locations with steeper longitudinal slopes check dams can be installed to promote ponding with the ditch. This option does not reduce peak flows, however annual runoff volume and pollutant loads at outlets can be reduced.

SWM Alternative 10 – Catchbasin Shields: Catchbasin (CB) Shields or CB Capture Devices provide at - source pollutant removal by increasing the sediment capture within the sump of the CB (**Figure 6.11**). Catchbasin shields reduce scour risk and resuspension of captured sediment under larger storm conditions. This option reduces pollutant loads to storm sewer and outlets however does not reduce peak flows or runoff volume.

Figure 6.11 – SWM Alternative 10 Catchbasin Shields

6.3.2 Evaluation SWM

The comparative evaluation matrix tables and overall scores presented in **Table 6.2, Table 6.3**, and **Table 6.4** guided the recommendations. **Figure 6.12** summarizes the five evaluation scores possible in each environmental category.

Table 6.32 – Highway 50 SWM Alternatives Evaluation (1, 2, 3, & 4)

EVALUATION CRITERIA	 Do Nothing		 Sewer Upgrades		 Stormwater Management Pond (SWM)		 Bioretention Facilities
TECHNICAL	○	Requirements for drainage, quality, quantity and erosion control measures to treat storm water runoff and protect public safety unmet.	◑	Required to channel stormwater flows away from properties along the corridor. Needs to be combined with other measures to meet quality and quantity targets	◕	Addresses Region's water quality & quantity targets. In order to meet the Region's SWM requirements, multiple SWM ponds would be required at each existing culvert. Requires other drainage elements to convey water to ponds	◕	Perforated pipe system could be installed beneath bioretention facilities. Requires sufficient pre-treatment to perform properly
SOCIAL ENVIRONMENT	○	Disruption to businesses, economic disturbance and property damage in the event of assets failure.	◕	Required to prevent flooding on adjacent properties	○	Space is not available within the road ROW. Potential direct and indirect impacts on existing properties in area of ponds	●	Generally applied in downtown core areas with significant property constraints. Could be installed without impacting adjacent property
NATURAL ENVIRONMENT	◕	No anticipated impacts on the terrestrial environment. No impacts to aquatic habitat. No changes.	◕	No anticipated impacts on the terrestrial environment. Limited aquatic impact provided mitigation undertaken during construction	◑	Ponds would add some aquatic habitat to the ecosystem but require a large footprint and remove terrestrial habitat.	●	Would provide extra terrestrial habitat along the corridor. Little impact to aquatic habitat downstream due to cleaner water
CULTURAL ENVIRONMENT	●	No impacts to archaeological or cultural heritage resources. No changes.	●	No impacts to archaeological or cultural heritage resources. Will be located in previously disturbed ground	◑	A pond system would require a larger footprint and more excavation, which increases the risk for archaeological impacts	●	No impacts to archaeological or cultural heritage resources. Will be located in existing ditches
COST	◕	Failure to one or all drainage assets could lead to public and private property damage, damage to road infrastructure and economic disturbance to businesses.	◑	Moderate construction and property/easement costs	◔	High construction and property/easement costs	◕	Moderate construction costs but significant costs to maintain
OVERALL SCORE	**10.0**		**14.0**		**8.0**		**18.0**	
EVALUATION SUMMARY	**Not Recommended (with exception of certain ditches along the corridor)**		**Recommended to be Carried Forward (Full Replacement)**		**Not Recommended**		**Recommended to be Carried Forward**	

Table 6.3 – Highway 50 SWM Alternatives Evaluation (5, 6, & 7)

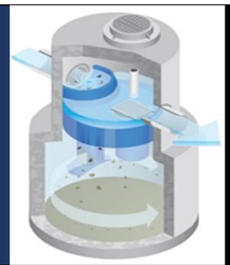
EVALUATION CRITERIA						
TECHNICAL	◔	Permeable surfaces require a lower vehicle volume to avoid clogging and provide the required drainage features. If provided at multiuse trails, it would still require periodic cleaning to maintain its drainage properties. Will not adequately address the Region's requirements	◑	OGS units need to be designed as part of a multi component approach to achieve water quality treatment target.	◔	Shallow outlet points will not allow water to drain completely. Larger pipes would require the proposed road profile to be raised. Suitable quality control not provided
SOCIAL ENVIRONMENT	◑	Permeable surfaces require a certain vehicle speed to not frequently clog up and provide the required drainage features. Will not meet the Region's requirement.	●	Location of OGS units is flexible and could be installed without impacting adjacent property	◑	Larger pipes and shallow outlet points will require the proposed road profile to be raised, potentially leading to property impacts
NATURAL ENVIRONMENT	●	No anticipated impacts terrestrial or aquatic habitat. Net positive impact on the natural environment	●	Limited impacts on the terrestrial environment. Improves water quality by removing oils and hydrocarbons from runoff	◑	No anticipated impacts on the terrestrial environment although tree planting would not be possible along or above the alignment. Has no water cleaning properties, therefore impacts aquatic habitat downstream
CULTURAL ENVIRONMENT	●	No impacts to archaeological or cultural heritage resources. Will be located in previously disturbed ground	●	No impacts to archaeological or cultural heritage resources. Will be located in previously disturbed ground	●	No impacts to archaeological or cultural heritage resources. Will be located in previously disturbed ground
COST	◑	High construction costs to replace existing road surface	◕	Relatively low construction cost with standard costs to maintain	◑	High construction costs associated with raising the road surface
OVERALL SCORE	**13.0**		**17.0**		**11.0**	
EVALUATION SUMMARY	**Not Recommended**		**Recommended to be Carried Forward**		**Not Recommended**	

Table 6.34 – Highway 50 SWM Alternatives Evaluation (8, 9, & 10)

EVALUATION CRITERIA						
TECHNICAL	◕	Underground storage/infiltration arches such as those manufactured by Terrafix, Stormtech or Cultec can be used to detain and infiltrate stormwater.	◔	Not practical within the Hwy 50 corridor due to constant water flows and large storm flows. Would not fit within the corridor.	◑	Catchbasin Capture devices could be inserted into existing catchbasins to provide at source treatment.
SOCIAL ENVIRONMENT	●	Generally compatible with adjacent area land use. Could be installed without impacting adjacent property	◔	Not compatible with adjacent area land use due to size requirements. Possible encroachment towards existing properties can be mitigated	●	Could be installed within existing catch basins and catchbasin manholes.
NATURAL ENVIRONMENT	◕	Limited impacts on the terrestrial environment. Improves water quality by removing oils and hydrocarbons from runoff	◕	No anticipated impacts on the terrestrial environment. Improves water quality by removing oils and hydrocarbons from runoff	◕	Limited impacts on the terrestrial environment. Improves water quality by removing larger suspended solid particles.
CULTURAL ENVIRONMENT	●	No impacts to archaeological or cultural heritage resources. Will be located in previously disturbed ground	●	No impacts to archaeological or cultural heritage resources. Will be located in previously disturbed ground	●	No impacts to archaeological or cultural heritage resources. Will be located in existing infrastructure.
COST	◕	Moderate construction costs. Lower maintenance costs with cleanout manholes.	◑	Very low construction costs, and low maintenance costs.	●	Low cost to purchase and very low cost to install. Increases standard catchbasin maintenance costs.
OVERALL SCORE		**17.0**		**11.0**		**17.0**
EVALUATION SUMMARY		**Recommended to be Carried Forward**		**Not Recommended**		**Recommended to be Carried Forward**

Alternative solutions considered for the drainage improvements identified for the Highway 50 corridor were based on the criteria presented in **Section 4.1,** and the evaluation methodology described in **Section 4.2.**

Total combined scores of the categories aided with the selection of preferred solutions. Summaries of the evaluations at each stage were presented to the public for review and comment. The evaluations are summarized in the PIC materials in **Appendix 1 – 3.**

Figure 6.12 – Alternative Solutions Ranking System

6.3.3 SWM Pond at George Bolton Parkway

Throughout the course of the Highway 50 EA, the project team discussed including the inline stormwater management pond located at George Bolton Parkway with the Town of Caledon (**Figure 6.13**).

The Town of Caledon recently cleaned up other stormwater management ponds in the area and considered acquisition of this property to accommodate infrastructure for the George Bolton Parkway extension project. The land is private property operated by a police training academy. A retrofitted pond with an enhanced treatment train and weir system would expand storage capacity and aid in the achievement of the eighty %Total Suspended Solid (TSS) removal target.

Following discussions with the Town of Caledon about the status of the stormwater management pond, it was determined that there may be impacts to pond property from the construction works associated with the Town's George Bolton extension project. As such, the inclusion of the pond in the Highway 50 Class EA study recommendations was determined to be unfeasible.

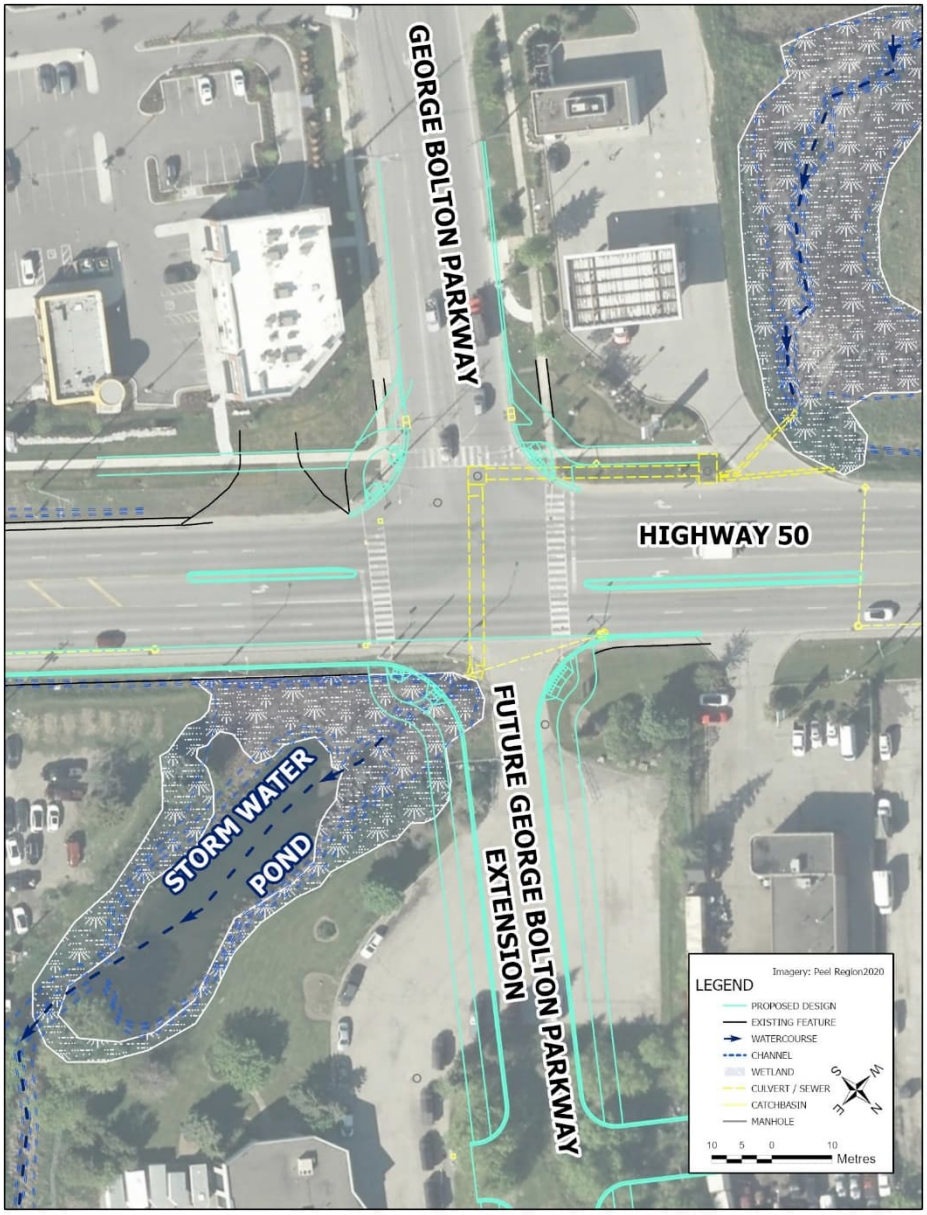


Figure 6.13 – Impacts to George Bolton Parkway SWM Pond

6.3.4 Drainage and SWM Preferred Solutions

The preferred solutions to be carried forward are culvert replacements and sewer upgrades (full replacement) (Alternative 2), bioretention facilities (Alternative 4), oil grit separator units (Alternative 6), infiltration trenches (Alternative 8), and catchbasin shields (Alternative 10). Maps and summaries at each stage are identified in the PIC materials in **Appendix 1 – 3**.

North of the Mayfield Road / Albion Vaughan Road intersection at Highway 50 to the Shell gas station, drainage will be accommodated via infiltration trenches and infiltration chambers (as previously determined from the Highway 50 from Castlemore Road to Mayfield Road and Mayfield Road from Highway 50 to Coleraine Drive). Infiltration trenches and chambers are intended to replace existing roadside ditches and improve capacity (Map 6 in **Figure 7.3**). Existing storm sewer to remain north of the gas station as limited space is available to install additional LID (low impact development) in this area. The available space will be impacted by the incorporation of the multi - use path, cycle tracks, or alternative AT facilities. Storm sewers are also maintained on the opposite side and will drain to the same outlet point at the confluence with the creek. oil and grit separator (OGS) recommended to treat water prior to discharge into the creek (Map 3 in **Figure 7.2** and Map 5 & Map 6 in **Figure 7.3**)**.** As part of the Mayfield Project located at the south of the project limits, two additional OGS units were included and provide pre - treatment for stormwater runoff before entering the infiltration trenches (Map 6 in **Figure 7.3**)**.**

From the gas station to Parr Boulevard, culvert replacements are recommended for the east side driveways followed by storm sewer upgrades on the west side north of the intersection (**Figure 7.3**). Available area for SWM options is increased in the area before Simona Drive, however due to widening from the active transportation facility, bioswale boxes are recommended on the west side and culvert replacements along the east boulevard. Designed to accommodate areas of limited space, the narrower structure of bioswale boxes fit within the remaining footprint.

In the area north of Simona Drive to George Bolton Parkway, existing utilities prevented significant LID improvements. From Simona Drive to George Bolton Parkway, bioswale boxes along the west, culvert replacements, sewer upgrades and installation of an oil and grit separator are recommended.

North of George Bolton Blvd to Healey Road, where available space is again limited, and existing utilities are an issue, drainage and stormwater management features recommended include a combination of infiltration trench drains and catchbasin shields. CB shields added to existing catchbasins filter out pollutants. culvert replacements recommended and all culverts to be investigated for relining or replacement if hydraulic insufficiencies are found to exist. Sewer upgrades and maintaining the existing storm sewers recommended. As well as existing ditch sections along the road to be improved and treatment for runoff provided by installation of OGS.

The MECP is in the process of issuing a Stormwater Consolidated Linear Infrastructure Permissions Approach (CLI) Environmental Compliance Approval (ECA) to the Region of Peel. The Stormwater CLI ECA covers storm assets servicing regional roads, namely storm sewers, ditches, SWM facilities and LID, and Stormwater Pumping Stations. The Stormwater CLI ECA sets forth conditions for alterations to the stormwater system as well as ongoing operation of the system.

The ECA comes with criteria for design of alterations to the Region's existing stormwater system. At the time of completion of the EA study, the CLI ECA template and criteria were not available, therefore the EA recommendations do not guarantee compliance with the CLI ECA conditions and criteria. It is recommended that at the Detailed Design Stage, the Engineering Consultant re - assess the EA recommendations against the CLI ECA criteria and make the necessary adjustments and changes to the stormwater recommendations to comply.

6.4 Transportation Facilities Recommended

Options to address active transportation (AT) improvements were identified for the entirety of the Highway 50 corridor (from Mayfield Road approximately 2.5 kilometres to Healey Road). All possible locations along the roadway were evaluated for connectivity. This included coordination with active projects and future projects anticipated by the Region of Peel.

SWM alternatives were considered alongside the AT evaluation to identify constraints (largely available space) and determine which solutions ranked highest overall for the given criteria in addressing problems and satisfying requirements from both components.

6.4.1 Description of AT Alternative Solutions

AT Alternative 1 – Do Nothing: No additional accommodation provided for cyclists or pedestrians (maintains existing facilities only without any additional sidewalks added). This alternative did not address the problem / opportunity statement. As part of the EA, the 'Do Nothing' alternative is required for consideration under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.

AT Alternative 2 – Cycle Track East Side: An off - road 3.0 – metre - wide to 4.0 – metre - wide bi - directional cycle track to accommodate cyclists only along the east side of Highway 50 **(Figure 6.14)**, set back from the roadway via varying width grassed boulevard. This alternative maintains existing sidewalk facilities presently available without any additional sidewalk installations for pedestrians.

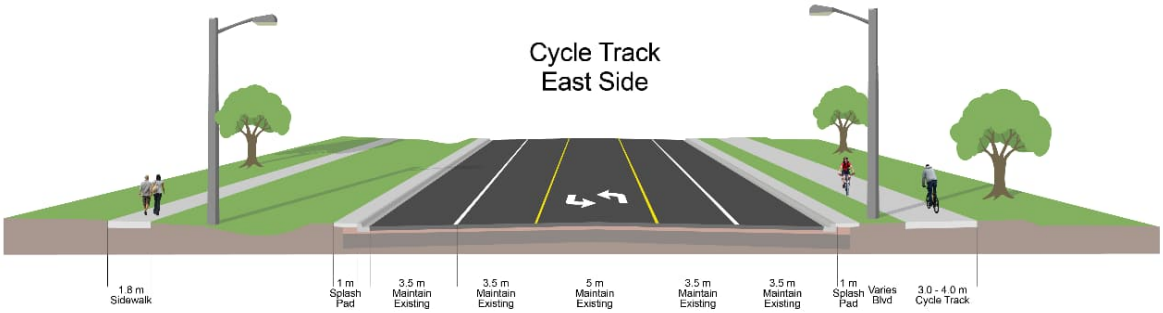


Figure 6.14 – AT Alternative 2 Cycle Track East Side

AT Alternative 3 – Cycle Track West Side: An off - road 3.0 – metre - wide to 4.0 – metre - wide bi - directional cycle track to accommodate cyclists only along the west side of Highway 50 **(Figure 6.15)**, set back from the roadway via varying width grassed boulevard. This alternative maintains existing pedestrian sidewalk facilities presently available without any additional sidewalk installations.

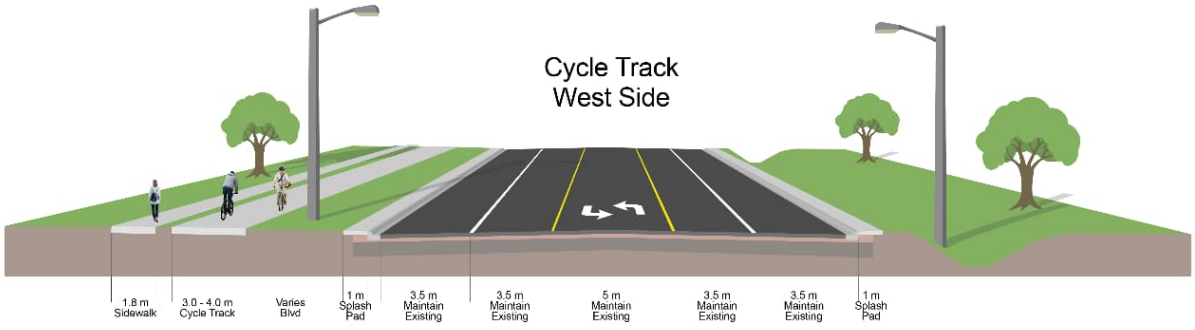


Figure 6.15 – AT Alternative 3 Cycle Track West Side

AT Alternative 4 – Multi – Use Path East Side: An off - road 3.0 – metre - wide MUP to accommodate cyclists and pedestrians along the east side of Highway 50 **(Figure 6.16)**, set back from the roadway via varying width grassed boulevard. This alternative maintains existing sidewalk facilities presently available without any additional sidewalk installations. New transportation facilities to only accommodate cyclists.

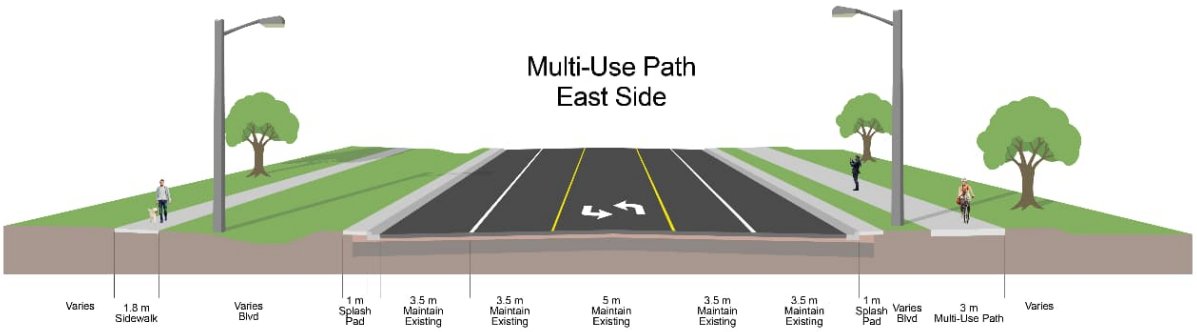


Figure 6.16 – AT Alternative 4 MUP East Side

AT Alternative 5 – Multi – Use Path West Side: An off - road 3.0 – metre - wide MUP to accommodate cyclists and pedestrians along the west side of Highway 50 **(Figure 6.17)**, set back from the roadway via varying width grassed boulevard. No additional accommodation provided for pedestrians. This alternative maintains existing sidewalk facilities presently available without any additional sidewalk installations where new transportation facilities will accommodate cyclists only.

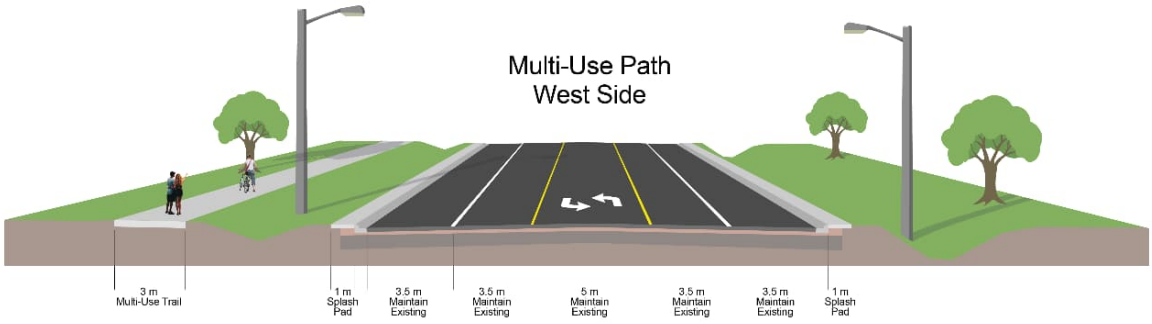


Figure 6.17 – AT Alternative 5 MUP West Side

AT Alternative 6 – Cycle Tracks East and West Sides: Off - road 1.8 – metre to 2.0 – metre - wide uni - directional cycle tracks to accommodate cyclists along the east and west sides of Highway 50 **(Figure 6.18)**, set back from the roadway via varying width grassed boulevard. No additional accommodation provided for pedestrians (maintains existing facilities only without any additional sidewalks added).

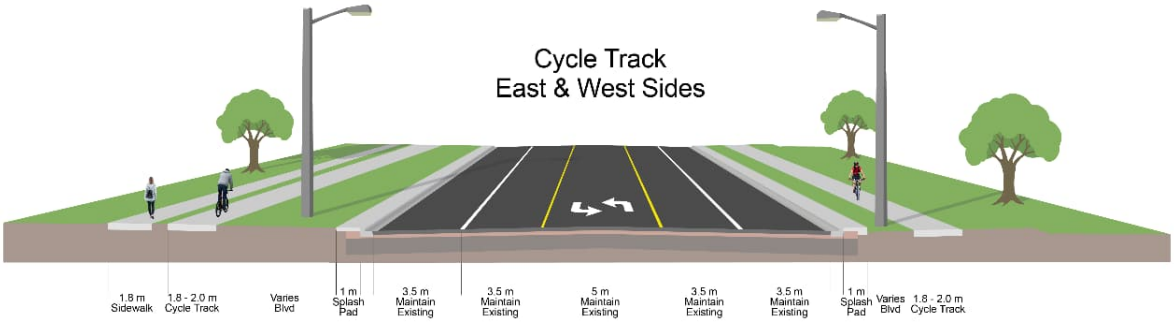


Figure 6.18 – AT Alternative 6 Cycle Track East and West Sides

AT Alternative 7 – Multi - Use Path West Side and Sidewalk East Side: An off - road 3.0 – metre - wide MUP to accommodate cyclists and pedestrians along the west side of Highway 50 **(Figure 6.19)**, set back from the roadway via varying width grassed boulevard. Additional pedestrian accommodation via 1.8 – metre - wide sidewalk along east side between George Bolton Parkway and 12599 Highway 50 (Queen Street).

Figure 6.19 – AT Alternative 7 West MUP and East Sidewalk

6.4.2 Evaluation AT

The evaluation of alternative solutions for the active transportation improvements identified for the Highway 50 corridor were summarized in **Table 6.4**, and **Table 6.5** based again on the **Section 6.1** criteria and **Section 6.2** methodology. Below **Figure 6.20** includes the five evaluation scores possible for each alternative.

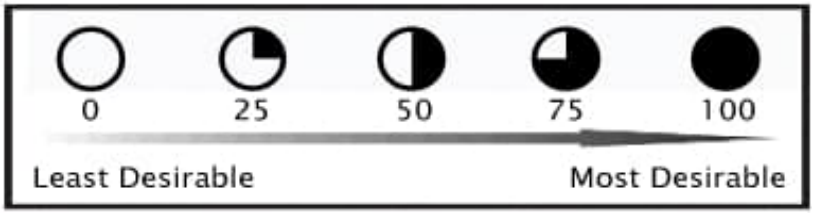


Figure 6.20 – Alternative Solutions Ranking System

Table 6.4 and **Table 6.5** show the overall scores determined by the ranking system and comparative evaluation of alternative solutions matrix tables which guided the recommendations.

6.4.3 Transportation Facilities Preferred Solutions

The preferred solution selected was to install a multi - use path (MUP) to Healey Road at the north limit along the west side of the corridor, and a new sidewalk on the east side of the road, from George Bolton Parkway intersection to the existing sidewalk north of 12599 Highway 50 (Alternative 7). Although given consideration, further extending the sidewalk to the south would require filling in portions of Robinson Creek (not supported by the TRCA), and result in additional property impacts and significant cost to address operational impacts at key intersections and access to businesses. The proposed sidewalk installation respects Robinson Creek and serves to improve continuity for pedestrians.

As per the Sustainable Transportation Strategy, this section of Highway 50 identified as a pedestrian improvement corridor, strongly encourages development of pedestrian connectivity networks in support of healthier communities and to build climate resilience. The Town of Caledon standard to include sidewalks on both sides of all arterial and collector roads was explored with the additions of alternatives to the EA study that reflected all possible configurations for AT facilities

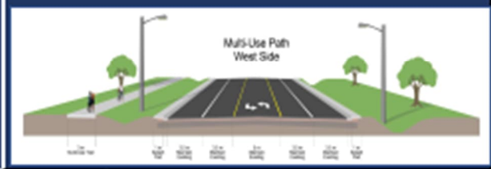
to be in accord with the Town policy and prioritize active transportation. As noted previously, continual sidewalk along both sides of the corridor was considered but not recommended due to identified conflicts with Robinson Creek and limited property available.

The MUP on the west side of Highway 50 would tie in with the planned MUP at the south limit of Highway 50 at Mayfield Road. The MUP path located on the west side will reduce impacts to Robinson Creek, from construction, impervious surface runoff, encroachment, and foot traffic. Benefits also included a reduced impact to properties and reduced overall footprint by accommodation of multiple transportation modes (pedestrians, cyclists, and other facility users) on the 3.0 metre MUP.

Table 6.45 – Highway 50 AT Evaluation (Alternatives 1, 2, 3, & 4)

EVALUATION CRITERIA	1. Do Nothing		2. Cycle Track (East Side) 		3. Cycle Track (West Side) 		4. Multi Use Path (East Side) 	
TRAFFIC OPERATIONS & SAFETY	○	Does not satisfy the Active Transportation requirements proposed through the Region's Sustainable Transportation Strategy (STS).	◑	Satisfies objectives for AT but does not tie in to planned AT improvements at north and/or south limits. Increased number of driveways & side streets intersected	●	Satisfies Region's planning objectives for AT improvements and ties in with other proposed corridor improvements	◑	Satisfies objectives for AT but does not tie in to planned AT improvements at north and/or south limits. Increased number of driveways & side streets intersected
SOCIAL ENVIRONMENT	◑	No impact to social environment.	◕	Slightly less property available to implement. Potential for minor/moderate encroachment on private land	◕	Need to accomodate pedestrians via sidewalk may require additional land, therefore greater potential for impact on adjacent property	◕	Less property available to implement. Potential for minor/moderate encroachment on private land
NATURAL ENVIRONMENT	●	No impacts to natural environment.	◔	Potential for significant impacts on West Robinson Creek	◕	Negligable impacts on adjacent terrestrial or aqautic habitat. Could require removal of 18 trees.	◔	Potential for significant impacts on West Robinson Creek
CULTURAL ENVIRONMENT	●	No impacts to archaeological or cultural heriatge resources	●	Impacts to archaeological resources not anticipated due to wet and/or previously disturbed ground	●	No impacts to archaeological or cultural heriatge resources	●	Impacts to archaeological resources not anticipated due to wet and/or previously disturbed ground
COST	●	No costs.	◑	Significant construction and property costs to provide spacing for multi-use trail, utilities and stream bed	◑	Significant property costs is anticpated to provide adequate spacing for utility and cycle track.	◑	Significant construction and property costs to provide spacing for multi-use trail, utilities and stream bed
OVERALL SCORE	8.0		12.0		16.0		12.0	
EVALUATION SUMMARY	Not Recommended		Not Recommended		Not Recommended		Not Recommended	

Table 6.46 – Highway 50 AT Evaluation (Alternatives 5, 6, & 7)

EVALUATION CRITERIA	5. Multi Use Path (West Side)		6. Cycle Tracks (East & West Sides)		7. MUP (W Side) & Sidewalk (E Side)	
						
TRAFFIC OPERATIONS & SAFETY	◕	Satisfies Region's planning objectives for AT improvements and ties in with other proposed corridor improvements	◑	Satisfies Region's planning objectives for AT improvements. Requires cross over at south and north ends to tie into planned AT improvements	●	Satisfies Region's planning objectives for AT improvements and ties in with other proposed corridor improvements
SOCIAL ENVIRONMENT	●	Could be implemented with litte to no impact (i.e. encroachment) on to existing property	◕	Potential for minor encroachment on private land	●	Could be implemented with litte to no impact (i.e. encroachment) on to existing propert.
NATURAL ENVIRONMENT	◕	Negligable impacts on adjacent terrestrial or aqautic habitat. Could require removal of 18 trees.	○	Potential for significant impacts on West Robinson Creek. Could require removal of 27 trees.	◕	Negligable impacts on adjacent terrestrial or aqautic habitat. Could require removal of 18 trees.
CULTURAL ENVIRONMENT	●	No impacts to archaeological or cultural heriatge resources	●	Impacts to archaeological resources not anticipated due to wet and/or previously disturbed ground	●	No impacts to archaeological or cultural heriatge resources
COST	◕	Reduced construction, property ad maintance costs	◔	Significant construction and property costs to provide spacing for multi-use trail, utilities and stream bed	◕	Reduced construction, property ad maintance costs
OVERALL SCORE	17.0		10.0		18.0	
EVALUATION SUMMARY	Not Recommended		Not Recommended		Recommended to be Carried Forward	

7 DESCRIPTION OF THE PREFERRED SOLUTIONS

The recommended solutions were presented to review agencies and the public at a Public Information Centre to obtain comment and input prior to confirmation of the preferred solutions. A preliminary design of the preferred solution is provided in **Appendix 10**.

7.1 Drainage and Stormwater Management (SWM) Preferred

The preferred solutions to address the identified drainage and stormwater management requirements was to implement a combination of culvert replacements and sewer upgrades, infiltration trenches, bioretention facilities (bioswales or bioswale boxes), oil and grit separator units and catchbasin shields as shown in **Figure 7.1** and **Figure 7.2**. The maps below show the locations of the preliminary recommended solutions for different sections of the corridor, which are shown in greater detail in the Roll Plan in **Appendix 10.**

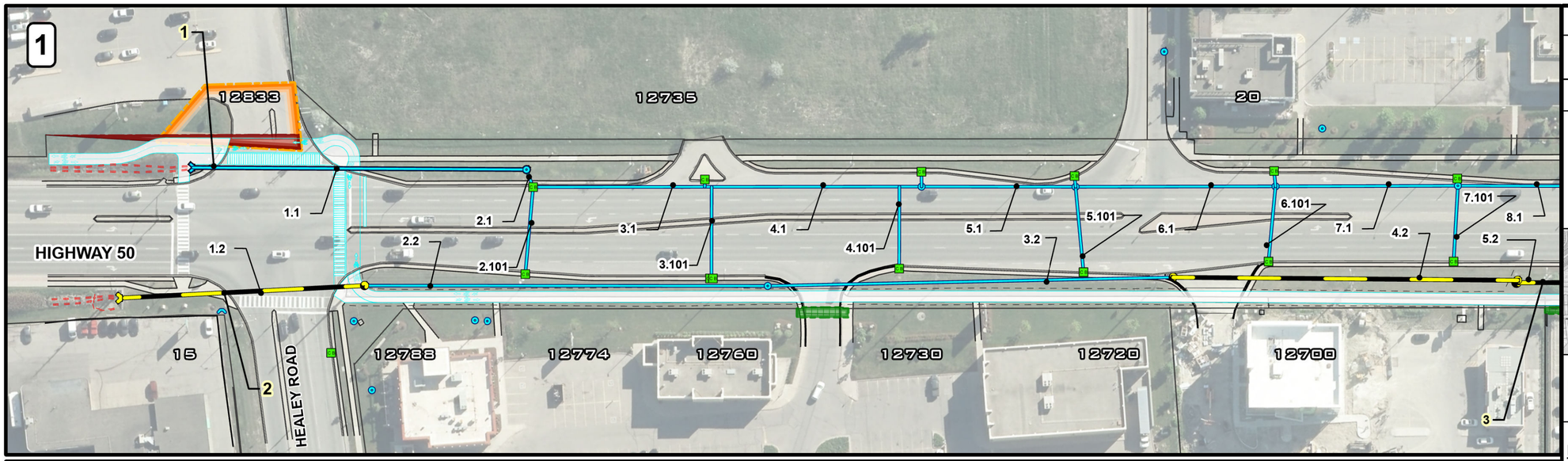
For ease of reference new asset ID numbers were provided for culverts and for sewers used for identification purposes in the corresponding maps and tables included in **Figure 7.2**, **Figure 7.3**, **Table 7.1,** and materials contained in the Storm Water Management Report (**Appendix 2**).

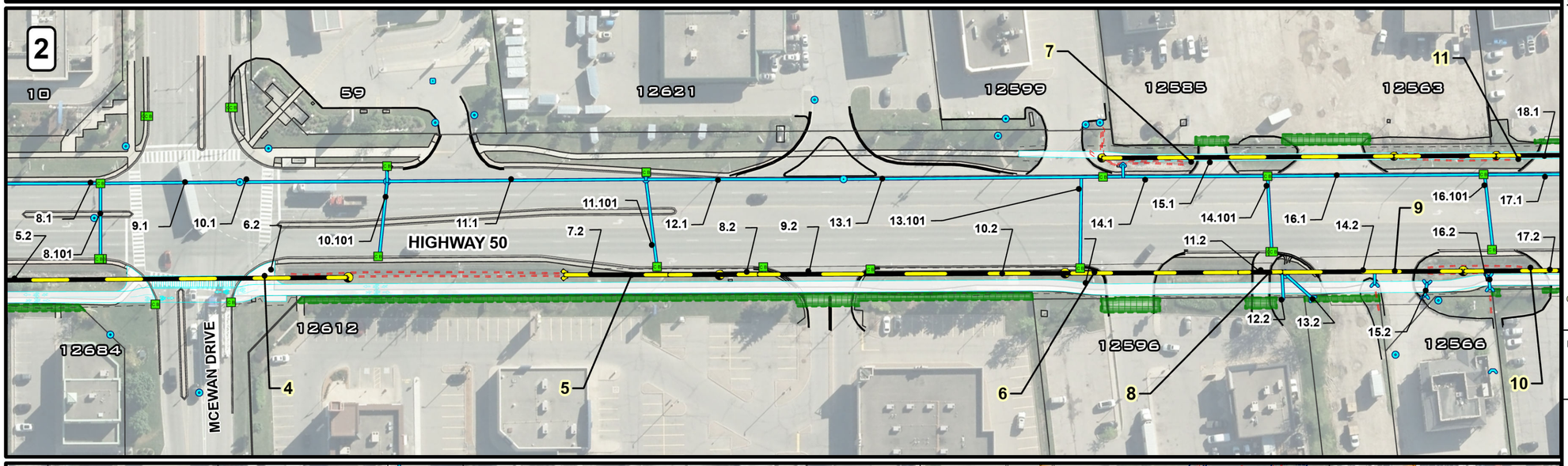
7.1.1 Culvert Replacements and Sewer Upgrades

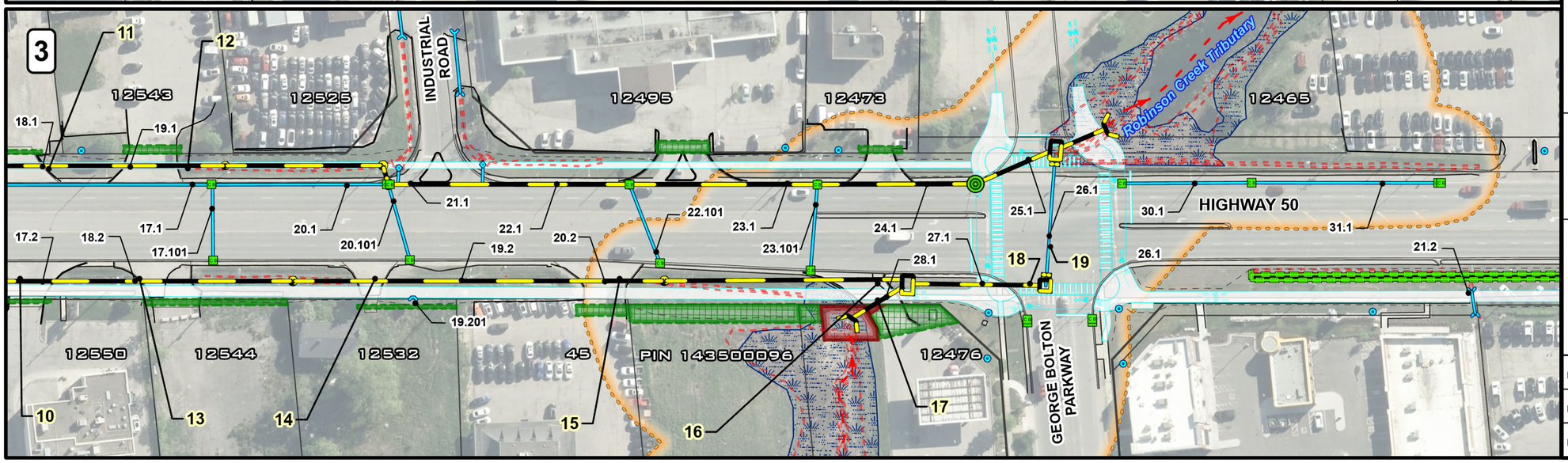
Based on an assessment of the culverts throughout the corridor completed by the Region and RVA, twenty - three culverts within the corridor are recommended to be replaced due to safety concerns and to improve drainage flows.

RVA suggests that in total, twenty - eight culverts may require improvements due to either wear, lack of hydraulic capacity, require replacement due to the proposed EA transportation facilities works, and one additional culvert removal is anticipated as part of the Highway 50 / Mayfield Road project to the south.

Culverts requiring upgrades or replacement via hydraulic capacity / size, material and / or shape are identified in Map Group 3 (**Maps 1 – 3**) and Map Group 4 (**Maps 4 – 6**), the PIC materials (**Appendix 1 – 3**), the Stormwater Management Report (**Appendix** – **B** and **Appendix – D**) and the Preliminary Design Plans (**Appendix** –**10**).







ENVIRONMENTAL ASSESSMENT

Map Group 3: Proposed Culverts and Storm Water Infrastructure Within North Section of the Highway

DATA SOURCES

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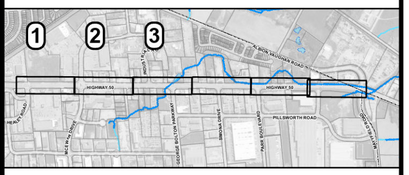
Map Credit:
Peel Region2020, TRCA



rva
R.V. Anderson Associates Limited
engineering • environment • infrastructure

LEGEND

- EXISTING PERMANENT EASEMENT
- 123 PROPERTY INDEX NUMBER (PIN)
- WATERCOURSE
- CHANNEL
- WETLAND
- TRCA O. REG. 166/06
- BIORETENTION FACILITY
- INFILTRATION TRENCH
- OIL GRIT SEPARATOR
- CB CATCHBASIN SHIELD
- 1:2 7 REPLACEMENT ASSET ID #
- SIDEWALK / REST AREA / MULTI - USE PATH
- PROPOSED CULVERT / SEWER
- EXISTING CULVERT / SEWER
- MANHOLE
- CATCHBASIN
- MAYFIELD PROJECT CULVERT / SEWER
- PROPOSED FEE SIMPLE
- PROPOSED TEMPORARY EASEMENT
- GRADING LIMIT
- 1:2 7 ASSET ID #

Designed by	Approved by
rva	AM MAD

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10 0 10 20 30 40 m
HORIZONTAL SCALE

Region of Peel
working with you

HIGHWAY 50 (QUEEN STREET)

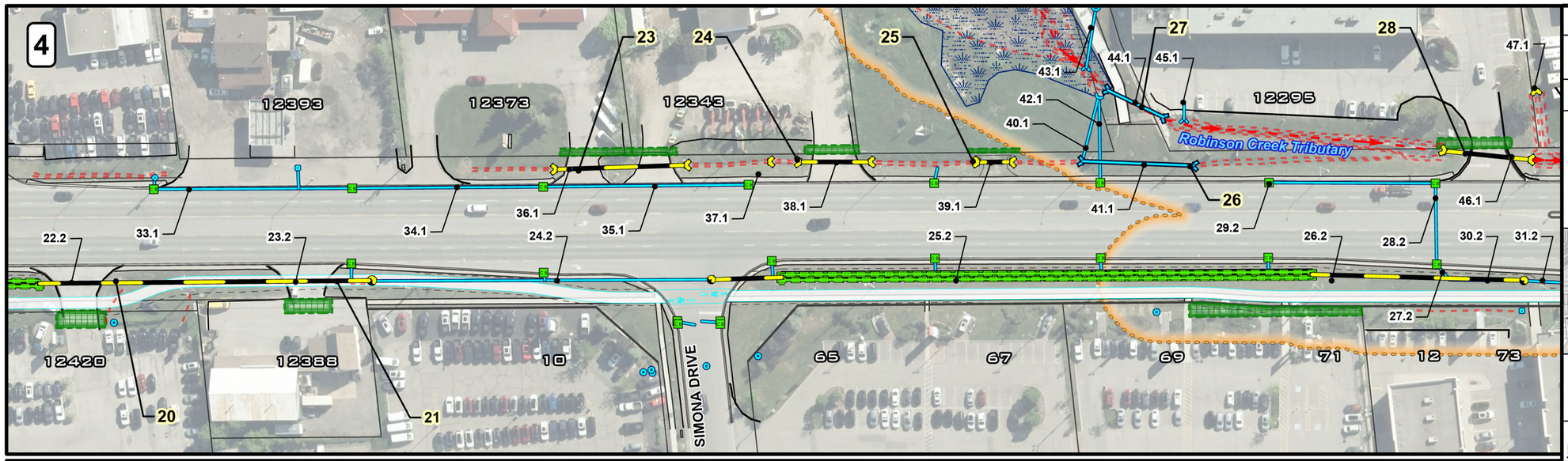
FROM MAYFIELD ROAD TO HEALEY ROAD

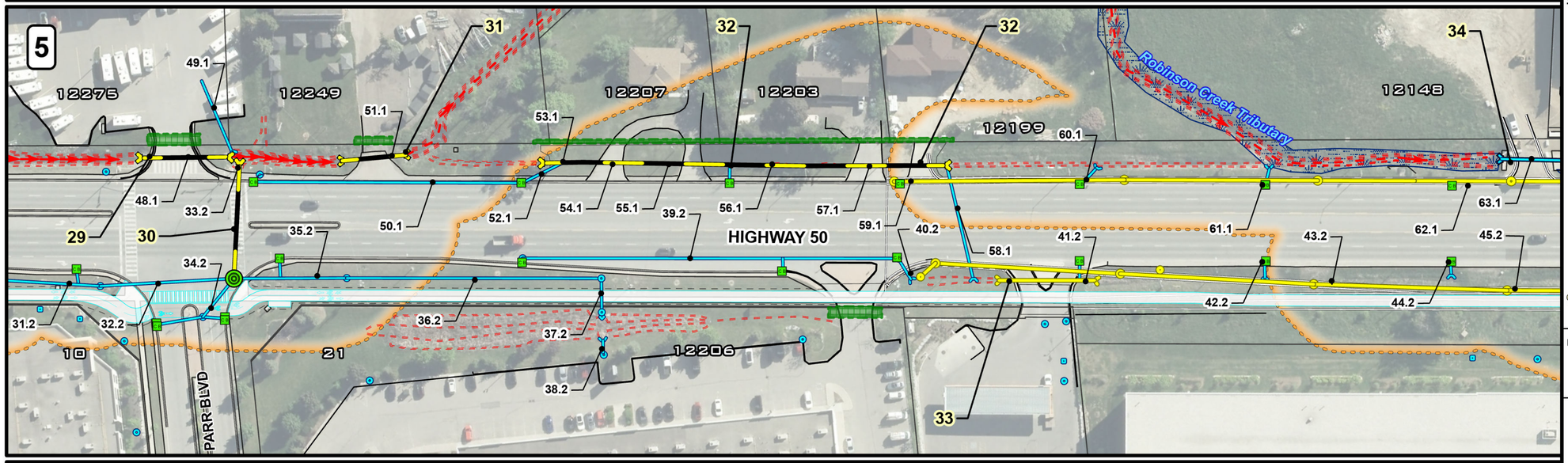
PROPOSED CULVERTS AND STORMWATER INFRASTRUCTURE - NORTH LIMIT

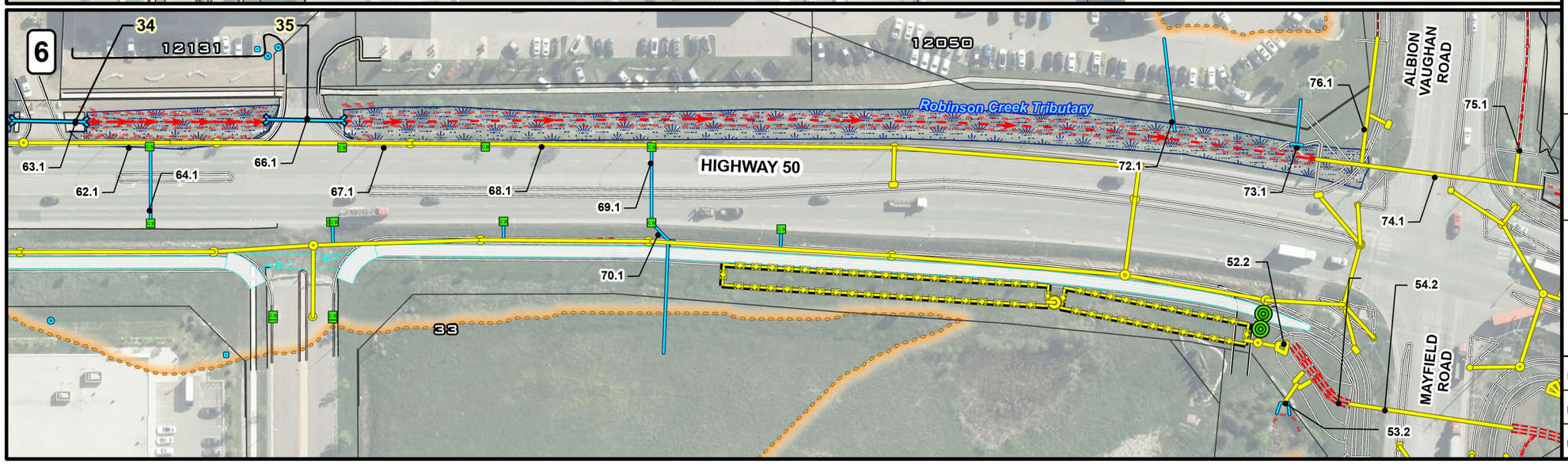
STORM WATER MANAGEMENT IMPROVEMENTS

STA. 14 + 300 +/- **TO STA. 12 + 000 +/-**

Page	1 of 2	Project No. (REGION OF PEEL)	#18 - 4860
Drawn by	CER	Project No. (rva)	#194615
Date	11 / 2022		







ENVIRONMENTAL ASSESSMENT

Map Group 4: Proposed Culverts and Storm Water Infrastructure Within South Section of the Highway

DATA SOURCES

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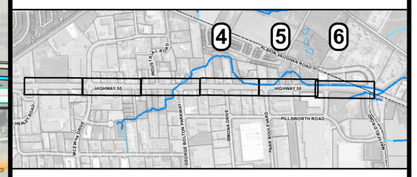
Map Credit:
Peel Region2020, TRCA



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LEGEND

- PROPERTY INDEX NUMBER (PIN)
- WATERCOURSE
- CHANNEL
- WETLAND
- TRCA O. REG. 166/06
- BIORETENTION FACILITY
- INFILTRATION TRENCH
- OIL GRIT SEPARATOR
- CATCHBASIN SHIELD
- REPLACEMENT ASSET ID #
- SIDEWALK / REST AREA / MULTI - USE PATH
- PROPOSED CULVERT / SEWER
- EXISTING CULVERT / SEWER
- MANHOLE
- CATCHBASIN
- MAYFIELD PROJECT CULVERT / SEWER
- PROPOSED FEE SIMPLE
- PROPOSED TEMPORARY EASEMENT
- GRADING LIMIT
- ASSET ID #

Designed by	Approved by
rva	AM MAD

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10 0 10 20 30 40 m
HORIZONTAL SCALE

Region of Peel
working with you

HIGHWAY 50 (QUEEN STREET)

FROM MAYFIELD ROAD TO HEALEY ROAD

PROPOSED CULVERTS AND STORMWATER INFRASTRUCTURE - SOUTH LIMIT

STORM WATER MANAGEMENT IMPROVEMENTS

STA. 14 + 300 +/- **TO STA. 12 + 000 +/-**

Page	2 of 2	Project No. (REGION OF PEEL)	#18 - 4860
Drawn by	CER	Project No. (rva)	#194615
Date	11 / 2022		

Table 7.1 – Culvert and Sewer Upgrades and Replacements

Culvert ID	Existing Material and Shape	Existing Diameter / Dimension	Proposed Replacement	Proposed Size	Reason for Replacement		
					Wear	Lack of Capacity	Proposed AT
1	Circular CSP	500 – millimetre	None	None	N / A	N / A	N / A
2	Circular CSP	750 – millimetre	Sewer	750 – millimetre DIA	X		
3	Circular CSP	750 – millimetre	Sewer	900 – millimetre DIA	X	X	X
4	Circular CSP	900 – millimetre	Sewer	900 – millimetre DIA			X
5	Circular CSP	750 – millimetre	Sewer	900 – millimetre DIA	X		X
6	Circular CSP	900 – millimetre	Sewer	900 – millimetre DIA			X
7	Circular HDPE	500 – millimetre	Sewer	450 – millimetre DIA			X

Culvert ID	Existing Material and Shape	Existing Diameter / Dimension	Proposed Replacement	Proposed Size	Reason for Replacement		
					Wear	Lack of Capacity	Proposed AT
11	Circular CSP	600 – millimetre	Sewer	750 – millimetre DIA	X	X	X
12	Circular HDPE	825 – millimetre	Sewer	750 – millimetre DIA	X		X
13	Circular CASP	900 – millimetre	Sewer	900 – millimetre DIA	X		X
14	Circular CSP	900 – millimetre	Sewer	900 – millimetre DIA	X		X
8	Circular CSP	900 – millimetre	Sewer	900 – millimetre DIA	X		X
9	Circular CSP	900 – millimetre	Sewer	900 – millimetre DIA	X		X
10	Circular CSP	600 – millimetre	Sewer	900 – millimetre DIA	X	X	X

Culvert ID	Existing Material and Shape	Existing Diameter / Dimension	Proposed Replacement	Proposed Size	Reason for Replacement		
					Wear	Lack of Capacity	Proposed AT
15	Circular CSP	750 – millimetre	Sewer	900 – millimetre DIA	X		X
16	Circular CSP	900 – millimetre	Sewer	900 – millimetre DIA			X
17	Circular HDPE	600 – millimetre	Box Culvert	1.8 metre x 1.2 metre	X	X	
18	Circular CSP	900 – millimetre	Box Culvert	1.8 metre x 1.2 metre		X	
19	Concrete Box	1800 – millimetre x 1200 – millimetre	None	None	N / A	N / A	N / A
20	Circular CSP	600 – millimetre	Sewer	450 – millimetre DIA	X		X
21	Circular CSP	500 – millimetre	Sewer	450 – millimetre DIA	X		X

Culvert ID	Existing Material and Shape	Existing Diameter / Dimension	Proposed Replacement	Proposed Size	Reason for Replacement		
					Wear	Lack of Capacity	Proposed AT
22	N / A	N / A	N / A	N / A	N / A	N / A	N / A
23	Steet Arch Plate	450 – millimetre	New Culvert	450 – millimetre DIA	X		
24	Circular CSP	525 – millimetre	New Culvert	525 – millimetre DIA	X		
25	Circular CSP	600 – millimetre	New Culvert	600 – millimetre DIA	X		
26	Circular CSP	600 – millimetre	None	None	N / A	N / A	N / A
27	Steet Arch Plate	2900 – millimetre x 900 – millimetre	None	Beyond ROW	N / A	N / A	N / A
28	Steet Arch Plate	2260 – millimetre x 1660 – millimetre	Box Culvert	3.0 metre x 1.5 metre		X	

Culvert ID	Existing Material and Shape	Existing Diameter / Dimension	Proposed Replacement	Proposed Size	Reason for Replacement		
					Wear	Lack of Capacity	Proposed AT
29	Steet Arch Plate	2060 – millimetre x 1450 – millimetre	Box Culvert	3.0 metre x 1.5 metre	X	X	
30	Concrete Box	975 – millimetre x 600 – millimetre	Box Culvert	0.9 metre x 0.6 metre	X		
31	Steet Arch Plate	2270 – millimetre x 1600 – millimetre	Box Culvert	3.0 metre x 1.5 metre	X	X	
32	Concrete Box	525 – millimetre	Sewer	900 – millimetre DIA	X	X	
33	Circular CSP	450 – millimetre	Sewer	375 – millimetre DIA	Replaced as part of Highway 50 / Mayfield Road widening works.		
34	Concrete Box	4500 – millimetre x 1450 – millimetre	None	None	N / A	N / A	N / A
35	Concrete Box	4500 – millimetre x 1700 – millimetre	None	None	N / A	N / A	N / A

As part of the EA process, an approximately 400 – metre - long sidewalk on the east side of Highway 50 was recommended from George Bolton Parkway intersection to 12599 Highway 50 (Queen Street). There are currently roadside ditches located in the areas of proposed sidewalk alignment that convey external drainage area flow into Robinson Creek. Due to the sidewalk construction, the roadside ditches are proposed to be filled and a storm sewer system is proposed to convey the 10 – year storm flow without surcharge and the 100 – year storm flow without flooding.

North of Highway 50 and George Bolton Parkway intersection there are multiple catchbasins that capture 10 – year road drainage flow from Highway 50 and convey these into the existing 825 – millimetre diameter storm sewer system. The existing storm sewer system conveys the road drainage flows into Robinson Creek, then outlets at Highway 50 and George Bolton Parkway intersection into the online pond.

A parallel storm sewer system is recommended, ranging from 450 – millimetre to 825 – millimetre diameter to connect to the existing 825 – millimetre diameter storm sewer system. From the connection point of the new storm sewer with the existing 825 – millimetre diameter storm sewer, approximately 181 – metres of 825 – millimetre diameter pipes need to be upgraded to 1050 – millimetre to 1200 – millimetre diameter to be able to convey the added flows without surcharge during a 10 – year storm event into the pond. This pipe upgrade ensured that only one outfall into the pond will remain. All road catchbasins currently connected to the existing storm maintenance holes will be kept as per the current drainage arrangement. The extent of the external drainage area and the existing and proposed storm sewer system are illustrated in the Stormwater Management Report in **Appendix 2**.

7.1.2 Culvert Crossing at George Bolton Parkway

Due to anticipated high peak flows in Robinson Creek, the existing 600 – millimetre to 900 – millimetre diameter inlet pipes are insufficient to convey the proposed flows and require upsizing. The existing box culvert crossing (1800 – millimetre x 1200 – millimetre) has an available full pipe capacity of approximately 5.95 m^3 / s and can convey the 10 – year design storm flow without flooding or overtopping the road. However due to the upstream pipe capacity limitations, the current model scenario shows road overtopping.

Based on the available HEC – RAS flows, the road crossing is proposed to be enhanced with a consistent 1800 – millimetre x 1200 – millimetre box culvert

crossing along the existing pipe alignment. The proposed culverts at the George Bolton Parkway and Highway 50 intersection are illustrated in the Stormwater Management Report included in the PIC materials in **Appendix 1 – 3**, in **Appendix 2** and shown on the preliminary design plans in **Appendix 10**.

7.1.3 Flood Relief at 12207 Highway 50

During the study a flooding complaint was received pertaining to 12207 Highway 50. The complaint noted flooding of the property in the backyard from high water levels in Robinson Creek. The property owner discussed the replacement of a roadside ditch which had previously provided flood relief and creek by – pass. The ditch was filled and replaced with a 525 – millimetre diameter sewer by the Region of Peel. Additionally, backyard flooding was exacerbated, when a recent residential development was built which included a Storm Water Management (SWM) pond that outlets by controlled discharge point directly into the creek, as shown in **Figure 7.3**.

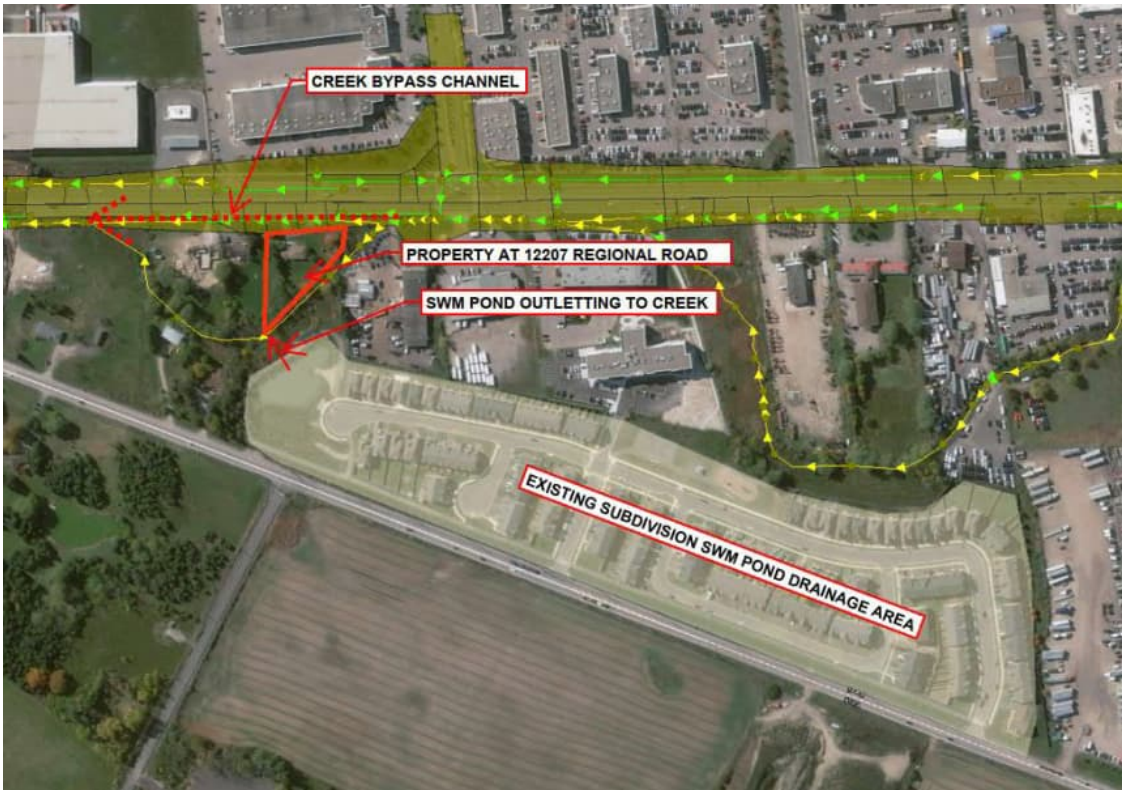

Figure 7.3 – 12207 Highway 50 and Creek By – Pass Channel

7.2 Preferred SWM Solutions

Infiltration Trenches, Bioretention Facilities, Oil Grit Separator (OGS) and Catchbasin Shields

Infiltration trenches and bioretention facilities (bioswales or bioswale boxes) were recommended on the west side of Highway 50, in locations based on their implementation feasibility and hydrogeologic soil conditions. Bioswales are proposed in strategic locations where a bioswale box was not feasible to be implemented due to spatial constraints (refer to **Figures 7.2 and 7.3**). Within the bioswales, check dams are recommended to create a cascading system for runoff to flow along. This effect will decrease the runoff velocity and utilize the storage volume of the bioswale to promote settling. The cascading system of check dams will ensure adequate infiltration within the proposed bioswales. A bioswale box is proposed south of the Simona Drive and Highway 50 intersection. An OGS is also proposed at the west side of Highway 50, north of and the Mayfield Road intersection.

The proposed and existing storm sewer systems, and the extent of the external drainage area were illustrated in the PIC materials in **Appendix 1 – 3**, and in the Stormwater Management Report included in **Appendix 2 SWM Report - Appendix D Maps.**

The proposed LID strategy for road drainage utilized catchbasin (CB) shields to provide at source treatment and OGS units at the discharge points to provide single point end of pipe final treatment. Road catchbasins on the east side of Highway 50 between Healey Road and George Bolton Parkway are currently connected to the west side road ditch and creek. Therefore, runoff treatment with proposed CB Shields or CB capture devices in combination with an OGS unit at the end of the treatment train will provide an improvement in water quality when compared to the current situation. Between these two methods at least 60 % TSS removal should be achieved, equivalent to a basic level of protection, as per MECP guidelines. This is improvement over the existing conditions and can be achieved without significant disruption to existing infrastructure.

7.3 Preferred AT Solutions

The preferred solution for active transportation (AT) along the corridor was to install a MUP to accommodate both pedestrians and cyclists along the west side of the road, and a new sidewalk on the east side of the road from George Bolton Parkway intersection, connecting to the existing sidewalk north of 12599 Highway 50. The MUP would transition to the east side at Healey Road to connect with future planned improvements to the north of the study limits.

The typical cross – section for the recommended AT improvements can be found in **Figure 7.4** and are identified in the PIC materials in **Appendix 1 – 3**. A plan view of the recommended active transportation improvements, including intersection crossing requirements was provided in the preliminary design in **Appendix 10, Figure 7.2, and Figure 7.3.**

The AT improvements create physical separation between vulnerable road users (pedestrians and cyclists), and motor vehicles, and satisfy operational and safety requirements. This solution, compatible with previous study recommendations including the Region of Peel Sustainable Transportation Strategy, extends the continuity of existing active transportation infrastructure, matches the character of the surrounding land use, and minimizes impacts to adjacent properties. A Multi – Use Path is a mixed – use facility to accommodate cyclists and pedestrians at a safe distance from roadway vehicles.

The locations of the proposed upgrades for active transportation (i.e., MUPs and sidewalks) are situated behind the existing roadway lighting. To protect the safety of any persons using the proposed facilities, a review of backlighting installation requirements will be reviewed during the detailed design phase to ensure the MUPs and sidewalk facilities are properly illuminated.

Where required at key intersections and approaches, pedestrian, and cyclist crossride facilities are proposed to replace standard pedestrian crosswalks. Crossrides accommodate the recommended MUP and ensure safe AT connectivity throughout the corridor. The proposed crossing facility types and locations are illustrated in the preliminary design drawings in **Appendix 10**.

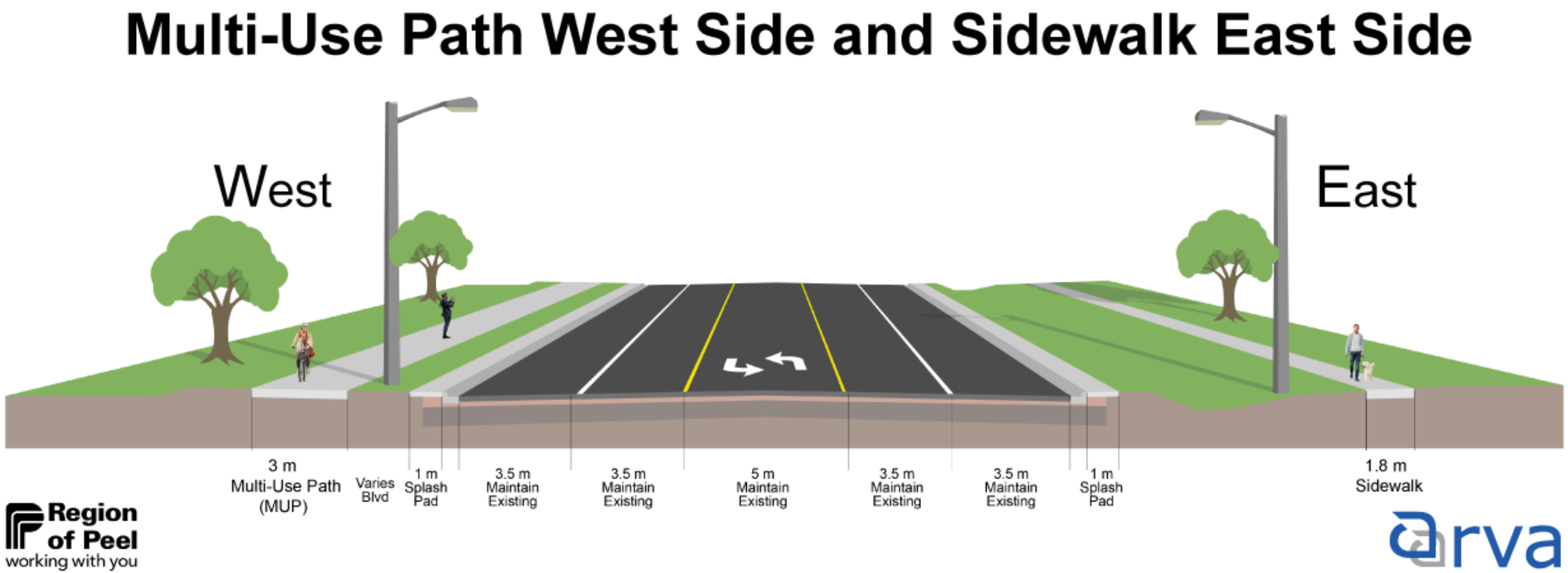

Figure 7.4 – Preferred Active Transportation Solution

(MUP West Side and Sidewalk East Side)

7.4 Phasing and Implementation Plan

7.4.1 Construction Staging and Estimated Timing

At this time, construction of the proposed works is anticipated to commence in Q2 / Q3, 2025 following detailed design, subject to budget, utility relocations, and agency approvals. The anticipated timeline for the proposed works follows a tentative four – year schedule. The timeline for the proposed works is outlined in **Table 7.2** below. Coordination with other Region of Peel projects and Town of Caledon projects will continue to be explored as required. Projects in the vicinity of the proposed construction works include George Bolton Parkway Extension (Town of Caledon), Reconstruction and Widening of Highway 50 and Mayfield Road (Region of Peel) and CPR Bridge Replacement Over Highway 50 (Region of Peel).

Table 7.2 – Preliminary Timing Summary

YEAR	ACTIVITY	TIMING
1	Detailed Design	2023 – 2024
2	Utility Relocations and Property Acquisition	2023 – 2025 2024 – 2025
3	Construction Start	Mid 2025
4	Construction End	TBD

Several projects in the vicinity of the construction works identified as part of the Highway 50 Drainage and Active Transportation Improvements EA will require coordination, including:

- George Bolton Parkway Extension from Highway 50 (Queen Street) to Albion Vaughan Road in the Town of Caledon. Project is currently in the detailed design phase, with construction anticipated to commence in Winter 2023. Requires coordination of culvert construction and the AT intersection elements.

- Reconstruction and widening of Highway 50 from Castlemore Road to Mayfield Road and Mayfield Road from Highway 50 to Coleraine Drive.

Project is currently in the detailed design phase, with construction anticipated to commence in 2025. Requires tie – in of MUP and drainage improvements at the south limit of the current EA study.

- Replacement of the bridge structure at Highway 50 over the Canadian Pacific Railway, including a 3.0 metre MUP from Healey Road to Queensgate Boulevard. Detailed design for the project is anticipated to commence in Summer 2022. Requires coordination and tie – in to MUP along the east side.

7.4.2 Preliminary Cost Estimate and Cost Sharing

The estimated preliminary costs to complete the works and the expected totals for each component are outlined in **Table 7.3** . The anticipated overall estimate for the completion of the project is$13,121,890, taxes excluded. This includes design, administrative, property, utility, removal, installation, traffic signals, culverts, sewers, LIDs, active transportation facilities, sidewalk, landscaping, and engineering fees. A detailed summary of the project costs with material and quantity breakdowns for each category may be found in **Appendix 12**.

Any cost sharing agreements between the Region of Peel and the Town of Caledon will need to be confirmed. It is noted that the proposed works of this study intersect with the planned Town of Caledon's George Bolton Parkway Extension project, at the intersection of Highway 50 and George Bolton Parkway. If required, cost sharing agreements for overlapping works between the Region of Peel and the Town of Caledon will need to be confirmed during detailed design.

Table 7.3 – Preliminary Cost Estimate Summary

ITEM	CATEGORY	DESCRIPTION	TOTAL COST
1	Design and Contract Administration	Including Contingency. (Year 1)	$1,364,630
2	Property Acquisition	Purchase of Property and Easements.	$1,800,000
3	Utility Relocation	General and Contingency. (Year 1)	$2,376,000
4	Construction	Earthworks, Cuts / Fills, Removals, Relocations, Installations, Paving, Topsoil, Traffic Control, Miscellaneous, and Contingency.	$1,222,690
5	Traffic Signals	Permanent, Temporary, Miscellaneous, and Contingency.	$1,242,000
6	Storm Infrastructure	Materials / Items, Miscellaneous, and Contingency.	$3,679,610
7	Sewer Structures	Materials / Items, Miscellaneous, and Contingency.	$861,570
8	Landscaping and Sidewalks	Installation, Concrete, Restoration / Boulevard Plantings, Miscellaneous, and Contingency.	$126,570
9	Active Transportation Infrastructure	MUP Installation, Miscellaneous, and Contingency.	$448,820
TOTAL	**(Before HST)**		**$13,121,890**

8 POTENTIAL IMPACTS, MITIGATION AND MONITORING

Key impacts associated with the implementation of the recommended solutions and general mitigation required throughout the study are outlined in this report and will be expanded upon further following the Class EA. In addition to the mitigation measures identified in the report, additional work will be required to be completed following the Class EA, prior to construction. During detailed design, findings from the Class EA will be confirmed through additional investigations, planning and consultation with the public and technical agencies.

8.1 Drainage and Stormwater Management Impacts

The Preliminary Stormwater Management Report provided in **Appendix 2** provides a comparison between the present and future drainage conditions and proposed improvements. The recommended drainage and SWM improvements ensure that the proposed road improvements neutralize any increase in impervious surface area and control the runoff in accordance with the Region of Peel, TRCA, and Town of Caledon SWM requirements.

8.1.1 Water Quantity and Flood Control

The recommended drainage infrastructure improvements on Highway 50 from Mayfield Road to Healey Road were developed to address the following:

- Ensure no increased risk of flooding to downstream properties and / or infrastructure.
- Design any proposed sewer to convey 10 – year return period storm runoff.
- Where applicable, promote infiltration within the road right – of – way.

Best management practices (BMP) were utilized to match the precondition of Highway 50 in the postcondition. Since no road widening is proposed along Highway 50 from Mayfield Road to Healey Road, there is a negligible increase in the percent of impervious surface present in the postcondition as compared to the precondition. As such, no water quantity or flood controls are proposed within the study area. However, wherever there is a risk of flooding due to undersized culverts, the EA study does recommend upsizing to existing infrastructure where necessary.

8.1.2 Water Quality

Water balance was not considered to be an objective for this project. Since no road widening is proposed along Highway 50 from Mayfield Road to Healey Road, there is a negligible increase in the percent of impervious surface in the postcondition as compared to the precondition. Water quality measures are proposed to improve the treatment of road runoff compared to existing conditions. A Basic Water Quality treatment target of 60 % TSS removal, based on MECP guidelines, is proposed based on site constraints from the currently fully developed road corridor.

8.2 Transportation Facilities Impacts

8.2.1 Disruption to Vehicular Traffic, Pedestrians and Cyclists

With the implementation of the recommended alternatives, minor disruption to the transportation environment will be caused. Construction will be staged in a way that at least one lane of traffic will be always open.

Temporary Impacts on Access to Businesses

The recommended works and necessary road closures have the potential to impact access for businesses and owners of private property throughout the corridor. There may be disruptions to movement.

Business and private property owners are to be notified well in advance of the start of construction to minimize impacts to property access. To this end, every effort will be made to keep driveway entrances open for as long as possible during construction, with at least one access always remaining open. Contractor will be required to maintain their access either by closing a half of the driveway at a time or by doing the work outside of business hours.

During construction there may be the need for Permission To Enter (PTE), Fee Simple Property Acquisitions, temporary easements, and potentially impacted accesses for commercial and industrial properties. Region of Peel to notify property owners and businesses

The Region of Peel and Contractor will work with the local community members to ensure construction activities and schedules are identified well in advance of any disruption so that this information can be passed on to anyone who may be affected. During the detail design phase of the study, the project team will meet with the residents and business owners to further discuss their concerns.

8.3 Utilities and Underground Infrastructure

Although there are a considerable number of municipal services within the EA study area, the preferred design concept can avoid major impacts to existing infrastructure. Only localized work including relocation of hydrants and grade adjustment to existing water valve and maintenance hole grates, etc. are required for the implementation of drainage stormwater management features, MUP and sidewalk extension. Short term disruption to municipal services during construction is anticipated.

Based on a utility conflict review of the preferred design alternative using the utility information received, the following utilities are anticipated to be impacted:

- Bell underground, gas main and hydro underground conflict with the proposed concrete box culvert in the vicinity of property 12476 Highway 50 and will need to be adjusted or relocated.
- Several hydro poles along the west side of the road corridor and several guy poles along east side of the road corridor conflict with proposed MUP and sidewalk connection and will need to be relocated. Adjacent hydro poles may also need to be relocated subject to consultation with hydro company.
- Several communication pedestals conflict with proposed MUP and will need to be relocated.
- Several maintenance holes conflict with the proposed MUP and will need to be adjusted to match future grade or to be relocated.
- Several gas terminal boxes conflict with proposed MUP and will need to be relocated.

All utility impacts, including location, depths, and relocation requirements are to be confirmed early in the subsequent detailed design phase of the study in direct consultation with the affected utility companies.

8.4 Social and Economic Environments

At the time of construction, the Region of Peel will work closely with business owners and residents to mitigate impacts to the local community. The contractor will be required to maintain driveway access for all properties at all times.

Uninterrupted access to be maintained either by staging construction to leave partial driveway access and by completing work outside of peak business hours.

8.5 Property Requirements

The impact to property required to implement the alternative solutions was a key criterion in the identification and evaluation of the designs developed by the project team. For the implementation of the recommended active transportation and stormwater management improvements fee simple and temporary easement acquisitions are required in areas fronting the corridor.

Approximately 345 m^2 of fee simple lands from two properties are required for implementation of the study recommendations**.** Anticipated preliminary property requirements to implement the study recommendations are summarized below in **Table 8.1.**

Table 8.1 – Fee Simple Property Summary

PROPERTY ADDRESS	ESTIMATED AREA	DESCRIPTION
12295 Highway 50 Queen Street	57 m^2	Fee simple property acquisition, required to implement installation of a new driveway concrete box culvert within ROW.
12476 Highway 50 Queen Street	145 m^2	Fee simple property acquisition, required to accommodate the replacement and upsize of the existing CSP culvert to a concrete box culvert (137 m^2 + 8 m^2).
12833 Highway 50 Queen Street	143 m^2	Fee simple property acquisition required to accommodate a new multi – use path (MUP) and the future bridge rehabilitation to the north.
TOTAL	**345 m^2**	**FEE SIMPLE PROPERTY ACQUISITION**

Although anticipated preliminary property requirements to implement the study recommendations have been identified, actual requirements are to be confirmed during the detailed design phase of the project.

8.5.1 Temporary Easements and Permissions to Enter

In addition to the fee simple property required to implement the study recommendations, approximately 1,944 square metres (m ^{2}) of temporary easement lands will be required across several properties along the corridor. The temporary easements are required where access to private property during construction is necessary to complete the recommended works. Permission will be required to upgrade the culvert located at 12476 Highway 50 (Queen Street) on private property. All proposed entrance culverts are situated in the same locations and have lengths equal to the existing failed culverts. Temporary easement lands will be restored to as close as reasonably possible to their previous conditions. Permissions to Enter will be required for all properties prior to construction.

The anticipated preliminary temporary easements required to implement the study recommendations are summarized below in **Table 8.2** and included in **Appendix 11**. Property addresses and the approximate temporary easement areas were identified for all necessary locations within the study corridor.

Table 8.52 – Temporary Easements Summary

PROPERTY ADDRESS	ESTIMATED AREA	TEMPORARY EASEMENT DESCRIPTION
12199 Highway 50 (Queen Street)	17 m ^{2}	Required to implement installation of a new 900 – millimetre culvert within right - of - way (ROW).
12203 Highway 50 (Queen Street)	46 m ^{2}	Required to implement installation of a new 900 – millimetre culvert within ROW.
12206 Highway 50 (Queen Street)	42 m ^{2}	Required to implement a new multi - use path within ROW.
12207 Highway 50 (Queen Street)	46 m ^{2}	Required to implement installation of a new 900 – millimetre culvert within ROW.
12249 Highway 50 (Queen Street)	25 m ^{2}	Required to implement installation of a new 900 – millimetre culvert, and new 3.0 x 1.5 metre driveway concrete box culvert in ROW.

PROPERTY ADDRESS	ESTIMATED AREA	TEMPORARY EASEMENT DESCRIPTION
12275 Highway 50 (Queen Street)	43 m ^{2}	Required to implement installation of a new driveway concrete box culvert in ROW.
12295 Highway 50 (Queen Street)	14 m ^{2}	Required to implement installation of a new 600 – millimetre driveway culvert within ROW.
69 Pillsworth Road 71 Pillsworth Road	130 m ^{2}	Required to implement a new multi - use path and bioswale box within ROW.
12343 Highway 50 (Queen Street)	56 m ^{2}	Required to implement a new 525 – millimetre east side driveway culvert (33 m ^{2}), and a new 450 – millimetre driveway culvert west side of the property (23 m ^{2}) within ROW.
12373 Highway 50 (Queen Street)	38 m ^{2}	Required to implement installation of a new 450 – millimetre driveway culvert within ROW.
12388 Highway 50 (Queen Street)	48 m ^{2}	Required to implement a new multi - use path and storm sewer upgrades within ROW.
12420 Highway 50 (Queen Street)	61 m ^{2}	Required to implement a new multi - use path and bioswale box within ROW.
12473 Highway 50 (Queen Street)	22 m ^{2}	Required to implement a new sidewalk within ROW.
12476 Highway 50 (Queen Street)	149 m ^{2} 27 m ^{2}	Required at the northwest corner of George Bolton Parkway to accommodate a new concrete box culvert.
PIN 143500096 No Legal Address	229 m ^{2}	Required at the northwest corner of George Bolton Parkway to accommodate a new concrete box culvert.
12495 Highway 50 (Queen Street)	43 m ^{2}	Required for a new sidewalk within ROW.
45 Nixon Road	43 m ^{2}	Required to implement new multi - use path and storm sewer upgrades within ROW.

PROPERTY ADDRESS	ESTIMATED AREA	TEMPORARY EASEMENT DESCRIPTION
12532 Highway 50 (Queen Street)	41 m^2	Required to implement a new sidewalk and storm sewer upgrades within ROW.
12543 Highway 50 (Queen Street)	35 m^2	Required to implement a new sidewalk within ROW.
12553 Highway 50 (Queen Street)	37 m^2	Required to implement a new sidewalk and storm sewer upgrades within ROW.
12544 Highway 50 (Queen Street)	85 m^2	Required to implement a new sidewalk and storm sewer upgrades within ROW.
12550 Highway 50 (Queen Street)	45 m^2	Required to implement a multi - use path and storm sewer upgrades within ROW.
12585 Highway 50 (Queen Street)	67 m^2	Required to implement a new sidewalk within ROW.
12563 Highway 50 (Queen Street)	21 m^2	Required to implement a new sidewalk within ROW.
12566 Highway 50 (Queen Street)	31 m^2	Required to implement a new multi - use path and storm sewer upgrades within ROW.
12596 Highway 50 (Queen Street)	86 m^2	Required to implement a new multi - use path catchbasin shields, and storm sewer upgrades within ROW.
12612 Highway 50 (Queen Street)	347 m^2	Required to implement a new multi - use path and storm sewer upgrades within ROW.
12684 Highway 50 (Queen Street)	34 m^2	Required to implement a new multi - use path within ROW.
12730 Highway 50 12720 Highway 50 (Queen Street)	36 m^2	Required to implement a new multi - use path within ROW.
TOTAL	**1,944 m^2**	**TEMPORARY EASEMENTS**

8.5.2 Noise and Air Quality Impacts During Construction

Although no long - term air quality impacts from the proposed works are anticipated, dust and emissions during construction have the potential to degrade air quality in the short term. Impacts can be minimized by various measures: dust and debris control measures; application of water or non - chloride - based compounds; covering of soil and other material storage piles to prevent wind erosion; covering of fine particulate materials during transportation to and from site. New or well - maintained equipment and machinery should be used by the contractor during construction, preferably fitted with fully functional emission control systems, mufflers, exhaust system baffles or engine covers.

Construction may also result in temporary noise impacts. Noise - related impacts during construction can be minimized through:

- Limit construction to time periods allowed by local noise control By - laws. If construction activities are required outside of these hours, the applicable permits and exemptions must be obtained through the municipality in advance.
- Maintain construction equipment in an operating condition where unnecessary noise is prevented (muffling systems, secured components, lubrication of moving parts).
- Time restrictions imposed for idling equipment to the minimum necessary to perform the specified work.
- Investigate all noise complaints from the public to verify that the required noise control measures are in effect. Persistent complaints will require a contractor to comply with MECP NPC – 115 (Guidelines for noise effects from construction equipment). Subject to the results of a field investigation, alternative noise control measures may be required.

8.6 Natural Environmental

The following sections describe the impacts and mitigation measures developed to avoid or minimize the potential impacts to the natural environment associated with the proposed improvements. These measures should be considered and elaborated on, as required, during detailed design.

The complete Preliminary Impact Assessment Report and Proposed Mitigation measures are provided in **Appendix 3**.

8.6.1 Aquatic Habitats and Communities

Anticipated disturbances are mainly temporary and significant adverse impacts are not expected as part of the proposed improvements. Seven of the eight crossings within the study area are located on the east side of Highway 50. As the proposed facilities are to be constructed opposite the location of the Robinson Creek Tributary wherever feasible the transportation facilities (west side MUP and sidewalk east side) are expected to have minimal interaction with the watercourse.

Fish habitat, including vegetation, adjacent to the watercourses may be impacted during replacement and installation works. Impacts to the Robinson Creek Tributary and roadside ditches can be reduced with implementation of erosion and sediment control measures and monitoring. The recommended MUP on the west side was designed further from sensitive areas and potential fish habitat locations to minimize possible adverse effects. Potential impacts can be reduced by completing a comprehensive plan for staging project works, developing a sediment and erosion control plan, monitoring water quality in the study area and maintaining existing vegetation as much as possible.

The upgrades proposed to existing culverts are upsized or increased pipe diameters. The existing length of culverts will be maintained. No permanent loss of direct or indirect fish habitats are anticipated from culvert replacement and SWM upgrades. Temporary impacts anticipated from project activities associated with the culvert removals and installations may result from hazardous substances produced or utilized during construction, diversion, or bypass of flows to accommodate scheduled works, disturbance of soils, vegetation losses, increased erosion and sedimentation which all have the potential to harm or cause the direct mortality of fish:

- Temporary and / or permanent disruption of site - specific, direct habitat
- Changes to water quality and quantity
- Changes in water temperature
- Barriers to fish passage.

As such, a Request for Review should be submitted to DFO to determine the potential for "harmful alteration of fish habitat" at the detail design stage once culvert designs have been advanced as DFO's "measures to protect fish and fish habitat" cannot be fully implemented and there are no 'standards and codes of practices" that apply to culvert replacements. However, if the appropriate mitigation measures as introduced below, and described in detail in **Appendix 3** are implemented properly, minimal impacts to the fishery should occur.

In - water works will occur inside the fisheries timing window of July 1 – March 31 (work permitted) to protect the warmwater fish community and their habitat. To reduce the potential for 'harmful alteration, disruption or destruction' of fish habitat, the following environmental protection measures will be required:

- Work areas delineated with construction fencing to minimize the area of disturbance
- Appropriate sediment control structures installed prior to and maintained during construction to prevent entry of deleterious substances including sediment into the watercourse
- Where cofferdams are to be employed, unwatering effluent to be treated and tested prior to discharge to receiving watercourse
- Cofferdams to be constructed using pea gravel bags or equivalent to isolate the work area and maintain flow
- Fish isolated by construction activities to be captured and safely released to the watercourse. A Licence to Collect Fish for Scientific Purposes under the Fish and Wildlife Conservation Act (1997) will be required from the MNRF to capture and transfer fish
- No construction machinery or vehicles will be permitted to cross the watercourse at any time during construction, unless authorized by the permitting agencies
- Refuelling of all equipment and vehicles to be located a minimum of 30 metres from the top of embankments. Use of environmentally or eco - friendly fuels suggested.

- Minimize dust using wet suppression and install adequate protection to prevent any discharge resulting from dewatering operations from entering any sewer inlet, permanent or intermittent flow path along the corridor.

- Good housekeeping practices related to materials storage / stockpiling, equipment fuelling / maintenance, etc. are to be implemented during construction

- Disturbed riparian areas to be vegetated and / or covered with rolled erosion control product at the end of each day and before any rain events. Where no further disturbance is expected, and final grade is reached permanent stabilization is required as quickly as possible to stabilize the banks and minimize the potential for erosion and sedimentation.

8.6.2 Vegetation Communities

Scattered trees and semi - natural vegetation that occur within proximity to the roadway could be impacted by the proposed works. Although the vegetation communities assessed serve as poor habitat for wildlife, the proposed improvements to Highway 50 have the potential to result in impacts to vegetation and vegetation communities. Effects on vegetation related to these modifications could include:

- Displacement of disturbance to vegetation and vegetation communities.

- Displacement of disturbance to rare, threatened, or endangered vegetation or significant vegetation communities.

Trees identified for removals included trees within or outside the limit of disturbance where the amount of critical root zone that will be removed will likely cause significant and irreversible decline of the health of the tree. As such, a total of 19 trees have been identified for removal because of the proposed improvements to Highway 50.

The tree assessment completed as part of the Class EA is preliminary and a detailed tree preservation plan should be prepared during the detail design phase.

8.6.3 Wetland Communities

As a result of grading associated with implementing the study recommendations, edge impacts will occur to two shallow marsh communities located on the east and west side of the intersection of Highway 50 and George Bolton Parkway. These

grading activities will result in impacts to / loss of approximately 149 m ^{2} of MAS community (Shallow Marsh) and 141 m ^{2} of MAS2 – 1 (Cattail Mineral Shallow Marsh Type) for a total loss of approximately 290 m ^{2} of wetland community.

Shallow marsh communities are widespread and common in Ontario and the loss of these portions is not expected to have any negative impacts to the remaining portions of Cattail Shallow Marsh within the study area.

TRCA's Compensation Protocol implements an offsetting ratio of 1:1 (replacement: loss) for wetlands, to offset for the loss of natural wetland and woodland habitat in their watershed, However, as this is a municipal infrastructure project, further discussion between the TRCA and the Region will be required to discuss the details of this undertaking.

Potential impacts to wildlife and their habitats during construction can occur through direct injury, habitat loss and indirect impacts. Possible indirect impacts include avoidance of areas of active construction and resulting modification to established daily movement patterns.

The following measures are recommended to reduce these impacts.

- To prevent incidental impacts to nesting bird colonies, woody vegetation clearing should be restricted to outside of the migratory bird nesting seasons, April 1 through October 31. If vegetation clearing must occur within this window, a qualified ecological professional should be retained to ensure no birds are incidentally harmed by vegetation removals.

- Grading activities should be limited to the active season for wildlife, typically May 1 through September 30 to prevent entombment within burrows, tunnels, or other subterranean features.

Limiting construction activities to daylight hours will reduce the impacts to behaviour changes (avoidance) of local wildlife in response to the project.

8.6.4 Wildlife and Wildlife Habitat

As part of the consultation communications, Ontario Ministry of Environment, Conservation and Parks (MECP) indicated records of SAR are found within the project area and within the vicinity of the project area. Records obtained included four SAR species, listed provincially as Threatened [THR] or Special Concern [SC]: Bobolink [THR]; Eastern Meadowlark [THR]; Barn Swallow [THR]; and Wood Thrush [SC]. In the Natural Heritage Report and **Section 2.5.5**, The report

incorrectly indicated no element occurrences of rare species records were found within the study area or vicinity.

Regulated under the Ontario *Endangered Species Act, 2007* (ESA) and the federal *Species at Risk Act (*SARA), Eastern Meadowlark is both federally and provincially regulated as a Threatened species, Wood Thrush is listed federally as Threatened and provincially as Special Concern, and both Bobolink, and Barn Swallow are currently under consideration for status change from Special Concern to Threatened. No SAR were observed at either of the two field investigations.

In the detailed design stage, it is recommended to review updated records for the current listed status of the four bird species and consider additional Breeding Bird Surveys and report any potential sightings to MECP and the Natural Heritage Information Centre.

The anticipated works are located within the ROW and SAR concerns are not anticipated.

8.7 Built Heritage Resources and Cultural Heritage Landscapes

It has been determined through research and site investigation that there are no built resources or cultural heritage landscapes within the study area. As such, no built resources or cultural heritage landscapes will be impacted by the recommended improvements.

8.8 Archaeological Resources

The Stage 1 Archaeological Assessment (AA) Report found no archaeological potential retained for the study area and therefore no impacts to resources are anticipated. The report noted no construction activities shall take place within the study corridor prior to the Ministry of Tourism, Culture and Sport (MTCS) Archaeology Program Unit confirming in writing that all archaeological licensing and technical review requirements have been satisfied.

The Stage 1 AA Report was submitted to the Ontario MTCS in April 2021, to be entered into the archaeological register and an additional expedited review was requested July 6, 2022. In accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18, the Ministry of Tourism, Culture and Sport (MTCS) entered the report into the Ontario Public Register of Archaeological Reports, under Project Information Form number P1059 – 0068 – 2020, without a technical review on July 8, 2022. The project was considered low risk due a disturbed classification for the

corridor. Further investigation is only required if any associated construction activities for the project, including laydown areas, are extended beyond the assessed limits of the study area and if during construction deeply buried artifacts (e.g., human remains) are uncovered. Otherwise, no additional review or assessment are required.

In the event human remains are discovered, the proponent or person discovering the archaeological resource(s) shall immediately cease construction, disturbance, or further site alteration, and retain the assistance of a licenced archaeological consultant to conduct an archaeological assessment as per Section 48(1) of the Ontario Heritage Act. The police or coroner must be notified, and guidance can be obtained by contacting the Ministry of Tourism, Culture and Sport (MTCS) by email (archaeology@ontario.ca).

More information is provided in the complete Stage 1 Archaeological Assessment report in **Appendix 5**.

8.9 Surface, Subsurface (Soils) and Groundwater

8.9.1 Source Water Protection

Under the MECP 2006 *Clean Water Act*, municipalities are required to conform to Source Protection Plans (SPPs) to protect surface and groundwater sources to municipal drinking water systems. The study area for this project is within the Toronto and Region Source Protection Area (SPA), under the jurisdiction of the Credit Valley - Toronto and Region - Central Lake Ontario Peninsula (CTC) Source Protection Plan (SPR).

The SPR identifies where there is potential for significant threat to the quality and quantity of groundwater through delineation of Wellhead Protection Areas (WHPAs), Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), and Intake Protection Zones (IPZs).

The Highway 50 Environmental Assessment study area is located outside of area delineated as a source protection vulnerable area under the *Clean Water Act* and therefore, the policies contained within the CTC Source Protection Plan do not apply to the project. The project also has no area within an Intake Protection Zone (IPZ) boundary and is not considered vulnerable to drinking water threats.

8.9.2 Erosion and Sediment Control Plan

Vegetation clearing creates exposed soils, increased likelihood of erosion, and potential for dislodged particles to enter the nearby creek. Release of sediment into Robinson Creek and tributaries could have significant detrimental impacts to water quality and fish habitats. Sediments that enter a watercourse can increase stream turbidity, abrade fish gill membranes (leading to physical stress), cover spawning areas and incubating juvenile fish, cover / smother mussel beds, decrease food production, and smother eggs in nests. Removing riparian vegetation can also decrease watercourse shading, thereby potentially affecting the water temperature of Robinson Creek, and can limit the natural shedding of organic materials into the watercourse which may provide food, cover, and nutrients to the aquatic ecosystems.

Grading may be required following bank disturbance due to construction equipment access. Grading operations, like excavation activities, disturb the ground and expose soils, increasing the likelihood of erosion and the potential release of sediments into nearby water features. These activities also require the use of industrial equipment.

A Sediment and Erosion Control Plan will need to be prepared during detailed design. These control measures will include:

- Limiting the geographical extent and duration that soils are exposed to the elements.
- Implementing standard erosion and sedimentation control measures in accordance with Ontario Provincial Standard Specification (OPSS) 805 Construction Specification for Temporary Erosion and Sediment Control Measures. These standard measures include silt fence placed along the margins of areas of soil disturbance; applying conventional seed and mulch and / or erosion control blanket in areas of soil disturbance to provide adequate slope protection and long - term slope stabilization.
- Moistening dry soils with water as required during construction to mitigate impacts of dust on the surrounding ecosystem.
- Managing surface water outside of work areas to prevent water from contacting exposed soils.

- Monitoring of erosion and sedimentation control measures during and after construction will be implemented to ensure their effectiveness. These environmental measures will reduce / minimize adverse environmental impacts.

8.10 Fluvial Geomorphic and Hydraulic

The purpose of the fluvial geomorphic and hydraulic assessment completed as part of the study was to provide a baseline understanding and inventory of the existing channel condition and culvert facilities within the study area, in the context of the planned active transportation alternatives and improvements. Given the limited interaction between the proposed active transportation facilities and the existing channel or culvert features, the hydraulic assessment of any proposed culvert modifications will be pursued during the detailed design phase of the project.

8.11 Geotechnical

Appropriate protection measures are recommended for concrete and metal structural elements. The effect of road de - icing salt should be considered while selecting the corrosion protection measures.

The successful performance of roadwork and culvert installation will depend on good workmanship and quality control during construction. It is therefore recommended that materials testing and inspection by qualified personnel be provided during construction. The observation, inspection and testing should include foundation and embankment subgrade conditions; compaction testing of road subgrade fill, retaining wall and culvert backfill; asphalt paving and sampling; and concrete testing.

8.12 Hydrogeological

A water taking permit may be required to conduct the construction. Following detailed design, determined by the outcome of further analysis and investigation, registration on the EASR (Environmental Activity Sector Registration) may be required. Peak water taking requirements include:

- Water Taking Plan and Water Discharge Plan for rates between 50,000 and 400,000 litres per day.

- Category 3 PTTW (Permit To Take Water) and Hydrogeological Study for water taking rates exceeding 400,000 litres per day.

It would be possible to conduct limited construction dewatering without a permit provided the total daily water taking rate is restricted to 50,000 litres per day or less. Many elements will not be feasible to construct with that limitation, and the rate of construction of feasible elements may be restricted until a water taking permit is obtained. Additional terms and conditions may apply as determined by the water taking permit process, including performance, monitoring, and reporting requirements, among others.

Water quality observed during construction will vary from the results obtained herein based on several factors. An experienced dewatering contractor and water treatment contractor are recommended to be retained to design and operate dewatering and treatment operations as required. Should the dewatering discharge be contaminated such that the groundwater cannot be treated to the appropriate water quality criteria, the contractor would be responsible for managing the water, including potentially storage and further treatment, or transporting the contaminated groundwater off - site for disposal at an appropriate licensed facility.

A discharge permit would be required from the Region of Peel to discharge to a Region of Peel sewer. Discharge to the natural environment may require consultation with MECP (Ministry of the Environment, Conservation and Parks), and potentially TRCA (Toronto and Region Conservation Authority) and NDMNRF (Ministry of Northern Development, Mines, Natural Resources and Forestry) depending on the discharge location.

Additional groundwater level monitoring should be conducted to capture further seasonal variation, and additional groundwater sampling may be warranted depending on potential discharge location. Infiltration testing may also be advisable depending on infiltration concepts that may be developed.

During the detailed design stage, it will be necessary to refine the analysis of the hydrogeological conditions to estimate dewatering rates. The Zone of Influence (ZOI) and dewatering rates because of construction - related dewatering will be estimated. These findings will be used to confirm the water takings requirements and the appropriate approvals from the MECP prior to commencement of construction. They will also assist in determining whether a private well survey is warranted. Monitoring wells should be decommissioned in accordance with O. Reg. 903 if they are no longer in use to prevent the creation of vertical conduits for contaminant transport.

8.13 Climate Change

Project impacts and resiliency to climate change were considered during the study. Consideration for how the Highway 50 EA contributed to climate change, through effects on the natural environment was important to the planning process. Climate mitigation measures to avoid, minimize, and offset effects were considered. Impacts to the project, from increased flooding, was critical to the planning process and enabled the project team to make informed decisions around SWM design and AT improvements. During detailed design materials and methods can be selected in consideration of greenhouse gas emissions produced and further offsets provided.

Approaches for considering and addressing climate change in project planning are through reducing a project's effect on climate change; and increasing the project's resilience to climate change.

For this Class EA study, key elements that were factored into the improvements and related infrastructure along Highway 50, that could serve to reduce the overall effect on climate change include the provision of sustainably sourced materials and products.

Recommendations developed for the roadway include extensive provision for pedestrians and cyclists, including a new MUP on the west side of the roadway, and a sidewalk on the east side of the roadway. The new active transportation facilities improved the pedestrian and cyclist connectivity along the corridor without impacting the sensitive natural areas located along the east side of Highway 50. Encouraging active transportation through increased pedestrian and cyclist facilities supports the reduced use of vehicular traffic and GHG (greenhouse gas) emissions.

With regards to the project's resilience, the impact of climate change on stormwater management quality and quantity was a key consideration in the study recommendations. The improvements to stormwater management infrastructure are anticipated to mitigate the impacts of increased severity and frequency of storms. In general, the nature of the AT and SWM improvements support the inclusion of emission free non - vehicular transportation options and protection for the natural environment.

8.14 Monitoring During Construction

The mitigation measures identified in this report shall be written into the contract specifications. During construction, the contract administrator will ensure that full - time monitoring and inspection of the project works is undertaken to ensure that all environmental commitments identified in the Environmental Study Report are adhered to by the contract team. Following completion of construction (i.e., post construction), an inspection should be undertaken to ensure the effectiveness of the identified mitigation measures. A stormwater monitoring and maintenance program, as recommended by the MECP and TRCA guidelines, was included in the Stormwater Management Report in **Appendix 2**.

9 CONSULTATION

Schedule B Environmental Assessment projects are subject to Phase 1 and Phase 2 in the planning process, in accordance with the Municipal Class Environmental Assessment (MCEA) (October 2000, amended in 2007, 2011 & 2015). As such, extensive public and technical agency consultation plays a key role in developing the study recommendations.

As outlined in the MCEA requirements, notification to the public and stakeholders was provided in advance of key consultation opportunities.

9.1 Key Stakeholders, Interest Groups and Technical Agencies

Various stakeholder and interest groups, government agencies, utility companies, and local developers were informed of the EA at various stages: study commencement, online Public Information Centre 1 (PIC 1), and online Public Information Centre 2 (PIC 2). As previously noted, notifications were delivered via direct electronic mailing or regular mailing. A complete list of stakeholders who were contacted is provided in **Appendix 1**.

At the onset of the study, a list of technical agencies that were considered to have an interest in this study, including regional and local municipal departments, TRCA, and various utility companies were invited to join the study Technical Agencies Committee (TAC).

Two TAC meetings were held during the study and members were provided the opportunity throughout to review and comment on the draft reports, preliminary design, and study presentation materials. The invitation to join the TAC was sent to invited members at the initial stage of the study. The first TAC meeting was held on December 13, 2019. The purpose of this meeting was to provide members an opportunity to meet the study team, review the study scope and discuss issues related to the study. The second TAC meeting was held digitally via Teams on October 30, 2020. The purpose of the meeting was to discuss the results of the evaluation of the alternative solutions, prior to PIC 2. The TAC was also provided draft study materials and documentation for review at input at various stages during the study.

Correspondence received from the TAC and other technical agencies are outlined in **Table 9.1** and included in **Appendix 1**.

Table 9.1 – Technical Agencies and Stakeholders Comments

AGENCY / GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
Ministry of the Environment, Conservation and Parks (MECP)	A Regional EA Coordinator acknowledged receipt of the Notice of Study Commencement for the Schedule B Municipal Class Environmental Assessment (EA) and Preliminary Design for Drainage Improvements of Highway 50 (Regional Road) from Mayfield Road to Healey Road email to the Regional email account. Stated a follow up from a Regional EA Coordinator possible if further information was required.	2020 / 06 / 25	Received and documented MECP's receipt of the Notice of Study Commencement for project.
Ministry of the Environment, Conservation and Parks (MECP)	Requested to send Project Information Form file and submit notice for streamlined EA.	2020 / 08 / 21 2020 / 08 / 24	Project Information Form file was completed and submitted to the MECP Regional email account on August 21, 2020.
Ministry of the Environment, Conservation and Parks (MECP)	Submitted draft reports receipt confirmed. No further correspondence received.	2022 / 08 / 19 2022 / 07 / 29	Draft PFR including reports shared with Permission and Compliance team, SAR Branch, MECP on July 29, 2022.
MECP Environmental Assessment Branch	Noted as the project includes construction of a multi - use pathway and sidewalk, recommend that the proposed SWM plan include information on increased impervious surfaces from those areas and consider whether the proposed SWM plan was to provide sufficient protection to the receiver water quality. Informed of TRCA's general expectation that the proposed SWM plan meet the ministry's enhanced water quality control (i.e., 80 % TSS removal).	2022 / 08 / 31	Draft PFR including reports shared with MECP EA review Unit on July 29, 2022. Noted the increase in impervious area relative to the overall watershed was negligible and no increase in peak flow expected because of the proposed multiuse path and sidewalk. Enhanced quality treatment was not achievable due to corridor constraints from existing utilities and right - of - way limits. Sixty percent TSS removal proposed to achieve Basic quality level treatment using CB shields and OGS units. These units will provide 75 % TSS. removal, but since it may not be feasible to install OGS units project wide, 60 % TSS removal is the proposed target.
MECP Environmental Assessment Branch	Noted a requirement was to provide requested clarification of water quality control objectives. TSS removal level achieved for the whole project area and capacity of the OGSs installed as compared to the designed stormwater water peak flow.	2022 / 08 / 31	Provided required clarification. Noted a proposed 60 % TSS removal to achieve basic quality level treatment using CB shields and OGS units. These units will provide 75 % TSS removal, but since it may not be feasible to install OGS units project wide, 60 % TSS removal is the proposed target.
MECP Environmental Assessment Branch	Recommended to revisit the proposed SWM facilities during detailed design and design based on the ministry's SWM design guide documents including MECP "Stormwater Management Planning and Design Manual (2003)" and MECP "Low Impact Development (LID) Stormwater Management Guidance Manual (Draft)".	2022 / 08 / 31	Noted additional details regarding specific locations for CB shields and specific OGS unit types required during the detailed design phase.

AGENCY / GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
MECP Environmental Assessment Branch	Requested to please provide comparison between the measured flow and predicted flow; discuss the model overestimations under different design scenarios; and determine whether further model refining will be required / conducted during the detailed design to update the current hydraulic assessment for SWM Report.	2022 / 08 / 31	Incorporated a comparison of 2 – year storm events, both modelled and observed in Section 4.0 and Section 5.0 of the SWM report. The modelled event predicted a peak flow of 3.11 m^3 / s while the observed event resulted in a peak flow of just 0.375 m^3 / s. Based on this analysis, concluded that the modelled peak flows provided by TRCA represent an overly conservative approach to the peak flows within the creek. Report updated to include this information
MECP Environmental Assessment Branch	Noted requirement of permit to Take Water (PTTW) for construction dewatering purposes. Requested to please also be advised of a requirement for hydrogeological / technical assessment report to support the PTTW application. Advised in terms of surface water aspects, the supporting documents to be included, at a minimum, an impact assessment of the proposed dewatering activity on surface water features nearby, an assessment of local groundwater quality, and a dewatering effluent discharge monitoring and contingency plan. Advised that further review by the ministry during the PTTW application will be required.	2022 / 08 / 31	Acknowledged and noted. Added statement to detailed design commitments to reflect requirements necessary to abide by regulations and actions necessary in the detailed design stage.
MECP Environmental Assessment Branch	Requested clarification for the Culvert and Sewer upgrades. Requested summary table.	2022 / 08 / 31	Reports updated to include requested information.
Ministry of Tourism, Culture and Sport (MTCS)	MTCS provided information to support the project team in identifying and documenting the project's potential impact on cultural heritage resources including: Cultural Heritage Resources. Archaeological Resources and Built Heritage Resources and Cultural Heritage Landscapes. MTCS requested the project team advise whether any technical cultural heritage studies are being completed as part of the study (e.g., Cultural Heritage Assessment Report, Cultural Heritage Evaluation Report, Heritage Impact Assessment), and that any technical cultural heritage studies completed be sent to the Ministry for review before issuing the Notice of Completion.	2020 / 07 / 17 2020 / 07 / 20	The project team reviewed the need for assessments in consideration of MTCS's comments. Stage 1 Archaeological Assessment Report was submitted to the MTCS to be entered into the archaeological register in April 2021. The Cultural Heritage Assessment Report was submitted to the MTCS for their review and comment on July 5, 2022.
Ministry of Tourism, Culture and Sport (MTCS)	MTCS confirmed receipt of the draft Cultural Heritage Assessment Report, noting that comments will be provided by August 5. MTCS also confirmed that the Stage 1 archaeological assessment (under Project Information Form number P1059 – 0068 – 2020) has been entered without technical review.	2022 / 07 / 05 2022 / 07 / 06 2020 / 07 / 08	Submitted Stage 1 Archaeological Assessment and a Cultural Heritage Assessment for review by MTCS. MTCS comments to be incorporated into the final Cultural Heritage Assessment Report. An expedited review was requested on July 6, 2022, requesting review to be completed by August 6, 2022. The Stage 1 AA Report was cleared by the ministry and entered into the Public Register without technical review on July 8, 2022.

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Ministry of Tourism, Culture and Sport (MTCS)	Requested additional information for clarification purposes and revisions to the draft reports. MTCS File 0012702.	2022 / 08 / 26 2022 / 07 / 29	Draft PFR including reports shared with Ministry of Tourism, Culture and Sport on July 29, 2022, for review. Updated reports to address comments received.
Toronto and Region Conservation Authority (TRCA)	Confirmed watercourse location east of Mayfield Road and the HWY 50 intersection and noted TRCA has the most up to date version of hydraulic model. Confirmed watercourse located west of the intersection and noted TRCA does not have a hydraulic model. Requested required hydraulic model be developed for the tributary located on the west side of HWY 50. Confirmed area along the west side of Highway 50, north of Mayfield Road is not a watercourse as shown on google maps, but a ditch.	2020 / 01 / 20 2020 / 01 / 14	Minutes for meeting provided to TRCA on January 14, 2020. Developed requested hydraulic model and sent to TRCA February 24, 2020.
Toronto and Region Conservation Authority (TRCA)	The TRCA updated floodplain mapping for the reach in question (Mapping sheets #157 and #169). The updated flood plain mapping, HEC RAS model and report are provided to support the hydraulic assessment. Noted some spill areas upstream of Mayfield Road. Request assessment consistent with the recommendations provided within the Hydraulic report by Cole Engineering provided. TRCA provided RVA with latest hydraulic model developed for the Highway 50 / Mayfield Road Detailed Design.	2020 / 03 / 19 2020 / 02 / 24	Sent requested hydraulic model and sent to TRCA February 24, 2020. Requested TRCA's updated flood plain mapping, HEC RAS model and Cole report. Required to commence with the hydraulic analysis, fluvial assessment, and other works. Updated model reflects the proposed scenario where all the culverts in the intersection are being upsized to accommodate the latest flows provided by the TRCA (received in 2018).
Toronto and Region Conservation Authority (TRCA)	Provided most updated hydraulic model and mapping completed by Aquafor in December 2019. The updated HEC RAS model ends approximately 300m north of Mayfield.	2020 / 03 / 19 2020 / 02 / 24	RVA requested to confirm the current TRCA models have the updated culvert sizes before proceeding. Requested discussion on moving forward with more analysis north of the Mayfield Road / Highway 50 intersection.
Toronto and Region Conservation Authority (TRCA)	Provided current hydraulic model completed in 2015 – 16 and associated report for reference as requested by RVA.	2020 / 09 / 14 2020 / 09 / 08	RVA requested model of West Robinson Creek where the watercourse runs adjacent / parallel to Hwy 50 and crosses the road just north of George Bolton Parkway. RVA received TRCA's HEC RAS modelling and completed review. Flagged items from review for discussion with TRCA Staff, to ensure the EA project's objectives and use of the modelling were consistent. Received 3 HEC - RAS models from TRCA.
Toronto and Region Conservation Authority (TRCA)	Noted RVA completed a hydraulic assessment along Highway 50 previously. Agreed this model would also be acceptable provided it included updated flows consistent with the Humber hydrologic update which was completed and approved by the Authority in 2018.	2020 / 09 / 16 2020 / 09 / 08	RVA agreed to modify the HEC - RAS model and have the proposed changes reviewed by TRCA for acceptance. Noted that making the HEC - RAS model comply with current crossing capacities would require major flow changes (i.e., 90 % flow reduction) for which limited foundation exists.

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TRCA	TRCA recommends model to use for peak flows. TRCA confirmed flows are up to date and can be used in the hydraulic assessment.	2020 / 10 / 15 2020 / 09 / 08	TRCA to review the HEC - RAS model flows and advise RVA if the flows can be changed. Requested flow confirmation by TRCA.
Toronto and Region Conservation Authority (TRCA)	TRCA requested opportunity for their Ecologist to review and comment. RVA to provide a description writeup of proposed recommendations with areas and values included to assist with review. Requested further details on the rationale behind the removal of some of the existing swales. Noted although the existing swales may not add water quality control for the road, they may provide ecological benefits.	2020 / 10 / 30	The noted information and the draft the Natural Heritage Assessment (Existing Conditions) were provided to the TRCA for review and comment.
Toronto and Region Conservation Authority	Noted staff are aware of the current constraints to achieve TRCA water quality, quantity, erosion, and water balance control for the road in question. Noted the project as an excellent opportunity to incorporate SWM controls consistent with TRCA's Stormwater Management Criteria, regardless of the current road conditions. Recommended opportunity to construct an offline pond retrofitting existing inline pond at George Bolton Parkway. Advised that. Inline ponds are not recommended nor supported by TRCA's Living City Policies.	2021 / 01 / 19 2020 / 11 / 17	Region noted that the draft Stormwater Management Report has been provided to the TRCA but that additional revisions would be required following the meeting. RVA revised report and provided to the Region for review. Region noted their intention to consider adding sidewalk along the east side of the corridor, in addition to the MUP recommended along the west side. Any potential sidewalk facility would require filling in the existing ditches.
Toronto and Region Conservation Authority	Without the completion of the EIS / NHE staff are not able to provide comprehensive ecological comments, particularly where the watercourse is in the ditch. If there are proposed changes to the crossing structures, please refer to the TRCA's Crossing Guideline for Valley and Stream Corridors Crossing Guideline. Additionally, if any alterations to the watercourse are contemplated, please include all relevant information from the TRCA Channel Modification Design and Submission Requirements. General SWM recommendations:	2021 / 01 / 19 2020 / 11 / 17	RVA / Region to follow up with an email to TRCA requesting their input on feasibility. Region and TRCA agreed that the project should have TRCA's approval in principle prior to being presented at the PIC.
Toronto and Region Conservation Authority	Staff noted re - development applications that include increased proposed impervious cover along Highway 50 often include proposed outlets to the Natural System, as not being able to send stormwater to Highway 50 is a project constraint. Proposed outlets to the Natural System are contradictory to TRCA policy. Staff strongly suggest that the Region ensure that the proposed sizing of the SWM System is large enough to accommodate growth within the Plan Area.	2021 / 01 / 19 2020 / 11 / 17	Noted predevelopment conditions are difficult to achieve because of multiple constraints in the area. Considered compromise between identifying improvements to current infiltration and stormwater management, while reducing costs of construction and property acquisition.
Toronto and Region Conservation Authority	Staff noted that there are many other LIDs that may be suitable for implementation within the project. Staff suggest that LIDs with increased plant cover and tree cover be explored. Requested referral to the Low Impact Development Road Retrofit Guide for additional LID options. Additionally, noted staff had the opportunity to review the Hydrogeology report and did not have concerns.	2021 / 01 / 19 2020 / 11 / 17	Reviewed stormwater ponds, permeable pavement, and superpipe storage options and excluded due to factors such as high implementation and maintenance costs, and feasibility restrictions.

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Toronto and Region Conservation Authority	Provided map in follow - up from first TAC meeting and meeting minutes distribution. There are two watercourses. One located east of Mayfield Road and the HWY 50 intersection where TRCA has the most up to date version of hydraulic model. For the watercourse located west of the intersection, TRCA noted no hydraulic models available. TRCA staff required that a hydraulic model be developed for the tributary located on the west side of HWY 50. TRCA staff confirmed that the area along the west side of Highway 50, north of Mayfield Road is not a watercourse as shown on google maps, but a ditch. Provided information to reference.	2021 / 01 / 20	RVA developed hydraulic model for tributary on west side of Highway 50 and referenced documentation.
Toronto and Region Conservation Authority (TRCA)	Confirmed watercourse location east of Mayfield Road and the HWY 50 intersection and noted TRCA has the most up to date version of hydraulic model. Confirmed watercourse located west of the intersection and noted TRCA does not have a hydraulic model. Requested required hydraulic model be developed for the tributary located on the west side of HWY 50. Confirmed area along the west side of Highway 50, north of Mayfield Road is not a watercourse as shown on google maps, but a ditch.	2020 / 01 / 20 2020 / 01 / 14	Minutes for meeting provided to TRCA on January 14, 2020. Developed requested hydraulic model and sent to TRCA February 24, 2020.
Toronto and Region Conservation Authority	Suggested refinement or addition of drainage areas to the existing hydraulic model that may impact study area. Requested estimated flows and supporting calculations / assumptions. Confirmed description for the arrangement of the 900 – millimetre and 600 – millimetre culverts that join to a large box under Highway 50 is correct. Noted no evidence of flooding on this intersection (Peel Region may know). Due to the complex “hydraulics” of the three culverts that join at the George Bolton Parkway / Highway 50 intersection, the hydraulic update concluded that using a rating curve at the crossing will better simulate the existing conditions. The flows that were used in the HEC RAS model were derived from the hydrology study update available at the time the HEC RAS was completed. Suggest opportunity to reassess and provide supporting calculations / modeling, hydrological parameters, and relevant documentation. Suggested further investigation of other opportunities to upgrade this crossing and reduce the existing flooding conditions as much as possible.	2021 / 02 / 03 2021 / 01 / 29 2020 / 01 / 14	Requested meeting from TRCA to confirm specifically, why creek flows to the west side of Highway 50 are so high so that road flooding is predicted from a 2 – year storm event onward. Region not aware of any reported flooding at the road intersection of Highway 50 / George Bolton Parkway. To be confirmed with Region Operations and advise RVA if any other flooding information becomes available.
Toronto and Region Conservation Authority	Noted TRCA support for any measure that alleviates or enhances the existing flooding condition throughout the study area based on available BMP (Best Management Practices). Requested rationale that supports findings to compare with TRCA database and provide details on the controlled flows from the mentioned new development. TRCA and RVA agreed that there are no concerns with the current approach to size flows to fit the current railway crossing. TRCA is less concerned or responsible for modeled flows that originate from private properties. TRCA will review if TRCA holds any	2021 / 02 / 04 2021 / 01 / 29	SWM Report was provided to RVA from the Town.

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	discharge related information on the stormwater management pond for the development site.		
Toronto and Region Conservation Authority	Reviewed the HEC RAS model and associated peak flows at the George Bolton Parkway / Hwy 50 intersection. Mentioned no receipt of the SWM report associated with the development site. Discussed Region's proposal regarding the monitoring of the Robinson creek internally.	2021 / 02 / 04 2021 / 01 / 29	Region suggested to place a level monitor and rain gauge at the upstream section of Rainbow Creek to monitor spring runoff flows to see if there is any correlation to the current HEC - RAS model predictions to help eliminate risks associated with the downsizing of HEC - RAS flows and avoid oversizing the road crossing culverts. This initiative to be led by TRCA, but Peel may be willing to fund the exercise.
Toronto and Region	TRCA commented no concerns about model drainage areas included due to similarity with the delineation except for some minor changes. Confirmed correct and consistent Flows that resulted from the Humber River hydrology update with those used in the hydraulic model. Asked to be advised on findings and suggestions for further revisions to the models.	2021 / 02 / 04 2021 / 01 / 29	RVA requested TRCA to comment on proposal.
Toronto and Region Conservation Authority	Due to staff and resource constraints, TRCA has a list of criteria to determine installations of stream gauges across its jurisdiction. The idea of installing a new stream gauge at the project site was discussed with the department and the team indicated the site does not satisfy most of the criteria.	2021 / 02 / 04 2021 / 01 / 29	TRCA and RVA used updated modelling to size culverts and make sure the infrastructure is adequate. Current culverts are sized based on outdated data values for the watershed. Flow has increased since culvert installation about twenty years ago. Infoworks and HECRAS watercourse models used. Detailed drainage models along roadside will be further simulated to understand tail water conditions from roadside recommendations.
Toronto and Region Conservation Authority	Public Notice. TRCA staff undertook jurisdiction - wide update to the TRCA's Section 28 Regulation mapping following consultation with member municipalities, the public and building industry in 2006. The mapping updates for 2020 reflect the most current information available and are endorsed for internal use, municipal staff screening and public viewing.	2021 / 03 / 15	Review as relevant to the project: The design favours the west side of the corridor to reduce impermeable surfaces adjacent to the watercourse and ties in with previously planned Active Transportation facilities south of the project limits. TRCA easements for the watercourse and regulated areas parallel the southern sections of the corridor and cross at the George Bolton Parkway intersection. Approval will be required from the TRCA pursuant to provisions of Ontario Regulation 166 / 06 and a permitting process initiated before commencing any development activities. The impacts to natural features within the study area, constraints, hazardous lands, and sensitive areas are detailed through the EA process to mitigate impacts to the watercourse and surrounding lands. Active transportation facilities complement the drainage

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			improvements to reduce risks of flooding, risks to public safety and hazards to property in support of climate change initiatives.
Toronto and Region Conservation Authority	TRCA explained hydrologic model derivation, what catchments were used to calculate flows, and what differences were made in comparison. Model was calibrated based on observed data from stream gauges. The observed flows for 6 hour and 12 – hour duration storms were in line with expected flows from design rainfall. The VO (Visual Otthymo) model uses a 12 hour and 6 – hour AES storm to generate flows, while the HEC - RAS model uses a 6 – hour AES storm to generate flows. TRCA acknowledged that using the 12 hours AES storm for the HEC - RAS model would be acceptable to reduce peak flows but to keep the Regional storm flows as per existing model and compare the floodplain extent with the proposed design scenario. The aim is to reduce the flood extent upstream of the George Bolton culvert crossing or at least keep the same. Regulatory storm is important for Floodplain management for TRCA. TRCA to send new HEC - RAS model with revised 12 – hour duration storm flows and copy of catchment map or full hydrology report.	2021 / 04 / 26	RVA discussed concerns over the high peak flows in relation to the small watershed size that are predicted in TRCA's HEC - RAS model for Robinson Creek and the resultant major culvert upgrades required at George Bolton Parkway, and approx. $1M in additional cost. RVA noted the significant discrepancy between the TRCA's HEC - RAS and Otthymo model flows provided for the recent Caledon Roads projects. RVA to re - run the hydraulic model with the revised flows and re - design George Bolton culvert crossing. Peel is currently conducting flow monitoring at the downstream end of the George Bolton culvert crossing - planned for 3 – month duration. Flow monitoring was initiated on April 20, 2021. RVA / Peel flow monitoring data to be used to support argumentation for reducing peak flows.
Toronto and Region Conservation Authority	TRCA staff provided comment on the draft study documentation including comments regarding Stormwater Management, Planning Ecology, Erosion and Sediment Control and General comments.	2022 / 03 / 01 2022 / 01 / 06	Project team provided responses to TRCA comments as outlined in **Appendix 1**. RVA to address any additional comments received from TRCA, prior to the completion of the Project File Report.
Toronto and Region Conservation Authority	TRCA staff had the opportunity to review the PIC 2 boards and have no comments to offer. Look forward to receipt of updated technical studies when they are available.	2022 / 04 / 22 2022 / 03 / 10	Comments noted. Updated studies were provided
Toronto and Region Conservation Authority (TRCA) Item 1	Noted staff was aware of the current constraints to achieve the required SWM control for the proposed road improvement and, considered that water quantity control (as the imperviousness remains the same) may not be necessary. Noted water quality, erosion and water balance control should be provided regardless of the current condition of the subject road. Advised of TRCA requirement for the provision of an enhanced level of protection (80 % TSS removal), and a minimum of 5.0mm onsite retention for erosion and water balance control. Requested supporting calculations and locations to demonstrate the proposed measures would be feasible and able to achieve the required	2022 / 07 / 29 2022 / 03 / 01	An 80 % TSS removal was not possible for most of the project length due to high ground water, utility constraints and limited corridor width. A best - efforts approach is proposed to achieve at least 60 % TSS removal by use of OGS units and CB Shields. The result was a large improvement over existing conditions to compensate for the additional impervious area proposed from the MUP. A 5 – millimetre retention was proposed for the bioswales but was generally not achievable north of Bolton Parkway.

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	level of control. Noted that the TRCA would credit 50 % efficiency on oil and grit separators, however, the unit should be sized to target 80 % removal.		
Toronto and Region Conservation Authority (TRCA) Item 1	As mentioned in the consultant comment response, at least 75 % of Total Suspended Soil (TSS) removal would be achieved by using Oil and Grit Separator (OGS) and Catch Basin (CB) shields. Noted evidence of compliance with targets was insufficient. Noted no calculations to support . Agreed consistent with TRCA Criteria, OGS units are recommended as pre - treatment devices or may be used as a part of a multi - component system (treatment train) to achieve Enhanced quality control. Requested to please provide preliminary calculations, the unit number and the location where the proposed infiltration chambers, OGS and CB shields will be placed. Noted staff noticed that in some instances a different consultant is retained to complete the detailed design of the project. Therefore requested, a clear indication and scope of work should be established at this stage rather than at later stages.	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Updated maps in both PFR and SWM report. A 75 % TSS removal was achieved by the combination of 50 % TSS removal from pre - treatment by the CB shields, and 50 % assumed TSS removal by the OGS units. (0.5 x 0.5 = 0.25 TSS Remaining). Specific OGS models and sizing will be completed as part of the detailed design. Included commitment to review and confirm compliance with targets at initiation of detailed design and reflected importance of continuity between design stages.
Toronto and Region Conservation Authority TRCA Item 2	Staff supported the proposed drainage strategy and are confident that the proposed culverts, especially the one located at George Bolton Parkway and Highway #50 (culvert 1), will perform better than it currently does. Advised that the InfoWorks model was not robust enough to properly capture the hydraulic complexity of the existing culvert system. Confirmed, in principle, staff had no concerns with the proposed (Culvert 1). Advised that further assessment (valid hydraulic model / approach) was required should the Region be interested in evaluating the flooding condition at the intersection and adjacent properties once the upgrades are completed. TRCA noted 2022 / 08 / 31 "Comment addressed, no further comments." Resolved at this stage of the project. To be discussed at initiation of detailed design stage	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Noted by Region of Peel and RVA This can be completed as part of the detailed design if desired by TRCA and Region. There will be a reduction in flood depth or extent of the floodplain as indicated in the SWM report by RVA.
Toronto and Region Conservation Authority TRCA Item 3	Staff appreciated the proponent's effort of installing a flow monitor and rain gauge at the Highway 50 and George Bolton Parkway intersection. Informed RVA that although the values obtained by the monitoring system provide us with valuable details on recent storm events, TRCA staff believed insufficient data was available from the time since the equipment was installed. Not sufficient data to properly create a regression analysis or predict the current site's' flooding condition. TRCA noted 2022 / 08 / 31 "Comment addressed, no further comments." Resolved at this stage of the project. To be discussed at initiation of detailed design stage	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Noted by Region of Peel and RVA
Toronto and Region	Noted the appearance of the Fluvial Geomorphology and Hydraulic draft by Matrix provided an update of the existing HEC RAS model but did not simulate the proposed	2022 / 03 / 01 2022 / 07 / 29	Responded that the purpose of the fluvial geomorphic and hydraulic assessment was to provide a baseline understanding and inventory

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Conservation Authority TRCA Item 4	conditions (upgrade of culverts 1 to 8). Requested clarification or to provide a digital copy of the HEC RAS model including updated / existing and proposed conditions in separate files.		of the existing channel condition and culvert facilities within the study area, in the context of the planned active transportation alternatives and improvements. Given the limited interaction between the proposed active transportation facilities and the existing channel / culvert features the hydraulic assessment of any proposed culvert modifications can be undertaken during the detailed design phase of the project.
Toronto and Region Conservation Authority TRCA Item 4	Requested to provide further details about the culverts that will require improvements as well as the hydraulic calculations that support them. Preliminary design / calculations acceptable at this stage. Advised to refer to the TRCA Crossing Guideline for Valley and Stream Corridors (2015) and Technical Guidelines for Flood Hazard Mapping (2017) for further details and guidance.	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Provided updated maps in both PFR and SWM report. Calculations to be provided at the time of detailed design.
Toronto and Region Conservation Authority TRCA Item 5	Staff deferred the review of the proposed upgrade / adjustment to the existing municipal storm sewer network and the validity of the InfoWorks model results. TRCA noted 2022 / 08 / 31 "Comment addressed, no further comments." Resolved at this stage of the project. To be discussed at initiation of detailed design stage	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Noted by Region of Peel and RVA
Toronto and Region Conservation Authority Item 6	Noted that from the plans and Draft Natural Heritage Assessment it appears as if there are a few impacts to wetland communities that have not been mitigated. Requested to please provide the quantity of wetland habitat that will be permanently removed from these proposed works and provide adequate compensation. Requested to please refer to TRCA's Compensation Protocol for additional information. 2022 / 08 / 31 – TRCA staff look forward to discussing wetland compensation with the Region. Comment addressed, no further comments.	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Noted the proposed improvements will result in an impact / loss of approximately 149 m^2 of MAS community (Shallow Marsh) and 141 m^2 of MAS2 – 1 (Cattail Mineral Shallow Marsh Type) for a total loss of approximately 290 m^2 of wetland community. Included TRCA's Compensation Protocol in detailed design commitments. Commitment included to offset for the loss of natural wetland and woodland habitat within TRCA jurisdiction with an offsetting ratio of 1:1 (replacement: loss) for wetlands. Observed that as a municipal infrastructure project, further discussion between the TRCA and the Region required to discuss the details of this undertaking in detailed design consultations. Resolved at this stage of the project. To be discussed at initiation or as soon as possible at the detailed design stage.
Toronto and Region Conservation Authority	Requested to please clearly identify the watercourse and wetlands on all drawings. Requested to please include the locations and extents of all watercourses and wetlands on the site plans / engineering plans for TRCA staff to evaluate the proposed works and ESCs in relation to the natural features.	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Ensured watercourse and wetlands were identified on **Figures 3A – 3C** of **Appendix 3**. Provided and reports updated. Updated maps in both PFR and SWM report. Calculations to be provided at the time of detailed design. Commitment added

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TRCA Item 7			
Toronto and Region Conservation Authority TRCA Item 8	Requested to please minimize impacts to the natural heritage features to the extent possible. TRCA Noted 2022 / 08 / 31 "Comment addressed, no further comments."	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Agreed. Minimized impacts to the natural environment were evaluated as a key criterion in the development of the study recommendations. Included in the Project File Report and **Appendix 3** detailed mitigation measures to minimize impacts to the natural heritage features to the extent possible were included.
Toronto and Region Conservation Authority TRCA Item 9	An Erosion and Sediment Control (ESC) report and plan will be required at the detailed design stage. The ESC plan shall be in alignment with the TRCA ESC Guide for Urban Construction (December 2019). TRCA noted 2022 / 08 / 31 "Comment addressed, no further comments."	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Agreed. Project File Report includes commitment to prepare a Sediment and Erosion Control Plan in alignment with the TRCA ESC Guide for Urban Construction (December 2019). Noted.by Region of Peel and RVA
Toronto and Region Conservation Authority TRCA Item 10	Requested to please ensure TRCA's Standard Notes are on all site plans at the detailed design stage. TRCA noted 2022 / 08 / 31 "Comment addressed, no further comments."	2022 / 08 / 31 2022 / 07 / 29 2022 / 03 / 01	Included commitment on Project File Report to include TRCA's Standard Notes on all site plans at the detailed design stage. Noted by Region of Peel and RVA
Region of Peel Engineering Technical Services	Advised consultants (RVA) of proposed work and asked to provide any comments with the EA plans. Incorporate into the base plans as required and follow up with utilities for their input.	2020 / 06 / 24 2020 / 06 / 04	Noted. Information was incorporated into the base plans. Base plans were provided to utilities for markup as part of the utility conflict assessment. An analysis of all known utilities within the corridor was completed and any conflicts with the proposed construction identified.
Region of Peel Engineering Technical Services	Forwarded information. PUCC from Vianet VNET – 20 – 1741R1 – HWY 50 (North of Hopcroft Road To Simona). The CAD Team have reviewed and approved the clearances from the existing infrastructure but have asked for further review to ensure no conflicts for the following: 1. 18 – 4860 – Hwy 50 – EA assessment 2. 14 – 1320 – 3. Storm and Roads to review 4. Review for all Hydrant lead crossing.	2020 / 06 / 24	Coordinated utility meetings and provided information including drawings to utility companies and other agencies to obtain approvals for relocation and protection plans. Property or easement requirements to accommodate the utility relocations was explored.
Region of Peel Source Water -	Informed of requirement to include statement on inclusion or exclusion of study location from source water protection vulnerable areas (SWPVA). For locations within SWPVA there must be documentation of whether any project activities are a threat to prescribed	2020 / 06 / 30	Noted. The study area is not within any of the source protection vulnerable areas delineated under the Clean Water Act.

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Water Resources, Public Works	drinking water and any potential to adversely affect the quality or quantity of drinking water sources as required by the Municipal Class EA process. Requested a section called “Source Water Protection” be included as part of project file report (PFR) or environmental study report (ESR).		Policies contained within the CTC Source Protection Plan do not apply to the project. No section provided in the PFR for source water protection. Please refer to description included in required Section **6.8.1.**
Region of Peel – Infrastructure Programming and Studies - Stormwater	Requested CLI ECA checklist be completed to track compliance. Requested to note all the records required in this step must be retailed for 10 years.	2020 / 06 / 30	Noted and Detailed Design commitment added. CLI ECA checklist included in Appendix 1 -3. Criteria to comply identified: performed consultation with Indigenous stakeholders. Confirmed alterations are outside Source Water Protection area boundaries, requested to review at detailed design stage to ensure compliance with criteria from CLI ECA and Region of Peel, Identified fee simple properties and temporary easement locations where permissions required, written consent requirement to be verified at detailed design stage. Additional confirmation required as the project proceeds.
Region of Peel Capital Acquisition Agent, Real Estate	Provided by the TRCA was an application received in regard to 12148 Albion Vaughan Road regarding channel realignment for altered watercourse on private property. File: "17849_Memo TRCA Application.pdf." and PTE Map received. File:"Received PTE Map.pdf"	2020 / 08 / 04	Forwarded info to design team. Advised strategy / message from the Region’s standpoint to note in the process of developing a preliminary recommendation.
Region of Peel Design and Construction, Transportation	Advised cross - ride locations to coordinate with traffic engineering department. Reviewed left and right turn movements from the side streets at any potential crossing location. Intersections with high turning movements in a specific direction may require opposite side location or another intersection for crossing. Noted the EB left seems quite heavy based on the wheel tracks visible in the aerial view, south side crossing might work best, with advisement from Traffic group. Noted from Traffic perspective, unsupportive of multiple driveways onto single property. Instead, when site comes for development application, typically request the owners to share driveways to consolidate access point onto Highway 50. Noted this section of Highway 50 has a lot of grandfathered multiple driveways, which will be regulated when the site comes for development. The missing MUP link over CPR tracks will be completed when the existing east structure is replaced (timing uncertain). Requested the design consider two scenarios, cross - ride at Healey and termination point at Healey.	2020 / 11 / 03 2020 / 11 / 02 2020 / 10 / 30	Noted. Considered comment for the design. Indicated the Healey Road intersection was selected as the preferred crossing location following the completion of a cross ride traffic analysis that considered turning movement counts for the intersections along the Highway 50 from Mayfield Road to Healey Road, and projected volumes for future horizon year.
Region of Peel	Noted requirement to look at left and right turn movements from the side street at any potential crossing location. If an intersection has a high amount of turning movements in	2020 / 11 / 02 2020 / 10 / 30	Passed recommendation along to team and agreed to review with the team. From a high - level review at the time of discussion, the

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Roads Design and Construction	a specific direction, we may have to look at crossing the opposing leg, or possibly pick another intersection for crossing. Traffic should be able to help in identifying a suitable crossing location along this stretch. Region of Peel noted the east bound lane seemed quite heavy based on the wheel tracks visible in the aerial view photography. Indicated a south side crossing might work best, provided with advisement from Traffic group and their agreement.		Healey Road intersection appeared to be suited for the crossing as the east side of the intersection was a commercial / industrial property. The rest of the intersections in the project corridor are 4 – way intersections, most likely with higher turning movement (except for Parr (too far south of the rail corridor). Suggested in consideration of safety that a crossride configured at Healey appears to have potential. RVA requested the Region of Peel to provide traffic data for this intersection.to confirm effectiveness of configuration.
Region of Peel Transportation, Public Works	Noted few ideal spots for infiltration - based LID. Explained either the subsurface soils are clayey material with infiltration rates of less than 15 mm / h, or the groundwater (GW) table is too close to the ground surface. Concluded in the report and in 6.3. Overall. Not ideal to put infiltration LIDs (Low Impact Development) at this site.	2020 / 11 / 05 2020 / 11 / 03	Noted. Recommended no infiltration other than bioswales. The proposed bioswales can utilize an underdrain if needed based on the low infiltration local site conditions.
Region of Peel Transportation, Public Works	Tested water quality samples from the lab for the area indicated that groundwater water quality samples fail to meet Peel's criteria - the TSS and Manganese concentrations being exceptionally high. As a result, filtration - based LID practices must be implemented. Suggested to evaluate as second site tier Site and "control of the 90th - percentile rain event", i.e., filtration of the 90th - percentile rain event and smaller.	2020 / 11 / 05 2020 / 11 / 03	Filtration type units are not recommended based on past RVA experience. These units are typically not approved for installation by the Peel Region or other municipalities due to high O&M costs. Based on experience, the units also will not be practical for this project due to the high flows expected at end of pipe.
Transportation, Public Works	Since the GW table is high at some locations, advised to check that there are no existing inflow and infiltration (I & I) issues at this site.	2020 / 11 / 05 2020 / 11 / 03	Noted I&I are typically not a consideration for storm sewers. Waterproof joints for the storm sewers can be investigated as part of the detailed design.
Region of Peel Roads Design and Construction	Inquired if pervious pavements were considered for the MUP and / or sidewalks and if not, why not? Inquired about the purpose of the 'Proposed LID Strategy'?	2020 / 11 / 17	Noted permeable pavement options were excluded due to factors such as high implementation and maintenance costs, and feasibility restrictions. Clarified purpose and revised document.
Region of Peel Roads Design and Construction	Inquired if any streetscaping such as street trees were going to be included in the project? If so, would they include soaker pits or other LID features to 'reuse' rainwater? Also, if so, was the Consultant reviewing the design to ensure / include rest areas per the Region of Peel Rest Area Policy? Noted the missing MUP link over CPR tracks will be completed when the existing east structure is replaced (timing uncertain). Therefore, the design should consider 2 scenarios, crossride at Healy and termination point at Healy.	2020 / 11 / 17	Included the preliminary locations for rest areas in accordance with the Rest Area Policy. Noted streetscaping and trees will be included as part of the design to improve the walkability of the corridor and can be firmed during detailed design. Noted the incorporation of rest areas into the design where feasible and space was available.

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			As a follow - up item from the TAC meeting, RVA completed a crossride traffic analysis and was interested in feedback on the attached draft Memo.
Region of Peel Infrastructure Programming & Studies, Transportation Division	Notified of TPAP from the City of Brampton regarding the proposed Transit bus maintenance storage facility on Highway 50.	2020 / 11 / 19	The proposed facility is approx. 4km south of the Highway 50 study limits. No anticipated impacts to drainage and stormwater management from the proposed facility.
Region of Peel - Infrastructure Programming and Studies - Stormwater	Reviewed FSR SWM Report. Commented the proposed site drainage was directed towards the watercourse located on the west end of the property. Noted quantity (Stormtech chambers) and quality control measures (OGS) being proposed on the west side of the property. Overcontrolling to the 5year pre - development levels was proposed. Overflow will be directed towards the ditch on Highway 50. Noted no quantity of overflow was given and requested clarification.	2020 / 12 / 09 2020 / 12 / 01	The proposed design includes the ditch removal to be replaced with sewer connection. Surface flows can be directed to the ditch inlet connected to the proposed sewer and as a result the overflow quantity is then conveyed into the storm sewers outlined in Section 7.
Region of Peel - Infrastructure Programming and Studies - Stormwater	Inquired if for the section of the ditch on the east side of the road, from where Rainbow Creek starts to flow through the ditch to where it discharges back into its own bounds, can this section be made into an enhanced swale with check dams for velocity control and water quality improvements as external drainage and the Creek will be conveyed together through this section? Of the culverts that need relining or replacement fall within this section. Can you discuss this option with the designers."	2020 / 12 / 09 2020 / 12 / 07	Discussed. Base flow in Rainbow Creek Tributary is maintained. The intermittent watercourses and ditches that confluence the Creek work as swales as during dry periods vegetation is provided an opportunity to become established. The main channel and other watercourses with relatively constant flow cannot be converted to enhanced swales due to the velocity and volume of water conveyed. Due to the expected flows from the creek, sediment would become re - suspended under storm conditions. Our Hec - Ras model indicated that flows vary between 4.5 m^3 / s and 17 m^3 / s for the 2 – year storm and up to the 100 – year storm respectively. Therefore, the cross - sectional area of the ditches become fully utilized and the introduction of check dams would lead to flooding. If armouring is used to prevent erosion of the channel, there is potential of water quality degradation due to increased temperatures resulting from hardened surfaces absorbing more sunlight and heating the shallower waters when depth decreases. A channelized ditch extends negative impacts to aquatic habitat and species downstream in the receiving watercourses.

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Region of Peel Transportation, Public Works	Informed RVA of Site Plan Application (Caledon) where the applicant proposed to demolish an existing sales establishment and construct a new larger one with upgraded parking, grading, and landscaping.	2020 / 12 / 01 2020 / 11 / 25	Reviewed. To be further reviewed at the time of detailed design stage. No action required at this time.
Region of Peel Transportation, Public Works	Real estate agent informed about active capital project (#18 – 4860) for drainage improvements as well as a MUP along highway 50 from Mayfield Road to Healey Road. The development application / property is within the limits of this capital project. Requested submission review and confirmation of the proposal impacts on interference with design.	2020 / 12 / 01 2020 / 11 / 25	To be reviewed at detailed design stage. No action required at this time.
Region of Peel Transportation, Public Works	Inquired about the section of the ditch on the east side of the road, from where Rainbow Creek starts to flow through the ditch to where it discharges back into its own bounds, can this section be made into an enhanced swale with check dams for velocity control and water quality improvements as external drainage and the Creek will be conveyed together through this section. Four of the culverts that need relining or replacement fall within this section.	2020 / 12 / 09 2020 / 12 / 03 2020 / 11 / 30	Noted constant water flowing in Rainbow Creek, and use of the ditch section as an enhanced swale would be ineffective as no grass vegetation exists along the swale base. Short periods in the summer with very low flow occurs, however due to the expected flows from the creek, any deposited sediment will be re - suspended under storm conditions. HEC - RAS model indicated the cross - sectional area of the ditches will be fully utilized and the introduction of check dams would lead to flooding. After further review to address overflow, ditch removal proposed, and replacement with a sewer connection was recommended. Surface flows directed to ditch inlet will connect to the proposed sewer.
Region of Peel	Advised to incorporate product for stormwater use for roadside trees. Appreciate thoughts on the possibility of considering something similar along Hwy 50 MUP. Noted internally from another Region of Peel staff member, advised solution may be contextually appropriate as roads runoff has high concentrations of salt and salt spray.	2021 / 03 / 05	To be reviewed at detailed design stage. No action required at this time.
Region of Peel	Requested inclusion of information for the impacted property owners. Noted consideration of property impacts during construction	2021 / 01 / 03	Region of Peel satisfied with commitment for construction. No action required.
Region of Peel	Inquired if Region of Peel Health were satisfied with no AT on the east side. Noted merit of impacts to the creek and TRCA to advise. Suggested facilitation of discussion at upcoming TAC meeting for all agencies to have shared conversation.		Consultation meetings scheduled where TAC and agencies members where comments provided, and discussions were incorporated for design considerations.

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Region of Peel	Incorporate streetscaping with our stormwater and rest areas along Highway 50 and elsewhere. Since this section of Hwy 50 will need rest areas (as per our approved Rest Areas Policy) consider those as additional opportunities for SW storage. Spacing for the rest areas is based on the RCS categorization of this section of roadway.	2021 / 01 / 05	Advised trees planted close to the roadway do not typically fare well and could be in the clear zone.
Region of Peel Public Health	Aligned with the consultant's proposed locations given anticipated safety benefits. Expressed broad support for the ongoing efforts reflected in this EA to provide connections for active transportation infrastructure, such as the MUP in question, and to ensure thoughtful implementation of the Regional Sustainable Transportation Strategy. Peel Public Health was supportive of the increased rest area frequency proposed in this EA. The roughly 600 metre distance between rest areas bring the spacing close to the spacing recommended for an Urban Main Street Road character (~500 metre spacing), which Highway 50 becomes just further north. Noted that this improves the continuity of the pedestrian experience and improves accessibility for pedestrians of all ages and abilities in this section of Highway 50.	2021 / 01 / 29 2021 / 01 / 07	Acknowledged and noted that at this stage the location of the rest area as shown in the preliminary design is approximate, based on Region of Peel policy requirements, adjacent cross ride configurations and sightline requirements. Actual locations of the rest areas to be confirmed during the detailed design phase of the project.
Region of Peel Public Health	Advised regarding the location of the Rest Area at Parr: Move rest Area farther south (by roughly 3 – 4 metres) on Hwy 50 to increase distance from Parr Blvd and bring into proximity of trees that can provide shade and protection from the elements. This would bring the rest area location into better alignment with consideration for the design of rest areas in section 2.4 of the ROP Rest Area Guidelines for Exterior Paths of Travel. It appears achievable from the visual provided.	2021 / 01 / 29 2021 / 01 / 07	Included a note in the Project File referencing Regional Health's recommendation for the rest area to be placed as close as possible to the trees.
Region of Peel Office of Climate Change and Energy Management	Advised to consider swapping the bioswale and the bioswale planter box proposed on the plan with a Stormwater Tree Trench type of LID practice (subject to things like the Region's street tree criteria, sightlines, etc.). Noted the City of Vancouver… was having quite a bit of success with these practices as they cut down on specialized O&M associated with a landscaped bioretention practices, while also helping to deliver on the City's urban forestry targets.	2021 / 01 / 07	Not recommended due to potential clear zone issues, and salt tolerance problems. Noted the bioswales will be easier for the landscape architects to select more salt tolerant vegetation than if trees are proposed, and O&M costs will be higher as trees would require regular replacement due to damage caused from the winter salting.
Region of Peel Design & Construction, Transportation	Requested confirmation of rationale for channelization of right - turn movement at Highway 50 / Mayfield intersection.	2021 / 01 / 29	Noted. Comments pertaining to right turn channelization are beyond the scope of the EA study. The Highway 50 and Mayfield Road intersection design came from a separate Region of Peel EA project.
Region of Peel Design &	Suggested extending limit to provide MUP connectivity to the Peel commuter lot and address sidewalk gaps on the east side, as identified in the Sustainable Transportation Strategy (STS).	2021 / 01 / 29	Noted. Study recommendations include new sidewalk along the east side from 12599 Highway 50 to George Bolton Parkway intersection. Installation of additional sidewalk on the east side will negatively

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Construction, Transportation			impact the east side ditch and stormwater management. Comments pertaining to extension of the MUP limit are beyond the scope of the EA study.
Region of Peel Design & Construction, Transportation	Suggested application of appropriate turning templates throughout to identify opportunities to reduce corner curb radii at intersections and accesses. Suggested using this EA as an opportunity to improve all legs of all intersections (ex. crosswalks, corner curb radii, tactile plates, etc.). Some sidewalk gaps on east side remain.	2021 / 01 / 29	Noted. The design radius for curb return is determined by turning template at the intersections. In addition, the Region of Peel specifies a minimum of 15 metre radius to be used for access design. If the existing curb radii follows the Region of Peel standard, then no recommendations for change. The area is designed for industrial and commercial zones, which means there will be a higher amount of heavy truck traffic making turns in the area. Comments reduction corner curb radii are beyond the scope of the EA study.
Region of Peel Sustainable Transportation & Strategic Initiatives	Inquired about accessibility issues (no ramps and winter maintenance) along Highway 50 through Bolton. Inquired about feasibility of a signalized crossing at Simona Drive to help residents access the west side sidewalk from the east (long 600 metre gap exists between existing crossings).	2021 / 03 / 30 2021 / 03 / 19 2020 / 03 / 11 2021 / 02 / 26	Reviewed. Noted the Bolton Inn south entrance would require changes (right in, right out) as the centre island for the signal poles would block the entrance and the south entrance was too close to the intersection. Advised that from an operational and safety standpoint feasibility of a signalized crossing was not desirable.
Region of Peel Sustainable Transportation & Strategic Initiatives	Inquired about the west side of Highway 50 between Mayfield Road to approximately Hopcroft Road, noted there are sidewalks on the east side currently, but there are some gaps that effect continuity and accessibility in west side area.	2021 / 03 / 30 2021 / 03 / 19 2020 / 03 / 11 2021 / 02 / 26	The active transportation study recommendations developed for the corridor included new sidewalk along the east side of Highway 50 from 12599 Highway 50 to George Bolton Parkway, in addition to a continuous MUP along the west side from Mayfield Road to Healey Road. The project team investigated the potential to extend the sidewalk along the east side further to the south and connect to a crossing at Parr Boulevard, however, this would result in the enclosure of the adjacent watercourse, which was not supported by TRCA.
Region of Peel Sustainable Transportation & Strategic Initiatives	Asked for the construction timing and if new pedestrians crossings or signalization was being considered as part of the project.	2021 / 03 / 30 2021 / 03 / 19 2020 / 03 / 11 2021 / 02 / 26	Responded and indicated the addition of a signalized crossing at the intersection of Simona and Highway 50 would have significant impacts to the adjacent owner and the entrances to the Bolton Inn. The north entrance to Top Lift Enterprises would need to be relocated so that it lines up with the intersection, which would require the reconfiguration of the front parking lot and potential inability to accommodate large trucks. The south entrance of the same property would have to either become a right in right out as the centre island for the signal poles would partially block the

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			entrance, or complete removal if the property has a signalized access.
Region of Peel Capital Acquisition Agent, Real Estate	Informed RVA of development application OZ – 21 – 003C and current Project #18 – 4860 Improvements EA - Mayfield Road to Healey Road, Town of Caledon.	2021 / 06 / 14 2021 / 06 / 08	Based on the Pre - development drainage plan RVA noted, currently an area of 1.28 ha with a runoff coefficient of 0.5 (TIMP = 43 %) which corresponds to allowable release rates of 237.8 L / s and 348.3 L / s under 10 – year and 100 – year, respectively drain into the east side ditch of Highway 50. The proponent designed a stormwater management tank and uncontrolled areas, UC1 and UC2 which is set out to release a total of 154.2 L / s and 224.5 L / s under 10 – year and 100 – year, respectively, which are well below the allowable release rates. In the post - development scenario since the release rates are below the pre - development release rates – we do not expect any adverse impacts on the ditch capacity and the creek.
Region of Peel Capital Acquisition Agent, Real Estate	Informed of agreeability and desire to improve road drainage / active transportation solutions within the stretch of Highway 50. Interested to synchronize application with Class EA project recommendations. Requested access of drainage / stormwater management report and a summary of recommendations for stormwater management particularly with respect to the sidewalk located in front of the property.	2021 / 06 / 14 2021 / 06 / 08	Noted no modelling was completed for the ditch capacity on the east side of Highway 50 or external drainage areas considered (that includes the proponent's site) since the MUP and drainage improvements are recommended on the west side of Highway 50 north of George Bolton Parkway intersection. Advised the model assumes the ditch area was conveyed to an 825 – millimetre HDPE (High Density Polyethylene) storm sewer towards George Bolton intersection to check capacity and estimate representative flows from the entire ROW. Since the proposed flows were reduced compared to the existing, negative impacts regarding the roadside ditch capacity are not anticipated. Since there was no detailed analysis of impacts requested, more information will be necessary to model the east side of the road and adjacent properties including the development proposal. Suggested based on available data there may not be further any requirements. Noted the developer was planning to discharge via a second discharge location at an industrial road catchment. Advised there appears to be no storm sewer in the road and any additional flows conveyed to the existing shallow ditch will very likely exceed the capacity available. Industrial road currently drains towards Highway 50, where ditches merge at the intersection confluence.

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			Recommended of the necessity for a ditch capacity check to review if downstream modifications are required and if proposed discharge flows can be conveyed safely to Highway 50.
Region of Peel Public Works	Outlined requested assistance from Road Operations (Ops.) to understand culvert cleaning to capture CCTV footage of culvert. Noted had viewed TRCA permit requirements and consulted Road Operations to assist with permitting for culvert clean - out. The Highway 50 culvert CCTV (Closed Circuit Television) inspection requires the culvert be maintained and cleaned, as it was 50 % surcharged. Dewatering and / or sediment removals are regulated and require approvals. Additionally Permits To Enter (PTEs) to access and facilitate equipment setup on private property (driveway). Noted the SWM pond are access driveway are within the same PIN. TRCA approval required: Noted plans to support permitting application, i.e., P&P, ESC (coffer dam, pumping), TRCA standard notes. Road Operations had technicians prepare CAD plan drawings. Noted no as - built drawings for this culvert and therefore need to have survey group capture some key info (, i.e., inverts, obverts, pond / channel depths and cross - section, property limits, etc.). CAD group then can prepare the plans using this base info. Sediment and debris removals for culvert maintenance may have a streamlined process, or a regular permit. MNRF / MOE approval required: Unsure of requirement to do a species at risk assessment given that dewatering is required. Road Ops may not go to this extent and uncertain if the TRCA will advise either. Based on the DFO's online mapping, it does not appear the watercourse is of interest.	2021 / 11 / 29 2021 / 11 / 16	CCTV inspection of culvert under George Bolton Parkway was decided to be undertaken by the Region during the detailed design phase, following the EA study. Culvert cleaning required to complete the inspection may require coordination with TRCA, MNRF, MECP and DFO (Department of Fisheries and Oceans), per the comments received. Information on the environmental legislation, regulations, permitting, applications, and approvals available from the Ontario central forms repository ontario.ca Permit to Take Water (PPTW), Environmental Compliance Approval (ECA), etc. may be required.
Region of Peel, Sustainable Transportation and Strategic Initiatives	Noted the intersection at George Bolton Parkway will need further changes to ensure safe and coherent crossing movement for cyclists and other road users, especially east - west movements. Some of this can occur during detailed design stages of the project, but more refinement at the EA stage would be welcomed, if feasible. The plans look very good for most of the corridor.	2022 / 02 / 01	Incorporated further refinements to the accommodation of east - west pedestrian movements on George Bolton Parkway (i.e., transition of west side bike lanes through the intersection to connect to the proposed MUP) and the required cost sharing are to be confirmed between the Region and Town during the detailed design phase of the project.
Region of Peel Traffic Signals and Streetlighting Traffic Engineering	Requested to remove spaces between hyphenated words such as right - of - way. Noted since the sidewalk and the multi - use paths are behind the roadway lighting, there may be a requirement to have backlighting installed to ensure the MUP and sidewalk areas are properly lit.	2022 / 08 / 09	Additional spaces were included to aid readers and improve readability as per AODA. Ensured hyphenated words translated correctly when read by screen readers. Noted. Review of street lighting and backlighting requirement for trails and MUP added to detailed design commitments. Lighting discussion included in **Section 7.3.**

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Region of Peel Infrastructure Programming and Studies - Stormwater Transportation, Public Works	Inquired if the external area has water quality measures as per MECP stormwater manual? If not, has an assessment been completed to assess whether the downstream "pond" has the capacity to treat, as per the MECP SWM manual, all the flow from this external area? If so, please include this in the report.	2022 / 08 / 10	Noted RVA has no detailed information about the existing pond as it was outside the scope of this study and no assessment was completed to determine the treatment capacity of the pond. Noted that no changes were proposed to the drainage patterns as the stated external area currently drains towards the online pond. Added to detailed design commitment.
Region of Peel Infrastructure Programming and Studies - Stormwater Transportation, Public Works	Requested to specify if the model considered the control from the LID measures and state what volume control the LIDs are conceptually able to achieve based on site conditions and LID footprint. Inquired and asked to specify if the LID measures are in a treatment train or treating separate areas? Suggested if treating separate areas, requested to estimate the volume control conceptually achievable for each area.	2022 / 08 / 10	Bioswales were considered and included in the modelling, but the impact of the proposed LID measures on storm flows is limited since the bioswales are designed for quality control rather than quantity control. Volume control was not a consideration of the design as the proposed works was not anticipated to have an impact on peak flows relative to the overall watershed.
Region of Peel Roads - Design & Construction Transportation Division	Requested to ensure a section with all recommendations resulting from the study (sewers / culverts replacement / upgrades), AT, road / intersection improvements, expected resurfacing / pavement repair, etc. Requested to ensure a list of stakeholder contacts.	2022 / 08 / 19	Included in Section 5 Preferred Solutions **Section 7.2** and **Section 7.3** for recommendations. Stakeholder contact list to be provided privately to Region of Peel to protect the privacy of the individuals who participated in the study.
Region of Peel Roads - Design & Construction Transportation Division	Inquired about other projects with the Town of Caledon specially at intersections with Town roads including but not limited to George Bolton.	2022 / 08 / 19	Coordination with other projects to be included: RVA is in the design phase of Highway 50 and Mayfield Road intersection improvements project: (Project Manager for project P.S.Y. Cho). Within the next five years a new road connecting Albion Vaughan anticipated. Road to George Bolton Parkway will be constructed. The project is currently in the 30 – 60 % design phase; Town of Caledon to provide drawings of the design. No planned water or wastewater projects, but discussions of new sanitary sewer on west side of Highway 50 from George Bolton Parkway to McEwan Drive; no timeline for this project. Replacement of bridge / overpass over the train tracks, north of the study limits on Highway 50. George Bolton Parkway extension project.
Region of Peel Capital Acquisition Agent | Real Estate	Noted any culverts on private property should be protected with either a permanent easement or Region owned fee simple lands.	2022 / 08 / 15	RVA advised all culverts except one, at property 12476, all other proposed entrance culverts are at the same location and have the same length as existing. Confirmed with one exception.

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Region of Peel Capital Acquisition Agent | Real Estate	Inquired if all utility infrastructure was planned to be relocated within the ROW or lands to be acquired in fee simple, or was any utility infrastructure to be relocated on private property?	2022 / 08 / 29 2022 / 08 / 15	Based on the utility information received through utility coordination at the EA stage, all utility conflicts could be resolved within the existing ROW or lands to be acquired in fee simple.
Region of Peel Capital Acquisition Agent | Real Estate	Noted a portion of culvert (12295) located on private property either is required to be realigned completely in the ROW (with TRCA approval) or fee simple should be acquired (like 12476 Hwy 50). Culvert at 12295 Highway 50 / Queen Street – 14 m^2 – Required to implement installation of new 600 mm Driveway Culvert within ROW Region confirmation and indicated that there was no easement in place for the culvert at 12295 Hwy 50.	2022 / 08 / 29 2022 / 08 / 15	RVA reviewed and posed question to Region and noted entrance culvert was at the same location and has the same length as the existing culvert as surveyed. Asked Region to confirm if there was an existing property agreement with owner. Since the culvert is being replaced, ideally the culvert can be realigned completely within the ROW, otherwise, for culvert maintenance purposes, a fee simple or a permanent easement is required for the portion of the culvert that is on private property. Updated **Table 6.4.2** for property12295 and fee simple totals.
Town of Caledon	Provided information, comment, and input on storm water management pond. Pond could be impacted by Town's George Bolton Blvd Extension project. Town has completed retrofit works in the area.	2020 / 10 / 30	Investigated for potential to incorporate the SWM pond at the SE corner of the George Bolton / Hwy 50 intersection determined poor feasibility of the alternative.
Town of Caledon	Investigated possibility of including stormwater pond. Pond could be impacted by Town's George Bolton Blvd Extension project. Town has completed retrofit works in the area. Stormwater Division to provide information regarding George Bolton Parkway Extension.	2020 / 10 / 30	The project team investigated the potential use of the SWM pond at the SE corner of George Bolton and Highway 50 intersection as part of the SWM enhancements. Use of the in - line pond along the creek as a stormwater management feature was determined to not be a suitable alternative. Further, based on a site investigation to understand the hydraulic situation and condition of the online pond into which an existing 1800 – millimetre x 1200 – millimetre box culvert outlets, it is proposed to remove the debris and silt built up at the inlet of the online pond. To avoid future built up at the inlet again, it is also proposed to lower the outlet of the online pond by approximately 0.5 metres.
Town of Caledon	Advised no stormwater information was available in the records on the Husky property or on 12465 Highway 50. Provided the SWM Report for the pond located at the end of Morra Avenue.	2020 / 10 / 30	RVA requested a SWM management report for the gas station property. Reviewed provided SWM report for Morra Avenue.
Town of Caledon	Indicated current projects, municipal addresses and additional applications currently being processed. Noted intention of Town staff to request sidewalk be constructed in the development Highway 50 ROW fronting 12500 Highway 50 property.	2020 / 12 / 02 2020 / 11 / 25	Included feedback in process of developing a preliminary recommendation for the MUP along the west side of the corridor

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			(which would replace the existing sidewalk) and SWM concepts to capture and treat road drainage under the Municipal Class EA.
Town of Caledon	Town / Region coordination meetings regarding George Bolton Parkway Extension Detailed Design. Discussed potential for use of on - line pond as part of the drainage improvements. * Correspondence documentation not included in **Appendix 1 – 4** and to be included by the Region of Peel. Meeting between staff members from the Town of Caledon and Region of Peel.		Reviewed and determined the use of the in - line pond along the creek as a stormwater management feature was not a suitable alternative.
Town of Caledon	Town / Region coordination meetings regarding George Bolton Parkway Extension Detailed Design. Discussed condition and sizing of box culvert under the George Bolton Parkway intersection. * Correspondence documentation not included in **Appendix 1 – 4** and to be included by the Region of Peel. Meeting between staff members from the Town of Caledon and Region of Peel.		Reviewed and determined based on the available HEC - RAS flows, the culvert was proposed to be enhanced with a consistent 1800 – millimetre x 1200 – millimetre box culvert crossing. A CCTV inspection of the culvert under George Bolton Parkway is recommended to be undertaken as part of detailed design. Advised culvert cleaning may be required to complete the inspection and may require coordination with TRCA, MNRF, MECP and DFO.
Town of Caledon	Town / Region coordination meetings regarding George Bolton Parkway Extension Detailed Design. Key discussion items included: Who is responsible for the transition of bike lanes on the west side of George Bolton Pkwy to the proposed MUP on the east side. * Correspondence documentation not included in **Appendix 1 – 4** and to be included by the Region of Peel. Meeting between staff members from the Town of Caledon and Region of Peel.		Noted Region of Peel position that Town's detailed design of George Bolton should include the west approach to include the transition between the existing George Bolton Parkway and the extension to the west. Additional coordination between the Town and Region required during the detailed design phase to resolve how west side bike lanes along George Bolton are transitioned through the intersection to connect to the proposed MUP along the George Bolton Parkway extension, currently being designed by the Town.
Town of Caledon	Requested any information or direction be provided regarding construction of active transportation works in the ROW. * Correspondence documentation not included in **Appendix 1 – 4** and to be included by the Region of Peel. Meeting between staff members from the Town of Caledon and Region of Peel.		Suggested that any new development applications adjacent to the corridor review the Region's plans to ensure their proposals are not in conflict with the Region's AT plans for the corridor. Provided requested information and will notify directly once the plans are available for review.
Town of Caledon	Town / Region coordination meetings regarding George Bolton Parkway Extension Detailed Design. Key discussion items included who is responsible for the transition of bike lanes on the west side of George Bolton Pkwy to the proposed MUP on the east side.		Noted Region of Peel position that Town's detailed design of George Bolton should include the west approach to include the transition between the existing George Bolton Parkway and the extension to the west. Additional coordination between the Town and Region required during the detailed design phase to resolve how west side

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	* Correspondence documentation not included in **Appendix 1 – 4** and to be included by the Region of Peel. Meeting between staff members from the Town of Caledon and Region of Peel.		bike lanes along George Bolton are transitioned through the intersection to connect to the proposed MUP along the George Bolton Parkway extension, currently being designed by the Town.
Town of Caledon	Requested rationale for exclusion of sidewalk connection to Mayfield Road along east side. Indicated to prioritize pedestrian improvement corridor and connections.	2022 / 08 / 30	As part of the EA Study, various pedestrian accommodations were assessed, along both sides. The rationale for selecting the recommended pedestrian facilities (multi - use path along the west of the corridor and sidewalk from George Bolton Parkway and 12599 Highway 50 along the east side) are summarized in Section 4.4.2 and 4.4.3 of the PFR. In short, continual sidewalk along the east side was considered but not recommended due to identified conflicts with Robinson Creek (not supported by TRCA) and limited property available on the east side.
Town of Caledon	Alternative 7 has overlooked connecting the sidewalk on the east side down to Mayfield Rd. It is Town standard to have included sidewalks on both sides of all arterial and collector roads. Further, noted this section was also identified as a pedestrian improvement corridor so this pedestrian connection should be a priority.	2022 / 08 / 30	Included in **Section 4.4.3** noted "the Town of Caledon standard to include sidewalks on both sides of all arterial and collector roads was explored with the additions of alternatives to the EA study that reflected all possible configurations for AT facilities to be in accord with the Town policy and prioritize active transportation. As noted previously, continual sidewalk along both sides of the corridor was considered but not recommended due to identified conflicts with Robinson Creek and limited property available."
GM BLUEPLAN	GMBP Requested RVA keep GMBP informed of significant flow changes that may result from the proposed SWM design for RR50. Requested RVA share data provided by TRCA (i.e., the Aquafor Beech Humber River study, design criteria, etc.) with GM BluePlan. Region of Peel requested the results to be coordinated (and in agreement for the RR50 study, the GMBP SWM master plan study and other downstream work being performed by RVA	2020 / 05 / 07	RVA Informed GM BLUEPLAN of changes and coordinated works to ensure continuity and completeness.
PUCC from Vianet VNET – 20 – 1741R1	Confirmed the CAD Team have reviewed and approved the clearances from the existing infrastructure but have asked for further review for the following: 1. 18 – 4860 – Hwy 50 – EA assessment 2. 14 – 1320 –	2020 / 06 / 24 2020 / 06 / 15	Incorporated into base plans as required.

AGENCY / GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
	3. Storm and Roads to review 4. Review for all Hydrant lead crossing. Please review to ensure no conflicts. Drawings provided.		
Hydro One Telecom	Advised of existing underground fiber cable infrastructure at the southwest side of Parr Blvd and Highway 50 within the project limits. Provided drawing.	2020 / 06 / 25	Incorporated information into base plans as required.
Hydro One	Acknowledged receipt of Notice of Commencement for Highway 50 project. Advised to update main contact for Hydro One for the project to SouthernFBCPlanning mailbox. Confirmed no proposed work anticipated within the proposed work area.	2020 / 06 / 26	No action required.
Hydro One Networks	Advised to send correspondence to the Hydro One's Secondary Land Use mailbox for processing as per Government Review Team process.	2020 / 06 / 26	Requested follow - up and address. No response provided.
Group Telecom Bell.ca	Confirmed existing and / or proposed underground plant within 2m of your proposed installation or within 2m of proposed work. No Conflict.	2020 / 07 / 02	No action required.
TransCanada Pipelines Inc.	Informed by TC Energy no pipeline crossings exist within the area of project from Highway 50 at Mayfield Road / Albion Vaughan Road to Healey Road intersections. There is a pipeline crossing Highway 50 south of Major Mackenzie Drive.	2020 / 07 / 06	Noted. No action required.
Hydro One Networks Inc.	Provided municipal relocate process pdf file. Requested to complete requested markups and send letters to SouthernFBCPlanning mailbox. Provided Municipal Road Relocation Procedure document.	07 / 07 / 2020	Completed and sent letters to requested mailbox. Informed of markups request sent previously.
Hydro One Telecom	Confirmed Hydro One Telecom has underground infrastructure at the corner of Parr Blvd and Highway 50 in the project area. Drawing of fiber cable infrastructure southwest side of Parr Blvd and Highway 50 sent. Confirmed Hydro One Telecom has aerial fiber overlay on Alectra Utilities Hydro Poles. Infrastructure in area markups will be submitted.	2020 / 07 / 07 2020 / 06 / 25	Included in design as rough locations of Hydro underground services were critical to develop preliminary design alternatives for the EA study, and subsequently identify utility conflicts. Detailed locates to be confirmed during detailed design.
Hydro One Caledon	Confirmed H1 pole locations. Little to no work in area over last year. No major changes or relocations anticipated within the future scope. Confirmed primary and secondary underground services do exist along this section of the road. Underground locates will be required to determine the routing of underground plant.	2020 / 09 / 09	Included in design. Rough locations of Hydro underground services were critical to develop preliminary design alternatives for the EA study, and subsequently identify utility conflicts.
GT MOC Telecon	Confirmed GT has no plant within 2m of proposed work – NO CONFLICT. Meets with our approval. Call for locates 1.800.400.2255. Maintain clearance of 0.6m. Hand dig when crossing Group Telecom plant. Call 877.865.6193 for locate if plant is in railway property.	2020 / 07 / 09	No action required.

AGENCY / GROUP	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN CLASS EA
Bell Canada Telecon	Referred to Bolton territory manager. Markup provided in PDF and CAD files. Existing and / or proposed Bell Canada underground plant are indicated on the attached plan. Not for PUCC approval - mark up only. If within 1 metre of Bell plant, hand dig. Request locates prior to construction 1 – 800 – 400 – 2255.	2020 / 07 / 14 2020 / 07 / 09 2020 / 06 / 26	Incorporated into base plans as required.
Zayo Utility Circulations	Confirmed receipt. Zayo has no existing plant in the area indicated in your submission. No markup and no objection.	2020 / 07 / 21 2020 / 07 / 16	No action required.
Rogers Telecon	Markup provided in PDF. Rogers Communications currently has existing plant as marked on your drawing. Our standard depth in this municipality is: 1 metre. Please ensure you maintain clearances of 0.3m vertically and 0.6m horizontally. Rogers Communications has aerial plant in this area, as it is indicated on the attached plans. Fiber Optic Cable is present around your proposed construction. Please inform Rogers Communications well in advance of the proposed construction schedule to coordinate our plant relocation. Locates required. Hand dig.	2020 / 07 / 21 2020 / 07 / 17	Incorporated into base plans as required.
Hydro One Caledon	Confirmed Hydro One Caledon owns the Hydro poles and Hydro aerials on both West and East side of the road corridor that run parallel to the roadway. Unable to confirmed if Hydro underground runs parallel and / or cross the roadway. Likely. Unable to confirm if all underground services noted are running from the hydro poles to the private properties.	2020 / 11 / 30 2020 / 09 / 09	Noted underground locates is not part the scope of work for EA study. Requested utility markup for primary and secondary underground services within the study area.
Hydro One Telecom	Provided drawing and indicated Hydro One Telecom has underground infrastructure only at the corner of Parr Blvd and Highway 50 in the project area.	2022 / 03 / 11	Incorporated into base plans as required.
Rogers Communications Canada Inc	The CAD Team have reviewed and approved the clearances from the existing infrastructure but have asked for further review from the Region of Peel for the following: • 18 – 4860 –to review and comment. • RR #50 HIGHWAY 50. RD&C – to review for any comment and concerns. • RR #50 HIGHWAY 50. to review for any comment and concerns for Traffic. Requested review to ensure no conflicts.	2022 / 11 / 01 2022 / 10 / 26	RVA reviewed. Indicated Rogers has addressed our previous comment. No additional comment provided.
Rogers Communications Canada Inc	Inquired if the work (crossing why 50) will be completed by trenchless/directional boring method? Inquired if for the portion crossing Highway 50 the trenchless method of directional bore will be used? Requested minimal disturbance to grass areas for pits. Requested no pits on sidewalk (hard surfaces). inform. Region of Peel requested RVA review PUCC.	2022 / 09 / 23 2022 / 09 22	Rogers provided mark - up of pits (RP22–1380 and RP22–1379). Noted any trenching done in boulevard unable to avoid grass. Topsoil and sod required at completion request to inform if not. RVA reviewed mark - up. Indicated Rogers has addressed our previous comment. No additional comment provided.

9.2 Indigenous Stakeholders

Indigenous stakeholders were notified of the study commencement and provided the opportunity to identify any potential concerns. Information requests with regards to any impacts, interests, or questions about the Highway 50 EA study were addressed. The Draft Stage 1 Archaeological Assessment Report was distributed to all previously notified contacts, and additional recipients included throughout the project duration, for review which included:

- Mississaugas of the Credit First Nation
- Huron - Wendat Nation
- Metis Nation of Ontario
- Six Nations of the Grand River
- Haudenosaunee Confederacy Chiefs Council

Correspondence was received from Mississaugas of the Credit First Nation, Huron - Wendat Nation and Metis Nation of Ontario. A copy of the comments submitted, and responses provided during the study are outlined in **Table 9.2** and included in **Appendix 1**.

Table 9.2 – Communications with Indigenous Stakeholders

INDIGENOUS COMMUNITY	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
Metis Nation of Ontario	Noted receipt through automated response from MNO's Lands, Resources and Consultations (LRC) Branch. Indicated hard copy consultation notices mailed to MNO offices will no longer be reviewed. The LRC Branch will review and process all electronic consultation notices sent.	2020 / 06 / 25	Draft Stage 1 Archaeological Assessment Report provided for review and comment on August 10, 2020, prior to finalization. No comments on the draft report were received.
Huron - Wendat Nation	Acknowledge receipt of the attached letter and notice. Request if any archaeological assessment is anticipated as part of the project.	2020 / 06 / 26	Draft Stage 1 Archaeological Assessment Report was provided to Huron - Wendat Nation for review and comment on August 10, 2020, prior to finalization
Mississaugas of the Credit First Nation	Noted through automated response, from COVID – 19, the MCFN Chief and Council have temporarily shutdown of non - essential services. Indicated potential reopening on July 6th, 2020.	2020 / 06 / 25	Draft Stage 1 Archaeological Assessment Report provided to Mississaugas of the Credit First Nation for review and comment on August 10, 2020, prior to finalization.
Mississaugas of the Credit First Nation	MCFN staff provided comment in review of the Draft Stage 1 Archaeological Assessment (AA) Report. The section of Highway 50 that sits within the region of Vaughan appears to have been incorrectly labeled as "previously assessed" based on the contents of the Regional Municipality of York Asset Management Plan (AMP). An AMP is not a Ministry approved document and cannot be used in place of a Stage 1 AA. If the archaeologist believes this area or portions of it have been disturbed than a physical property inspection must occur. Due to the use of the AMP, we currently consider this assessment incomplete. Additional clarification ensured that none of the other archaeological reports cited for the area in question were lacking. With respect to one of the only undeveloped parcels of land in the study area, after further review, MCFN has resolved any issues and no longer has any concerns.	2020 / 10 / 28	The project team provided additional clarification, noting that the statement regarding archaeological potential, as identified within the Regional Municipality of York's AMP, was simply that - a statement of potential identification. This had no bearing on recommendations for no further work, or areas identified as "previously assessed." The previous assessment identifications were tied exclusively to archaeological assessments that were previously conducted by licensed archaeologists; these assessments were subsequently approved by the MTCS. Which archaeological consultant completed the previous assessment is noted in the legend of each map.

INDIGENOUS COMMUNITY	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
Mississaugas of the Credit First Nation	Noted after further review, concerns with the draft Stage 1 AA Report resolved. No further concerns.	2020 / 11 / 03	Draft Stage 1 Archaeological Assessment Report was finalized.
Mississaugas of the Credit First Nation	Indicated no longer with the MCFN Council.	2022 / 03 / 10	Updated stakeholder list.
Metis Nation of Ontario	Received Draft Stage 1 Archaeological Assessment Report and requested to remove personal contact from list and send study info to mailbox for Metis Nation of Ontario at consultations@metisnation.org.	2022 / 08 / 18 2022 / 08 / 03	Removed email from contact list on August 3, 2022, and notification for previous content on shared platform following.
Mississaugas of the Credit First Nation	The MCFN Department of Consultation and Accommodation, reviewed Stage 1 AA report for the Regional Road 50 EA. No questions or comments about archaeological aspect of this project.	2022 / 08 / 17	Noted by project tea, and pending no additional comments Stage 1 Archaeological Assessment Report was finalized
Huron - Wendat Nation	In response to the Notice of PIC #2, the Huron - Wendat requested information about archaeological studies or fieldwork necessary as part of this project and impact of upcoming pedestrian and cycling facilities.	2022 / 03 / 11	The project team provided requested information and indicated "no further archaeological work was recommended." Invited to review the Draft Stage 1 Archaeological Assessment Report, however, no comments on the draft report were received.

9.3 Residents and General Public

Residents within and adjacent to the study area received direct mailings of all notices, while members of the public were invited to participate in the study through the Region of Peel website and notices advertised in the local newspapers (Mississauga *News, Brampton Guardian, Caledon Enterprise, and Caledon Citizen*). A summary of the comments received from residents and members of the public during the study is provided below, while a full copy of all comments received is included in **Appendix 1**.

9.3.1 Public Information Centre (PIC)

As part of the MCEA process, Public Information Centres (PICs) were held during both Phase 1 and Phase 2 of the Class EA to provide opportunity for public consultation, input, and review.

Due to COVID – 19 Provincial guidelines on physical distancing, restrictions on public gatherings, and in the interest of public health, the first in – person Public Information Centre (PIC) was cancelled; however, the PIC presentation materials were made available on the Region of Peel website. Materials were shared on June 25, 2020.

Participation in the second PIC was encouraged online through the interactive hosting of display boards using ArcGIS StoryMaps, with alternate format provided, along with opportunity to contact the project team to ask questions and provide comments. The materials for second PIC including the preliminary recommended design were available for review on March 17, 2022, and feedback was accepted until April 8, 2022. A formal response to all questions, comments and feedback was made on or before April 22, 2022.

The PICs included presentation of the study completed to date, including existing conditions, the evaluation of alternative solutions, and preliminary recommendations. Contact information for project team members was provided to direct comments and have questions answered. Residents were encouraged to submit their questions to:

syeda.banuri@peelregion.ca or amcgregor@rvanderson.com.

A total of two comments were provided following the second PIC. A summary of the comments received regarding the material presented at the PIC 2 is presented in **Table 9.3.**

Table 9.3 – Public Information Centre 2 (PIC 2) Comments

KEY STUDY ELEMENT	COMMENT SUMMARY	CONSIDERATION OF COMMENTS IN CLASS EA
Roadway Drainage Improvements	Support for the drainage improvements was expressed.	Noted.
Active Transportation Accommodation & Safety	Resident expressed concern with the existing pedestrian, cyclist, and vehicle safety through the corridor, and desire for safe passage through the study area, particularly at Healey Road and McEwan Drive intersections as population densities and traffic increase in the area. It is noted that increased signage may be insufficient to protect pedestrians and cyclists.	Increased connectivity for pedestrian and cyclist accommodation is recommended throughout the study area corridor through the introduction of sidewalk and MUP.
Active Transportation Accommodation & Safety	Residents expressed a desire for connectivity of the 1.8 m sidewalk to a minimum of Parr Boulevard intersection and potentially to the commuter parking lot at Mayfield Road in anticipation of the Metrolinx GO service extension to Bolton recently announced.	MUP and sidewalk is recommended to accommodate pedestrians and cyclists throughout the study area, including through the Parr Boulevard intersection, and up to the Mayfield Road intersection at the south end of the study area.
Vehicle Operations	Resident suggested accommodation for turning trucks and snowplows at Mayfield Road intersection. Resident suggested traffic calming, speed enforcement, and intersection operation improvements to further improve pedestrian and cyclist safety.	Comments pertaining to vehicle operations along the corridor, including traffic calming, changes to the posted regulatory speed limit, and operations of vehicles at the Mayfield Road intersection are beyond the scope of the EA study.
Utility Services	The traffic islands at Mayfield provides a space for installing utility poles to reduce span length, was it considered to burying the hydro across the intersection.	The project team will continue consultation with utility companies and coordinate utility relocations during detailed design.

9.4 Additional Comments Received

In addition to the consultation activities described above, the contact information of the Project Managers, including email, telephone and mailing address were made available to the public on the Project Web Page and on public notices distributed throughout the study. This provided an ongoing opportunity for members of the public to provide their questions, concerns, and / or comments regarding the study to the project team for consideration in the study.

The comments and questionnaires received during the study, and how these comments and questions were incorporated into the study are summarized in **Appendix 1 – 4.**

A total of two comments were provided following the second PIC. A summary of the comments received regarding the material presented at PIC 2 is presented in **Table 9.4.**

Table 9.44 – Additional Comments Received Through Public Consultation

GROUP AND MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA PROCESS
Resident (Comments *submitted via Email)*	Noted currently in the process of realigning the channel on the property, which was altered without permit by the previous landowner. Wished to ensure that the EA does not negatively impact works, which has been submitted to TRCA already. Noted will be removing the culvert along Highway 50 as the entrance for this site will be along Albion Vaughan Road. Both changes should increase the flowrate of this system, which should be in line with what the region wanted.	2020 / 08 / 04 2020 / 07 / 31 2020 / 07 / 30	Included in Section titled Permits to Enter and noted the process undertaken and key correspondence. Reviewed memo sent to TRCA.
Resident (Comments *submitted via Email)*	Owners of several properties within the subject area requested to receive info and be updated.	2020 / 09 / 03 2020 / 08 / 25	Forwarded owners all project materials, consultation notices and added to distribution lists.
Resident (Comments *submitted via Email)*	Draft of EA requested to determine a stormwater management solution that is consistent with the EA for the proposed residential development. Requested to provide grading and site servicing plans for coordination to get feedback from the Region.	2020 / 11 / 25	Added to stakeholder distribution list. Noted the project was currently in the EA stage to address carrying out a Schedule B EA for drainage improvements and active transportation measures from Healey to Mayfield Rd. Advised of Phase 2 of the EA process, where developing and evaluating the alternatives would be presented to the public. Requested sharing of development information. Provided available information. Referred to the Region of Peel SWM Design Criteria and Guidance document.

GROUP AND MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA PROCESS
Resident (Comments *submitted via Email)*	Requested alternatives consider making the south end of town more accessible. Requests addition of temporary ramps to the intersections or driveways that are currently not ramped along the stretch of Highway 50 (Queen St. S) on the east side.	2021 / 02 / 26	Advised the noted ramping request was not supported by the Region as the individual was referring to the ability to access the asphalt splashpads as an active transportation amenity. The active transportation study recommendations developed for the corridor includes new sidewalk along the east side of Highway 50 from 12599 Highway 50 to George Bolton Parkway, in addition to a continuous MUP along the west side from Mayfield Road to Healey Road. The project team investigated the potential to extend the sidewalk along the east side further to the south and connect to a crossing at Parr Boulevard, however, this would result in the enclosure of the adjacent watercourse, which was not supported by TRCA. Also, adding a signalized crossing at the intersection of Simona and Highway 50 (required) would have significant impacts to the adjacent owner and the entrances to the Bolton Inn. The north entrance to Top Lift Enterprises would need to be relocated so that it lines up with the intersection, which would require the reconfiguration of the front parking lot and potential inability to accommodate large trucks. The south entrance of the same property would have to either become a right in right out as the centre island for the signal poles would partially block the entrance, or complete removal if the property has a signalized access. For the Bolton Inn, their south entrance would have to become a right in right out as the centre island for the signal poles would block the entrance and the south entrance will be too close to the intersection which is not desirable from an operational and safety standpoint.
Resident (Comments *submitted via Email and Phone)*	Inquired about the west side of Highway 50 between Mayfield Road to approximately Hopcroft Road, noted there are sidewalks on the east side currently, but there are some gaps that effect continuity and accessibility in west side area.	2021 / 03 / 30 2021 / 03 / 19 2020 / 03 / 11 2021 / 02 / 26	The active transportation study recommendations developed for the corridor included new sidewalk along the east side of Highway 50 from 12599 Highway 50 to George Bolton Parkway, in addition to a continuous MUP along the west side from Mayfield Road to Healey Road. The project team investigated the potential to extend the sidewalk along the east side further to the south and connect to a crossing at Parr Boulevard, however, this would result in the enclosure of the adjacent watercourse, which was not supported by TRCA.
Resident (Comments *submitted via Email and Phone)*	Asked for the construction timing and if new pedestrians crossings or signalization was being considered as part of the project.	2021 / 03 / 30 2021 / 03 / 19 2020 / 03 / 11 2021 / 02 / 26	Responded and indicated the addition of a signalized crossing at the intersection of Simona and Highway 50 would have significant impacts to the adjacent owner and the entrances to the Bolton Inn. The north entrance to Top Lift Enterprises would need to be relocated so that it lines up with the intersection, which would require the reconfiguration of the front parking lot and potential inability to accommodate large trucks. The south entrance of the same property would have to either become a right in right out as the centre island for the signal poles would partially block the entrance, or complete removal if the property has a signalized access.

GROUP AND MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA PROCESS
Resident (Comments *submitted via Email and Phone)*	Concerned regarding culvert at front of property. Inquired if pipe grade was higher than ditch invert. Property and basement flooding resulted during significant rainfall. The SWM pond and maintenance program adversely impacted the property. Water entered property when gates were open and after large rainfall events. Requested modifications for culvert outlet to extend further south at the back of the property and for reinstallation at front of property to bring culvert to grade. Requested no ditches as maintenance to front of property was preferred (mowed right to the curb). Refused the Region of Peel access to property to complete the drainage assessment. As a solution, suggested construction of a retaining wall along the creek and to raise the elevation to diminish the possibility of flooding. Mainly concerned with the stream water rise at the rear of property in the spring and the upstream development may add more water to the stream. Speculated this would subsequently cause the stream water level to rise and cause flooding in the basement.	2021 / 04 / 09 2020 / 09 / 16	A hydraulic model of the creek in combination with the road drainage pipes and ditches showed the discharge rate of stormwater from the management pond to the creek. Reported flooding problem on property could not be replicated, based on the hydraulic data and base creek flows that were received from the TRCA. The peak inflows from the adjacent stormwater management pond are not large enough to cause a significant increase in the creek water levels and there appears to be sufficient ditch profile capacity in the case where no blockage of ditch flows occurs. Potential solution was to provide some relief in future, recommended that the existing pipe be replaced with a larger pipe (i.e., upsize). The proposed pipe would be sized to provide adequate bypass capacity for the creek to alleviate the flooding risk and decrease the peak flow in the creek section during large storm events. Suggested concerns regarding development be directed to the Town of Caledon. In general, the development proposals are approved by the Town and only the ones wishing to connect to the Region's storm infrastructure get circulated to Region. Included TRCA and the Town of Caledon as flooding matter and the causes of flooding are not solely due to the road drainage. To reduce flooding risk, recommended that the existing 525 – millimetre pipe be replaced with either a larger pipe, or open bottom plastic arch chambers (infiltration chambers). The proposed pipe would be sized to provide adequate bypass capacity for the creek to alleviate the flooding risk. Recommendation included as part of the EA study documentation and included with the project works following completion of the EA and detailed design.
Resident (Comments *from Online meeting)*	Discussion focused on the impacts of the proposed location of the MUP. Property owners noted that the proposed layout of the MUP is not acceptable as it would result in loss of available parking for staff and customers; loss of maneuverability for trucks; and loss of access to tenant parking in the rear. It was noted that implementing the MUP at the proposed location would require vehicles to drive over the MUP, resulting in safety issues.	2021 / 04 / 21	Region and RVA Project team met with property owner and acknowledged the impacts that would be caused by the proposed design. Proposed MUP alignment was subsequently modified to avoid impacting the property.

GROUP AND MEDIUM	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA PROCESS
Resident (Comments *from Online meeting)*	Discussion focused on the impacts of the proposed location of the MUP and future bridge widening. Stated not against the Region's design or property requirements but asked that the Region consider reducing the extent that the current median is shifted to the south, to significantly impede large trucks from turning left (north) after entering their parking lot. Noted that this is where the trucks access the supply yard.	2021 / 04 / 22	Acknowledged the concern and incorporated the median length reduction into the design.

10 ADDITIONAL WORK AND APPROVALS

10.1 Environmental Compliance Approvals (ECAs)

The MECP is in the process of issuing a Stormwater Consolidated Linear Infrastructure Permissions Approach (CLI) Environmental Compliance Approval (ECA) to the Region of Peel. The Stormwater CLI ECA covers storm assets servicing regional roads, namely storm sewers, ditches, SWM facilities and LID, and Stormwater Pumping Stations. The Stormwater CLI ECA sets forth conditions for alterations to the stormwater system as well as ongoing operation of the system.

The ECA comes with criteria for design of alterations to the Region's existing stormwater system. At the time of completion of the EA study, the CLI ECA template and criteria were not available, therefore the EA recommendations do not guarantee compliance with the CLI ECA conditions and criteria. It is recommended that at the Detailed Design Stage, the Engineering Consultant re - assess the EA recommendations against the CLI ECA criteria and make the necessary adjustments and changes to the stormwater recommendations to comply.

10.2 Detail Design Commitments

In addition to the mitigation measures described in **Section 6.0**, consultation outlined in **Section 7.1,** and original correspondence **Appendix 1 – 4.** Additional items require attention and further efforts are required for completion following the Class EA. During detailed design, the following works are necessary to confirm the Class EA study findings and to further refine the design:

- Re - assess the EA recommendations, coordinated by the Engineering Consultant, against the CLI ECA criteria and make the necessary adjustments and changes to the stormwater recommendations to comply.
- "Ensure tender documents accommodate all expectations of the ECA requirements:
- Coordinate with the Town of Caledon to resolve how west side bike lanes along the east section of George Bolton Parkway are transitioned through the intersection to connect to the proposed MUP along the George Bolton Parkway extension, currently being designed by the Town.

- Evaluate the design with attention to the Highway 50 and George Bolton Parkway intersection to ensure safe movements for all road users (with a particular focus on east - west cycling routes) and confirm the safe accommodation of the George Bolton Extension project extended to the east (including proposed MUPs).

- Coordinate with adjacent projects and update the design to include any additional developments (Appendix 10).

- Provide hydraulic assessment and a digital copy of HEC RAS model for existing conditions and proposed modifications (culvert upgrades 16 – 19).

- Complete further assessment (valid hydraulic model and approach) to evaluate the flooding condition at George Bolton Parkway intersection and adjacent properties once upgrades are completed.

- Complete a detailed geotechnical investigation to confirm the subsurface conditions.

- Prepare an Erosion and Sediment Control (ESC) Plan in accordance with the TRCA ESC Guide for Urban Construction (December 2019).

- Follow TRCA's Compensation Protocol, to offset for the loss of natural wetland and woodland habitat.

- Confirm offsetting ratio of 1:1 compensation for wetland community losses in consultation with TRCA.

- Include TRCA's Standard Notes, watercourses, and wetlands on all site plans at the detailed design stage. To be considered complete, Standard Notes are required on all applicable contract drawings or as a single page then referenced on each of the drawing and site plan pages.

- Develop a plan to manage transportation and disposal or reuse of any excess soils under O. Reg 406 / 19.

- Prepare a detailed tree preservation plan.

- Confirm construction staging and prepare traffic management plans.

- Move Rest Area farther south of Parr Boulevard (by 3 m – 4 m) on Highway 50 to increase distance and underneath proximity of shaded tree canopy for protection

from the elements. In alignment with design of rest areas in section 2.4 of the ROP Rest Area Guidelines for Exterior Paths of Travel.

- Complete hydraulic assessment of the proposed culvert modifications.
- Continue consultation with utility companies and coordinate utility relocations.
- Finalize capital cost estimate and any cost sharing requirements, including property requirements.
- Finalize mitigation measures and requirements for construction work.
- Confirm property and easement requirements.
- Undertake CCTV inspection of culvert under George Bolton Parkway. Culvert cleaning required to complete the inspection may require coordination with TRCA, MNRF, MECP and DFO.
- Ensure adequate lighting for active transportation facilities. Review lighting and safety requirements for all active transportation facility installation locations.
- Prepare a hydrogeological / technical assessment report as required by MECP to support the PTTW application. In terms of surface water aspects, the supporting document should include, but not be limited to, an impact assessment of the proposed dewatering activity on surface water features nearby, an assessment of local groundwater quality, and a dewatering effluent discharge monitoring and contingency plan. Report to be provided to the Ministry during the PTTW application for further review as required.
- Confirm and obtain required approvals and necessary permits as outlined in Section 8.3 below.

10.3 Permits and Approvals

The following approvals have been identified as potentially being required prior to the implementation of the proposed works.

- A permit under Ontario Regulation 166 / 06: TRCA Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses will be required for work within TRCA Regulated areas and will be secured during detail design for all work within TRCA regulated areas.

- A Permit to Take Water will be required from the MECP if dewatering exceeds 50,000 but less than 400,000 litres per day. Environmental Activity and Sector Registry would be required, should dewatering exceed 400,000 litres per day.

- A Request for Review will be submitted to DFO to determine the potential for "harmful alteration of fish habitat."

- An Environmental Compliance Approval could be required prior to construction to ensure that the proposed works comply with MECP guidelines for the design of sanitary sewage systems, storm sewer systems and / or water systems.

- Obtain Permissions to Enter for each property identified for temporary easement prior to construction.

10.4 Notice of Study Completion and Project File Report

In accordance with the requirements of the Municipal Class Environmental Assessment (MCEA) – Schedule B, a Notice of Study Completion is anticipated to be issued in late August. Through issuance of the Notice of Study Completion, this Project File Report (PFR), documenting the planning process undertaken, details of the study recommendations as well as potential impacts and mitigation measures identified through EA study, will be placed on the public record for a 45 – day review period.

The Notice of Study Completion will also advise the public that during the 30 – day review period, a request may be made to the Ministry of the Environment, Conservation and Parks (MECP) for an order requiring a higher level of study (i.e. requiring an individual or comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g. require further studies), on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights.

Following the close of the public review period, the MECP has an additional 30 days to consider the project and review any potential Section 16 Order requests submitted during the public review period. The Region may not proceed with the project for at least these 30 days following the end of the public review period.

Following this 30 – day MECP review period, the project may proceed to detailed design and construction, provided the ministry is not reviewing Section 16 Order requests related to the project, and subject to any other permits and approvals that may be required.