



North Halton Coordinated Municipal Class Environmental Assessment Study

*James Snow Parkway from Britannia Road to
just south of Highway 401, Town of Milton*

Halton Region

Environmental Study Report

September 2026



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Executive Summary

ES.1 Introduction

Halton Region has undertaken the North Halton Coordinated Municipal Class Environmental Assessment (MCEA) Study in accordance with Schedule 'C' projects of the MCEA (2024), which is an approved process under the Ontario Environmental Assessment Act. This MCEA Study considered a range of options for corridor improvements on:

- James Snow Parkway (Regional Road 4) from Britannia Road (Regional Road 6) to just south of Highway 401;
- Regional Road 25 from 5 Side Road to 10 Side Road; and
- Steeles Avenue (Regional Road 8) from Regional Road 25 to Trafalgar Road (Regional Road 3).

Separate Environmental Study Reports (ESR) will be prepared for each of the three corridors.

This Study has completed Phases 1 through 4 of the MCEA process for the James Snow Parkway corridor as documented in this ESR.

To determine the preferred improvements, a wide range of considerations were assessed for James Snow Parkway from Britannia Road to just south of Highway 401, including cross-sectional requirements, active transportation (AT), intersection improvements, overall traffic operations, and the impacts of such improvements on the social, cultural, and natural environments.

This ESR summarizes the study process, consultation approach and decision-making rationale for improvements to James Snow Parkway within the study limits.

ES.2 Planning and Policy Context

A number of Provincial, Regional and Municipal planning documents were reviewed in the context of James Snow Parkway, including:

- Halton Region Official Plan (ROP) (Office Consolidation 2024)*,
- Transportation Master Plan (TMP) to 2031 – The Road to Change (2011), recently completed
- Active Transportation Master Plan (ATMP) (2015),
- Halton Integrated Master Plan (IMP) for Water, Wastewater and Transportation Infrastructure to 2051 (2026),
- Town of Milton Official Plan (OP) (2024 and Office Consolidation 2026),
- Town of Milton OP Amendment 92 (2025), and
- Town of Milton TMP Update (2025).

*As of July 1, 2024, the Halton Region Official Plan is no longer a Regional Plan. It is now a Local Plan of the four Local Municipalities in Halton. The Planning Act identifies the Region as an “upper-tier Municipality without planning responsibilities”. The OP remains for each of the Local Municipalities in Halton until it is revoked or amended by the respective Local Municipality. Additional details are provided in **Section 2** of the ESR.

Through these documents, James Snow Parkway has been identified to be widened to six lanes from Britannia Road to just south of Highway 401 and include AT within a 47 m right-of-way (ROW).

ES.3 Consultation and Engagement

Section 3 of the ESR documents the consultation and engagement completed as part of the MCEA Study. A variety of stakeholders were engaged throughout the study, including individual agencies, utilities, residents and the general public, as well as , First Nations and Indigenous Communities. These stakeholders were contacted throughout the study and encouraged to provide input. Communication with agencies, stakeholders, and the public took place through a variety of means including:

- Letters,
- Emails,
- Phone calls,
- Notices,
- Newspaper advertisements (for Notice of Study Commencement),
- Online advertisements (for Public Information Centres (PICs)),
- Halton Region project website (visit the North Halton Coordinated Municipal Class Environmental Assessment Study webpage at halton.ca),

- Meetings, and
- PICs

Notices were mailed to the identified stakeholders and property owners / residents adjacent to the study corridor. Key points of consultation are provided below.

Notices	Date
Notice of Commencement	April 20 th , 2023
Notice of Public Information Centre (PIC) #1	November 23 rd to December 21 st , 2023
Notice of Public Information Centre (PIC) #2	December 9 th , 2024 to January 10 th , 2025
Notice of Completion	September 16 th , 2026

All public notifications, communication materials used, detailed comments and project team responses are provided in **Appendix A**.

Halton Region engaged with several technical agencies, including federal departments, provincial ministries, local municipalities, utilities and school boards for information, comments and input for the study. The list is provided in **Section 3.2**. Key agency feedback received, and meeting minutes are summarized in **Appendix B**.

The Region engaged with First Nations and Indigenous Communities that may have an interest in or may potentially be affected by the project. The list of First Nations and Indigenous Communities identified for engagement for this MCEA study are:

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River
 - Six Nations of the Grand River Elected Council
 - Haudenosaunee Confederacy Chiefs Council
 - Haudenosaunee Development Institute
- Métis Nation of Ontario
- Wendat Nation (added to the contact list on November 22nd, 2023)

A summary of correspondence with First Nations and Indigenous Communities is provided in **Section 3.4** and **Appendix C**.

ES.4 Existing and Future Conditions

Section 4 of the ESR documents the existing conditions of James Snow Parkway to identify potential constraints along the study corridor. Existing conditions include natural, socio-economic, cultural, archaeological, drainage, traffic, source water protection, fluvial geomorphology, hydrogeological, geotechnical, noise and utilities. An overview of the existing conditions includes:

- The study corridor is located within urban designated land and has a mix of existing residential, institutional, commercial, greenfield lands and agricultural land uses;
- There are no known built heritage resources (BHRs) and no known cultural heritage landscapes (CHLs) in the study area.
- Based on the Stage 1 Archaeological Assessment, there are 63 previously registered archaeological sites located within 1 km of the study area. Of the sites within 50 m of the study area, none have been noted to have further cultural heritage value or interest.
- There is one watercourse crossing, Middle Sixteen Mile Creek Tributary A, that is regulated by Conservation Halton;
- The study area contains multiple significant woodlands and wetlands. Middle Sixteen Mile Creek Tributary A does not provide habitat for aquatic Species at Risk (SAR);
- Multiple trees were identified that may provide suitable roosting habitat for SAR bats. One fish habitat was identified at the Middle Sixteen Mile Creek crossing; and
- The James Snow Parkway study corridor has overhead and underground hydro serviced by Milton Hydro and aerial and underground Rogers cables on both sides of the corridor. There is an Enbridge Gas in-service high pressure segment line and distribution segment lines on the east side of the study corridor as well as an Enbridge Gas storage pipeline corridor located along the Union Gas Pipeline Trail. Centurylink has buried assets located along the CPKC rail corridor.

ES.5 Problem and Opportunity

James Snow Parkway requires improvements as identified in the TMP and confirmed through the traffic analysis for this study. The problem and opportunity statement for the study includes:

James Snow Parkway is a Major Arterial with an interchange at Highway 401 providing access to the Towns of Milton and Halton Hills. Without improvements to the corridor, traffic operations are expected to experience increasing delays and demand. To support growing travel demand, as well as future Transit Priority Corridor infrastructure, improvements to James Snow Parkway are required to create a transportation system, which is safe, continuous, connected, and coordinated for all users and abilities. The future ROW will accommodate AT facilities, future Transit Priority Corridor infrastructure, and allow for improvements to traffic operations at intersections and along the corridor.

ES.6 Identification and Evaluation of Alternative Solutions

Alternative Solutions were identified and assessed.

To support future travel demand and a transportation system that is safe, continuous, connected, and coordinated for all users and all abilities, the recommended solution for James Snow Parkway is proposed to consist of a combination of the following three alternative solutions:

- Enhance facilities for pedestrians, cyclists, mobility device users and other non-vehicular travel to create a safe and accessible network;
- Improve traffic operations at intersections through physical and operational modifications; and
- Widen James Snow Parkway to six lanes to provide additional travel lanes and support future Transit Priority Corridor infrastructure.

Further details are provided in **Section 6 of the ESR**.

ES.7 Alternative Design Concepts

Based on the evaluation of Alternative Design Concepts as outlined in **Section 7 of the ESR**, the Recommended Design Concept for James Snow Parkway is summarized below:

Alternative Widening:

- **Segment 1 – James Snow Parkway from Britannia Road to Louis St. Laurent Avenue**
 - Alternative 1 – Widen about the Centreline is recommended as it:
 - Minimizes impacts to wetlands and balances impacts at the watercourse crossing structure; and
 - Maximizes improvements within the available right-of-way and minimizes overall property impacts.

- **Segment 2 – James Snow Parkway from Louis St. Laurent Avenue to Derry Road**
 - Alternative 3 - Widen to the East is recommended as it:
 - Avoids impacts to residential properties on the west side; and
 - Minimizes impacts to sensitive natural features (significant woodlands and wetlands).
- **Segment 3 – James Snow Parkway from Derry Road to south of Highway 401**
 - Alternative 1 - Widen about the Centreline is recommended as it:
 - Avoids impacts to wetlands;
 - Maximizes improvements within the available right-of-way and minimizes overall property impacts; and
 - Maintains existing CPKC Rail structure.

Active Transportation:

A one-way cycle track and sidewalk on both sides is recommended along the James Snow Parkway corridor in all segments as they provide:

- Physical separation between AT users and vehicles;
- Minimizes potential conflicts at driveways and intersections with one-way cyclist travel; and
- Provides pedestrians and cyclists with direct access to adjacent lands / destinations in both boulevards.
- Protected Intersections will provide dedicated space for pedestrians and cyclist.

ES.8 Recommended Preliminary Design

Typical Cross-Section

The recommended preliminary design for James Snow Parkway between Britannia Road and south of Highway 401 interchange was selected with consideration of the evaluation criteria. The recommended preliminary design addresses the problem/opportunity statement, while also minimizing impacts. **Section 8** of the ESR provides details of the recommended preliminary design.

Figure E-1 illustrates the typical cross-section for James Snow Parkway between Britannia Road and south of the Highway 401 interchange, which includes the following key features:

- 47 m right-of-way (varies locally near intersections and at constrained locations);
- Six general purpose lanes (three in each direction); 2.0 m to 5.0 m raised centre median;
- Separated one-way 1.8 m cycle track and 1.8 m sidewalks on both sides of the road in the boulevard;
- 0.5 m curb and gutter;
- Protected intersection features;
- Illumination along the corridor, including pedestrian scale lighting;
- Utility relocations; and
- Opportunities for streetscaping in the boulevard.

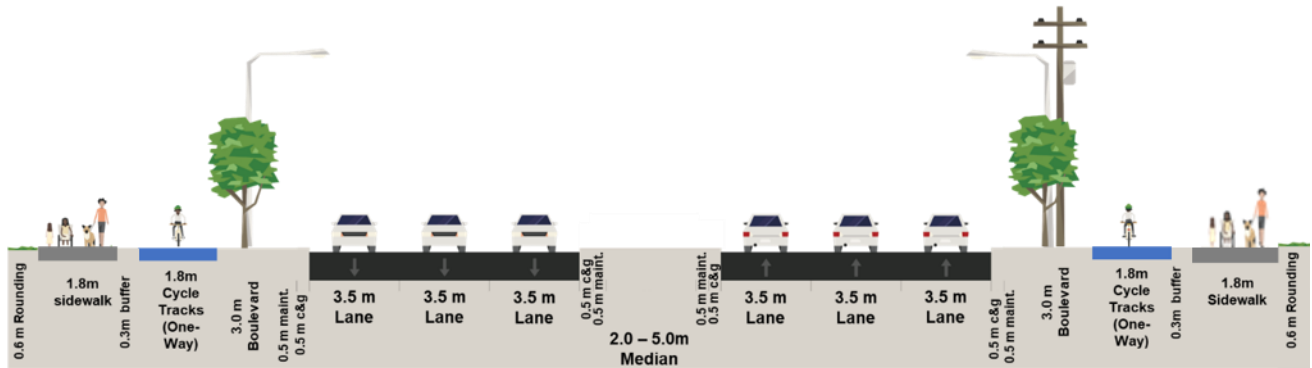


Figure E-1: Typical Cross-section for James Snow Parkway

CPKC Underpass Structure

The existing bridge configuration accommodates an additional lane in each direction.

Figure E-2 illustrates the typical cross-section for James Snow Parkway under the CPKC rail underpass.

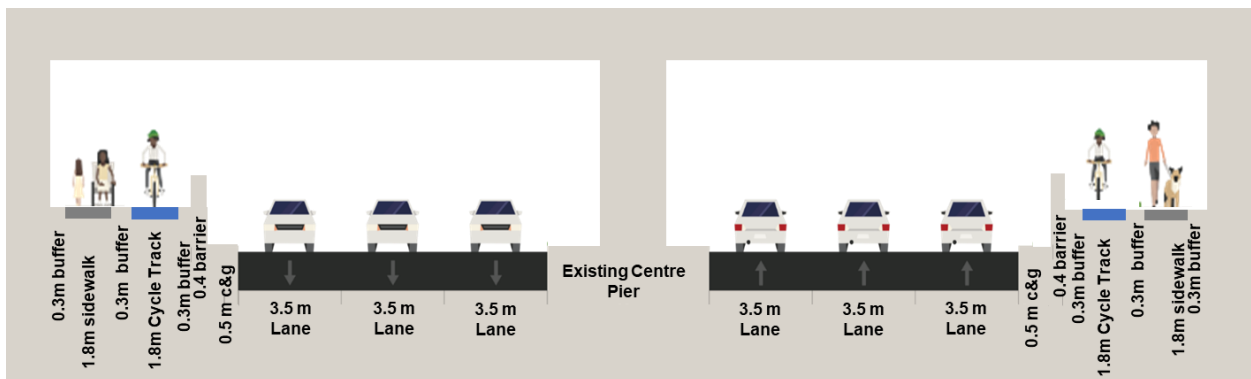


Figure E-2: Typical Cross-section for James Snow Parkway Under the CPKC Rail Underpass



ES.9 Potential Environmental Impacts and Mitigation

Potential impacts and mitigation measures were identified to help avoid or minimize impacts to natural, socio-economic, and cultural environments. The list of potential impacts and mitigation measures are provided in **Section 9 of the ESR**.

ES.10 Detailed Design Commitments for Future Work

The ESR identifies specific items to be reviewed and confirmed during Detailed Design. The list of future work commitments are provided in **Section 10 of the ESR**.

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Appendix G – Drainage and Stormwater Management Report

Appendix H – Fluvial Geomorphology Assessment

Appendix I – Hydrogeological Report

Appendix J – Geotechnical Report

Appendix K – Noise Impact Assessment Report

Appendix L – Preliminary Design Drawings and Profiles

Appendix M – Tree Inventory Report

Appendix N – Air Quality Assessment

List of Acronyms / Terms / Abbreviations

AA – Archaeological Assessment
AODA – Accessibility for Ontarians with Disabilities Act
AT – Active Transportation
ATMP – Active Transportation Master Plan
BHR – Built Heritage Resource
BRT – Bus Rapid Transit
CA – Construction Administrator
CAAQS – Canadian Ambient Air Quality Standards
CCES – Communications and Community Engagement Specialist
CHL – Cultural Heritage Landscape
CO – Carbon Monoxide
CPKC – Canadian Pacific Kansas City
DFO – Fisheries and Oceans Canada
DMTR – Defining Major Transit Requirements
EA – Environmental Assessment
EAA – Environmental Assessment Act of Ontario
EASR – Environmental Activity and Sector Registry
ECA – Environmental Compliance Approval
ELC – Ecological Land Classification
EPA – Environmental Protection Act
ESA – Endangered Species Act
ESC – Erosion and Sediment Control
ESR – Environmental Study Report
GHG – Greenhouse Gas
GTHA – Greater Toronto and Hamilton Area
HTA – Highway Traffic Act
HOV – High Occupancy Vehicle
IA – Impact Assessment
IAA – Impact Assessment Act
IMP – Integrated Master Plan
IO – Infrastructure Ontario
LID – Low Impact Development



LOS – Level(s) of Service

MCEA – Municipal Class Environmental Assessment

MCFN – Mississaugas of the Credit First Nation

MCM – Ministry of Citizenship and Multiculturalism

MECP – Ministry of Environment, Conservation and Parks

MEA – Municipal Engineers Association

MMLOS – Multi-Modal Level of Service

MMS – Mobility Management Strategy

MNR – Ministry of Natural Resources

MTO – Ministry of Transportation Ontario

MUP – Multi-Use Path

NEC – Niagara Escarpment Commission

NHS – Natural Heritage System

NO_x – Nitrogen Oxides

NSAs – Noise Sensitive Receptors

OLA – Outdoor Living Area

OMNR – Ontario Ministry of Natural Resources

OP – Official Plan

OPP – Ontario Provincial Police

OPSS – Ontario Provincial Standard Specification

OTC – Ontario Traffic Council

OTM – Ontario Traffic Manual

OWRA – Ontario Water Resources Act

PIC – Public Information Centre

PTTW – Permit to Take Water

PWQO – Provincial Water Quality Objectives

QBPL – Queue By-Pass Lane

QJL – Queue Jump Lane

RBL – Reserved Bus Lane

RER – Regional Express Rail

RIRO – Right-In-Right-Out

ROP – Regional Official Plan

ROW – Right-of-Way

RPP – Restoration Planting Plan



RTP – Regional Transportation Plan
SAR – Species at Risk
SCA – Species Conservation Act
SCC – Species of Conservation Concern
SPA – Specific Policy Areas
SWH – Significant Wildlife Habitat
SUS – Subwatershed Update Study
TAC – Technical Advisory Committee
TDM – Travel Demand Management
TMP – Transportation Master Plan
TIR – Tree Inventory Report
TSG – Transit Supportive Guidelines
TSP – Transit Signal Priority
TTS – Transportation Tomorrow Survey
VOC – Volatile Organic Compounds

1. Introduction

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A separate Environmental Study Report (ESR) has been prepared for each of the three corridors.

This ESR documents Phases 1 through 4 of the MCEA process for the James Snow Parkway corridor.

To determine the preferred improvements, a wide range of considerations were assessed for James Snow Parkway from Britannia Road to just south of Highway 401, including cross-sectional requirements, active transportation (AT), intersection improvements, overall traffic operations, and the impacts of such improvements on the social, cultural, and natural environments.

This ESR summarizes the study process, consultation approach and decision-making rationale for improvements to James Snow Parkway within the study limits.

1.1 Study Area

The North Halton Coordinated MCEA Study includes the James Snow Parkway (Regional Road 4) from Britannia Road (Regional Road 6) corridor to just south of Highway 401 which is a 5.8 km north-south Major Arterial road located in the Town of Milton and is shown in **Figure 1-1**. The Transportation Master Plan (TMP) identified a right-of-way (ROW) of 47 m and the existing ROW ranges from 35 m to 47 m. The existing ROW includes:

- Two lanes (one in each direction) from Britannia Road to Derry Road;
- Four lanes (two in each direction) from Derry Road to just south of Highway 401; and

- Multi-use path (MUP) on the west-side of the corridor from Louis St. Laurent Avenue to just south of Highway 401.

The existing study corridor is predominantly residential on the west side, commercial / industrial / agricultural on the east side, and agricultural on the south end. Key features and landmarks along the study corridor include watercourse crossings from Sixteen Mile Creek tributaries, Milton Fire Station 4, and CPKC rail crossing.

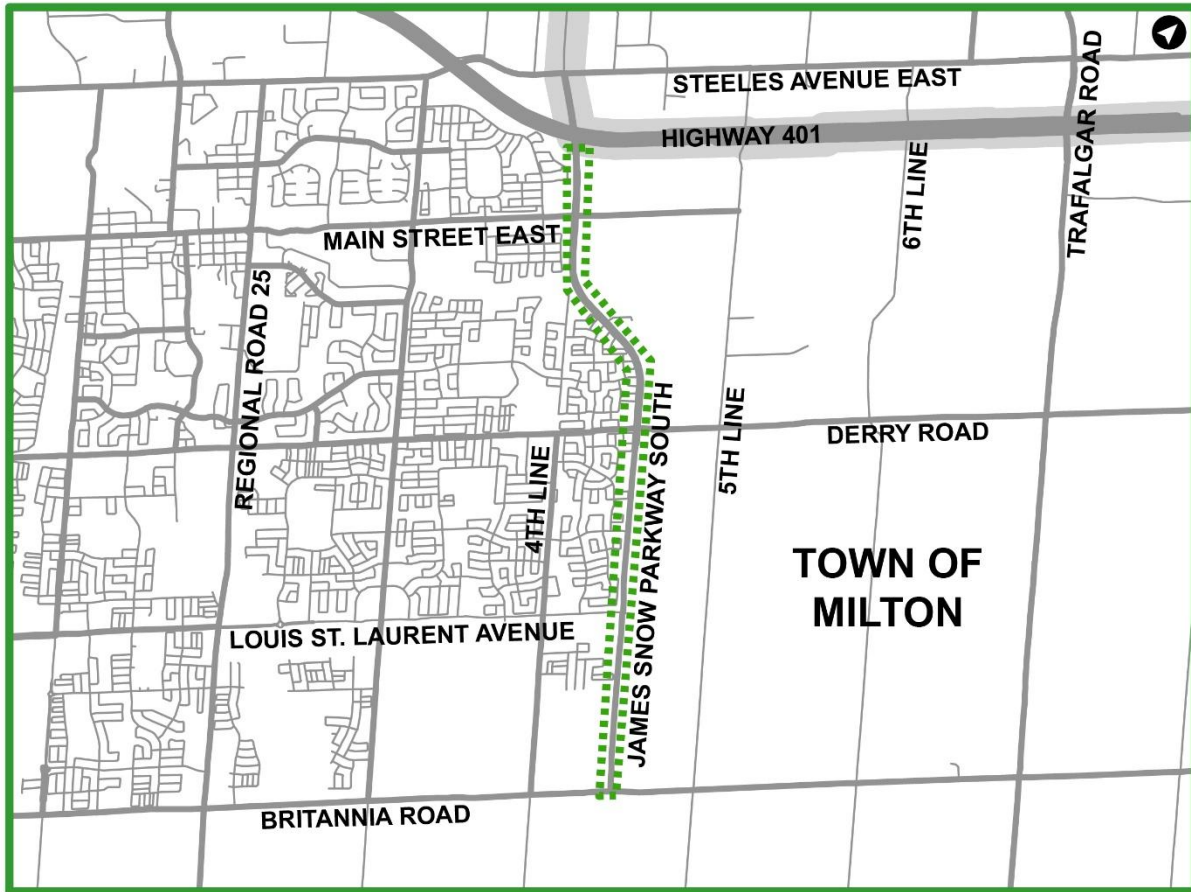


Figure 1-1: Study Area

1.2 Environmental Assessment Process

An overview of the *Environmental Assessment Act of Ontario* (EAA), the MCEA process, and the *Canadian Impact Assessment Act, 2019* (IAA, 2019) is provided in this section as they relate to the North Halton Coordinated MCEA Study.

1.2.1 Municipal Class Environmental Assessment Process

The EAA provides for the protection, conservation, and management of the environment in Ontario. The EAA applies to municipalities and to activities including municipal road projects. Activities with common characteristics and common potential effects may be assessed as part of a “class” and are therefore approved subject to compliance with the pre-approved Class Environmental Assessment (EA) process.

The MCEA (2024) process is an approved Class EA process that applies to municipal infrastructure projects including roads, water, wastewater, and transit. This process provides a comprehensive planning approach to consider alternative solutions and evaluate their impacts based on a set of criteria (e.g. transportation, environmental, social / cultural, engineering consideration) and determine mitigating measures to arrive at a preferred alternative for addressing the problem (or opportunity). The Class EA process involves a rigorous engagement process that includes various provincial and municipal agencies, First Nations and Indigenous Communities, emergency services, interest groups and the public.

The North Halton Coordinated MCEA Study was undertaken in accordance with the guidelines of the MEA MCEA (2024). Due to the type of project, anticipation for potential effects, and estimated capital costs, the North Halton Coordinated MCEA Study was undertaken as a Schedule ‘C’ project. A Schedule ‘C’ project involves either the construction of new facilities, or reconstruction and / or major modifications to existing facilities. Modifications to existing facilities could include road widening, intersection improvements, and / or other operational improvements.

Figure 1-2 illustrates the sequence of activities within the approved Class EA process leading to project implementation. The phases for this study are described as follows:

- **Phase 1 (Problem and Opportunity)** – Identify the problem and opportunity;
- **Phase 2 (Alternative Solutions)** – Identify alternative solutions to address the problem and opportunity considering the existing environment, and establish the preferred solution taking into account public and review agency input;
- **Phase 3 (Alternative Design Concepts for Preferred Solution)** – Examine alternative methods of implementing the preferred solution, based on the existing environment, public and review agency input, anticipated environmental effects, and methods of minimizing negative effects and maximizing positive effects;

- **Phase 4 (ESR)** – Document in an ESR, a summary of the study background, problem statement, alternative solutions, alternative designs, and the public consultation process. Place the ESR on public record for a minimum 30 calendar days for review, and notify the public on the completion of the ESR and opportunity for Section 16 Order requests; and,
- **Phase 5 (Implementation)** – Undertake detailed design and the preparation of contract/tender documents followed by construction, operation, and monitoring.

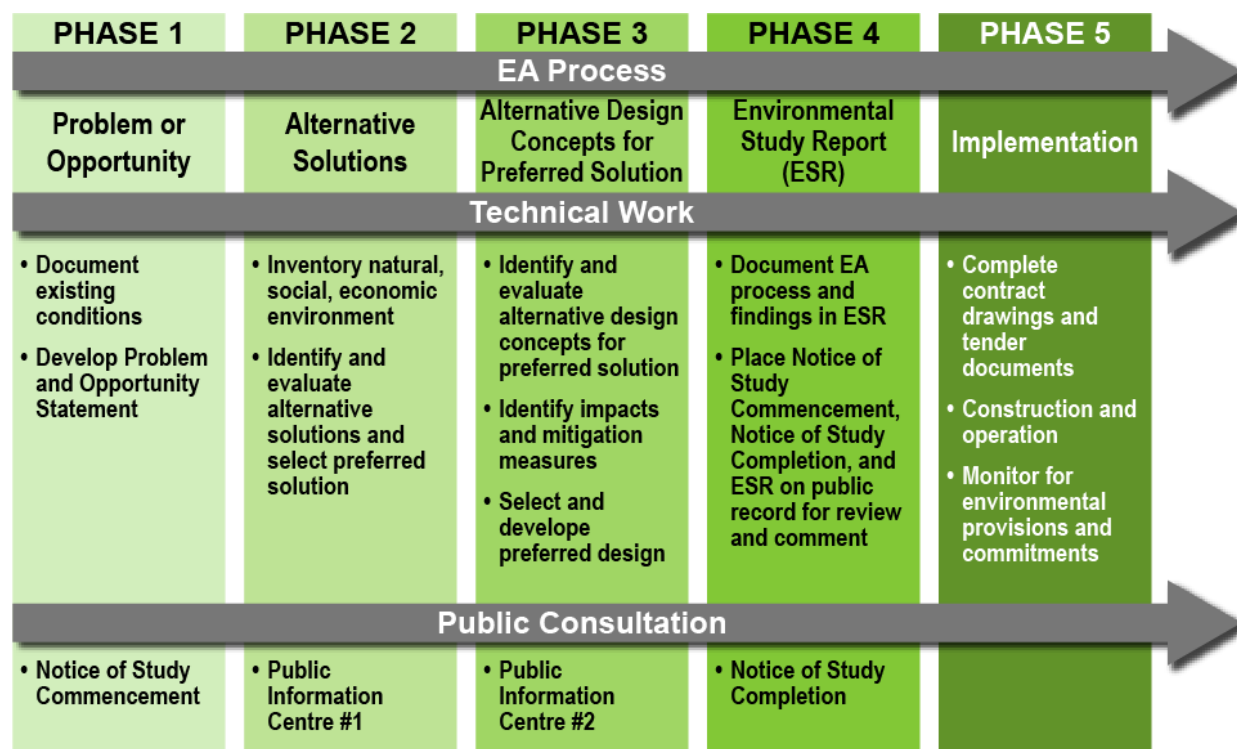


Figure 1-2: Municipal Class Environmental Assessment Process

1.2.1.1 SECTION 16 ORDERS

MCEA 2024 provides an opportunity to request a higher level of study for Schedule B and C projects through a Section 16 Order request to the Minister of the Environment, Conservation and Parks (MECP) on the grounds that the order may prevent, mitigate or remedy adverse impacts on the existing Aboriginal and treaty rights of the Aboriginal peoples of Canada as recognized and affirmed in section 35 of the Constitution Act, 1982. The opportunity for a Section 16 Order will be outlined in the Notice of Completion.



1.2.1.2 CANADIAN IMPACT ASSESSMENT ACT (2019)

The federal EA study may apply to projects that are subject to the Ontario EAA. The IAA is administered and enforced by the Impact Assessment Agency of Canada and applies to projects that are designated by the Physical Activities Regulations (SOR/2019-285), or projects that have been specifically designated by the Minister of Environment and Climate Change Canada. Based on the review of projects designated by the Physical Activities Regulations, the IAA does not apply to the North Halton Coordinated MCEA Study.

2. Planning and Policy Context

A summary of the provincial, regional, and municipal planning and policy context as they relate to the North Halton Coordinated MCEA Study is summarized in this section.

2.1 Provincial Planning Context

Provincial planning policies were reviewed to identify their relevance to the North Halton Coordinated MCEA Study. Provincial plans are identified and summarized in **Table 2-1**.

Table 2-1: Provincial Planning Context

Provincial Planning Document	Description/Relevance
Provincial Planning Statement (2024)	<u>Description:</u> Provides direction on land use planning and development as well as the transportation system. <u>Directions:</u> The relevant land use, transportation and natural heritage policies include: 3.2 Transportation Systems: 1. Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, are appropriate to address projected needs, and support the use of zero- and low- emission vehicles. 2. Efficient use should be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible. 3. As part of a multimodal transportation system, connectivity within and among transportation 4. Systems and modes should be planned for, maintained and, where possible, improved, including connections which cross jurisdictional boundaries. 4.1 Natural Heritage: 1. Natural features and areas shall be protected for the long term.

Provincial Planning Document	Description/Relevance
	2. The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of Natural Heritage System (NHS), should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.
Ontario Traffic Manual (OTM) Book 18: Cycling Facilities (2021)	<u>Description:</u> The OTM Book 18 provides practical guidance on the planning, design and operation of cycling facilities in Ontario. <u>Directions:</u> OTM Book 18 outlines specifics on designing cycling facilities for different users, planning an overarching AT plan as well as implementing the plan, designing different biking facility designs and how to select the right design, intersections, crossings and other facility features and maintenance strategies. The objective of OTM Book 18 is to achieve safe driving behaviour through the design of predictable roadway environments which value the consistent application of guidelines and standards. OTM Book 18 (2021) is considered to be the most up-to-date version and is the most consistent with the intent of the Highway Traffic Act (HTA) with respect to municipal roads and infrastructure. This book should be used to update transportation practitioners' guidelines and standards.

Provincial Planning Document	Description/Relevance
Ontario Traffic Manual (OTM) Book 15: Pedestrian Crossing Treatments (2016)	<u>Description:</u> The OTM Book -15 provides practical guidance on the planning, design and operation of pedestrian roadway crossings treatments in Ontario. <u>Directions:</u> The ministry updated OTM Book 15 to provide guidelines for Justification, Treatment System Selection and Treatment System Design for the new PXOs. OTM Book 15 (2016) is considered to be the most up-to-date version and is the most consistent with the intent of the Highway Traffic Act (HTA) with respect to municipal roads and infrastructure. This book should be used to update transportation practitioners' guidelines and standards.

2.2 Regional Planning Context

The Halton Region Official Plan (ROP) (Office consolidation May 2024), TMP to 2031 – The Road to Change (2011), Active Transportation Master Plan (ATMP) (2015) and the recently completed Integrated Master Plan for Water, Wastewater and Transportation Infrastructure to 2051 recognize the Region's strategic location within the GTHA and the GGH and the importance of James Snow Parkway as a north-south Major Arterial corridor supporting travel demand within Halton Region. These Regional documents as well as additional background studies and design guidelines were reviewed and are summarized in **Table 2-2**.

Table 2-2: Regional Planning Context

Regional Document	Description/Relevance
Halton Region Official Plan (Office Consolidation May 2024)	<u>Description:</u> As of July 1, 2024, the Halton Region Official Plan is no longer a Regional Plan. It is now a Local Plan of the four Local Municipalities in Halton. The Planning Act identifies the Region as an “upper-tier Municipality without planning responsibilities”. The OP remains for each of the Local Municipalities in Halton until it is revoked or amended by the respective Local Municipality. <u>Relevance:</u> James Snow Parkway from Britannia Road to just south of Highway 401 is located within Halton Region’s urban area, employment area and Regional NHS. The study will help achieve some of the ROP objectives including: Urban Area • Manage growth that fosters complete communities, enhances mobility across Halton; • Addresses climate change; and • Improves housing affordability, sustainability and economic prosperity. Regional NHS • Increase the certainty that the biological diversity and ecological functions within Halton will be preserved and enhanced for future generations.

Regional Document	Description/Relevance
	Transportation • Provide safe, convenient, accessible, affordable and efficient transportation system in Halton; • Minimize the impact on the environment; and • Promote energy efficiency.
Transportation Master Plan (2031) – The Road to Change (2011)	<u>Description:</u> The TMP addresses the Region's transportation needs to 2031. <u>Relevance:</u> The TMP recommended the James Snow Parkway corridor be widened from four to six lanes from Britannia Road (Regional Road 6) to just south of Highway 401 and include AT within a 47 m ROW.
Active Transportation Master Plan (2015)	<u>Description:</u> The ATMP outlines the strategy, infrastructure, initiatives, and programs required to create an AT network that is safe, accessible, affordable and sustainable. This Plan is built from the TMP findings.
Integrated Master Plan (2026)	<u>Description:</u> The Integrated Master Plan (IMP) 2026 was developed in accordance with the MCEA Phase 1 and 2. The IMP is a long-term plan for water, wastewater and transportation to 2051. Through Staff Report PW-35-25 on November 12, 2025, Regional Council adopted the recommended servicing strategies to support growth in Halton Region to 2051 as set out in the Integrated Master Plan for Water, Wastewater and Transportation. The IMP will: • Guide the management and development of the Region's water,

Regional Document	Description/Relevance
	wastewater and transportation systems (including the active transportation network; • Maximize capacity, system flexibility and extend the life expectancy of Regional water, wastewater and transportation infrastructure; and • Outline the strategies for maintaining and improving these critical systems to ensure we meet the needs of the community now and in the future. The 2051 Transportation Network Strategy includes a transportation system that will be resilient and adaptable to support local growth priorities and increasing travel demand through: • Localized corridor widening and improvements; • Flexibility and adaptability to support the evolution of the Transit Priority Corridors; • Prioritizing walking and cycling facilities, including protected intersections; • Supporting strategies and technologies (for example, real-time data collection to support adapting the strategies); and • The IMP proposes a Transit Priority Corridor Network to accommodate future travel demand to 2051, building on the recommendations of the Mobility Management Strategy for Halton and Defining Major Transit Requirements in Halton Region.

Regional Document	Description/Relevance
	- James Snow Parkway is identified as a future Transit Priority Corridor with queue jump and transit signal priority in 2042 to 2046 and high occupancy vehicle lanes and transit signal priority are identified for implementation between 2047 to 2051. It should be noted that the implementation of the ultimate 2051 Transit Priority Corridor will be phased and will evolve based on travel demand and local priorities. It is recognized that the timing and transition of the Transit Priority Corridors will require close coordination between the Region and the Local Municipalities. - The IMP identifies proposed walking and cycling networks that builds on the Region's 2015 Active Transportation Master Plan. Sidewalk and cycle tracks are proposed along James Snow Parkway.
Access Management Guidelines (2015)	<u>Description:</u> The purpose of the Access Management Guidelines (2015) document is to provide a framework for access control that will maintain a high Level of Service (LOS) for through-traffic, while providing reasonable access to abutting properties. The overall goals of the Guidelines are to reduce collisions, reduce energy consumption, preserve the long-term integrity of the traffic movement function while balancing the needs of all road users.

Regional Document	Description/Relevance
Halton Noise Abatement Guidelines (2014)	<u>Description:</u> The purpose of the Noise Abatement Guideline is to outline when noise abatement is required to reduce traffic noise in outdoor living area(s) (OLAs) based on the Region's established sound level objectives.
Tree Canopy Replacement Policy on Regionally Owned Lands (2008)	<u>Description:</u> The Tree Canopy Replacement Policy is in place to: • Protect areas with significant tree cover; • Promote conservation; • Recognize the importance of trees for health and welfare; • Maintain trees along major transportation corridors; • Replace trees when cut down; and • Develop new treescapes.
Regional Road Landscaping Guidelines and Specifications (2018)	<u>Description:</u> The Guidelines and Specifications outline the recommended treatments for various cross-sections and features within the ROW. This includes treatments in medians, boulevards, bioswales, roundabouts and in rural areas, planting, stormwater management, utilities and topsoil specifications.

Regional Document	Description/Relevance
Mobility Management Strategy for Halton (2016)	<u>Description:</u> In 2017, Regional Council endorsed Report No. PW-03-17/LPS13-17 re: “Mobility Management Strategy for Halton” outlining a strategy to guide the evolution of a Regionwide inter/intra transportation network over the next 25 years. The strategy focused on the principle of “Mobility-as-a-Service”, recognizing that mobility options are no longer clearly divided between automobile and transit, but rather focus on a menu of travel options including sustainable and active transportation modes. Through the Mobility Management Strategy, a Region-wide grid network of approximately 156 km of key Transit Priority Corridors and approximately 36 km of Mobility Links were identified. This network built on the strengths of the existing transportation networks in Halton (Provincial, Regional, Local) to support the Major Transit Station Areas, while enhancing connectivity amongst the local municipal and inter/intra-regional transit networks. At the time, these corridors built upon the Higher Order Transit Corridors identified in the Regional Official Plan and the Transportation Master Plan (2011) and were to serve as key links to existing and planned destinations within and beyond Halton Region. The Mobility Management Strategy recommended further study of the Transit Priority Corridor Network.

Regional Document	Description/Relevance
Defining Major Transit Requirements in Halton (2019)	<u>Description:</u> In May 2019, the Region completed the Defining Major Transit Requirements in Halton Study (DMTR). The study delineated the 2031 and 2041 Preliminary Transit Priority Network, in order to identify order-of-magnitude investment requirements for the Transit Priority Corridors that support inter/intra-regional connections and the potential growth of the Major Transit Station Areas. As part of the DMTR Study, Preliminary 2031 and 2041 Recommended Transit Priority Corridor Networks were identified. The networks comprised of mixed traffic corridors, priority bus corridors (with transit priority measure such as transit signal priority and queue jump lanes) and bus Rapid Transit Corridor (with dedicated transit lanes).
Halton Region's Access By-Law No. 32-17	<u>Description:</u> By-Law to prohibit, restrict, and regulate access to the Regional Road System to maintain a high level of service for through traffic, and ensures that where new access is necessary, such access is planned, designed, maintained and operated for safe access.

2.3 Municipal Planning Context

The Town of Milton planning policies were reviewed to identify their relevance to the North Halton Coordinated MCEA Study and are summarized in **Table 2-3**.

Table 2-3: Municipal Planning Context

Municipal Document	Description/Relevance
Town of Milton Official Plan (2024 and Office Consolidation February 2026, Official Plan Amendment 92 (2025))	<u>Description:</u> The Town of Milton Official Plan is currently being updated to manage growth in the community to the year 2051. We May Milton is a multi-year review and update. A meeting was held in December 2024 for a municipality initiated Official Plan amendment to update all of the lands within the Town of Milton. On March 17, 2025, Town Council approved Official Plan Amendment 92 to implement the first set of changes that have been proposed through the Official Plan review. Schedule 1 – Town Structure Plan shows the land uses within this study consisting of urban area with employment area along the east side of the corridor.
Sixteen Mile Creek, Areas 2 & 7 Subwatershed Update Study (2015)	<u>Description:</u> The Sixteen Mile Creek Watershed Plan 1996 provided strategies for various development and land use activities within the Sixteen Mile Creek Watershed. The Town elected to initiate the Sixteen Mile Creek Areas 2 & 7 Subwatershed Update Study (SUS) to update and refine the baseline environmental constraints within the future Secondary Planning areas within the Sixteen Mile Creek Watershed and to update the management opportunities.
Town of Milton Transportation Master Plan Update (2025)	<u>Description:</u> In 2025, the Town of Milton updated their TMP to outline a long-term vision for the Town’s transportation network, balancing walking, riding, and driving..
Milton Transit Services Review and Master Plan Update (2024)	<u>Description:</u> The Transit Service Strategy provides short and long-term improvements to help Milton Transit better meet the Town’s current transit needs to 2031 and beyond. A review is completed every five years and the current review period is from 2024 to 2029.

Municipal Document	Description/Relevance
Britannia Secondary Plan (2025)	<u>Description:</u> The Britannia Secondary Plan is part of Milton's next phase of growth. The Secondary Plan area is envisioned to be developed as a creating complete, walkable neighbourhoods that provide a range and mix of uses, including a range of housing options and access to amenities and services.
Derry Green Corporate Business Park Secondary Plan, Consolidation (2015)	<u>Description:</u> The purpose of the Derry Green Corporate Business Park Secondary Plan is to establish a more detailed planning framework for the Derry Green Corporate Business Park Planning District in support of the general policy framework provided by the OP. The Secondary Plan is designed to create a comprehensively planned, high quality, corporate business park with a significant component of office and other prestige uses. This area will also serve as a gateway to the Urban Area and, as such, will reflect the strong sense of community and the environment.

3. Consultation / Engagement

Meaningful public and stakeholder input is an important and fundamental component of the MCEA process. Transparent and inclusive engagement improves the success of a project, obtains stakeholder buy-in and support. The public, interested stakeholders, and First Nations and Indigenous Communities were engaged throughout the study process.

The consultation and engagement process undertaken for the MCEA Study is outlined herein and supporting materials for consultation and engagement with the public, agencies and First Nations and Indigenous Communities are provided in **Appendices A to C** respectively.

The intent of the consultation and engagement and holding Public Information Centres (PICs) for this project was to provide the public, stakeholders, external agencies, and First Nations and Indigenous Communities an opportunity to identify their comments and contribute to the Recommended Design Concept. **Appendices A to C** also outline the key comments received and how they were addressed during the study.

3.1 Consultation Approach

The North Halton Coordinated MCEA study considered improvements along the following three corridors:

- James Snow Parkway (Regional Road 4) from Britannia Road (Regional Road 6) to just south of Highway 401;
- Regional Road 25 from 5 Side Road to 10 Side Road; and
- Steeles Avenue (Regional Road 8) from Regional Road 25 to Trafalgar Road (Regional Road 3).

The consultation and engagement approach for the study combined key consultation events and milestones, including public notices, PICs, agency meetings, letters, email correspondence, project website, etc. to discuss improvements and study updates for the three study corridors, unless otherwise stated.

A variety of stakeholder groups were identified for the study, including individual agencies, utilities, residents and the general public. These stakeholders were contacted throughout the study and encouraged to provide input. Communication with agencies, stakeholders, and the public took place through a variety of means including:

- Letters
- Emails
- Phone calls
- Notices
- Newspaper advertisements (for Notice of Study Commencement)
- Online advertisements (for PICs)
- Halton Region project website (visit the North Halton Coordinated Municipal Class Environmental Assessment Study webpage at halton.ca)
- Meetings
- PICs

The communication and consultation complied with the *Accessibility for Ontarians with Disabilities Act, 2005* (AODA).

Residents and property owners situated along the study corridor were directly mailed the Notice of Commencement on April 20th, 2023. Additional stakeholders and agencies who may have interest in the study were also provided notification of the study commencement.

Following the study commencement, individuals who expressed interest in the project and those who requested further information, were added to the project mailing list (mail and / or e-mail). Those on the contact list were contacted at appropriate stages to inform them of study updates and events, as required.

The project website provided information to the members of the public who are interested in the project.

3.1.1 Halton Region Website – Project Webpage

The project webpage was created on the Halton Region website (Halton.ca) to coincide with the issuance of the Notice of Commencement. The project webpage presented the study location, purpose and scope. The project webpage was updated as needed throughout the study to provide information on ways to get involved throughout the study, online PICs events and contact information to allow those interested in the study an opportunity to contact the project team.

3.2 Agency Consultation

The following agencies, including provincial ministries, local municipalities, utilities and schools were contacted for information, comments and input for the study:

- Provincial Agencies
 - Ministry of the Environment, Conservation, and Parks (MECP)
 - Ministry of Agriculture, Food and Rural Affairs
 - Ministry of Economic Development, Job Creation and Trade
 - Ministry of Municipal Affairs and Housing - Central Municipal Services Office
 - Ministry of Northern Development, Mines, Natural Resources and Forestry - Aurora District
 - Niagara Escarpment Commission (NEC)
 - Ministry of Transportation (MTO)
 - Ministry of Natural Resources (MNR)
 - Ministry of Citizenship and Multiculturalism (MCM)
 - Infrastructure Ontario (IO)
 - Metrolinx / GO Transit
 - Ontario Provincial Police (OPP)
- Regional and Other Agencies
 - Conservation Halton
 - Halton Region
 - Town of Halton Hills
 - Town of Milton
 - Halton Regional Police
 - EMS: Halton Region Paramedic Services
 - Halton Student Transportation Services
 - Halton Hills Fire Services
- Halton Region Internal Team
 - Infrastructure and Environmental Services
 - Engineering Construction and Transportation Management
 - Development Services
 - Realty Services

- Utilities
 - Hydro One Networks Inc.
 - Enbridge
 - Zazo Canada Inc.
 - Trans-Northern Pipelines Inc.
 - TC Energy Pipelines
 - Inter Pipeline
 - Bell Communications
 - Alectra Utilities
 - Atura Power
 - Cogeco Cable
 - Rogers Cable Communications Inc.
 - AT&T Canada
 - Suncor Energy
 - Halton Hills Hydro
 - Sun Canadian Pipeline
- School Boards
 - Halton District School Board
 - Halton Catholic District School Board
- Other
 - Conseil scolaire catholique MonAvenir
 - Canadian Pacific Kansas City (CPKC)

An External Technical Advisory Committee (TAC) was formed for the study comprising representatives from various agencies. An Internal TAC was also created and included internal staff at Halton Region. TAC meetings were held to discuss input, concerns, and technical details at various decision-making points throughout the study. Members of the committee were also invited to participate at PICs, and individual meetings with agencies were held throughout the duration of the project.

Key agency feedback received, and meeting minutes are summarized in **Appendix B**.

3.2.1 Conservation Halton

The Project team consulted with Conservation Halton throughout the study:

- Wetland Boundary Survey
 - Introductory Meeting - September 20th, 2023 - Discuss the wetland boundaries, subwatershed studies, and natural environment resources along the three study corridors.
 - Three site visits were conducted to determine the wetland boundaries on September 29th, October 2nd and 3rd, 2023.
- Meeting #1 – October 31st, 2023 – Introduce the study and discuss the existing natural environment resources.
- Meeting #2 – September 13th, 2024 - Introduce the design alternatives considered and present the preliminary recommendations.
- Meeting #3 – November 25th, 2024 – Recap the design alternatives and present the recommended design concept.
- Meeting #4 – July 10th, 2025 – Recap the preliminary recommended design concept and present the preliminary drainage recommendations.

Key agency feedback received, and meeting minutes are summarized in **Appendix B**.

3.3 Stakeholder Consultation

Stakeholders including adjacent landowners, residents, businesses, developers, and Regional and Local Councillors were identified and/or by requests submitted to the Project Team. A list of relevant project stakeholders include:

- Residents (adjacent to the study corridor)
- Property Owners (adjacent to the study corridor)
- Developers

Stakeholders were circulated on project notifications and were provided with opportunities to contact the Region's Project Manager to share comments and obtain feedback throughout the study. Key feedback received and project team responses are documented in **Appendix A**.

3.4 First Nations and Indigenous Communities Engagement

As part of the MCEA process, the Region engaged with First Nations and Indigenous Communities that may have an interest in or may potentially be affected by the project.

The Region identified the following First Nations and Indigenous Communities who may have an interest in the study area. In addition, MECP's response letter to the Notice of Commencement dated April 26th, 2023 confirmed the requirement to engage with the Mississaugas of the Credit First Nation (MCFN), the Six Nations of the Grand River (Six Nations of the Grand River Elected Council), and Haudenosaunee Confederacy Chiefs Council. As a result, the list of First Nations and Indigenous Communities identified for engagement for this MCEA study include:

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River
 - Six Nations of the Grand River Elected Council
 - Haudenosaunee Confederacy Chiefs Council
 - Haudenosaunee Development Institute
- Métis Nation of Ontario
- Wendat Nation (added to the contact list on November 22nd, 2023)

The Notice of Commencement was circulated to the aforementioned list of First Nations and Indigenous Communities on April 20th, 2023 and both the Notice of PIC #1 and letters with the draft Stage 1 Archaeological Assessment (AA) Report were sent on November 22nd, 2023. The Region followed-up with the First Nations and Indigenous Communities via email following the Notice of PIC #1 for comments and interest in the work completed to-date. The Notice of PIC #2 and letters were sent on December 9th, 2024.

Table 3-1 provides a summary of the Project Team's efforts to engage with the, First Nations and Indigenous Communities listed above. Letters provided to First Nations and Indigenous Communities can be found in **Appendix C**.

Table 3-1: First Nations and Indigenous Communities Engagement

First Nations and Indigenous Communities Engagement	Date	Notification Details
Mississaugas of the Credit First Nation	April 20, 2023	Sent study commencement letter and notice via e-mail.
Six Nations of the Grand River Elected Council	April 20, 2023	Sent study commencement letter and notice via e-mail.
Haudenosaunee Confederacy Chiefs Council (Haudenosaunee Development Institute)	April 20, 2023	Sent study commencement letter and notice via e-mail.
Métis Nation of Ontario	April 20, 2023	Sent study commencement letter and notice via e-mail.
Mississaugas of the Credit First Nation	November 22, 2023	Sent notice of PIC1 and Stage 1 Archaeological Assessment Report for review and comment via e-mail
Six Nations of the Grand River Elected Council	November 22, 2023	Sent notice of PIC1 and Stage 1 Archaeological Assessment Report for review and comment via e-mail
Haudenosaunee Confederacy Chiefs Council (Haudenosaunee Development Institute)	November 22, 2023	Sent notice of PIC1 and Stage 1 Archaeological Assessment Report for review and comment via e-mail
Métis Nation of Ontario	November 22, 2023	Sent notice of PIC1 and Stage 1 Archaeological Assessment Report for review and comment via e-mail
Wendat Nation	November 22, 2023	Sent notice of PIC1 and Stage 1 Archaeological Assessment Report for review and comment via e-mail

First Nations and Indigenous Communities Engagement	Date	Notification Details
Mississaugas of the Credit First Nation	December 9, 2024	Sent PIC #2 letter and notice via e-mail.
Six Nations of the Grand River Elected Council	December 9, 2024	Sent PIC #2 letter and notice via e-mail
Haudenosaunee Confederacy Chiefs Council (Haudenosaunee Development Institute)	December 9, 2024	Sent PIC #2 letter and notice via e-mail
Métis Nation of Ontario	December 9, 2024	Sent PIC #2 letter and notice via e-mail
Wendat Nation	December 9, 2024	Sent PIC #2 letter and notice via e-mail
Mississaugas of the Credit First Nation	June 3, 2026	Sent Draft Natural Environment and Tree Inventory Report via e-mail.
Six Nations of the Grand River Elected Council	June 3, 2026	Sent Draft Natural Environment and Tree Inventory Report via e-mail.
Mississaugas of the Credit First Nation	September 16 th , 2026	Sent Notice of Completion via e-mail
Six Nations of the Grand River Elected Council	September 16 th , 2026	Sent Notice of Completion via e-mail
Haudenosaunee Confederacy Chiefs Council (Haudenosaunee Development Institute)	September 16 th , 2026	Sent Notice of Completion via e-mail
Métis Nation of Ontario	September 16 th , 2026	Sent Notice of Completion via e-mail
Wendat Nation	September 16 th , 2026	Sent Notice of Completion via e-mail

A summary of correspondence with First Nations and Indigenous Communities is provided in **Appendix C**.

On December 9, 2024, Six Nations of the Grand River inquired about potential impacts to greenspace, trees and habitat Halton Region outlined the key elements of the Natural Environment investigations and that mitigation measures will be developed and documented in the ESR. The Region provided the Draft Natural Environment and Draft Tree Inventory Report on June 5, 2026 for review and comment.

On January 16, 2024, Mississaugas of the Credit First Nation noted that they reviewed the Stage 1 Archaeological Reports and that they have no comments or concerns with the reports. The Region provided the Draft Natural Environment and Draft Tree Inventory Report on June 5, 2026 for review and comment. On July 23, 2026, Mississaugas of the Credit First Nation noted that they will not be providing comments at this time.

3.5 Consultation Events

3.5.1 Notice of Commencement

The Notice of Commencement was mailed to all identified stakeholders and property owners / residents adjacent to the study corridor on April 20th, 2023 (total of 174 mailed notices). The notice was e-mailed to Councilors, Halton Staff, and agencies on April 20th, 2023. The notice was placed on the Region's website on April 20th, 2023 and newspaper advertisements were published in the Milton Canadian Champion and the Independent and New Press to inform the public of the project. The dates for the newspaper advertisements are listed in **Table 3-2**.

Table 3-2: Notice of Commencement Newspaper Advertisements

Newspaper	Date
Milton Canadian Champion	April 20 th and 27 th , 2023
The Independent and Free Press	April 20 th and 27 th , 2023

The Notice of Commencement and newspaper advertisements are provided in **Appendix A**.

3.5.2 Public Information Centre (PIC) #1

The Region held the first PIC online from November 23rd, 2023 to December 21st, 2023.

The purpose of PIC #1 was to:

- Introduce the study, study process, study background and supporting policy documents, problem and opportunity for improvements, recommended alternative solution(s);
- Present typical rural cross-section and draft evaluation framework to be developed and considered in the next stage of the study;
- Receive input regarding the project and recommendations; and
- Discuss next steps.

The Notice of PIC was placed on the project webpage (Halton – North Halton Coordinated Municipal Class Environmental Assessment Study) on Halton.ca and circulated to the local businesses and residents on November 23rd, 2023 (total of 164 mailed notices).

Metroland no longer prints local newspapers as of September 2023. To inform the public living in the Towns of Milton and Halton Hills on the upcoming PIC, online advertisements were published on Insidehalton.com and theIFP.ca between November 23 to December 7, 2023.

The PIC was online and separate videos were posted on the Region's project webpage to allow participants to view specific parts of the project or corridors they were interested in. Each video included audio clips. Individuals could visit the webpage anytime during this period to view the material at their leisure, learn about and share their input on the study findings and recommendations. Participants were able to provide comments through the Region's webpage through an online survey. Participants were asked which corridor they are interested in, and the webpage auto-populated the specific corridor survey for participants to provide comments and recommendations.

The PIC#1 Summary Report documenting the communication materials used, detailed comments and project team responses is provided in **Appendix A**.

3.5.3 Public Information Centre (PIC) #2

The Region held the second PIC online from December 9th, 2024 to January 10th, 2025.

The format from PIC #1 was used for PIC #2. The purpose of PIC #2 was to:

- Provide an overview of the study process, background, common themes or comments from PIC #1, design considerations, evaluation criteria and the preferred alternative solution(s) for each corridor;
- Present the road and AT alternatives, evaluations and recommendations, and preliminary recommended cross-sections, design and renderings for each corridor;
- Receive input regarding the project and recommendations; and
- Discuss next steps.

The Notice of PIC #2 was placed on the project webpage (Halton – North Halton Coordinated Municipal Class Environmental Assessment) on Halton.ca and circulated to the First Nations and Indigenous Communities, agencies and residents via email on December 9th, 2024. Due to the Canada Post strike from November 15th, 2024 to December 17th, 2024, the notices were hand delivered to residents, tenants and local businesses adjacent to the study corridor on December 11th and 12th, 2024. Following the Canada Post strike, notices were mailed to property owners who do not reside along the study corridor on December 23rd, 2024.

To inform the public living in the Towns of Milton and Halton Hills on the upcoming PIC, online advertisements were published on TheIFP.ca and InsideHalton.com between December 9th, 2024 to January 10th, 2025.

The PIC #2 Summary Report documenting the communication materials used, detailed comments and project team responses is provided in **Appendix A**.

3.5.4 Filing of the Environmental Study Report

The ESR for the James Snow Parkway corridor documents the decision-making process during the study. The Notice of Completion of this MCEA Study notifies members of the public, agencies and First Nations and Indigenous Communities that the ESR is available for public review for a 30-day period. The ESR is made available for public review from September 16th, 2026 to October 16th, 2026 on the project website (<https://www.halton.ca/for-residents/roads-construction/municipal-class-environmental-assessment-studies/north-halton-coordinated-mcea-study>).

4. Existing and Future Conditions

4.1 Existing Features

Key features along the James Snow Parkway study corridor from Britannia Road to just south of Highway 401 are shown in **Figure 4-1** and include:

1. Paved shoulders on the east side, no dedicated AT facilities from Britannia Road to Louis St. Laurent Avenue;
2. Middle Sixteen Mile Creek Tributary A;
3. Union Gas Pipeline Trail;
4. Regionally significant woodlands;
5. Multi-use Path facilities on the west side from Louis St. Laurent Avenue to just south of Highway 401 interchange;
6. Milton Fire Station 4;
7. CPKC rail underpass;
8. Hydro One transmission corridor / station;
9. Various ponds and watercourse features; and
10. Highway 401 interchange.

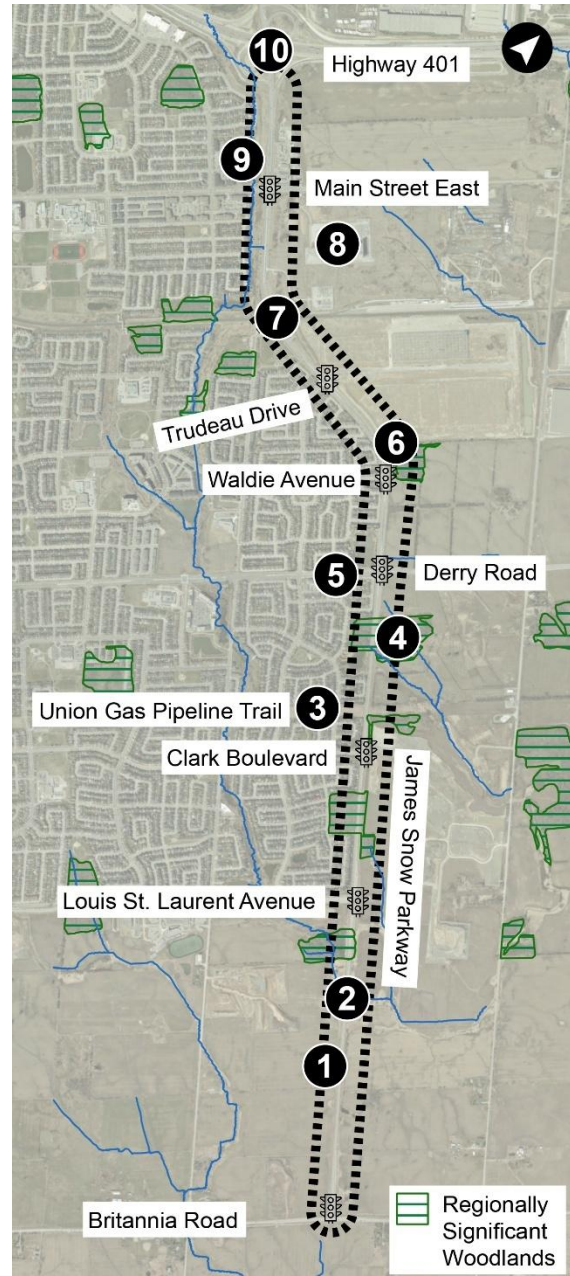


Figure 4-1: Key Features

4.2 Local Context

4.2.1 Land Use Assessment

The James Snow Parkway study corridor, as presented in **Figure 4-2**, is located within urban designated land and has a mix of existing residential, institutional, commercial, greenfield lands and agricultural land uses.

The study area is classified predominantly as residential on the west side of James Snow Parkway and business park and industrial on the east side.

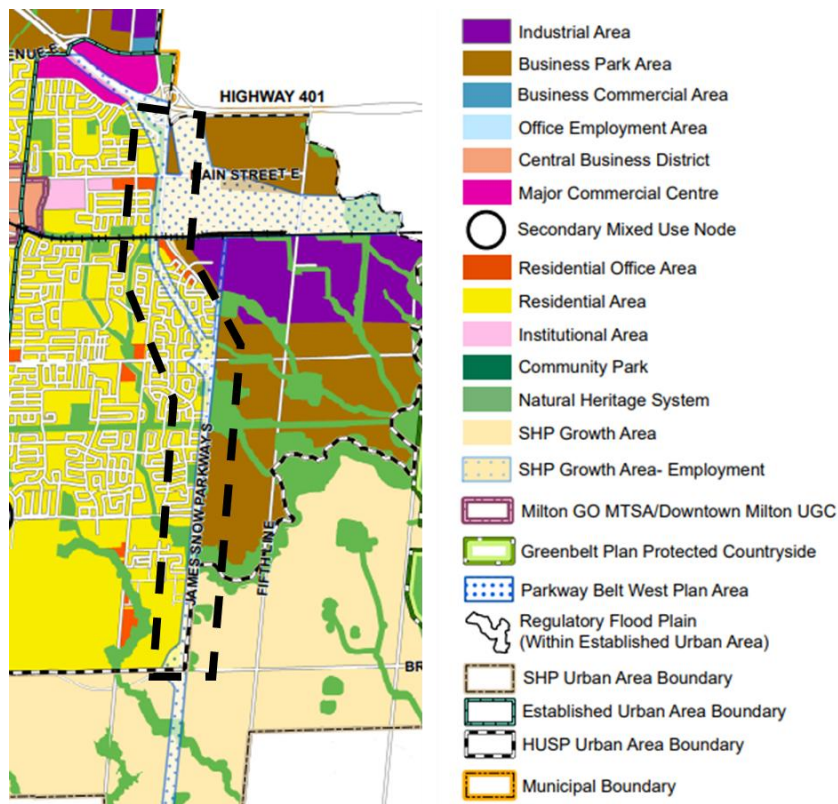


Figure 4-2: Map of Milton Urban Land Use Adjacent to the Study Corridor (Source: Town of Milton OP (2024), Schedule B)

4.2.2 Existing Local Businesses

The locations of the local businesses abutting or having direct access from James Snow Parkway are shown in **Figure 4-3**. The Maingate Retail Centre located in the northeast quadrant of the James Snow Parkway and Main Street East intersection includes 26 individual businesses, including, but not limited to, McDonalds, Esso, Circle K and Starbucks. The Business Park located east of James Snow Parkway from the Highway 401 interchange to south of Louis St. Laurent Avenue contains companies such as DHL, Rockwool and Oxford Properties.



Figure 4-3: Location of Local Businesses

4.3 Transportation Conditions

The existing and future “do nothing” transportation conditions were assessed for James Snow Parkway from Britannia Road to south of the Highway 401 interchange. In addition, a traffic safety and roundabout feasibility review were completed.

4.3.1 Existing Transportation Conditions

4.3.1.1 ROAD NETWORK

James Snow Parkway (Regional Road 4) is a north-south Major Arterial road. From Britannia Road to Derry Road, it is a two lane (one lane per direction) arterial road which widens at intersections (i.e. Britannia Road, Louis St. Laurent Avenue, Clark Boulevard and Derry Road) to accommodate left and/or right turning movements. From Derry Road to just south of Highway 401, James Snow Parkway is a four lane (two lanes per direction) Major Arterial road which widens at intersections (i.e. Derry Road, Waldie Avenue, Trudeau Drive and Main Street E) to accommodate left and/or right turning movements. As identified in the TMP, the James Snow Parkway right-of-way is 47 m. The posted speed limit is 70 km/h from Britannia Road to Main Street E and 60 km/h from Main Street E to just south of Highway 401. James Snow Parkway has seven intersecting roads: Britannia Road, Louis St. Laurent Avenue, Clark Boulevard, Waldie Avenue, Derry Road, Trudeau Drive and Main Street East. All signalized intersections have an auxiliary left turn lane on all north-south approaches.

There are no truck restrictions on James Snow Parkway but there are truck restrictions along streets intersecting James Snow Parkway, including Clark Boulevard, Waldie Avenue, Trudeau Drive, and along Main Street to the east of James Snow Parkway.

The James Snow Parkway corridor connects to various emergency, utility, and commercial lots. The number of access points along the study corridor is generally clustered around the northeastern end of the study area between Waldie Avenue and Main Street. The number of access points is summarized in **Table 4-1**.

Table 4-1: Intersections and Driveways on James Snow Parkway (Highway 401 to Britannia Road)

Distance	Intersecting Roads	Parking Lots / Driveways	Residential Driveways	Total
5.8 km	7	7	0	14

4.3.1.2 EXISTING ACTIVE TRANSPORTATION NETWORK

The existing AT network within the James Snow Parkway study area is limited due to the differences in land uses and community types from urban to rural, few key destinations along the corridor, significant distances between crossings, and missing sidewalk connections and dedicated cycling facilities.

Along James Snow Parkway from Louis St. Laurent Avenue to just south of Highway 401, there is a boulevard MUP along the west-side for both cyclists and pedestrians. There are no sidewalks or cycling facilities on either side of James Snow Parkway from Britannia Road to Louis St. Laurent Avenue. The existing sidewalks and the Union Gas Pipeline Trail connection lead into the western residential neighbourhoods. Under the CPKC rail overpass structure, there are sidewalks on both sides. Other than the sidewalks on both sides under the CPKC rail overpass, there are no sidewalks on the east side of James Snow Parkway.

At the intersections of Louis St. Laurent Avenue, Clark Boulevard, and Trudeau Drive, crosswalk markings are not provided on all east-west approaches. The intersections along James Snow Parkway currently do not have enhanced crosswalks / crossrides.

Providing dedicated and continuous facilities for pedestrians and cyclists along James Snow Parkway, including protected intersections, would support alternative modes of transportation and reduce reliance on automobiles for short and medium-distance trips.

4.3.1.3 EXISTING TRANSIT SERVICE

The Town of Milton is serviced by Milton Transit and GO Transit. **Figure 4-4** illustrates the transit routes in the area from Milton Transit's Transit System Map. Milton Transit operates on weekdays and Saturdays. The Milton Transit Interactive Transit System Map shows the latest available network.

The following transit routes pass through the study area:

- **Milton Transit Route 21 Steeles:** Route 21 travels north-south along James Snow Parkway between Main Street and Steeles Avenue, and travels on Steeles Avenue to the east of James Snow Parkway and Main Street to the west. Route 21 eastbound and westbound buses have schedule frequencies of 35 minutes throughout the entire day, operating between 6 AM and 10 PM, Monday to Friday.
- **GO Milton Line:** The Milton Line is a Regional train that travels east-west from Milton GO Station to Union GO Station. GO Milton Line operates every 15 minutes during peak hours and 30 during off-peak hours.

- **GO Transit Route 21 Milton Line:** Route 21 GO Regional bus travels east-west between Milton GO and Union Station. Route 21 operates approximately every 30 minutes.
- **GO Transit Route 22 Milton / Oakville:** Route 22 GO Bus travels north-south between Milton GO and Oakville GO. Route 22 operates approximately every one to two hours.
- **GO Transit Route 27 Milton / North York:** The Route 27 GO Bus travels east-west between Milton GO and the Finch Bus Terminal. Route 27 operates approximately every 30 minutes during peak hours and every hour during off-peak hours.

The study corridor has one transit stop located north of Main Street on the west side of James Snow Parkway. The transit stop has a concrete pad but does not have any additional transit amenities.

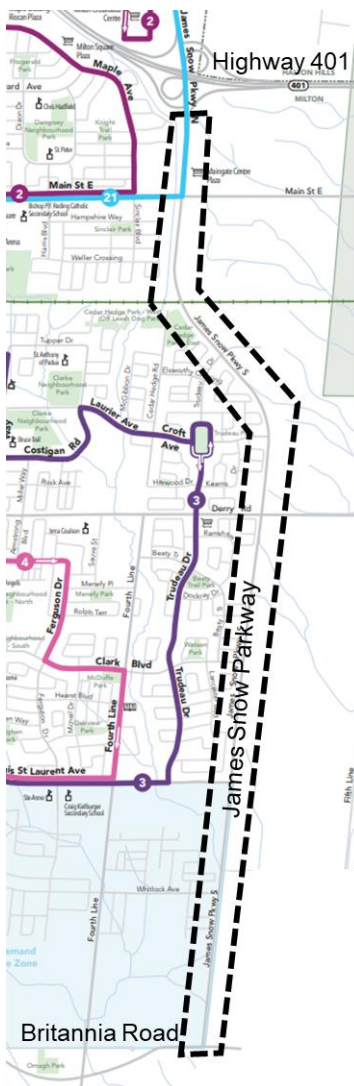


Figure 4-4: Transit System Map (Source: Milton Transit, Accessed: November 12, 2025)

4.3.1.4 LEVEL OF SERVICE ANALYSIS

An assessment of existing vehicle infrastructure in the study corridor was undertaken.

The level of service is based on the scale shown in **Table 4-2**.

Table 4-2: LOS Definitions

Level of Service (LOS)	LOS Recommendations
A	Ideal
B	Acceptable
C	Acceptable
D	Somewhat undesirable
E	Undesirable
F	Unacceptable

The target LOS of segments is a LOS of “D”. Along James Snow Parkway is generally performing at LOS of “D”.

To assess the existing traffic operations at the signalized intersections in the study area, a transportation analysis was conducted using the software program Synchro Traffic Signal Coordination Software Version 11.

Generally, the study area intersections operate within capacity and with low delays, however, several movements at major intersections such as Main Street East and Derry Road experience high delays (LOS of “E” or “F”) with some movements operating at capacity. The large turning lane queues observed at the intersections with Derry Road, Trudeau Drive, and Main Street should be reviewed for optimization or geometric improvements in the future to mitigate blockage of through lanes.

The following observations summarize the key findings from the existing Synchro operations:

- The intersections of James Snow Parkway with Britannia Road, Louis St. Laurent Avenue and Waldie Avenue operate well in the existing conditions with no critical movements. All other intersections in the study area have several critical movements due to either high delay (LOS “E” or “F”) or are operating near capacity.
- The intersection of James Snow Parkway with Main Street operates with an overall LOS of “E” and all other intersections operate with an LOS of “D” or better.

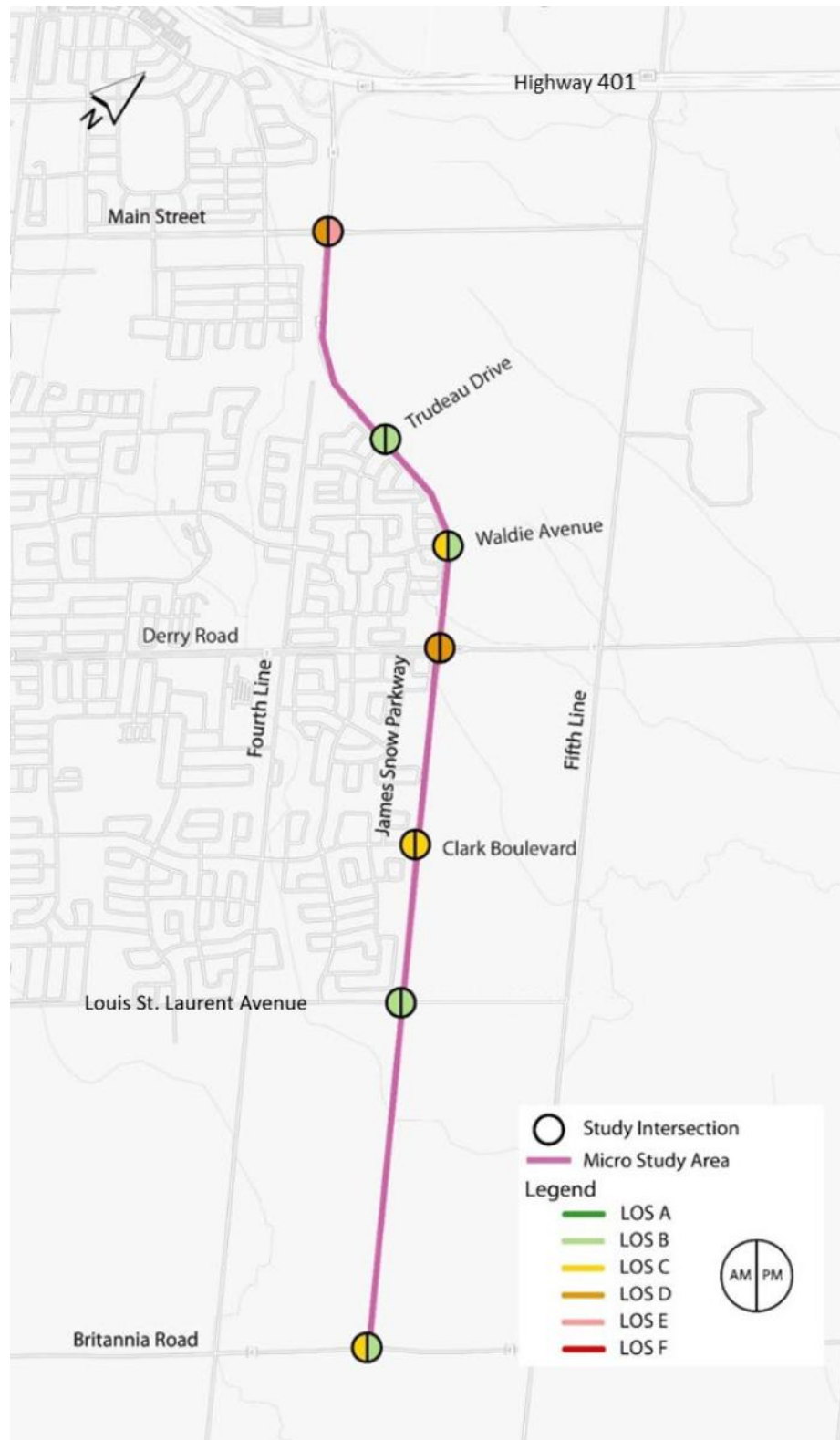


Figure 4-5: Existing Intersection Vehicle LOS (AM and PM)

- The northbound right and southbound left turns during the AM peak, and southbound right turn during the PM peak operate at capacity with high delays (LOS of “F”) at the intersection with Derry Road. The northbound left and southbound right turns at the intersection with Main Street operate at capacity during the PM peak hour.
- Large queues are observed on the eastbound left turns onto James Snow Parkway at the intersections with Trudeau Drive and Main Street. There are large queues at James Snow Parkway and Derry Road during the AM peak hour on the northbound right turning movement. The queues at these movements extend beyond the available storage lengths that may block the adjacent through lanes.

4.3.2 Road Safety Review

A Road Safety Review was conducted to assess the safety conditions of the intersections and mid-block road segments along James Snow Parkway and to recommend mitigation measures if any safety concerns were identified. Five years of data from collision reports from 2017 to 2021 (inclusive) were reviewed. The goal of the assessment was to identify trends in collisions and potential opportunities for improvement.

A total of 288 collisions were recorded within James Snow Parkway study corridor from 2017 to 2021. No fatalities were recorded within the corridor over the five-year period. The number of non-fatal injury collisions has generally declined over time, down to seven non-fatal injury collisions in 2021 compared to ten collisions in 2017. The number of property damage collisions increased slightly between 2017 and 2021, from 28 collisions to 32 collisions. A significant reduction in non-reportable collisions is observed, down to five collisions in 2021 from 31 collisions in 2017. Slight decreases of all accidents are observed in 2020, potentially due to the reduced demands from the COVID pandemic.

When assessing collision trends along James Snow Parkway, varying traffic volumes and the degree of exposure at each intersection or segment should be considered. Collision rates, which account for average yearly collisions and peak hour volumes, were calculated at each intersection and segment to identify locations that may be experiencing a higher-than-normal propensity for collisions. Collision rates below 1.00 generally reflect a normal propensity for collisions that could be attributable to basic human error, however, values above 1.00 may be an indication that other factors are contributing to the higher collision rate and should be considered in further detail to identify potential causes. The collision rate is calculated by the average yearly collisions per million vehicles entering the intersection, which is estimated by assuming that the daily volume is five times higher than the AM and PM peak hour volumes combined.

Based on the assessment, the majority of the collisions along James Snow Parkway appear to be a result of driver error, such as following vehicles too closely, not obeying traffic controls at intersections, failing to yield the ROW, or improperly changing lanes, passing, or turning. The intersections of James Snow Parkway with Britannia Road, Derry Road and Main Street experienced collision rates above 1.00 with the majority of collisions identified as rear-ends or sideswipes which may indicate that the collisions resulted from high levels of congestion and from the changes in posted speeds at the intersections with Derry Road and Main Street. Improving the flow of vehicles at these intersections is expected to reduce the amount of rear-end collisions within the study corridor.

4.3.3 Future Transportation Conditions – “Do Nothing”

The 2031 Do Nothing scenario was assessed where no roadway improvements was assumed relative to the existing conditions for James Snow Parkway between Britannia Road and Main Street. The base future road network improvements that will be incorporated into the Future Do Nothing scenario include:

- James Snow Parkway extension from Britannia Road to Highway 407;
- Derry Road widening from four to six lanes from Tremaine Road to Highway 407; and
- Britannia Road widening from two to six lanes from Regional Road 25 to Highway 407.

2031 Do Nothing Scenario

A 2031 Do Nothing scenario traffic analysis was completed for James Snow Parkway. James Snow Parkway northbound between Clark Boulevard and Derry Road is projected to exceed capacity during the AM peak hour.

Several intersections along James Snow Parkway on the northbound and southbound sections during the AM and PM are projected to approach capacity in the 2031 Do Nothing scenario.

2031 Do Nothing Scenario – Arterial Level of Service (LOS)

The existing and future do-nothing scenarios arterial LOS were analyzed and compared along James Snow Parkway in both the northbound and southbound directions to estimate the delay and travel time impacts along the study corridor with the existing configuration of James Snow Parkway between Britannia Road and Main Street.

Generally, the study area intersections operated with relatively low delays and acceptable speeds, however, several segments approaching major intersections experienced high delays (LOS E or F) due to congested conditions and slow speeds. James Snow Parkway experienced the highest delays approaching Britannia Road, Derry Road, and Main Street.

4.3.4 Future Transportation Conditions – Widening

The future Do Nothing and Widening scenario were analyzed and compared along James Snow Parkway in both northbound and southbound directions to assess the intersection operations and travel time impacts along the study corridor from the widening of James Snow Parkway. The Widening scenario builds on the future Do Nothing scenario by widening the corridor to three lanes per direction. The growth rates used in this MCEA for the future transportation conditions are comparable to the those in the Halton Region IMP.

The study area corridor is shown to operate better in the Widening scenario compared to the Do Nothing scenario, with improved signal operations and travel times. The widening of James Snow Parkway would mitigate several critical LOS observed in the Do Nothing scenario. It is recommended that James Snow Parkway be widened to three lanes per direction to accommodate expected developments and growth, provide a consistent cross-section with the planned extension of James Snow Parkway south of Britannia Road, and to alleviate projected critical conditions in the Do Nothing scenario.

4.3.5 Roundabout Feasibility Review

A Roundabout Feasibility Review was completed to determine whether signalized intersections would be viable for conversion to roundabout control types. A Roundabout Feasibility Review Memo was prepared and completed in accordance with Halton Region's Roundabout Guidelines.

The Review assessed the James Snow Parkway intersections at Main Street and Derry Road. Based on the assessment, both candidate intersections were not recommended for conversion to a roundabout control type due to property constraints, disruptions to arterial traffic platoons, heavy directional flows on the Major Arterial, and conflicts with future Transit Priority Corridor measures along James Snow Parkway.

4.4 Existing Environmental Conditions

4.4.1 Socio-Economic Environment

4.4.1.1 DEMOGRAPHICS

According to the 2021 Census, the population of Halton Region was over 596,600 in 2021 with Milton making up 22% of the Region's population (over 132,900 people). Milton experienced one of the largest population increases in the Region of about 21% from 2016 to 2021. In 2021, over 284,700 people were employed in Halton Region, where the Town of Milton made up 22% of the employment force (over 70,600 employees).

4.4.1.2 NOISE

A noise assessment was undertaken based on the Halton Noise Abatement Guidelines (2014) and MECP Guidelines. Noise impacts from transportation projects are evaluated at noise sensitive areas (NSAs). The OLA is the part of an outdoor amenity area provided for the quiet enjoyment of the outdoor environment. The OLA is typically an area at ground level accommodating outdoor living activities. Under the MECP Guidelines, NSAs must have an OLA associated with them when assessing noise impacts.

For the implementation of capital road projects, future noise levels with and without the capital project improvement were assessed through the noise prediction model ORNAMENT from MECP. Where increases in noise levels are predicted, greater than 5 dBA the Region will investigate noise control measures within ROW where a minimum attenuation of 5 dBA can be achieved. Where the predicted noise level increase is 0-5 dBA, no mitigation is required.

When noise mitigation is not warranted on the basis of projected noise levels, an application may be made through a petition process under the Retrofit guideline if existing noise levels are greater than 60 dBA.

The noise analysis was undertaken at 26 NSAs identified along the James Snow Parkway corridor to assess potential impacts at sensitive land uses within the study area.

Section 8.16 discusses the findings of the noise assessment based on the proposed improvements to James Snow Parkway. The Noise Impact Assessment Report is provided in **Appendix K**.

4.4.1.3 SOURCE WATER PROTECTION

The Clean Water Act, 2006 helps communities protect their drinking water supplies through prevention – by developing collaborative, watershed-based source protection plans that are locally driven and based on science. The project is located in the Halton-Hamilton Source Protection Area, which contains policies to protect existing and future municipal drinking water sources, in accordance with the Clean Water Act.

There are no areas considered vulnerable as there are no intake protection zones, wellhead protection areas, highly vulnerable aquifers or significant groundwater recharge areas within the study area.

4.4.1.4 UTILITIES

The James Snow Parkway study corridor has the following above and below ground utilities:

Above Ground:

- Overhead hydro poles serviced by Milton Hydro on the west from Britannia Road to Derry Road and crosses to the east from Derry Road to south of the Highway 401 interchange; and
- Rogers aerial fibre cables on the east side of the corridor.

Below Ground:

- Enbridge Gas in-service high pressure segment line and distribution segment lines on the east side of the corridor;
- Enbridge Gas storage pipeline corridor located along the Union Gas Pipeline Trail ;
- Centurylink buried assets located along the Rail corridor;
- Milton Hydro underground utilities on both sides of the corridor; and
- Rogers buried fibre cable on both sides of corridor.

4.4.2 Cultural Environment

4.4.2.1 ARCHAEOLOGY

A Stage 1 Archaeological Assessment (AA, under Project Information Form Number P1066-0340-2023) Report was completed as a part of the MCEA Study. The full report is included in Appendix E. A Stage 1 AA consists of a review of geographic, land use and historical information for the property and the relevant surrounding area, a property visit to inspect its current condition and contacting MCM to find out whether, or not, there are any known archaeological sites on or near the property. Its purpose is to identify areas of archaeological potential and further archaeological assessment (e.g. Stage 2 4) as necessary. The full report is included in **Appendix E**.

Background research determined there are 63 previously registered archaeological sites located within 1 km of the study area and that part of the study area has been previously assessed (**Figure 4-6 to Figure 4-16**). Of the sites within 50 m of the study area, none have been noted to have further cultural heritage value or interest.

The report found that parts of the Study Area exhibit archaeological potential. If impacted, these lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, prior to any construction activities. The Stage 1 AA report has been entered into the Ontario Public Register of Archaeological Reports.

4.4.2.2 CULTURAL HERITAGE LANDSCAPES AND BUILT HERITAGE RESOURCES

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment was conducted as a part of the MCEA Study. The full report can be found in **Appendix D**.

The results of background historical research and a review of secondary source material including historical mapping, indicate a study area with a rural land use history dating back to the early nineteenth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed that there are no known built heritage resources (BHRs) and no known cultural heritage landscapes (CHLs) in the study area. No additional potential BHRs or CHLs were identified during the background information review and fieldwork.



Legend



STUDY AREA



DISTURBED - NO POTENTIAL



PHOTO LOCATION AND DIRECTION

Figure 4-6: Map of Areas with Archaeological Potential

There are no areas with archaeological potential in the section of James Snow Parkway between Highway 401 and Main Street East.



Legend



Figure 4-7: Map of Areas with Archaeological Potential

Archaeological potential exists along the east side of James Snow Parkway between Main Street East and an unnamed road leading to an electrical facility.



Legend



STUDY AREA



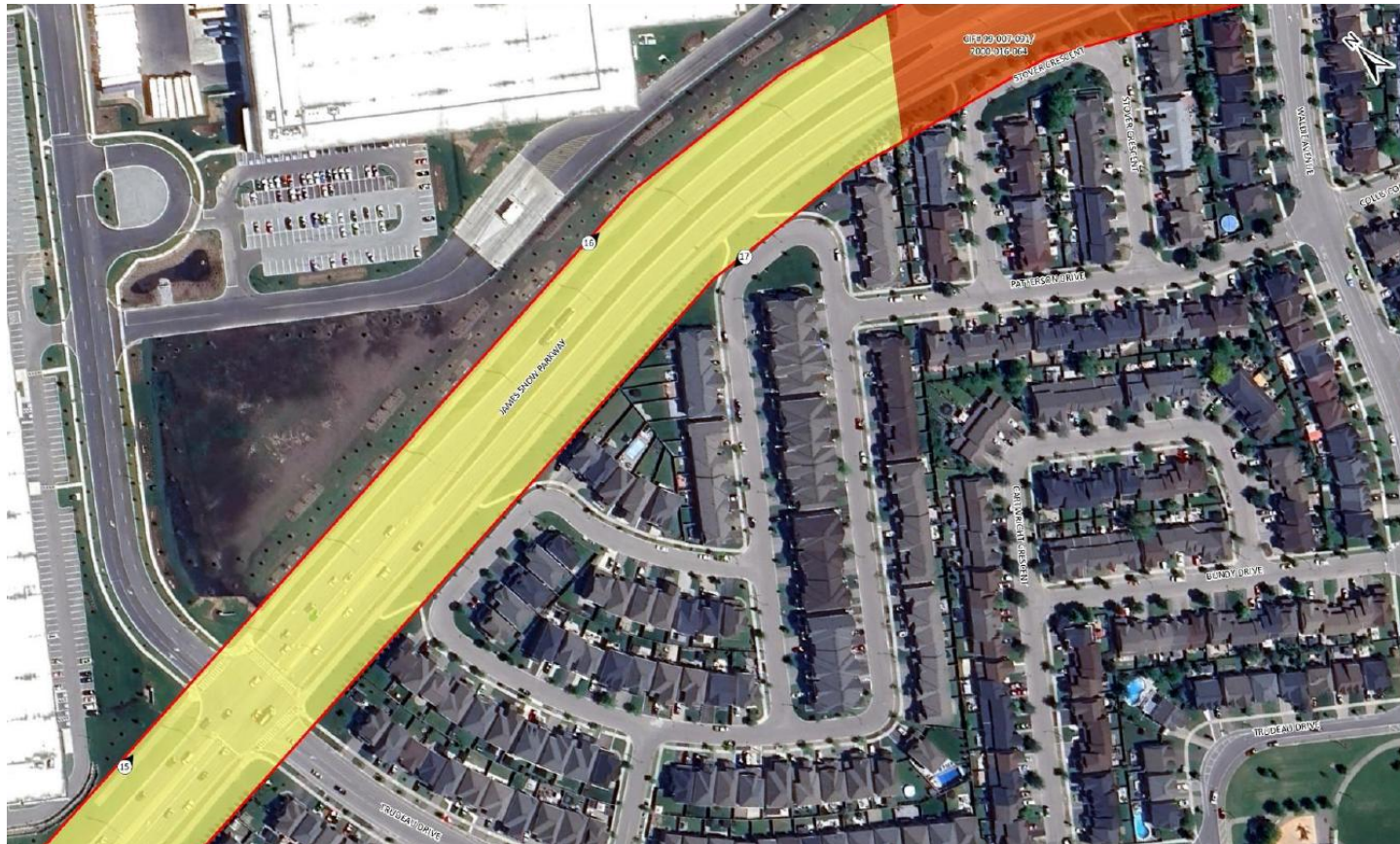
DISTURBED - NO POTENTIAL



PHOTO LOCATION AND DIRECTION

Figure 4-8: Map of Areas with Archaeological Potential

There is no archaeological potential along the stretch of James Snow Parkway that runs under the CPKC Rail corridor and east to Reading Court / Trudeau Drive.

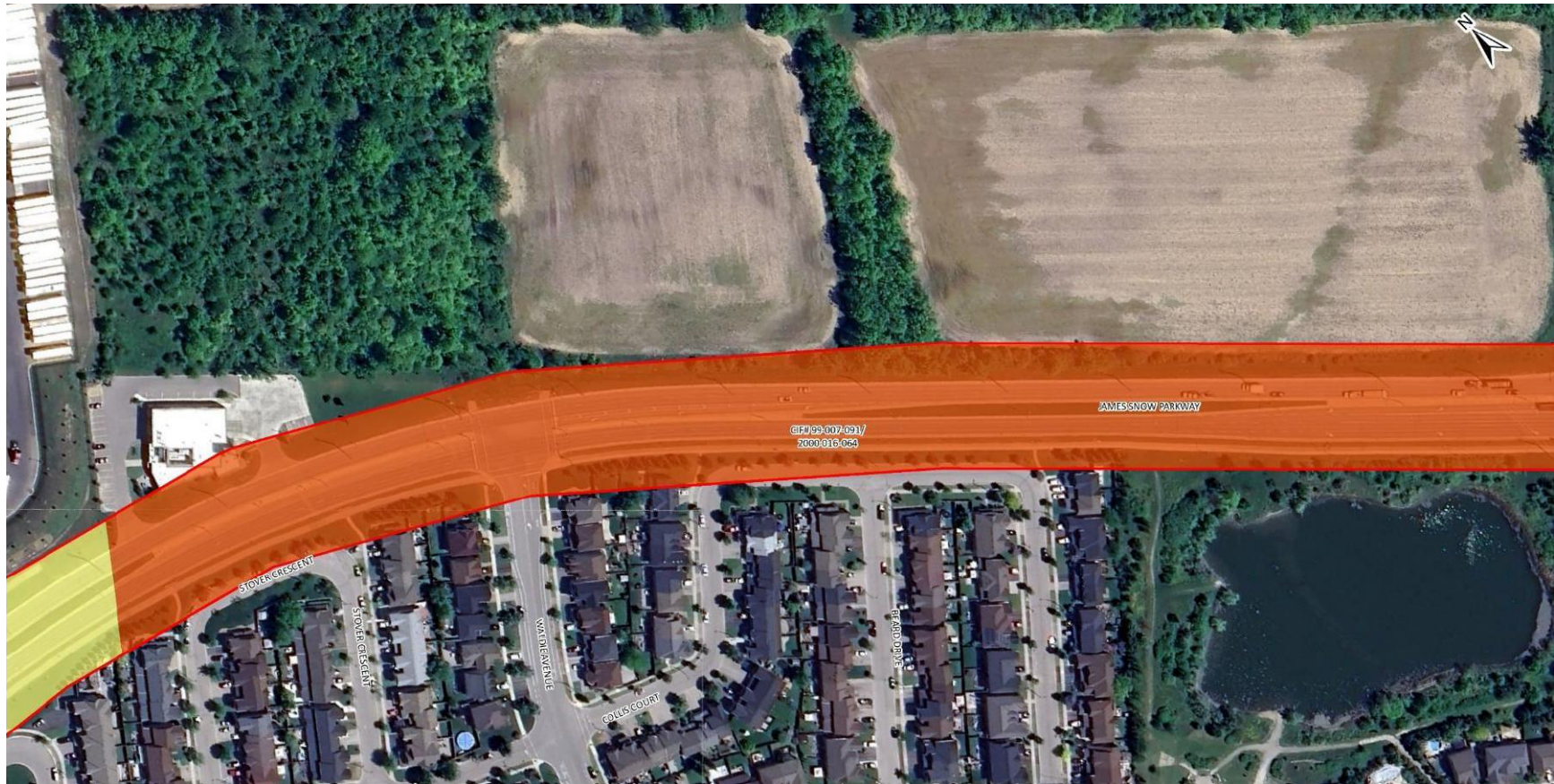


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Figure 4-9: Map of Areas with Archaeological Potential

There is no archaeological potential along the stretch of James Snow Parkway between Reading Court / Trudeau Drive and Waldie Avenue.



Legend



Figure 4-10: Map of Areas with Archaeological Potential

There is no archaeological potential along the stretch of James Snow Parkway between Waldie Avenue and Derry Road West.

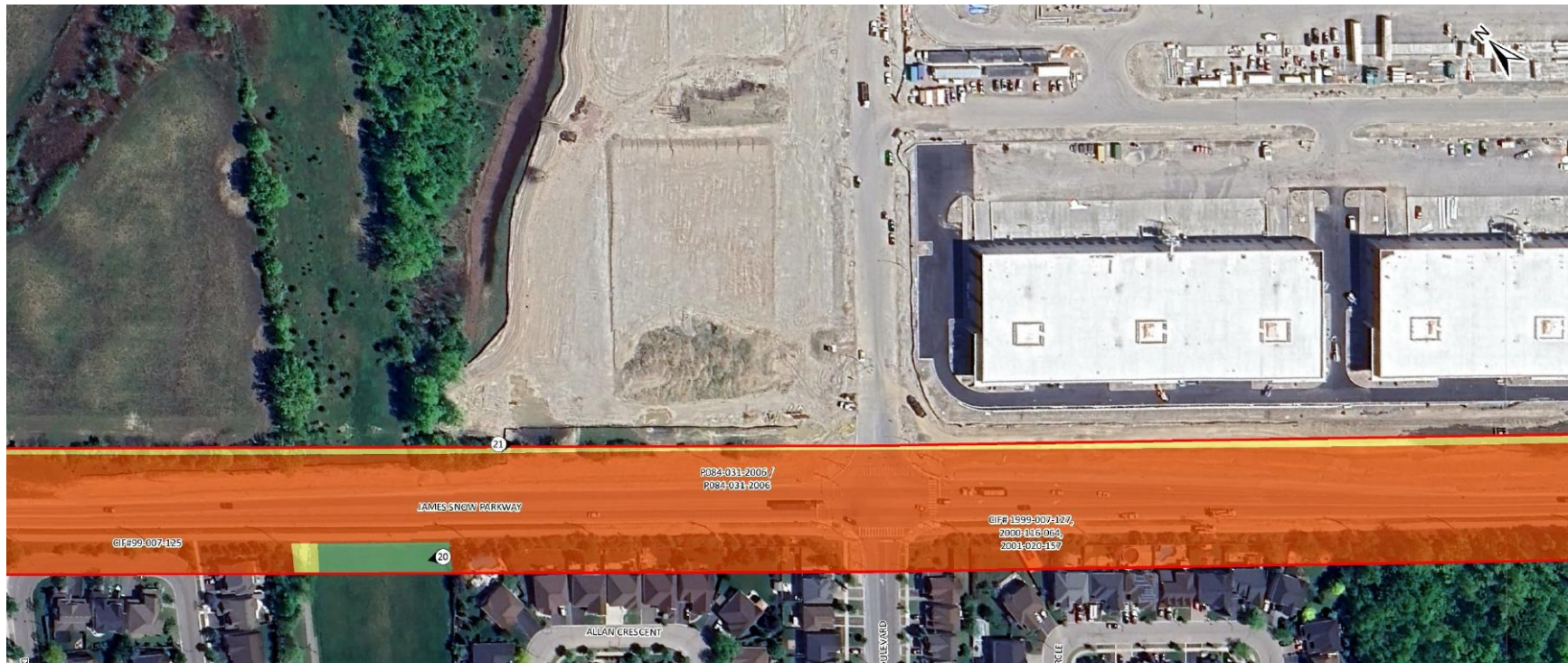


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Figure 4-11: Map of Areas with Archaeological Potential

There is no archaeological potential along the stretch of James Snow Parkway between Derry Road West and the Union Gas Trail.

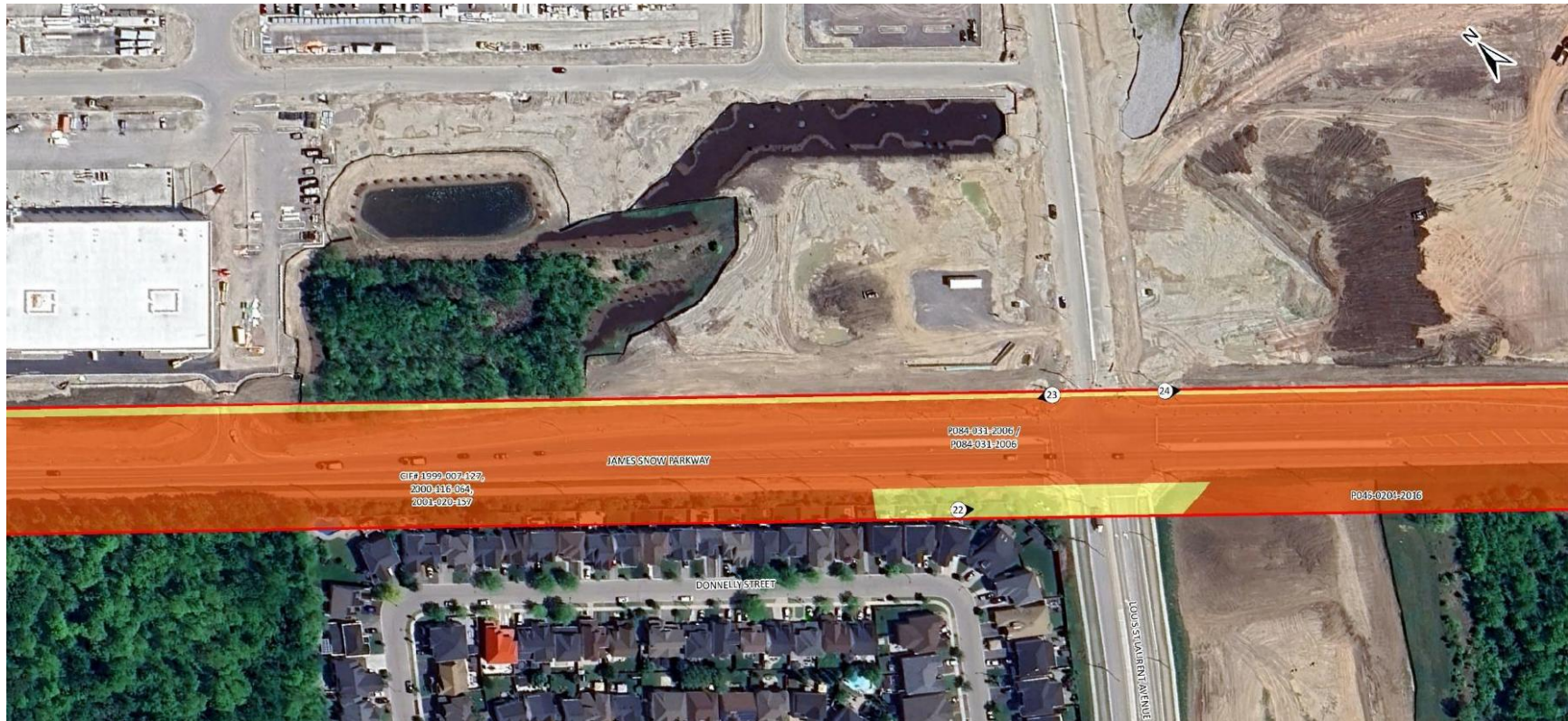


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	STUDY AREA		DISTURBED - NO POTENTIAL
	PHOTO LOCATION AND DIRECTION		PREVIOUSLY ASSESSED - NO FURTHER WORK REQUIRED
			POTENTIAL - REQUIRES TEST PIT SURVEY

Figure 4-12: Map of Areas with Archaeological Potential

Archaeological potential exists along the west side of James Snow Parkway in the approximately 56-metre stretch of land east of the Union Gas Trail, but there is no further archaeological potential around the Clark Boulevard intersection.

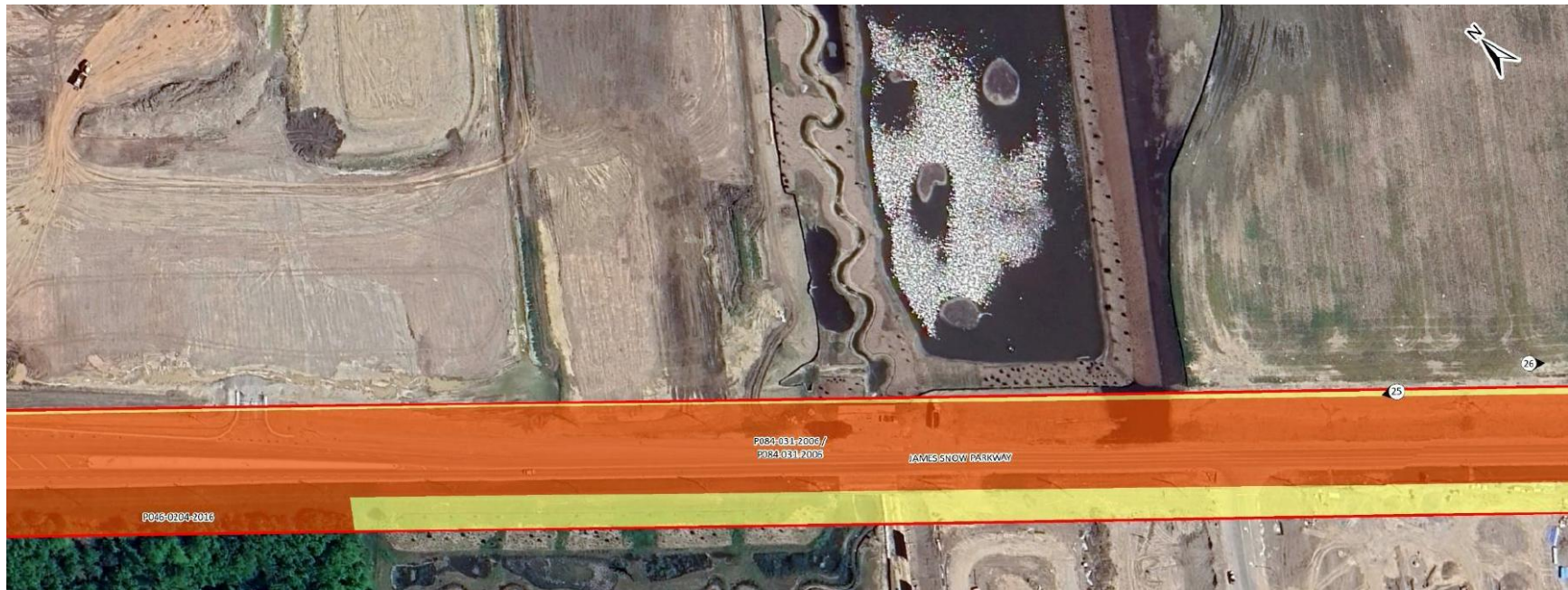


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Figure 4-13: Map of Areas with Archaeological Potential

There is no archaeological potential along the stretch of James Snow Parkway between Clark Boulevard and Louis St. Laurent Avenue.

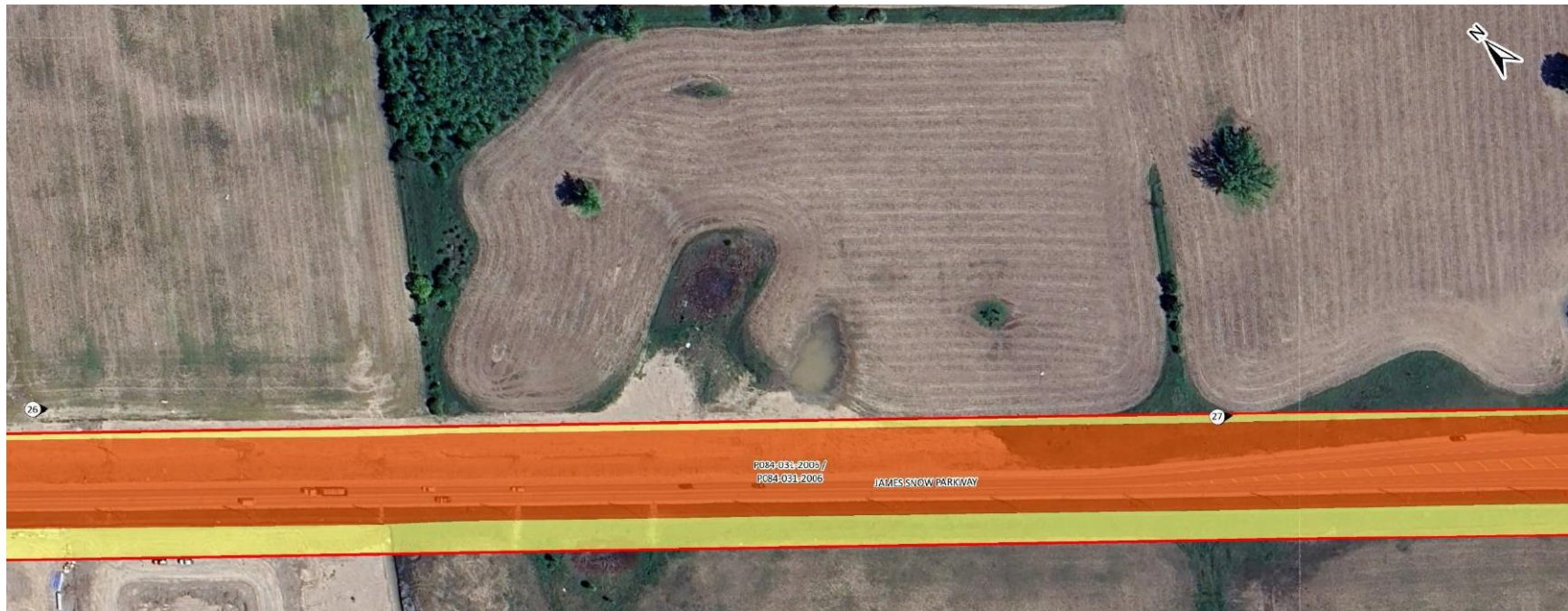


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Figure 4-14: Map of Areas with Archaeological Potential

There is no archaeological potential along the stretch of James Snow Parkway between Louis St. Laurent Avenue and Whitlock Avenue.



Legend



Figure 4-15: Map of Areas with Archaeological Potential

There is no archaeological potential along the stretch of James Snow Parkway east of Whitlock Avenue.



Legend



Figure 4-16: Map of Areas with Archaeological Potential

There is no archaeological potential at the terminus of James Snow Parkway at Britannia Road.

4.4.3 Natural Environment

A Natural Environment Report was completed as a part of the MCEA Study and is included in **Appendix F**. The natural environment features are summarized as follows (**Figure 4-17 to Figure 4-24**):

- The following features comprise part of the Regional NHS:
 - The study area falls within the Peel Plain physiographic region, which is characterized by relatively flat lands and predominantly clay soils. The topography of the study area follows a gradual downward sloping from northwest to southeast, following the drainage pattern of the larger Sixteen Mile Creek watershed and ultimately on to Lake Ontario.
 - The study area contains MNR-mapped unevaluated wetlands. These wetlands were confirmed through fieldwork as a combination of meadow marsh, thicket swamp and deciduous swamp wetland communities. The north end of the study area contains recently created/restored wetlands along the watercourse tributary to the west of James Snow Parkway and south of Highway 401 (**Figure 4-23, Figure 4-24**).
 - Multiple woodlands meet the Regional criteria to be considered Significant Woodlands. The study area includes a crossing of a tributary to the Middle Sixteen Mile Creek as well as other tributary reaches that run adjacent to the ROW or originate within the study area but do not cross the road. Direct fish habitat was confirmed in the study area.
 - Middle Sixteen Mile Creek Tributary A has recently been restored as part of adjacent land developments, both upstream and downstream of the road crossing. Generally, other study area watercourses were determined to be degraded and of low quality.
 - The study area wetlands, Middle Sixteen Mile Creek Tributary A and other watercourses and associated floodplain hazard lands are regulated by Conservation Halton.
 - Middle Sixteen Mile Creek Tributary A does not provide habitat for aquatic SAR.
 - All of the bat SAR previously protected under the *Endangered Species Act* are now protected under its successor legislation, the *Species Conservation Act* (SCA). Multiple trees were identified that may provide suitable roosting habitat for SAR bats.

- Two federally and provincially significant vegetation species, Butternut and Kentucky Coffee-tree, were inventoried within the study area. Two Butternut trees were observed within the FOD4 woodland, immediately adjacent to each other, at the location. Each of these trees is located approximately 24 m from the ROW. Both trees appeared to be healthy, as could be observed from roadside.
- Seven species that are considered significant in Halton Region were documented. Several additional species that are considered regionally significant occur as part of naturalization projects and are not naturally occurring and therefore are not considered significant in this context. These species include Red Pine which occurs as row-planted trees; Fragrant Sumac, Big Bluestem, and Little Bluestem, all of which occur as part of landscape plantings and do not represent a natural tallgrass prairie remnant; and Sandbar Willow and Shining Willow, which are planted individuals within the restored Middle Sixteen Mile Creek Tributary riparian corridor.
- One significant bird species, Barn Swallow (*Hirundo rustica*) was observed within the study area. Barn Swallow is listed as Threatened on Schedule 1 of the SARA (Government of Canada 2026). This species and its nesting habitat are protected under the SARA. Two Barn Swallows were observed foraging over the stormwater management pond on the west side of the ROW, adjacent to the FOD9 woodland. No nesting habitat was identified within the study area; therefore, no impacts to SARA-protected Barn Swallow habitat are anticipated as a result of the road improvement activities.
- Five herpetofauna species were recorded within the study area, comprising three anuran species, Northern Leopard Frog and Green Frog and two turtle species (Snapping Turtle and Midland Painted Turtle). Of these species, Snapping Turtle is listed as a species of Special Concern by COSSARO (MECP 2026). It is therefore considered a SCC in Ontario whose habitat may be considered a form of SWH.
- An assessment of SAR presence/absence was completed based on the results of background information review and field surveys. Based on these results, one SAR, Butternut, was confirmed to occur within the study area as mentioned above. Potential habitat for the SAR bats Little Brown Myotis, Northern Myotis, Tri-colored Bat, Silver-haired Bat, Hoary Bat, and Eastern Red Bat was identified for wooded natural features in the study area.
- A Significant Wildlife Habitat assessment was completed based on the results of background information review and field surveys, which identified Terrestrial Crayfish and Bat Maternity Colonies.

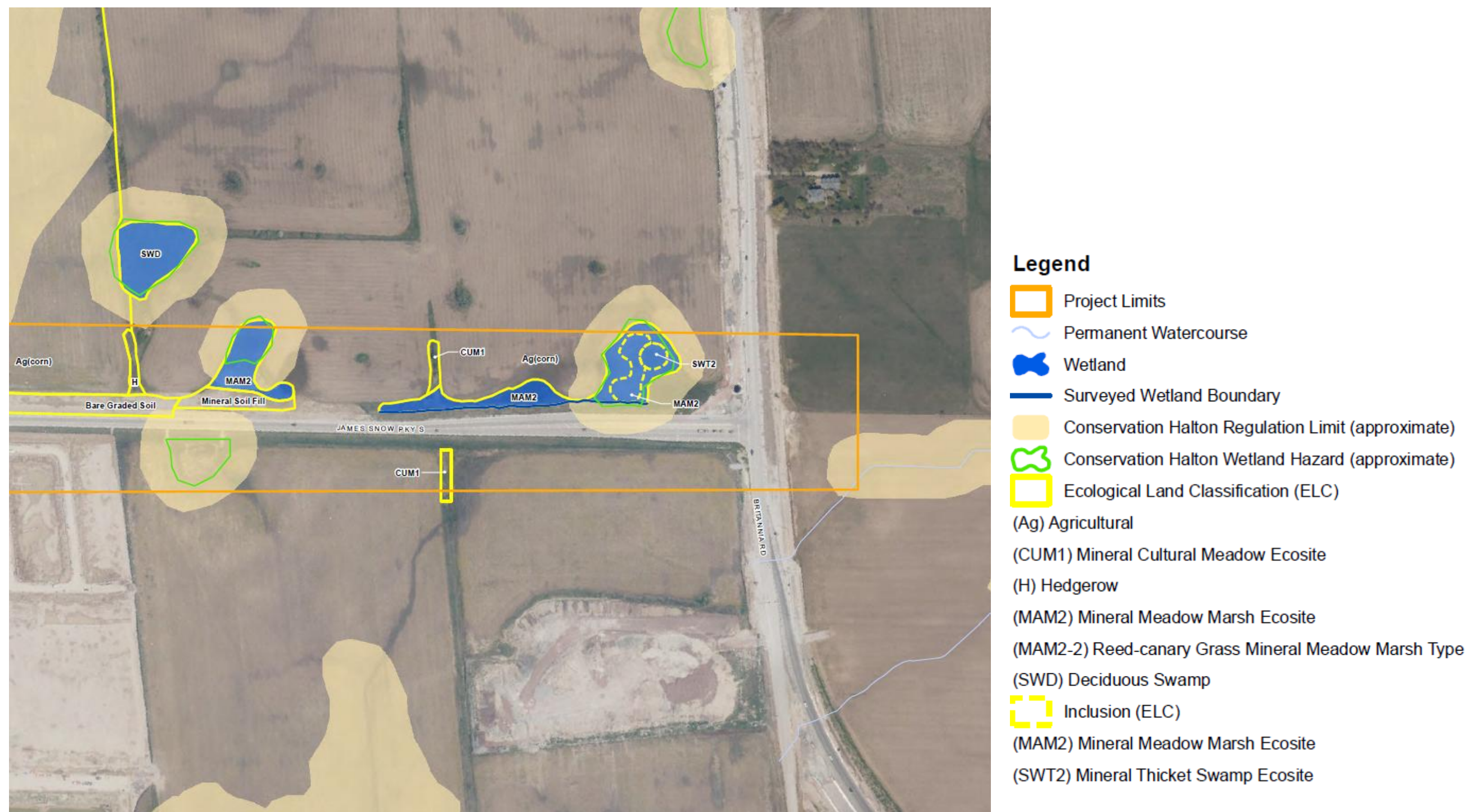


Figure 4-17: Map of Natural Environment Features

There are three wetlands along the east side of James Snow Parkway north of Britannia Road.

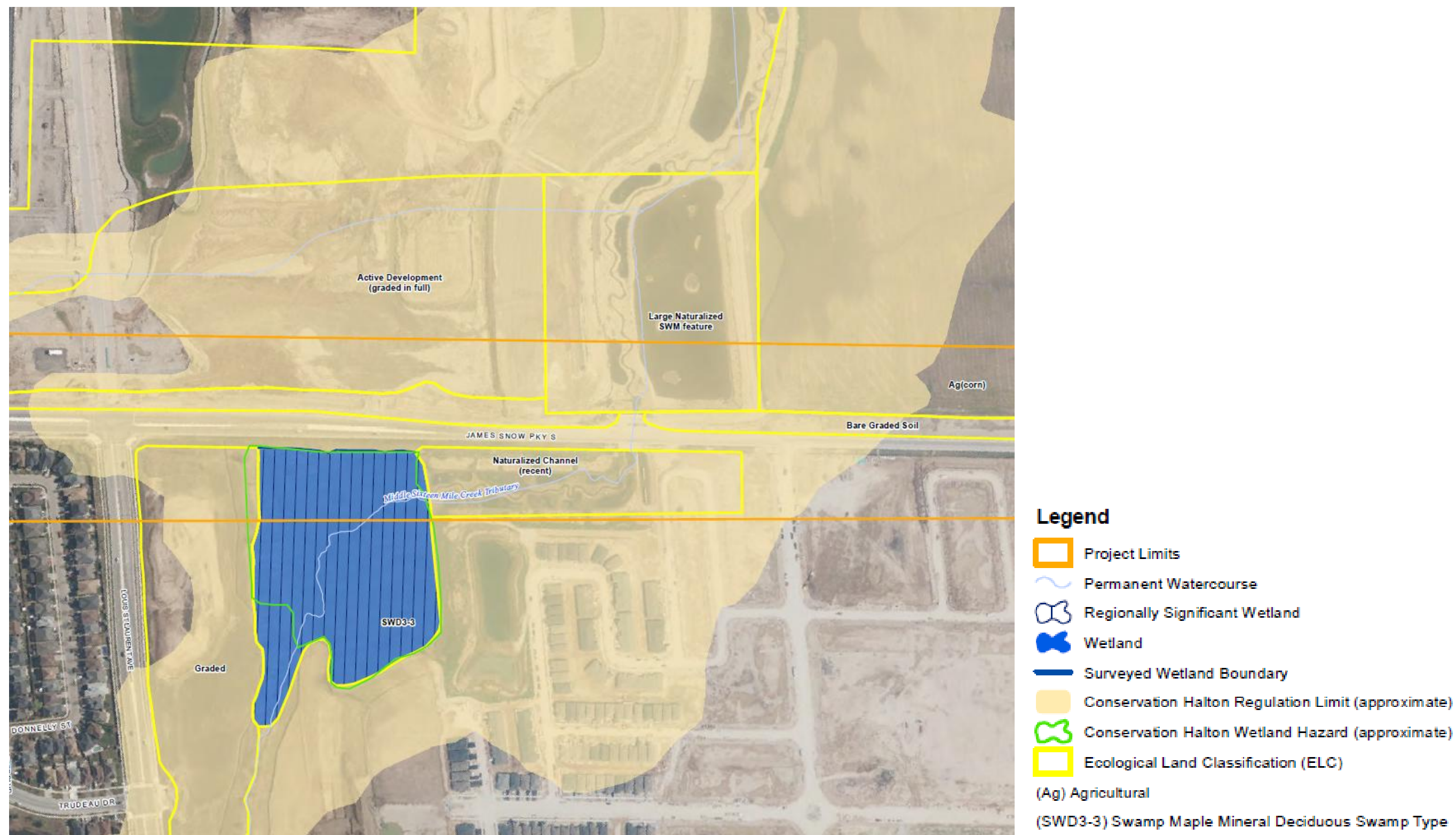


Figure 4-18: Map of Natural Environment Features

There is one regionally significant wetland along the west side of James Snow Parkway south of Louis St. Laurent Avenue. The Middle of Sixteen Mile Creek Tributary crosses James Snow Parkway south of Louis St. Laurent Avenue.

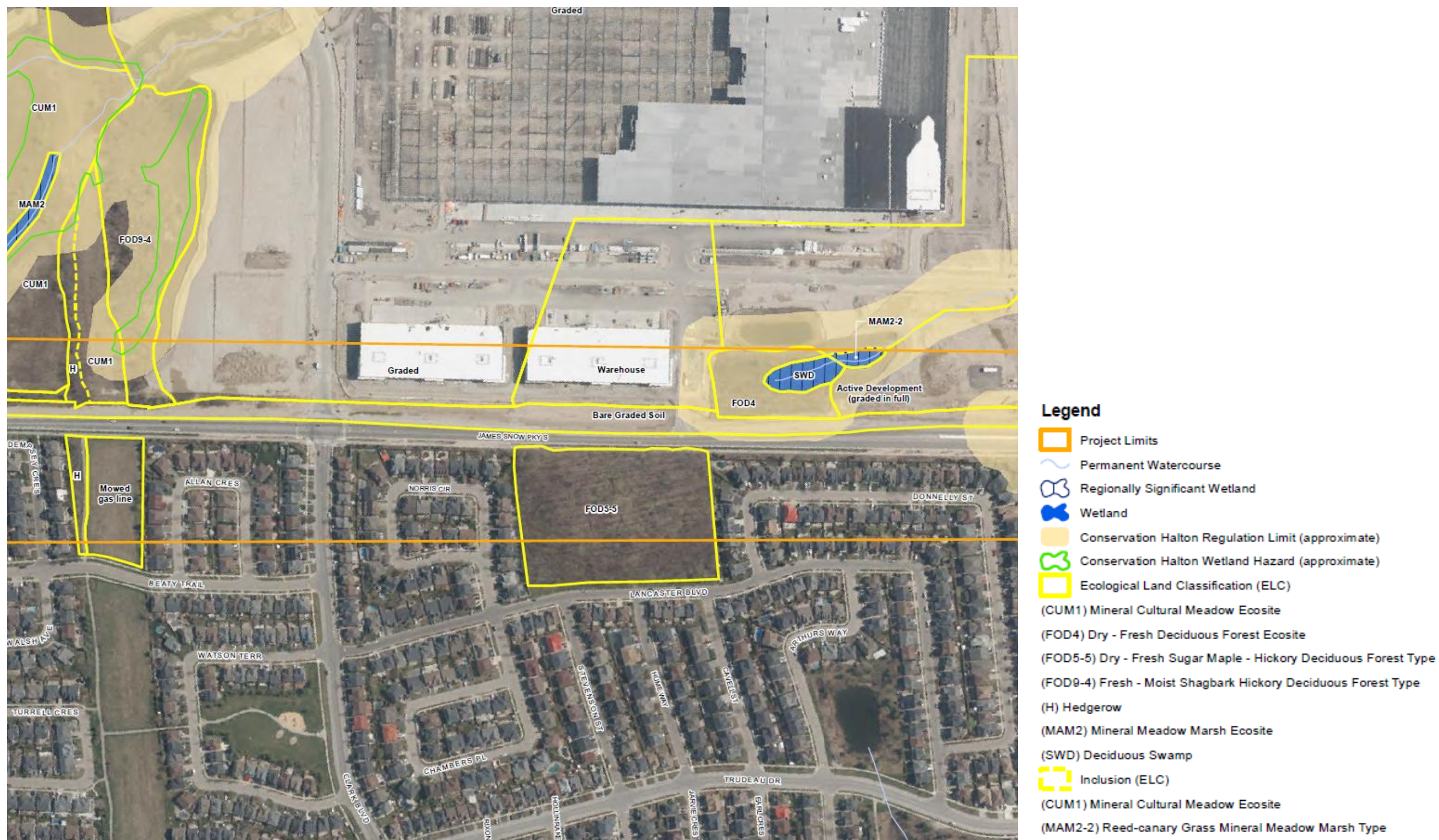


Figure 4-19: Map of Natural Environment Features

There is one regionally significant wetland along the east side of James Snow Parkway north of Louis St. Laurent Avenue.

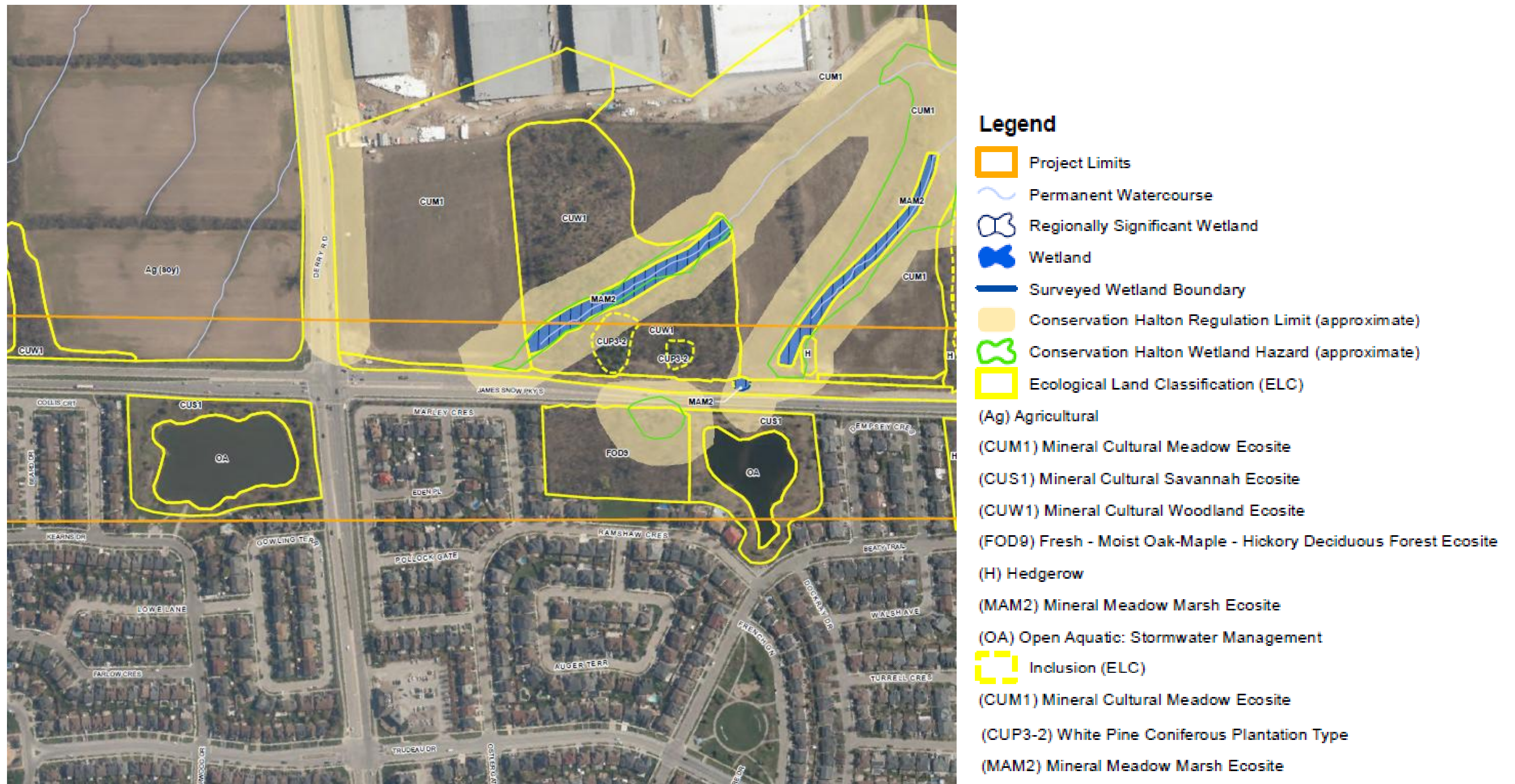


Figure 4-20: Map of Natural Environment Features

There are three regionally significant wetlands along the east side of James Snow Parkway south of Derry Road.



Figure 4-21: Map of Natural Environment Features

There are no significant natural environment features along James Snow Parkway from Reading Court to Derry Road.



Figure 4-22: Map of Natural Environment Features

There is one regionally significant wetland along the west side of James Snow Parkway north of the CPKC Rail Underpass.

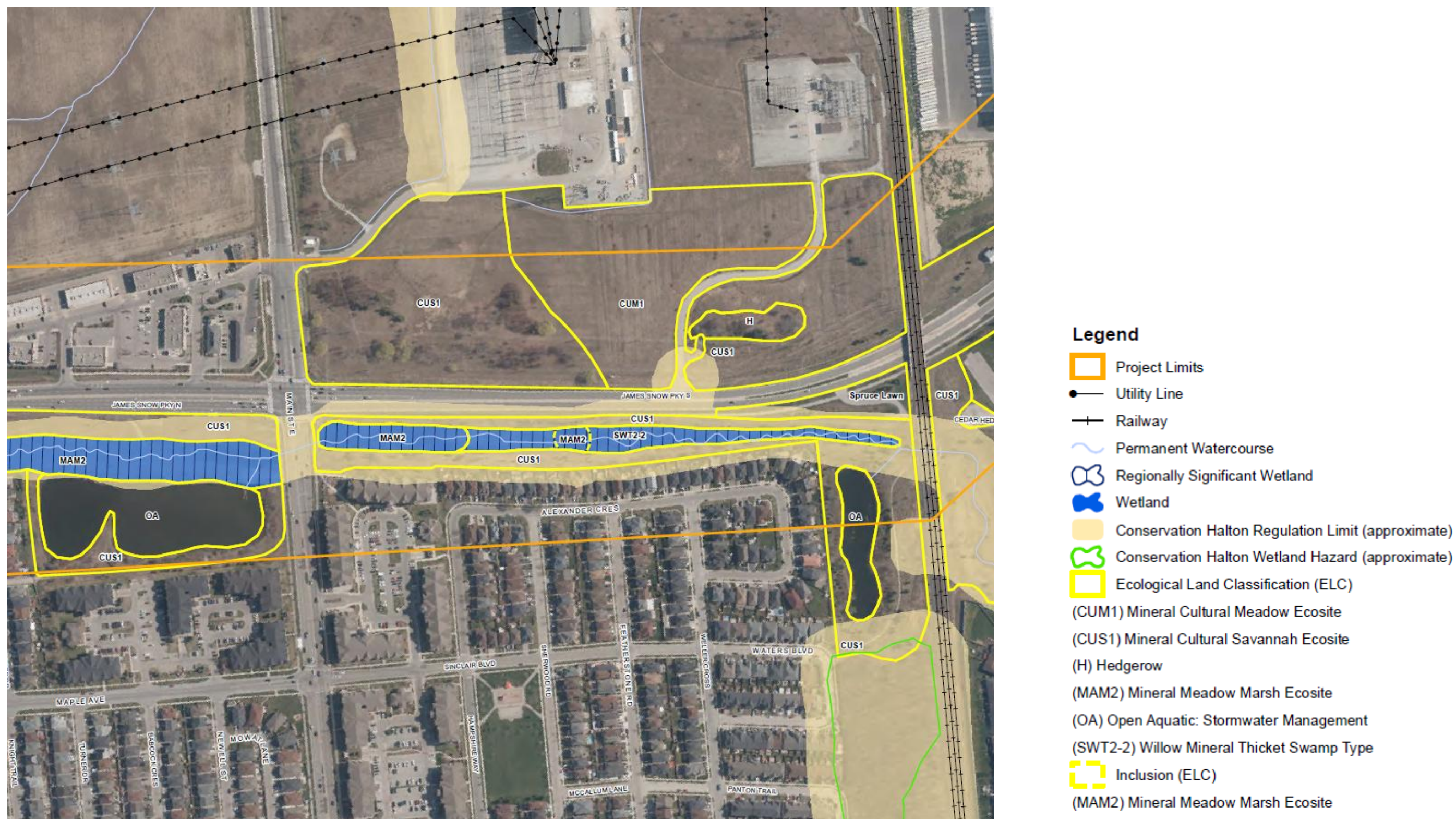


Figure 4-23: Map of Natural Environment Features

There are two regionally significant wetlands along the west side of James Snow Parkway: one between the CPKC Rail Underpass and Main Street East, and one north of Main Street East.

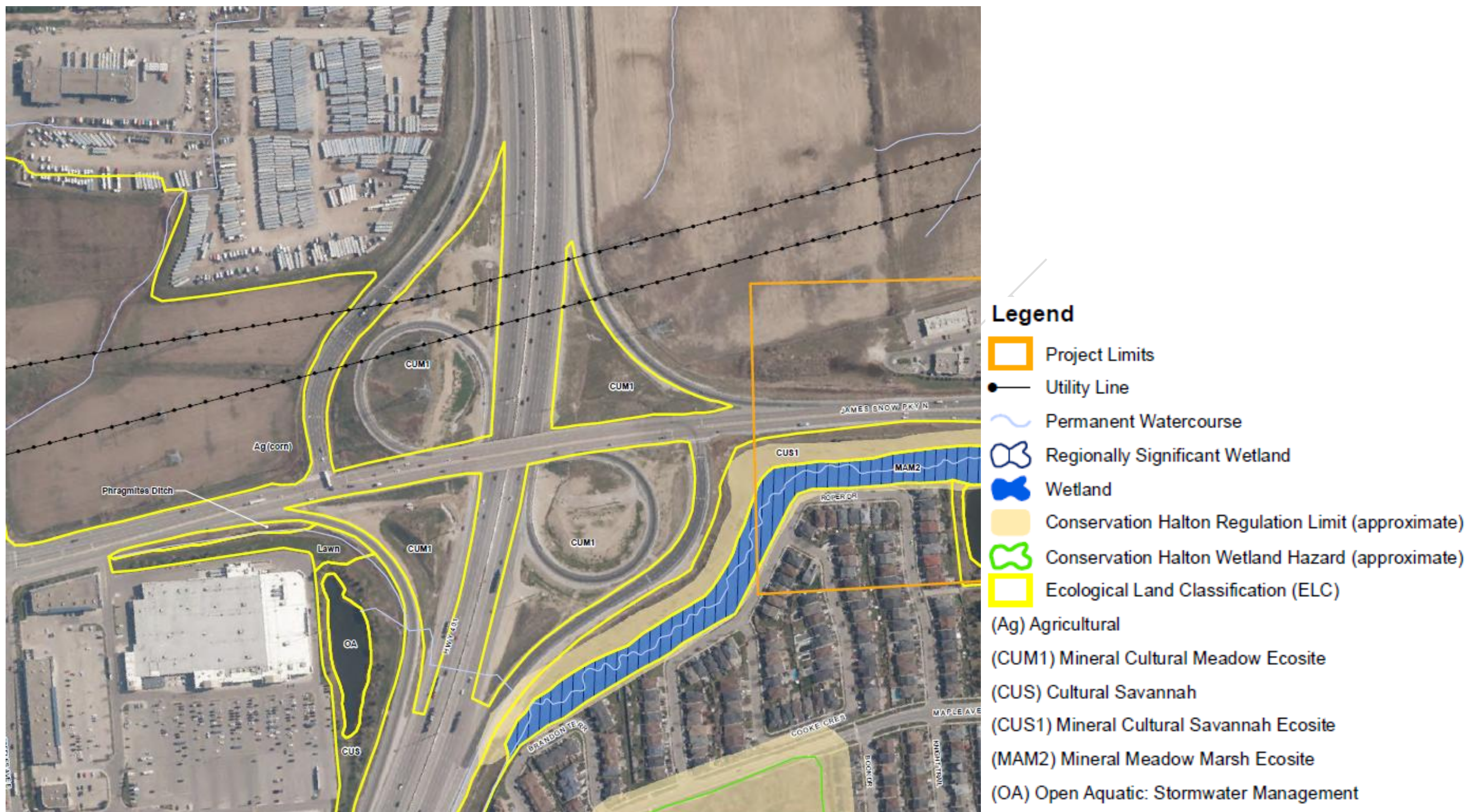


Figure 4-24: Map of Natural Environment Features

There is one regionally significant wetland along James Snow Parkway between Highway 401 Interchange and Main Street East.

4.4.4 Technical Environment

4.4.4.1 GROUNDWATER / HYDROLOGY

A hydrogeological investigation was completed for the widening of James Snow Parkway between Britannia Road and just south Highway 401. The Hydrogeological Report is provided in **Appendix I**.

The groundwater levels at monitoring wells were measured manually between September 28, 2023, and October 3, 2023. 15 boreholes were drilled to depths ranging from 1.8 m to 9.2 m below ground surface. In total there was an installation of five monitoring wells (JSP-01, JSP-05, JSP-08, JSP-CULV-01, JSP-CULV-02) to permit monitoring of the groundwater levels at the site. The monitoring wells consisted of 50 mm diameter PVC pipe with a slotted screen sealed at a selected depth within the borehole, depths ranging between approximately 4.6 m and 9.9 m below the ground surface.

The monitoring wells were developed on October 24 and 26, 2023. Well development was assessed based on the number of well volumes purged, stabilization of general chemistry parameters of the purged groundwater over time.

Groundwater taking for construction dewatering is governed by the Ontario Water Resources Act (OWRA), Environmental Protection Act (EPA) and the Water Taking and Transfer Regulations 387/04, a regulation under the OWRA. If the water taking rate for this project will be greater than 50,000 L/day and less than 400,000 L/day, registration on the Environmental Activity and Sector Registry (EASR) is required. If the water taking rate will be greater than 400,000 L/day, a Category 3 Permit to Take Water (PTTW) is required.

4.4.4.2 DRAINAGE AND STORMWATER MANAGEMENT

The Drainage and Stormwater Management Report is provided in **Appendix G**.

Drainage Overview

The James Snow Parkway corridor primarily drains from north to south within the project limits. Between Highway 401 and Main Street, James Snow Parkway has a rural cross-section with open ditch systems on both sides of the road. The drainage in this segment is directed to Middle Sixteen Mile Creek Tributary situated on the west side of James Snow Parkway.

Between Main Street and Derry Road, James Snow Parkway is a fully urbanized roadway with a subsurface drainage system consisting of catch basins and storm sewers. Drainage in this segment is directed via the storm sewer network to an existing stormwater management facility (SWMF) located in the northwest corner of the James Snow Parkway and Derry Road intersection. The SWMF is a wet pond and provides both water quality treatment as well as flood control. Situated within this segment is also a stormwater pumping station, which pumps storm runoff from the underpass at the CN rail crossing to a storm trunk sewer on James Snow Parkway.

Between Derry Road and Britannia Road, James Snow Parkway has a primarily semi-urban cross section with a combination of subsurface drainage system and open ditch channels. Drainage in this segment is directed to three outfall locations, all situated on the east side of the James Snow Parkway ROW to tributaries of the Middle Sixteen Mile Creek. In terms of existing stormwater management infrastructure, the storm sewer systems that discharge to the Middle Sixteen Mile Creek Tributary A crossing south of Louis St. Laurent Avenue discharge via oil-grit separator units which were installed at the time the new bridge crossing was constructed at this location.

The Middle Sixteen Mile Creek Tributary A watershed falls under the jurisdiction of the Conservation Halton. The Middle Sixteen Mile Creek Tributary A originates to the north of Highway 401 and crosses James Snow Parkway approximately 1.0 km north of Britannia Road with an external drainage area of 7.7 sq. km.

Transverse Watercourse Crossing

Parts of James Snow Parkway is within the area regulated by Conservation Halton. There is one watercourse crossing, Middle Sixteen Mile Creek Tributary A.

The hydraulic assessment of the existing regulated transverse crossing within the study corridor was undertaken in accordance with the MTO's Highway Drainage Design Standards (2008).

The summary of the Middle Sixteen Mile Creek Tributary A crossing, description and design storm peak flows for the crossing is presented in **Table 4-3**. The location for the crossing is in **Figure 4-25**.

Table 4-3: Design Peak Flow for Traverse Crossings

Crossing ID	Watercourse Crossing ¹	Crossing Description ²	Peak Flow (m ³ /s) ²		
			50-year Storm	100-year Storm	Regional Storm
C-1	Middle Sixteen Mile Creek Tributary A	20 m span bridge	6.26	7.60	31.90

¹Watercourse naming based on NRSI Report

²Based on available HEC-2 model output from Conservation Halton

Based on the preliminary hydraulic assessment, the Middle Sixteen Mile Creek Tributary A crossing of James Snow Parkway meets the MTO freeboard criteria and does not overtop the road. **Section 8.14** provides a summary of the drainage impact assessment.

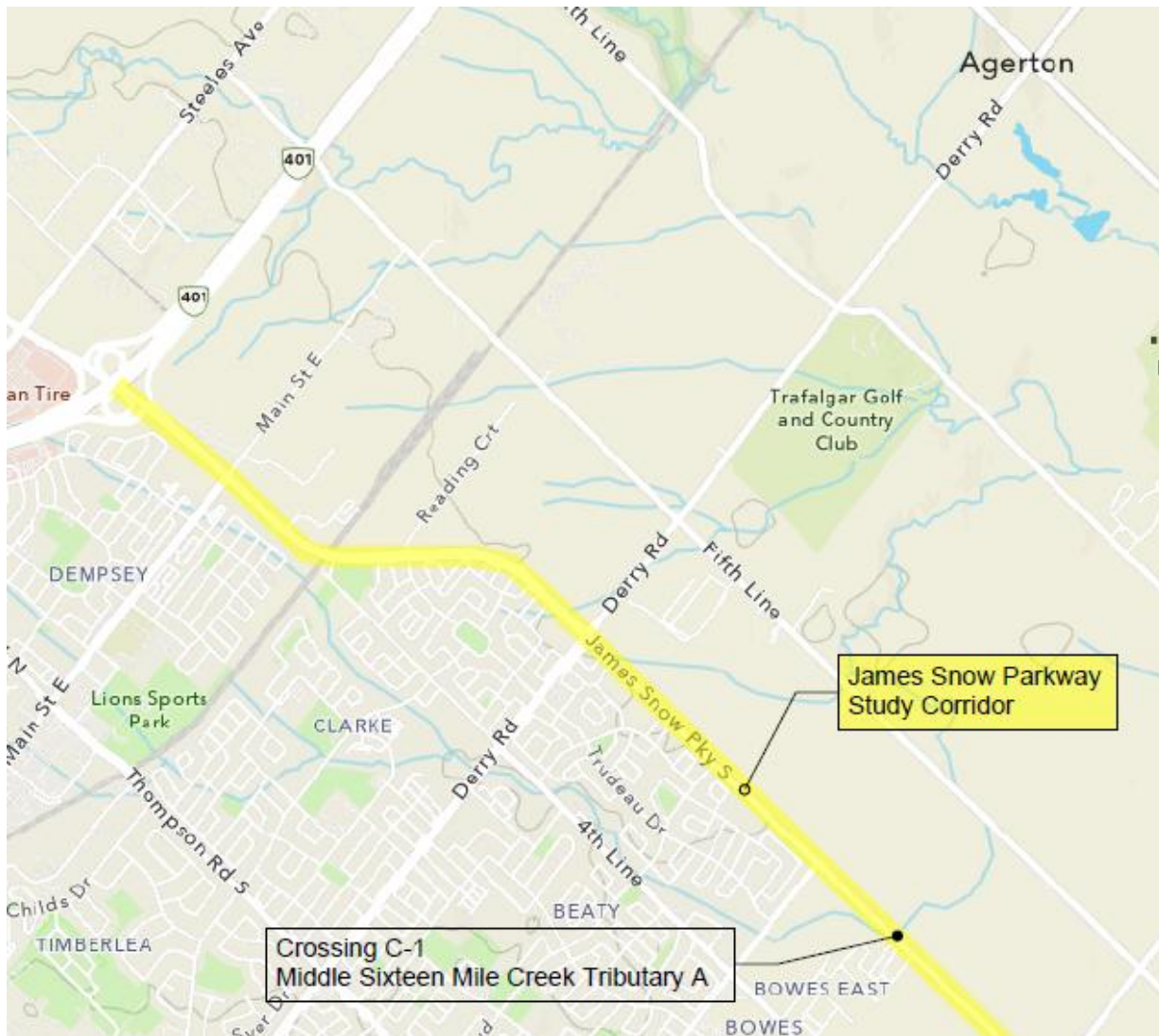


Figure 4-25: Location of Culvert Crossing

4.4.4.3 FLUVIAL GEOMORPHOLOGY

A fluvial geomorphology assessment was completed for the watercourse crossings that cross James Snow Parkway. The assessment included a review of physiography and surficial geology, historic photograph assessment, existing geomorphic conditions, erosion hazard assessment, and crossing recommendations.

The bridge for the crossing of Middle Sixteen Mile Creek, Tributary A has a 20.6 m span, which is three times the bankfull width, and the meander amplitude with a 20% buffer. However, the bridge does not span the recommended erosion hazard width of 31 m and the existing crossing has a low erosion risk.

The existing bridge is perpendicular to James Snow Parkway and inline with the channel planform. The upstream and downstream channel is a recently constructed natural channel design with floodplain wetlands. There is riverstone lining the sinuous channel through the crossing. The existing bridge is wider than the road width and may be able to accommodate road widening without structural alteration.

The Fluvial Geomorphology Assessment Report is included in **Appendix H**.

4.4.4.4 GEOTECHNICAL INVESTIGATIONS

Geotechnical investigations were completed to explore the subsurface conditions within the project limits and based on the data obtained, to provide preliminary geotechnical recommendations regarding culvert foundation, excavation and groundwater control during construction, backfilling, pavement design, subgrade preparation, earthworks and slope stability.

The field investigations were completed in September 2023 and included 12 boreholes along James Snow Parkway. The monitoring wells consisted of 50 mm diameter PVC pipe with a slotted screen sealed at a selected depth within the borehole.

The subsurface stratigraphy encountered in the boreholes generally consisted of a pavement structure (asphalt over granular) overlying discontinuous layers of fill, silty clay, silt and sand overlying silty clay till. Sandy silt till/shale complex and shale bedrock were contacted below the clay till locally.

The future traffic data was used to determine the pavement requirements for the anticipated traffic volumes over the design life of the pavement. Using axle load equivalency factors, different axle loads and axle groups are converted to a standard axle load known as an Equivalent Single Axle Load (ESAL). The Design ESALs calculation was completed in accordance with the MTO Procedures for Estimating Traffic Loads for Pavement Designs. Based on the results of the investigations, the existing pavement structure is not structurally adequate to carry the 20-year design loads, and strengthening of the existing pavement structure is required between Derry Road and Main Street to support the future traffic demands with rehabilitation of the existing pavement structure in the remaining sections.

Section 8.13 discusses the findings of the geotechnical investigations based on the proposed pavement design improvements to James Snow Parkway. The Geotechnical Report is included in **Appendix J**.

5. Problem and Opportunity

James Snow Parkway requires improvements as identified in the TMP and confirmed through the traffic analysis for this study. The problem and opportunity statement for the study involves:

Problem and Opportunity Statement:

James Snow Parkway is a Major Arterial with an interchange at Highway 401 providing access to the Towns of Milton and Halton Hills. Without improvements to the corridor, traffic operations are expected to experience increasing delays and demand. To support growing travel demand, as well as future Transit Priority Corridor infrastructure, improvements to James Snow Parkway are required to create a transportation system, which is safe, continuous, connected, and coordinated for all users and abilities. The future ROW will accommodate AT facilities, future Transit Priority Corridor infrastructure, and allow for improvements to traffic operations at intersections and along the corridor.



Figure 5-1: James Snow Parkway & Main Street Intersection Queuing (northbound)

6. Identification and Evaluation of Alternative Solutions

Alternative Solutions (planning alternatives) are functionally different ways of approaching and addressing a problem or opportunity. The MCEA process requires documentation and examination of reasonable alternatives to address the problem; these are referred to as Alternative Solutions.

6.1 Identification of Alternative Solutions

A variety of Alternative Solutions were developed for the James Snow Parkway study area. These alternatives range in complexity, cost and their ability to address the study area issues and are listed as follows:

- **Alternative 1 – “Do Nothing”:** The “Do Nothing” alternative provides a benchmark against which the other alternatives are compared. This alternative solution represents a continuation of existing conditions and would involve no changes or improvements to the existing James Snow Parkway study corridor but includes all planned improvements to the Halton Region transportation network.
- **Alternative 2 – Active Transportation (AT) Facilities:** This alternative involves constructing new AT facilities to improve pedestrian and cyclist connectivity in the network and promote walking and cycling in the study area. Potential AT facilities include sidewalks, cycle tracks or MUPs.
- **Alternative 3 – Intersection and Operational Improvements:** This alternative focuses on increasing capacity of the existing road network through changes to signal timings and phasing, intersection geometric improvements, and/or new traffic signals, if warranted.
- **Alternative 4 – Improvements to James Snow Parkway:** This alternative widens existing James Snow Parkway from two and four lanes to six lanes to increase capacity and provide opportunities to protect for future Transit Priority Corridor infrastructure.

- **Alternative 5 – Improve Other Roadways:** This alternative focuses on improving other roadways, instead of James Snow Parkway, to improve transportation in the study area. Roads considered in this alternative include those identified in the Region’s TMP for road improvements.
- **Alternative 6 – Travel Demand Management (TDM):** This alternative focuses on managing travel demand rather than infrastructure improvements. This alternative applies strategies and policies (such as carpool initiatives) to reduce or redistribute the travel demand around the road network.

6.2 Evaluation of Alternative Solutions

The Alternative Solutions were evaluated against how they address the problem and opportunity to determine which Alternative Solutions would be carried forward as part of the overall project strategy. The evaluation of the Alternative Solutions is shown in **Table 6-1**.

6.3 Preferred Alternative Solution

To support future travel demand and a transportation system that is safe, continuous, connected, and coordinated for all users and all abilities, the recommended solution for James Snow Parkway is proposed to consist of a combination of the following three alternative solutions:

- Enhance facilities for pedestrians, cyclists, mobility device users and other non-vehicular travel to create a safe and accessible network;
- Improve traffic operations at intersections through physical and operational modifications; and
- Widen James Snow Parkway to six lanes to provide additional travel lanes and protect for future Transit Priority Corridor infrastructure.

The preferred solution (combination of alternatives) is carried forward to the next phase of the MCEA for the development and evaluation of Design Alternatives. A closer look at intersection and corridor operations was reviewed to better understand future needs.

Table 6-1: Evaluation of Alternative Solutions

Alternatives	Description	Evaluation Summary	Recommendation
1. Do Nothing	No improvements to James Snow Parkway. Only planned improvements to 2031 will be in place.	Does not address the multi-modal needs within the study area.	Do not carry forward (for comparison purposes only).
2. Active Transportation Improvements	Enhance active transportation facilities throughout the corridor and at intersections.	On their own, these measures do not fully address the problem, while part of the Region's overall transportation strategy.	Carry forward as part of overall Project strategy.
3. Intersection / Operational Improvements	Improve traffic operations at intersections through physical and operational modifications.	On their own, these measures do not fully address the problem while part of the Region's overall transportation strategy.	Carry forward as part of overall Project strategy.
4. Improvements to James Snow Parkway	Widen James Snow Parkway to six lanes to accommodate additional travel capacity and opportunities for future Transit Priority Corridor infrastructure.	Needs identified in Transportation Master Plan, Mobility Management Strategy, and Defining Major Transit Requirements in Halton to support future growth.	Carry forward as part of overall Project strategy.
5. Improvements to Other Roadways	Undertake capital improvements to widen other north-south roadways in the immediate study area.	Does not address the multi-modal needs within the study area.	Do not carry forward.
6. Transportation Demand Management (TDM)	Measures to manage travel demand by encouraging carpooling; shifting travel demand to off-peak hours, telecommute, etc.	On their own, TDM measures do not fully address the transportation needs and are already part of the Region's overall transportation strategy.	Continue to be supported by local program and initiatives.

7. Alternative Design Concepts

Phase 3 of the MCEA process requires examination of alternative methods of implementing the Preferred Solution, referred to as Alternative Design Concepts. The advantages and disadvantages of each were assessed.

This section discusses the development of Alternative Design Concepts, the evaluation criteria, evaluations, and recommendations.

7.1 Development of Alternative Design Concepts

The Preferred Solution was confirmed as a combination of AT, intersection and operational improvements, and improvements to James Snow Parkway.

The following section discusses the development of the Alternative Design Concepts for the corridor.

To address the preferred solution for James Snow Parkway, the following design alternatives were developed and evaluated for the following improvements:

1. Widen to six lanes;
2. Enhance AT facilities (for pedestrian and cyclists), including protected intersections; and
3. Improve traffic operations at intersections through physical and operational modifications.

7.1.1 Corridor Segmentation

The existing ROW for James Snow Parkway generally ranges between 35 m and 47 m as shown in **Figure 7-1**. The TMP identified a Right-of-Way of 47 m for the study corridor.

Based on the existing adjacent land-use, the corridor was divided into three segments to develop and assess the alternative designs:

- **Segment 1: Britannia Road to Louis St. Laurent Avenue** - This segment currently includes undeveloped lands with wetlands and a watercourse crossing. There is active development of residential neighbourhoods on the west side of James Snow Parkway and a business park on the east.

- **Segment 2: Louis St. Laurent Avenue to Derry Road** - This segment is characterized by the residential neighbourhood on the west and industrial lands on the east. There are various natural environment resources such as regionally significant wetlands, significant woodlands, and woodlands on both sides of the corridor.
- **Segment 3: Derry Road to south of the Highway 401 interchange** – This segment is characterized by the residential neighbourhood on the west and industrial and commercial lands on the east. There are various regionally significant wetlands on the west side of James Snow Parkway. There is industrial / commercial active development on the east side of James Snow Parkway.



Figure 7-1: Existing ROW along James Snow Parkway from Britannia Road to just south of Highway 401 Interchange

7.1.2 Cross-Section Elements

A summary of the potential road cross-section improvements for the preferred solution is shown in **Figure 7-2**. Placement of elements within the cross-section (including AT facility types, vegetation, stormwater and drainage, light / hydro poles, vehicle lanes, etc.) is assessed in **Section 8**.

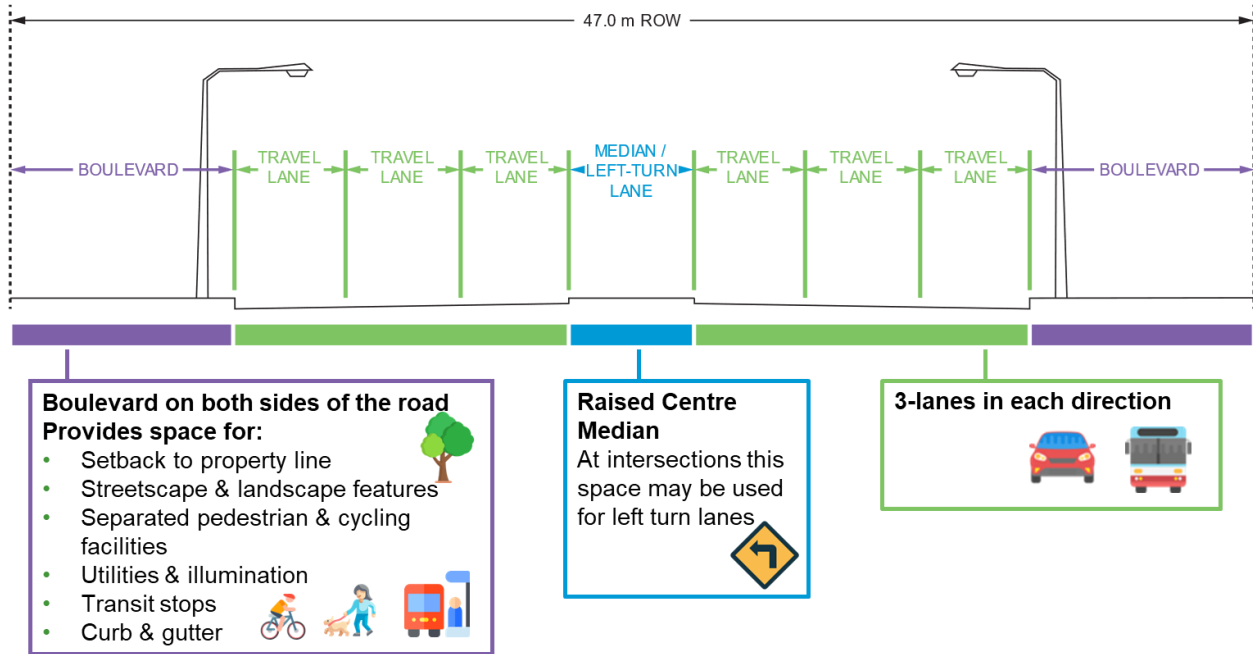


Figure 7-2: Potential Road Cross-sections Improvements

To develop the alternative designs, recommended widths for key elements were referenced using established guidelines and standards as documented in **Table 7-1**.

Table 7-1: Key Design Parameters

Element	Width / Clearance	Source / Notes
Existing ROW	35 m to 47 m (varies)	
Planned ROW Width (m)	47 m	Halton Region TMP 2031, Page 52
Posted Speed (km/h)	70 km/h	
Design Speed (km/h)	90 km/h	TAC Geometric Design Guide for Canadian Roads, 2017, Chapter 2 – Table 2.6.2, page 47
Through Lane Width (Urban)	3.3m – 3.5 m, three in each direction	TAC Geometric Design Guide for Canadian Roads, 2017
Right Turn Lane	3.0 – 3.3 m	TAC Chapter 4 – Section 4.3.2.2, Page 13
Left Turn Lane	3.0 – 3.3 m	TAC Chapter 4 – Section 4.3.2.2, Page 13
Median Width	0 m – 5.0 m	TAC Geometric Design Guide for Canadian Roads, 2017
Curb and Gutter (m)	0.5 m	OPSD 600.040
Boulevard Width (m)	3.0 m	NA
Minimum Curb Radii (m)	8.0 – 15.0 m	TAC Chapter 9 – Section 9.13.2, page 90
Sidewalk Width (m)	Minimum 1.5 m Preferred 1.8 m (May reduce sidewalk width to 1.2 m where it connects to curb ramps (AODA))	TAC Chapter 6, Table 6.3.1, page 13
Cycling Facility Width (m)	Cycle Tracks Minimum 1.8 m Preferred 2.0 m (1.5 m allowable at pinch points and at intersections if necessary)	OTM Book 18: Cycling Facilities - 2021

7.1.3 Widening Alternatives

The following three alternatives were considered to widen James Snow Parkway from four to six lanes:

- **Alternative 1** – Widen about the Centreline (**Figure 7-3**);
- **Alternative 2** – Widen to the West (**Figure 7-4**); and
- **Alternative 3** – Widen to the East (**Figure 7-5**).

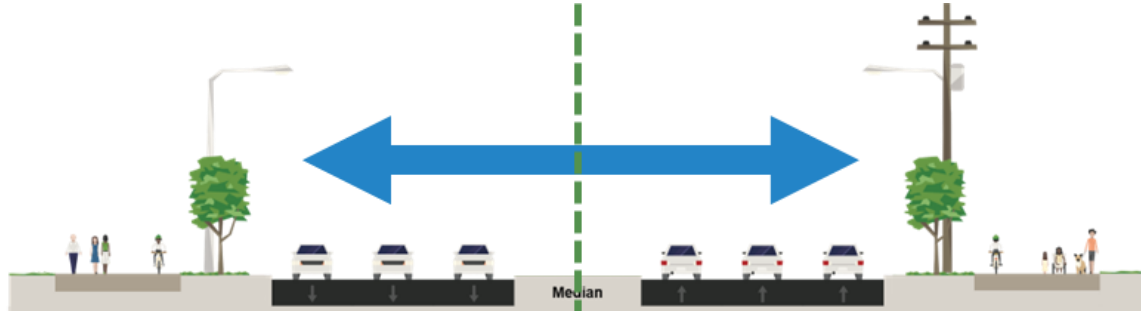


Figure 7-3: Alternative 1 - Widen about the Centreline

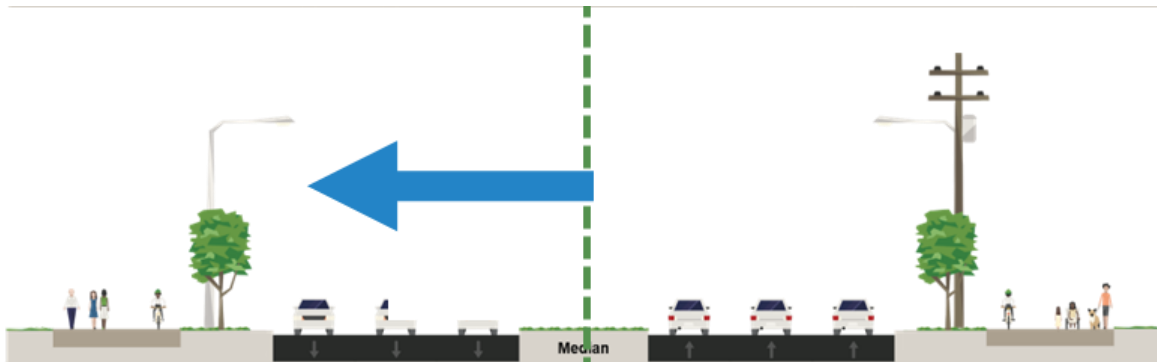


Figure 7-4: Alternative 2 - Widen to the West

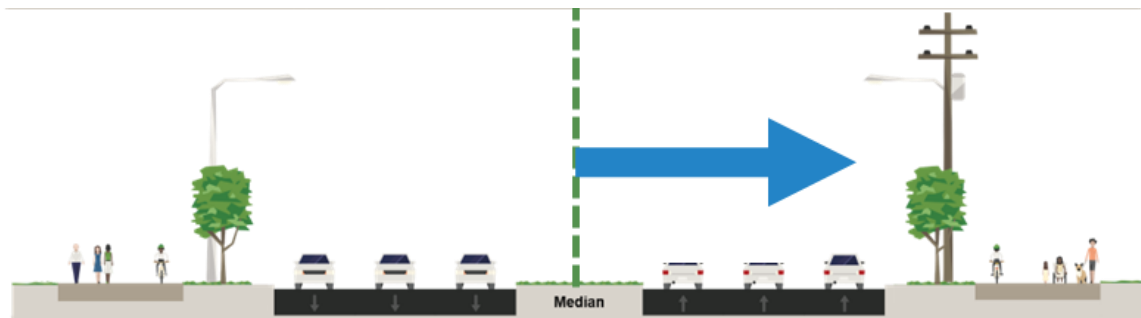


Figure 7-5: Alternative 3 - Widen to the East

7.1.4 Active Transportation Alternatives

To encourage and support a transportation system that is continuous, connected, and coordinated for users and abilities, different combinations of AT facilities were reviewed for James Snow Parkway.

Five AT alternative designs were considered for James Snow Parkway. The five AT alternatives are presented in **Figure 7-6** to

Figure 7-10 respectively and listed as follows:

- **Alternative A** – Cycle track and sidewalks, both sides;
- **Alternative B** – Bi-directional cycle track and sidewalk one side, sidewalk other side;
- **Alternative C** – Sidewalk and MUP one side, sidewalk other side;
- **Alternative D** – MUPs on both sides; and
- **Alternative E** – MUP one side, sidewalk other side.

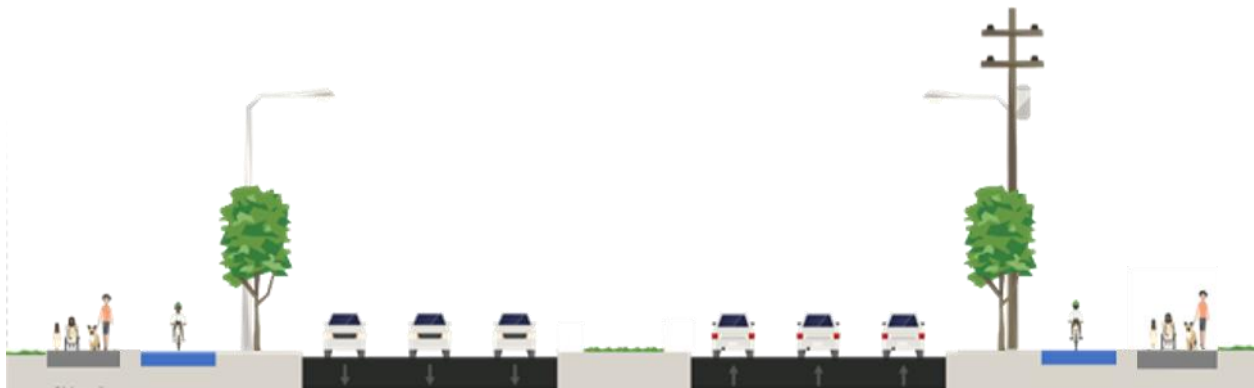


Figure 7-6: Alternative A - Cycle track and sidewalks, both sides



Figure 7-7: Alternative B – Bi-directional cycle track and sidewalk one side, sidewalk other side

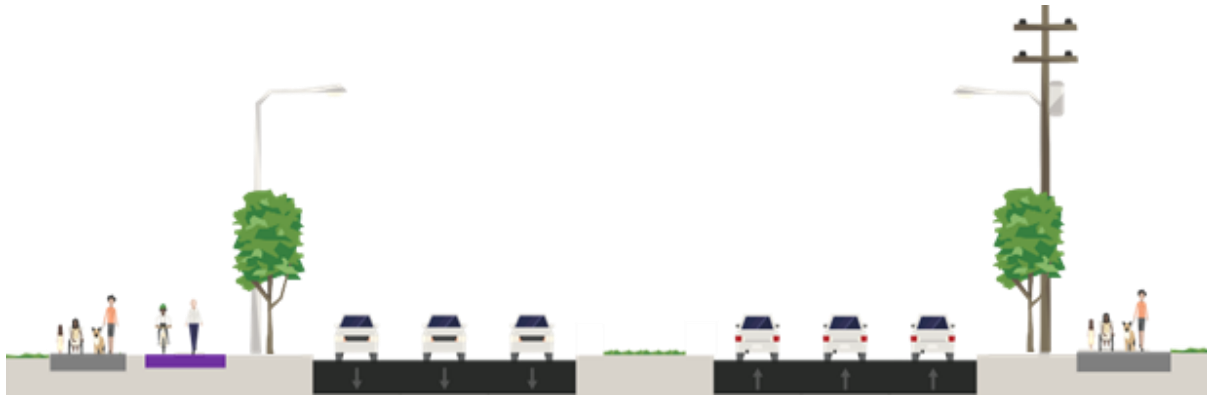


Figure 7-8: Alternative C - Sidewalk and MUP one side, sidewalk other side



Figure 7-9: Alternative D - MUPs on both sides



Figure 7-10: Alternative E - MUP one side, sidewalk other side

7.2 Evaluation Criteria

The evaluation of alternative design concepts included the formulation of evaluation criteria. The evaluation criteria were developed based on transportation considerations as well as impacts to the natural, cultural, and socio-economic environments. The alternative design concepts identified were evaluated based on criteria as detailed in **Tables 7-2 to 7-4** and summarized below. Where possible and appropriate, a Reasoned Argument approach to screen out alternatives to select the recommended design concept was also applied.

Transportation – ability to accommodate future travel demand, active transportation, safety, emergency services, impacts to structures;

Socio-economic Environment – existing and planned land uses, property impacts, access, traffic noise, air quality / climate change;

Natural Environment – vegetation, wildlife, aquatic habitat, species at risk (SAR), surface water, groundwater, minimize impacts to flooding;

Cultural Environment – archaeological and cultural heritage resources; and

Preliminary Cost – construction-related costs, property costs, utility relocation.

7.3 Evaluation of Alternative Design Concepts

The following section summarizes the evaluations undertaken for the alternative designs for the widening and AT improvements.

7.3.1 Evaluation of Road Widening Alternatives

Three road widening options were considered for James Snow Parkway – Widen about the Centreline, Widen to the West, and Widen to the East. An evaluation of the options was undertaken and evaluated by segment:

1. James Snow Parkway from Britannia Road to Louis St. Laurent Avenue;
2. James Snow Parkway from Louis St. Laurent Avenue to Derry Road; and
3. James Snow Parkway from Derry Road to just south of Highway 401 Interchange.

The results of the detailed analysis is provided in **Table 7-2 to Table 7-4**.

Table 7-2: James Snow Parkway Evaluation of Alternative Road Widening Designs – Segment 1 (Britannia Road to south of Louis St. Laurent Avenue)

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
Transportation			
Ability to accommodate future travel demand to 2031 (operations, congestion, delays)	Increases capacity to six lanes to meet future traffic demands.		
Support mode choice and multi-model network connectivity: Provides for pedestrians and cyclists, including protection at intersections	- Provides opportunity to improve pedestrian environment by accommodating sidewalks and protection treatments at intersections. e. - Improves cycling environment through the provision of continuous, dedicated cycling facilities.		
Provides transit supportive infrastructure	Supports future Transit Priority Corridor infrastructure as identified through Halton’s Integrated Master Plan.		
Improves safety for all travel modes	Enhances cyclist and pedestrian safety due to provision of dedicated AT facilities and protected intersections.		
Accommodates emergency services	Supports emergency service access with increased capacity.		
Minimizes impacts to structures	Existing structure can be accommodated for Middle Sixteen Mile Creek Tributary ‘A’ crossing approximately 1.0 km north of Britannia Road.		
Summary of Transportation	Most Preferred All alternatives are ranked most preferred, as they equally address the evaluation criteria.		
Social-Economic Environment			
Accommodates existing and planned land use	Accommodates and supports existing and planned land uses.		
Minimizes property impacts	Minimizes property impacts.	Travel lanes are in closest proximity to and may impact existing residential neighbourhoods and planned development on the west side.	Travel lanes are further away from residential properties on the west side and may impact existing and planned development on the east side.
Maintains access	No existing private accesses in this section of James Snow Parkway.		
Minimizes traffic related noise	Has potential for moderate noise impacts to residential areas on west side of James Snow Parkway.	Has potential for greater noise impacts with shifting travel lanes closer to residential areas on west side of James Snow Parkway.	Has potential for less noise impacts with shifting travel lanes farther from residential areas on the west side of James Snow Parkway
Improves air quality / climate change.	Minimizes impacts to air quality and climate change effects by providing a multi-modal transportation corridor.		

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
Summary of Social-Economic Environment	Most Preferred Alternative 1: Widen about the Centre of the Road is ranked most preferred as it minimizes impacts to both commercial / mixed-use and residential properties, while the other two alternatives encroach further on and present greater impacts to properties. All other evaluation criteria are equally impacted across the alternatives.	Least Preferred Alternative 2: Widen to the West Side is ranked least preferred as it encroaches furthest and into more properties than the other two alternatives, as well as has the greatest impact to the residential neighbourhoods on the west. All other evaluation criteria are equally impacted across the alternatives.	Less Preferred Alternative 3: Widen to the East Side is ranked less preferred as it encroaches further on properties on the east side of the road than Alternative 1, presenting greater impact to properties on the east. However, the degree of encroachment and number of properties impacted is lesser than Alternative 2. Alternative 3 will protect the residential neighbourhoods located on the west. All other evaluation criteria are equally impacted across the alternatives.
Natural Environment			
Protect vegetation and wildlife habitat	Moderate impact to wetlands near Britannia Road on the east	No impact to wetlands near Britannia Road on the east	Significant impact to wetlands near Britannia Road on the east
Protect aquatic habitat	No impact to fish habitat in Middle Sixteen Mile Creek Tributary A	No impact to fish habitat in Middle Sixteen Mile Creek Tributary A	No impact to fish habitat in Middle Sixteen Mile Creek Tributary A
Protects SAR and their habitat	Potential impact to potential bat roost trees, including those for Little Brown Myotis, Northern Myotis, and Tri-colored Bat.		
Protect Surface Water and Ground Water	- Increased roadway width and hard surface area is similar for all alternatives; stormwater quantity will increase, and quality mitigation must be implemented. - James Snow Parkway is not located within significant groundwater recharge area.		
Minimize Flooding and Erosion and Protect Slope Stability	Opportunity to improve stormwater management and minimize erosion through replacement of rural road elements (ditches) with continuous urbanized section (curb and gutter). The drainage and stormwater management strategy and design and planned urbanization of the corridor will be similar amongst all alternatives and adverse impacts are not identified.		
Summary of Natural Environment	Less Preferred Alternative 1: Widen about the Centre of the Road is ranked as less preferred as it poses moderate impacts to the wetlands located near Britannia Road on the east. All other evaluation criteria are equally impacted across the alternatives.	Most Preferred Alternative 2: Widen to the West Side is ranked as most preferred as it has no impacts to the wetlands located near Britannia Road to the east. All other evaluation criteria are equally impacted across the alternatives.	Least Preferred Alternative 3: Widen to the East Side is ranked as least preferred as it poses the greatest impact to protected designated areas (i.e. significant woodland and wetland) and potential bat roost trees compared to the other two alternatives. All other evaluation criteria are equally impacted across the alternatives.
Cultural Environment			
Minimizes impacts to archaeological resources	Areas of archaeological potential that require pit survey (i.e. Stage 2 Archaeological Assessment) are on both sides of the corridor.		
Minimizes impacts to cultural heritage resources	No cultural heritage landscapes or built heritage resources identified along James Snow Parkway study corridor.		
Summary of Cultural Environment	Most Preferred All alternatives are ranked most preferred, as all alternatives impacts areas of archaeological potential. No impacts to built heritage resources or cultural heritage landscapes.		

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
Preliminary Cost			
Construction-related cost	Construction costs for road widening are equal for all alternatives.		
Minimizes utility relocation	- Impacts to above ground utilities on both sides of the corridor: - Milton Hydro overhead hydro poles located on the west side from south of Louis St. Laurent Avenue to Britannia Road. - Rogers aerial fibre cable on east side of corridor - Impacts to below ground utilities on both sides of the corridor: - Enbridge Gas in-service high pressure segment line and distribution segment lines (east-side). - Milton Hydro underground utilities located on both sides of the corridor. - Rogers buried fibre cable on both sides of corridor.	- Impacts to above ground utilities on the west side of the corridor: - Overhead hydro poles and light poles on the west side from south of Louis St. Laurent Avenue to Britannia Road. - Impacts to below ground utilities on the west side of the corridor: - Milton Hydro underground utilities located on both sides of the corridor. - Rogers buried fibre cable on west side of corridor.	- Impacts to above ground utilities on the east side of the corridor: - Rogers aerial fibre cable on east side of corridor - Impacts to below ground utilities on the east side of the corridor: - Enbridge Gas in-service high pressure segment line and distribution segment lines (east side). - Milton Hydro underground utilities located on both sides of the corridor. - Rogers buried fibre cable on east side of corridor.
Summary of Preliminary Cost	Most Preferred Alternative 1: Widen Road about the Centre of the Road is ranked most preferred.	Less Preferred Alternative 2: Widen Road to the West Side is ranked less preferred.	Least Preferred Alternative 3: Widen Road to the East Side is ranked least preferred.
Overall Summary for James Snow Parkway Road Widening	RECOMMENDED Alternative 1: Widen Road about the Centre of the Road is recommended, as it minimizes encroachment to wetlands on the east side, has reduced property requirements than other alternatives as it maximizes improvements within the available ROW, and balances property requirements with future development.	NOT RECOMMENDED Both Alternative 2: Widen Road to the West Side and Alternative 3: Widen Road to the East Side are not recommended as the alternatives have greater impacts on properties.	

Table 7-3: James Snow Parkway Evaluation of Alternative Road Widening Designs – Segment 2 (South of Louis St. Laurent Avenue to north of Derry Road)

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
Transportation			
Ability to accommodate future travel demand to 2031 (operations, congestion, delays)	Increases capacity to six lanes to meet future traffic demands.		
Support mode choice and multi-model network connectivity: Provides for pedestrians and cyclists, including protection at intersections	- Provides opportunity to improve pedestrian environment by accommodating sidewalks and protection treatments at intersections. - Improves cycling environment through the provision of continuous, dedicated cycling facilities.		
Provides transit supportive infrastructure	Supports future Transit Priority Corridor infrastructure as identified through Halton’s Integrated Master Plan.		
Improves safety for all travel modes	Improves cyclist and pedestrian safety due to provision of dedicated AT facilities and protected intersections.		
Accommodates emergency services	Supports emergency service access with increased capacity.		
Minimizes impacts to structures	No structures within Segment 2.		
Summary of Transportation	Most Preferred All alternatives are ranked equally, as they address the evaluation criteria.		
Social-Economic Environment			
Accommodates existing and planned land use	Accommodates and supports existing and planned land uses.		
Minimizes property impacts	Minimizes property impacts on both sides of the corridor.	Travel lanes are in closest proximity to and may impact existing residential neighbourhoods on the west side.	Travel lanes may impact existing property parcels and development on the east side.
Maintains access	No existing private accesses in this section of James Snow Parkway.		
Minimizes traffic related noise	Has potential for moderate noise impacts to residential areas on west side of James Snow Parkway.	Has potential for greater noise impacts with shifting travel lanes closer to residential areas on west side of James Snow Parkway.	Has potential for less noise impacts with shifting travel lanes farther from residential areas on the west side of James Snow Parkway
Improves air quality / climate change	Minimizes impacts to air quality and climate change effects by providing a multi-modal transportation corridor		
Summary of Social-Economic Environment	Least Preferred Alternative 1: Widen Road about the Centre of the Road and Alternative 2: Widen Road to the West Side is ranked least preferred as it encroaches on more properties compared to Alternative 3. All other evaluation criteria are equally impacted across the alternatives.		Most Preferred Alternative 3: Widen Road to the East Side is ranked most preferred as the degree of encroachment and number of properties impacted is less. Alternative 3 would protect the residential neighbourhoods to the west. All other evaluation criteria are equally impacted across the alternatives.

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
Natural Environment			
Protect vegetation and wildlife habitat	- Moderate impacts to regionally significant wetland and significant woodland near Louis St. Laurent Avenue and Derry Road - Moderate impacts to significant woodlands near Clark Boulevard and Derry Road	- Significant impact to regionally significant wetland and significant woodland near east Louis St. Laurent Avenue - Significant impacts to significant woodlands near Clark Boulevard and Derry Road located on the west	- Significant impacts to regionally significant wetland and significant woodland near east of Louis St. Laurent Avenue and Derry Road - Significant impact to significant woodlands near east of Clark Boulevard
Protect aquatic habitat	No impacts to fish habitat.		
Protects SAR and their habitat	No impact to potential bat roost trees, including those for Little Brown Myotis, Northern Myotis, and Tri-colored Bat.	No impact to potential bat roost trees, including those for Little Brown Myotis, Northern Myotis, and Tri-colored Bat.	No impact to potential bat roost trees, including those for Little Brown Myotis, Northern Myotis, and Tri-colored Bat.
Protect Surface Water and Ground Water	- Increased roadway width and hard surface area is similar for all alternatives; stormwater quantity will increase, and quality mitigation must be implemented. - James Snow Parkway is not located within significant groundwater recharge area.		
Minimize Flooding and Erosion and Protect Slope Stability	Opportunity to improve stormwater management and minimize erosion through replacement of rural road elements (ditches) with continuous urbanized section (curb and gutter). The drainage and stormwater management strategy and design and planned urbanization of the corridor will be similar amongst all alternatives and adverse impacts are not identified.		
Summary of Natural Environment	Less Preferred Alternative 1: Widen Road about the Centre of the Road is ranked as less preferred as it poses moderate impacts to protected designated areas (i.e. significant woodland and wetland) compared to the other two alternatives. All other evaluation criteria are equally impacted across the alternatives.	Least Preferred Alternative 2: Widen Road to the West Side is ranked as least preferred as it poses the greatest impact to protected designated areas (i.e. significant woodland and wetland) compared to the other two alternatives. All other evaluation criteria are equally impacted across the alternatives.	Most Preferred Alternative 2: Widen Road to the East Side is ranked as most preferred as it poses less impact to protected designated areas (i.e. significant woodland and wetland) compared to the other two alternatives. All other evaluation criteria are equally impacted across the alternatives.
Cultural Environment			
Minimizes impacts to archaeological resources	Areas of archaeological potential that require pit survey (i.e. Stage 2 Archaeological Assessment) are on both sides of the corridor.		
Minimizes impacts to cultural heritage resources	No cultural heritage landscapes or built heritage resources identified along James Snow Parkway study corridor.		
Summary of Cultural Environment	Most Preferred All alternatives are ranked most preferred, as all alternatives impacts areas of archaeological potential. No impacts to built heritage resources or cultural heritage landscapes.		
Preliminary Cost			
Construction-related cost	Construction costs for road widening are equal for all alternatives.		
Minimizes utility relocation	Impacts to above ground utilities on both sides of the corridor:	Impacts to above ground utilities on the west side of the corridor:	Impacts to above ground utilities on the east side of the corridor:

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
	○ Milton Hydro overhead hydro poles located on the west side from Derry Road to south of Louis St. Laurent Avenue. ○ Hydro Ones hydro corridor located on the east side ○ Rogers aerial fibre cable on east side of corridor ● Impacts to below ground utilities on both sides of the corridor: ○ Enbridge Gas storage pipeline corridor located at Union Gas Pipeline Trail. ○ Enbridge Gas in-service high pressure segment line and distribution segment lines (east-side). ○ Proposed Enbridge Gas distribution lines between Louis St. Laurent Avenue and Whitlock Avenue (east-side). ○ Milton Hydro underground utilities located on both sides of the corridor. ○ Rogers buried fibre cable on both sides of corridor.	○ Milton Hydro overhead hydro poles located on the west side from Derry Road to south of Louis St. Laurent Avenue. ● Impacts to below ground utilities on west side of the corridor: ○ Enbridge Gas storage pipeline corridor located at Union Gas Pipeline Trail. ○ Milton Hydro underground utilities located on both sides of the corridor. ○ Rogers buried fibre cable on west side of corridor.	○ Hydro Ones hydro corridor located on the east side ○ Rogers aerial fibre cable on east side of corridor ● Impacts to below ground utilities on east side of the corridor: ○ Enbridge Gas storage pipeline corridor located at Union Gas Pipeline Trail. ○ Enbridge Gas in-service high pressure segment line and distribution segment lines (east side). ○ Enbridge Gas distribution lines between Louis St. Laurent Avenue and Whitlock Avenue (east side). ○ Milton Hydro underground utilities located on both sides of the corridor. ○ Rogers buried fibre cable on east side of corridor.
Summary of Preliminary Cost	Less Preferred Alternative 1: Widen Road about the Centre of the Road is ranked less preferred as it balances impacts to utilities. All other evaluation criteria are equally impacted across the alternatives.	Most Preferred Alternative 2: Widen Road to the West Side is ranked most preferred. It has the least impacts to utilities. All other evaluation criteria are equally impacted across the alternatives.	Least Preferred Alternative 3: Widen Road to the East Side is ranked least preferred as it has more impacts to utilities compared to Alternative 2. All other evaluation criteria are equally impacted across the alternatives.
Overall Summary for James Snow Parkway Road Widening	NOT RECOMMENDED Both Alternative 1: Widen Road about the Centre of the Road and Alternative 2: Widen Road to the West Side are not recommended, as it significantly impacts properties, natural environment and utility infrastructure.		RECOMMENDED Both Alternative 3: Widen Road to the East Side are recommended as it avoids impacts to residential properties on the west side, minimizes encroachment to sensitive natural features (wetlands, regionally significant wetlands, woodlands, significant woodlands) and balances property requirements with future development.

Table 7-4: James Snow Parkway Evaluation of Alternative Road Widening Designs – Segment 3 (north of Derry Road to just south of Highway 401 Interchange)

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
Transportation			
Ability to accommodate future travel demand to 2031 (operations, congestion, delays)	Increases capacity to six lanes to meet future traffic demands.		
Support mode choice and multi-model network connectivity: Provides for pedestrians and cyclists, including protection at intersections	- Provides opportunity to improve pedestrian environment by accommodating sidewalks and protection treatments at intersections. - Improves cycling environment through the provision of continuous, dedicated cycling facilities.		
Provides transit supportive infrastructure	Supports future Transit Priority Corridor infrastructure as identified through Halton’s Integrated Master Plan.		
Improves safety for all travel modes	Improves cyclist and pedestrian safety due to provision of dedicated AT facilities and protected intersections.		
Accommodates emergency services	Supports emergency service access by increasing road capacity.		
Minimizes impacts to structures	The CPKC underpass structure impacts will be minimal.		
Summary of Transportation	Most Preferred All alternatives are ranked most preferred, as they equally address the evaluation criteria.		
Social-Economic Environment			
Accommodates existing and planned land use	Accommodates and supports future traffic growth from planned land uses.		
Minimizes property impacts	Minimizes property impacts on both sides of the corridor.	Travel lanes are in closest proximity to and may impact existing residential neighbourhoods and planned development on the west side.	Travel lanes are further away from residential properties on the west side and may impact existing and planned development on the east side.
Maintains access	Has less impacts to First Station access and private access north of Main Street.	Has least impacts to First Station access and private access north of Main Street.	Has greatest impacts to First Station access and private access north of Main Street.
Minimizes traffic related noise	Has potential for moderate noise impacts to residential areas on west side of James Snow Parkway.	Has potential for greater noise impacts with shifting travel lanes closer to residential areas on west side of James Snow Parkway.	Has potential for less noise impacts with shifting travel lanes farther from residential areas on the west side of James Snow Parkway
Improves air quality	Minimizes impacts to air quality and climate change effects by providing a multi-modal transportation corridor.		

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
Summary of Social-Economic Environment	Most Preferred Alternative 1: Widen Road about the Centre of the Road is ranked most preferred as it moderately impacts both commercial/mixed-use and residential properties, while the other two alternatives encroach further on and present greater impacts to properties. All other evaluation criteria are equally impacted across the alternatives.	Least Preferred Alternative 2: Widen Road to the West Side is ranked least preferred as it encroaches furthest and on more properties than the other two alternatives. All other evaluation criteria are equally impacted across the alternatives.	Less Preferred Alternative 3: Widen Road to the East Side is ranked less preferred as it encroaches further on properties on the east side than Alternative 1, presenting greater impact to these residential properties. However, the degree of encroachment and number of properties impacted is less than Alternative 2. All other evaluation criteria are equally impacted across the alternatives.
Natural Environment			
Protect vegetation and wildlife habitat	Moderate impact to regionally significant wetland east of CPKC Rail structure to just south of Highway 401 Interchange	No impact to regionally significant wetland east of CPKC Rail structure to just south of Highway 401 Interchange	Significant impact to regionally significant wetland east of CPKC Rail structure to just south of Highway 401 Interchange
Protect aquatic habitat	No impact to fish habitat.		
Protects SAR and their habitat	Moderate impact to potential bat roost trees, including those for Little Brown Myotis, Northern Myotis, and Tri-colored Bat.	No impact to potential bat roost trees, including those for Little Brown Myotis, Northern Myotis, and Tri-colored Bat.	Significant impact to potential bat roost trees, including those for Little Brown Myotis, Northern Myotis, and Tri-colored Bat.
Protect Surface Water and Ground Water	- Increased roadway width and hard surface area is similar for all alternatives; stormwater quantity will increase, and quality mitigation must be implemented. - James Snow Parkway is not located within significant groundwater recharge area .		
Minimize Flooding and Erosion and Protect Slope Stability	Opportunity to improve stormwater management and minimize erosion through replacement of rural road elements (ditches) with continuous urbanized section (curb and gutter). The drainage and stormwater management strategy and design and planned urbanization of the corridor will be similar amongst all alternatives and adverse impacts are not identified.		
Summary of Natural Environment	Most Preferred Alternative 1: Widen Road about the Centre of the Road is ranked as most preferred as it poses moderate impacts to protected designated areas (i.e. significant woodland and wetland) and potential bat roost trees. All other evaluation criteria are equally impacted across the alternatives.	Least Preferred Alternative 2: Widen Road to the West Side is ranked as least preferred as it poses the greatest impact to protected designated areas (i.e. regionally significant wetland). All other evaluation criteria are equally impacted across the alternatives.	Less Preferred Alternative 3: Widen Road to the East Side is ranked as less preferred as it poses the greatest impact to potential bat roost trees. All other evaluation criteria are equally impacted across the alternatives.
Cultural Environment			
Minimizes impacts to archaeological resources	Areas of archaeological potential that require pit survey (i.e. Stage 2 Archaeological Assessment) are on both sides of the corridor.		
Minimizes impacts to cultural heritage resources	No cultural heritage landscapes or built heritage resources identified along James Snow Parkway study corridor.		
Summary of Cultural Environment	Most Preferred All alternatives are ranked most preferred, as all alternatives impacts areas of archaeological potential. No impacts to built heritage resources or cultural heritage landscapes.		

Evaluation Criteria	Alternative 1: Widen about the Centre of the Road (Best-Fit Approach)	Alternative 2: Widen to the West Side	Alternative 3: Widen to the East Side
Preliminary Cost			
Construction-related cost	Construction costs for road widening are equal for all alternatives.		
Minimizes utility relocation	- Impacts to above ground utilities on both sides of the corridor: - Milton Hydro overhead hydro poles located on the east side of the corridor from Highway 401 to Derry Road. - Hydro Ones hydro corridor located on the east side and no impacts to transmission building located southeast of Main Street East. - Rogers aerial fibre cable on east side of corridor - Impacts to below ground utilities on both sides of the corridor: - Enbridge Gas in-service high pressure segment line and distribution segment lines (east-side). - Centurylink buried assets located along the Rail corridor. - Milton Hydro underground utilities located on both sides of the corridor. - Rogers buried fibre cable on both sides of corridor.	No above ground utilities on the west. - Impacts to below ground utilities on west side of the corridor: - Centurylink buried assets located along the Rail corridor. - Milton Hydro underground utilities located on both sides of the corridor. - Rogers buried fibre cable on both sides of corridor.	- Impacts to above ground utilities on the east side of the corridor: - Milton Hydro overhead hydro poles located on the east side of the corridor from Highway 401 to Derry Road. - Hydro Ones hydro corridor located on the east side and no impacts to transmission building located southeast of Main Street East. - Rogers aerial fibre cable on east side of corridor - Impacts to below ground utilities on the east side of the corridor: - Enbridge Gas in-service high pressure segment line and distribution segment lines (east side). - Centurylink buried assets located along the Rail corridor. - Milton Hydro underground utilities located on both sides of the corridor. - Rogers buried fibre cable on east side of corridor.
Summary of Preliminary Cost	Less Preferred Alternative 1: Widen about the Centre of the Road is ranked less preferred as it balances impacts to utilities. All other evaluation criteria are equally impacted across the alternatives.	Most Preferred Alternative 2: Widen to the West Side is ranked most preferred. It has the least impacts to utilities. All other evaluation criteria are equally impacted across the alternatives.	Least Preferred Alternative 3: Widen to the East Side is ranked least preferred as it has more impacts to utilities compared to Alternative 2. All other evaluation criteria are equally impacted across the alternatives.
Overall Summary for James Snow Parkway Road Widening	RECOMMENDED Alternative 1: Widen Road about the Centre of the Road is recommended, as it avoids encroachment to wetlands on the west side, balances impacts to utilities in both boulevards, has reduced property requirements than other alternatives as it maximizes improvements within the available ROW, and minimizes impacts to CPKC rail structure.	NOT RECOMMENDED Both Alternative 2: Widen Road to the East Side and Alternative 3: Widen Road to the West Side are not recommended as the alternatives have greater impacts on properties and the natural environment.	

7.3.2 Evaluation of Active Transportation Alternatives

Five AT alternative designs were considered for James Snow Parkway (refer to **Section 7.1.4** for figures). Each alternative included a recommendation for widening.

- **Alternative A** – Cycle track and sidewalks, both sides;
- **Alternative B** – Bi-directional cycle track and sidewalk one side, sidewalk other side;
- **Alternative C** – Sidewalk and MUP one side, sidewalk other side;
- **Alternative D** – MUPs on both sides; and
- **Alternative E** – MUP one side, sidewalk other side.

The results of the detailed analysis for the AT evaluation are provided in **Table 7-5** for James Snow Parkway.

Table 7-5: AT Evaluation from James Snow Parkway from Britannia Road to just south of Highway 401

Criteria	Alternative A Cycle Tracks and Sidewalks, Both Sides	Alternative B Bi-directional Cycle Tracks and Sidewalk one side, Sidewalk other side	Alternative C Sidewalk and MUP one side, Sidewalk other side	Alternative D MUPs on both sides	Alternative E MUP one side, Sidewalk other side
Transportation	Most Preferred ✓ Dedicated and separated facilities eliminate conflict points between pedestrians and cyclists, and between cyclists travelling in opposing directions ✓ Potential conflicts with vehicles at intersections / driveways are minimized as cyclists travel in the same direction as the road (minimal driveways on either side of the road)	Least Preferred ✓ Dedicated and separated facilities eliminate conflict points between pedestrians and cyclists, and between cyclists travelling in opposing directions ✓ Bi-directional cycle track provides two-way travel, minimizing cyclist travel distance × Potential conflicts with vehicles at intersections / driveways for cyclists travelling in the opposite direction as the road	Least Preferred × Shared facility (MUP) in one boulevard results in potential conflicts with pedestrians and with cyclists travelling in opposing directions. ✓ Pedestrians have dedicated and separated facility (sidewalk) in both boulevards ✓ MUP provides two-way travel, minimizing cyclist travel distance × Potential conflicts with vehicles at intersections / driveways for cyclists travelling in the opposite direction as the road	Less Preferred × Shared facilities in both boulevards result in potential conflicts with pedestrians and with cyclists travelling in opposing directions ✓ MUPs provide two-way travel, minimizing cyclist travel distance ✓ Minimizes conflicts with vehicles at intersections / driveways for cyclists travelling in the same direction as the road	Least Preferred × Shared facility (MUP) in one boulevard results in potential conflicts with pedestrians and with cyclists travelling in opposing directions. ✓ Pedestrians have dedicated and separated facility (sidewalk) in other boulevard ✓ MUP provides two-way travel, minimizing cyclist travel distance × Potential conflicts with vehicles at intersections / driveways for cyclists travelling in the opposite direction as the road
Socio - Economic	Most Preferred × Moderate property impacts ✓ Pedestrians and cyclists have direct access to adjacent lands / destinations on both boulevards; increased cyclist travel distance with one-directional cycling	Least Preferred × Moderate property impacts × Pedestrians have direct access to adjacent lands / destinations on both boulevards; cyclists have direct access on one side only	Least Preferred × Moderate property impacts × Pedestrians have direct access to adjacent lands / destinations on both boulevards; cyclists have direct access on one side only	Most Preferred ✓ Minor - Moderate property impacts ✓ Pedestrians and cyclists have direct access to adjacent lands / destinations on both boulevards	Less Preferred ✓ Least property impacts of all alternatives × Pedestrians have direct access to adjacent lands / destinations on both boulevards; cyclists have direct access on one side only
Natural Heritage	Less Preferred ✓ Potential to accommodate consistent AT facility type with reduced widths on both sides at select constrained locations (e.g. Milton Fire Station) to avoid residential impacts and to minimize / avoid encroachment to sensitive natural features	Least Preferred × Discontinuous AT facility type (e.g. transition to MUP) on one side at select constrained locations (e.g. Milton Fire Station) to avoid residential impacts and to minimize encroachment to sensitive natural features	Least Preferred × Discontinuous AT facility type (e.g. transition to MUP) on one side at select constrained locations (e.g. Milton Fire Station) to avoid residential impacts and to minimize encroachment to sensitive natural features	Less Preferred ✓ Potential to accommodate consistent AT facility type with reduced widths on both sides at select constrained locations (e.g. Milton Fire Station) to avoid residential impacts and to minimize / avoid encroachment to sensitive natural features	Most Preferred ✓ Potential to accommodate consistent AT facility type with reduced width on one side at select constrained locations (e.g. Milton Fire Station) to avoid residential impacts and to minimize / avoid encroachment to sensitive natural features ✓ Least impacts to natural features

Criteria	Alternative A Cycle Tracks and Sidewalks, Both Sides	Alternative B Bi-directional Cycle Tracks and Sidewalk one side, Sidewalk other side	Alternative C Sidewalk and MUP one side, Sidewalk other side	Alternative D MUPs on both sides	Alternative E MUP one side, Sidewalk other side
Cultural Heritage	Most Preferred ✓ No BHRs or CHLs cultural resources × Potential impacts to archaeological resources	Most Preferred ✓ No BHRs or CHLs cultural resources × Potential impacts to archaeological resources	Most Preferred ✓ No BHRs or CHLs cultural resources × Potential impacts to archaeological resources	Most Preferred ✓ No BHRs or CHLs cultural resources × Potential impacts to archaeological resources	Most Preferred ✓ No BHRs or CHLs cultural resources × Potential impacts to archaeological resources
Preliminary Costs	Less Preferred ✓ Potential to accommodate consistent AT facility type within CPKC Rail structure × Higher construction and maintenance costs	Least Preferred × Discontinuous AT facility type on one side within CPKC Rail structure × Moderate construction and maintenance costs	Least Preferred × Discontinuous AT facility type on one side within CPKC Rail structure × Moderate construction and maintenance costs	Most Preferred ✓ Potential to accommodate within CPKC Rail structure ✓ Lower construction and maintenance costs	Most Preferred ✓ Potential to accommodate within CPKC Rail structure ✓ Lower construction and maintenance costs

Criteria	Alternative A Cycle Tracks and Sidewalks, Both Sides	Alternative B Bi-directional Cycle Tracks and Sidewalk one side, Sidewalk other side	Alternative C Sidewalk and MUP one side, Sidewalk other side	Alternative D MUPs on both sides	Alternative E MUP one side, Sidewalk other side
Overall Summary	Recommended This alternative is recommended for the following reasons: ✓ Provide dedicated and separated facilities to eliminate conflict points between pedestrians and cyclists, and between cyclists travelling in opposing directions ✓ Potential conflicts at intersections / driveways are minimized as cyclists travel in the same direction as the road (minimal driveways on either side of the road) ✓ Potential to accommodate consistent AT facility type with reduced widths on both sides at select constrained locations (e.g. Milton Fire Station) to avoid residential impacts and to minimize / avoid encroachment to sensitive natural features ✓ Potential to accommodate consistent AT facility type within CPKC Rail structure				

7.4 Evaluation of Alternative Design Concepts Summary

The following summarizes the Preferred Design Concept for the James Snow Parkway for the three segments. The Preferred Design Concept includes the road improvements as well as the AT improvements.

Alternative Widening:

- **Alternative 1 - Widen About the Centreline** is recommended in Segment 1 (Britannia Road to Louis St. Laurent Avenue) and Segment 3 (Derry Road to just south of Highway 401 Interchange) since this widening alternative balances the impacts on both sides of James Snow Parkway. This alternative minimizes impacts on either side of the corridor and maintains the existing CPKC rail underpass. The potential for property impacts will be minimized as impacts are balanced on both sides of James Snow Parkway as opposed to exclusively widening to the east or west.
- **Alternative 3 – Widening to the East** is recommended in Segment 2 (Louis St. Laurent Avenue to Derry Road) as it minimizes impacts to the existing residential neighbourhoods on the west side of James Snow Parkway.

Active Transportation:

A one-way cycle track and a sidewalk on both sides are recommended along the James Snow Parkway corridor in all segments as they provide:

- Provides physical separation between AT users and vehicles;
- Minimizes potential conflicts at driveways and intersections with one-way cyclist travel; and
- Provides pedestrians and cyclists with direct access to adjacent lands / destinations in both boulevards.
- Provides protection treatment measures at intersections for pedestrian crossings (i.e. AODA compliant intersections with crossrides).

8. Recommended Preliminary Design

8.1 Description of the Recommended Preliminary Design

The recommended preliminary design for James Snow Parkway between Britannia Road and south of Highway 401 interchange was selected with consideration of the evaluation criteria listed in **Section 6.2**. The recommended preliminary design addresses the problem/opportunity statement, while also minimizing impacts.

The recommended preliminary design is illustrated in the preliminary design drawings in **Appendix L**. The specific elements included in the recommended preliminary design are detailed in **Section 8.4**.

8.2 Design Criteria

The Design Criteria for the Study Corridor is summarized in **Table 8-1** to **Table 8-9**. The standards and guidelines referenced in preparation of the Design Criteria include:

- OTM Book 18: Cycling Facilities – 2021;
- OTM Book 15: Pedestrian Crossing Treatment; - 2016; and
- TAC Geometric Design Guide for Canadian Roads - 2017.

At the time of Detailed Design, any changes to design standards and/or industry best practices are to be considered.

Table 8-1 : Preliminary Design Criteria - Road Design Parameters for James Snow Parkway from Britannia Road to Derry Road

ROAD DESIGN PARAMETERS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Road Classification	Major Arterial	Major Arterial	Major Arterial	Halton Region TMP
ROW Width (m)	35 – 38 m	47 m (will be mitigated at constrained locations)	-	Halton Region TMP
Posted Speed (km/h)	70 km/h	70 km/h	70 km/h	-
Design Speed (km/h)	-	UAD90 – 90 km/h	90 km/h	TAC Chapter 2 – Table 2.6.2, page 47
Minimum Radius (m)	-	Urban Superelevation Rate = 4.0% Min R = 380 NC: 2620 m RC: 530 m	Urban Superelevation Rate = 4.0% Min R = 380 NC: 2620 m RC: 530 m	TAC Chapter 3 – Table 3.2.8, page 23
Minimum Sag Curve (k)	20	15-20	50	TAC Chapter 3 – Table 3.3.5, page 63
Minimum Crest Curve (k)	32	39	50	TAC Chapter 3 – Table 3.3.2, page 59
Grades Maximum	2.43%	3%	1.6%	TAC Chapter 3 – Section 3.3.2.4, page 55
Minimum Grade	0.23 %	0.5% - 0.60% (desired) 0.4% (absolute minimum)	0.4%	TAC Chapter 3 – Section 3.3.2.5, page 55-56



ROAD DESIGN PARAMETERS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Through Lane Width (Urban)	3.1 – 3.8 m	3.5 m	3.5 m	TAC Chapter 4 – Table 4.2.3, page 9
TWLTL (m)	N/A	4.0 m	N/A	TAC Chapter 8 – Section 8.6.2, page 29
Median Width	2.0 m – 5.0 m	0 m – 5.0 m	2.0 m – 5.0 m	TAC Chapter 4 – Section 4.5.3, Point 5, page 33



Table 8-2: Design Criteria - Intersections Design: Turning Lane Design Parameters for James Snow Parkway from Britannia Road to Derry Road

TURNING LANE		EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Right Turn Lane	Width	3.2 – 4.3 m	3.0 – 3.3 m	3.0 m	TAC Chapter 4 – Section 4.3.2.2, Page 13
	Storage	67 - 160 m	From Traffic Analysis	From Traffic Analysis	Traffic Analysis
	Taper	75 m	80 m	Varies based on constrained areas: 50 m – 85 m	TAC Chapter 9 – Table 9.14.2, Page 101 TAC Chapter 10 – Table 10.6.2, Page 31
Left Turn Lane	Width	2.75 – 4.1 m	3.0 – 3.3 m	3.0 m	TAC Chapter 4 – Section 4.3.2.3, Page 13
	Storage	26 - 160 m	From Traffic Analysis	From Traffic Analysis	Traffic Analysis
	Taper	20: 1 - 35:1	27:1 – 54:1	27:1	TAC Chapter 9 – Table 9.17.1, Page 123

Table 8-3: Design Criteria – Other Cross-section and AT Elements for James Snow Parkway from Britannia Road to Derry Road

BOULEVARD ELEMENTS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Curb and Gutter (m)	0.5 m	0.5 m	0.5 m	OPSD 600.040
Boulevard Width (m)	1.5 – 2.5 m	3.0 m	3.0 m (Typical) Varies based on constrained areas: 0 m – 3.0 m	
Minimum Curb Radii (m)	13.7 m	8.0 – 15.0m	15 m	TAC Chapter 9 – Section 9.13.2, page 90
Sidewalk Width (m)	-	Minimum 1.5 m Preferred 1.8 m (May reduce sidewalk width to 1.2 m where it connects to curb ramps (AODA))	1.8 m (Typical) 1.5 m (Constrained)	TAC Chapter 6, Table 6.3.1, page 13
Cycling Facility Width (m)	-	<u>Cycle Tracks</u> Minimum 1.8 m Preferred 2.0 m (1.5 m allowable at pinch points and at intersections if necessary)	<u>Cycle Tracks</u> 1.8 m (Typical) 1.5m (Constrained)	OTM Book 18: Cycling Facilities - 2021



BOULEVARD ELEMENTS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
MUP Width (m)	3 m (on the west side only from Louis St. Laurent to Derry Road)	Minimum 3.0 m Enhanced 4.0 m Provide minimum 0.6 m wide shoulder or graded area (flatter than 1:6) on both sides of the trail. Provide a clear zone of 0.9 m wide on both sides of the trail.	-	OTM Book 18: Cycling Facilities – 2021 OTM Book 15: Pedestrian Crossing Treatments - 2016



Table 8-4 : Preliminary Design Criteria - Road Design Parameters for James Snow Parkway from Derry Road to Main Street East

ROAD DESIGN PARAMETERS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Road Classification	Major Arterial	Major Arterial	Major Arterial	Halton Region TMP
ROW Width (m)	35 m – 46 m	47 m (will be mitigated at constrained locations)	-	Halton Region TMP
Posted Speed (km/h)	70 km/h	70 km/h	70 km/h	-
Design Speed (km/h)	-	UAD90 – 90 km/h	90 km/h	TAC Chapter 2 – Table 2.6.2, page 47
Minimum Radius (m)	450 m	Urban Superelevation Rate = 4.0% Min R = 380 NC: 2620 m RC: 530 m	Urban Superelevation Rate = 4.0% Min R = 380 NC: 2620 m RC: 530 m	TAC Chapter 3 – Table 3.2.8, page 23
Minimum Sag Curve (k)	20	15-20	19	TAC Chapter 3 – Table 3.3.5, page 63
Minimum Crest Curve (k)	39	39	45	TAC Chapter 3 – Table 3.3.2, page 59
Grades Maximum	2.87%	3% (Desired) 7% (Absolute Maximum)	4%	TAC Chapter 3 – Section 3.3.2.4, page 55



ROAD DESIGN PARAMETERS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Minimum Grade	0.23 %	0.5% - 0.60% (desired) 0.4% (absolute minimum)	0.4%	TAC Chapter 3 – Section 3.3.2.5, page 55-56
Through Lane Width (Urban)	3.2 – 3.6 m	3.5 m	3.5 m	TAC Chapter 4 – Table 4.2.3, page 9
TWLTL (m)	N/A	4.0 m	N/A	TAC Chapter 8 – Section 8.6.2, page 29
Median Width	7 m maximum width	0 m – 5.0 m	2.0 m – 6.5 m	TAC Chapter 4 – Section 4.5.3, Point 5, page 33



Table 8-5: Design Criteria - Intersections Design: Turning Lane Design Parameters for James Snow Parkway from Derry Road to Main Street East

TURNING LANE		EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Right Turn Lane	Width	3.3 m	3.0 – 3.3 m	3.0 m	TAC Chapter 4 – Section 4.3.2.2, Page 13
	Storage	100 m	From Traffic Analysis	From Traffic Analysis	Traffic Analysis
	Taper	79 m	80 m	80 m	TAC Chapter 9 – Table 9.14.2, Page 101 TAC Chapter 10 – Table 10.6.2, Page 31
Left Turn Lane	Width	2.8 - 3.2 m	3.0 – 3.3 m	3.0 m	TAC Chapter 4 – Section 4.3.2.3, Page 13
	Storage	83 - 102 m	From Traffic Analysis	From Traffic Analysis	Traffic Analysis
	Taper	20:1 – 27:1	27:1 – 54:1	27:1	TAC Chapter 9 – Table 9.17.1, Page 123

Table 8-6: Design Criteria – Other Cross-section and AT Elements for James Snow Parkway from Derry Road to Main Street East

BOULEVARD ELEMENTS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Curb and Gutter (m)	0.5 m	0.5 m	0.5 m	OPSD 600.040
Boulevard Width (m)	2.5 m (or 3.5 if the asphalt strip is included)	3.0 m	3.0 m (Typical) Varies based on constrained areas: 0 m – 3.0 m	
Minimum Curb Radii (m)	14 m	8.0 – 15.0m	15 m	TAC Chapter 9 – Section 9.13.2, page 90
Sidewalk Width (m)	1.5 m (on the west side only from Waldie Avenue to Derry Road)	Minimum 1.5 m Preferred 1.8 m (May reduce sidewalk width to 1.2 m where it connects to curb ramps (AODA))	1.8 m (Typical) 1.5m (Constrained)	TAC Chapter 6, Table 6.3.1, page 13
Cycling Facility Width (m)	-	<u>Cycle Tracks</u> Minimum 1.8 m Preferred 2.0 m (1.5 m allowable at pinch points and at intersections if necessary)	<u>Cycle Tracks</u> 1.8 m (Typical) 1.5m (Constrained)	OTM Book 18: Cycling Facilities - 2021



BOULEVARD ELEMENTS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
MUP Width (m)	3 m (on the west side only)	Minimum 3.0 m Enhanced 4.0 m Provide minimum 0.6 m wide shoulder or graded area (flatter than 1:6) on both sides of the trail. Provide a clear zone of 0.9 m wide on both sides of the trail.	-	OTM Book 18: Cycling Facilities – 2021 OTM Book 15: Pedestrian Crossing Treatments - 2016

Table 8-7 : Preliminary Design Criteria - Road Design Parameters for James Snow Parkway from Main Street East to South of Highway 401 Interchange

ROAD DESIGN PARAMETERS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Road Classification	Major Arterial	Major Arterial	Major Arterial	Halton Region TMP
ROW Width (m)	46 m	47 m (will be mitigated at constrained locations)	-	Halton Region TMP
Posted Speed (km/h)	60 km/h	60 km/h	60 km/h	-
Design Speed (km/h)	-	UAD80 – 80km/h	80km/h	TAC Chapter 2 – Table 2.6.2, page 47
Minimum Radius (m)	3300 m	Urban Superelevation Rate = 4.0% Min R = 280 NC: 2130 m RC: 400 m	Urban Superelevation Rate = 4.0% Min R = 280 NC: 2130 m RC: 400 m	TAC Chapter 3 – Table 3.2.8, page 23
Minimum Sag Curve (k)	45	12-16	70	TAC Chapter 3 – Table 3.3.5, page 63
Minimum Crest Curve (k)	30	26	30	TAC Chapter 3 – Table 3.3.2, page 59
Grades Maximum	2.43%	3% (Desired) 7% (Absolute Maximum)	3.3%	TAC Chapter 3 – Section 3.3.2.4, page 55



ROAD DESIGN PARAMETERS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Minimum Grade	0.23%	0.5% - 0.60% (Desired) 0.4% (Absolute Minimum)	0.40%	TAC Chapter 3 – Section 3.3.2.5, page 55-56
Through Lane Width (Urban)	3.3 – 3.7 m	3.5 m	3.5 m	TAC Chapter 4 – Table 4.2.3, page 9
TWLTL (m)	N/A	4.0 m	N/A	TAC Chapter 8 – Section 8.6.2, page 29
Median Width	1.5m	0 m – 5.0 m	2.0 m	TAC Chapter 4 – Section 4.5.3, Point 5, page 33



Table 8-8: Design Criteria - Intersections Design: Turning Lane Design Parameters for James Snow Parkway from Main Street East to South of Highway 401 Interchange

TURNING LANE		EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Right Turn Lane	Width	3.4 m	3.0 – 3.3 m	3.0 m	TAC Chapter 4 – Section 4.3.2.2, Page 13
	Storage	127 m	From Traffic Analysis	From Traffic Analysis	Traffic Analysis
	Taper	36:1	17:1 – 24:1	17:1	TAC Chapter 9 – Table 9.14.2, Page 101 TAC Chapter 10 – Table 10.6.2, Page 31
Left Turn Lane	Width	3.3 m	3.0 – 3.3 m	3.0 m	TAC Chapter 4 – Section 4.3.2.3, Page 13
	Storage	127 m	From Traffic Analysis	From Traffic Analysis	Traffic Analysis
	Taper	33:1	15:1 – 48:1	15:1	TAC Chapter 9 – Table 9.17.1, Page 123

Table 8-9: Design Criteria – Other Cross-section and AT Elements for James Snow Parkway from Main Street East to South of Highway 401 Interchange

BOULEVARD ELEMENTS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
Curb and Gutter (m)	0.5 m	0.5 m	0.5 m	OPSD 600.040
Boulevard Width (m)	N/A	3.0 m	N/A	
Minimum Curb Radii (m)	14.7 m	8.0 – 15.0 m	15 m	TAC Chapter 9 – Section 9.13.2, page 90
Sidewalk Width (m)	N/A	Minimum 1.5 m Preferred 1.8 m (May reduce sidewalk width to 1.2 m where it connects to curb ramps (AODA))	1.8 m (west side only)	TAC Chapter 6, Table 6.3.1, page 13
Cycling Facility Width (m)	N/A	<u>Cycle Tracks</u> Minimum 1.8 m Preferred 2.0 m (1.5 m allowable at pinch points and at intersections if necessary)	N/A	OTM Book 18: Cycling Facilities - 2021



BOULEVARD ELEMENTS	EXISTING CONDITIONS	DESIGN STANDARDS	PROPOSED STANDARDS	SOURCE
MUP Width (m)	2.5 m	Minimum 3.0 m Enhanced 4.0 m Provide minimum 0.6 m wide shoulder or graded area (flatter than 1:6) on both sides of the trail. Provide a clear zone of 0.9 m wide on both sides of the trail.	To be determined as part of future MECP study for James Snow Parkway from south of Highway 401 northerly.	OTM Book 18: Cycling Facilities – 2021 OTM Book 15: Pedestrian Crossing Treatments - 2016

8.3 Road Geometry

8.3.1 Horizontal Alignment

The horizontal alignment for the recommended preliminary design (with an 80-90 km/h design speed) generally follows the existing centreline of James Snow Parkway.

Minor adjustments to the horizontal alignment are proposed at some locations to address geometric requirements and meet minimum design standards. The proposed horizontal alignment is illustrated on the preliminary design drawings in **Appendix L**.

8.3.2 Vertical Alignment

The proposed vertical alignment for the recommended preliminary design accommodates an 80-90 km/h design speed. This vertical alignment was chosen to match the existing road profile where possible, with minor adjustments proposed at some locations to address geometric requirements and meet the geometric standards required for the class of the road, as per the design criteria identified in **Section 8.2**.

The vertical alignment aims to minimize impacts to existing entrances and driveways, minimize impacts on watercourse crossings, and reduce grading impacts to adjacent properties and features. The proposed vertical alignment is illustrated on the preliminary design drawings in **Appendix L**.

8.4 Typical Cross-Section

The typical cross-section for James Snow Parkway between Britannia Road and south of the Highway 401 interchange is illustrated in **Figure 8-1** and generally consists of:

- 47m right-of-way (varies locally near intersections and at constrained locations);
- Six general purpose lanes (three in each direction);
- 2.0 to 5.0 m centre median;
- Separated one-way 1.8 m boulevard cycle track and 1.8 m sidewalks (traveling in the same direction as the road) on both sides of the road;
- 0.5 m curb and gutter;
- Protected intersection features (i.e. AODA compliant intersections with crossrides);
- Illumination along the corridor, including pedestrian scale lighting;
- Utility relocations; and
- Opportunities for streetscaping in the boulevard.

The typical cross-section for James Snow Parkway under the CPKC rail structure is illustrated in **Figure 8-2**.

Grading will be contained within the proposed ROW where feasible. In areas where grading extends beyond the proposed ROW, grading easements or property acquisition may be required as discussed in **Section 8.12**. An assessment during detailed design will be needed to determine the need for guide rails and location of utilities in terms of roadside safety.

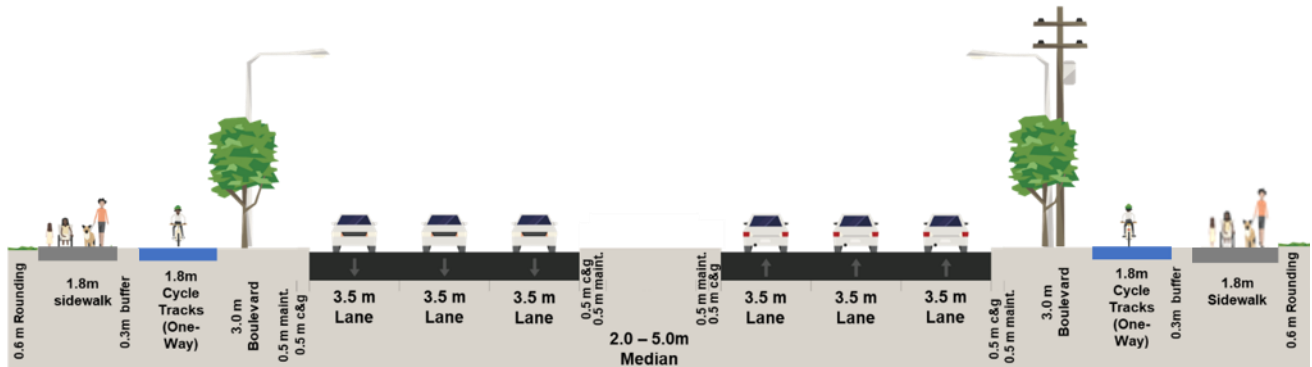


Figure 8-1: Typical Cross-section for James Snow Parkway

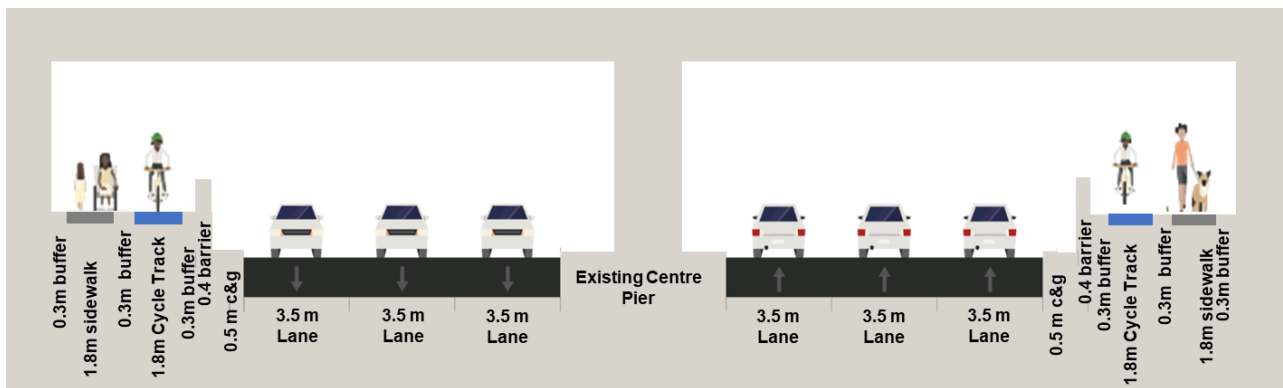


Figure 8-2: Typical Cross-section for James Snow Parkway Under the CPKC Rail Underpass

8.5 Cycling and Pedestrian Facilities

The recommended preliminary design includes 1.8 m one-way cycle track and 1.8 m sidewalk on both sides of the James Snow Parkway corridor. The recommended AT facility is consistent through the CPKC rail underpass. A 0.3 m buffer is proposed between the cycle track and the sidewalk and will be a flat hard surface. The design will be further refined during detailed design.

The AT facilities under the CPKC rail underpass are proposed to be elevated from the road profile to minimize crossing distance for AT users and to provide a less steep slope where feasible. A 0.4 m barrier is proposed under the CPKC rail underpass adjacent to steep slopes between the AT users and roadway vehicles to protect AT users and meet AODA Standards

Generally, the proposed AT facilities are located as close to adjacent properties as possible to maximize the separation between pedestrians and cyclists and the roadway vehicles and promote comfort, maximize tree planting opportunities in the boulevard, and allow for sufficient space for utilities. The 3.0 m boulevard buffer includes 0.5 m curb and gutter and 0.5 m maintenance buffer, and space for boulevard trees, street lighting and utilities.

The material type, treatment and pavement markings / signage for the sidewalk, cycle track and barriers will be confirmed during Detailed Design. The material type and treatment style will consider the future interface between the respective AT facility and transit stops. The need for delineation through future transit stop areas by signage, tactile warning or change in elevation will be confirmed during Detailed Design.

8.6 Protected Intersection Features

Pedestrians and cyclists will cross signalized intersections via crosswalks and crossrides provided on all east-west approaches of each signalized intersection, regardless if the cross-street has formalized / dedicated cycling facility as shown on the preliminary design plans. Connections to planned active transportation facilities (sidewalk and/or MUP) for the Town of Milton's development network to the proposed active transportation facilities for James Snow Parkway will be further reviewed in Detailed Design. For further discussion regarding protected intersection features at signalized intersections, refer to Section 8.8.

8.7 Future Transit Priority Corridor Infrastructure

James Snow Parkway is identified as a future Transit Priority Corridor and a strategic north-south spine in the Transit Priority Corridor Network in the Halton Region Integrated Master Plan. The preliminary preferred plan for James Snow Parkway protects for the infrastructure for a future Transit Priority Corridor. James Snow Parkway is identified as a Transit Priority Corridor with mixed traffic, queue jump lanes and Transit Signal Priority by 2046. By 2051, the corridor is identified to have the addition of High Occupancy Vehicle lanes. The timing for transit priority will be based on the corridor needs and will be determined in coordination with the Local Municipalities.

The recommended preliminary design protects for future bus bays and transit pads at major intersections (Main Street East, Derry Road, Louis St. Laurent Avenue, and Britannia Road). Bus bays are proposed at far side at each intersection. During Detailed Design, transit stop locations and transit infrastructure requirements will be reviewed and confirmed in consultation with Milton Transit. Transit amenities (bus stops / pads) will conform to the latest guidelines. At locations where the cycle track and sidewalk intersect with bus pads, it is recommended that passenger standing areas with shelters be placed behind the cycle track and sidewalk. Further, Milton Transit will be consulted during Detailed Design to maintain transit service efficiency during construction.

8.8 Intersection Designs, Traffic Signals and Accesses

Intersections have been designed in accordance with AODA standards and to facilitate the movement of all road users, including pedestrians and cyclists. To improve safety and comfort for pedestrians and cyclists at intersections, all intersections are designed to be protected according to Ontario Traffic Manual Books 12, 15 and 18, and Ontario Traffic Council – Protected Intersection Guide. Bicycle and pedestrian crossings are set back from main intersections to allow more time for drivers to see and yield to pedestrians and cyclists crossing. Corner refuge islands are provided at each corner of the intersection, physically separating turning vehicles from pedestrians and cyclists, while improving visibility. Curb radii are also recommended to be reduced to a minimum to slow down turning vehicles. Appropriate design vehicles for each intersection are recommended to be determined during Detailed Design to appropriately reduce curb radii to the minimum.

Two new signalized intersections are planned for the two new roads located at the southern end of the study area, just north of Britannia Road, including Whitlock Avenue and Seager Avenue. The exact locations of traffic signal poles will be determined during Detailed Design. New dedicated, exclusive left and left-turn lanes have been added to the intersection of James Snow Parkway and Clark Boulevard as well as at the two new road intersections at Whitlock Avenue and the Seager Avenue. All existing intersections within the study area that are signalized will remain. Existing dedicated, exclusive left and right-turns will be maintained along the study corridor.

The recommended preliminary design introduces a raised centre median throughout the study corridor, however, an opening of the raised centre median will be provided at Milton Fire Station #4 just north of Waldie Avenue. The opening and pavement markings at Milton Fire Station #4 will be further reviewed during Detailed Design in consultation with the Town of Milton and the Town of Milton Fire and Rescue Services. Detailed Design will also review to maintain clear sight lines for fire apparatus and avoid plantings that may impair sight lines. The Region will also work with the Town of Milton and Town of Milton Fire and Rescue Services to confirm all traffic signals will have pre-emption for fire apparatus. Full access will be provided to Milton Fire Station #4 during construction.

Some driveways along the corridor will require adjustment to accommodate the proposed road improvements. These driveways include the retail plaza at James Snow Parkway and Main Street E, the Hydro One property access just north of the CPKC / Metrolinx rail corridor, the Orlando, Sunlife Broccolini and Oxford properties and the Milton Fire Station 4. Property owners will be notified of temporary impacts to driveway access through detailed design and prior to construction and in advance of work related to their access.

8.9 Illumination

Illumination, including pedestrian scale lighting, will be provided at intersections and along James Snow Parkway. Illumination, including pedestrian scale lighting along the study corridor will consider the roadway profile, the urban cross-section, and active transportation requirements. Details will be based on Halton Region's illumination standards and will be confirmed during Detailed Design, at which time the type and location of poles and luminaires will be confirmed.

8.10 Tree Inventory Report

A preliminary tree inventory was completed as part of the MCEA. Additional details of the tree inventory are provided in the Tree Inventory Report in **Appendix M**.

Of the 182 inventoried trees, 76 are recommended for removal to accommodate the Preliminary Preferred Design. Many of these trees are in direct conflict with the proposed road construction or are situated in close proximity to the grading limit and would incur severe root damage as a result of grading. This will be further defined at Detailed Design.

Halton Region recognizes the intrinsic value of trees and woodlands in both urban and rural environments, including their role in supporting biodiversity, enhancing community well-being, and helping to offset greenhouse gas emissions. To maintain or increase woodland and tree cover, the Region's Tree-Canopy Replacement Policy on Regionally Owned Lands (LPS31-08) outlines requirements for the removal and replacement of these resources on Regionally owned lands. This policy applies to all Region-led capital projects, including water, wastewater, and transportation infrastructure.

Where infrastructure projects may result in the removal or disturbance of existing trees, Halton Region is committed to minimizing impacts and implementing appropriate mitigation measures during the detailed design and implementation phases. In accordance with the Tree-Canopy Replacement Policy, the following measures will be implemented for all Region-led infrastructure projects where tree removal or disturbance may occur:

- A Tree Protection and Preservation Plan will be prepared by a certified arborist or qualified professional during the detailed design and implementation phases. The plan will:
 - Include a comprehensive tree inventory documenting the location, species, size, and condition of trees within the study area.
 - Provide an impact assessment identifying which trees are to be removed, retained with injury, or retained with no injury.
 - Outline mitigation measures to minimize impacts to existing trees during construction.
 - Include an analysis of compensation requirements for trees affected by the project, based on the policy.
 - Be tailored to site-specific conditions and identify appropriate strategies for tree protection, preservation, and replacement.
 - Tree replacement will be based on the canopy cover lost, rather than the number of trees removed, and will follow the Canopy Replacement Schedule outlined in the policy.
 - Replacement species will be native and ecologically appropriate, excluding invasive species. Planting may occur on-site or off-site, depending on feasibility.

Halton Region is committed to implementing the mitigation measures identified in the Tree Protection and Preservation Plan and will engage with relevant and interested parties, including the Town of Milton and First Nations and Indigenous Communities, as projects advance through design and construction. Trees and vegetation plantings should include a review of the Town of Milton's Trees & Shrubs Selection – Make Better Choices guidelines.

8.11 Streetscaping and Landscaping

The preferred design considers maximizing the available boulevard space for plantings and streetscaping between the roadway, AT facilities, and property line while minimizing impacts to the adjacent sensitive natural features. In general, the space in the boulevard between the AT facilities and the roadside curb is dedicated for landscaping and utility poles. Considerations for other landscaping treatments such as grass or other small vegetation should be considered during Detailed Design.

During Detailed Design, streetscaping opportunities will be reviewed and a streetscaping planting plan including individual tree planting locations will be developed.

Photo renderings were prepared and presented in Public Information Centre #2 to illustrate the preliminary preferred design in **Figure 8-3** and **Figure 8-4**.



Figure 8-3: James Snow Parkway, North of Britannia Road (Facing North)



Figure 8-4: James Snow Parkway, North of Derry Road (Facing North)

8.12 Property Requirements

The Region's TMP identified a ROW of 47 m for improvements to the James Snow Parkway corridor. Additional land may be acquired to accommodate intersection requirements, culvert crossings, etc. The recommended preliminary design minimizes property requirements where feasible.

Proposed property requirements resulting from the recommended preliminary design are approximately 2.08 ha. Area required for temporary easement is approximately 0.95 ha. In general, grading will be contained within the existing ROW where feasible. Temporary and permanent easements will be considered for construction, maintenance, and grading purposes. During Detailed Design, opportunities to reduce property requirements and to use temporary or permanent grading easements instead of permanent property takings should be reviewed where feasible.

Property requirements identified are preliminary and will be finalized during Detailed Design.

8.13 Pavement Design

The preliminary pavement investigation recommendations are detailed in **Appendix J**.

Based on the results of the investigation, the following preliminary pavement designs are recommended for widening of the roadway:

Component	Thickness (mm)		
	Britannia Road to Derry Road	Derry Road to Main Street East	Main Street East to just south of Highway 401 Interchange
HL1	50	50	50
HDBC (2 lifts)	100	130	150
OPSS Granular A Base	150	150	150
OPSS Granular B Type II Subbase (minimum, additional depth may be required to match existing subgrade)	450	450	500

Pavement design analysis indicates that strengthening of the existing pavement structure is required between Derry Road and Main Street to support the future traffic demands on the widened roadway. The structural requirements can be achieved by milling 100 mm of the existing asphalt and replacing with 100 mm of new asphalt (50 mm HL1 over 50 mm HDBC). Rehabilitation of the existing pavement structure in the remaining sections may entail milling 50 mm of the existing asphalt surface followed by replacing with a new 50 mm thick layer of HL1 surface course.

Full depth asphalt replacement should be considered for areas of pavement that will be significantly cut by construction activities such as installation of storm sewers and other underground utilities, shifting of lane alignments, or relocation of traffic islands, raised medians and curbs. Further, partial depth asphalt replacement may not be cost effective or efficient to construct in areas requiring profile or grade changes.

The pavement design recommendations will need to be reviewed and confirmed during Detailed Design by a geotechnical engineer.

8.14 Drainage / Stormwater Management Plan

The Drainage and Stormwater Management Report including the Drainage Area Plans is provided in **Appendix G**.

Transverse Watercourse Crossing

The Middle Sixteen Mile Creek Tributary 'A' crosses James Snow Parkway approximately 1.0 km north of Britannia Road and is regulated by Conservation Halton. The crossing structure is a 7.1 m span concrete open-footing bridge structure. A hydraulic assessment of this crossing was undertaken in accordance with the Ontario Ministry of Transportation's Highway Drainage Design Standards (2008). James Snow Parkway is classified as an Urban Arterial roadway. Hydraulic models of the Middle Sixteen Mile Creek Tributary 'A' were provided by Conservation Halton.

Based on the preliminary hydraulic assessment results, the James Snow Parkway bridge crossing at this location fully meets MTO criteria (i.e. freeboard and clearance), and no overtopping is observed under the Regional storm event.

Based on the proposed roadway improvements as part of this MCEA study, no impacts on the watercourse crossing is anticipated as a result of the proposed improvements, as the road widening does not require a structural extension or replacement at this crossing location. Consequently, there are no anticipated impacts to water surface elevations upstream or downstream of the James Snow Parkway under the full range of storm return period events, namely 2-year to 100-year and Regional Storm events.

Drainage and Stormwater Management Plan

The proposed stormwater management plan for the project has been developed by examining the opportunities and constraints within the James Snow Parkway project corridor. The proposed plan consists of a fully urbanized roadway section. Runoff from the paved roadway area will be conveyed by existing and proposed urban drainage system consisting of catch basins and storm sewers as well as low-impact development features consisting of bio-swales and subsurface infiltration galleries. Bio-swales in an urban environment may include sunken areas in the landscaped portion of the median where road runoff can enter through a curb cut. The water then filters through a bioswale where tree plantings exist. Any excess water would convey through a subdrain and back to the storm sewer under the roadway.

The drainage system for the proposed urban cross-section will consist of a subsurface storm drainage system, which will collect and convey surface runoff from the roadway and boulevard areas and discharge to existing drainage outlets. Pipe sub-drains will be installed to collect drainage from the roadway base and discharge to the storm sewer network.

Where practical, the drainage systems on James Snow Parkway will include segments with low impact development features (bio-swaes) situated within boulevard areas and integrated with landscaping components to provide the required water quality treatment within the project limits. Other options include subsurface infiltration galleries that could be incorporated where bio swales are not feasible for implementation. Where roadway drainage currently discharges to existing stormwater management facilities, these outlets will be maintained. Oil-grit separator units should be considered as an additional water quality treatment measure where low-impact development features are not feasible for implementation.

Bio-swaes and infiltration galleries were selected for stormwater management quality control to treat the roadway runoff corresponding to the additional asphalt area resulting from the roadway improvements. It is recommended to review the recommendations during detailed design to ensure compatibility of bio-swale implementation into the roadway drainage design, meeting the requisite criteria for soil hydraulic conductivity and clearance to the groundwater table.

During the next phase of design, the following drainage and stormwater management related assessments will be further developed based on the detailed design plan in consultation with the Town of Milton and Conservation Halton, which will include:

- Further detailed calculations and analyses to confirm any impacts to the performance and capacity of receiving drainage and stormwater infrastructure, and modifications to the system are to be established accordingly to mitigate these impacts including achieving subwatershed impact (SIS) targets for flow control and erosion control. Where required, the analyses are to be completed in accordance with the Town's hydrologic verification process.
- The detailed design for James Snow Parkway is to be coordinated with the planning and design for the adjacent properties and is to incorporate as-built and approved design information for adjacent properties accordingly. A detailed list of supplemental information as provided by the Town of Milton related to adjacent developments along the James Snow Parkway corridor is provided in the Drainage and Stormwater Management Report in **Appendix G**.

8.15 CPKC Underpass Structure

The existing CPKC railway underpass consists of a two span concrete structure with two lanes of roadway presently passing under each span. The existing bridge configuration accommodates an additional lane in each direction.

The existing centre pier will be maintained but a new barrier will be added on both sides of the pier to protect the pier from vehicles. The recommended AT facilities (one-way cycle track and sidewalk on both sides) will be raised and separated from the road with a barrier.

8.16 Noise

A noise assessment was undertaken to determine potential noise impacts resulting from the proposed road improvements based on the Halton Region Noise Abatement Guideline (2014). The noise modelling was carried forward for future noise level with and without improvements. Traffic volumes from the 2031 year were used to assess potential noise impacts, which was the best available data as outlined in the joint MTO / MECP Noise Protocol. The assessment determined potential noise impacts with and without the proposed improvements to James Snow Parkway. The noise assessment also undertook a sensitivity analysis at selected receiver locations to determine the potential noise impacts for traffic volumes based the capacity of existing James Snow Parkway compared to traffic volumes based on the ultimate capacity of James Snow Parkway widened to six lanes. The roadway noise prediction model used is the ORNAMENT road noise prediction algorithms produced by the MECP. The MECP “STAMSON” highway noise prediction model is a computerized version of this method.

Based on this noise modelling, the potential change in noise levels as a result of the proposed improvements to the James Snow Parkway study corridor when compared to the future without roadway improvements condition were predicted to not exceed the 5 dBA impact criteria as outlined in the Halton Region’s noise guideline. The sensitivity analysis also predicted that the potential change in noise levels when comparing traffic volumes for the capacity of existing James Snow Parkway to the capacity of James Snow Parkway widened to six lanes does not exceed the 5 dBA impact criteria. As such, the review of noise mitigation is not warranted.

Construction noise impacts are temporary in nature but may be noticeable at times in nearby noise sensitive areas. Methods to mitigate construction noise impacts should be followed as outlined in **Table 9-1**.

The noise assessment is provided in the Noise Impact Study included in **Appendix K**.

8.17 Air Quality

An Air Quality Impact Assessment was undertaken to assess the local air quality impacts due to the proposed James Snow Parkway improvements. The study also includes an overview of construction impacts and a screening level assessment of GHG. The 2023 Existing No Build and 2031 Future Build were assessed to determine the need for mitigation measures.

With the improved traffic flow resulting in less idling and improved fuel combustion conditions, the cumulative concentrations for the Future Build emissions scenario were below their respective MECP guidelines and Canadian Ambient Air Quality Standards (CAAQS), with the exception of the annual PM_{2.5}, annual benzene, and 24-hr and annual Benzo(a)Pyrene. Note that background concentrations alone exceeded the guideline for all of these contaminants and averaging periods. The overall contribution from the roadway emissions to the combined concentrations was generally below 20%. The exceptions were the roadway contribution to 1-hour carbon monoxide (CO) and 24-hour TSP which were 30% and 32% of the predicted cumulative concentrations, respectively. Mitigation measures are not warranted as the project does not introduce any new exceedances to the guideline, in comparison to background concentrations.

In addition to the contaminants of interest assessed in the local air quality assessment, GHG emissions were predicted from the project. The contribution of GHG emissions on James Snow Parkway, Main Street East, Derry Road, and Britannia Road represent 0.00632% of the provincial target and 0.00205% of the Canada-wide target. The contribution of GHG emissions from the project is small in comparison to these provincial and national targets.

During construction, dust is the primary contaminant of concern. It is recommended that best management practices outlined in **Table 9-1** be followed during construction of the roadway to reduce air quality impacts that may occur.

The air quality assessment is included in **Appendix N**.

8.18 Utilities

Anticipated impacts to existing utilities from the proposed improvements to James Snow Parkway are as follows:

Segment 1 – Britannia Road to South of Louis St. Laurent Avenue

- Impacts to above ground utilities on both sides of the corridor:
 - Milton Hydro overhead hydro poles located on the west side from south of Louis St. Laurent Avenue to Britannia Road.
 - Rogers aerial fibre cable on east side of corridor
- Impacts to below ground utilities on both sides of the corridor:
 - Enbridge Gas in-service high pressure segment line and distribution segment lines (east-side).
 - Milton Hydro underground utilities located on both sides of the corridor.
 - Rogers buried fibre cable on both sides of corridor.

Segment 2 – South of Louis St. Laurent Avenue to North of Derry Road

- Impacts to above ground utilities on the east side of the corridor:
 - Hydro Ones hydro corridor located on the east side
 - Rogers aerial fibre cable on east side of corridor
- Impacts to below ground utilities on east side of the corridor:
 - Enbridge Gas storage pipeline corridor located at Union Gas Pipeline Trail.
 - Enbridge Gas in-service high pressure segment line and distribution segment lines (east side).
 - Enbridge Gas distribution lines between Louis St. Laurent Avenue and Whitlock Avenue (east side).
 - Milton Hydro underground utilities located on both sides of the corridor.

Segment 3 – North of Derry Road to Just South of Highway 401

- Impacts to above ground utilities on both sides of the corridor:
 - Milton Hydro overhead hydro poles located on the east side of the corridor from Highway 401 to Derry Road.
 - Hydro Ones hydro corridor located on the east side and no impacts to transmission building located southeast of Main Street East.
 - Rogers aerial fibre cable on east side of corridor

- Impacts to below ground utilities on both sides of the corridor:
 - Enbridge Gas in-service high pressure segment line and distribution segment lines (east-side).
 - Centurylink buried assets located along the Rail corridor.
 - Milton Hydro underground utilities located on both sides of the corridor.
 - Rogers buried fibre cable on both sides of corridor.

Existing utilities along the corridor were identified based on available information provided by the utility companies. These utilities include, but are not limited to, luminaire poles, gas lines, hydro lines, and telecommunication lines. Throughout the development of design alternatives, considerations have been made to minimize impact to existing utilities. Boulevard elements, including active transportation facilities, have been narrowed while meeting industry standards to optimize the design to reduce utility pole relocation. The high-pressure gas pipeline corridor was also a key design consideration, leading to the narrowing of the boulevard elements to help manage and mitigate potential disruption risks. Utility providers are included as a stakeholder in Technical Advisory Committee and are consulted at key milestones as outlined in Section 3.2 and are invited to provide comments through the study process.

Despite implementing strategies to minimize utility impacts, the preferred design alternative may necessitate utility relocations. Hydro poles may require relocation if they are positioned near proposed infrastructure or fall within the grading limits of the planned improvements. Similarly, buried utility lines may require relocation depending on their depth and proximity to the proposed works. Ultimately, existing utilities along the James Snow Parkway corridor will be relocated as necessary to accommodate the preliminary preferred design.

The location and alignment of existing municipal services is to be confirmed during Detailed Design, which may result in changes to utilities. Impacts on utilities will be confirmed during Detailed Design, in consultation with individual utility companies. Property requirements for the impacted utilities including supporting infrastructure (such as guy wires) should be determined early in the next phase of design to allow for property acquisition to commence well in advance of construction. During Detailed Design, meetings should be held with utility companies as required where potential impacts to existing or future services are identified. All utility information should be updated prior to construction to confirm that the data is accurate and to finalize relocation requirements as necessary.

8.19 Preliminary Cost Estimate

The preliminary cost of the recommended improvements is estimated to be **\$90M**. This preliminary cost estimate includes costs of removals, road work, utility relocation, streetlights, traffic signals, landscape, traffic control, and engineering services.

The estimated costs are preliminary only and shall be confirmed during Detailed Design.

8.20 Constructability, Staging and Detour Considerations

Construction staging and traffic management plans will be developed during detailed design to facilitate the safe and efficient implementation of the proposed works on James Snow Parkway, while maintaining operations for all road users. The Traffic Management Plan will seek to maintain pedestrian, cyclist, and vehicle operations at levels comparable to existing conditions where practical and identify how access to properties and businesses adjacent to the road will be maintained during construction.

However, the nature of the required work is such that traffic disruption and delays cannot be entirely avoided. If deemed necessary, temporary, short-term lane closures may be permitted during off-peak hours only.

Impacts will be temporary and the Region will attempt to mitigate impacts as much as possible.

8.21 Construction Monitoring and Maintenance Considerations

The reconstruction of James Snow Parkway should be staged to maintain both local and through traffic within the study area. Any necessary interruptions to traffic should be kept brief and to a minimum. In particular there should be close coordination with Town of Milton, Milton Transit and GO Transit to minimize impacts on James Snow Parkway traffic, Milton Transit buses, GO trains and buses, CPKC rail and EMS operations.

Property owners and tenants may experience temporary interruptions to their property access during construction. To reduce this impact, all property owners should be notified prior to construction and in advance of work related to their access. Detailed Design plans should include details to describe how temporary accesses will be maintained, and contract specifications should specify the allowable lengths of closures and the notification requirements to property owners.

Construction of the improvements has the potential to create noise and dust for the adjacent property owners. Construction noise is temporary noise and will vary periodically during the construction depending on the specific activities being performed. Contract specifications will include provisions to define the allowable work hours, in accordance with local ordinances, to minimize impacts to the adjacent landowners in the evenings. However, some considerations will be given to the ability of completing the work in a lesser duration by allowing longer work hours. The impact of construction noise will vary based on the type of equipment used, number of pieces of equipment, time and duration of operation, and the proximity to noise sensitive receivers in question. Construction noise will be kept to a minimum through the use of well-maintained equipment with appropriate noise controls by the contractors.

Removal of existing paved surface and existing landscaping will expose native soils to wind and rain erosion, and result in a temporary increase in dust in the project area. This dust can become airborne as construction traffic runs on the exposed ground and may be noticeable by the adjacent property owners. This increase in dust levels will be temporary, and the application of best management practices, including the application of non-chloride dust suppressants, by the contractor during his normal operations can help to minimize the exposure of native soils to wind and rain erosion.

All waste generated during construction must be disposed of in accordance with ministry requirements and best management practices. Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met.

Throughout all phases of the project implementation, Halton Region's standard communications processes for capital construction projects will be followed. These activities may include, but are not limited to, construction notices, project web updates, public outreach and engagement initiatives, project signage and social media communications. The Halton Region project team will serve as the primary point of contact for all project-related inquiries and will coordinate responses in accordance with established Regional capital project communications protocols. The public is encouraged to contact Halton Region by calling 311 or 905-825-6000, available 24 hours a day, seven days a week, including holidays, or by emailing accesshalton@halton.ca. All inquiries will be logged and directed to the appropriate members of the project team for review and follow-up.

Construction and post-construction monitoring plans should be developed during Detailed Design in consultation with MECP and other regulatory agencies.

9. Potential Environmental Impacts. Mitigation Measures and Commitments to Future Work

9.1 Climate Change

The MECP guide, Consideration of Climate Change in EA process, sets out ministry expectations and supports the province's Climate Change Plan by outlining climate change considerations for EA studies. The guide notes "climate consideration" within a project means that consideration has been given to various methods to reduce GHG emissions and developing a design that is more resilient to future changes in climate and helps maintain the ecological integrity of the local environment in the face of a changing climate. The preliminary preferred design minimizes impacts to natural features as well as provides AT facilities (cycle tracks and sidewalks) for both cyclists and pedestrians to encourage residents to traverse the corridor with active modes of transportation and reducing GHG emissions from private vehicles.

Climate change impacts associated with this study are related to operations and maintenance as the transportation sector is one of the biggest contributors to CO², a key GHG. Climate Change will also impact the study area in the future as extreme weather conditions will affect the conditions of the roadways and will require more frequent repairs and updates as time passes. As a result, mitigation measures will be considered for stormwater management and conveyance of major event flow routes (i.e. LIDs)

9.2 Anticipated Impacts and Mitigation Measures

A summary of the potential impacts to natural, social/economic and cultural environments, together with recommended mitigation measures, is provided in **Table 9-1**.

Table 9-1: Summary of Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work

Factor	Details/Anticipated Impact	Proposed Mitigation
Socio-Economic Environment		
1. Land Use and Socio-Economic Impacts	a. Impacts on access during construction, including increased travel time or possible detours. b. Some driveways along the corridor will require adjustment to accommodate the proposed road improvements. These driveways include the retail plaza at James Snow Parkway and Main Street E, the Hydro One property access just north of the CPKC / Metrolinx rail corridor, the Orlando, Sunlife Broccolini and Oxford properties and the Milton Fire Station 4. c. The recommended preliminary design introduces a raised centre median throughout the study corridor, however, an opening of the raised centre median will be provided at Milton Fire Station #4 just north of Waldie Avenue.	i. Develop a detailed traffic management plan and staging concept to determine how vehicular and AT traffic will be accommodated during construction and how access to properties adjacent will be maintained. ii. Full access will be provided to Milton Fire Station #4 during construction. The opening and pavement markings at Milton Fire Station #4 will be further reviewed during Detailed Design in consultation with the Town of Milton and the Town of Milton Fire and Rescue Services. Detailed Design will also review to maintain clear sight lines for fire apparatus and avoid plantings that may impair sight lines. The Region will also work with the Town of Milton and Town of Milton Fire and Rescue Services to confirm that all traffic signals will have pre-emption for fire apparatus iii. Prior to construction, specific notices and contact information will be delivered to property owners informing them of construction details, including temporary impacts to driveway/entrance access prior to construction and in advance of work related to their access. iv. Driveway accesses will be maintained to the retail plaza at James Snow Parkway and Main Street E, the Hydro One property access just north of the CPKC / Metrolinx rail corridor, the Orlando, Sunlife Broccolini and Oxford properties.
2. Property Requirements	a. Property requirements and construction easements are required at some locations as a result of the recommended preliminary design as described in Section 8.12 and shown in Appendix L.	i. Consult with affected property owners including those where property is required or where access to their property will be impacted. ii. Property requirements to be confirmed during Detailed Design. iii. Temporary or permanent easements, modifications to grading slopes (in accordance with geotechnical recommendations) to reduce the amount of area required, or in some cases considering a retaining wall or other type of soil retention feature to minimize grading footprint.
3. Noise	a. Construction noise impacts are temporary in nature.	i. Methods to minimize construction noise impacts should be included in the contract documents: a. Construction hours should abide by the Town of Milton noise control by-law 133-2012. If construction activities are required outside of these hours, the Contractor should minimize the amount of noise being generated. b. Provide explicit indication that the Contractor is expected to comply with applicable requirements of the contract. c. Maintain all equipment to limit noise emissions and operate with effective muffling devices that are in good working order. d. Contractor should assess for potential vibration impacts from their planned activities prior to the start of construction and mitigate accordingly.

Factor	Details/Anticipated Impact	Proposed Mitigation
		e. If there are persistent noise complaints, sound emission standards for the various types of construction equipment used on the project should be checked to confirm that they meet the specified limits contained within MECP Publication NPC-115 – “Construction Equipment”. f. Construction practices should abide by Ontario Provincial Standard Specification (OPSS) MUNI 120 vibration limits. g. Contractor should abide to the following MECP vibration document requirements when constructing this undertaking: Noise Pollution Control Publication 207 (NPC-207) and Impulse Vibration in Residential Buildings, (November 1983).
4. Climate Change	a. Increased CO ² levels.	i. Opportunities for tree planting within the boulevard and minimizing adverse impacts to existing trees where feasible. ii. Provision of dedicated AT improvements (one-way cycle track and sidewalk on both sides of James Snow Parkway). iii. Intersection improvements to minimize idling and delays. Providing additional dedicated left and right turn lanes at the intersections of James Snow Parkway and Clark Boulevard, Whitlock Ave and Seager Avenue to minimize idling and delays. iv. The proposed improvements make use of an existing transportation route and accommodate road users in such a way that minimizes impacts to surrounding areas including residences, businesses, and the natural environment.
5. Air Quality	a. The cumulative concentrations for the Future Build emissions scenario were below their respective MECP guidelines or CAAQS, with the exception of the annual PM_{2.5}, annual benzene, and 24-hr and annual Benzo(a)Pyrene. Background concentrations alone exceeded the guideline for all of these contaminants and averaging periods. The overall contribution from the roadway emissions to the combined concentrations was generally below 20%. The exceptions were the roadway contribution to 1-hour CO and 24-hour TSP which were 30% and 32% of the predicted cumulative concentrations, respectively. b. GHG emissions on James Snow Parkway, Main Street East, Derry Road, and Britannia Road represent 0.00632% of the provincial target and 0.00205% of the Canada-wide target. The contribution of GHG emissions from the project is small in comparison to these provincial and national targets. c. During construction of the roadway, dust is the primary contaminant of concern. Other contaminants including nitrogen oxides (NO_x) and Volatile Organic Compounds (VOCs) may be emitted from equipment used during construction activities.	i. Best Management Practices should be followed during construction to reduce air quality impacts such as material wetting or use of non-chloride dust suppressants to reduce dust, use of wind barriers, and limiting exposed areas which may be a source of dust and equipment washing. ii. Additional mitigation measures such as planting vegetation (for example coniferous species and shrubs) should be considered to minimize particulate impacts at nearby sensitive receptors.

Factor	Details/Anticipated Impact	Proposed Mitigation
6. Source Water Protection	a. The Clean Water Act, 2006 helps communities protect their drinking water supplies through prevention – by developing collaborative, watershed-based source protection plans that are locally driven and based on science. The proposed project is located in the Halton-Hamilton Source Protection Area. There are no immediate source water protection areas within the vicinity of the study corridor.	i. A stormwater management strategy will address infiltration of stormwater runoff from the road ROW.
7. Streetscaping/ Urban Design	a. Impact to existing trees and landscaped features.	i. The preferred design considers maximizing the available boulevard space for plantings and streetscaping between the roadway, AT facilities, and property line while minimizing impacts to the adjacent sensitive natural features. In general, the space in the boulevard between the AT facilities and the roadside curb is dedicated for landscaping and utility poles. ii. During Detailed Design, streetscaping opportunities will be confirmed and a streetscaping planting plan including individual tree planting locations will be developed.
8. Utilities	a. Existing utilities in conflict with proposed improvements. These utilities include, but are not limited to, luminaire poles, gas lines, hydro lines, and telecommunication lines. b. Approximately 200 m north of Clark Boulevard, a high-pressure gas pipeline corridor (owned by Enbridge Gas) with gas storage is buried underneath, running east-west perpendicular to James Snow Parkway.	i. A utility relocation plan will be developed during Detailed Design as necessary. ii. All utility information will be updated prior to construction to finalize relocation requirements as necessary, in consultation with utility companies. iii. Enbridge Gas will be consulted prior to construction to protect the high-pressure gas pipeline corridor during construction.
9. Construction Staging / Temporary Lane Restrictions	a. Inconvenience during construction.	i. During Detailed Design, a traffic management plan will be developed to determine how traffic will be accommodated during construction and how access to properties adjacent to James Snow Parkway will be maintained. ii. Close coordination with Town of Milton, Milton Transit and GO Transit to minimize impacts on James Snow Parkway traffic, Milton Transit buses, GO buses, CPKC rail and EMS operations. iii. Preliminary high-level construction staging opportunities will consider key constraints in the study area, for example, existing structures, and utilities. In addition opportunities to coordinate construction with adjacent development will be identified where feasible to minimize future disruption to the community. iv. As noted above, full access will be provided to Milton Fire Station #4 during construction. The opening and pavement markings at Milton Fire Station #4 will be further reviewed during Detailed Design in consultation with the Town of Milton and the Town of Milton Fire and Rescue Services. Detailed Design will also review to maintain clear sight lines for fire apparatus and avoid plantings that may impair sight lines. The Region will also work with the Town of Milton and Town of Milton Fire and Rescue Services to confirm all traffic signals will have pre-emption for fire apparatus.
10. Soil Removal and Contaminants	a. Excess soils will be generated during construction.	i. During Detailed Design, an Earth Management Plan describing the management of earth and proposing measures to minimize earth borrow and

Factor	Details/Anticipated Impact	Proposed Mitigation
		excess material generation and maximize reuse of excess material on the project. The Earth Management Plan shall also include recommendations on how any Excess Soil, as defined by O. Reg. 406/19, is to be managed to meet the requirements of the regulation.
Cultural Environment		
11. Archaeology	a. The majority of the study area is previously disturbed, however, there are some areas of archaeological potential that will require Stage 2 Archaeological Assessment (AA). See Appendix E for the potential areas for Stage 2.	i. Stage 2 AA by test pit at five m intervals, (and any further stages of AAs, if recommended) will be completed as early as possible during detailed design and prior to any construction ground disturbing activities. Should the proposed work extend beyond the current Study Area, further Stage 1 AA should be conducted to determine the archaeological potential of the surrounding lands. ii. The results of the Stage 2 archaeological assessment, when completed, may trigger further stages of assessment for parts of the area it covers. The outstanding archaeological assessment work will take place as early as practical in the detail design stage and will be in accordance with the Ontario Heritage Act. iii. The Stage 2 Archaeological Assessment will be completed in accordance with the Ontario Heritage Act. First Nations and Indigenous Communities will be advised and afforded the opportunity to have field liaison representative participation. iv. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the Ontario Heritage Act. v. The Funeral, Burial and Cremation Services Act requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery and Procurement, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.
12. Built Heritage Resources (BHRs) and Cultural Heritage Landscapes (CHLs)	a. There are no known BHRs and CHLs in the study area.	i. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted to confirm the impacts of the proposed work on potential BHRs and CHLs.

Factor	Details/Anticipated Impact	Proposed Mitigation
Natural Environment		
13. Vegetation and Vegetation Communities	Direct impacts to vegetation removal and site grading are: a. Road widening and associated roadside grading limits are expected to extend into the outer edges of various study area natural features along the east side of the ROW, including: non-significant Reed Canary Grass Mineral Meadow Marsh (MAM2-2) and Mineral Meadow Marsh (MAM2) features at the south end of the study area; the Dry-Fresh Deciduous Forest (FOD4) Significant Woodland located north of Louis St. Laurent Avenue, east of the road; the Fresh-Moist Shagbark Hickory Deciduous Forest (FOD9-4) Significant Woodland north of Clark Boulevard, east of the road; and Mineral Cultural Woodland (CUW1) Significant Woodland with associated roadside non-significant MAM2 inclusion south of Derry Road, east of the road. b. The preliminary road improvement design largely avoids direct impact to the natural features located to the west of the James Snow Parkway ROW. Negligible road widening incursions into very small extents of Significant Woodland edge are identified, with relatively few woodland edge tree removals required. None of the wetland features located west of the road, including the regionally significant Swamp Maple Mineral Deciduous Swamp or the restored riparian channel communities will be directly impacted. Significant Vegetation Species Impacts: a. Anticipated encroachment into the FOD4 woodland feature that contains the two side-by-side SAR Butternut trees. Direct impacts to these Butternuts are not anticipated, however, the limit of permanent road infrastructure footprint extends within approximately 14 m of the Butternuts, while grading limit for this expansion extends nominally further, to within approximately 12 m of the Butternuts. . b. Various other regionally significant vegetation species were inventoried within the study area, including within natural features for which some minor grading encroachment is anticipated. See the Natural Environment Report in Appendix F for full list. Tree Removal: Of the 182 inventoried trees, 76 are recommended for removal to accommodate the Preliminary Preferred Design. Many of these trees are in direct conflict with the proposed road construction or are situated in close proximity to the grading limit and would incur severe root damage as a result of grading.	i. Efforts to be made during the Detailed Design phase to limit the extent of road widening encroachment into these natural features, with a focus on the Significant Woodland features. ii. Road widening encroachment area into the FOD4 woodland will reviewed further at the Detailed Design stage to minimize impacts. iii. A Butternut Health Assessment should be completed for the identified Butternut trees by a Qualified Professional, or existing Butternut Health Assessment information should be reviewed, to determine if they fall under the protections of the Endangered Species Act. a. Ontario Regulation 830/21 Section 30, which details exemptions for activities that would otherwise be prohibited under the Endangered Species Act (ESA), states that no permanent infrastructure shall be constructed, and no permanent infrastructure installed, within 25m of a Butternut tree that is to be retained unless various conditions are met. These conditions include submission to the MECP by the Region, or a designate of the Region, a statement that explains why it is not possible to avoid construction of the road infrastructure within 25m of the Butternuts, and a description of how reasonable alternatives to constructing the infrastructure within 25m of the Butternuts was considered as part of the road design planning. Written approval from the MECP will be required to authorize construction of the road infrastructure within 25m of the Butternuts. b. Near the completion of the James Snow Parkway MCEA study, the Ontario’s Species Conservation Act was introduced to replace the Endangered Species Act. As of March 30, 2026, the Province of Ontario has legislated the replacement of the Endangered Species Act with the Species Conservation Act. The Species Conservation Act and its regulations will be reviewed and confirmed during detailed design in relation to the proposed work on James Snorw Parkway to confirm the requirements for permitting and registration of activities. ii. Measures should be taken to avoid impacts to regionally significant vegetation and to protect individual plants during construction where necessary. If impacts cannot be avoided, the individual plants should be relocated to an appropriate site when feasible. iii. Restoration of Dry-Fresh Deciduous Forest (FOD4), Fresh-Moist Shagbark Hickory Deciduous Forest (FOD9-4), and the Mineral Cultural Woodland (CUW1) south of Derry Road is necessary to mitigate the associated negative effects, such as the colonization and spread of non-native/invasive species, erosion of disturbed soils, and increases in negative edge effects within wooded natural features.

Factor	Details/Anticipated Impact	Proposed Mitigation
		iv. Disturbed areas should be stabilized with seed mix selection and application rates must meet Town of Milton and/or Conservation Halton guidelines where applicable. v. The RPP should be completed in Detailed Design as part of an Edge Management Plan that will focus recommended measures to restore and improve the condition and resiliency natural feature edges that have been disturbed through road construction activities. vi. As part of the Edge Management Plan in Detailed Design, an updated assessment of invasive species cover along natural feature edges should be completed, and an Invasive Species Management Plan should be implemented post-construction. vii. ROW plantings, including the requirements for tree compensation, will be detailed in a future Landscape Planting Plan and/or RPP to be prepared during the Detailed Designs stage meeting Town of Milton and Conservation Halton guidelines where applicable. viii. Please refer to Section 8.10 for more information on the tree protection and preservation plan
14. Fisheries and Aquatic Habitat	a. Extension to the bridge crossing of Middle Sixteen Mile Creek, Tributary A is not required. b. Sedimentation to Middle Sixteen Mile Creek where must also be considered and mitigated appropriately to prevent impacts to fish / fish habitat and water quality degradation.	i. Sediment and erosion control measures must be implemented prior to the commencement of work and will be monitored and maintained throughout construction to prevent erosion and subsequent sedimentation downstream within Middle Sixteen Mile Creek. ii. Disturbances to riparian vegetation at Middle Sixteen Mile must be avoided or minimized during construction. a. Construction works should maintain a footprint above the Middle Sixteen Mile Creek Tributary high-water mark and adhere to the Fisheries and Oceans Canada (DFO)'s Measures to Protect Fish and Fish Habitat. If this cannot be achieved, a DFO Request for Review may be required.
15. Wildlife and Wildlife Habitat	Direct impacts to wildlife and wildlife habitat are: a. Seven potential bat roosting habitat trees were documented along the study area roadside, up to five of these are expected to require removal to accommodate the planned road improvement works. All treed natural features are considered potential habitat for SAR bats. The forest and swamp Ecological Land Classification (ELC) communities of the study area are considered possible Significant Wildlife Habitat (SWH) for Bat Maternity Colonies. The anticipated grading encroachments into these features will not result in the fragmentation of potential bat maternity colony habitat or impact the movement of bats. As the majority of the treed vegetation communities will remain intact, it is not anticipated that the proposed undertaking will negatively impact the SAR bat habitat or SWH functions. Additionally, the roost tree density can be maintained despite some edge tree removal.	i. To avoid impacts to individual bats, tree removals must be undertaken outside of the bat active period of April 1-September 30. ii. If tree removals are required to occur within the bat active season, additional studies (e.g., bat passive acoustic monitoring) will be required, and pending the results of the additional studies, permitting under the SCA may be required. iii. MECP be consulted at the Detailed Design stage to determine the need for additional actions or field surveys to comply with the SCA. This may include submission of an Information Gathering Form. iv. It is further recommended that a supplementary bat habitat assessment be completed at the Detailed Design stage to more fully characterize potential habitat for the newly-listed SAR Hoary Bat and Eastern Red Bat. v. Direct SCC habitat impacts through road infrastructure encroachment be avoided or minimized to the extent possible.

Factor	Details/Anticipated Impact	Proposed Mitigation
	b. Confirmed SWH for Terrestrial Crayfish was identified for the SWD3-3 swamp community. No direct impacts to Terrestrial Crayfish SWH are anticipated. c. Negative impacts to Species of Conservation Concern (SCC) habitat functions are not anticipated. d. The planned undertaking will not negatively impact local wildlife species or populations. e. Construction footprint impacts within woodland and wetland features will be negligible in terms of their overall sizes, and the road infrastructure widening itself is not anticipated to render these habitat areas unsuitable to the woodland- and wetland-dependent species. Short-term disturbances to these species may occur during construction. f. Midland Painted Turtle and the SCC Snapping Turtle were observed within the study area. No negative impacts to these stormwater pond habitats are anticipated as a result of the planned road works. g. Middle Sixteen Mile Creek Tributary is considered the primary functional ecological linkage within the study area. Turtles, anurans and other small-medium mammal species may be attracted to these created pond features and may cross under James Snow Parkway via the existing culvert. Indirect impacts to wildlife and wildlife habitat are: a. Wildlife impacts resulting from dust, noise, and vibrations are expected to be temporary, minimal and localized during the road construction works. Significant effects on wildlife are not anticipated.	vi. Vegetation clearing should therefore occur outside the bird nesting season of April 1-August 31 so as to limit disturbances to nesting activities of birds and to avoid destruction of active nests. vii. The destruction of migratory birds and their nests is prohibited under the federal Migratory Birds Convention Act. viii. Fencing (e.g., chain-link) along the ROW boundaries abutting the SWD3-3, FOD4, FOD5-5, FOD9, and the CUW1 feature south of Derry Road should be reviewed in Detail Design. The installation of fencing along these features may also mitigate wildlife-vehicle hazards and road mortality by inhibiting the movement of medium to large wildlife movement on to the road.
Technical Environment		
16. Groundwater / Hydrogeology	a. The Middle Sixteen Mile Creek crossing bridge structure is not recommended to be modified or replaced as part of the improvements. As a result, construction dewatering is not anticipated. b. An estimated peak water taking rate is greater than 50,000 L/day at the CPKC underpass retaining wall,	i. An Environmental Assessment Site Registry (EASR) will be required at the CPKC underpass retaining wall. ii. During the Detailed Design stage, it will be necessary to refine the analysis of the hydrogeological conditions to estimate dewatering rates and zone of influence at the CPKC retaining wall. These findings will be used to confirm the water takings requirements and the appropriate approvals from the MECP prior to the commencement of construction.
17. Surface Water	a. The Middle Sixteen Mile Creek Tributary 'A' crosses James Snow Parkway approximately 1.0 km north of Britannia Road and is regulated by Conservation Halton. Based on the preliminary hydraulic assessment results, the James Snow Parkway bridge crossing at this location fully meets MTO criteria (i.e. freeboard and clearance), and no overtopping is observed under the Regional storm event. Based on the proposed roadway improvements as part of this MCEA study, no impacts on the watercourse crossing are anticipated as a result of the proposed	i. The proposed stormwater management plan for the project has been developed by examining the opportunities and constraints within the James Snow Parkway project corridor. The proposed plan consists of a fully urbanized roadway section. Runoff from the paved roadway area will be conveyed by existing and proposed urban drainage system consisting of catch basins and storm sewers as well as low-impact development features consisting of bio-swales and subsurface infiltration galleries.



Factor	Details/Anticipated Impact	Proposed Mitigation
	improvements, as the road widening does not require a structural extension or replacement at this crossing location. b. Runoff from the widening of James Snow Parkway and additional active transportation facilities may increase stormwater runoff.	ii. The drainage system for the proposed urban cross-section will consist of a subsurface storm drainage system, which will collect and convey surface runoff from the roadway and boulevard areas and discharge to existing drainage outlets. Pipe sub-drains will be installed to collect drainage from the roadway base and discharge to the storm sewer network. iii. Where practical, the drainage systems on James Snow Parkway will include segments with low impact development features (bio-swales) situated within boulevard areas and integrated with landscaping components to provide the required water quality treatment within the project limits. iv. During Detailed Design, the drainage and stormwater management related assessments will be further developed based on the detailed design plan in consultation with the Town of Milton and Conservation Halton, which will include coordination with the planning and design for the adjacent properties and planned developments.
18. Opportunities to advance active transportation infrastructure	a. Through detailed design, where feasible and property is available opportunities to advance the implementation of active transportation infrastructure will be considered.	i. The Region will consider advancing implementation of proposed improvements to active transportation facilities within specific sections of the James Snow Parkway corridor prior to implementation to construction. As development proceeds adjacent to James Snow Parkway, opportunities to implement interim active transportation facilities, for example Multi Use Paths, in advance of construction of corridor improvements may be pursued, in consultation with the development community.

10. Detailed Design Commitments for Future Work

The ESR identifies specific items to be reviewed and confirmed during Detailed Design. Some of these commitments will address specific concerns raised by property owners and review agencies during the MCEA process. Appendices A to C outline key comments and how they were addressed during the study. Key commitments are summarized below:

1. Property Requirements
 - a. Property requirements identified in this report and shown on the preliminary design drawings are preliminary and will be finalized during Detailed Design. Where feasible, review opportunities for easements..
 - b. Obtain Permission to Enter Agreements from landowners where access to their property is required.
 - c. Obtain construction easements as required.
2. Noise
 - a. Minimize construction noise impacts as outlined the Noise Impact Assessment Report in **Appendix K**.
3. Roadway Design
 - a. Review feasibility and location of retaining walls to minimize grading impacts.
 - b. Proposed re-grading at driveways to be confirmed during Detailed Design once each driveway design is developed.
 - c. Signage and pavement markings to be confirmed during Detailed Design.
 - d. During Detailed Design, opportunities to optimize design and cross-sectional elements will be reviewed to identify potential to minimize impacts at constrained locations.
 - e. During Detailed Design, the Region will work with the Town of Milton to further develop the intersection designs connecting to Town's roads.

- f. During Detailed design, the Region will work with the Town of Milton and Town of Milton Fire and Rescue Services to maintain full access to Milton Fire Station #4 during construction and confirm the design / operations requirements for fire apparatus for accessing James Snow Parkway.

4. Active Transportation (AT) Facilities

- a. Material type for the 0.3 m buffer between the sidewalk and cycle tracks to be confirmed.
- b. Connections to planned active transportation facilities (sidewalk and/or MUP) for the Town of Milton's development network to the proposed active transportation facilities for James Snow Parkway will be further reviewed in Detailed Design.

5. Utilities

- a. Location of existing utility impacts and required relocations to be confirmed.
- b. Coordination of utilities, including hydro pole relocation and overhead wiring, to be reviewed during Detailed Design.
- c. All utility information will be updated prior to construction to confirm that the data is accurate and to finalize relocation requirements as necessary.

6. Constructability, Staging and Detours

- a. Develop a detailed traffic management plan and staging concept to determine how vehicular and AT traffic will be accommodated during construction and how access to properties adjacent will be maintained.
- b. The recommended construction staging strategy will be further developed and confirmed during Detailed Design.
- c. Coordinate with Town of Milton, Milton Transit and GO Transit to minimize impacts on James Snow Parkway traffic, Milton Transit buses, GO trains and buses, CPKC rail and EMS operations.

7. Archaeology

- a. Undertake a Stage 2 Archaeological Assessment in the areas having archaeological potential that will be impacted by the proposed improvements to James Snow Parkway and any further stages as required.

8. Natural Environment

- a. Efforts should be made during the Detailed Design stage to avoid or minimize encroachments into natural features, with a focus on identified significant natural features.
- b. To inform the requirement for actions under O. Reg. 830/21, it is recommended that information on the existing Butternuts be obtained, either through information sharing with the subject property owner or through arrangements that will allow direct biologist access to the Butternuts during the Detailed Design stage. If the Butternuts are determined to represent Category 1 trees, such as due to the extent of Butternut canker, the trees will not be subject to the requirements of the ESA and O. Reg. 830/21, and no further action with respect to these trees will be required.
- c. A tree inventory will be required to update the preliminary tree inventory data collected for the EA, and an updated Tree Protection Plan should be prepared based on the Detailed Design. A Tree Protection and Preservation Plan will be prepared by a certified arborist or qualified professional during the detailed design and implementation phases.
- d. Tree protection fencing locational details will be determined and mapped during the Detailed Design phase.
- e. A supplementary bat habitat assessment be completed at the Detailed Design stage to more fully characterize potential habitat for the newly-listed SAR Hoary Bat and Eastern Red Bat.
- f. A Restoration Planting Plan (RPP) should be prepared during the Detailed Design stage to direct the species types, locations, quantities, and other parameters associated with all restoration and enhancement zones within the study area.

- g. An Invasive Species Management Plan targeted to the non-native / invasive species at issue should be developed and incorporated into the RPP.
- h. ROW plantings, including the requirements for tree compensation, will be detailed in a future Landscape Planting Plan and/or RPP to be prepared during the Detailed Designs stage.
- i. The Monitoring Plan should be prepared in consultation with the Region, Conservation Halton and other stakeholders as warranted (e.g., Town of Milton) during the Detailed Design stage.

9. Hydrogeological Investigations

- a. Since the estimated peak water taking rate is greater than 50,000 L/day at the CPKC underpass retaining wall, an EASR registration will be required for this structure.
- b. Further assessment of dewatering requirements and the need for a PTTW to be confirmed during Detailed Design.

10. Drainage and Stormwater Management

- a. Further develop the stormwater management plan during Detailed Design, including:
 - Undertake further detailed calculations and analyses based on the detailed design plan to confirm any impacts to the performance and capacity of receiving drainage and stormwater infrastructure, and modifications to the system are to be established accordingly to mitigate these impacts including achieving subwatershed impact (SIS) targets for flow control and erosion control. Where required, the analyses are to be completed in accordance with the Town of Milton's hydrologic verification process.
 - Working with the Town of Milton, coordinate with the planning and design for the adjacent properties and is to incorporate as-built and approved design information for adjacent properties accordingly.
 - Provide hydrologic and hydraulic analysis of the detailed design including any updates from the watershed modelling.
 - Provide final stormwater management and drainage design that will meet quantity control and erosion control flow targets.
 - Provide an erosion and sediment control plan.

- b. Explore opportunities of using LID treatment to store drainage during storm events beyond the minimum requirements will be reviewed during Detailed Design.

11. Summary of Anticipated Permits and Approvals

- a. Near the completion of the James Snow Parkway MCEA study, the Ontario's Species Conservation Act was introduced to replace the Endangered Species Act. As of March 30, 2026, the Province of Ontario has legislated the replacement of the Endangered Species Act with the Species Conservation Act. The Species Conservation Act and its regulations will be reviewed and confirmed during detailed design in relation to the proposed work on James Snow Parkway to confirm the requirements for permitting and registration of activities.”
- c. A Butternut Health Assessment should be completed if Butternuts are impacted during the Detailed Design stage and confirm any permitting requirements.
- d. If construction dewatering is identified during Detailed Design, requirements for EASR and/or PTTW under the OWRA based on the required water takings will need to be confirmed. An EASR is anticipated for the retaining wall at the CPKC structure.
- e. Environmental Compliance Approval (ECA) will be required from MECP for stormwater management facilities.
- f. The existing bridge structure spanning the Middle Sixteen Mile Creek Tributary within the study area will not require alteration or replacement. Therefore, negative effects on fish or aquatic habitats are not anticipated provided standard construction mitigation measures are implemented and work is maintained outside of the high-water mark. A DFO Request for Review submission is not expected to be required provided these measures are implemented.
- g. A Road Occupancy Permit will be required by the Town of Milton.
- h. A Corridor Control Access Permit will be required by MTO.
- i. Complete the CPKC Public Works Corridor Access Application and obtain a corridor access agreement with CPKC.