



**Norval West Bypass Transportation
Corridor Improvements - Municipal
Class Environmental Assessment**

**Norval West Bypass and 10 Side
Road from Tenth Line to Adamson
Street / Winston Churchill
Boulevard in Halton Hills**

Environmental Study Report

December 2025

Prepared for
Region of Halton

Prepared by:
Stantec Consulting Ltd.

Project Number:
165010598

Table of Contents

1	Introduction and Study Process	1
1.1	Introduction.....	1
1.2	Study Area.....	1
1.3	Environmental Assessment Process	3
1.3.1	Municipal Class Environmental Assessment.....	3
1.3.2	The Federal Impact Assessment Act.....	7
1.4	Study Approach and Organization.....	7
1.5	Consultation Plan	10
1.5.1	Town of Halton Hills.....	10
1.5.2	Ministry of Transportation	10
1.5.3	Credit Valley Conservation Authority	11
1.5.4	Technical Advisory Committee Meetings.....	11
1.5.5	Agencies.....	11
1.5.6	Project Contact List	13
1.6	Public Consultation.....	13
1.6.1	Public Information Centres	13
1.6.2	Filing of the Environmental Study Report	14
1.7	Indigenous Communities, First Nations and Métis Communities Engagement	15
2	Need and Justification	16
2.1	Planning Context	16
2.1.1	Provincial Planning Statement.....	16
2.1.2	A Place to Grow: Growth Plan for the Greater Golden Horseshoe	17
2.1.3	Greenbelt Plan	18
2.1.4	Halton Region Official Plan.....	20
2.1.5	Halton Region Transportation Master Plan – The Road to Change.....	21
2.1.6	Halton Region Active Transportation Master Plan.....	22
2.1.7	Town of Halton Hills Official Plan	22
2.1.8	Town of Halton Hills Norval Secondary Plan	23
2.1.9	Town of Halton Hills Southeast Georgetown Secondary Plan.....	24
2.1.10	Town of Halton Hills Transportation Master Plan	24
2.1.11	Town of Halton Hills Active Transportation Master Plan.....	24
2.1.12	Halton-Peel Boundary Area Transportation Study.....	25
2.1.13	Traffic Analysis	28
2.1.14	Existing Travel Demand	29
2.2	Problem Being Addressed	30



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
Table of Contents
December 2025**

3	Existing Conditions	33
3.1	Transportation	33
3.1.1	Road Network.....	33
3.1.2	Road Safety.....	36
3.1.3	Transit Network	37
3.1.4	Active Transportation.....	37
3.1.5	Existing Intersection Operations	37
3.1.6	Future Travel Demand.....	39
3.2	Socio-Economic Environment.....	42
3.2.1	Existing Land Use.....	42
3.2.2	Future Land Use.....	43
3.2.3	Noise	43
3.2.4	Pedestrian and Cycling Facilities.....	43
3.3	Cultural Environment	44
3.3.1	Archaeological Assessment	44
3.3.2	Built Heritage Resources and Cultural Heritage Landscapes	47
3.4	Natural Environment.....	50
3.4.1	Background Review.....	50
3.4.2	Terrestrial Field Investigations.....	59
3.4.3	Aquatic Field Investigations	66
3.4.4	Natural Heritage Summary	69
3.5	Surface Drainage and Watershed Characteristics.....	71
3.6	Hydrogeology	72
3.7	Source Water Protection	72
3.8	Utilities.....	74
4	Alternative Planning Solutions.....	75
4.1	Development of Alternative Solutions	75
4.2	Assessment and Evaluation of Alternative Planning Solutions	76
4.2.1	Summary of Evaluation of Alternative Planning Solutions	94
4.3	Preferred Alternative Planning Solutions	95
5	Design Alternatives	96
5.1	Alternative Road Corridor Concepts	96
5.1.1	Assessment and Evaluation of Alternative Road Corridor Concepts	97
5.1.2	Preferred Road Corridor Concepts	105
5.2	Alternative Alignments and Intersection Design Concepts	106
5.2.1	Norval West Bypass Road Alignment Alternatives	107
5.2.2	Highway 7 Intersection Alternatives.....	108
5.2.3	10 Side Road Intersection Alternatives.....	110
5.2.4	Analysis and Evaluation of Design Alternatives.....	112
5.3	Recommended Design Alternative	122
5.3.1	Road Profile.....	123



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
Table of Contents
December 2025**

6	Consultation.....	125
6.1	Public Consultation.....	125
6.1.1	Notice of Study Commencement.....	125
6.1.2	Public Information Centres	125
6.1.3	Individual Property Owner Meetings.....	129
6.2	Technical Agencies	129
6.2.1	External Technical Agency Committee Meetings	130
6.2.2	Town of Halton Hills.....	131
6.2.3	Region of Peel.....	134
6.2.4	Ministry of Transportation	134
6.2.5	Credit Valley Conservation Authority	138
6.3	Indigenous Communities, First Nations and Métis Communities Consultation.....	139
7	Project Description.....	142
7.1	Major Features	142
7.2	Road Design Elements.....	142
7.2.1	Horizontal Alignment	143
7.2.2	Profile	144
7.2.3	Typical Cross Sections	146
7.3	Intersections and Access.....	148
7.4	Active Transportation.....	148
7.5	Stormwater Management	148
7.5.1	Storm Sewers	151
7.5.2	Roadside Ditching	151
7.5.3	Culverts	152
7.5.4	Conclusions and Recommendations	154
7.6	Geotechnical Investigation	156
7.6.1	Anticipated Subsurface Conditions.....	156
7.6.2	Preliminary Geotechnical and Hydrogeological Input	156
7.7	Municipal Infrastructure and Utilities.....	157
7.7.1	Existing Watermains.....	157
7.7.2	Existing Storm Sewers	157
7.7.3	Existing Sanitary Sewers.....	157
7.7.4	Existing Gas	158
7.7.5	Existing Communications	158
7.7.6	Existing Halton Hills Hydro	158
7.8	Construction Phasing	158
7.9	Streetscaping and Landscaping	159
7.10	Property Requirements and Access	160
7.11	Illumination	160
7.12	Preliminary Cost Estimate	161



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
Table of Contents
December 2025**

8	Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work	162
8.1	Natural Environment.....	162
8.1.1	Designated Areas	163
8.1.2	Vegetation Communities and Vascular Plants.....	164
8.1.3	Wildlife and Habitat.....	166
8.1.4	Mitigation Measures	166
8.1.5	Construction Mitigation Measures	168
8.1.6	Ecosystem Offsetting.....	171
8.1.7	Woodland Edge Management	172
8.2	Tree Removal and Preservation of Residual Plant Communities	173
8.2.1	Trees Recommended for Preservation and Protection.....	173
8.2.2	Trees for Removal.....	173
8.3	Socio-Economic Environment.....	174
8.3.1	Land Use	174
8.3.2	Air Quality	176
8.4	Cultural Environment	179
8.4.1	Archaeological Resources.....	179
8.4.2	Heritage Impact Assessment.....	179
8.5	Climate Change.....	182
8.6	Transportation	182
8.6.1	Source Water Protection and Hydrogeology	183
9	Permits and Approvals	184
9.1	Endangered Species Act.....	184
9.1.1	Butternut.....	184
9.1.2	Endangered Bats.....	185
9.2	Conservation Authorities Act	185
9.3	Fish and Wildlife Conservation Act.....	185
9.4	Summary of Mitigation Measures	185
10	Detail Design Commitments	192
10.1	Natural Environment.....	192
10.2	Engineering / Design / Property.....	193
10.3	Monitoring and Maintenance	195
10.3.1	Environmental Monitoring.....	195



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
Table of Contents
December 2025**

List of Tables

Table 1: Public Information Centre Details	14
Table 2: Intersection Level of Service Delay Criteria.....	38
Table 3: Existing Conditions Intersection LOS Analysis	39
Table 4: Background Review of Terrestrial Species at Risk and Species of Conservation Concern.....	56
Table 5: Aquatic SAR Documented in or near the Study Area	59
Table 6: Summary of Field Investigations	59
Table 7: Breeding Bird Survey Dates, Times, and Weather Conditions	62
Table 8: Amphibian Call Count Survey Dates, Times, and Weather Conditions	63
Table 9: Summary of Functional Classifications as per the HDF Guidelines.....	67
Table 10: In-situ Water Quality Data for the Tributary to Levi's Creek.....	69
Table 11: Summary of Significant Natural Heritage Features in the Study Area	70
Table 12: Alternative Solutions Factors and Criteria	76
Table 13: Assessment of Alternative Solutions for Norval West Bypass	79
Table 14: Assessment of Alternative Solutions for 10 Side Road	87
Table 15: Alternative Road Corridor Concepts Evaluation Criteria.....	98
Table 16: Assessment of Alternative Road Corridor Concepts for Norval West Bypass.....	99
Table 17: Assessment of Alternative Road Corridor Concepts for 10 Side Road.....	102
Table 18: Evaluation of Highway 7 Intersection Alternatives.....	109
Table 19: Design Alternatives Evaluation Criteria	115
Table 20: Assessment of Design Alternatives	117
Table 21: Summary of Indigenous Communities, First Nations and Métis Communities Engagement.....	139
Table 22: Summary of Norval West Bypass Proposed Horizontal Curves	143
Table 23: Summary of 10 Side Road Proposed Horizontal Curves.....	144
Table 24: Summary of Norval West Bypass Proposed Vertical Curves	145
Table 25: Summary of 10 Side Road Proposed Vertical Curves.....	146
Table 26: Norval West Bypass Proposed Conveyance Systems	150
Table 27: Roadside Ditching Design Parameters (for analysis purposes only)	152
Table 28: Proposed Culvert Details.....	153
Table 30: Preliminary Cost Estimate	161
Table 31: Impacted ELC Communities.....	165
Table 32: Summary of Mitigation Measures	186

List of Figures

Figure 1: Study Area	2
Figure 2: Municipal Class Environmental Assessment Process.....	5
Figure 3: Study Approach.....	8
Figure 4: Study Organization.....	9
Figure 5: HPBATS Recommended Road Network, 2031	27
Figure 6: HPBATS showing Future Winston Churchill and Norval West Bypass	28
Figure 7: Existing (2019) AM Peak Hour Trips	29



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment Table of Contents December 2025

Figure 8: Existing (2019) PM Peak Hour Trips	30
Figure 9: 2031 Transportation System (2011 Halton Region Transportation Master Plan)	32
Figure 10: Study Area and Existing Roadway Network	35
Figure 11: Existing (2019) Intersection Lane Configuration.....	36
Figure 12: Existing and Future Traffic	40
Figure 13: Future Traffic Distribution	41
Figure 14: Traffic Distribution with Addition of Winston Churchill Bypass.....	42
Figure 15: Archaeological Assessment	45
Figure 16: Cultural Heritage Resources	49
Figure 17: Fish Habitat and Headwater Assessment	68
Figure 18: Source Protection Within the Study Area	73
Figure 19: Alternative Road Corridor Concepts.....	97
Figure 20: Preferred Road Corridor Concept B2	105
Figure 21: Norval West Bypass Road Alignment Alternatives	107
Figure 22: 10 Side Road Intersection Alternative 1	111
Figure 23: 10 Side Road Intersection Alternative 2	112
Figure 24: Design Alternatives Overview	114
Figure 25: Recommended Design Alternative	123
Figure 26: Road Profile	124
Figure 27: Proposed Cross-Section	147
Figure 28: Proposed Culvert Locations	154

List of Appendices

- Appendix A – Consultation
- Appendix B – Natural Environmental Supplemental Materials
- Appendix C – Noise Assessment
- Appendix D – Air Quality Assessment
- Appendix E – Cultural Heritage Reports
- Appendix F – Stage 1 Archaeological Assessment
- Appendix G – Geotechnical and Hydrogeological
- Appendix H – Stormwater Management
- Appendix I – Arborist Report
- Appendix J – Preliminary Design and Profile Drawings



1 Introduction and Study Process

1.1 Introduction

Halton Region has completed a Municipal Class Environmental Assessment (MCEA) Study for the Norval West Bypass from Highway 7 to 10 Side Road (Regional Road 10), including 10 Side Road from Tenth Line to Adamson Street/Winston Churchill Boulevard (Regional Road 19), in the Town of Halton Hills. The Norval West Bypass MCEA Study was carried out in accordance with Schedule 'C' of the Municipal Class Environmental Assessment (MCEA) (February 2024). The 2015 MCEA document was in effect at the time of initiating this project which is an approved process under the Ontario *Environmental Assessment Act*.

The study assessed the need for a new Norval West Bypass between Highway 7 and 10 Side Road, as well as improvements to 10 Side Road between Tenth Line and Adamson Street/Winston Churchill Boulevard.

The need for the Norval West Bypass was identified in the Halton-Peel Boundary Area Transportation Study (2010) as well as the Halton Region Transportation Master Plan to 2031 – The Road to Change (2011). The Norval West Bypass is part of an overall solution to improve travel in the community of Norval by relieving truck traffic and travel demand on Highway 7 through the community of Norval, as well as to providing a north-south connection through the future Southeast Georgetown Secondary Plan area that connects Highway 7 to 10 Side Road. As such, the MCEA Study was carried out in order to support future traffic demand based on planned land uses. This is discussed further in Chapter 2.

1.2 Study Area

The study area is located in the Town of Halton Hills, within Halton Region, as shown in **Figure 1**. The study area limits shown on the map display the boundary where the Norval West Bypass and improvements to 10 Side Road have been considered which includes Highway 7 to south of 10 Side Road and 10th Line to Winston Churchill Boulevard. The project considers the impact of the improvements on the local community, beyond the study area limits presented in the figure.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
1 Introduction and Study Process
December 2025**

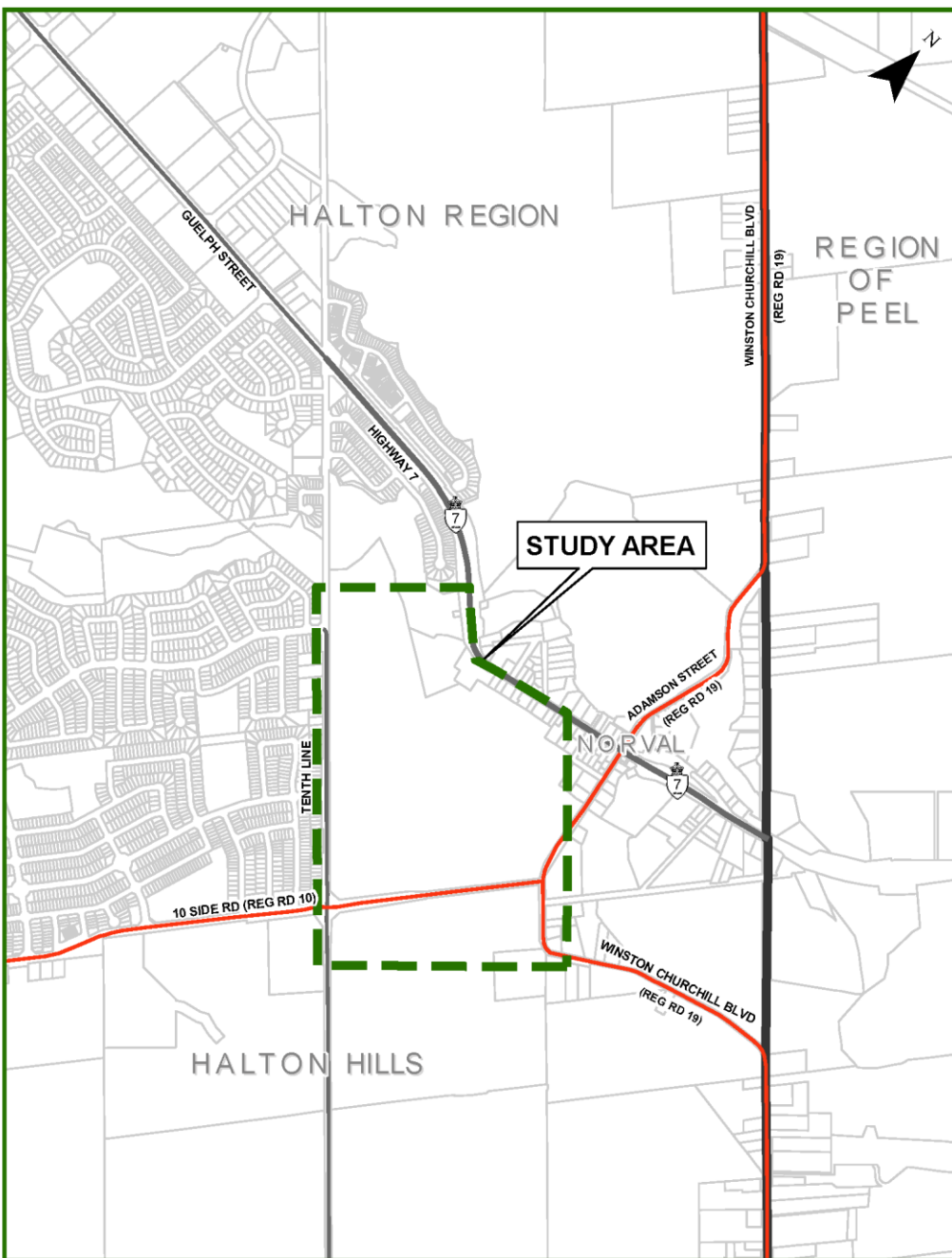


Figure 1: Study Area¹

The project considers the impact of the improvements on the local community, beyond the study area limits presented in the figure.



1.3 Environmental Assessment Process

Municipal infrastructure projects are subject to the Ontario *Environmental Assessment Act* (EA Act). The Ministry of the Environment, Conservation and Parks (MECP) is responsible for administration of the EA Act. The Municipal Environmental Assessment (MCEA) is an approved self-assessment process under the EA Act for a specific group or “class” of projects. Projects are considered approved, subject to compliance with an approved MCEA process. The MCEA applies to municipal infrastructure projects including roads, water and wastewater.

1.3.1 Municipal Class Environmental Assessment

The Municipal Class Environmental Assessment (MCEA) outlines a comprehensive planning process and rational approach when considering the environmental and technical advantages and disadvantages of alternatives. It also identifies consultation requirements with agencies, directly affected stakeholders, Indigenous Communities, First Nations and Métis Communities, and the general public throughout the process. The key principles of successful environmental assessment planning include:

- Consultation;
- Consideration of a reasonable range of alternatives;
- Consideration of effects on natural, social, cultural, and economic environments and technical components;
- Systematic evaluation;
- Clear documentation; and
- Traceable decision making.

Provided that the MCEA planning process is followed, a proponent does not have to apply for formal approval under the Ontario *Environmental Assessment Act*. The MCEA process is shown on Figure 2 and includes:

- Phase 1: identify the problem or opportunity;
- Phase 2: identify alternative solutions;
- Phase 3: examine alternative methods of implementing the recommended alternative design;
- Phase 4: prepare and file an Environmental Study Report for a minimum 30-day public review period; and
- Phase 5: proceed to detail design, construction and operation.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
1 Introduction and Study Process
December 2025

The classification of projects and activities under the MCEA is as follows:

- Schedule A: Includes normal or emergency operational and maintenance activities, which are limited in scale and have minimal adverse environmental effects. These undertakings are pre-approved, and the proponent can proceed without further assessment and approval.
- Schedule A+: Introduced in 2007, these projects are also pre-approved. The public is to be advised prior to the implementation of the project.
- Schedule B: Includes projects that have the potential for adverse environmental effects. This includes improvements and minor expansions of existing facilities. These projects are approved subject to a screening process which includes consulting with stakeholders who may be directly affected and relevant review agencies.
- Schedule C: Includes the construction of new facilities and major expansions to existing facilities. These undertakings have the potential for significant environmental effects and must proceed under the planning and documentation procedures outlined in the MCEA document.

1.3.1.1 Class EA Project Classification

The Norval West Bypass MCEA Study was undertaken in accordance with the guidelines of the 2015 and 2024 Municipal Engineers Association (MEA) MCEA Documents. The 2015 MCEA document was in effect at the time of initiating this project. Due to the type of project, anticipation for potential effects, and estimated capital costs, the MCEA is defined as a Schedule 'C' project. A Schedule 'C' project involves either the construction of new facilities or major modification to existing facilities.

Schedule 'C' projects have the potential for significant environmental impacts and must follow the full planning process specified in the Class EA document, including Phases 1 through 4. The project is documented in an Environmental Study Report (ESR), which is then filed for review by the public, review agencies, and Indigenous Communities, First Nations and Métis Communities.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

1 Introduction and Study Process

December 2025

EXHIBIT A.2. MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the MCEA

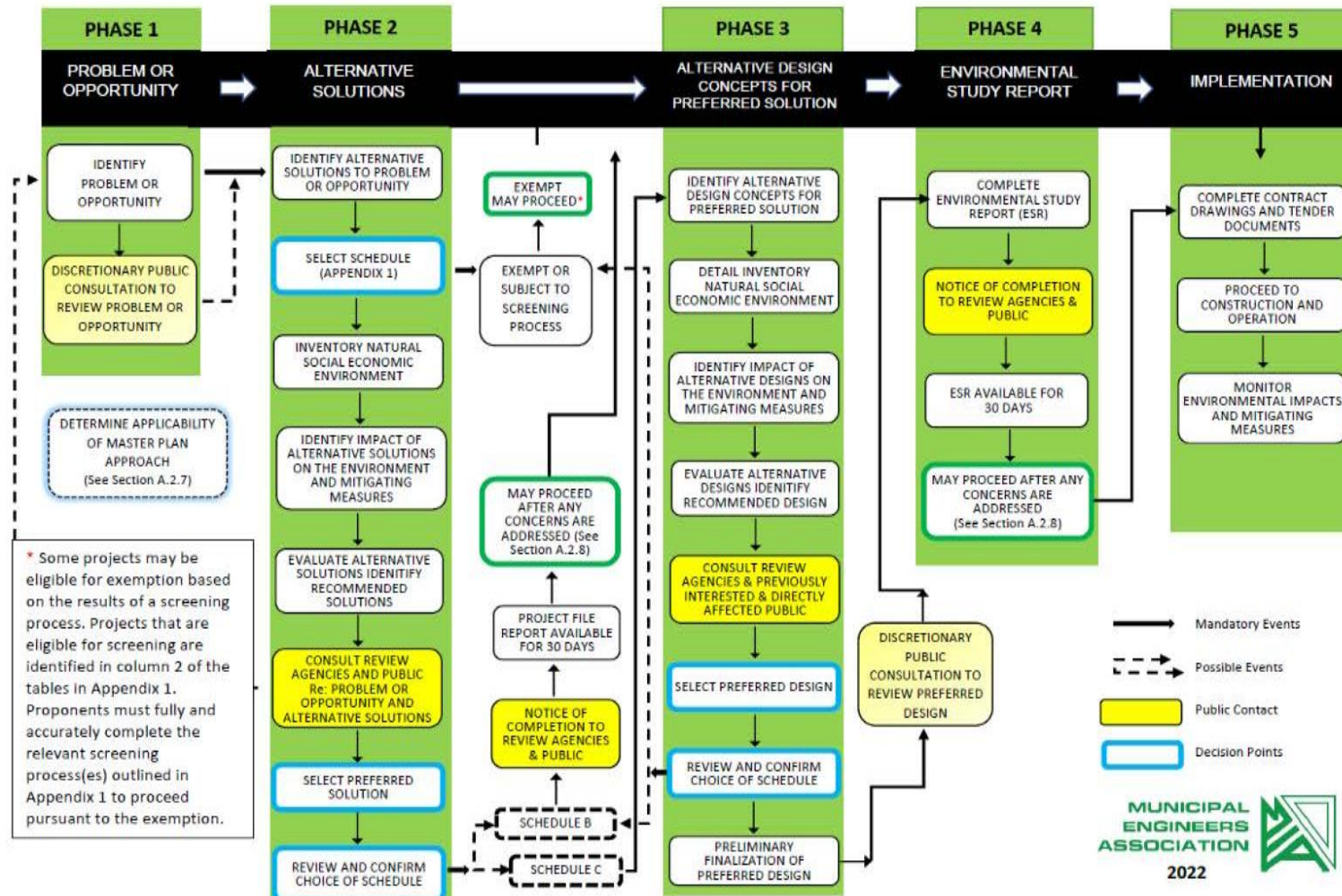


Figure 2: Municipal Class Environmental Assessment Process



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
1 Introduction and Study Process
December 2025**

1.3.1.2 Section 16 Order Process

Interested persons may provide written comments to Halton Region for a response using the following contact information:

Ms. Ann Larkin, P. Eng.

Senior Advisor, Program Development
Halton Region
1151 Bronte Road
Oakville, ON L6M 3L1
905-825-6000 ext. 7601
Ann.Larkin@halton.ca

In addition, a request may be made to the Minister of the Environment, Conservation and Parks under Section 16 of the *Environmental Assessment Act* requiring a higher level of study (i.e., requiring an individual/comprehensive EA approval before proceeding), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate, or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the full name and contact information of the person(s) making the request.

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

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

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

and

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



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
1 Introduction and Study Process
December 2025

Requests should also be sent to the Region.

1.3.2 The Federal Impact Assessment Act

The Impact Assessment Act, 2019 (IAA 2019) and associated regulations, which were amended on November 27, 2024, came into effect on August 28, 2019. Under IAA 2019, a federal environmental assessment is required for “designated projects.” A designated project includes one or more physical activities set out in the regulations under IAA 2019 or by order of the federal Minister of the Environment and Climate Change.

The scope of the Norval West Bypass MCEA Study was reviewed by the Project Team against the Federal Regulations Designating Physical Activities, and the Project Team determined that the study is not “designated” and therefore will not require consideration of a federal environmental assessment.

More information about the Impact Assessment Act (2019) and its recent amendments is available at the following link: <https://www.canada.ca/en/impact-assessment-agency.html>

1.4 Study Approach and Organization

In order to fulfill the MCEA requirements, the study followed the MCEA process as shown in and **Figure 3**. This process ensures a thorough understanding of the problem being addressed, the alternatives considered, their associated potential environmental effects and mitigation measures. This process also includes consultation with the public, agencies, and Indigenous Communities, First Nations and Métis Communities.

The study organization reflects the general administrative and technical needs of the study, as well as the study’s consultation plan. The latter has been developed to ensure that all of those with a potential interest in the study have the opportunity to participate and provide input during the process.

The study organization and overview of key study stages are shown in **Figure 3** and **Figure 4**.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment
1 Introduction and Study Process
December 2025

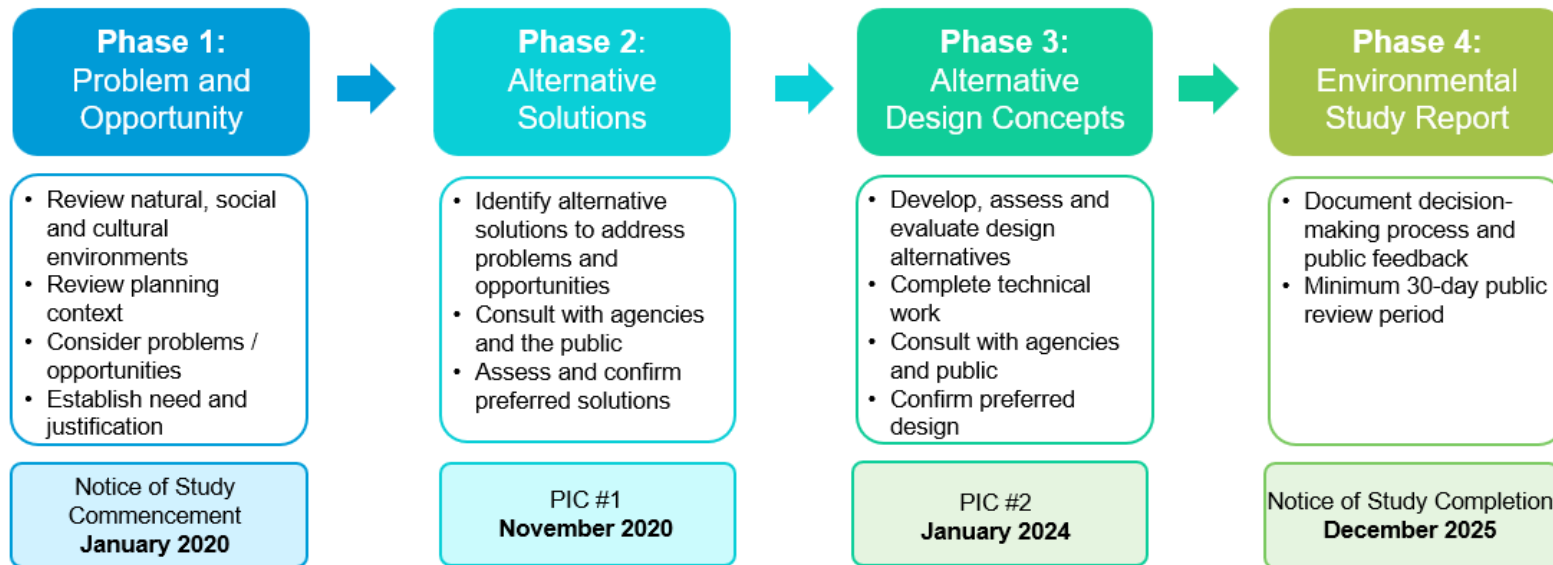


Figure 3: Study Approach



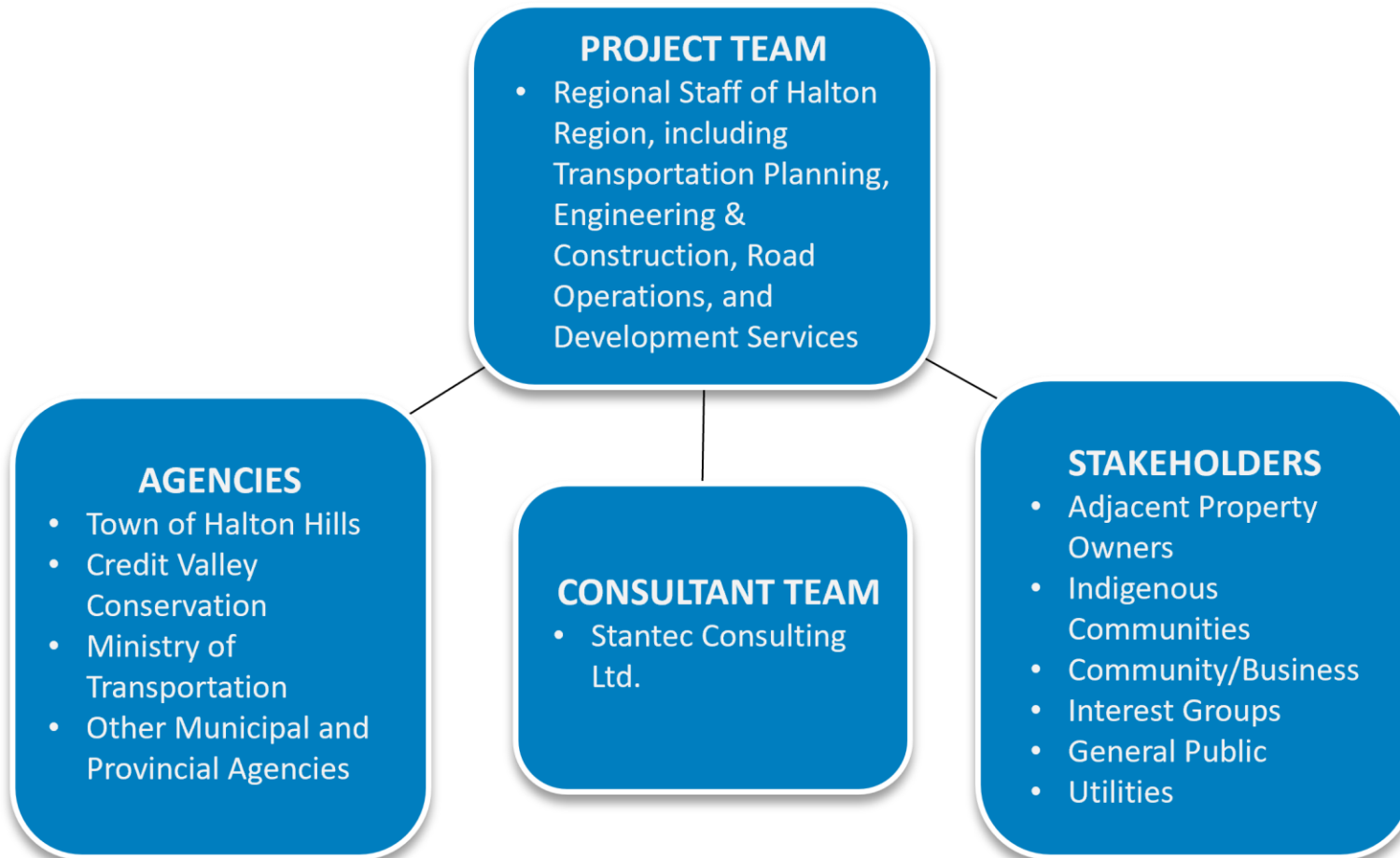


Figure 4: Study Organization



1.5 Consultation Plan

A consultation plan was developed at the onset of the study and was followed throughout the project. The main objective of the consultation plan is to encourage two-way communication with stakeholders, agencies and Regional staff, to aid the development of the recommended alternative design.

The Project Team developed a Project Contact List at the outset of the study. This list includes property owners, representatives from agencies, utilities, community organizations, interested members of the public (residential and business), landowners, and Indigenous Communities, First Nations and Métis Communities. The mailing list is provided in the correspondence record in **Appendix A**.

The Project Contact List has been maintained and updated by the Project Team throughout the study. Interested individuals who provided contact information and requested to be added to the study mailing list were also added. Given Protection of Privacy Legislation, names, addresses, and contact information of stakeholders were not released beyond the Project Team.

Stakeholder meetings were held throughout the study to update key agencies and impacted stakeholders on study process and provide input to the study team. Meeting minutes are provided in **Appendix A**.

1.5.1 Town of Halton Hills

The study area is located within the Town of Halton Hills. As such, the Town of Halton Hills has been a key agency throughout the MCEA Study to ensure coordination with other initiatives in the Town, such as the Town's Southeast Georgetown Secondary Plan Study.

Representatives from the Town of Halton Hills were also invited to the Technical Agencies Committee meetings held during the study. Several meetings were held throughout the MCEA Study with the Town of Halton Hills. Meeting minutes can be found in **Appendix A**.

The Region will continue to work with the Town of Halton Hills through detail design to coordinate and align with the implementation of the Southeast Georgetown Secondary Plan development.

1.5.2 Ministry of Transportation

Highway 7, within the study area, is a provincial highway under the jurisdiction of the Ministry of Transportation, Ontario (MTO). As such, MTO has been engaged as a key



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

1 Introduction and Study Process

December 2025

agency through the MCEA study. Representatives from MTO were also invited to the Technical Agencies Committee meetings held during the study. Over 15 meetings were held with the MTO over the course of the Study to provide updates and discuss the development of the preliminary design. This included extensive discussion regarding the uniqueness of the entrance configuration at the north side of the roundabout and active transportation features at the roundabout and resulted in agreement in principle of the preliminary design concept. Minutes of meetings are provided in **Appendix A**. As the preliminary design is refined through detail design, the Region will continue to consult with MTO.

1.5.3 Credit Valley Conservation Authority

Recognizing the importance of the natural features throughout the study area and ensuring project planning was carried out to minimize impacts, Credit Valley Conservation (CVC) was considered to be a key agency and was provided several opportunities to provide input during the study. Representatives of CVC were also invited to participate in the Technical Agencies Committee meetings held throughout the MCEA study. Several meetings were held with CVC, and minutes of meetings are provided in **Appendix A**.

1.5.4 Technical Advisory Committee Meetings

Technical agencies, including federal, provincial, and municipal agencies as well as utilities, with a potential interest in the study or whose mandate may be affected, were contacted in January 2020 through the mailing/emailing of the Notice of Study Commencement. This Notice was to ascertain whether or not they wanted to participate in the study, the appropriate contact, potential issues and concerns, and requested to provide technical input and to comment on the study's findings. Meetings were held with the TAC throughout the MCEA Study and minutes of meetings are provided in **Appendix A**.

1.5.5 Agencies

Key agencies were contacted during project initiation and throughout the study to notify them of the project and to request information related to the study area and feedback pertaining to the study. Agency comments received are included in **Appendix A**.

Government agencies, utilities, and Indigenous Communities, First Nations and Métis Communities invited to participate in the study are listed below.

Provincial Agencies

- Ministry of Transportation



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
1 Introduction and Study Process
December 2025**

- Ministry of Natural Resources and Forestry (now Ministry of Natural Resources)
- Ministry of Citizenship and Multiculturalism
- Ministry of the Environment, Conservation and Parks
- Ministry of Municipal Affairs and Housing
- Ministry of Agriculture, Food and Rural Affairs (now Ministry of Agriculture, Food and Agribusiness, and a Ministry of Rural Affairs)
- Infrastructure Ontario (now Infrastructure)
- Credit Valley Conservation
- Niagara Escarpment Commission

Emergency Services

- Halton Regional Police Service
- Halton Region - Health
- Halton Hills Fire Department

Municipal/Agency Staff

- Region of Peel
- Town of Halton Hills

Utilities

- Halton Hills Hydro
- TransCanada Pipelines
- Enbridge
- Hydro One Networks Inc.
- Zayo Canada Inc.
- Trans-Northern Pipelines Inc.
- Inter Provincial Pipeline Ltd.
- Rogers Cable Communications Inc.

School Boards

- Halton Catholic District School Board
- Halton District School Board



- Halton Student Transportation Services

1.5.6 Project Contact List

A project contact list was created at the onset of the study which includes agencies, Region of Halton staff, committees, emergency service contacts, potentially interested Indigenous Communities, First Nations and Métis Communities, members of the public, utility services, special interest groups, as well as local property owners within the study area. The list was regularly updated to include those who expressed interest in the study. Addresses for all properties within the study area were compiled by the Region and were used for mail-outs of the project notices. A copy of the contact list is provided in **Appendix A**.

1.6 Public Consultation

A key component of the EA process is public consultation. For this study, the key points of public consultation were the following:

- Notice of Study Commencement – To notify the public that the study was commencing.
- Public Information Centre #1 and Notice of Public Information Centre #1 – To review and receive public input regarding the problem being addressed and discuss issues related to the project including alternative solutions, environmental considerations, conceptual corridors, and evaluation criteria.
- Public Information Centre #2 and Notice of Public Information Centre #2 – To review and receive public input regarding the design alternatives, evaluation of design alternatives, and identification of the preliminary preferred design alternative.
- Notice of Completion – To notify the public of the opportunity to review the ESR upon filing on the public record.

1.6.1 Public Information Centres

Public Information Centres (PICs) are part of the public consultation process to engage stakeholders early and throughout the study process, to aid in identifying public concerns and to assist in the development of a preliminary preferred design alternative. Two PICs were held as described in **Table 1** below.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
1 Introduction and Study Process
December 2025

Table 1: Public Information Centre Details

Date	Purpose
November 19, 2021 – December 18, 2020	Public Information Centre #1 To provide members of the public with an opportunity to provide input on the problems being addressed, background information and the planning alternatives being considered.
January 31, 2024 – February 28, 2024, extended to March 27, 2024	Public Information Centre #2 To provide members of the public with an opportunity to provide input on the preliminary preferred design alternative.

The comments received from the public are discussed in **Section 6.1.2** of this report. In addition, individual meetings with property owners are also summarized in **Section 6.1.3**.

Materials presented at both PICs can be found in the correspondence record in **Appendix A** and on the project website at: <https://www.halton.ca/For-Residents/Opportunities-to-Participate/Online-consultation-Norval-West-Bypass-Transportation>

1.6.2 Filing of the Environmental Study Report

The Environmental Study Report (ESR) for the Norval West Bypass Transportation Corridor Improvements MCEA Study documents the decision-making process during the study. The Notice of Completion of this MCEA Study notifies members of the public, agencies and Indigenous Communities, First Nations and Métis Communities that the ESR is available for public review for a 30-day period. The ESR will be made available for public review on the project website (<https://www.halton.ca/For-Residents/Opportunities-to-Participate/Online-consultation-Norval-West-Bypass-Transportat>).



1.7 Indigenous Communities, First Nations and Métis Communities Engagement

Indigenous Communities, First Nations and Métis Communities were notified of the study commencement and of the PICs. Further, Indigenous Communities, First Nations and Métis Communities were given the opportunity to express concerns and provide feedback through an invitation to meet. The following Indigenous Communities, First Nations and Métis Communities were engaged as part of this study:

- Mississaugas of the Credit First Nation
- Haudenosaunee Confederacy Chiefs Council
- Métis Nation of Ontario - Credit River Metis Council and Grand River Metis Council
- Six Nations of the Grand River
- Wendat Nation (formerly Huron-Wendat Nation)

Correspondence with Indigenous Communities, First Nations and Métis Communities is summarized in **Section 6.3** and is included in **Appendix A**.

Wendat Nation requested to review the Stage 1 Archaeological Assessment report. A copy of the Stage 1 Archaeological Assessment report was provided to all Indigenous Communities, First Nations and Métis Communities listed above on January 31, 2024. Prior to undertaking the Stage 2 Archaeological Assessment work, Indigenous Communities, First Nations and Métis Communities will be advised and afforded the opportunity to have field liaison representative participation.



2 Need and Justification

2.1 Planning Context

This section summarizes the Provincial, Regional and Local plans, policies and initiatives that have relevance to the MCEA Study. All aspects of the study including identifying problems and opportunities, the evaluation of alternatives and the development of the design were carried out in consideration of the policy framework to ensure that final MCEA recommendations are consistent with the Region's planning and transportation policies.

2.1.1 Provincial Planning Statement

The Provincial Planning Statement (PPS), 2024, is a streamlined province-wide land use planning policy framework that replaces both the *Provincial Policy Statement* (2020) and *A Place to Grow: Growth Plan for the Greater Golden Horseshoe* (2019), while building upon housing-supportive policies from both documents. The PPS is a policy statement issued under the authority of Section 3 of the *Planning Act* and came into effect on October 20, 2024. Section 3 of the *Planning Act* requires that decisions affecting planning matters be consistent with policy statements issued under the Act.

The PPS provides direction on matters of provincial interest related to land use planning and development, including transportation infrastructure, while protecting the environment and resources, and ensuring opportunities for employment and residential development. Adherence to the numerous policies in the PPS are considered while planning for transportation infrastructure.

This ESR meets the objectives of the PPS by adhering to the MCEA process, and local and provincial land use considerations.

Key sections relevant to this project include:

Section 3.2(1): Emphasizes the importance of planning for efficient and safe transportation systems. It encourages the integration of transportation and land use planning to support sustainable development and reduce greenhouse gas emissions. This includes promoting active transportation and public transit and ensuring that transportation infrastructure is resilient to climate change impacts.

Section 2.5 and 2.6: These sections address the protection and sustainable use of agricultural lands and rural areas. They emphasize the importance of maintaining the viability of these areas while supporting appropriate development.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
2 Need and Justification
December 2025**

Section 2.9: This section emphasizes the importance of integrating climate change considerations into planning and development. It encourages the use of green infrastructure and nature-based solutions to enhance resilience and reduce greenhouse gas emissions.

Section 3.6: Focuses on planning for sewage, water and stormwater, and protecting public health and safety by directing development away from areas prone to natural hazards such as flooding and erosion. It also includes policies for managing human-made hazards.

Section 4.1: Focuses on the protection and enhancement of natural heritage systems. It outlines policies to conserve biodiversity, maintain ecological functions, and protect significant natural features and areas. The integration of stormwater management (SWM) facilities within these systems is permitted, provided they meet specific environmental protection criteria to ensure ecological integrity.

Section 4.2: Addresses the sustainable management of water resources, including the protection of water quality and quantity. It supports the use of SWM facilities to manage stormwater runoff and mitigate flooding, while ensuring these facilities do not adversely impact natural heritage systems.

Section 4.3: Highlights the importance of protecting agricultural lands, using an agricultural system approach. It encourages the wise use of these resources to support economic development while preserving their long-term viability.

These sections collectively support the development of transportation infrastructure projects that are environmentally sustainable and resilient, while ensuring the protection and wise use of natural and cultural resources.

2.1.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe

The “*A Place to Grow: Growth Plan for the Greater Golden Horseshoe*” has been integrated into the new PPS 2024. This new document replaces both the PPS 2020 and the Growth Plan, streamlining land use planning policies to support economic growth, housing supply, and sustainable development.

The PPS 2024 continues to build on the principles of the Growth Plan, ensuring that the Greater Golden Horseshoe remains a dynamic and prosperous region while protecting its natural and cultural heritage.



2.1.3 Greenbelt Plan

The *Greenbelt Plan, 2017* remains a relevant and significant policy in Ontario and continues to provide a framework for protecting agricultural lands, water resources, and natural areas within the Greater Golden Horseshoe region. Recent updates, including an administrative amendment in August 2024, ensure that the policies of the Provincial Policy Statement (PPS) 2020 and the Growth Plan for the Greater Golden Horseshoe 2019 continue to apply where the Greenbelt Plan refers to them. This maintains existing protections for the Greenbelt following the revocation of the PPS 2020 and the Growth Plan.

The Plan provides direction on the planning of transportation infrastructure to support the goals described in the Plan, including the following:

- Support for integrated approaches to growth management, including the movement of goods and transportation planning while enhancing the agri-food network and agricultural system; and
- Work in collaboration with other agencies and organizations to ensure interconnectedness with all aspects of the natural and built environment while maintaining ecological integrity.

The Plan encourages complete communities, whereby everyone has equal transportation opportunities and encourages municipalities to implement these policies to help reduce greenhouse gas emissions and work towards low-carbon communities.

A portion of the Hamlet of Norval is located within the Greenbelt Area “Protected Countryside”, a designation which includes the Natural Heritage System. This protected area encompasses both sides of Silver Creek. The southwest portion of the study area is located within a settlement area outside of the Greenbelt.

Section 4.2.1 outlines the infrastructure policies for lands falling within the Protected Countryside. These policies state that all existing, expanded or new infrastructure subject to and approved under the applicable legislation, or which receives a similar environmental approval, is permitted within the Protected Countryside and is subject to the policies of this section provided it meets one of the two following criteria:

- a) It supports agriculture, recreation and tourism, Towns/Villages and Hamlets, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or it supports activities permitted within the Greenbelt; or*
- b) It serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections among urban centres and between these centres and Ontario’s borders.*



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
2 Need and Justification
December 2025**

The location and construction of infrastructure and expansions, extensions, operations and maintenance of infrastructure in the Protected Countryside are subject to the following:

- a) *4.2.1.2 (a) & (b) Planning, design and construction practices shall minimize, where possible:*
 - *The amount of the Greenbelt, particularly the Natural Heritage System and Water Resource System, traversed and/or occupied by infrastructure;*
 - *The negative impacts on and disturbance of the existing landscape, including, but not limited to, impacts caused by light intrusion, noise and road salt;*
- b) *4.2.1.2 (c) Where practicable, existing capacity and co-ordination with different infrastructure services shall be optimized so that the rural and existing character of the Protected Countryside and the overall hierarchy of areas where growth will be accommodated in the Greater Golden Horseshoe established by the Greenbelt Plan and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020) are supported and reinforced;*
- c) *4.2.1.2 (d) & (f) New or expanding infrastructure shall avoid:*
 - *Key natural heritage features, key hydrologic features, or key hydrologic areas;*
 - *Specialty crop areas and other prime agricultural areas in that order of priority;*
 - *unless need has been demonstrated and it has been established that there is no reasonable alternative.*
- d) *4.2.1.2 (e) & (g) Where infrastructure does cross:*
 - *Natural Heritage System or intrude into or result in the loss of a key natural heritage feature, key hydrologic feature or key hydrologic areas, including related landform features, planning, design and construction practices shall minimize negative impacts on and disturbance of the features or their related functions and, where reasonable, maintain or improve connectivity;*
 - *Prime agricultural areas, an agricultural impact assessment or equivalent analysis as part of an environmental assessment shall be undertaken.*

Section 4.2.3 defines additional policies for stormwater management infrastructure within the Protected Countryside. These policies state that planning, design and construction will be completed within the policies in Section 3.2.7 of the Growth Plan,



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
2 Need and Justification
December 2025**

involving the development of a Stormwater Master Plan. Municipalities will be subjected to assess the risks and vulnerabilities and identify actions to address these challenges. It is noted that stormwater management systems will be prohibited within the areas containing key natural heritage features, key hydrologic features and associated vegetation protection zones. SWM facilities, including ponds, are permitted contingent upon meeting specific environmental protection criteria outlined in the PPS 2024. These criteria ensure that the integration of SWM facilities does not compromise the ecological integrity of these sensitive areas, supporting sustainable development while preserving natural heritage values.

This MCEA has regard for the policy directions within the Plan, by ensuring that improvements facilitate the movement of goods and people between major highways and urban centres in a sustainable manner. The goals and objectives set out in the Plan were considered during the identification and evaluation of alternative solutions. The natural heritage system components are further described in **Section 3.4**.

2.1.4 Halton Region Official Plan

As of July 1, 2024, the *Halton Region Official Plan* is no longer an official plan for the Regional Municipality of Halton as the *Planning Act* identifies the Region as an “upper-tier municipality without planning responsibilities”. Instead, it is now deemed an official plan of each of the Local Municipalities in Halton (e.g. Town of Halton Hills) until such time as it is revoked or amended by the respective municipality.

The *Halton Region Official Plan* (2022) outlines a long-term vision for Halton’s physical form and community character, through setting goals and objectives to accommodate growth. The Plan designates the study area as a Hamlet, Urban Area, Regional Natural Heritage System, and Greenbelt Natural Heritage System.

Under the Halton Region Official Plan, Natural Heritage Systems consist of the Greenbelt Natural Heritage System and the Regional Natural Heritage System. The following policies are applicable to the Natural Heritage System designations for the Norval West Bypass project Study Area:

Section 115.3 – The Regional Natural Heritage System is a systems approach to protecting and enhancing natural features and functions and is scientifically structured on the basis of the following components:

1. Key Features, which include:
 - Significant habitat of endangered and threatened species
 - Significant wetlands
 - Significant coastal wetlands
 - Significant woodlands
 - Significant valleylands



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
2 Need and Justification
December 2025**

- Significant wildlife habitat
- Significant areas of natural and scientific interest
- Fish habitat

Key Features that have been identified are shown on Map 1G

- Enhancement to the Key Features including Centres for Biodiversity
- Linkages
- Buffers
- Watercourses that are within a Conservation Authority Regulation Limit or that provide a linkage to a wetland or a significant woodland, and
- Wetlands other than those considered significant under Section 115.3(1)b).

Section 139.3.3 - The Greenbelt Natural Heritage System represents a systems approach to protecting natural features and functions within the Greenbelt Plan Area and its construct is equivalent to that of the Regional Natural Heritage System as described in Section 115.3. The Key Features, within the Regional Natural Heritage System referred to under Section 115.3(1), and the following Key Features within the Greenbelt Natural Heritage System are shown on Map 1G, for the purpose of assisting the Local Municipalities in developing detailed implementation policies in accordance with Sections 5.3 of the Greenbelt Plan:

- a) sand barrens, savannahs and tall grass prairies,*
- b) permanent and intermittent streams,*
- c) lakes,*
- d) seepage areas and springs,*
- e) alvars and,*
- f) significant habitat of special concern species.*

The Official Plan identifies Winston Churchill Boulevard and 10 Side Road in the study area as “Major Arterial” roads.

2.1.5 Halton Region Transportation Master Plan – The Road to Change

Halton Region Transportation Master Plan (to 2031) – The Road to Change (Halton Region TMP, 2011) was completed in 2011 and meets Phases 1 and 2 of the MCEA process. The purpose of the study was to develop a strategy that reflects Halton Region’s transportation vision to 2031, which would be a dynamic integrated transportation strategy that considers all modes of travel.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
2 Need and Justification
December 2025**

The study provides the Region with the strategies, tools and policies needed to manage traffic safely, effectively and cost efficiently, to offer a range of transportation choices to meet the needs of Halton Region residents, to identify and protect future transportation corridors, and to identify the estimated costs and timing of transportation improvements.

Halton Region is responsible for planning, constructing, operating, maintaining and improving a network of major arterial roads for the transport of goods and people in a safe and efficient manner. The regional road system connects the Region's rural and urban centres and provides connectivity to the provincial highway system. The Halton Region TMP identified the Norval West Bypass as a new four lane north-south link improvement. The recommendation was derived from the Halton-Peel Boundary Area Transportation Study.

It should be noted that the Region is undertaking the **Integrated Master Plan (IMP)** to complete the next region-wide Water, Wastewater and Multi-Modal Transportation Master Plan. The IMP will identify a long-term integrated servicing strategy for regional infrastructure to accommodate future growth to 2051, with the 2031 TMP as a key input.

2.1.6 Halton Region Active Transportation Master Plan

The *Active Transportation Master Plan (ATMP)*, which was completed in 2016, recommends Regional Walking and Cycling Networks to support and encourage people to walk and bike around Halton. Active transportation is any form of human-powered transportation, including walking, cycling, rollerblading, skateboarding, and moving with mobility devices. An active transportation network includes sidewalks, multi-use paths, crosswalks, on-road bike lanes and off-road trails. The objective of the ATMP is to create a network that will make it easier for people to walk, bike and roll around Halton.

2.1.7 Town of Halton Hills Official Plan

The *Town of Halton Hills Official Plan* (Office Consolidation, December 31, 2020) establishes the policies for the land use and growth in the Town of Halton Hills ("The Town"), expanding on the policies set out in the Halton Regional Official Plan (2022). The Town identifies strategic policies under Part F Section 6.1 for the Town's Transportation System. The applicable policies are as follows:

- a) *Establish an integrated transportation system that safely and efficiently accommodates various modes of transportation including trains, automobiles, trucks, public transit, cycling, and walking;*
- b) *Protect transportation corridors to facilitate the development of a transportation system that is compatible with and supportive of existing and future land use;*



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
2 Need and Justification
December 2025

- c) Ensure that appropriate right-of-way widths for all existing and proposed roads are provided in accordance with the Planning Act;*
- d) Encourage the use of alternative development standards for roads;*
- e) Encourage the efficient use of land along transportation corridors to maximize the use of public transit.*

Within the Town of Halton Hills, the study area is located between the communities of Georgetown and the Hamlet of Norval. Schedule A3 of the official plan identifies a future “Residential/Mixed Use” area to the north of 10 Side Road which forms the easternmost portion of Georgetown. The remainder of the study area is within the Norval Secondary Plan (Schedule H2). “Greenlands” and “Open Space Areas” are identified on the western boundary of the secondary plan area.

Under the Norval Secondary Plan, Section H2.3.11 (Transportation) identifies Highway 7 as a Provincial Highway with access restrictions, and notes that new entry points are subject to approval by the Ministry of Transportation. The Town also identifies that an Environmental Assessment is required in order to undertake bypass options included under the Halton-Peel Boundary Area Transportation Study, with specific attention to north-south and east-west connections.

2.1.8 Town of Halton Hills Norval Secondary Plan

The Norval Secondary Plan was completed by the Town of Halton Hills in 2003 and subsequently updated in 2014.

As outlined in the Secondary Plan, the Hamlet of Norval is located at the crossroads of Highway 7 and Adamson Street (Winston Churchill Boulevard), and at the confluence of the Credit River and Silver Creek, in the Town of Halton Hills and the Region of Halton. It is situated directly east of the Georgetown Urban Area and directly west of the Region of Peel and City of Brampton municipal boundaries. A small part of the area historically associated with the Hamlet is under the jurisdiction of the City of Brampton and the Region of Peel. Further, as noted in the Secondary Plan, the overall goal of the Norval Secondary Plan is to ensure the retention and enhancement of the natural, cultural and heritage resources of the Hamlet and to guide change so that it contributes to and does not detract from the character of the Hamlet, in an environmentally protective and cost effective manner.

Given the Norval West Bypass connection at Highway 7, streetscaping opportunities consistent with the Secondary Plan within the Norval West Bypass right-of-way (for example: pedestrian-scaled lighting, tree plantings and landscaping) will be included through the detail design stage of the study.



2.1.9 Town of Halton Hills Southeast Georgetown Secondary Plan

The Town of Halton Hills completed the Southeast Georgetown Secondary Plan in 2025 to identify the most appropriate mix of land uses supported by a concept for transportation networks. The Southeast Georgetown lands front onto 10 Sideroad and include the area west of Winston Churchill Boulevard and east of Tenth Line.

Given the Southeast Georgetown lands and study area are within the Norval West Bypass Transportation Corridor Improvements MCEA study area, the Region and Town have worked together to ensure a coordinated approach. The Region will continue to work through detail design to coordinate and align with the implementation of the Southeast Georgetown Secondary Plan development. Further, streetscaping opportunities consistent with the Secondary Plan within the Norval West Bypass right-of-way (for example: pedestrian-scaled lighting, tree plantings and landscaping) will be included through the detail design stage of the study.

2.1.10 Town of Halton Hills Transportation Master Plan

The Town of Halton Hills completed a *Transportation Master Plan* (TMP), in November 2011 to provide the strategies, policies, and tools required to meet the Town's transportation needs safely, effectively, and cost efficiently.

The TMP specifically identifies the North Halton Transportation Study, undertaken in 1999, where it was recommended that an EA study for the Georgetown / Norval Bypass be undertaken immediately to protect the corridor and assist in developing the Norval Secondary Plan. The TMP further refers to the recommendations within the Halton Region TMP and the Halton-Peel Boundary Area Transportation Study (HPBATS), which includes the Norval West Bypass in its study recommendations for the long-term transportation network to 2031.

The recommendations of the HPBATS can be found in Section 2.1.16 of the Halton Hills TMP. The Halton Hills TMP can be found at:
<https://www.haltonhills.ca/initiatives/tmp.php>

2.1.11 Town of Halton Hills Active Transportation Master Plan

The Town of Halton Hills *Active Transportation Master Plan* (ATMP) was developed to guide all future active transportation planning decisions in accordance with local values and characteristics. The vision of the ATMP was to 'Establish and environment in the Town of Halton Hills that provides equitable, self-propelled transportation operations and experiences for people of all ages and abilities. Seven specific goals were identified to successfully implement the ATMP in the long term:



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
2 Need and Justification
December 2025

1. Provide a network of on and off-road facilities that is connected and continuous and considered safe and comfortable by users.
2. Encourage and educate residents and visitors of the opportunities, objectives and outcomes of active transportation in Halton Hills.
3. Foster a community of active transportation enthusiasts across all user groups and generations.
4. Provide guidance on the design of AT facilities and provide an approach that is user focused.
5. Collaborate with internal and external partners to leverage opportunities to expand and enhance active transportation.
6. Create an action plan for the Town of Halton Hills to guide the planning, design and implementation of active transportation Town-wide.
7. Identify and evaluate the progress of the active transportation master plan through performance targets and monitoring tools.

The ATMP identified a proposed network for short-term (0-5 years), medium-term (6-10 years) and long-term (10+ years) aspirations. The ATMP recommended further study for the Guelph Street corridor.

2.1.12 Halton-Peel Boundary Area Transportation Study

The Halton-Peel Boundary Area Transportation Study (HPBATS) was initiated in March 2007 as a joint study between Peel Region, Halton Region, the City of Brampton, the Town of Caledon, and the Town of Halton Hills. The purpose of HPBATS was to develop a roadway network to address the long-term transportation needs around the Halton-Peel Boundary Area to ensure the long-term travel needs of existing and future development of all municipalities are met.

The study area for the HPBATS study included Halton Region and Peel Region and was roughly bounded by Trafalgar Road to the west, King Street to the north, Chinguacousy Road to the east, and Highway 401 and 407 ETR to the south. It encompasses the east part of Halton Hills, west Brampton (for example Heritage Heights), the northeast corner of Milton, the northwest corner of Mississauga, and the southwest corner of Caledon.

The study recommended a transportation network with new road corridors and the widening of existing roadways to address travel demand in the area, as shown on **Figure 5**. The Norval West Bypass is one piece of these recommended transportation improvements to support travel demand.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
2 Need and Justification
December 2025

The study considered the Norval West Bypass as a key corridor in accommodating future travel demand, and alleviating congestion within Norval. With the Norval West Bypass and Winston Churchill Bypass, both shown on **Figure 5**, the existing Winston Churchill Boulevard/Adamson Street would serve local traffic and redirect north-south travel demand to the bypass.

The plan was approved by the Town of Halton Hills and Halton Region Councils as a Master Plan for the area on May 11 and 12, 2010 respectively.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
2 Need and Justification
December 2025**

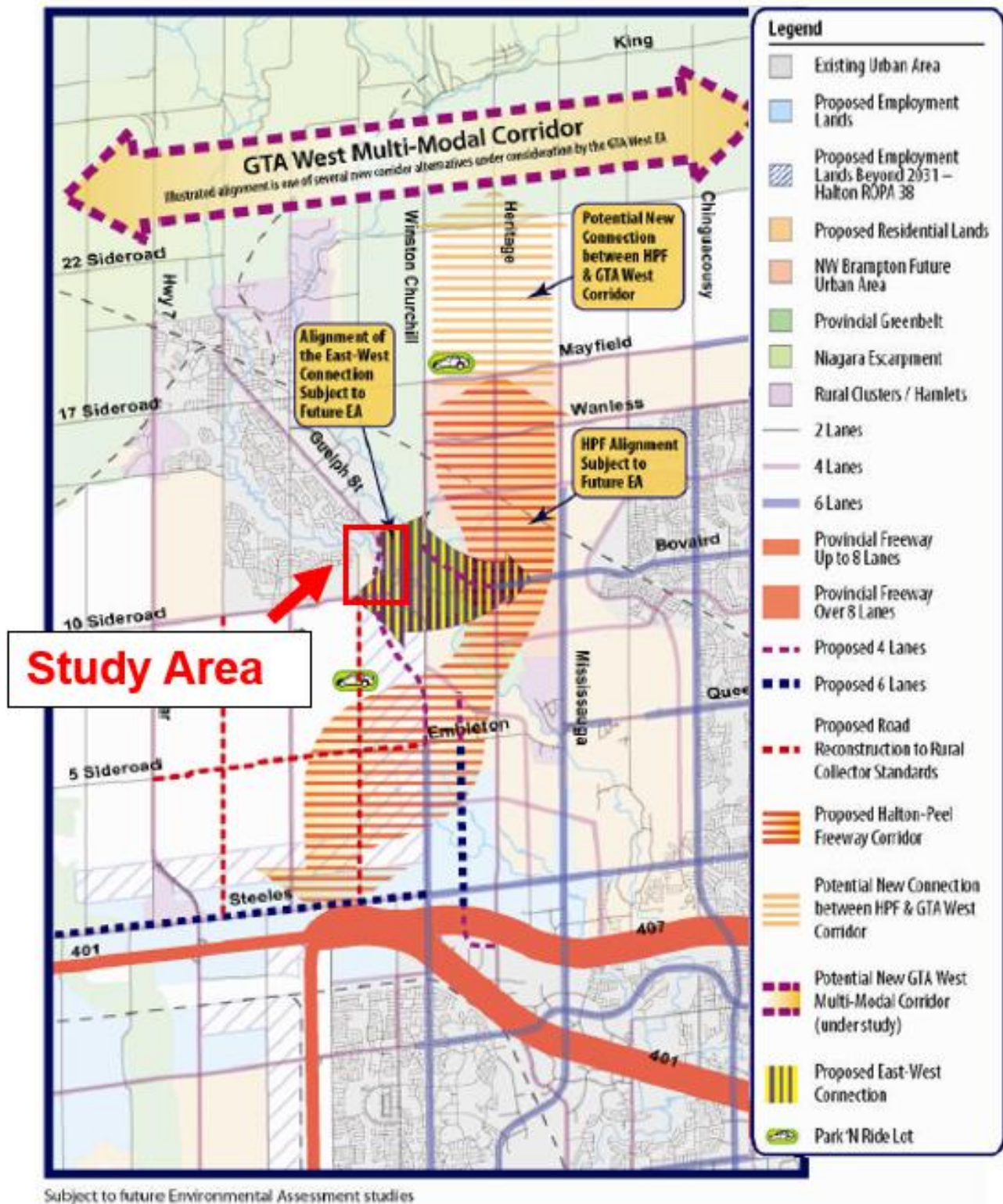


Figure 5: HPBATS Recommended Road Network, 2031



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
2 Need and Justification
December 2025**

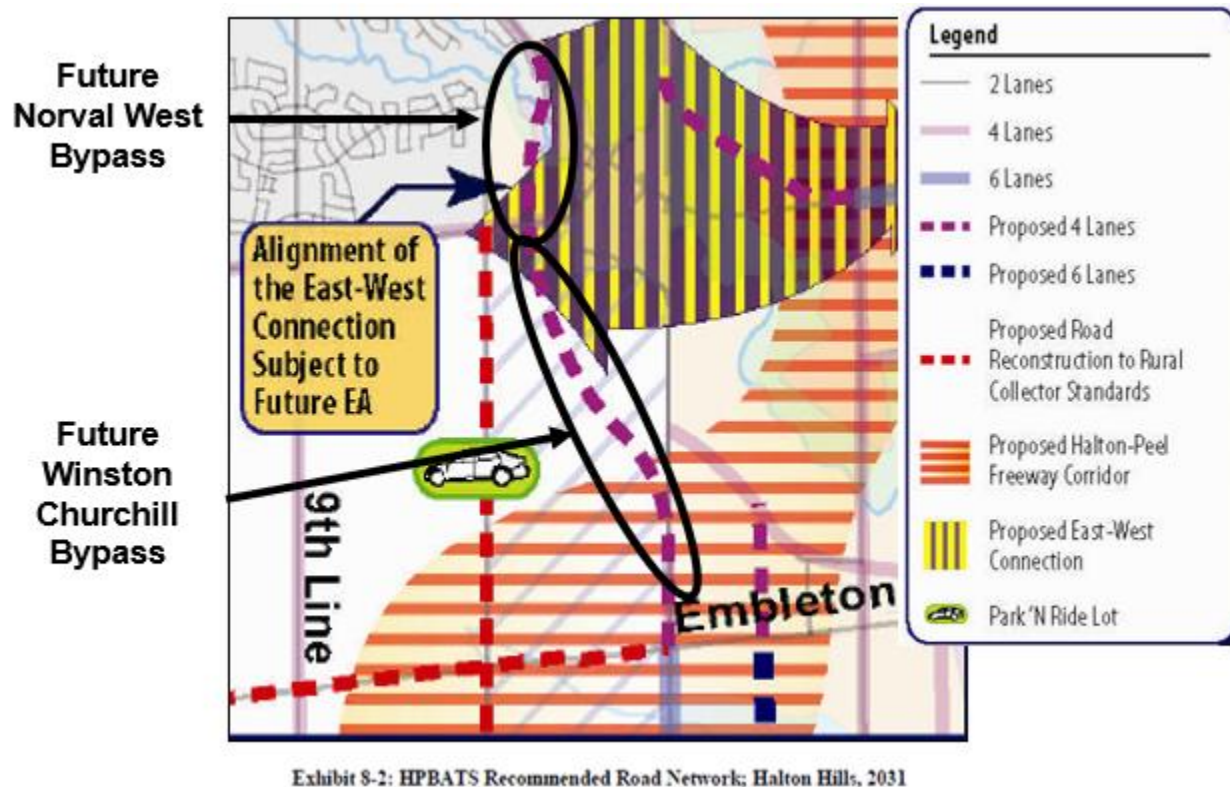


Figure 6: HPBATS showing Future Winston Churchill and Norval West Bypass

2.1.13 Traffic Analysis

The study area network consists of Highway 7, 10 Side Road, Tenth Line, and Adamson Street/Winston Churchill Boulevard, which are future described in Section . The study area roadway classifications and intersection control types are illustrated in **Section 3.1.1 Road Network** below.



2.1.14 Existing Travel Demand

The existing road network includes Highway 7, 10 Side Road, Tenth Line, and Adamson Street/Winston Churchill Boulevard, which is described in further detail in **Section 3**.

Base year turning movement volumes were established using the available 2019 turning movement data, as shown for the AM peak hours (**Figure 7**) and PM peak hours (**Figure 8**).

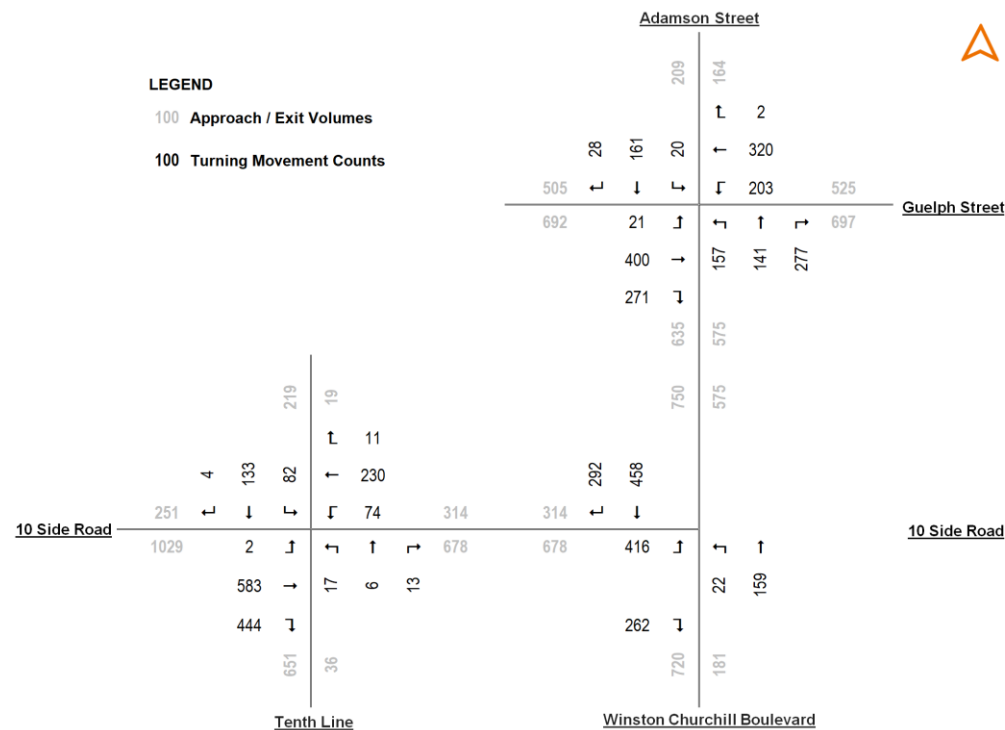


Figure 7: Existing (2019) AM Peak Hour Trips

Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

2 Need and Justification

December 2025

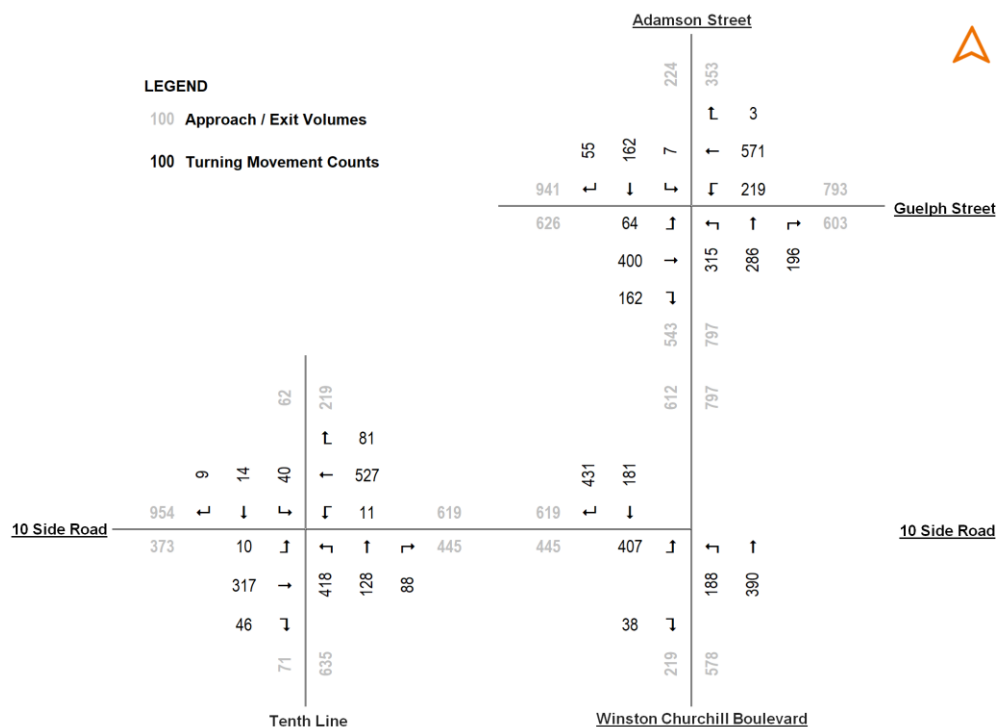


Figure 8: Existing (2019) PM Peak Hour Trips

2.2 Problem Being Addressed

The Norval West Bypass is part of an overall solution to improve travel in the community of Norval, as discussed above. The purpose of the Norval West Bypass is to relieve truck traffic and travel demand on Highway 7 through the community of Norval and provide a north-south connection through the Southeast Georgetown Secondary Plan area that connects Highway 7 to 10 Side Road. **Figure 9** provides an overview of the 2031 transportation system as identified through the Region's 2031 TMP, including the study area for the proposed bypass. The proposed bypass would provide a connection to a future potential Winston Churchill Boulevard Bypass, providing a more direct route between Highway 7 and 10 Side Road.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
2 Need and Justification
December 2025

Based on the previously identified need and review of existing and future conditions, servicing studies, planning documents, development proposals, preliminary traffic studies and collision data, the following summarizes the problems and opportunities within the study area:

- Without a new Norval West Bypass and improvements to 10 Side Road, the Hamlet of Norval is expected to experience delays during peak periods as travel demand continues to grow by 2031.
- To support future growth, travel demand and network connectivity, both a new Norval West Bypass and improvements to the 10 Side Road corridor are required.
- Both corridors should support all modes of transportation (i.e., active transportation) and provide safety for all road users.

Therefore, Halton Region is carrying out this Study for the development of the Norval West Bypass to address these requirements in accordance with the MCEA process.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment
2 Need and Justification
 December 2025

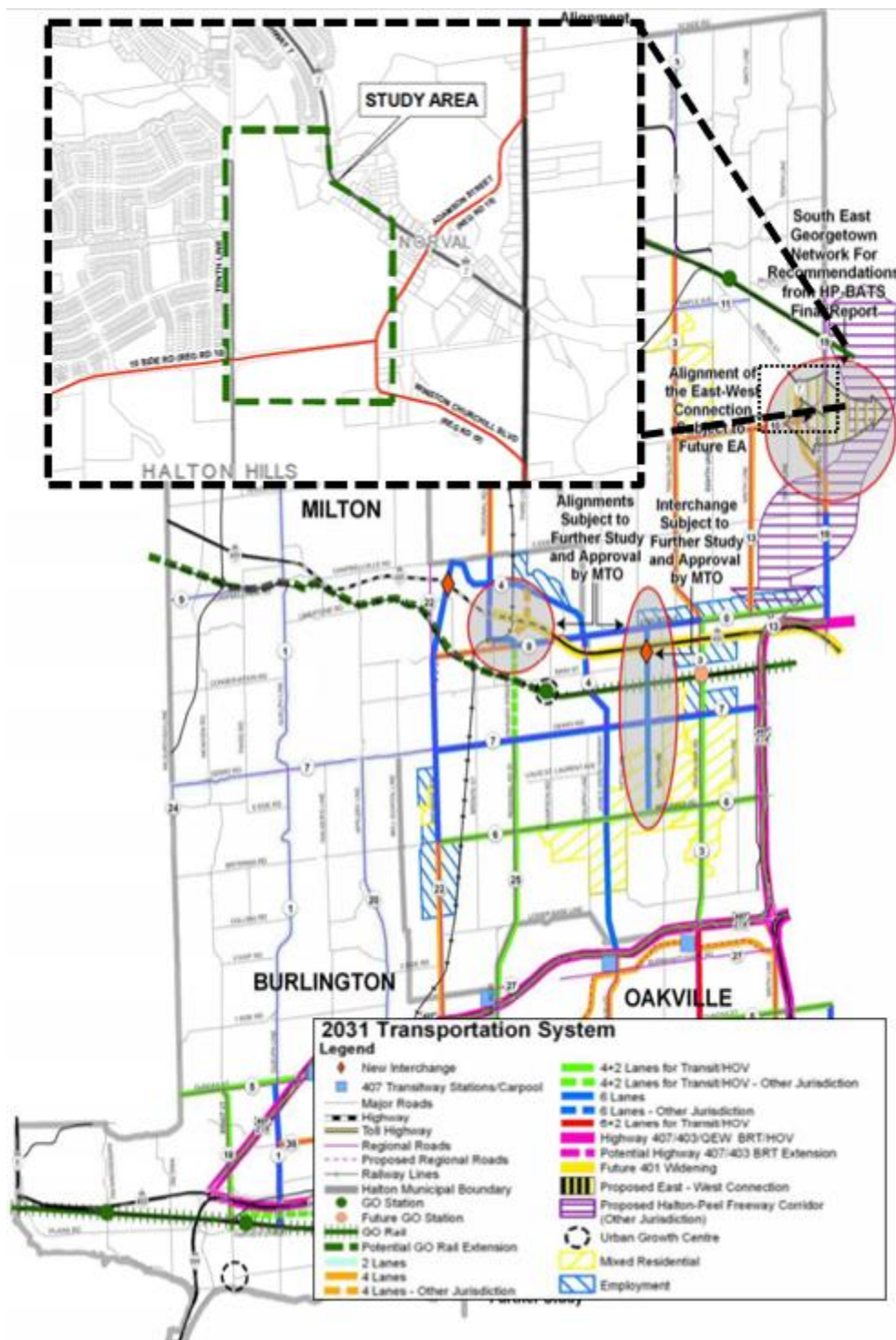


Figure 9:2031 Transportation System (2011 Halton Region Transportation Master Plan)



3 Existing Conditions

Background information was collected from numerous sources including:

- The review of pertinent background studies and reports;
- Data provided by Halton Region;
- Investigations undertaken as part of this MCEA Study;
- Meetings with the Project Team;
- Correspondence and meetings with participating Technical Agencies, including the Town of Halton Hills, Credit Valley Conservation, MTO; and
- Consultation with key stakeholders, members of the public, property owners and local businesses.

The study area limits shown on the **Figure 1** display the boundary where the Norval West Bypass and improvements to 10 Side Road have been considered. The project considers the impact of the improvements on the local community, beyond the study area limits presented in the figure. Several technical studies undertaken as part of this project, including traffic, cultural heritage, natural environment, air and noise, consider the area outside of the study area limits including the north side of Highway 7.

3.1 Transportation

As part of the Norval West Bypass MCEA Study, a traffic analysis was carried out for the existing and future conditions and is summarized below.

3.1.1 Road Network

The study area network consists of Highway 7, 10 Side Road, Tenth Line, and Adamson Street/Winston Churchill Boulevard. The study area roadway classifications and intersection control types are illustrated in **Figure 10** and the lane configurations are illustrated in **Figure 11**.

Highway 7 (Guelph Street) – Highway 7 is a Provincial highway under the jurisdiction of MTO with a posted speed limit of 50 km/h within Norval. Within the study area, it consists of two lanes in an east-west orientation and forms a signalized intersection with Adamson Street at which auxiliary left-turn lanes and pedestrian crosswalks are available on all approaches. Signs restricting truck entry and signs restricting loads to five tonnes per axle are posted on the northbound and southbound exits towards Winston Churchill Boulevard at the intersection with Highway 7. Signal heads with



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

advanced left-turn arrows are installed facing the northbound and westbound approaches at the intersection.

Adamson Street / Winston Churchill Boulevard (Regional Road 19) – Adamson Street is a two-lane regional road under the jurisdiction of the Region of Peel, who operate and maintain the street based on a maintenance agreement with Halton Region. The roadway has a posted speed limit of 50 km/h and forms a signalized intersection with 10 Side Road. The signalized intersection has a single lane on all approaches and pedestrian crosswalks on the south and west approaches to the intersection. Although only a single approach lane is available on the eastbound approach, it was observed that left-turning vehicles queue very closely to the centerline allowing right-turning vehicles to bypass shorter queues. For the purposes of the analysis, this approach has been modelled with a short auxiliary eastbound right turn lane. Signage posted along the exits onto Winston Churchill Boulevard at the signalized intersection restrict trucks and loads greater than five tonnes per axle, only allowing local delivery trucks. The receiving lane onto 10 Side Road restricts loads to five tonnes per axle between March 1st and April 30th.

10 Side Road – 10 Side Road is a two-lane east-west regional road under the jurisdiction of Halton Region. It intersects Tenth Line with a single-lane roundabout. Pedestrian crosswalks are provided on all approaches to the roundabout with Tenth Line. 10 Side Road has a posted speed limit of 60 km/h approximately 360 m west of Winston Churchill Boulevard, east of which it is posted at 80 km/h.

Tenth Line – Tenth Line is a north-south two-lane major road under the jurisdiction of the Town of Halton Hills. The roadway a posted speed limit of 60 km/h north of the roundabout intersection with 10 Side Road and 80 km/h south of 10 Side Road.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025



Figure 10: Study Area and Existing Roadway Network

Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

3 Existing Conditions

December 2025

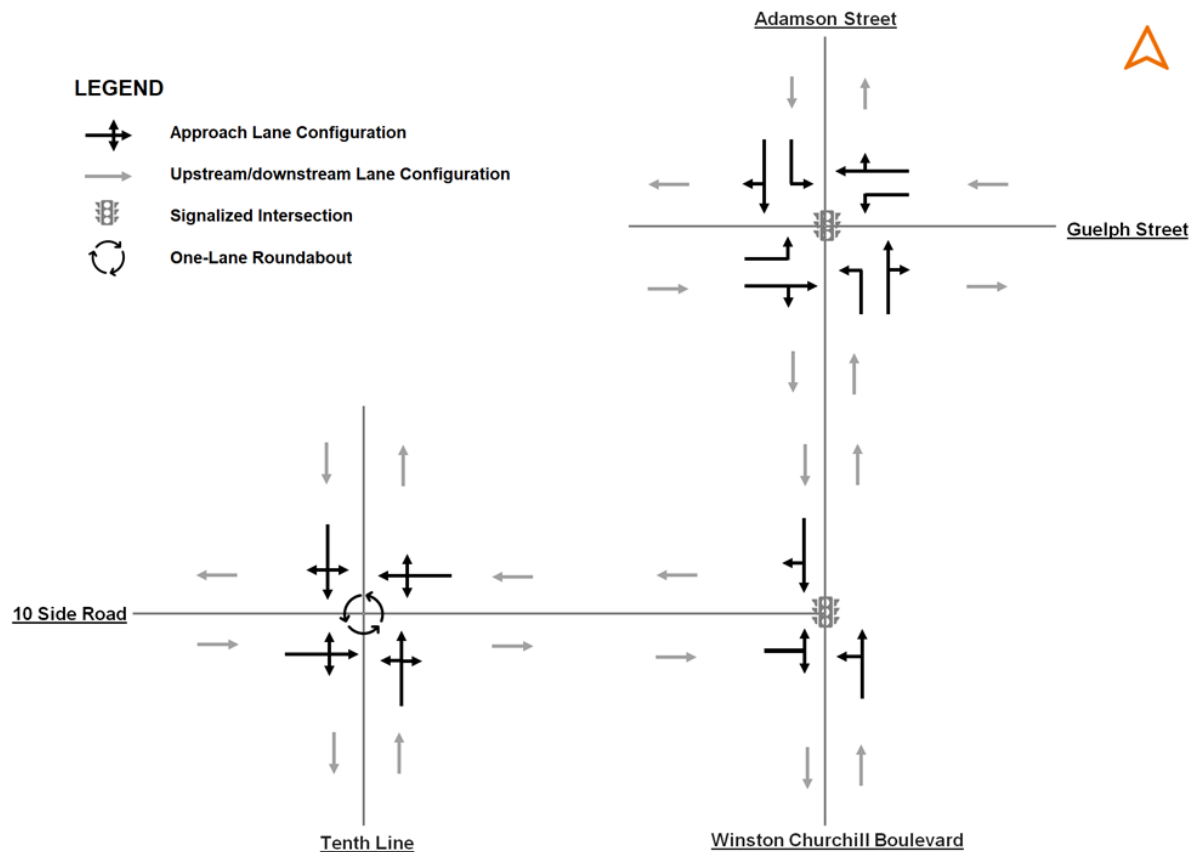


Figure 11: Existing (2019) Intersection Lane Configuration

3.1.2 Road Safety

Collision data from 2014 to 2018 were assessed to identify trends in collisions and to identify possible opportunities for improvement. It is noted that most intersections and midblock sections have low average collision rates with the exception of the midblock section of Winston Churchill Boulevard between 5 Side Road and 10 Side Road. This segment has a sharp turn with cautionary signs posting reduced speed limits, chevrons, and "SLOW" pavement markings on the approaches to the turn. It is observed that improvements such as the "SLOW" pavement markings on the approach to the curve were implemented between 2016 and 2019 and resulted in a steady decrease in the number of midblock collisions from 2016 to 2018.



3.1.3 Transit Network

Transit service in the study area is provided by GO Transit along Highway 7 to the west of the intersections of Highway 7 / King Street and Highway 7 / Noble Street. Bus Route 31: Georgetown and Route 33: Guelph / North York stop on the north and south sides of Highway 7 (Guelph Street) where GO stop markers are located.

3.1.4 Active Transportation

The study area has a relatively segmented active transportation network which does not connect Norval with the residential area along the south-west limits. Pedestrian facilities are currently provided along the following segments of the network:

- Highway 7: South side east of Adamson Street for approximately 520 m. South side west of Winston Churchill Boulevard for approximately 470 m and along the north side for approximately 640 m.
- Adamson Street: West side north of Highway 7 until Noble Street (approximately 120 m). West side south of Guelph Street until Green Street (approximately 90 m) and east side for approximately 250 m.
- 10 Side Road: A multi-use path is provided along the north side of 10 Side Road west of Tenth Line. The multi-use path connects Tenth Line and Eight Line (approximately 2.8 km).

Cyclists are accommodated on the multi-use path that runs along the north side of 10 Side Road west of Tenth Line.

Additionally, the Town of Halton Hills Cycling Master Plan, dated December 2010, identifies proposed on-road cycling routes along Highway 7 (west of Adamson Street), Adamson Street, Winston Churchill Boulevard, 10 Side Road (east of Tenth Line), and Tenth Line (north of 10 Side Road) which will improve connectivity in the area.

3.1.5 Existing Intersection Operations

Intersection operations at signalized and unsignalized intersections is evaluated in terms of level of service (LOS) and volume to capacity (v/c) as defined by the Highway Capacity Manual (HCM). LOS is evaluated based on average control delay per vehicle and includes deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Capacity is evaluated in terms of ratio of demand flow to capacity with an at-capacity condition represented by a v/c ratio of 1.00 (i.e., volume demand equals theoretical capacity).



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

For signalized intersections, LOS ranges from LOS A (for 10 seconds or less average delay) to LOS F (for average delay greater than 80 seconds). For unsignalized intersections, the LOS ranges from LOS A (for 10 seconds or less average delay) to LOS F (for average delay greater than 50 seconds) (see **Table 2**).

Table 2: Intersection Level of Service Delay Criteria

Level of Service (LOS)	Signalized Intersections	Unsignalized Intersections
A	≤10s	≤10s
B	>10s and ≤20s	>10s and ≤15s
C	>20s and ≤35s	>15s and ≤25s
D	>35s and ≤55s	>25s and ≤35s
E	>55s and ≤80s	>35s and ≤50s
F	>80s	>50s

To assess the existing peak hour traffic conditions, a LOS analysis was undertaken for the study area intersections. The results of the analysis for existing conditions are summarized in **Table 3**.

The study area intersections are largely characterized by good LOS and V/C ratios during the AM peak hour. Several deficiencies are noted during the existing PM peak hour at the intersections of Highway 7 and Adamson Street, and at 10 Side Road and Winston Churchill Boulevard. The roundabout at 10 Side Road and Tenth Line operated well during the peak hours.

Highway 7 & Adamson Street – The northbound left-turning movement operates at-capacity and at a LOS of “F” during the PM peak hour due to the high left-turning volumes. The northbound through and southbound through movements operate under high delay at a LOS of “E”. It is noted that the overall intersection operates acceptably with a LOS of “D” and volume to capacity ratio of 0.80. The operations at the intersection can be improved by optimizing the signal timing plan to better accommodate the high northbound volumes during the PM peak hour.

10 Side Road & Winston Churchill Boulevard – The eastbound left-turning movement operates at-capacity and under a LOS of “E” during the PM peak hour. The northbound through and overall intersection are approaching capacity, operating at v/c ratios of 0.94 and 0.95, respectively. It is noted that there is little opportunity to improve the operations through signal timing optimization due to the near-capacity operations of the intersection.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

Table 3: Existing Conditions Intersection LOS Analysis

Intersection	Movement ²	AM Peak Hour				PM Peak Hour			
		LOS	Delay	v/c	Q (m)	LOS	Delay	v/c	Q (m)
Highway 7 & Adamson St (Signalized)	EBL	B	16	0.04	9	C	21	0.19	21
	EBT	C	34	0.81	241	C	30	0.67	164
	WBL	C	24	0.67	39	B	19	0.57	39
	WBT	B	12	0.31	66	B	18	0.54	129
	NBL	D	38	0.55	49	F	92	1.00	103
	NBT	D	53	0.82	128	E	59	0.89	171
	SBL	D	49	0.24	13	D	47	0.10	6
	SBT	E	60	0.73	74	E	62	0.74	81
	Intersection	D	36	0.82	-	D	43	0.80	-
10 Side Rd & Winston Churchill Blvd (Signalized)	EBL	C	29	0.75	90	E	71	0.99	162
	EBR	B	20	0.29	28	C	25	0.08	13
	NBT	B	10	0.24	32	D	35	0.94	156
	SBT	C	21	0.81	184	A	8	0.47	34
	Intersection	C	22	0.79	-	C	34	0.95	-
10 Side Rd & Tenth Line (Roundabout)	EB	A	3	0.25	8	A	10	0.65	18
	WB	D	25	0.89	230	A	4	0.29	9
	NB	A	1	0.18	3	A	4	0.08	3
	SB	A	1	0.04	3	A	6	0.55	9
	Intersection	C	17	-	-	A	7	-	-

3.1.6 Future Travel Demand

Under the existing intersection configuration (without the addition of the Norval West Bypass), all existing and future traffic will proceed through the community of Norval, as shown on **Figure 12**.

² **EBL**: Eastbound Left, **EBT**: Eastbound Through, **WBL**: Westbound Left, **NBL**: Northbound Left, **SBL**: Southbound Left, **SBT**: Southbound Through, **NBT**: Northbound Through, **SB**: Southbound, **EB**: Eastbound, **WB**: Westbound, **NB**: Northbound



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

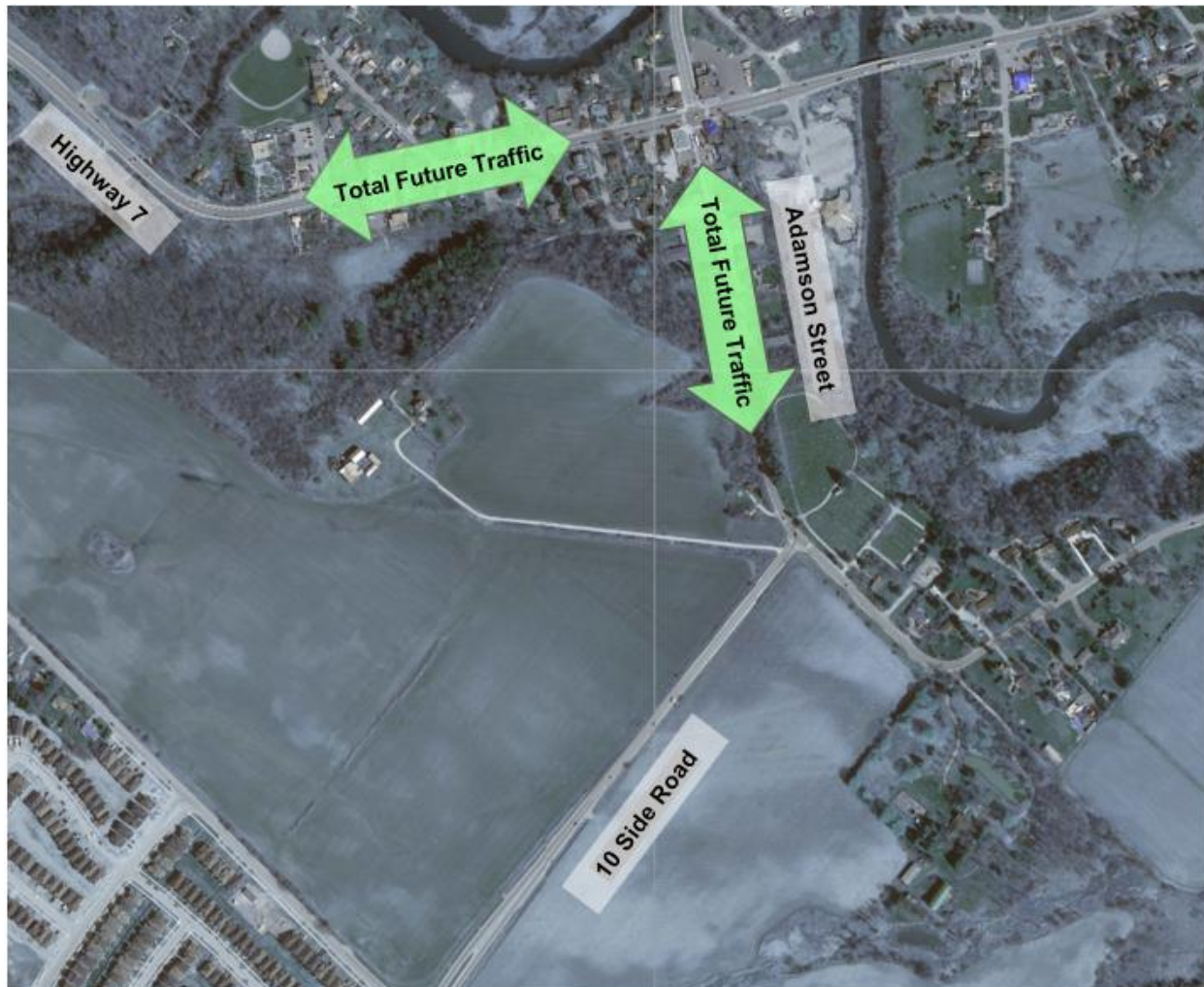


Figure 12: Existing and Future Traffic

The existing traffic operations at the intersection at Highway 7 and Adamson Street as shown in **Table 3** above will worsen. However, with the addition of a Norval West Bypass, it is anticipated that approximately 2/3 of the existing and future traffic will be diverted to the Bypass, with the remaining 1/3 using Highway 7/Guelph Street through Norval, as shown on **Figure 13**. This redistribution will reduce traffic on Adamson Street and the intersection at Highway 7.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

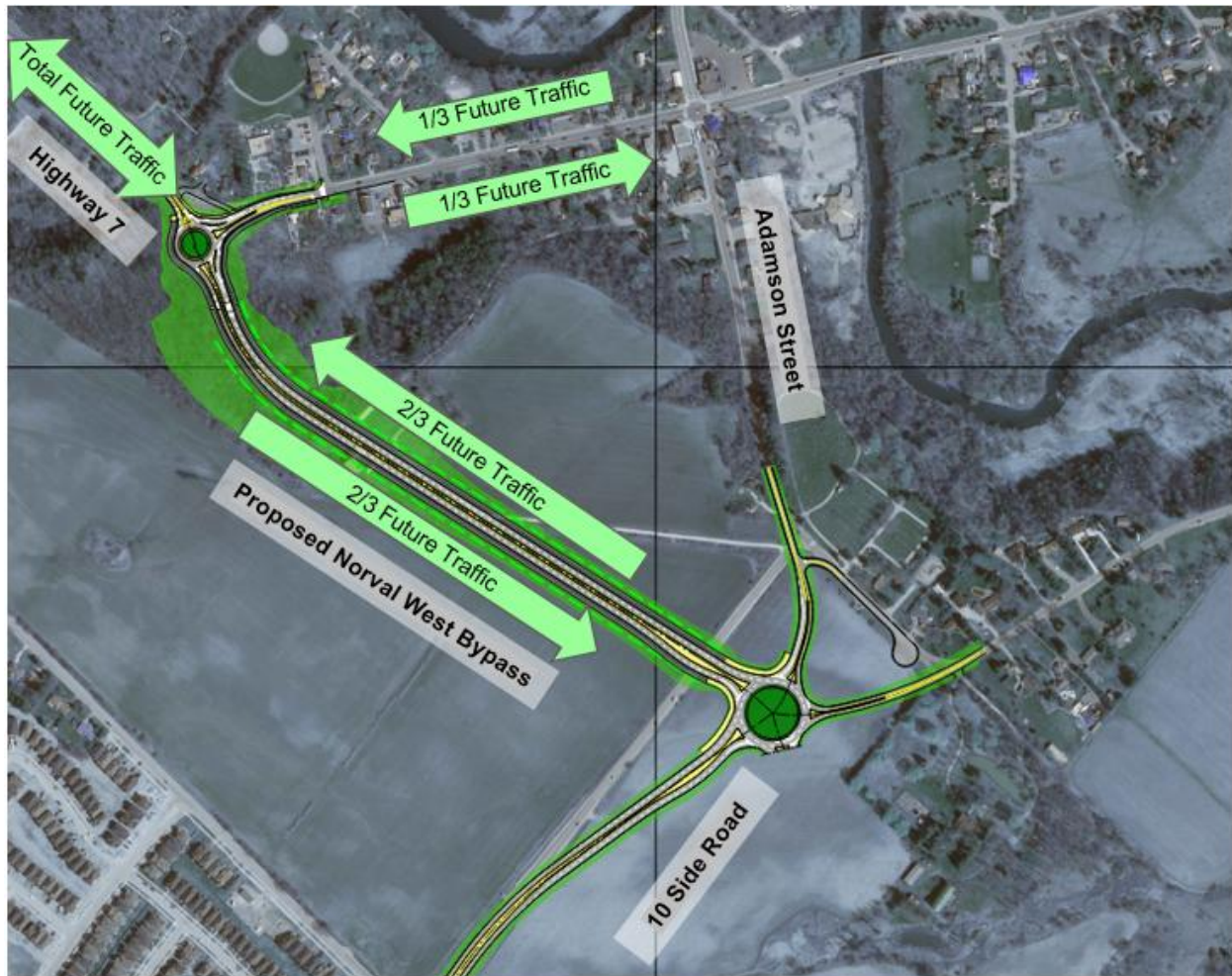


Figure 13: Future Traffic Distribution

Further, with the addition of the Winston Churchill Bypass (subject to a future separate study), it is anticipated that more traffic will use the Norval West Bypass, further reducing the overall traffic on Highway 7/Guelph Street through Norval, as shown on **Figure 14**. This redistribution will further reduce traffic on Adamson Street and the intersection at Highway 7.



Figure 14: Traffic Distribution with Addition of Winston Churchill Bypass

3.2 Socio-Economic Environment

3.2.1 Existing Land Use

The study area is in the Town of Halton Hills, and near the communities of Georgetown and the Hamlet of Norval. The study area is primarily agricultural, with some existing residential, commercial and institutional uses along the developed areas of Highway 7 and Adamson Street. A Natural Heritage System, the Greenbelt, is also located within the study area.

**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

A residential area is in the vicinity of King Street and Green Street to the southwest of the Highway 7 and Adamson Street intersection. Businesses in Norval consist of small-scale commercial service companies (trailer rental, self storage, convenience stores, spa, as well as retail businesses. Residential properties are located in Georgetown along Highway 7. Greenbelt and other natural areas are described in **Section 2.1.3**.

Silver Creek, also known as the Credit River West Branch, crosses the northwest corner of the study area and joins with the main branch of the Credit River approximately 250 m to the northeast. In addition, a tributary of Levi Creek crosses the southern portion of the study area. Levi Creek eventually drains into the Credit River.

3.2.2 Future Land Use

As described in **Section 2.1.8**, the Southeast Georgetown area was identified for future development and brought into the Urban Area in the Town of Halton Hills through the Regional Official Plan Amendment No. 38 and Halton Hills Official Plan Amendment (OPA) No. 10. The study area is located in the Southeast Georgetown Secondary Plan area.

The Southeast Georgetown Secondary Plan is complete and has identified the most appropriate mix of land uses in the study area and incorporate best practices for community development while establishing boundaries and targets for the new community and population, including housing units and affordable housing and employment capacity targets, and will include concepts for transportation networks. Please refer to the Town of Halton Hill's website for additional information.

3.2.3 Noise

As part of the Norval West Bypass MCEA Study, a noise assessment was completed to assess the potential noise impact to adjacent Noise Sensitive Areas (NSAs) and Outdoor Living Areas (OLAs) within the study area as a result of the proposed improvements. The NSAs with OLAs identified within the study area include the existing dwellings, daycares and places of worship. Thirty-four (34) representative receptors were identified for this assessment.

The Noise Impact Assessment report is provided in **Appendix C**.

3.2.4 Pedestrian and Cycling Facilities

As noted in **Section 3.1.3**, the study area has a relatively segmented active transportation network.



3.3 Cultural Environment

3.3.1 Archaeological Assessment

A Stage 1 Archaeological Assessment was completed for this MCEA in accordance with the Ministry of Citizenship and Multiculturalism (MCM) 2011 *Standards and Guidelines for Consultant Archaeologists*. The intent of the Stage 1 assessment is to identify areas of archaeological potential within the study area based on historical research and visual site inspections.

The property inspection conducted on March 27, 2020 for the Stage 1 Archaeological Assessment found that approximately 31.2% of the study area retains potential for the identification and documentation of archaeological resources and requires Stage 2 assessment if impacted by the project. Approximately 68.8% of the study area retains low to no archaeological potential for the identification or recovery of archaeological resources due to intersecting and overlapping areas of previous archaeological assessment, disturbance, steep slopes, and low and permanently wet areas and no further assessment is required.

The Stage 1 Archaeological Assessment was accepted into the Ontario Public Register of Archaeological Reports in March 2023. A copy of the Stage 1 Archaeological Assessment report is included in **Appendix F**.

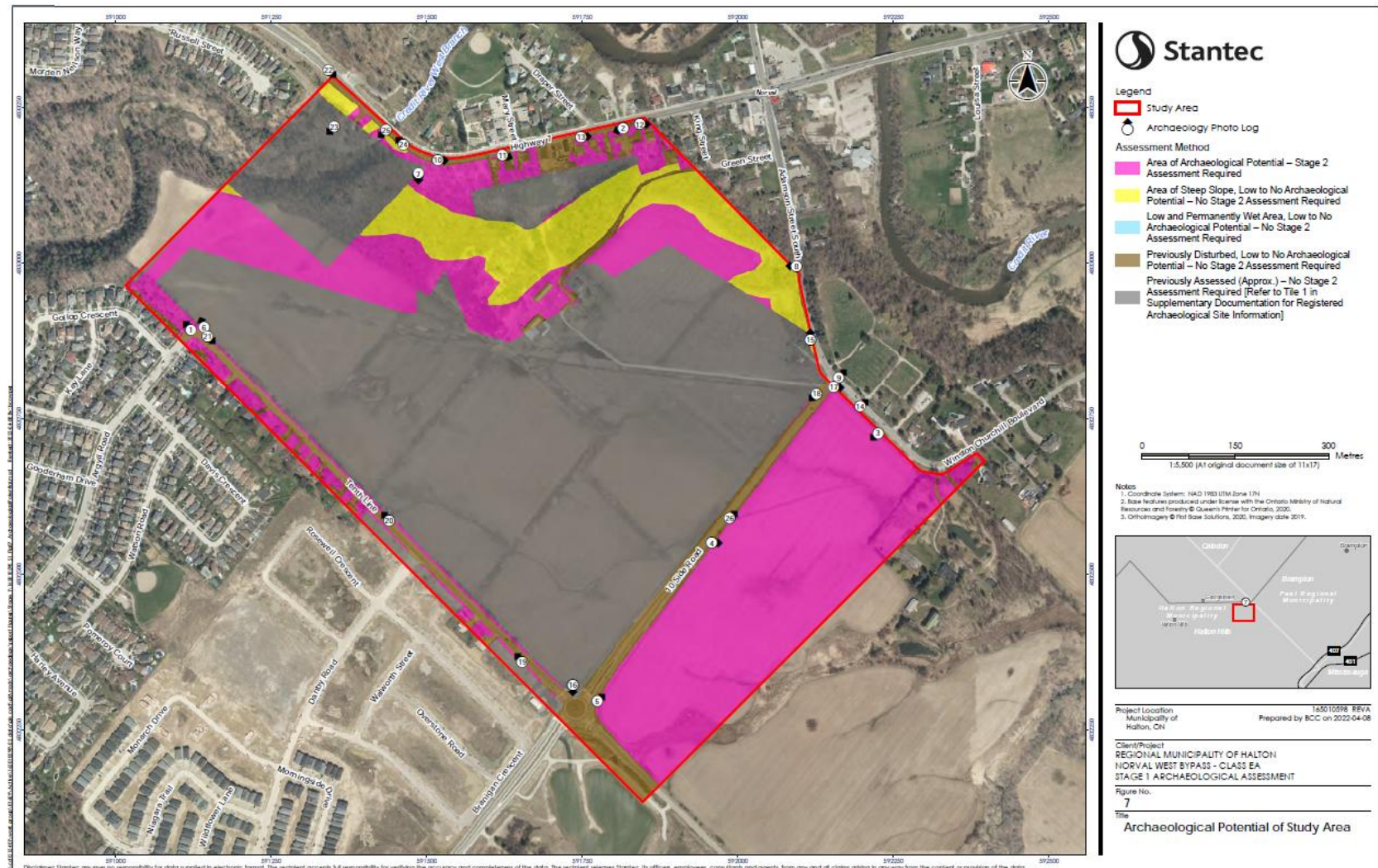
The Stage 2 Archaeological Assessment will be completed in accordance with the Ontario Heritage Act. Indigenous Communities, First Nations and Métis Communities will be advised and afforded the opportunity to have field liaison representative participation.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

3 Existing Conditions

December 2025



Note: Stage 2 archaeological assessment is only required in areas where construction activities are proposed. To be confirmed during detail design.

Figure 15: Archaeological Assessment



3.3.2 Built Heritage Resources and Cultural Heritage Landscapes

The requirement to consider cultural heritage in a MCEA is discussed in the EA document and the PPS. Identifying cultural heritage features is particularly important when describing existing and future conditions, developing alternative solutions/designs, and determining the preferred design. A cultural heritage resource is used to describe cultural heritage landscapes and built heritage resources.

Local historical resources were consulted, archival documents were reviewed, and a summary of the historical background of the local area was prepared. Listings of provincially and locally designated properties, districts, and easements for each municipality were collected from the Ontario Heritage Trust (OHT), the MCM and the Town of Halton Hills. Consultation with these interested agencies and municipalities within which the Project is proposed was undertaken to determine the presence of designated, listed, or registered heritage properties within the Study Area.

A vehicular windshield survey was conducted on December 10, 2019, from the public right-of-way for potential heritage resources, including both built heritage resources and cultural heritage landscapes. Where identified, these were photographed, and their locations were recorded. Characteristics of each potential heritage resource were noted while in the field and recorded.

The criteria for determining CHVI is defined by O. Reg. 9/06. Each potential heritage resource was considered both as an individual structure and as a cultural landscape. Where CHVI was identified, a structure or landscape was assigned a cultural heritage resource (CHR) number, and the property was determined to contain a heritage resource.

During the course of the survey, 34 individual sites were identified as containing cultural heritage resources, as shown on **Figure 16**. Of those identified, 10 had been previously recognized by municipal heritage staff through listing on their municipal heritage register. The majority of the 27 heritage resources in the study area date to the mid-20th century, especially between 1940 and 1960, followed by mid- to late 19th century properties. Most of the structures in the study area are residential, with a few commercial properties, two farmsteads, two cemeteries, and a church.

Within the study area, on the property of 16469 10 Side Road is a group of mature pine trees known as “Russell’s Hill of Pines”. These trees were recognized in the writings of Lucy Maud Montgomery. The trees were designated as Greenlands (now Natural Heritage System) land use designation in The Hamlet of Norval Secondary Plan, the Town of Halton Hills Official Plan, and the Region’s Official Plan. The trees are also protected under the Region’s Tree By-law 121-05, which regulates the cutting of trees in a Natural Heritage System.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

A copy of the Cultural Heritage Report – Existing Conditions and Preliminary Impact Assessment (Cultural Heritage Report) is included in **Appendix E**.

3.3.2.1 Heritage Impact Assessment

The Cultural Heritage Report identified potential direct impacts to the known and previously evaluated cultural heritage landscape at 16469 10 Side Road and recommended a Heritage Impact Assessment (HIA) be completed. In addition, 16469 10 Side Road was previously evaluated for cultural heritage value or interest (CHVI) as part of a *Cultural Heritage Resource Assessment for the Southeast Georgetown Secondary Plan* completed by Wood in 2021 that is running concurrently with this study (Wood 2021). The Wood report determined that the property met five criteria of *Ontario Regulation* (O. Reg.) 9/06. The purpose of the HIA is to fulfill the recommendations of the Cultural Heritage Report and respond to policy requirements regarding the conservation of cultural heritage resources during the MCEA process.

The assessment of impacts and proposed mitigation measures are identified in **Section 8**.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

3 Existing Conditions

December 2025



Figure 16: Cultural Heritage Resources



3.4 Natural Environment

3.4.1 Background Review

Background documents and other applicable sources of information were consulted during the preparation of this report to identify natural heritage features for the Study Area, including the following:

- Land Information Ontario (LIO) database (MNRF 2022a)
- Halton Region Official Plan (Regional Municipality of Halton 2018)
- The Ecosystems of Ontario, Part 2: Ecodistricts (Wester et al. 2018)
- Forest Regions of Canada (Rowe 1972)

The information was compiled in a GIS database to support mapping and data query requirements of the natural heritage assessment.

For the potential occurrence of SAR or provincially rare species, the following sources were consulted for recent (1990-present) records in the vicinity of the Study Area:

- Natural Heritage Information Centre (NHIC) Biodiversity Explorer database (MNRF 2022b)
- Atlas of the Mammals of Ontario (Dobbyn 1994)
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2019)
- Ontario Breeding Bird Atlas (Cadman et al. 2007)
- Fisheries and Oceans Canada (DFO) – Aquatic Species at Risk Map (DFO 2023)
- eBird 2022
- iNaturalist 2022
- Schedule 1 of the *Federal Species at Risk Act* (Environment and Climate Change Canada 2022)
- Species at Risk in Ontario List (MECP 2023)
- Mountainview-Delrex Natural Areas Inventory (CVC 2016)

The results of the record searches were used to guide field investigations, and to identify potential SAR and species of conservation concern (SOCC) that have the potential to overlap with the Study Area. These resources generally do not note the exact locations of a species occurrence, with varying degrees of accuracy (e.g., 1 km² for NHIC and 10 km² for wildlife atlases). As such, they are used as an indicator of potential occurrence in the Study Area and not as confirmation of presence.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

3.4.1.1 Agency Consultation

A scoping meeting was held with Halton Region and CVC staff on March 4, 2020, to discuss the proposed natural environment field program to support the Natural Environment Report for the Project. A Terms of Reference for the Natural Environment Report was submitted to Halton Region and the CVC on April 28, 2020, based on discussions from the scoping meeting. A natural heritage information request was submitted to MNRF and MECP on March 19, 2020, for natural heritage information for the Study Area to supplement Stantec's preliminary background review. The following information was requested:

- Natural Heritage Features
- Natural Hazards Features
- Fish/Mussel data
- Benthic Sampling Records
- Terrestrial SAR data
- Aquatic SAR data
- CVC Owned Lands data
- Watercourse thermal regime and flow regime
- Special habitat features (e.g., groundwater upwelling, spawning areas)
- In-water construction timing window
- MNRF fisheries management objectives, if applicable

The MNRF provided a response email on March 26, 2020, referring to unevaluated wetlands in the Study Area that should be inventoried, surveyed, and considered for possible inclusion in adjacent Provincially Significant Wetlands. A follow-up email was submitted by the MNRF on to provide further information on the wetlands, including a map to show their locations and classifications. The MECP provided a generic response email on March 26, 2020, indicating that it remains the proponent's responsibility to complete a preliminary screening for each project prior to contacting the MECP or other agencies for more detailed technical information and advice. The MECP did not provide additional natural heritage information for the project.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

3 Existing Conditions

December 2025

Stantec submitted a subsequent request to the MECP on September 10, 2020, for specific advice on Redside Dace. Stantec received a response email from MECP on October 16, 2020, providing details relating to Redside Dace and Canada Warbler observations in the Study Area (MECP 2020).

A meeting was held on November 28, 2023, with Halton Region, CVC, and Stantec staff in attendance to discuss the finding of the report and discuss next steps.

3.4.1.2 Physical Environment

The Study Area is in Ecoregion 6E (Lake Simcoe-Rideau Ecoregion), and more specifically the Ecodistrict of 6E-7 (Oak Ridges). This Ecodistrict consists mostly of a gently rolling to hilly landscape dominated by deep morainal deposits. The Niagara Escarpment which is comprised of cliff, talus and crevice systems occurs in the west of the Ecodistrict, outside of the Study Area. Morainal material and drumlins occur in a relatively flat landscape to the south, and the eastern section of the Ecoregion is comprised of the Oak Ridges Moraine. Over half of the land use in this Ecodistrict is comprised of cropland and pasture (65%). Other land uses include business and industry, wind power generation and resource extraction. Thirty-one percent (31%) of the Ecodistrict remains as natural cover which is dominated by forest communities. Small wetlands are scattered across the landscape (Wester et. al. 2018).

3.4.1.3 Landscape Ecology

The Study Area is within the Niagara section of the Deciduous Forest Region (Rowe 1972). This section covers the Ontario peninsula which is enclosed by lakes Ontario, Erie, and Huron. Forest communities are dominated by broadleaved trees that are common to both the Great Lakes-St. Lawrence and Deciduous Forest Regions. They consist of beech and sugar maple, together with basswood, red maple, red oak, white oak, and bur oak.

3.4.1.4 Designated Natural Areas

Natural heritage mapping on the MNRF's Land Information Ontario Website (MNRF 2022a) identifies the Hungry Hollow PSW and Georgetown Credit Valley Life Science Area of Natural and Scientific Interest (ANSI) along the Silver Creek Corridor. The Churchville-Norval PSW Complex is identified along the Credit River north of Highway 7 and the Levi's Creek PSW Complex is identified along the tributary to Levi's Creek. Five unevaluated wetlands are identified on MNRF mapping in the large agricultural field north of 10 Side Road. Additional designated natural areas identified during the background review include:



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

3 Existing Conditions

December 2025

- CVC regulated features (Ontario Regulation 160/06), including floodplain associated with Silver Creek, the Credit River, and a tributary to Levi's Creek
- Key features within the Greenbelt and Regional Natural Heritage Systems identified on Map 1G of the Region of Halton Official Plan include: the Silver Creek Corridor, the Levi Creek Corridor, and the woodlands on the north and east sections of the Study Area. Buffers are also identified on Map 1G along the southern edge of the key features
- Key features on Map 1G of the Region of Halton Official Plan are generally consistent with the Greenlands identified on Map H2 of the Town of Halton Hills Official Plan
- The woodlands on the northern border of the Study Area and the Silver Creek Corridor are identified as part of the Greenbelt Area in the Growth Plan for the Greater Golden Horseshoe (Province of Ontario 2019) and Protected Countryside on Map 79 of the Greenbelt Plan
- Map A9 of the Credit River Watershed Natural Heritage System (CRWNHS) Final Technical Report (CVC 2015) identifies High Functioning Significant Valleylands along the Silver Creek Corridor and from the top of slope at the edge of the agricultural field to the north side of the Credit River. The woodlands in the Study Area are identified on Map A11 of the CRWNHS Final Technical Report as High Functioning and Supporting Woodlands.
- The Russell's Hill of Pines overlaps with the FOCM6-1 community. This feature was recommended for designation as a cultural heritage feature in the Town of Halton Hills in a report from Rukshan de Silva to the Community Affairs Committee of the Town of Halton Hills on April 27, 2017.

3.4.1.5 Assessment of Regional and/or Local Linkages

There were no linkages identified on Map 1G of the ROP; however, based on the linkage definition from the ROP and guidance from the NHRM, the Supporting Woodlands (FODM7-4, FOCM6 and WODM4-4a and WODM4-4b) identified in the CRWNHS Final Technical Report (CVC 2015) provide an important connection to the High Functioning and Supporting Woodlands in the Silver Creek Corridor (FOMM2, FOMM3-3 and SWDM4-1). This linkage (referred to as the Silver Creek Linkage) connects natural habitat from Adamson Street South in the east to Silver Creek in the west ranging from approximately 40m to 160m in width. The adjacent agricultural fields can also contribute to the connection, especially when crops are present. There is woodland habitat that is approximately 40m wide located east of Adamson Street South that connects to the Credit River Corridor; however, it is separated from the Silver Creek Linkage by the busy roadway.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

The NHRM suggests corridor widths of linkages from 50 m for generalist species, which may include deer and small ground dwelling wildlife. The Silver Creek Linkage provides a corridor for generalist species to travel between Silver Creek and the adjacent woodlands within the Regional Natural Heritage System. The Norval Bypass increases potential for road mortality impacts to ground-welling generalist species within the Silver Creek Linkage; however, wildlife crossing structures may be incorporated into the design to reduce the potential for road mortality.

3.4.1.6 Assessment of Wetland Significance

Natural heritage mapping on the MNRF's Land Information Ontario Website (MNRF 2022a) identifies the Hungry Hollow Provincially Significant Wetland (PSW) and the Georgetown Credit Valley Life Science Area of Natural and Scientific Interest (ANSI) along the Silver Creek Corridor. The Churchville-Norval PSW Complex is identified along the Credit River north of Highway 7 and the Levi's Creek PSW Complex is identified along the tributary to Levi's Creek.

Five unevaluated wetlands are identified on MNRF mapping in the large agricultural field north of 10 Side Road. Three of these unevaluated wetlands (MAMM1-2a, MAMM1-2b, and MAMM1-2c) were identified during field investigations (shown on Figure 4, Appendix A). These wetlands are regulated by CVC and have been evaluated for potential inclusion in the Hungry Hollow PSW Complex below. These wetlands do not meet the minimum size of a wetland type for OWES mapping purposes, which is typically 0.5 ha (MAMM1-2a = 0.284ha, MAMM1-2b = 0.034ha, MAMM1-2c = 0.094ha).

According to the OWES manual (MNRF 2022d), *"this minimum mapping size can be smaller when highlighting a specialized community. Some examples include: small kettle wetland with an open water central pond ringed by emergent marsh, a small floating fen at the edge of a swamp or marsh, and a tiny bog located within a fen or swamp."* Neither of the three wetlands would qualify as a specialized community based on the examples provided in the OWES manual.

The Aurora District MNRF prepared evaluation criteria (undated) for determining whether wetlands under 0.5 ha should be complexed. These criteria were used as a guideline to determine whether the three wetlands provide important ecological benefit to qualify the feature as part of the Hungry Hollow PSW. The Aurora District MNRF provides evaluation criteria to determine whether the wetlands qualify for inclusion as part of the PSW.

Based on the results of the evaluation, none of the MNRF criteria were fully met. The MAMM1-2a and MAMM1-2c wetlands were identified as being hydrologically connected to HDF-1; however, there was no visible feature connecting HDF-1 to Silver Creek and the associated Hungry Hollow PSW Complex. Wetland Criteria 6 was evaluated as having a negligible headwater source connection to Silver Creek and Criteria 6 was not



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

considered to be fully met. None of the other wetland criteria were met. One or more wetland criteria are required to be met to consider the wetlands for complexing, and because none of the criteria were fully met, the three wetlands are not considered as part of the Hungry Hollow PSW.

3.4.1.7 Assessment of Woodland Significance

The woodlands (FOMM2, FOMM3-3 and SWDM4-1) along the Silver Creek Corridor are identified on Map A11 of the CRWNHS Final Technical Report (CVC 2015) as High Functioning and Supporting Woodlands, and the woodlands in the north and east sections of the Study Area (FODM7-4, FOCM6 and WODM4-4a and WODM4-4b) are identified as Supporting Woodlands.

Map1G of the ROP identifies the woodlands associated with the Silver Creek Corridor (FOMM2, FOMM3 3, and SWDM4-1) as Key Features. The ROP also provides four criteria to assess woodlands. According to the criteria, to qualify as significant, a woodland must meet two or more of the four criteria. Based on the woodlands identified in the CRWNHS Final Technical Report and the ROP Significant Woodland Criteria, the woodland comprised of the FOMM2, FOMM3-3, and SWDM4-1 communities along the Silver Creek Corridor; and FODM7-4, FOCM6, WODM4-4a, and WODM4-4b communities in the north and east sections of the Study Area are considered Significant Woodland.

The Significant Woodland also overlaps with the Hungry Hollow PSW, the Georgetown Credit Valley Life Science ANSI, and the Russell's Hill of Pines woodlot (that is being considered for designation as a cultural heritage feature), which helps to support the case for designation as a Significant Woodland.

3.4.1.8 Terrestrial SAR and SOCC

Records of SAR and SOCC identified during the background review are presented in **Table 4**. Other species which may be present based on range overlap (MECP 2023) and general habitat availability include: Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-colored Bat.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

Table 4: Background Review of Terrestrial Species at Risk and Species of Conservation Concern

SAR

Common Name	Latin Name	Provincial S-rank	SARO Status	SARA Status	Source
Bank Swallow	<i>Riparia riparia</i>	S4B	THR	THR	OBBA, eBird
Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	NHIC, OBBA, eBird
Chimney Swift	<i>Chaetura pelagica</i>	S4B, S4N	THR	THR	OBBA, eBird
Eastern Meadowlark	<i>Sturnella magna</i>	S4B	THR	THR	NHIC, OBBA
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	S4B	THR	THR	OBBA
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	S4B	END	END	OBBA
Black Ash	<i>Fraxinus nigra</i>	S4	END	-	NHIC
Eastern Small-footed Myotis	<i>Myotis leibii</i>	S2S3	END	-	MECP 2022
Little Brown Myotis	<i>Myotis lucifungus</i>	S4	END	END	MECP 2022
Northern Myotis	<i>Myotis septentrionalis</i>	S3?	END	END	MECP 2022
Tri-colored Bat	<i>Perimyotis subflavus</i>	S3?	END	END	MECP 2022
Butternut	<i>Juglans cinerea</i>	S3?	END	END	NHIC, CVC



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

SOCC

Common Name	Latin Name	Provincial S-rank	SARO Status	SARA Status	Source
Bald Eagle	<i>Haliaeetus leucocephalus</i>	S4B, S2N	SC	NAR	iNaturalist, eBird
Canada Warbler	<i>Cardellina canadensis</i>	S4B	SC	THR	iNaturalist, eBird, MECP 2020
Caspian Tern	<i>Hydroprogne caspia</i>	S3B	-	-	iNaturalist, eBird
Common Nighthawk	<i>Chordeiles minor</i>	S4B	SC	THR	OBBA, eBird
Eastern Wood-Pewee	<i>Contopus virens</i>	S4B	SC	SC	NHIC, CVC, OBBA, eBird
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	S4B	SC	SC	OBBA
Great Egret	<i>Ardea alba</i>	S2B	-	-	eBird
Peregrine Falcon	<i>Falco peregrinus</i>	S3B	SC	SC	iNaturalist, eBird
Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	THR	NHIC, OBBA
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	S5	-	SC	NHIC, iNaturalist, ORAA
Snapping Turtle	<i>Chelydra serpentina</i>	S3	SC	SC	NHIC, iNaturalist, ORAA
Monarch	<i>Danaus plexippus</i>	S2N, S4B	SC	SC	CVC, OBA, iNaturalist
Large Toothwort	<i>Cardamine maxima</i>	S3	-	-	CVC



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

3.4.1.9 Fish and Fish Habitat

The Credit River West Branch (Silver Creek) within the Study Area is a permanent, coolwater, fish-bearing river (CVC 2016). According to the LIO database, Silver Creek has a coldwater thermal regime (MNRF 2022a). The Study Area also contains a permanent, warmwater Tributary to Levi's Creek and a Tributary to Silver Creek that has a permanent flow regime and a coldwater thermal regime (MNRF 2022a).

The CVC Natural Areas Inventory (NAI) identified 23 fish species in or connected to watercourses in the Study Area within the Mountainview-Delrex NAI Area (CVC 2016). A detailed species list is not included in the Mountainview-Delrex information summary. There are no historical fish sampling locations within the Study Area (MNRF 2022a). The following fish species were documented in Silver Creek in 2018 near the confluence with the unnamed tributary to Silver Creek: Blacknose Dace, Brown Trout, Longnose Dace, Mottled Sculpin, Rainbow Trout, and White Sucker (MNRF 2022a).

3.4.1.10 Aquatic SAR

A background review was completed to identify aquatic SAR or rare species in or within the vicinity of the Study Area. There are no records of aquatic SAR within the Study Area; however, there are records of Redside Dace (*Clinostomus elongatus*) in Silver Creek approximately 3 km upstream of the Study Area, and in Levi's Creek approximately 2.5 km downstream of the Study Area (DFO 2023). With respect to Redside Dace, MECP provided the following information (MECP 2020):

- the segment of Silver Creek within the Study Area, including its tributaries, are not regulated Redside Dace Habitat
- the tributary to Levi's Creek in the southwest corner of the Study Area is Contributing Habitat.

MECP also advised of an observation of American Eel (*Anguilla rostrata*) in Silver Creek immediately north of the Study Area in 2014 (MECP 2020).

Aquatic SAR occurrences identified near the Study Area are listed in **Table 5**.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

Table 5: Aquatic SAR Documented in or near the Study Area

Common Name	Latin Name	ESA SARO Status	SARA Schedule 1 Status	Source	Notes
American Eel	<i>Anguilla rostrata</i>	END	None	MECP 2020 MNRF 2022b	Observed in Silver Creek in 2014 (MECP 2020)
Redside Dace	<i>Clinostomus elongatus</i>	END	END	DFO 2023 MECP 2020	Tributary to Levi's Creek identified as Contributing Habitat by MECP (MECP 2020)

3.4.2 Terrestrial Field Investigations

Background information was supplemented with field investigations undertaken by Stantec ecologists in 2020 to document existing conditions within the Study Area and provide an assessment of significance (**Table 6**). Terrestrial field investigations included a three-season botanical inventory, vegetation community assessment, a butternut health assessment, a woodland plot assessment, a woodland delineation, a bat tree roost survey, a bat acoustic survey, amphibian surveys, breeding bird surveys and a wildlife habitat assessment.

Table 6: Summary of Field Investigations

Type of Field Work	Date of Field Work	Surveyors
Botanical Surveys including Ecological Land Classification	May 19, July 3, and September 3, 2020	J. Ball
Butternut Health Assessment	August 25, 2020	K. Ellis
Woodland Plot Assessment	September 3, 2020	J. Ball
Woodland Delineation	September 15, 2020	J. Ball R. Reinholt (Halton Region)
Bat Tree Roost Survey	April 24, 2020	J. Ball



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

Type of Field Work	Date of Field Work	Surveyors
Bat Acoustic Survey	June 17 – July 3, 2020	J. Ball M. Faiella
Amphibian Surveys	April 24, May 19, and June 6, 2020	J. Ball J. Brooks
Breeding Bird Surveys	June 8 and 24, 2020	J. Ball
Wildlife Habitat Assessment	Completed during all surveys	J. Ball
Incidental Wildlife Observations	Completed during all surveys	J. Ball

3.4.2.1 Vegetation Surveys

The Study Area was dominated by active agriculture lands. A relatively large area of forest and woodland communities occurred in the northern section of the Study Area along the Silver Creek Valley and on a valley slope located south of Highway 7. As outlined in **Section 4.1.3**, this wooded area is designated as part of the Regional Natural Heritage System, the Georgetown Credit Valley Life Science ANSI, the Greenlands System in the Town of Halton Hills OP, the Greenbelt Area in the Growth Plan for the Greater Golden Horseshoe, and Protected Countryside in the Greenbelt Plan.

There were three wetlands identified in the agricultural lands north of 10 Side Road, and a linear wetland (part of the Levi's Creek PSW Complex) was identified south of 10 Side Road along the tributary to Levi's Creek. There was a deciduous swamp identified along Silver Creek that is part of the Hungry Hollow PSW. A naturalized hedgerow lined the edge of the agricultural lands along Tenth Line north of 10 Side Road and disturbed fencerows with discarded organic material occurred throughout the agricultural field north of 10 Side Road.

3.4.2.2 Butternut Health Assessment

A Butternut Health Assessment was conducted on August 25, 2020. The assessment included recording information on the tree health, size, presence/absence of Butternut canker and canker characteristics. The assessment will be used to determine whether a tree is retainable, non-retainable or archival based on Categories 1 to 3 described below.

- Category 1: The tree is affected by Butternut Canker to such an advanced degree that retaining the tree would not support the protection or recovery of



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

Butternut in the area in which the tree is located; and is considered “non-retainable”.

- Category 2: The tree is not affected by Butternut Canker or is affected by Butternut Canker but the degree to which it is affected is not too advanced and retaining the tree could support the protection or recovery of Butternut in the area in which the tree is located and is considered “retainable”.
- Category 3: The tree may be useful in determining sources of resistance to Butternut Canker and is considered “archivable”.

The BHA classified the six butternuts observed in the Study Area as Category 1, non-retainable trees. The trees in the Study Area were affected by Butternut Canker to such an advanced degree that retaining the trees would not support the protection or recovery of butternut. The butternuts identified in the Study Area therefore do not pose a constraint to development.

3.4.2.3 Woodland Plot Assessment and Delineation

Woodlands (WODM4-4a and WODM4-4b communities) were assessed on September 3, 2020, using the definition in Section 295 of the ROP (Regional Municipality of Halton 2018):

Woodland means lands with at least:

- 1000 trees of any size per ha, or
- 750 trees over 5 cm in diameter per ha, or
- 500 trees over 12 cm in diameter per ha, or
- 250 trees over 20 cm in diameter per ha

For the purpose of this definition, all measurements of the trees are to be taken at 1.37m from the ground (diameter at breast height or DBH) and trees in regenerating fields must have achieved that height to be counted.

Ten plots were established in the WODM4-4a community, and four plots were established in the WODM4-4b community. Eight out of the 10 plots assessed in the WODM4-4a woodland met the minimum threshold to qualify as a woodland. Two out of the 4 woodland plots met the minimum threshold to qualify as a woodland.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

Based on the results of the woodland plot assessment, the delineation of the woodland boundary included the WODM4-4a and WODM4-4b communities. Woodland features were staked along the dripline in the field with Halton Region on September 15, 2020, and then recorded using the Collector for ArcGIS application running on iPhone, in conjunction with an external Trimble R1 GNSS connected via Blue-tooth to provide submeter positional accuracy.

The distance used for inventorying trees outside the construction envelope varied and ranged from 34m-64m within the wooded area, and 10m-15m adjacent to the road.

3.4.2.4 Breeding Bird Surveys

Two breeding bird surveys were conducted in the Study Area on June 8 and 24, 2020, in accordance with the methods described in the Environment and Climate Change Canada's (ECCC) Breeding Bird Survey (ECCC 2018). Surveys consisted of 10-minute stationary point counts that targeted natural vegetation features, hay fields and pastures. Nine count stations were established in the Study Area. A conservative approach to determining breeding status was taken; all birds seen or heard in appropriate habitat during the breeding season were assumed to be breeding except in the case where habitat was confirmed to be absent. A summary of survey dates, times and weather is summarized in **Table 7**.

Table 7: Breeding Bird Survey Dates, Times, and Weather Conditions

Date	Time	Temp. (°C)	Wind (Beaufort)	Cloud (%)	Precipitation / Precipitation in Past 24hrs
June 8, 2020	06:44- 09:55	14	1	0	None/None
June 24, 2020	06:40- 09:30	15-17	2-3	100	None/Rain



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

Thirty-one bird species were recorded during the breeding bird surveys, all of which were presumed to be breeding, with exception of Great Blue Heron and Turkey Vulture due to the absence of specialized breeding habitat features. One SOCC (Eastern Wood-Pewee) was observed during the breeding bird surveys. SAR and SOCC observations are detailed below:

- Eastern Wood-Pewee was observed singing in the FODM5 and FODM7-4 woodlands during the first breeding bird survey, and two Eastern Wood-Pewees were observed singing in the FODM7-4 woodland during the second breeding bird survey.

An additional three bird species were recorded outside of the breeding bird survey as incidental observations (Canada Goose, Swainson's Thrush, and Belted Kingfisher). Canada Goose and Belted Kingfisher are presumed to be breeding in the Study Area. Swainson's Thrush is only present in southern Ontario during migration and is not considered to be breeding in the Study Area.

3.4.2.5 Amphibian Surveys

The Study Area was assessed to determine potential suitable habitat for breeding amphibians prior to establishing amphibian call monitoring stations and conducting the amphibian surveys. Two stations were surveyed in April, May, and June as per the Marsh Monitoring Program (Bird Studies Canada 2009). At each station, the observer recorded all calling toads and frogs over a three-minute period. Call levels were described using values of 1, 2, or 3. Level 1 indicated that individuals could be counted, and calls were not simultaneous. Level 2 indicated that calls were distinguishable with some simultaneous calling. Level 3 indicated a full chorus where calls were continuous and overlapping. The distance and direction for each individual or chorus detected was estimated and recorded. A summary of survey dates, times and weather is provided in **Table 8**.

Table 8: Amphibian Call Count Survey Dates, Times, and Weather Conditions

Date	Time	Temp. (°C)	Wind (Beaufort)	Cloud (%)	Precipitation/ Precipitation in Past 24hrs
April 24, 2020	20:45- 21:10	10	1-2	100	None/None
May 19, 2020	21:13- 21:38	15	1	40	None/Rain
June 22, 2020	21:34 - 22:00	23	1	100	Light Rain/ Unknown



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

There was very limited standing water in the wetland pockets located in the agricultural field north of 10 Side Road. Suitable habitat was limited to a vernal pool at the bottom of the slope in the Silver Creek Valley and ponding areas where the tributary to Levi's Creek intersects with Tenth Line.

No amphibians were recorded during any of the surveys that targeted the vernal pool (Station AMP01). Four species of amphibians were recorded in low abundance during surveys that targeted the tributary to Levi's Creek (AMP02). American Toad (AMTO) and Green Frog (GRFR) were recorded in the tributary to Levi's Creek and Gray Treefrog (GRTR) and Spring Peeper (SPPE) were recorded > 100 m from AMP02 in the adjacent stormwater management pond and a pond to the south of AMP02.

3.4.2.6 Bat and Bat Habitat Surveys

Bat Maternity Tree Roost Surveys

Treed communities within the Study Area were assessed on April 24, 2020, during leaf-off season, to determine their suitability to support bat maternity roost habitat. The survey protocol followed the recommended methods in the MNRF Guelph District *Bat and Bat Habitat Surveys of Treed Habitats* (MNRF 2017) which was based in part on the *Bat and Bat Habitat Guidelines* (MNRF 2011). Although the protocol was developed for treed communities, Stantec took a conservative approach and also applied the protocol to isolated trees and hedgerows in the Study Area that are proposed for removal.

According to the MNRF Guelph District protocol, the best candidate trees for maternity colonies are likely to contain several characteristics (to be considered a potential treed roost habitat, not all habitat characteristics listed below needed to be present), which include:

- Height – where trees are tallest in the stand
- Diameter – where trees have a large DBH
- Loose/peeling bark – where trees have a large amount of peeling/loose bark
- Cavity height – where cavity height is high on the tree (>10 m high)
- Open canopy – located in an area of open canopy for accessibility in and out of tree
- Decay – where the tree exhibits early stages of decay

Surveys focused on all trees that were > 10 cm in DBH in the Study Area.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

The following data were also recorded for any trees over 10 cm DBH that had cavities or a large amount of peeling bark:

- GPS location
- tree species
- DBH
- tree height
- cavity height

Twenty-three (23) potential bat maternity roost trees were observed in the Study Area during the bat maternity roost survey. Six (6) trees represented good examples of preferred habitat for bat maternity colonies in the Study Area. In addition to exhibiting cavities and/or a large amount of peeling bark, these trees displayed one or more of the following characteristics that are preferred by bats: high cavities, large diameters, tall trees, early stages of decay and open canopies.

The other 16 trees were considered to be lower quality examples of potential bat maternity colony trees. Although these trees exhibited cavities and/or a large amount of peeling bark, these trees displayed one or more of the following characteristics that are not preferred by bats: low cavities, smaller diameters, short trees, advanced stages of decay and closed canopies.

Details of the Bat Maternity Tree Roost Surveys are provided in **Appendix B**.

Bat Acoustic Monitoring Surveys

Seven bat species were recorded during the 2021 acoustic monitoring surveys, including three provincially endangered species:

- Little Brown Myotis (*Myotis lucifugus*) – 2,305 recordings
- Tri-colored Bat (*Perimyotis subflavus*) – 67 recordings
- Eastern Small-footed Myotis (*Myotis leibii*) – 24 recordings.

The remaining four species recorded were:

- Big Brown Bat (*Eptesicus fuscus*) – 1,511 recordings
- Hoary Bat (*Lasiurus cinereus*) – 1,488 recordings
- Silver-haired Bat (*Lasionycteris noctivagans*) – 825 recordings
- Eastern Red Bat (*Lasiurus borealis*) – 106 recordings



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

In some cases, *Myotis* species can be difficult to distinguish. When it was not possible to identify *Myotis* calls to a specific species, they were put in the category “*Myotis* species”. Small-footed *Myotis* is particularly difficult to distinguish from other *Myotis* species from acoustic data; however, 24 calls most closely resembled this species and were assigned to Small-footed *Myotis*.

The total number of calls from the Bat Monitoring Stations ranged from 538 to 2,445. Five of the seven bat species, (excluding Tri-colored Bat and Eastern Small-footed Bat), were observed at every Bat Monitoring Station. Tri-colored Bat was observed at all stations except SM4-C and SM4-G, and Eastern Small-footed Bat was only recorded at stations SM4-C and SM4-H.

Little Brown *Myotis* was the most abundant bat SAR recorded in the Study Area, with 1638 calls recorded at SM4-J. This station was located in the FODM7-4 forest near the top of slope of the Silver Creek Valley. Stations SM4-C, SM4-H and SM4-F also recorded relatively high numbers of Little Brown *Myotis* calls (297, 185 and 109, respectively). SM4-C was located beside the barn, SM4-H was located in the FOCM6 community in relatively close proximity to the farmhouse, and SM4-F was located in the FODM7-4 forest relatively close to the Silver Creek Valley.

Detailed results of the bat acoustic surveys are provided in **Appendix B**.

3.4.2.7 Incidental Wildlife Observations

Species recorded as incidental observations included Cabbage White, Green Frog, Northern Leopard Frog, Canada Goose, Swainson’s Thrush, Belted Kingfisher, Coyote, Eastern Cottontail, Eastern Chipmunk, Grey Squirrel, Red Squirrel, and White-tailed Deer. All incidental species observed are common and secure in Ontario and are not SAR or SOCC.

3.4.3 Aquatic Field Investigations

3.4.3.1 Headwater Drainage Features

Field investigations were completed to assess the condition of HDF features that were identified through the desktop study. The presence of two HDFs identified through desktop study were confirmed during field investigations and are referred to as HDF-1 and HDF-2, as shown on **Figure 17**.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
3 Existing Conditions
December 2025**

HDF-1 is associated with the Tributary to Silver Creek and originates in the northern half of the Study Area in a small graminoid mineral marsh within the agricultural field (HDF-1, Segment 1). Water in HDF-1 flows northeast through the agricultural field via a man-made swale drainage (HDF-1, Segment 2). The area surrounding Segment 2 is cropped. East of the agricultural fields, HDF-1 enters a forested area (HDF-1, Segment 3). Segment 3 exhibited a high level of scouring and entrenchment, an indicator of high flow events. As Segment 3 continued north and approached Silver Creek, it became discontinuous, with no apparent surface connection to Silver Creek.

Interstitial flows were observed in all segments of HDF-1 during the first visit (April 24, 2020). During the second visit (May 25, 2020) interstitial flow was observed at Segment 3 only. All segments of HDF-1 were dry during the third visit (July 3, 2020).

HDF-2 is located in the south end of the Study Area. Within the Site this feature is cropped throughout and potentially tile drained, however it is not identified as a tile drain (MNRF 2022a). Limited flow was observed during the first HDF field visit and it was dry during the second and third visits.

Classification

Using the results of the field investigations and the methods outlined in the HDF Guidelines (CVC/TRCA 2014) classifications were assigned to each category. The results of the classification are summarized in **Table 9**.

Table 9: Summary of Functional Classifications as per the HDF Guidelines

Drainage Feature	Step 1		Step 2	Step 3	Step 4
	Hydrology	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat
HDF-1 Segment 1	Valued	Potentially tile-drained field	Important	Contributing	Limited
HDF-1 Segment 2	Valued	Potentially tile-drained field	Limited	Contributing	Limited
HDF-1 Segment 3	Valued	None	Important	Contributing	Limited
HDF-2	Limited	Potentially tile-drained field	Limited	Contributing	Limited



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

3 Existing Conditions

December 2025

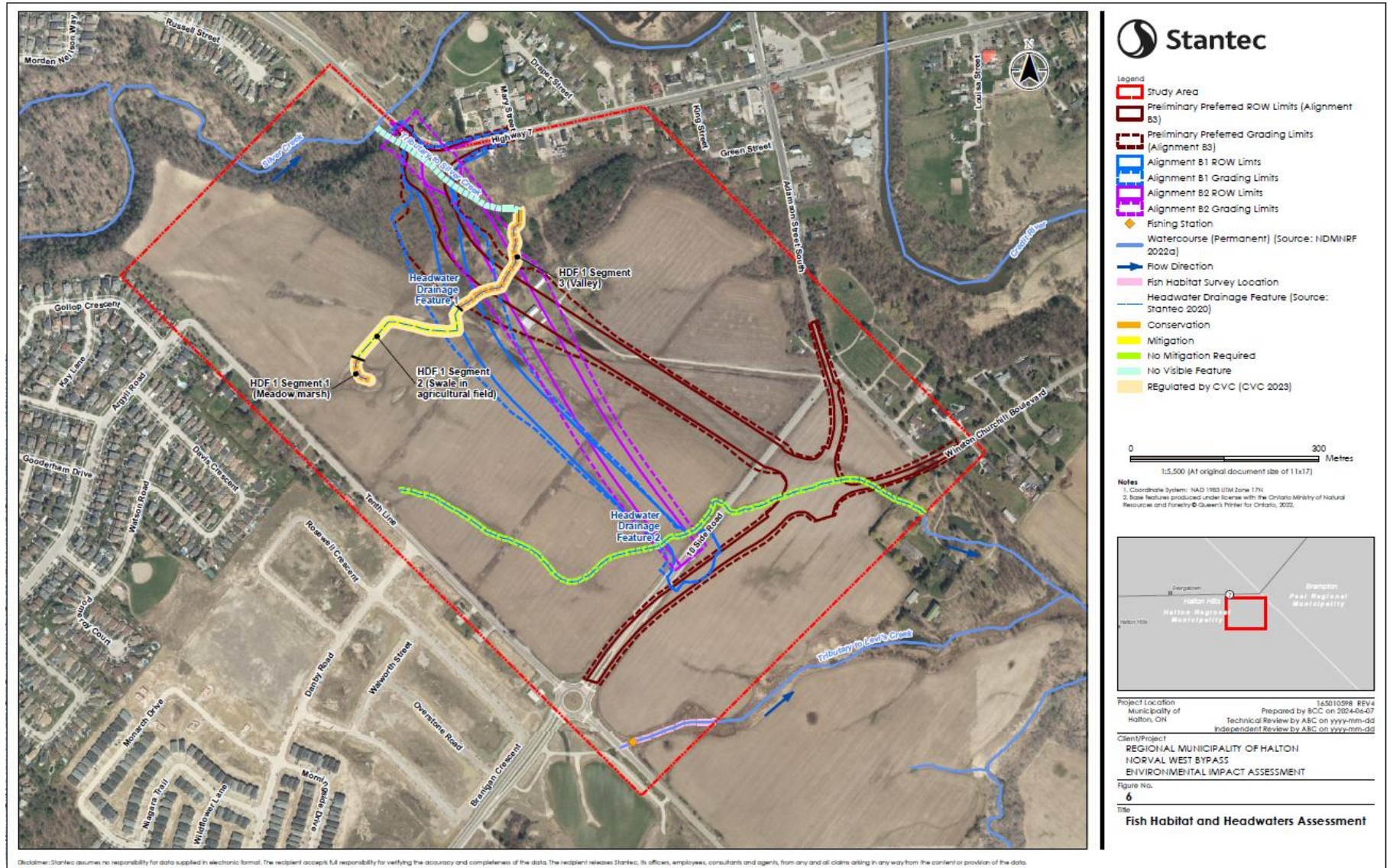


Figure 17: Fish Habitat and Headwater Assessment



3.4.3.2 Fish Habitat Assessment and Fish Community Survey

The Tributary to Levi's Creek originates west of the Study Area in a quarry pond located west of Tenth Line. Pools with a maximum depth of 0.5 m are located on both sides of the box culvert under Tenth Line. From the culvert the tributary flows east for approximately 120 m to the southeastern limit of the Study Area with limited meandering. Banks were vulnerable to erosion, with some areas protected by vegetation and a small area of active erosion near Tenth Line. East of Tenth Line, the Tributary to Levi's Creek had flat morphology within the Study Area. Substrates consisted of clay, silt and muck. Abundant emergent vegetation (cattails [*Typha* spp.]) was present in this reach and the tributary is located within an area classified by Stantec as a cattail marsh. Due to the flat topography and marsh habitat, the bankfull width could not be determined; however, the marsh habitat was approximately 20 m wide. Plentiful in-stream cover was provided by submergent vegetation (*Potamogeton* spp.) and algae. Riparian vegetation consisted of cattails, shrub willows and grasses. In-situ water quality data are available in **Table 10**.

In the tributary to Levi's Creek, Northern Redbelly Dace (*Chrosomus eos*) and young-of-year cyprinids were captured, enumerated, and released back into the watercourse. Northern Redbelly are assigned a S5 provincial rank which indicates that they are secure, common, and widespread in Ontario.

The Tributary to Silver Creek associated with HDF-1 (MNRF 2022a) could not be located downstream of Segment 3 of HDF-1, as there was no visible flow path and no connection to Silver Creek. For this reason, there is no fish habitat information for the Tributary to Silver Creek that is mapped downgradient of HDF-1.

Table 10: In-situ Water Quality Data for the Tributary to Levi's Creek

Date / Time	Air Temperature (°C)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	pH
May 25, 2020 10:05	25	18.6	8.8	1217	7.7

3.4.4 Natural Heritage Summary

Table 11 provides a summary of the significant natural heritage features identified in the Study Area during the background review and/or field investigations.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
3 Existing Conditions
December 2025

Table 11: Summary of Significant Natural Heritage Features in the Study Area

Natural Heritage Features	Present within the Study Area
Significant Wetlands	
• Provincially Significant Wetlands	Y
• Unevaluated wetlands	Y
Significant Woodlands	Y
Significant Valleys	Y
Significant Wildlife Habitat	
• Seasonal concentration areas	Y
• Rare vegetation communities or specialized habitats	Y
• Habitats of species of conservation concern	Y
• Animal movement corridors	N
Areas of Natural & Scientific Interest	Y
Habitat of Endangered and Threatened Species • SAR Bats – confirmed present at all Bat Monitoring Stations • Butternut – all six butternuts assessed as non-retainable • American Eel – previously recorded north of the Study Area in Silver Creek; however, no impacts anticipated • Redside Dace – contributing habitat to Redside Dace in the Tributary to Levi's Creek	Y
Aquatic Features	
• Headwater Drainage Feature (HDF-1)	Y
• Fish habitat in Silver Creek and the tributary to Levi's Creek	Y
Municipal and Provincial Plans	
<i>Halton Region Official Plan</i>	
• Greenbelt and Regional Natural Heritage Systems	Y
• Enhancement Areas, Linkages and Buffers	Y
<i>Town of Halton Hills Official Plan</i>	
• Greenlands	Y



Natural Heritage Features	Present within the Study Area
<i>Growth Plan for the Greater Golden Horseshoe</i>	
• Greenbelt Area	Y
<i>Greenbelt Plan</i>	
• Protected Countryside	Y

3.5 Surface Drainage and Watershed Characteristics

A Drainage and Stormwater Management (SWM) Report was completed to document the drainage and SWM design strategy for the study. The study area is bounded by the Silver Creek valley to the north, adjacent to Levi Creek to the south, and the Credit River valley slope along Highway 7 to the northeast. The majority of the study area is cultivated lands with developed areas around the perimeter and a steep valley slope to the northeast. The site generally designs from west to east and is comprised of flat plateau table land and the Credit River and Silver Creek valley slope. Elevations in the south portion of the site vary from approximately 230 metres above sea level (masl) to 224 masl. Elevations from the top to the bottom of the valley slope vary from approximately 225 masl to 205 masl.

A hydrologic analysis was completed to determine the surface drainage characteristics of the study area, and provide recommendations based on the proposed Norval West Bypass and contributing drainage features. Hydrologic analysis determined existing flows to each outlet in the study limits, the major outlets are listed below:

- Silver Creek – the northwestern portion of the study area drains north down the valley slope to Silver Creek. This area does not cross any municipal infrastructure before reaching the creek.
- Norval and Credit River – the north and east portions of the study area drain to the Credit River. This area drains through Norval and will use minor and major drainage systems to pass through the community.
- Levi's Creek – the south portions of the study area drain across 10 Side Road to the south and subsequently drains to Levi's Creek through a residential property southeast of the site.



3.6 Hydrogeology

A combined Geotechnical and Hydrogeological Desktop Review was completed in support of the MCEA Study, which includes comments and observations made from a site walk-by on May 20, 2020.

A search of the Ministry of the Environment, Conservation and Parks Water Well Records (“MECP WWR”) database was conducted focusing on the area within a 500 m radius of the Site. A total of eighty-three (83) water well records were found and fifty-three (53) of them were recorded for domestic use, five (5) of them were recorded for livestock use, three (3) of them were recorded for commercial use, one (1) of them was recorded for irrigation use, and one (1) of them was recorded for cooling and A/C use. Based on the water well records, water was found at the depths ranging from about 1.5 m below ground surface (“mBGS”) to 36.9 mBGS in overburden deposits and bedrock.

The locations of the MECP water wells are shown on Drawing No. 6 in the report provided in **Appendix G** to this ESR. A copy of the Geotechnical and Hydrogeology report is included in **Appendix G**.

3.7 Source Water Protection

The study area is located within the Credit Valley, Toronto and Region, and Central Lake Ontario (CTC) Source Protection Area, which contains policies to protect existing and future municipal drinking water sources, in accordance with the *Clean Water Act*. The CTC Source Protection Plan (SPP) ensures that should an activity take place near a significant drinking water, that the activity does not pose a threat to the source.

Information provided by interactive mapping through the MECP Source Protection Information Atlas identified a Highly Vulnerable Aquifer (HVA), and Significant Groundwater Recharge Area (SGRA) present within the study area, as displayed in **Figure 18**. The CTC SPP identifies a HVA as an aquifer that is susceptible to contamination because of it is located near the ground’s surface, and/or the types of materials in the ground around it are highly permeable. SGRA’s are areas where the landscape is made up of porous soils, such as sand or gravel, which allows water to seep easily into the ground and flow into an aquifer. A recharge area is considered significant when it helps maintain the water level in an aquifer that supplies drinking water.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

3 Existing Conditions

December 2025

Threats to drinking water are identified in the SPP. Potential threats relevant to the Norval West Bypass Transportation Corridor Improvements study will be identified during detail design. Should threats associated with the improvements impact the HVA or SGRA, mitigation identified through the SPP will be determined and implemented.

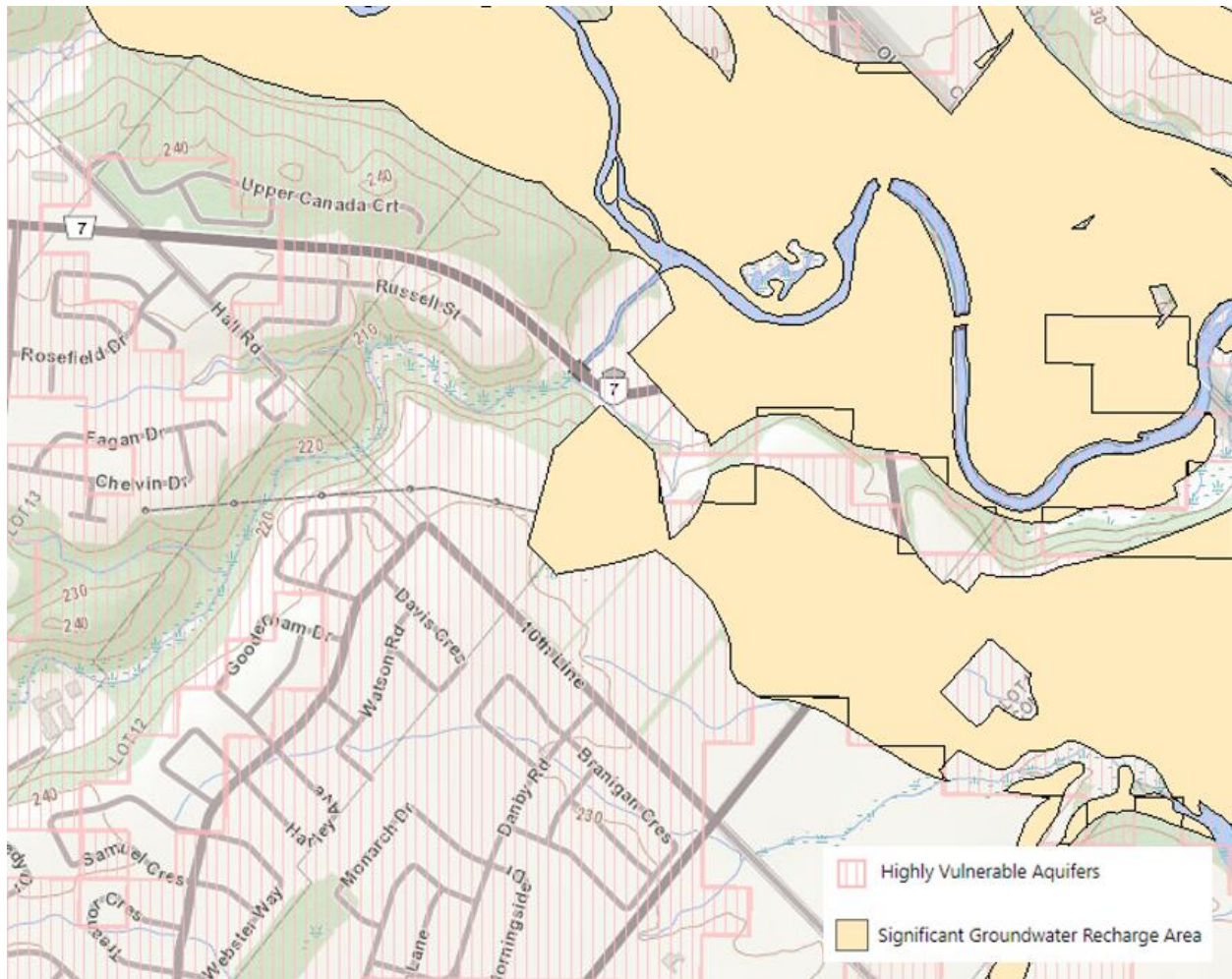


Figure 18: Source Protection Within the Study Area

Based on the Ontario Source Protection Information Atlas, the Site and its neighbouring properties are not located within a municipal Wellhead Protection Area (“WHPA”) or within a water intake protection zone (“IPZ”).

3.8 Utilities

There are existing overhead and underground utilities present along Highway 7, along Adamson Street / Winston Churchill Boulevard, and along 10 Side Road.

Highway 7 – Overhead hydro lines, along with communication cables, run along the north boulevard, and a 420 kPa gas line owned by Enbridge runs along the south boulevard. Watermain is located along the north edge of the westbound travelled lane, and storm sewers are located along the north edge of the westbound travelled lane from between Municipal Number 475 and Municipal Number 479 easterly.

Adamson Street / Winston Churchill Boulevard – Overhead hydro lines are present at this intersection, with poles located in the south boulevard west of the intersection and transitioning to the north boulevard east of the intersection. This line is connected to the hydro line that runs southerly along 10 Side Road and connects to the service to the Russell Farm. Enbridge owns gas lines in the intersection, including a 420 kPa line to the west that connects to the 1900 kPa line to the east and south through a station located in the southeast quadrant of the intersection. Storm sewers run through this intersection to the north and east.

10 Side Road – Overhead hydro lines owned by Halton Hills Hydro run along the west boulevard, and a 1900 kPa gas line owned by Enbridge runs along the east boulevard. Sanitary sewer, localized storm sewer, and Bell are also present in the south portion of the 10 Side Road and Tenth Line intersection.



4 Alternative Planning Solutions

Phase 2 of the MCEA process involves the identification and evaluation of a range of possible alternative solutions. These alternatives are identified and evaluated based on their ability to resolve the issues, and their impacts to the existing and future socio-economic, natural, cultural and technical environments. As part of Phase 2 of the Municipal Class EA process, reasonable and feasible solutions to the problems and opportunities are identified and evaluated based on their ability to resolve the issues, and their impacts to the socio-economic, natural, cultural, and technical environments.

Alternative Solutions were developed and assessed for both the Norval West Bypass and 10 Side Road.

4.1 Development of Alternative Solutions

The following alternative solutions were identified at the planning level to address the problems and opportunities identified for both the proposed Norval West Bypass and 10 Side Road (Regional Road 10) corridors:

Do Nothing - With the *Do Nothing* alternative, the existing road network would be maintained as status quo. Only planned infrastructure improvements would be in place as recommended in the Halton Region Roads Capital Projects (to 2031).

Limit Development - Under this scenario, there would be more limits placed on land use development. Projections of future travel demands are based on the approved future urban area (Halton Region Official Plan, in accordance with the *Places to Grow*). Limiting development would reduce future travel demands and require fewer infrastructure improvements to be completed.

Travel Demand Management (TDM) Measures - Travel Demand Management measures include measures to reduce the number of vehicles during the peak hours, e.g. carpooling, staggered work hours, etc. These are currently part of Halton Region's overall transportation strategy and can help manage the rate of growth in travel demand when considered in tandem with other alternatives.

Improved Transit Infrastructure / Other Modes of Transportation - This alternative would involve upgrades to transit services and encourage active transportation through the provision of dedicated cycling and pedestrian facilities throughout the study area and existing transportation network.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
4 Alternative Planning Solutions
December 2025**

Intersection and / or Operational Improvements - This alternative would involve the addition of traffic signals, auxiliary lanes (e.g. right turn and left turn), additional lanes through the intersections, and consideration of roundabouts. Operational improvements include modifications to signal timing plans, traffic signal interconnect systems, and road user information systems.

Improvements to Other Roadways Beyond Planned Program - Improvements are currently planned for a number of roadways in the vicinity of the Norval West Bypass study area, including 10 Side Road (Regional Road 10). Under this scenario, capacity improvements would take place on neighbouring roadways.

Construct New Norval West Bypass - Construct new Norval West Bypass between Guelph Street (Highway 7) and 10 Side Road to address future travel demands. This alternative would provide a new 4-lane roadway, with provisions for active transportation facilities, boulevards, landscaping, and other design elements.

Improvements to 10 Side Road (Regional Road 10) - Improve 10 Side Road by widening to 4 lanes, providing active transportation facilities, boulevards, landscaping and other design elements.

4.2 Assessment and Evaluation of Alternative Planning Solutions

The alternative solutions were assessed in terms of how well they would address the problems and opportunities. The assessments were completed using factor groups such as socio-economic, cultural, and natural environments, as well as transportation and costs, outlined in **Table 12**.

Table 12: Alternative Solutions Factors and Criteria

Factors	Criteria	Description
Socio-Economic Environment	Property Effects, Existing Land Use, Community Effects	• Supports existing land use functions • Potential impacts to adjacent property
	Consistency with Planning Policies (Official Plan, Transportation Master Plan, Active Transportation Plan)	• Consistency with local and regional planning
	Impacts to Future Development	• Potential to support development of lands within proposed corridor



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
4 Alternative Planning Solutions
December 2025**

Factors	Criteria	Description
	Noise	• Potential to impact noise sensitive areas (NSA) (i.e., residential dwellings, daycares, etc.)
Cultural Environment	Archaeological Resources	• Potential to impact undisturbed lands
	Built Heritage Resources and Cultural Heritage Landscapes	• Potential to impact known built heritage resources or cultural landscapes/attributes
Natural Environment	Fisheries and Aquatic Habitat	• Potential to impact Silver Creek aquatic habitat and wildlife • Potential to enhance natural settings and/or leave space for wildlife
	Surface Water Quality and Quantity	• Potential impact surface water quality and quantity
	Vegetation (Wetland and Upland)	• Potential to impact significant natural heritage features and/or functions within designated Natural Heritage System (NHS): woodlands, wetlands, valleylands, ANSI, rare plant species or species at risk • Potential to enhance components of the regional Natural Heritage System through identification of enhancement areas, linkages and buffers
	Wildlife	• Potential to impact significant wildlife habitat, including habitat for rare species • Potential to impact habitat of species at risk • Potential to impact or enhance corridors for wildlife movement • Potential to reduce road mortality through corridor improvements and wildlife passages



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
4 Alternative Planning Solutions
December 2025**

Factors	Criteria	Description
Transportation	Ability to Accommodate Traffic Demand	• Potential to maintain or improve existing travel times • Potential to reduce congestion and potential for collisions
	Road Network Compatibility / Connectivity	• Potential to be consistent with planned transportation networks (i.e., Region of Halton's Transportation Master Plan, GTA West Preferred Route)
Costs	Order of Magnitude Cost (Construction Costs)	• Potential capital costs

The Assessment of Alternative Solutions for Norval West Bypass is summarized in **Table 13** and the Assessment of Alternative Solutions for 10 Side Road is summarized in **Table 14**.



Table 13: Assessment of Alternative Solutions for Norval West Bypass

Socio-Economic Environment

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
Property Effects, Existing Land Use, Community Effects • Supports existing land use functions • Potential impacts to adjacent property	No impact to adjacent properties and existing land use.	No impact to adjacent properties and existing land use.	No impact to adjacent properties and existing land use.	Potential impact due to the implementation of active transportation and transit related improvements (e.g., bus bays, transit stops, intersection reconstruction, cyclist and pedestrian facilities).	Potential for some property impact particularly for properties in close proximity to the intersections. Minimal impact to overall existing land use.	Improvements to other roadways have already been identified as part of the Region and local Transportation Master Plans. Impacts to existing properties and access would be determined based on respective MCEA Studies.	New corridor would result in property impacts within and adjacent to study area. Potential for impact to existing accesses.
Consistency with Planning Policies (Official Plan, Transportation Master Plan, Active Transportation Plan) • Consistency with local and regional planning	Not consistent with the Halton Region Transportation Master Plan. Not consistent with Region and Town's objective to promote Active Transportation.	Not consistent with the planned population and employment growth identified by Halton Region, and the Town of Halton Hills in conformance with the Provincial Growth Plan.	Consistent with Region's and Town's objectives to manage travel demand. However, on its own, this would not address the need to provide additional capacity through implementing the Norval West Bypass.	Consistent with the Region and Town's vision to increase modal share of transit and other transportation methods such as walking and cycling but would not address the required demand.	Would not fully address future transportation needs.	Improvements on other roadways have already been identified as part of the Region and Town Transportation Master Plans; widening beyond planned program would be inconsistent with existing Regional planning.	Consistent with transportation plans (the Region's 2011TMP, 2019 HPBATS) to provide additional capacity within the Norval West Bypass.
Impacts to Future Development • Potential to support development of lands within proposed corridor	No direct physical impacts but does not provide the improvements required to support future development.	Not consistent with planned population and employment growth rates identified by the Region, and Town of Halton Hills.	No direct physical impacts but does not provide the improvements required to support future development.	No direct physical impacts but does not provide the improvements required to support future development.	No direct physical impacts but does not provide the improvements required to support future development.	On its own may not provide the transportation network improvements required to support future travel demand.	Implementing the Norval West Bypass will support future travel demand.
Noise • Potential to impact noise sensitive areas (NSA) (i.e. residential	Low potential for impact to existing Noise Sensitive Areas (NSA's) adjacent to	Low potential for impact to existing Noise Sensitive Areas (NSA's) adjacent to	Low potential for impact to existing Noise Sensitive Areas (NSA's) adjacent to	Minimal change in noise level from improved modes of transportation or	Minimal change in noise level.	Potential increase in noise level to Noise Sensitive Areas (NSA's) adjacent to the roadways.	Potential increase in noise level to Noise Sensitive Areas (NSA's) adjacent to Norval West Bypass study area



Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
dwelling, daycares, etc.)	Norval West Bypass study area.	Norval West Bypass study area.	Norval West Bypass study area.	increased transit infrastructure.			(depending on location of corridor). Diversion of traffic out of Norval provides potential for reduction of noise levels in hamlet. Potential to increase noise levels in the residential neighbourhood in vicinity of Tenth Line.

Cultural Environment

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
Archaeological Resources • Potential to impact undisturbed lands	No impact.	No impact.	No impact.	A Stage 1 Archaeological Assessment was completed. Areas that have not been previously disturbed within the study area exhibit moderate to high potential for the identification and recovery of archaeological resources and require a Stage 2 Archaeological Assessment if the land is to be impacted. Details can be found in the Stage 1 Archaeological Assessment in Appendix F.	A Stage 1 Archaeological Assessment was completed. Areas that have not been previously disturbed within the study area exhibit moderate to high potential for the identification and recovery of archaeological resources and require a Stage 2 Archaeological Assessment if the land is to be impacted. Details can be found in the Stage 1 Archaeological Assessment in Appendix F.	A Stage 1 Archaeological Assessment was completed. Areas that have not been previously disturbed within the study area exhibit moderate to high potential for the identification and recovery of archaeological resources and require a Stage 2 Archaeological Assessment if the land is to be impacted. Details can be found in the Stage 1 Archaeological Assessment in Appendix F.	A Stage 1 Archaeological Assessment was completed. Areas that have not been previously disturbed within the study area exhibit moderate to high potential for the identification and recovery of archaeological resources and require a Stage 2 Archaeological Assessment if the land is to be impacted. Details can be found in the Stage 1 Archaeological Assessment in Appendix F.



Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
Built Heritage Resources and Cultural Heritage Landscape • Potential to impact known built heritage resources and cultural heritage landscapes/attributes	No impact.	No impact.	No impact.	A Cultural Heritage Report was prepared. Fourteen cultural heritage resources were identified within the study area, and ten cultural heritage resources were identified adjacent to the study area. A Heritage Impact Assessment may be required if heritage resources are in proximity to preferred design (e.g., Hillcrest Cemetery). Details can be found in the Cultural Heritage Report in Appendix E.	A Cultural Heritage Report was prepared. Fourteen cultural heritage resources were identified within the study area, and ten cultural heritage resources were identified adjacent to the study area. A Heritage Impact Assessment may be required if heritage resources are in proximity to preferred design (e.g., Hillcrest Cemetery). Details can be found in the Cultural Heritage Report in Appendix E.	A Cultural Heritage Report was prepared. Fourteen cultural heritage resources were identified within the study area, and ten cultural heritage resources were identified adjacent to the study area. A Heritage Impact Assessment may be required if heritage resources are in proximity to preferred design (e.g., Hillcrest Cemetery). Details can be found in the Cultural Heritage Report in Appendix E.	A Cultural Heritage Report was prepared. Fourteen cultural heritage resources were identified within the study area, and ten cultural heritage resources were identified adjacent to the study area. A Heritage Impact Assessment may be required if heritage resources are in proximity to preferred design (e.g., Hillcrest Cemetery). Details can be found in the Cultural Heritage Report in Appendix E.



Natural Environment

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
Fisheries and Aquatic Habitat • Potential to impact Silver Creek aquatic habitat and wildlife • Potential to enhance natural settings and/or leave space for wildlife	No net loss of fish habitat.	No net loss of fish habitat.	No net loss of fish habitat.	Potential impacts to fish habitat to accommodate active transportation and transit infrastructure. Impacts will depend on the nature of improvements relative to watercourse features. Alteration of fish habitat would be offset by mitigation measures and potential for enhancements. No net loss of fish habitat anticipated.	Potential impacts to fish habitat to accommodate intersection and/or operational improvements. These impacts will depend on the nature of improvements relative to watercourse features. Alteration of fish habitat would be offset by mitigation measures and potential for enhancements. No net loss of fish habitat anticipated.	No net loss of fish habitat in study area. Potential impacts to fish habitat to accommodate improvements to other roadways are assessed independent of this MCEA Study.	Potential impacts to fish habitat within Silver Creek related to potential structure widening and new road drainage associated with bypass corridor. Increased flow rates and contaminant levels may be generated with additional pavement surface. There will be opportunities to reduce impacts by applying environmental protection measures.
Surface Water Quality and Quantity	Potential minor impact on surface water quality through increased traffic demand and resulting incremental contaminant runoff from existing roads.	Potential minor impact on surface water quality through increased traffic demand and resulting incremental contaminant runoff from existing roads.	Potential minor impact on surface water quality through increased traffic demand and resulting incremental contaminant runoff from existing roads.	Effects on surface water resources may be experienced to accommodate transit initiatives and active transportation. These effects will depend on nature of improvements relative to watercourse features.	Potential impact on surface water as a result of increased traffic demand and resulting incremental increase in contaminant runoff from existing roads. There are no existing Source Water Protection areas within the study area.	No impacts to water quantity and quality effects in study area. Potential impacts resulting from improvements to other roadways will be assess independent of this MCEA Study.	Potential water quantity and quality impacts through new bypass at existing water courses both due to construction and increased runoff. Stormwater management practices to be implemented to mitigate possible impacts as required. There are no existing Source Water Protection areas within the study area.
Vegetation (Wetland and Upland) • Potential to impact significant natural	No physical impacts to vegetation.	No physical impacts to vegetation.	No physical impacts to vegetation.	Impacts to vegetation may occur as a result of new bypass to accommodate transit	Potential for vegetation disturbance and/or removal in areas	No impacts to vegetation, natural heritage features, woodlands, etc. in	There is a high potential for vegetation disturbance and removal in areas where existing vegetation



Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
heritage features and/or functions within designated Natural Heritage System (NHS): woodlands, wetlands, valleylands, ANSI, rare plant species or species at risk • Potential to enhance components of the regional Natural Heritage System through identification of enhancement areas, linkages and buffers				infrastructure and other modes of transportation. These impacts will depend on nature and location of improvements.	where improvements occur.	study area. Potential impacts resulting from improvements to other roadways will be assess independent of this MCEA Study.	or wetland features extend into the future right-of-way. Potential for direct impacts to candidate and confirmed significant natural heritage features in regional Greenbelt NHS (e.g. Georgetown Credit Valley ANSI), as well as habitat for species at risk, depending on alignment. Potential hydrological effects to adjacent Hungry Hollow Wetland PSW if drainage to or from feature is affected by roadway improvements/alignment. Potential indirect effects to vegetation and wetlands from dust, contaminant drift or other edge effects. Impacts can be reduced by applying avoidance and mitigation measures, such as the establishment of naturalized buffers and/or maintaining or enhancing landscape linkages.



Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
Wildlife • Potential to impact significant wildlife habitat, including habitat for rare species • Potential to impact habitat of species at risk • Potential to impact or enhance corridors for wildlife movement • Potential to reduce road mortality through corridor improvements and wildlife passages	No physical impacts to wildlife and wildlife habitats.	No physical impacts to wildlife and wildlife habitats.	No physical impacts to wildlife and wildlife habitats.	Potential for habitat removal as a result of new bypass to accommodate transit infrastructure and active transportation facilities. Risk of increased road mortality due to increase in traffic volume. These effects will depend on nature and location of improvements.	Potential for habitat impact in areas where improvements are made.	No impacts to wildlife habitat, SAR, wildlife movement in study area. Potential impacts resulting from improvements to other roadways will be assess independent of this MCEA Study.	Potential for habitat removal in areas where existing vegetation or habitat features extend into the future right-of-way. Existing corridors used by wildlife may be impacted, but potential to maintain or enhance wildlife passage(s). Effects may be reduced by applying avoidance and mitigation measures, such as the establishment of naturalized buffers, installation of wildlife habitat features, reducing risk of road mortality and/or maintaining or enhancing landscape linkages.



Transportation

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
Ability to Accommodate Traffic Demand - Potential to maintain or improve existing travel times - Potential to reduce congestion and potential for collisions	Does not address connectivity or capacity requirements for future transportation demand within Norval.	The current Highway 7 (Guelph Street) and Adamson Street intersection through Norval is operating near and/or at capacity. Limiting development would not address capacity requirements based on existing and planned future development.	Would help to reduce and optimize transportation demand. Would require significant changes to travel behaviour to achieve improved levels of service.	Provides choice for mobility needs but does not provide sufficient compatibility/ connectivity in the road network.	Localized improvements would not sufficiently improve road network compatibility/ connectivity. This alternative alone does not sufficiently accommodate transportation demand.	Regional and municipal plans have identified the need for improvements to other roads to support future transportation demand.	Supports transportation demand for population and employment growth adjacent to the corridor and surrounding area.
Road Network Compatibility / Connectivity Potential to be consistent with planned transportation networks (i.e., Region of Halton's Transportation Master Plan, GTA West Preferred Route)	Does not address connectivity requirements for future transportation demand.	Does not address connectivity requirements for future transportation demand.	On its own this alternative does not provide sufficient compatibility/ connectivity in the road network.	On its own this alternative does not provide sufficient compatibility/ connectivity in the road network.	On its own this alternative does not provide sufficient compatibility/ connectivity in the road network.	Potential to improve road network compatibility/ connectivity. This alternative alone does not sufficiently accommodate transportation demand.	Improves overall compatibility/ connectivity for future transportation demand within Norval.



Costs

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Construct the Norval West Bypass Corridor
Order of Magnitude Cost (Construction Costs)	N/A	N/A	\$	\$\$	\$\$	\$\$\$\$\$	\$\$\$\$\$
Summary	Do Nothing would restrict future approved development and would not address future transportation needs.	Projections of future travel demands are based on the approved future urban area as shown in the Halton Region Official Plan. Limiting development was not considered to be reasonable in isolation.	Although part of Halton Region’s overall transportation strategy, on their own TDM does not address the need for additional capacity within Norval.	Alternative modes of transportation and improved transit infrastructure as outlined in the Region’s transportation strategy will improve transportation demands. The Norval West Bypass will aid in achieving the Region’s TMP by providing additional capacity and connectivity to support a multimodal corridor. On its own this solution would not sufficiently address the identified problem but is required as part of the overall improvement strategy.	Intersection and operational improvements would not fully address the identified problem but are required as part of the overall improvement strategy.	Required as part of the overall transportation strategy in addition to the Norval West Bypass and will be subject to separate studies.	Implementing the Norval West Bypass is part of an overall solution to improve travel in the community of Norval. The bypass will support future growth, travel demand, network connectivity and all modes of transportation.
Recommended to be Carried Forward	NO – for comparison purposes only.	NO – not consistent with policy documents.	YES – within the overall strategy.	YES – within the overall strategy.	YES – within the overall strategy.	NO – subject to separate studies.	YES – carried forward as the preferred alternative solution.



Table 14: Assessment of Alternative Solutions for 10 Side Road

Socio-Economic Environment

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
Property Effects, Existing Land Use, Community Effects • Supports existing land use functions • Potential impacts to adjacent property	No impact to adjacent properties and existing land use.	No impact to adjacent properties and existing land use.	No impact to adjacent properties and existing land use.	Potential impact due to the implementation of active transportation and transit related improvements (e.g., bus bays, transit stops, intersection reconstruction, bike lanes, multi-use pathways).	Potential to have some property impact particularly for properties in close proximity to the intersections (i.e., Hillcrest Cemetery). Minimal impact to overall existing land use.	Improvements to other roadways have already been identified as part of the Region and local Transportation Master Plans. Impact to existing properties would be determined based on respective MCEA Studies. Potential impact to access along the improved roadways.	The potential for direct impacts generally along frontage of properties adjacent to the 10 Side Road (Regional Road 10) corridor between Tenth Line and Winston Churchill Boulevard (Regional Road 19).
Consistency with Planning Policies (Official Plan, Transportation Master Plan, Active Transportation Plan) • Consistency with local and regional planning	Not consistent with the Halton Region Transportation Master Plan. Not consistent with Region and Town's objective to promote Active Transportation.	Not consistent with the planned population and employment growth identified by Halton Region, and Town of Halton Hills in conformance with the Provincial Growth Plan.	Consistent with Region's and Town's objectives to manage travel demand. However, this would not address the need to provide additional capacity within the 10 Side Road corridor.	Consistent with the Region and Town's vision to increase modal share of transit and other transportation methods such as walking and cycling but would not address the required demand.	Would not fully address future transportation needs.	Improvements on other roadways have already been identified as part of the Region and Town Transportation Master Plans; widening beyond planned program would be inconsistent with existing Regional planning.	Consistent with planning documents to provide additional capacity within the Norval West Bypass.
Impacts to Future Development • Potential to support development of lands within proposed corridor	No direct physical impacts but does not provide the improvements required to support future development.	Not consistent with planned population and employment growth rates identified by the Region, and Town of Halton Hills.	No direct physical impacts but does not provide the improvements required to support future development.	No direct physical impacts but does not provide the improvements required to support future development.	No direct physical impacts but does not provide the improvements required to support future development.	On its own may not provide the transportation network improvements required to support future travel demand.	Implementing the Norval West Bypass will support future travel demand.



Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
Noise Potential to impact noise sensitive areas (NSA) (i.e. residential dwellings, daycares, etc.)	On its own may not provide the transportation network improvements required to support future travel demand.	Implementing the Norval West Bypass will support future travel demand.	On its own may not provide the transportation network improvements required to support future travel demand.	Minimal change in noise level from improved modes of transportation or increased transit infrastructure.	Minimal change in noise level.	Potential increase in noise level to Noise Sensitive Areas (NSA's) adjacent to the roadways.	Potential to increase noise level to Noise Sensitive Areas (NSA's) adjacent to 10 Side Road study area depending on location of corridor. Potential to increase noise levels in the residential neighbourhood in vicinity of Tenth Line.

Cultural Environment

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
Archaeological Resources Potential to impact undisturbed lands	No impact.	No impact.	No impact.	A Stage 1 Archaeological Assessment was completed. Areas that have not been previously disturbed within the study area exhibit moderate to high potential for the identification and recovery of archaeological resources and require a Stage 2 Archaeological Assessment if the land is to be impacted. Details can be found in the Stage 1 Archaeological Assessment in Appendix F.	A Stage 1 Archaeological Assessment was completed. Areas that have not been previously disturbed within the study area exhibit moderate to high potential for the identification and recovery of archaeological resources and require a Stage 2 Archaeological Assessment if the land is to be impacted. Details can be found in the Stage 1 Archaeological Assessment in Appendix F.	A Stage 1 Archaeological Assessment was completed. Areas that have not been previously disturbed within the study area exhibit moderate to high potential for the identification and recovery of archaeological resources and require a Stage 2 Archaeological Assessment if the land is to be impacted. Details can be found in the Stage 1 Archaeological Assessment in Appendix F.	A Stage 1 Archaeological Assessment was completed. Areas that have not been previously disturbed within the study area exhibit moderate to high potential for the identification and recovery of archaeological resources and require a Stage 2 Archaeological Assessment if the land is to be impacted. Details can be found in the Stage 1 Archaeological Assessment in Appendix F.



Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
Built Heritage Resources and Cultural Heritage Landscape Potential to impact known built heritage resources and cultural heritage landscapes/attributes	No impact.	No impact.	No impact.	A Cultural Heritage Report was prepared. Fourteen cultural heritage resources were identified within the study area, and ten cultural heritage resources were identified adjacent to the study area. A Heritage Impact Assessment may be required if heritage resources are in proximity to preferred design (e.g. Hillcrest Cemetery). Details can be found in the Cultural Heritage Report in Appendix E.	A Cultural Heritage Report was prepared. Fourteen cultural heritage resources were identified within the study area, and ten cultural heritage resources were identified adjacent to the study area. A Heritage Impact Assessment may be required if heritage resources are in proximity to preferred design (e.g. Hillcrest Cemetery). Details can be found in the Cultural Heritage Report in Appendix E.	A Cultural Heritage Report was prepared. Fourteen cultural heritage resources were identified within the study area, and ten cultural heritage resources were identified adjacent to the study area. A Heritage Impact Assessment may be required if heritage resources are in proximity to preferred design (e.g. Hillcrest Cemetery). Details can be found in the Cultural Heritage Report in Appendix E.	A Cultural Heritage Report was prepared. Fourteen cultural heritage resources were identified within the study area, and ten cultural heritage resources were identified adjacent to the study area. A Heritage Impact Assessment may be required if heritage resources are in proximity to preferred design (e.g. Hillcrest Cemetery). Details can be found in the Cultural Heritage Report in Appendix E.

Natural Environment

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
Fisheries and Aquatic Habitat Potential to impact fish and aquatic habitat	No net loss of fish habitat however potential minor impacts related to habitat quality due to increased traffic and therefore road runoff contaminants.	No net loss of fish habitat however potential minor impacts related to habitat quality due to increased traffic and therefore road runoff contaminants.	No net loss of fish habitat however potential minor impacts related to habitat quality due to increased traffic and therefore road runoff contaminants.	Potential impacts to fish habitat to accommodate active transportation and transit infrastructure. Impacts will depend on the nature of improvements relative to watercourse features. Alteration of fish habitat would be offset by mitigation measures and potential	Potential impacts on fish habitat to accommodate intersection and/or operational improvements. These impacts will depend on the nature of improvements relative to watercourse features. Alteration of fish habitat would be	No net loss of fish habitat in study area. Potential impacts to fish habitat to accommodate improvements to other roadways are assessed independent of this MCEA Study.	Potential fish habitat effects related to culvert works associated with the road widening and new road drainage. Increased flow rates and contaminant levels may be generated with additional pavement surface. Effects can be reduced by applying environmental protection measures.



Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
				for enhancements. No net loss of fish habitat anticipated.	offset by mitigation measures and potential for enhancements. No net loss of fish habitat anticipated.		
Surface Water Quality and Quantity	Potential minor impact on surface water quality through increased traffic demand and resulting incremental contaminant runoff from existing roads.	Potential minor impact on surface water quality through increased traffic demand and resulting incremental contaminant runoff from existing roads.	Potential minor impact on surface water quality through increased traffic demand and resulting incremental contaminant runoff from existing roads.	Effects on surface water resources may be experienced to accommodate transit initiatives and active transportation. These effects will depend on nature of improvements relative to watercourse features.	Potential impact on surface water as a result of increased traffic demand and resulting incremental increase in contaminant runoff from existing roads. There are no existing Source Water Protection areas within the study area.	No impacts to water quantity and quality effects in study area. Potential impacts resulting from improvements to other roadways will be assess independent of this MCEA Study.	Potential water quantity and quality effects through widening at existing water courses both due to construction and increased runoff. Stormwater management practices to be implemented as required. There are no existing Source Water Protection areas within the study area.
Vegetation (Wetland and Upland) • Potential to impact significant natural heritage features and/or functions within designated Natural Heritage System: woodlands, wetlands, valleylands, ANSI, rare plant species or species at risk • Potential to enhance components of the regional Natural Heritage System through identification of enhancement	No physical impacts to vegetation. Possible incremental contaminant drift with increased traffic demand and localized vegetation stress.	No physical impacts to vegetation. Possible incremental contaminant drift with increased traffic demand and localized vegetation stress.	No physical impacts to vegetation. Possible incremental contaminant drift with increased traffic demand and localized vegetation stress.	Impacts to vegetation may occur as a result of road widening to accommodate transit infrastructure and other modes of transportation. These impacts will depend on nature and location of improvements.	Potential for vegetation disturbance and/or removal in areas where improvements occur.	No impacts to vegetation, natural heritage features, woodlands, etc. in study area. Potential impacts resulting from improvements to other roadways will be assess independent of this MCEA Study.	Potential for relatively minor vegetation disturbance and/or removal in areas where existing vegetation extends into the right-of-way. Potential hydrological effects to adjacent Levi's Creek PSW if drainage to or from feature is affected by roadway improvements/alignment. Potential indirect effects to vegetation and wetlands from dust, contaminant drift or other edge effects. Effects can be reduced by applying avoidance and mitigation



Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
areas, linkages and buffers							measures, such as the establishment of naturalized buffers and/or maintaining or enhancing landscape linkages.
Wildlife • Potential to impact significant wildlife habitat, including habitat for rare species • Potential to impact habitat of species at risk • Potential to impact or enhance corridors for wildlife movement • Potential to reduce road mortality through corridor improvements and wildlife passages	No physical impacts to wildlife and wildlife habitats.	No physical impacts to wildlife and wildlife habitats.	No physical impacts to wildlife and wildlife habitats.	Potential for habitat removal as a result of road widening to accommodate transit infrastructure and active transportation facilities. Risk of increased road mortality due to increase in traffic volume. These effects will depend on nature and location of improvements.	Potential for habitat impact in areas where improvements are made.	No impacts to wildlife habitat, SAR, wildlife movement in study area. Potential impacts resulting from improvements to other roadways will be assess independent of this MCEA Study.	Potential for habitat removal in areas where existing vegetation or habitat features extend into the existing right-of-way. Existing culverts used by wildlife may be impacted, but potential to maintain or enhance wildlife passage(s). Effects may be reduced by applying avoidance and mitigation measures, such as the establishment of naturalized buffers, installation of wildlife habitat features, reducing risk of road mortality and/or maintaining or enhancing landscape linkages.



Transportation

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
Ability to Accommodate Traffic Demand - Potential to maintain or improve existing travel times - Potential to reduce congestion and potential for collisions	Does not address capacity requirements for future transportation demand on 10 Side Road.	The current 10 Side Road corridor between Tenth Line and Winston Churchill Boulevard is operating near and/or at capacity based on existing and planned future development.	Would help to reduce and optimize transportation demand. Would require significant changes to travel behaviour to achieve improved levels of service.	Provides choice for mobility needs of population (reduces auto dependency), potential for reduction of traffic congestion.	Localized improvements would not sufficiently address the identified problem or accommodate transportation demand.	Regional and municipal plans have identified the need for improvements to other roads to support future transportation demand.	Supports transportation demand for population and employment growth adjacent to the corridor and surrounding area.
Road Network Compatibility / Connectivity Potential to be consistent with planned transportation networks (i.e., Region of Halton's Transportation Master Plan, GTA West Preferred Route)	Does not address connectivity or capacity requirements for future demand on 10 Side Road.	Does not provide sufficient compatibility/ connectivity in the road network based on existing and planned future development.	Would help to reduce and optimize transportation demand but would require significant changes to travel behaviour to achieve improved levels of service.	Provides choice for mobility needs but does not provide sufficient compatibility/ connectivity in the road network.	Localized improvements would not sufficiently improve road network compatibility/ connectivity. This alternative alone does not sufficiently accommodate transportation demand.	Potential to improve road network compatibility/ connectivity. This alternative alone does not sufficiently accommodate transportation demand.	Improves overall compatibility/ connectivity for future transportation demand.



Costs

Factors	Do Nothing	Limit Development	Travel Demand Management Measures	Improved Transit Infrastructure / Other Modes of Transportation	Intersection and / or Operational Improvements	Improvements to Other Roadways Beyond Planned Program	Improvements to 10 Side Road (Regional Road 10)
Order of Magnitude Cost (Construction Costs)	N/A	N/A	\$	\$\$	\$\$	\$\$\$\$\$	\$\$\$\$\$
Summary	Do Nothing would restrict future approved development and would not address future transportation needs.	Projections of future travel demands are based on the approved future urban area as shown in the Halton Region Official Plan. Limiting development was not considered to be reasonable in isolation.	Although part of Halton Region’s overall transportation strategy, on their own TDM does not address the need for additional capacity on 10 Side Road.	Alternative modes of transportation and improved transit infrastructure as outlined in the Region’s transportation strategy will improve the road network and assist in achieving the Region’s Transportation Master Plan by providing additional capacity and connectivity to support a multi-modal corridor.	Intersection and operational improvements would not fully address the identified problem but are required as part of the overall improvement strategy.	Required as part of the overall transportation strategy in addition to improvements to 10 Side Road and will be subject to separate studies.	Improvements to 10 Side Road is part of an overall solution to improve travel in the community of Norval. The bypass will support future growth, travel demand, network connectivity and all modes of transportation.
Recommended to be Carried Forward	NO – for comparison purposes only.	NO – not consistent with policy documents.	YES – within the overall strategy.	YES – within the overall strategy.	YES – within the overall strategy.	NO – subject to separate studies.	YES – carried forward as the preferred alternative solution.



4.2.1 Summary of Evaluation of Alternative Planning Solutions

Do Nothing - The Do Nothing alternative does not address future transportation needs of the study area including an interconnected transportation network at the Halton-Peel boundary or a direct route between Highway 7 and 10 Side Road. This alternative therefore will not support future growth and travel demands. Although this alternative is not considered feasible, it is carried forward throughout the EA process and used as a baseline for comparison purposes.

Limit Development - Projections of future travel demands are based on the approved future urban areas, as shown in the Halton Region Official Plan which is in conformance with the Provincial *Growth Plan*. One of the planned growth areas is within the study area, which is slated for urban development and will require infrastructure improvements to be completed in advance. Limiting development was not considered to be reasonable in isolation and therefore was not carried forward for further consideration as part of this study.

Travel Demand Management Measures - Travel Demand Management (TDM) provides alternative means to travelling during high traffic demand hours, including carpooling and staggered work hours, to reduce the number of vehicles traveling during peak hours. Although these measures are part of Halton Region's overall transportation strategy, they will not address the need for additional capacity on their own. As development increases, the need for additional capacity remains high, and while combined efforts with TDM measures may help alleviate traffic congestion associated with growth rates, additional measures are required to address the primary problem. Therefore, this alternative will be carried forward for further consideration as part of the overall transportation strategy.

Improved Transit Infrastructure / Other Modes of Transportation - The study area is currently served by GO Transit buses, which operate along Highway 7 to the west of the intersections of Highway 7 / King Street and Highway 7 / Noble Street. Active transportation facilities are relatively segmented and do not connect Norval with the residential area along the south-west limits. Dedicated cycling facilities are not provided within the study area; however, cyclists would be accommodated on the multi-use path that runs along the north side of 10 Side Road west of Tenth Line. This multi-use path can present a safe and comfortable alternative for trips in the area.

The Region's Active Transportation Master Plan (2016) has identified sidewalks and bike lanes on both sides of the Norval West Bypass. The Town of Halton Hills Cycling Master Plan, dated December 2010, identifies proposed on-road cycling routes along Highway 7 (west of Winston Churchill Boulevard), Winston Churchill Boulevard, 10 Side Road (east of Tenth Line), and Tenth Line (north of 10 Side Road) which will improve connectivity in the area. Although alternate modes of transportation will not address the



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
4 Alternative Planning Solutions
December 2025**

problem alone, this alternative will be carried forward for further consideration as part of the overall transportation strategy.

Intersection and / or Operational Improvements - Intersection improvements include the addition of auxiliary lanes, additional lanes through study area intersections and traffic signals. The addition of these measures would not fully address the problem, although they are required as part of the overall improvement strategy. Operational improvements include modifications to signal timing plans, traffic signal interconnect systems, and road user information systems. They would not fully address the identified problem but will still be considered as part of the overall improvement strategy and can be easily incorporated into an overall program of improvements.

Improvements to Other Roadways Beyond Planned Program - Widening of other Regional roadways in the immediate study area beyond planned improvements would not be consistent with the Halton Region Transportation Master Plan, as well as other local improvements by the Town of Halton Hills. This would lead to impacts beyond the planned rights-of-way.

4.3 Preferred Alternative Planning Solutions

Based on the results of the evaluation, the following Alternative Planning Solutions are recommended to fully address the problems and opportunities identified for this study:

Construct New Norval West Bypass - To support future growth, travel demands and network connectivity, a Norval West Bypass is required. The bypass will reduce the expected delays during peak periods, support all modes of transportation and provide safety for all road users. The Norval West Bypass is among a number of transportation network improvements identified within the HPBATS and the need for this initiative was also confirmed in the Region's 2011 TMP. Therefore, this alternative is carried forward as part of the overall improvement strategy

Improvements to 10 Side Road (Regional Road 10) - Improvements to 10 Side Road are required to support future growth and travel demand by adding capacity through widening from two to four general purpose lanes and providing multi-use pathways to support a multi-modal transportation network. Therefore, this alternative is carried forward as part of the overall improvement strategy.



5 Design Alternatives

Phase 3 of the Municipal Class EA process involves the development and review of alternative design concepts. Having established the need for improvements to the transportation corridor and the selected recommended alternative solution, the next phase involves the development of design alternatives.

As part of the development of design alternatives, this section will assess and evaluate the following:

- Alternative Road Corridor Concepts
- Alternative Alignments & Intersection Design Alternatives

Through the detailed analysis and evaluation of these design alternatives, a Recommended Design Alternative will be identified.

5.1 Alternative Road Corridor Concepts

Alternative Road Corridor Concepts were developed based on the Preferred Alternative Planning Solutions. The Alternative Road Corridor Concepts assess various paths to connect the Norval West Bypass from Highway 7 to 10 Side Road, and paths for 10 Side Road improvements.

Consideration was given to the following alternatives for the construction of the Norval West Bypass:

- Concept A – Norval West Bypass between Highway 7 to 10 Side Road. The Bypass would tie into the existing Tenth Line and 10 Side Road intersection and would require a new intersection at Highway 7. This is the proposed westerly concept.
- Concept B – Norval West Bypass between Highway 7 to 10 Side Road. New Bypass would be located midblock between Tenth Line and Adamson Street. New intersections required at Highway 7 and 10 Side Road. This is the proposed midblock concept.
- Concept C – Norval West Bypass between Highway 7 to 10 Side Road. New Bypass to tie into existing Adamson Street/Winston Churchill Boulevard, and a new intersection at Highway 7. This is the proposed easterly concept.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
5 Design Alternatives
December 2025**

Consideration was given to the following alternatives for the improvements to 10 Side Road:

- Concept 1 – Improvements to 10 Side Road between Tenth Line and Winston Churchill Boulevard/Adamson Street on the existing alignment.
- Concept 2 – Improvements to 10 Side Road between Tenth Line and Winston Churchill Boulevard/Adamson Street on a realigned corridor, southerly from existing alignment.

The road corridor concepts are displayed in **Figure 19**.

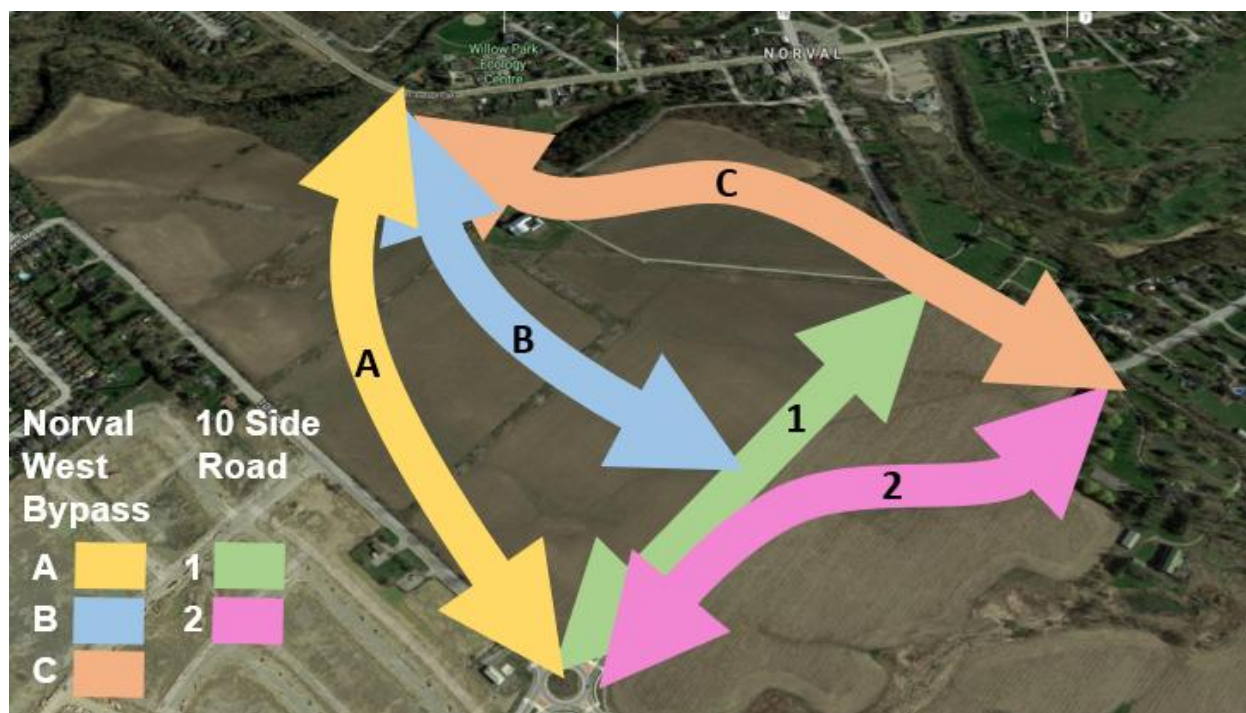


Figure 19: Alternative Road Corridor Concepts

5.1.1 Assessment and Evaluation of Alternative Road Corridor Concepts

The Assessment of Alternative Road Corridor Concepts for Norval West Bypass is summarized in **Table 16** and the Assessment of Alternative Road Corridor Concepts for 10 Side Road is summarized in **Table 17**. The assessments were completed using criteria such as socio-economic, cultural, and natural environments, as well as transportation and costs (**Table 15**).



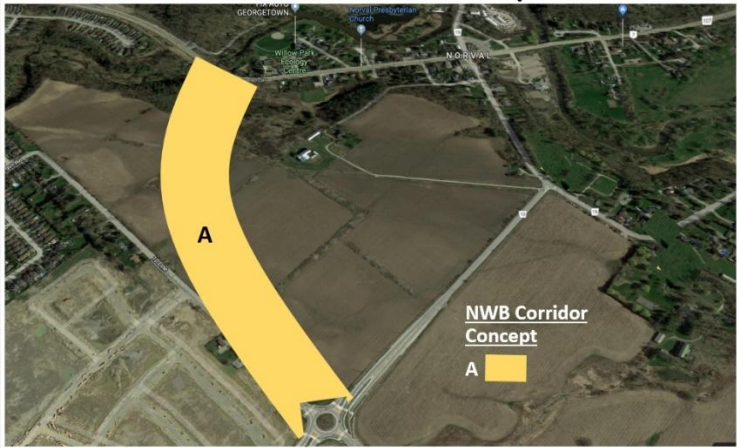
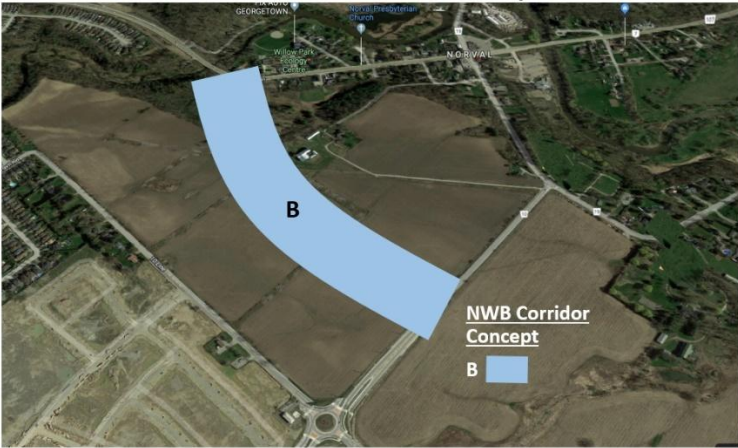
**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
5 Design Alternatives
December 2025**

Table 15: Alternative Road Corridor Concepts Evaluation Criteria

Factors	Criteria
Transportation	• Network compatibility and connectivity
	• Accommodation of future travel demand to 2031
	• Provisions for pedestrians / cyclists
	• Access impacts
Natural Environment	• Fisheries and aquatic habitat
	• Terrestrial ecosystems
	• Wildlife and habitat
	• Species at Risk
Surface Water and Groundwater	• Highly Vulnerable Aquifer
	• Significant Groundwater Recharge Areas
Cultural Environment	• Archaeological resources
	• Built Heritage Resources and Cultural Heritage Landscapes
Socio-Economic Environment	• Land use planning policies, plans, goals and objectives (Official Plan, TMP, Active Transportation Plan)
	• Existing and future community and property impacts
	• Noise Sensitive Areas (NSAs)
Engineering / Technical	• Existing utilities
	• Design challenges
	• Construction staging
Estimated Capital Costs	• Order of magnitude



Table 16: Assessment of Alternative Road Corridor Concepts for Norval West Bypass

	Concept A	Concept B	Concept C
Factors & Criteria			
Transportation	• Compatible with existing road network and supports the need for greater connectivity/mobility. Consistent with approved Halton Peel Boundary Area Transportation Study (HPBATS) and Halton Region Transportation Master Plan (TMP) – The Road to Change. • Potential to accommodate future travel demand requirements and potential to decrease travel demand within/through the Hamlet of Norval by redistributing traffic. • New intersection at Highway 7 and new Norval West Bypass, including the realignment of Danby Road connection with the new Norval West Bypass • Potential to increase travel demand along Tenth Line (north of 10 Side Road) • Consistent with Halton Region Active Transportation Master Plan (ATMP) • Potential impacts to existing driveways along Tenth Line	• Compatible with existing road network and supports the need for greater connectivity/mobility. Consistent with approved Halton Peel Boundary Area Transportation Study (HPBATS) and Halton Region Transportation Master Plan (TMP) – The Road to Change. • Highest potential to accommodate future travel demand requirements and potential to decrease travel demand within/through the Hamlet of Norval by redistributing traffic. • New intersection at Highway 7 and new Norval West Bypass, as well as 10 Side Road and new Norval West Bypass • Consistent with Halton Region Active Transportation Master Plan (ATMP) • No direct impact to existing/future travel demand or accesses along Tenth Line (north of 10 Side Road) • New intersection required with 10 Side Road	• Compatible with existing road network but may not support the future need for greater connectivity/mobility. • Some ability to accommodate future travel demand requirements and potential to decrease travel demand within/through the Hamlet of Norval • New intersection at Highway 7 and new Norval West Bypass, including the realignment of Adamson Street connection with the new Norval West Bypass • Potential to increase travel demand at 10 Side Road and Adamson Street/Winston Churchill Boulevard intersection • Consistent with Halton Region Active Transportation Master Plan (ATMP) • Potential impacts to existing driveways along Adamson Street



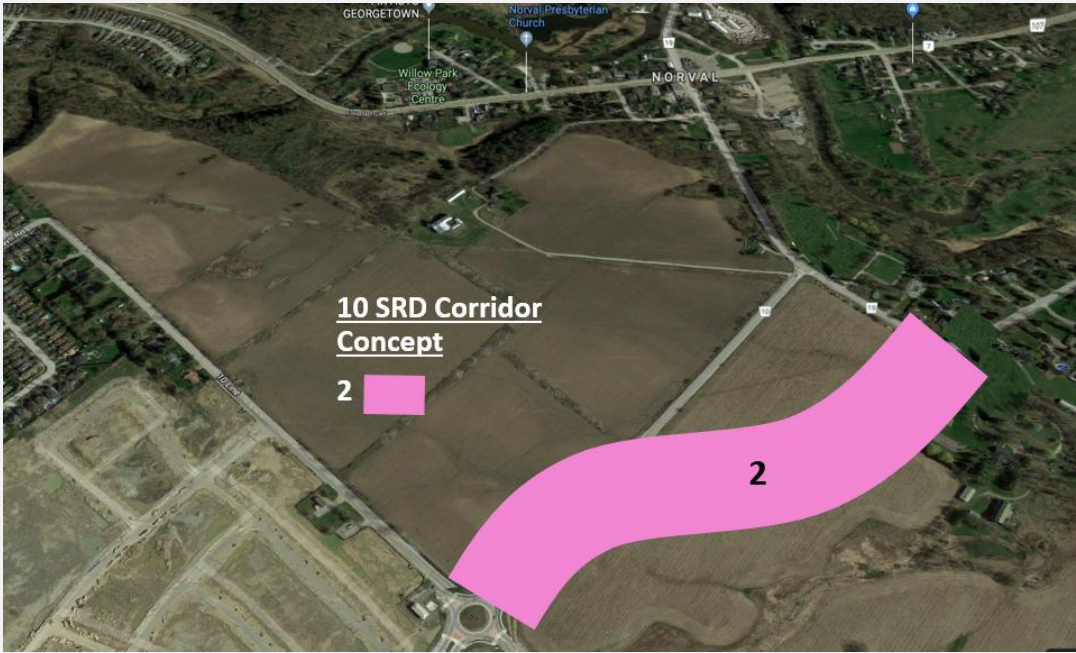
	Concept A	Concept B	Concept C
Natural Environment • Fisheries and Aquatic Habitat • Terrestrial Ecosystems • Wildlife and Habitat • Species at Risk	• Potential for direct impacts to candidate and confirmed significant natural heritage features in regional Greenbelt NHS (e.g., Georgetown Credit Valley ANSI) • Potential hydrological effects to adjacent Hungry Hollow Wetland PSW if drainage to or from feature is affected by roadway improvements/alignment • Crossing of 1 watercourse in proximity to 10 Side Road; low potential to avoid depending on alignment selected • Potential to disturb suitable habitat for SAR	• Potential for direct impacts to candidate and confirmed significant natural heritage features in regional Greenbelt NHS (e.g., Georgetown Credit Valley ANSI) • Potential hydrological effects to adjacent Hungry Hollow Wetland PSW if drainage to or from feature is affected by roadway improvements/alignment. • Intersects with area noted for the presence of SAR • Least encroachment into Greenbelt natural heritage system • Crossing of 1 watercourse in proximity to 10 Side Road; high potential to avoid depending on alignment selected	• Potential for direct impacts to candidate and confirmed significant natural heritage features in regional Greenbelt NHS (e.g., Georgetown Credit Valley ANSI) • Most significant encroachment into Greenbelt Natural Heritage System, including an area designated as Key Features • Potential hydrological effects to adjacent Hungry Hollow Wetland PSW • Potential to impact suitable habitat for SAR • No watercourse crossing
Surface Water and Groundwater • Highly Vulnerable Aquifers • Significant Groundwater Recharge Areas	• Potential to impact a larger area designated as Highly Vulnerable Aquifers, as compared to Concept B • Moderate impact to shallow groundwater system, due to potential increase in contaminants related to new roadway (i.e., road salt, etc.) • Stormwater quantity will increase, and quality mitigation may be required; however, can be addressed through design	• Potential to impact areas designated as Significant Groundwater Recharge Area and Highly Vulnerable Aquifers • Moderate impact to shallow groundwater system, due to potential increase in contaminants related to new roadway (i.e., road salt, etc.) • Stormwater quantity will increase, and quality mitigation may be required; however, can be addressed through design	• Potential to impact a larger area designated as Significant Groundwater Recharge Area, as compared to Concepts A and B • Moderate impact to shallow groundwater system, due to potential increase in contaminants related to new roadway (i.e., road salt, etc.). • Stormwater quantity will increase, and quality mitigation may be required; however, can be addressed through design.
Cultural Environment • Archaeological Resources • Built Heritage Resources and Cultural Heritage Landscapes	• A Stage 2 Archaeological Assessment is required • Proposed improvements encroach onto areas of undeveloped land • Heritage Impact Assessment not required • No impact to Russell ‘s Hill of Pines Heritage Woodlot	• A Stage 2 Archaeological Assessment is required • Potential improvements encroach onto areas of undeveloped land • Heritage Impact Assessment not required • No impact to Russell’s Hill of Pines Heritage Woodlot	• A Stage 2 Archaeological Assessment is required for impacted areas • Proposed improvements are in close proximity to areas of undeveloped land • A Heritage Impact Assessment may be required as alignment is in proximity to an identified cultural resource adjacent to the study area (Hillcrest Cemetery) • Potential impact to Russell’s Hill of Pines Heritage Woodlot



	Concept A	Concept B	Concept C
Socio-Economic Environment - Land Use Planning Policies, Plans, Goals and Objectives (Official Plan, TMP, Active Transportation Plan) - Existing and Future Community and Property Impacts - Noise Sensitive Areas	- Potential to reduce through traffic for residential properties in Norval - Property acquisition is required including undeveloped Urban Area lands and Regional Natural Heritage System lands - Potential impacts to existing residential properties along Tenth Line due to an increase in through traffic - Potential Impacts to Noise Sensitive Areas (NSAs) along existing Tenth Line - Alignment does not cross through residential/farm parcel - Consistent with planning documents to provide additional capacity within the Norval West Bypass	- Potential to reduce through traffic for residential properties in Norval - Property acquisition is required including undeveloped Urban Area lands and Regional Natural Heritage System lands - Alignment crosses through the southern portion of one residential/farm parcel although impacts could be mitigated/avoided depending on alignment selected - Low potential for impacts to existing residential dwellings due to an increase in through traffic - Low potential for impacts to Noise Sensitive Areas (NSAs) - Consistent with planning documents to provide additional capacity within the Norval West Bypass	- Potential to reduce through traffic for residential properties in Norval - Property acquisition is required including undeveloped Urban Area lands and Regional Natural Heritage System lands - Alignment is in close proximity to residential properties fronting onto Highway 7, although no direct impacts to existing uses - Potential Impacts to Noise Sensitive Areas (NSAs) along existing Highway 7 anticipated - Alignment crosses through one residential/farm parcel, with potential impacts to existing house and associated outbuildings - Consistent with planning documents to provide additional capacity within the Norval West Bypass
Engineering / Technical - Existing Utilities - Design Challenges - Construction Staging	- Potential to impact existing utilities along Highway 7 and Tenth Line for area of tie in - Low potential for design challenges relating to tie in at 10 Side Road and Tenth Line - Alignment requires rock excavation through escarpment - Potential impacts to existing bridge on Highway 7 west of tie in point to accommodate addition lanes - Majority of the construction can take place without impacting existing traffic	- Potential to impact utilities along Highway 7 and 10 Side Road for areas of tie in - Least potential for design challenges relating to tie in at 10 Side Road - Alignment requires rock excavation through escarpment - Potential impacts to existing bridge on Highway 7 west of tie in point to accommodate addition lanes - Majority of the construction can take place without impacting existing traffic	- Potential for design challenges relating to tie in at Winston Churchill Boulevard and 10 Side Road - Potential to impact existing utilities/services along Winston Churchill Boulevard - Alignment requires rock excavation through escarpment, but less than the other alternatives. - Alignment presents larger design and construction challenges by running more parallel to the escarpment incline - Potential impacts to existing bridge on Highway 7 west of tie in point to accommodate addition lanes - Majority of the construction can take place without impacting existing traffic
Estimated Capital Costs Order of magnitude	Moderate anticipated construction cost	Least anticipated construction cost	Highest anticipated construction cost



Table 17: Assessment of Alternative Road Corridor Concepts for 10 Side Road

	Concept 1	Concept 2
Factors & Criteria		
Transportation • Network Compatibility and Connectivity • Accommodation of future travel demand to 2031 • Provisions for Pedestrians / Cyclists • Access Impacts • Land Use Planning Policies, Plans, Goals and Objectives (i.e., TMP, ATMP, MCEA Studies)	• Compatible with the existing road network but is not consistent with approved 10 Side Road Municipal Class Environmental Assessment (MCEA) Study or Winston Churchill Boulevard MCEA Study • May not support the need for greater connectivity/mobility and consistent with approved Halton Peel Boundary Area Transportation Study (HPBATS) and Halton Region Transportation Master Plan (TMP) – The Road to Change, as well as future travel demand requirements. • Increased traffic volumes at the existing 10 Side bridge and Winston Churchill Boulevard/Adamson Street intersection • Consistent with Halton Region Active Transportation Master Plan (ATMP) • Inconsistent with approved 10 Side Road and Winston Churchill Boulevard Municipal Class Environmental Assessment (MCEA) Studies • Potential to accommodate future travel demand requirements and potential to decrease travel demand within/through the Hamlet of Norval by redistributing traffic.	• Compatible with the existing road network and consistent with approved 10 Side Road MCEA Study or Winston Churchill Boulevard MCEA Study • Supports the need for greater connectivity/mobility and consistent with approved HPBATS and Halton Region TMP – The Road to Change, as well as future travel demand requirements. • New intersection required at 10 Side Road and Winston Churchill Boulevard/Adamson Street intersection, with the opportunity for geometric improvements • Consistent with Halton Region ATMP • Consistent with approved 10 Side Road and Winston Churchill Boulevard MCEA Studies • Highest potential to accommodate future travel demand requirements and potential to decrease travel demand within/through the Hamlet of Norval by redistributing traffic.
Natural Environment • Fisheries and Aquatic Habitat • Terrestrial Ecosystems • Wildlife and Habitat • Species at Risk	• Tiled field, therefore, groundwater inputs in general are very limited and impact to drainage feature is negligible (no fish habitat) • No anticipated loss of suitable habitat for SAR • No anticipated impact to wildlife habitat or wildlife movement corridors	• Tiled field, therefore, groundwater inputs in general are very limited and impact to drainage feature is negligible (no fish habitat) • No anticipated loss of suitable habitat for SAR • No anticipated impact to wildlife habitat or wildlife movement corridors



	Concept 1	Concept 2
Surface Water and Groundwater • Highly Vulnerable Aquifers • Significant Groundwater Recharge Areas	• Potential hydrological effects to adjacent Levi's Creek PSW if drainage to or from feature is affected by roadway improvements/alignment • Low potential to impact area designated as Significant Groundwater Recharge Area • Moderate impact to shallow groundwater system, due to potential increase in contaminants related to new roadway (i.e., road salt, etc.) • Stormwater quantity will increase, and quality mitigation may be required; however, can be addressed through design	• Potential hydrological effects to adjacent Levi's Creek PSW if drainage to or from feature is affected by roadway improvements/alignment • Construction of new roadway has greater potential to impact a larger area designated as Significant Groundwater Recharge Area • Moderate impact to shallow groundwater system, due to potential increase in contaminants related to new roadway (i.e., road salt, etc.) • Stormwater quantity will increase, and quality mitigation may be required; however, can be addressed through design
Cultural Environment • Archaeological Resources • Built Heritage Resources and Cultural Heritage Landscapes	• A Stage 2 Archaeological Assessment would be required in undisturbed areas to accommodate road widening • A Heritage Impact Assessment may be required as alignment has potential to impact an identified cultural resource adjacent to the study area (Hillcrest Cemetery)	• A Stage 2 Archaeological Assessment would be required in undisturbed areas to accommodate road widening • A Heritage Impact Assessment would not be required
Socio-Economic Environment • Existing and Future Community and Property Impacts • Noise Sensitive Areas	• Property acquisition requirements are limited as improvements would include existing right-of-way • Low potential to impact Noise Sensitive Areas (NSAs) adjacent to 10 Side Road and Tenth Line	• Property acquisition is required including undeveloped Urban Area lands • Realignment would cross through the northern portion of one residential/farm parcel at 9948 and 9950 Winston Churchill Boulevard • Low potential to impact Noise Sensitive Areas (NSAs) adjacent to 10 Side Road and Tenth Line
Engineering / Technical • Existing Utilities • Design Challenges • Construction Staging	• Potential to impact all existing utilities along 10 Side Road • Construction staging will require temporary lane closures along 10 Side Road for road widening for the duration of construction. Temporary closures may be required to construct a new mid-block intersection. • More standard design and road widening construction and staging with longer temporary impacts to the public	• Potential to impact all existing utilities along 10 Side Road unless designated utility corridor is maintained • Potential roundabout design and construction/staging more complicated, though staging of the roundabout construction is simplified without traffic • Construction staging will allow full road access along 10 Side Road while new corridor is constructed, and will involve temporary lane closures for a portion. Reconstruction along Winston Churchill intersections may require temporary road closures
Estimated Capital Costs • Order of magnitude	• Least anticipated construction cost	• Highest anticipated construction cost



5.1.1.1 Analysis and Evaluation of Norval West Bypass Road Corridor Concepts

Concept A - Concept A is generally ranked similar in factors to the Most Preferred Concept B under Natural Environment, Surface Water/Groundwater, and Cultural Environment. Concept A has the highest potential to increase traffic demand along Tenth Line (north of 10 Side Road), with implications to existing driveways and residential properties, and potential to impact existing Noise Sensitive Areas. This Concept may present design challenges relating to the tie in at 10 Side Road and Tenth Line. Therefore, Concept A is less preferred than Concept B.

Concept B - Concept B is generally ranked similar in factors to the Moderately Preferred Concept A under Natural Environment, Surface Water/Groundwater, and Cultural Environment. Concept B has the least potential to impact Noise Sensitive Areas and does not present design challenges for the tie in at 10 Side Road. Concept B has the highest potential to accommodate future travel demand requirements and potential to decrease travel demand within/through the Hamlet of Norval, additionally improving connectivity with the road network. Compared to Concept A, Concept B will impact less residential properties.

Concept C - Concept C is least preferred as the alignment concept for the Norval West Bypass. Evaluated against all factors, Concept C presents the most impacts and disturbances. The alignment has potential to increase travel demand at the 10 Side Road and Adamson Street/Winston Churchill Boulevard intersection, while impacting existing driveways along Adamson Street. Concept C would cross through a residential/farm parcel, with potential to impact Noise Sensitive Areas. There is potential for design challenges related to tie in at Winston Churchill Boulevard and 10 Side Road. Therefore, Concept C is the least preferred alignment for the Norval West Bypass and is recommended to be screened out.

Based on the analysis and evaluation of the three alternative design concepts, Concept B is the preferred concept for the Norval West Bypass corridor.

5.1.1.2 Analysis and Evaluation of 10 Side Road Corridor Concepts

Concept 1 - Concept 1 is generally ranked similar in factors to the Most Preferred Concept 2 under Natural Environment. Concept 1 has potential to increase traffic demand along Tenth Line (north of 10 Side Road) and may not support the need for greater connectivity/mobility between roadways. This concept will require temporary lane closures along 10 Side Road for widening construction.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

5 Design Alternatives

December 2025

Concept 2 - Concept 2 is generally ranked similar in factors to the Moderately Preferred Concept 2 under Natural Environment. Concept 2 has the least potential to impact Noise Sensitive Areas, with low potential for design challenges at the tie in at 10 Side Road. This alignment has the highest potential to accommodate future travel demand requirements and decrease travel demand, supporting greater connectivity and mobility between roadways. Concept 2 impacts a greater amount of residential property, with the potential to impact all existing utilities along 10 Side Road. Construction staging will allow full road access along 10 Side Road while the new corridor is constructed.

Based on the analysis and evaluation of the two alternative design concepts, Concept 2 is the preferred concept for the 10 Side Road corridor improvements.

5.1.2 Preferred Road Corridor Concepts

The preferred road corridor concept for the Norval West Bypass and 10 Side Road is a combination of Concept B and Concept 2 (B2) and is displayed in **Figure 20**.

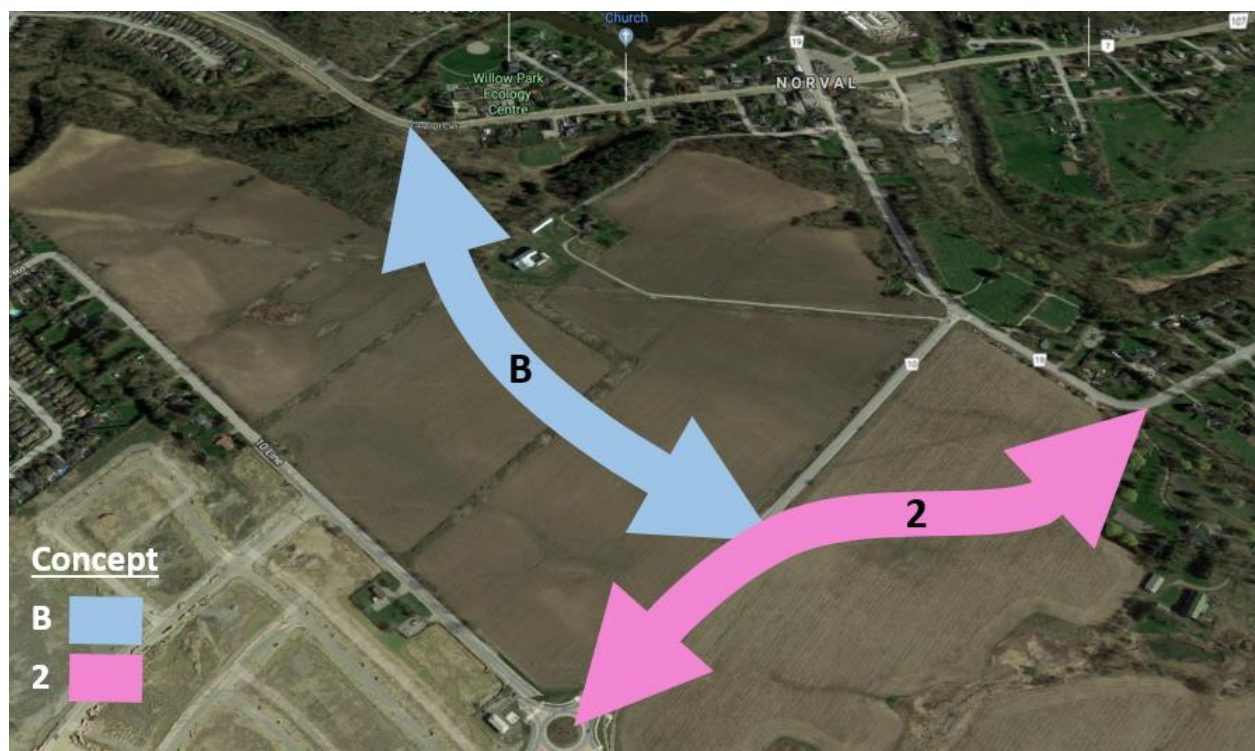


Figure 20: Preferred Road Corridor Concept B2

5.2 Alternative Alignments and Intersection Design Concepts

Three road components were developed and evaluated based on the Preferred Road Corridor Concept B2:

- Norval West Bypass – road alignments assessed within Road Corridor Concept B
- Highway 7 Intersection – intersection configurations were developed for the intersection of Highway 7 and the Norval West Bypass
- 10 Side Road – intersection configurations were developed for the intersection of 10 Side Road and the Norval West Bypass.

It should be noted that the development of the design alternatives and selection of the Recommended Design Alternative considers a number of potential opportunities, including but not limited to the following:

- Supports north-south travel;
- Maximizes corridor opportunities while minimizing impacts;
- Provides for cycling and pedestrians along the corridor including protection at intersections;
- Accommodates all road users including trucks and farm equipment;
- Minimizes impacts to properties;
- Integrates with the Town of Halton Hills Southeast Georgetown Secondary Plan;
- Minimizes impacts to key features, such as natural features and cultural attributes (i.e., impacts to Silver Creek bridge);
- Considers drainage, stormwater management, and flood storage; and
- Considers major utilities.

The design alternatives developed and carried forward for these road components is described in the following sections. An evaluation is provided in **Section 5.2.4**.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
5 Design Alternatives
December 2025**

5.2.1 Norval West Bypass Road Alignment Alternatives

Three road alignments were developed within the Norval West Bypass Road Corridor Concept B:

- Alignment B1
- Alignment B2
- Alignment B3

The alignments are displayed in **Figure 21**. All three alignments connect into Highway 7 at the same location. Alignments B1 and B2 connect into the same location at 10 Side Road, while Alignment B3 connects further to the east on 10 Side Road.

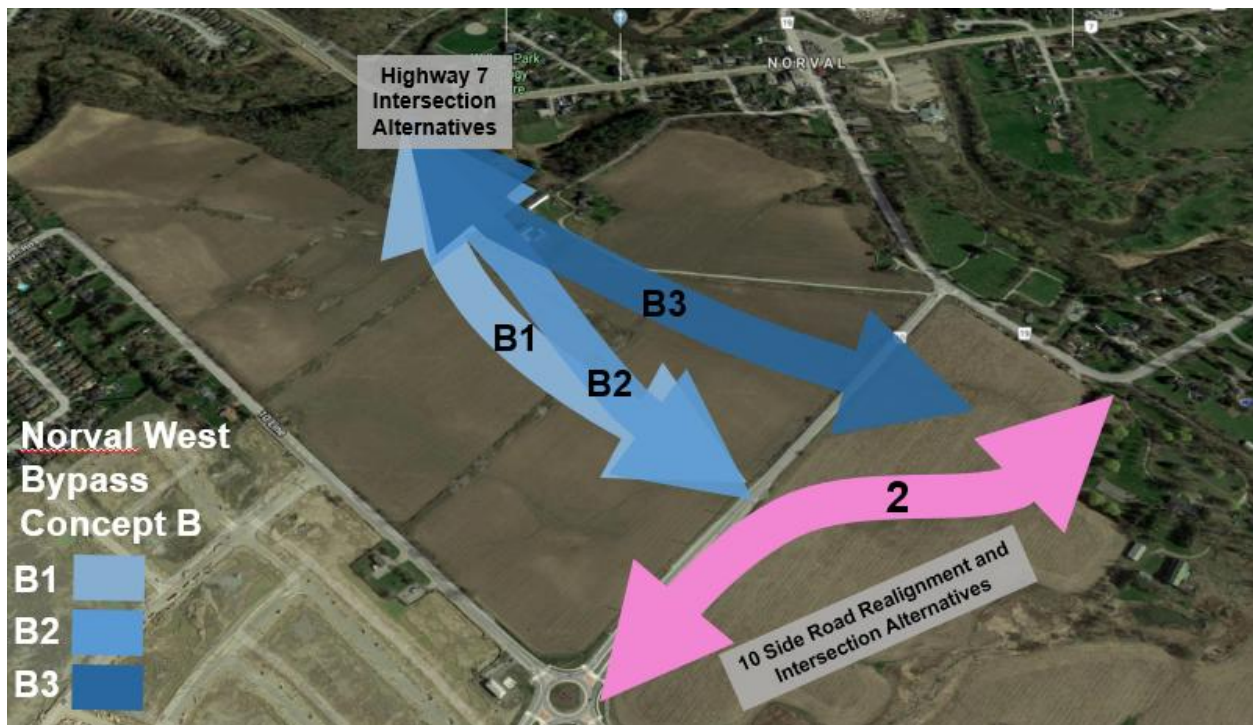


Figure 21: Norval West Bypass Road Alignment Alternatives

These alignments are assessed and evaluated in **Section 5.2.4**.

5.2.2 Highway 7 Intersection Alternatives

A new intersection will be created where the new Norval West Bypass meets the existing Highway 7. Three alternative intersection concepts were considered for the new intersection. The Highway 7 Intersection Alternatives are displayed and evaluated in **Table 18**.

Intersection Alternative 1 - Norval West Bypass intersects Highway 7, and the through traffic continues towards the Hamlet of Norval. This intersection would have a channelized right turn lane from Highway 7 traveling south onto the Norval West Bypass, and one through lane to continue traveling towards Norval. There would be two left turn lanes from the Norval West Bypass traveling north onto Highway 7, and one right turn lane from Norval West Bypass traveling east onto Highway 7.

Intersection Alternative 2 - This concept would require the realignment of Highway 7 to intersect the Norval West Bypass, redirecting the through traffic to continue from Highway 7 to the Norval West Bypass. The intersection would have 2 lanes of through traffic to travel north/south, and a left turn lane from Highway 7 to continue onto Highway 7 towards Norval. Highway 7 traveling from Norval would have 1 right turn lane, and 1 left turn lane.

Intersection Alternative 3 - Realign Highway 7 to intersect Norval West Bypass using a single-lane roundabout. The through traffic would continue from Highway 7 to the Norval West Bypass. A right-turn bypass would be available from Norval West Bypass to Highway 7, traveling northeast towards Norval. A right-turn bypass would be available to continue traveling along Highway 7, traveling west from Norval.

5.2.2.1 Evaluation of Highway 7 Intersection Alternatives

The three Highway 7 intersection alternatives were screened and evaluation to determine the preliminary preferred intersection.



Intersection Alternative 1	Intersection Alternative 2	Intersection Alternative 3
		
- Provides acceptable future Level of Service C.* - Accommodates pedestrians and cyclists. - Has impacts to frontage of properties with Cultural Heritage Value or Interest along Highway 7. - Changes to access to adjacent properties required. - Requires widening of Silver Creek Bridge. Widening will have impacts to the natural environment.	- Provides acceptable future Level of Service C.* - Accommodates pedestrians and cyclists. - Fewer impacts to frontage of properties with Cultural Heritage Value or Interest along Highway 7. - Changes to access to adjacent properties required. - Requires widening of Silver Creek Bridge. Widening will have impacts to the natural environment.	- Provides acceptable future Level of Service A.* - Accommodates pedestrians and cyclists. - Fewer impacts to frontage of properties with Cultural Heritage Value or Interest along Highway 7. - Changes to access to adjacent properties required. - Does not require widening of Silver Creek Bridge.

*Level of Service is a representation of an average vehicle delay at an intersection. A Level of Service ‘A’ indicates minimal delays, where a Level of Service ‘F’ indicates long delays.

5.2.2.2 Preferred Highway 7 Intersection Alternative

Based on the screening and evaluation of the Highway 7 intersection alternatives presented in **Table 18**, Intersection Alternative 3, the roundabout, is carried forward as the preliminary preferred intersection for Highway 7 and the Norval West Bypass.

Since this intersection overlaps with Highway 7, a provincially owned highway, the locations and overall configuration of the roundabout are subject to MTO review and approval. Details regarding the consultation undertaken with MTO is provided in **Section 1.5.2**. The Region will continue to work with the MTO through detail design.

5.2.3 10 Side Road Intersection Alternatives

A new intersection will be created at the Norval West Bypass and 10 Side Road. Two roundabout alternatives for the 10 Side Road and Norval West Bypass intersection were developed. Both of these designs protect for a potential future Winston Churchill Bypass (identified in the Halton/Peel Boundary Area Transportation Study), subject to a future separate MCEA study, as indicated by the grey arrows on the figures below. It should be noted that under both intersection alternative scenarios, 10 Side Road will be realigned.

10 Side Road Intersection Alternative 1 - Intersection Alternative 1 was developed for the intersection of 10 Side Road and the Norval West Bypass, incorporating the previous preliminary design of the Winston Churchill Boulevard MCEA Study (2005).



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
5 Design Alternatives
December 2025**

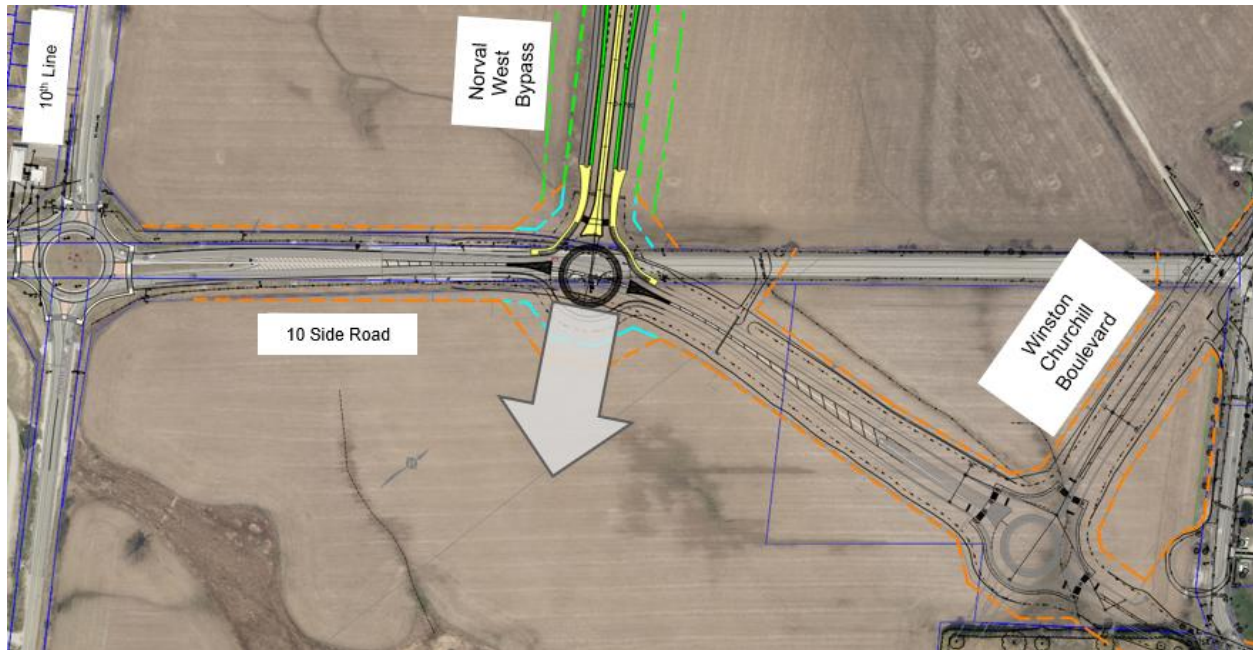


Figure 22: 10 Side Road Intersection Alternative 1

10 Side Road Intersection Alternative 2 - Intersection Alternative 2 was developed to provide flexibility for integration with the Southeast Georgetown Secondary Plan, by allowing a deviation from the Winston Churchill Boulevard MCEA Study preliminary design.



Figure 23: 10 Side Road Intersection Alternative 2

5.2.4 Analysis and Evaluation of Design Alternatives

The following road components are carried forward for the Evaluation of Design Alternatives:

1. Norval West Bypass (**Section 5.2.1**)
 - a. Alignment B1
 - b. Alignment B2
 - c. Alignment B3
2. Highway 7 Intersection (**Section 5.2.2**)
 - a. Preferred Intersection Alternative 3 - roundabout
3. 10 Side Road (**Section 5.2.3**)
 - a. 10 Side Road Intersection Alternative 1 – roundabout
 - b. 10 Side Road Intersection Alternative 2 – roundabout

**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
5 Design Alternatives
December 2025

Figure 24 illustrates how all the road components fit together including the Preferred Highway 7 Intersection and the 10 Side Road roundabouts. Each Alignment was evaluated using the Preferred Highway 7 Roundabout alternative.

The Norval West Bypass Alignments B1 and B2 connect Highway 7 to 10 Side Road with a direct path. These two alignments connect to 10 Side Road Intersection Alternative 1.

The Norval West Bypass Alignment B3 was developed to better integrate with the Southeast Georgetown Secondary Plan and connects to 10 Side Road Intersection Alternative 2.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment
5 Design Alternatives
December 2025

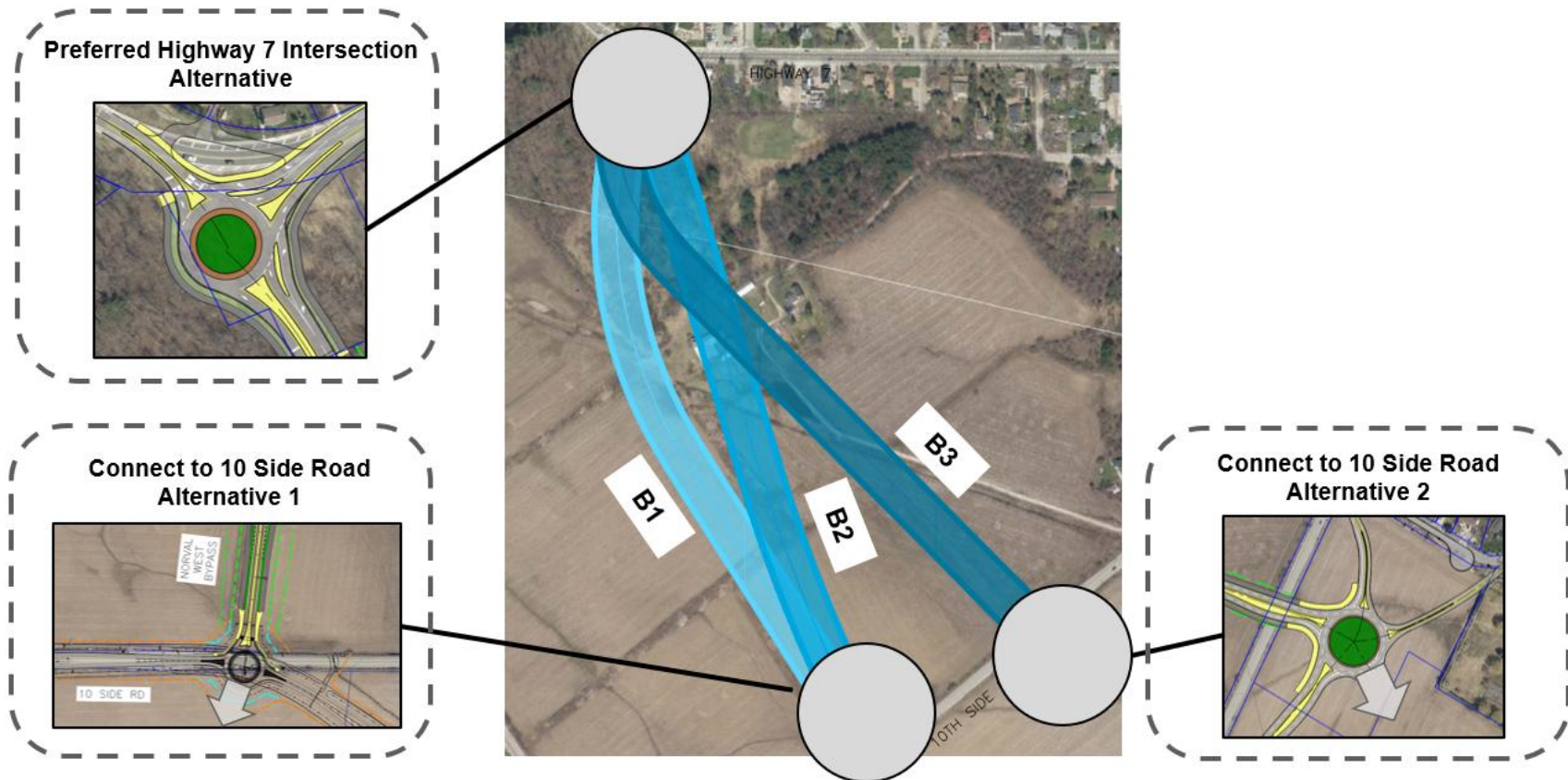


Figure 24: Design Alternatives Overview



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
5 Design Alternatives
December 2025**

The design alternatives were assessed using factor groups such as socio-economic, cultural, and natural environments, as well as transportation and costs, outlined in **Table 19**.

Table 19: Design Alternatives Evaluation Criteria

Factors	Criteria	Description
Cultural Environment	Built Heritage Resources and Cultural Heritage Landscapes	• Potential to impact properties identified with CHVI, including: • Russell Barn and associated outbuildings (16469 10 Side Road – CHR-5). • Russell's Hill of Pines.
	Archaeological Resources	• Potential to impact areas of archaeological potential.
Socio-Economic Environment	Traffic Noise	• Potential for alignment to impact or improve noise levels for noise sensitive areas (i.e., Norval community, residences, etc.).
	Air Quality	• Potential for impacts to air quality as a result of improvements.
	Light Pollution	• Potential impact for light pollution in area due to illumination of new alignment.
	Property	• Potential impacts to property resulting from proposed alignment. • Potential to impact Southeast Georgetown Secondary Plan Land Use recommendations
Transportation	Roadway Geometry	• Potential to meet roadway geometrical standards.
	Access to Adjacent Properties	• Potential to improve property access.
	Cycling Environment	• Potential to improve cyclist operations in the study area.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
5 Design Alternatives
December 2025**

Factors	Criteria	Description
Natural Environment	Surface Water and Groundwater	• Potential to impact quality and/or quantity of surface water and groundwater.
	Natural Heritage Features	• Potential impact on Headwater Drainage Features • Potential impact on Terrestrial Ecosystems, Wildlife & Habitat, Species at Risk (SAR), and Fish & Fish Habitat.
Engineering / Technical	Constructability	• Potential for additional considerations for the construction of alignment.
	Existing Utilities	• Potential impacts to existing utilities
	Preliminary Cost Estimate	• Relative anticipated capital costs

The Assessment of Design Alternatives for Norval West Bypass is summarized in **Table 20**.



Table 20: Assessment of Design Alternatives

FACTOR	ALIGNMENT B1	ALIGNMENT B2	ALIGNMENT B3
	- Roundabout at Highway 7 (Alternative 3) - Winston Churchill Boulevard (WCB) EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	- Roundabout at Highway 7 (Alternative 3) - WCB EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	- Roundabout at Highway 7 (Alternative 3) - Consolidated WCB Roundabout Design at 10 Side Road/WCB (Alternative 2)
CULTURAL ENVIRONMENT			
Built Heritage Resources and Cultural Heritage Landscapes - Potential to impact properties identified with CHVI, including: - Russell Barn and associated outbuildings (16469 10 Side Road – CHR-5). - Russell’s Hill of Pines.	- Avoids impacts to Russell Barn structure. - Direct impact to <u>two</u> heritage attributes identified with Cultural Heritage Value or Interest (CHVI) associated with the Russell Barn property, per the <i>Town of Halton Hills Cultural Heritage Resource Assessment (CHRA) for the Southeast Georgetown Secondary Plan (DRAFT) (Wood, 2021)</i>: - Historical Farming Equipment: Horse trough and scattered remnants of farming equipment. - No direct or indirect impacts to the Main Residence or Russell’s Hill of Pines, located northeast of the Russell Barn property.	- Impacts Russell Barn structure. - Direct impact to <u>six</u> heritage attributes identified with CHVI associated with the Russell Barn property per <i>Town of Halton Hills CHRA for the Southeast Georgetown Secondary Plan (DRAFT) (Wood, 2021)</i>.: - Other Buildings and Structures: Barn, Outbuilding 1, Outbuilding 2, concrete silo - Historical Farming Equipment: Farm equipment remnants (two remnants). - The Main Residence with CHVI would not be directly impacted by the alignment. However, sensitivity to soils stabilization and vibration due to the adjacent construction may impact Main Residence. - No direct or indirect impacts to the Russell’s Hill of Pines, located northeast of the Russell Barn property.	- Impacts Russell Barn structure. - Direct impact to <u>six</u> heritage attributes identified with CHVI associated with the Russell Barn property per <i>Town of Halton Hills CHRA for the Southeast Georgetown Secondary Plan (DRAFT) (Wood, 2021)</i>.: - Other Buildings and Structures: Barn, Outbuilding 1, Outbuilding 2, concrete silo - Historical Farming Equipment: Farm equipment remnants (two remnants). - The Main Residence with CHVI would not be directly impacted by the alignment. However, sensitivity to soils stabilization and vibration due to the adjacent construction may impact Main Residence. - No direct or indirect impacts to the Russell’s Hill of Pines, located northeast of the Russell Barn property.
Archaeological Resources Potential to impact areas of archaeological potential.	Stage 2 Archaeological Assessment required at Detail Design Phase in areas identified with archaeological potential. Similar area is impacted in all alignments.	Stage 2 Archaeological Assessment required at Detail Design Phase in areas identified with archaeological potential. Similar area is impacted in all alignments.	Stage 2 Archaeological Assessment required at Detail Design Phase in areas identified with archaeological potential. Similar area is impacted in all alignments.
CULTURAL ENVIRONMENT SUMMARY	MOST PREFERRED	MODERATELY PREFERRED	MODERATELY PREFERRED



FACTOR	ALIGNMENT B1 - Roundabout at Highway 7 (Alternative 3) - Winston Churchill Boulevard (WCB) EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	ALIGNMENT B2 - Roundabout at Highway 7 (Alternative 3) - WCB EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	ALIGNMENT B3 - Roundabout at Highway 7 (Alternative 3) - Consolidated WCB Roundabout Design at 10 Side Road/WCB (Alternative 2)
SOCIO-ECONOMIC ENVIRONMENT			
Traffic Noise Potential for alignment to impact or improve noise levels for noise sensitive areas (i.e., Norval community, residences, etc.).	No opportunity to improve noise levels.	No opportunity to improve noise levels.	Opportunity to reduce noise levels. Realignment of through-traffic on Winston Churchill Boulevard will provide greater separation from residential properties currently adjacent to the roadway.
Air Quality Potential for impacts to air quality as a result of improvements.	No appreciable difference between the alignments.	No appreciable difference between the alignments.	No appreciable difference between the alignments.
Light Pollution Potential impact for light pollution in area due to illumination of new alignment.	- Low potential for light pollution impacts as a result of alignment. - Lighting will be added at the roundabouts and approaches, which will add lighting to those areas. This will increase some light pollution due to safety requirements.	- Low potential for light pollution impacts as a result of alignment. - Lighting will be added at the roundabouts and approaches, which will add lighting to those areas. This will increase some light pollution due to safety requirements.	- Low potential for light pollution impacts as a result of alignment. - Lighting will be added at the roundabouts and approaches, which will add lighting to those areas. This will increase some light pollution due to safety requirements. - Realignment of through traffic on Winston Churchill Boulevard will provide greater separation from residential properties currently adjacent to the roadway.
Property - Potential impacts to property resulting from proposed alignment. - Potential to impact Southeast Georgetown Secondary Plan Land Use recommendations.	- Limited permanent impacts to residential property; temporary grading impacts during construction anticipated. Grading impacts will be mitigated through a combination of grading and retaining walls. - Property acquisition required from two properties south of 10 Side Road. - Allows for smaller parcels of land for development of the Secondary Plan Area.	- Limited permanent impacts to residential property; temporary grading impacts during construction anticipated. Grading impacts will be mitigated through a combination of grading and retaining walls. - Property acquisition required from two properties south of 10 Side Road. - Allows for smaller parcels of land for development of the Secondary Plan Area.	- Limited permanent impacts to residential property; temporary grading impacts during construction anticipated. Grading impacts will be mitigated through a combination of grading and retaining walls. - Property acquisition required from two properties south of 10 Side Road. - Allows for larger parcels of land for future development of the Secondary Plan Area.
SOCIO-ECONOMIC ENVIRONMENT SUMMARY	MODERATELY PREFERRED	MODERATELY PREFERRED	MOST PREFERRED



FACTOR	ALIGNMENT B1 - Roundabout at Highway 7 (Alternative 3) - Winston Churchill Boulevard (WCB) EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	ALIGNMENT B2 - Roundabout at Highway 7 (Alternative 3) - WCB EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	ALIGNMENT B3 - Roundabout at Highway 7 (Alternative 3) - Consolidated WCB Roundabout Design at 10 Side Road/WCB (Alternative 2)
TRANSPORTATION			
Roadway Geometry Potential to meet roadway geometric standards.	No appreciable difference between the alignments. Design standards have been applied.	No appreciable difference between the alignments. Design standards have been applied.	No appreciable difference between the alignments. Design standards have been applied.
Access to Adjacent Properties Potential to improve property access.	Low potential to improve property accesses.	Low potential to improve property accesses.	High potential to improve property access. Realignment of through-traffic on Winston Churchill Boulevard will provide greater separation from residential properties currently adjacent to the roadway.
Cycling Environment Potential to improve cyclist operations in the study area.	No appreciable difference between the alignments with multi-use paths being included in the design.	No appreciable difference between the alignments with multi-use paths being included in the design.	No appreciable difference between the alignments with multi-use paths being included in the design.
TRANSPORTATION SUMMARY	MODERATELY PREFERRED	MODERATELY PREFERRED	MOST PREFERRED
NATURAL ENVIRONMENT			
Surface Water and Groundwater Potential to impact quality and/or quantity of surface water and groundwater.	Alignment falls within a Highly Vulnerable Aquifer and Significant Groundwater Recharge Area and has the potential to pose potential drinking water threats as a result of construction activities. Potential drinking water threats will be identified during detail design and will follow Credit Valley Conservations (CVC) Source Protection Plan policies.	Alignment falls within a Highly Vulnerable Aquifer and Significant Groundwater Recharge Area and has the potential to pose potential drinking water threats as a result of construction activities. Potential drinking water threats will be identified during detail design and will follow Credit Valley Conservations (CVC) Source Protection Plan policies.	Alignment falls within a Highly Vulnerable Aquifer and Significant Groundwater Recharge Area and has the potential to pose potential drinking water threats as a result of construction activities. Potential drinking water threats will be identified during detail design and will follow Credit Valley Conservations (CVC) Source Protection Plan policies.
Natural Heritage Features - Potential impact on Headwater Drainage Features - Potential impact on Terrestrial Ecosystems, Wildlife & Habitat, Species at Risk (SAR), and Fish & Fish Habitat	- Direct impact to Headwater Drainage Feature 1 (management recommendation: no mitigation required). Road design will replicate drainage to the extent possible, and compensation will occur following CVC's (2020) Offsetting Guidelines. - Direct Impact to HDF2 (management recommendation: no mitigation required). Road design will replicate drainage to the extent possible, and compensation will occur following CVC's (2020) Offsetting Guidelines. Road design	- Direct impact to Headwater Drainage Feature 1 (management recommendation: no mitigation required). Road design will replicate drainage to the extent possible, and compensation will occur following CVC's (2020) Offsetting Guidelines. - Direct Impact to HDF2 (management recommendation: no mitigation required). Road design will replicate drainage to the extent possible, and compensation will occur following CVC's (2020) Offsetting Guidelines. Road design	- Direct impact to Headwater Drainage Feature 1 (management recommendation: no mitigation required). Road design will replicate drainage to the extent possible, and compensation will occur following CVC's (2020) Offsetting Guidelines. - Direct Impact to HDF2 (management recommendation: no mitigation required). Road design will replicate drainage to the extent possible, and compensation will occur following CVC's (2020) Offsetting Guidelines. Road design



FACTOR	ALIGNMENT B1 - Roundabout at Highway 7 (Alternative 3) - Winston Churchill Boulevard (WCB) EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	ALIGNMENT B2 - Roundabout at Highway 7 (Alternative 3) - WCB EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	ALIGNMENT B3 - Roundabout at Highway 7 (Alternative 3) - Consolidated WCB Roundabout Design at 10 Side Road/WCB (Alternative 2)
	will incorporate culverts and sewers to maintain drainage. - High potential to impact unevaluated wetland. The wetlands and parts of the HDFs are regulated by CVC (O. Reg. 160/06). Compensation will be determined through CVC's permitting process and in accordance with their (2020) Offsetting Guidelines. Detail Design is required to refine impacts and compensation requirements prior to applying to CVC for a permit. - Loss and fragmentation of woodlands, including loss of habitat for Eastern Wood-pewee (special concern) and endangered bats. Mitigation and compensation for endangered bats will be determined by MECP through the authorization process for the Endangered Species Act. - Impacts to Significant Woodland area similar across all alignments. Reforestation can occur either onsite or elsewhere to replace lost woodlands and habitat of special concern species. - No loss of agricultural buildings with historical nesting of Barn Swallow (special concern) and suitable snake overwintering habitat.	will incorporate culverts and sewers to maintain drainage. - Low potential to impact unevaluated wetland. - Loss and fragmentation of woodlands, including loss of habitat for Eastern Wood-pewee (special concern) and endangered bats. Mitigation and compensation for endangered bats will be determined by MECP through the authorization process for the Endangered Species Act. - Impacts to Significant Woodland area similar across all alignments. Reforestation can occur either onsite or elsewhere to replace lost woodlands and habitat of special concern species. - Loss of agricultural buildings with historical nesting of Barn Swallow (special concern) and suitable snake overwintering habitat.	will incorporate culverts and sewers to maintain drainage. - Low potential to impact unevaluated wetland. - Loss and fragmentation of woodlands, including loss of habitat for Eastern Wood-pewee (special concern) and endangered bats. Mitigation and compensation for endangered bats will be determined by MECP through the authorization process for the Endangered Species Act. - Impacts to Significant Woodland area similar across all alignments. Reforestation can occur either onsite or elsewhere to replace lost woodlands and habitat of special concern species. - Loss of agricultural buildings with historical nesting of Barn Swallow (special concern) and suitable snake overwintering habitat.
NATURAL ENVIRONMENT SUMMARY	MODERATELY PREFERRED	MOST PREFERRED	MOST PREFERRED



FACTOR	ALIGNMENT B1 - Roundabout at Highway 7 (Alternative 3) - Winston Churchill Boulevard (WCB) EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	ALIGNMENT B2 - Roundabout at Highway 7 (Alternative 3) - WCB EA Roundabout Design at 10 Side Road/WCB (Alternative 1)	ALIGNMENT B3 - Roundabout at Highway 7 (Alternative 3) - Consolidated WCB Roundabout Design at 10 Side Road/WCB (Alternative 2)
ENGINEERING / TECHNICAL			
Constructability Potential for challenges with construction of alignment.	Due to the nature of the existing roadways and topography, staging and constructability challenges are anticipated.	Due to the nature of the existing roadways and topography, staging and constructability challenges are anticipated.	- Due to the nature of the existing roadways and topography, staging and constructability challenges are anticipated. - Proposed roundabout east of 10 Side Road can be constructed while traffic on 10 Side Road is maintained to mitigate construction impacts.
Existing Utilities Potential impacts to existing utilities.	Existing utilities will be impacted as a result of the improvements. No appreciable difference between the alternatives and alignments.	Existing utilities will be impacted as a result of the improvements. No appreciable difference between the alternatives and alignments.	Existing utilities will be impacted as a result of the improvements. No appreciable difference between the alternatives and alignments.
ENGINEERING/ TECHNICAL SUMMARY	MODERATELY PREFERRED	MODERATELY PREFERRED	MOST PREFERRED
Preliminary Cost Estimate Relative anticipated capital costs.	Alignment 1 is higher capital costs relative to Alignment 2 as a result of length of roadway required. No appreciable cost difference between the alignments.	Alignment 2 has lower capital costs relative to Alignment 1, as this alignment is the ‘best fit’ and most direct connection. No appreciable cost difference between the alignments.	Alignment 3 has slightly higher capital costs relative to Alignment 1 and Alignment 2 as a result of length of roadway required. No appreciable cost difference between the alignments.
OVERALL SUMMARY	MODERATELY PREFERRED	MODERATELY PREFERRED	MOST PREFERRED



As a result of the evaluation, Alignment B3, Norval West Bypass Alternative B3, and 10 Side Road Alternative 2 were determined to be the preliminary preferred design alternative.

5.3 Recommended Design Alternative

The Recommended Design for the study includes the following design alternatives:

- Norval West Bypass Alignment B3
- Highway 7 Intersection Alternative 3 – Roundabout
- 10 Side Road Intersection Alternative 2

The Recommended Design Alternative is displayed in **Figure 25**. The construction of the Norval West Bypass transportation corridor between Highway 7 and 10 Side Road will supply four traffic lanes of additional capacity, including multi-use pathways on either side of the road to support a multimodal transportation network. Through both consultation and in order to better suit the needs of the active transportation users along the corridor, the on-road bike lanes are no longer recommended, and a wider multi-use pathway is proposed. The typical cross-section has been developed based on an overall right-of-way width of 42 m and includes a raised median which will be used for left turn lanes at intersections. A boulevard area will provide space for tree planting and landscaping opportunities, utilities, and lighting. Additional information on the recommended Norval West Bypass cross-section is provided in **Section 7.2.3**.

A single lane roundabout with supplemental turning lanes at the Highway 7 and the Norval West Bypass intersection will be constructed to facilitate safe movement for all modes of travel. The Norval West Bypass will connect to a realigned and widened 10 Side Road through a two-lane a roundabout. 10 Side Road is proposed to be constructed as a four-lane road. The typical cross-section has been developed based on an overall right-of-way width of 42m and includes a raised median which will be used for left turn lanes at intersections. A boulevard area will provide space for tree planting and landscaping opportunities, utilities, and lighting. Additional information on the recommended 10 Side Road cross-section is provided in **Section 7.2.3**.

Winston Churchill Boulevard/Adamson Street will be realigned to meet the recommended intersection at 10 Side Road. As a result of the realignment, a section of the existing Winston Churchill Boulevard/Adamson Street will be reconfigured to a cul-de-sac.

The grey arrow displayed in **Figure 25** represents a potential future Winston Churchill Bypass, identified in the HPBATs, subject to a future separate MCEA study.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
5 Design Alternatives
December 2025**

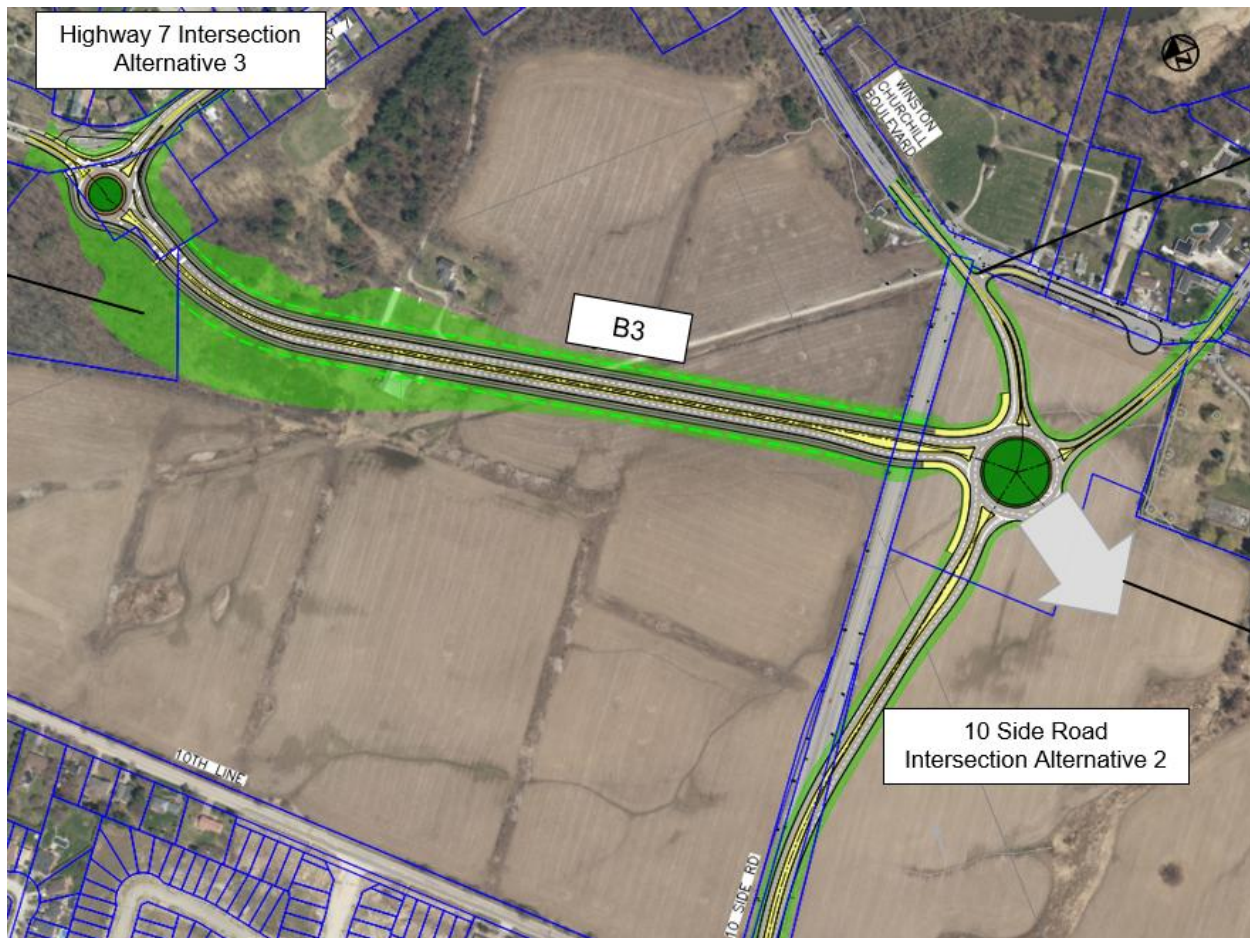


Figure 25: Recommended Design Alternative

5.3.1 Road Profile

The study area has a significant grading difference leaving Highway 7 and heading south. **Figure 26** displays the existing ground profile and the recommended profile of the new Norval West Bypass. As a result of the proposed profile, which will accommodate the users of the multi-use pathway, grading and/or retaining walls will be required to construct the Recommended Design Alternative. The grading limits for the construction of the improvements will be confirmed during detail design. Mitigation of the grading limits will be achieved through a combination of grading and retaining walls, which are subject to future geotechnical investigations in detail design. Additional information on the road profile is provided in **Section 7.2.2**.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
5 Design Alternatives
December 2025**

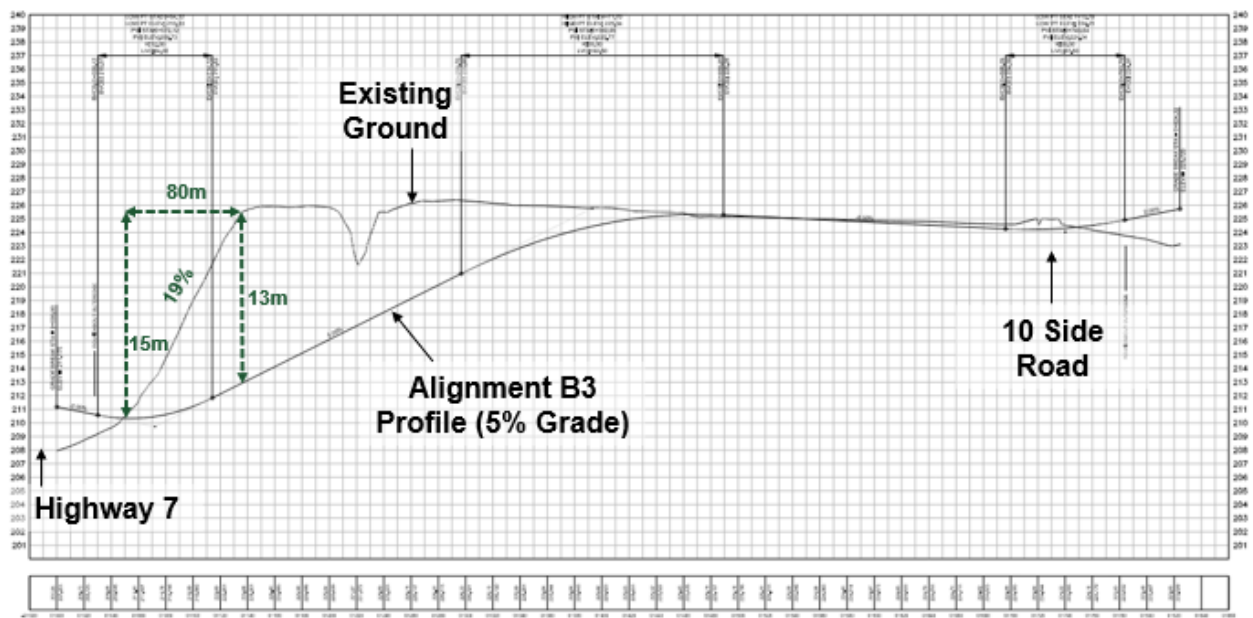


Figure 26: Road Profile



6 Consultation

Public, stakeholder, technical agency and Indigenous community consultation is a key part of the MCEA Study process. Halton Region has provided opportunities for such input at key points in the MCEA Study process. The intent of the consultation process was to ensure that all stakeholders and Indigenous Communities, First Nations and Métis Communities were given the opportunity to provide input on the transportation needs and existing environment along the Norval West Bypass as well as the preliminary preferred design.

The following section documents the key consultation events with technical agencies, stakeholders, Indigenous Communities, First Nations and Métis Communities and the public that are associated with the Norval West Bypass MCEA Study.

6.1 Public Consultation

The following sections describe the public consultation efforts completed, the key comment themes received from the public throughout the study and how they were addressed by the Project Team, and meetings with individual property owners. All public notifications, materials, comments received and responses, excluding personal information, are provided in **Appendix A**.

6.1.1 Notice of Study Commencement

The Notice of Study Commencement for the Norval West Bypass MCEA Study was published on the Region's website on January 23, 2020, and published in the *Georgetown Independent* newspaper the weeks of January 23, 2020, and January 30, 2020.

The Notice was mailed to property owners within and directly adjacent to the study area, technical agencies (federal, provincial, and municipal agencies), Indigenous Communities, First Nations and Métis Communities, and utility companies identified on the project mailing list on January 23, 2020. The project mailing list and Notice of Study Commencement can be found in **Appendix A**.

6.1.2 Public Information Centres

Public Information Centres (PICs) were a key part of the overall consultation process of this project, allowing the public to provide their feedback throughout the study process and assist in the development of a preferred planning solution alternative. As outlined in



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

Section 1.6.1, two PICs were held during the MCEA Study, and a summary of each PIC is provided below:

- PIC #1 was held online from November 19, 2020, to December 18, 2020, and
- PIC #2 was held online from January 31, 2024, to February 28, 2024, extended to March 27, 2024.

Project Webpage and Presentation Slides: **Halton - Online Consultation: Norval West Bypass Transportation Corridor Improvements Municipal Class Environ**

Public Information Centre #1 (November 19, 2020 – December 18, 2020)

The purpose of PIC #1 was to provide members of the public with an opportunity to provide input on the study process and schedule, problem and opportunities, background information, existing conditions, alternative planning solutions, road corridor concept alternatives and next steps.

The Notice of PIC #1 was published on the project website on November 12, 2020. The Notice of PIC #1 was published in the *Georgetown Independent* newspaper on November 12, and November 19, 2020.

The Notice was mailed to property owners within and directly adjacent to the study area, sent by registered mail to Indigenous Communities, First Nations and Métis Communities, and emailed to technical agencies, Indigenous Communities, First Nations and Métis Communities, and the project contact list on November 12, 2020.

A mobile sign was erected at the intersection of 10 Side Road and Adamson Street/Winston Churchill Boulevard on November 19, 2020, advertising the PIC event. Signs were left in place until December 18, 2020. In addition, the PIC was promoted through the Region's corporate social media accounts including Instagram, Twitter and Facebook.

Pre-recorded video presentations were uploaded to the study website for the public to review. The presentation and transcript were also made available for download on the study website. The Project Team mailed hard copies of the presentation and transcript upon request.

An online survey was prepared and published by Halton Region on the project website. The survey was made available to the public during the comment period, from November 19 – December 18, 2020. The purpose of the survey was to gather feedback from the public regarding background information and the planning alternatives being considered for the next phase of the MCEA study. A copy of the survey questions is provided in **Appendix A**.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

Comments were also submitted to the project team by email for the duration of the comment period.

Over 120 comments were received, primarily from members of the public and stakeholders. Key feedback themes identified from the comments received included:

- Inquiries regarding project timeline
- Concerns related to potential increase in noise levels
- Desire to preserve the character of the Hamlet of Norval and protect heritage resources
- Comments regarding the project need and justification
- Concerns regarding impacts to local community traffic flow
- Comments related to streetscaping opportunities
- Desire to protect the existing natural environment
- Inquiries into how the Region is considering climate change
- Comments to consider agricultural vehicles
- Desire to incorporate active transportation facilities

The issues/questions raised during PIC #1 were documented in a Public/Stakeholder Communication Log with the responses provided to each stakeholder following the PIC. In addition to individual responses, the Project Team prepared a summary of the comments by theme and provided responses in a Frequently Asked Questions document. The document was posted on the Region's website on October 19, 2021. An email inviting residents to view the Frequently Asked Questions document was sent the same morning, ensuring consistent information was shared with all residents and stakeholders.

A copy of the presentation materials, survey questions and comments received are provided in **Appendix A**. Specifically, the PIC #1 presentation and transcript are on pages 4–38, the comments received, and responses are on pages 39–87, and the Frequently Asked Questions summary document is on pages 181–187.

Public Information Centre #2 (January 31, 2024 – March 27, 2024)

The purpose of PIC #2 was to provide members of the public with an opportunity to provide input on the preliminary preferred design alternative. Initially the PIC was planned to be held between January 31, 2024, and February 28, 2024. Due to community interest, it was extended to March 27, 2024, to ensure everyone had the opportunity to review the material and provide feedback.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

6 Consultation

December 2025

The Notice of PIC #2 was published on the project website on January 31, 2024. The Notice was mailed to property owners within and directly adjacent to the study area, sent by registered mail to Indigenous Communities, First Nations and Métis Communities, and emailed to technical agencies, Indigenous Communities, First Nations and Métis Communities, and the project contact list on January 31, 2024.

Mobile signs were erected on January 31, 2024 at the following locations:

- Ninth Line & 10 Side Rd
- 10 Lindsay Ct
- 10241 8 Line
- Mountainview Rd S & Sinclair Ave
- Peel Regional Rd 19 & Mayfield Rd
- 241 Maple Ave

Signs were left in place until March 18, 2024. In addition, the PIC was promoted through the Region's corporate social media accounts including Instagram, Twitter and Facebook.

Pre-recorded video presentations were uploaded made available on the study website for the public to review. The presentation and transcript were also made available for download on the study website.

An online questionnaire was prepared and published by Halton Region on the project website. The survey was made available to the public during the comment period, from January 31 – March 27, 2024. The purpose of the survey was to gather feedback from the public regarding the preliminary preferred design. A copy of the survey questions is provided in **Appendix A**. Over 120 comments were received, primarily from members of the public and stakeholders.

Key feedback themes identified from the comments received included:

- Concerns regarding increase in noise
- Concerns regarding the potential to increase in traffic in Norval
- Concerns for streetscaping and landscaping, and keeping local character of Norval
- Desire for traffic calming measures
- General support for the improvements to alleviate traffic
- Concerns regarding how the improvements fit into the overall transportation network



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

- Concerns regarding environmental impacts of the improvements
- Comments regarding the need to widen the Silver Creek Bridge, and provide additional vehicular lanes, and two-lane roundabout
- Comments related to accommodating farming vehicles in roundabouts
- Concerns related to removing farmland to build the road
- Support for providing active transportation within the study area
- Support for providing needed improvements to alleviate concerns regarding need for improvements to alleviate east/west traffic through Norval
- Desire for traffic lights instead of roundabout

To address the comments received from PIC #2, the Project Team created an enhanced Frequently Asked Questions video and transcript, covering all key themes. These were uploaded to the Study Consultation webpage on June 26, 2024. An email inviting residents to view the video was sent the same morning, ensuring consistent information was shared with all residents and stakeholders.

A copy of the presentation materials, survey questions, and comments received are included in **Appendix A**. Specifically, the PIC #2 presentation and transcript are on pages 1–48, the survey questions and comments are on pages 49–64, and the Frequently Asked Questions presentation and transcript are on pages 136–185.

6.1.3 Individual Property Owner Meetings

Engagement of stakeholders / interested members of the public occurred throughout the study and was not limited to the online Public Information Centres. Interested property and business owners could request to meet with the Project Team at any time throughout the study. Individual meetings with impacted property owners were conducted prior to PIC #2 to provide an update on the preliminary preferred design and offer an opportunity to discuss the anticipated impacts to their property in greater detail. Correspondence with property owners was documented in meeting minutes and is on file with the Region.

6.2 Technical Agencies

Technical agencies were notified of the commencement of the Norval West Bypass MCEA Study through mail or email in January 2020. Comments received from technical agencies are provided in **Appendix A**. A number of meetings with agencies were held, along with three External Technical Agency Committee (TAC) meetings, which are documented in this section. Internal Technical Agency meetings also took place as required, with minutes on file with the Region.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

Technical agencies were also invited to attend the two online PICs that were held. A list of government agencies, utilities and Indigenous Communities, First Nations and Métis Communities that were invited to participate in the TAC is provided in **Section 1.5.4** of this ESR.

6.2.1 External Technical Agency Committee Meetings

As noted above, three TAC meetings were held on:

- TAC Meeting #1 - September 30, 2020
- TAC Meeting #2 - April 5, 2023
- TAC Meeting #3 - January 12, 2024

A brief summary of each of these meetings is provided in the sub-sections below. Meeting minutes are included in **Appendix A**. Comments received at the TAC meetings were taken into consideration as the study progressed.

Technical Agency Committee Meeting #1 (September 30, 2020)

The purpose of TAC Meeting #1 was to introduce the Region's Norval West Bypass Environmental Assessment (MCEA Study) from Highway 7 to 10 Side Road (Regional Road 10), including 10 Side Road from Tenth Line to Winston Churchill Boulevard/Adamson Street (Regional Road 19), within the Town of Halton Hills. The TAC meeting provides an opportunity for interested agencies to solicit feedback on the project progress.

Representatives from the following technical agencies and utilities attended TAC Meeting #1:

- Region of Peel
- Enbridge Gas
- Ministry of Transportation
- Town of Halton Hills
- Halton Region

Meeting minutes from TAC Meeting #1 are available in **Appendix A**.

Technical Agency Committee Meeting #2 (April 5, 2023)

The purpose of TAC Meeting #2 was to discuss the ongoing Norval West Bypass MCEA Study, within the Town of Halton Hills. This meeting provided an update on progress of the project since the first TAC Meeting, including the development of preliminary design



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

alternatives, analysis, and evaluation process, as well as the draft preliminary design alternative.

Representatives from the following technical agencies and utilities attended TAC Meeting #2:

- Region of Peel
- Ministry of Transportation
- Credit Valley Conservation
- Halton Hills Hydro
- Town of Halton Hills
- Halton Region

Meeting minutes from TAC Meeting #2 are available in **Appendix A**.

Technical Agency Committee Meeting #3 (January 12, 2024)

The purpose of TAC Meeting #3 was to present the PIC #2 materials for the Norval West Bypass MCEA Study and provide an opportunity for Halton Region staff to review the materials and provide feedback.

Representatives from the following technical agencies attended TAC Meeting #3:

- Halton Region

Meeting minutes from TAC #3 are available in **Appendix A**.

6.2.2 Town of Halton Hills

Given that the study area is located within the Town of Halton Hills, twelve meetings with the Town of Halton Hills were held.

- Town of Halton Hills Meeting #1 - September 16, 2020
- Town of Halton Hills Meeting #2 - February 25, 2022
- Town of Halton Hills Meeting #3 - March 9, 2022
- Town of Halton Hills Meeting #4 - October 19, 2022
- Town of Halton Hills Meeting #5 - December 14, 2022
- Town of Halton Hills Meeting #6 - May 16, 2023
- Town of Halton Hills Meeting #7 - June 20, 2023
- Town of Halton Hills Meeting #8 - July 25, 2023



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

- Town of Halton Hills Meeting #9 - August 10, 2023
- Town of Halton Hills Meeting #10 - August 29, 2023
- Town of Halton Hills Meeting #11 - September 21, 2023
- Town of Halton Hills Meeting #12 - December 12, 2023
- Town of Halton Hills Meeting #13 - November 7, 2024
- Town of Halton Hills Meeting #14 - September 17, 2025

A brief summary of each of these meetings is provided in the sub-sections below. Meeting minutes are kept on file with the Region. Comments received at the Town of Halton Hills meetings were taken into consideration as the study progressed.

Town of Halton Hills Meeting #1 (September 16, 2020)

The purpose of the Town of Halton Hills Meeting #1 was to introduce the Region's Norval West Bypass Municipal Class Environmental Assessment (MCEA Study) and provide an overview of the Study, including study background, and existing conditions.

Town of Halton Hills Meeting #2 (February 25, 2022)

The purpose of the Town of Halton Hills Meeting #2 was to provide an update on the project since the first meeting held on September 16, 2020. An overview of the progress was presented, including the draft preliminary design alternative.

Town of Halton Hills Meeting #3 (March 9, 2022)

The purpose of the Town of Halton Hills Meeting #3 was to discuss the study updates and to coordinate the Norval West Bypass with the Georgetown Secondary Plan Land Use Study.

Town of Halton Hills Meeting #4 (October 19, 2022)

The purpose of the Town of Halton Hills Meeting #4 was to discuss data sharing, the stormwater management analysis key assumptions, the Southeast Georgetown scoped subwatershed study and active transportation.

Town of Halton Hills Meeting #5 (December 14, 2022)

The purpose of the Town of Halton Hills Meeting #5 was to continue to discuss the study updates and opportunities for coordination between the Norval West Bypass MCEA Study and the Southeast Georgetown Secondary Plan Study. The draft preliminary stormwater management analysis and project updates were presented and the approach to developing the Norval West Bypass renderings was discussed.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

Town of Halton Hills Meeting #6 (May 16, 2023)

The purpose of the Town of Halton Hills Meeting #6 was to discuss the potential to minimize impacts to the area of developable land within Georgetown Secondary Plan Land Use Study through adjusting the alignment of the Norval West Bypass. An overview of the study context, projected travel demand, and key considerations (e.g. grade, connection anchors, cultural heritage resources, etc.) were presented.

Town of Halton Hills Meeting #7 (June 20, 2023)

The purpose of the Town of Halton Hills Meeting #7 was to provide a review of the key considerations and constraints for the development of the Preliminary Preferred Design and additional concept options. The Project Team revisited the alignment considerations and integrated two additional scenarios.

Town of Halton Hills Meeting #8 (July 25, 2023)

The purpose of the Town of Halton Hills Meeting #8 was to provide an update to the Town following Meeting #7, related to investigating the opportunity to realign the Norval West Bypass alignment. A summary of the bypass alignment as well as a summary of the work undertaken to date to develop the new bypass alignment was presented.

Town of Halton Hills Meeting #9 (August 10, 2023)

The purpose of the Town of Halton Hills Meeting #9 was to provide an update to the Town of Halton Hills and Fieldgate following Meeting #8, presenting an update on the preliminary 10 Side Road roundabout layout and geometry, a traffic analysis overview for the roundabout, and a preliminary horizontal alignment concept for the Norval West Bypass from Highway 7 to 10 Side Road.

Town of Halton Hills Meeting #10 (August 29, 2023)

The purpose of the Town of Halton Hills Meeting #10 was to provide an update to the Town of Halton Hills and Fieldgate following Meeting #9. A recap of the previously presented information was provided as well as an update on the new preliminary design plans.

Town of Halton Hills Meeting #11 (September 21, 2023)

The purpose of the Town of Halton Hills Meeting #11 was to provide an opportunity to update the Town of Halton Hills and Fieldgate following Meeting #10. Progress on the preliminary design was presented.

Town of Halton Hills Meeting #12 (December 12, 2023)

The purpose of the Town of Halton Hills Meeting #12 was to provide an overview of PIC #2 content, timing and format. Draft materials were presented.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

Town of Halton Hills Meeting #13 (November 7, 2024)

The purpose of the Town of Halton Hills Meeting #13 was to provide an overview of the ESR content and summary of recommendations. Minutes were not recorded for this meeting.

Town of Halton Hills Meeting #14 (September 17, 2025)

The purpose of the Town of Halton Hills Meeting #13 was to provide an overview of the ESR content and summary of recommendations. Minutes were not recorded for this meeting.

6.2.3 Region of Peel

One meeting was held with Peel Region (separate from the External Technical Agency Committee meetings) on November 21, 2023. The purpose of this meeting was to review the recommendations in advance of presenting to the public at PIC#2. Minutes were not recorded at this meeting.

6.2.4 Ministry of Transportation

A number of meetings with the Ministry of Transportation (MTO) were arranged throughout the study:

- MTO Central Region Meeting #1 - February 6, 2020
- MTO Central Region Meeting #2 - August 7, 2020
- MTO Senior Management Meeting #1 - September 22, 2020
- MTO Central Region Meeting #3 - July 27, 2021
- MTO Central Region Meeting #4 - November 5, 2021
- MTO Central Region Meeting #5 - January 21, 2021
- MTO Central Region Meeting #6 - January 31, 2022
- MTO Senior Management Meeting #2 - February 15, 2022
- MTO Roundabout Committee Meeting #1 - February 17, 2022
- MTO Roundabout Committee Meeting #2 - March 17, 2022
- MTO Central Region Meeting #7 - March 23, 2022
- MTO Central Region Meeting #8 - April 14, 2022
- MTO Senior Management Meeting #3 - May 2, 2022



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

- MTO Central Region Meeting #9 - March 1, 2023
- MTO Central Region Meeting #10 - October 23, 2023
- MTO Central Region Meeting #11 - December 14, 2023
- MTO Central Region Meeting #12 - January 16, 2024
- MTO Central Region Meeting #13 - June 27, 2025

A brief summary of each of these meetings is provided in the sub-sections below. Meeting minutes are included in **Appendix A**. Comments received from MTO were taken into consideration as the study progressed.

MTO Central Region Meeting #1 (February 6, 2020)

The purpose of this MTO Central Region Meeting #1 was to introduce the Region's Norval West Bypass MCEA Study, to discuss project background, transportation existing conditions, proposed cross-sections, overall study schedule, and next steps.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #2 (August 7, 2020)

The purpose of this MTO Central Region Meeting #2 was to provide an update on the Region's Norval West Bypass MCEA Study, discuss existing natural environment and transportation conditions, alternative solutions, preferred road corridor concept, Silver Creek bridge structure, intersection improvements, study schedule, and next steps.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Senior Management Meeting #1 (September 22, 2020)

The purpose of this MTO Senior Management Meeting #1 was to discuss existing natural environment and transportation conditions, preferred road corridor concept, MTO design standards, and Silver Creek Bridge structure.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #3 (July 27, 2021)

The purpose of this MTO Central Region Meeting #3 was to discuss existing natural environment and transportation conditions, preferred road corridor concept, MTO design standards, and Silver Creek bridge structure.

Meeting minutes from this MTO Meeting are available in **Appendix A**.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

MTO Central Region Meeting #4 (November 5, 2021)

The purpose of this MTO Central Region Meeting #4 was to discuss ongoing comments from various MTO staff. Comments generally related to roundabout design, turning movements, MTO design standards, and MTO Highway Access Management guidelines.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #5 (January 21, 2022)

The purpose of this MTO Central Region Meeting was to discuss new traffic analysis comments.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #6 (January 31, 2022)

The purpose of this MTO Central Region Meeting was to present the evaluation summary and preliminary preferred design alternative and profile and to solicit feedback ahead of the MTO Senior Management Meeting #2, as well as to discuss how previous comments have been addressed and incorporated into the preliminary preferred design alternative.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Senior Management Meeting #2 (February 15, 2022)

The purpose of this MTO Senior Management Meeting #2 was to present the evaluation summary and draft Preliminary Preferred Design Alternative plan and profile. MTO Senior Management requested that the Project Team present to the MTO Roundabout Committee.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Roundabout Committee Meeting #1 (February 17, 2022)

The purpose of the MTO Roundabout Committee Meeting #1 was to present the evaluation summary and the draft Preliminary Preferred Design Alternative and plan and profile.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Roundabout Committee Meeting #2 (March 17, 2022)

The purpose of this MTO Roundabout Committee Meeting #2 was to discuss the updated draft Preliminary Preferred Design Alternative.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #7 (March 23, 2022)

The purpose of this MTO Central Region Meeting #7 was to have technical discussions focused on the draft Preliminary Preferred Design Alternative including crossing of pedestrians at roundabout, on-road bike lanes, and access to private properties.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #8 (April 14, 2022)

The purpose of this MTO Central Meeting #8 was to present the draft Preliminary Preferred Design with a focus on the evaluation process, specifically related to the selection of the roundabout as the preferred intersection.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Senior Management Meeting #3 (May 2, 2022)

The purpose of this MTO Senior Management Meeting #3 was to discuss the draft Preliminary Preferred Design was a focus on the roundabout configuration for the purpose of showing at the PIC.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #9 (March 1, 2023)

The purpose of this MTO Central Region Meeting #9 was to present an updated draft Preliminary Preferred Design, roundabout concept, pedestrian crossings requirements, and the stormwater management approach.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #10 (October 23, 2023)

The purpose of this MTO Central Region Meeting #10 was to present an update of the Preliminary Preferred Design alternative.

Meeting minutes from this MTO Meeting are available in **Appendix A**.

MTO Central Region Meeting #11 (December 14, 2023)

The purpose of this MTO Central Region Meeting #11 was to present the PIC#2 materials in advance of presenting to the public. Minutes were not recorded at this meeting.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

MTO Central Region Meeting #12 (January 16, 2024)

The purpose of this MTO Central Region Meeting #12 was to discuss the pedestrian crossing at Highway 7. Minutes were not recorded at this meeting.

MTO Central Region Meeting #13 (June 27, 2025)

The purpose of this MTO Central Region Meeting #13 was to respond to comments from MTO on the Environmental Study Report. Minutes were not recorded at this meeting.

6.2.5 Credit Valley Conservation Authority

A number of meetings with Credit Valley Conservation Authority (CVC) were arranged throughout the study:

- CVC Meeting #1 - March 9, 2020
- CVC Meeting #2 - August 11, 2020
- CVC Meeting #3 - February 16, 2022
- CVC Meeting #4 - February 9, 2023
- CVC Meeting #5 - November 28, 2023

A brief summary of each of these meetings is provided in the sub-sections below. Meeting minutes are included in **Appendix A**. Comments received from at the CVC meetings were taken into consideration as the study progressed.

CVC Meeting #1 (March 9, 2020)

The purpose of this CVC Meeting #1 was to discuss project background, overall study schedule, existing conditions overview, natural environment key features, stormwater management and next steps.

Meeting minutes from this CVC meeting are available in **Appendix A**.

CVC Meeting #2 (August 11, 2020)

The purpose of this CVC Meeting #2 was to discuss environment existing conditions, field investigation results, natural heritage features, drainage and stormwater management, transportation road corridor concepts, schedule and next steps.

Meeting minutes from this CVC meeting are available in **Appendix A**.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

CVC Meeting #3 (February 16, 2022)

The purpose of this CVC Meeting #3 was to discuss the draft Preliminary Preferred Design, preliminary results of the natural environment field investigations and impact assessment, and draft stormwater management strategy.

Meeting minutes from this CVC meeting are available in **Appendix A**.

CVC Meeting #4 (February 9, 2023)

The purpose of this CVC Meeting #4 was to present the updated draft Preliminary Preferred Design as well as the draft stormwater management strategy.

Meeting minutes from this CVC meeting are available in **Appendix A**.

CVC Meeting #5 (November 28, 2023)

The purpose of this CVC Meeting #5 was to provide an update on the Norval West Bypass Study and alignment, and the potential impacts and proposed mitigation measures.

Meeting minutes from this CVC meeting are available in **Appendix A**.

6.3 Indigenous Communities, First Nations and Métis Communities Consultation

Indigenous Communities, First Nations and Métis Communities were notified of this study at study commencement and were notified and invited to attend all PICs, including the Mississaugas of the Credit First Nation, Six Nations of the Grand River, Haudenosaunee Confederacy Chiefs Council and Wendat Nation. **Table 21** provides a summary of the Project Team's efforts to engage with the Indigenous Communities, First Nations and Métis Communities listed above. Letters provided to Indigenous Communities, First Nations and Métis Communities can be found in **Appendix A**.

Table 21: Summary of Indigenous Communities, First Nations and Métis Communities Engagement

Indigenous Communities, First Nations and Métis Community	Date	Notification Details
Mississaugas of the Credit First Nation	January 20, 2020	Sent study commencement letter and notice via mail.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

Indigenous Communities, First Nations and Métis Community	Date	Notification Details
Six Nations of the Grand River	January 20, 2020	Sent study commencement letter and notice via mail.
Haudenosaunee Confederacy Chiefs Council	January 20, 2020	Sent study commencement letter and notice via mail.
Wendat Nation	January 20, 2020	Sent study commencement letter and notice via mail.
Mississaugas of the Credit First Nation	November 12, 2020	Sent notice of PIC#1 via email
Six Nations of the Grand River	November 12, 2020	Sent notice of PIC#1 via email
Haudenosaunee Confederacy Chiefs Council	November 12, 2020	Sent notice of PIC#1 via email
Wendat Nation	November 12, 2020	Sent notice of PIC#1 via email
Mississaugas of the Credit First Nation	January 31, 2024	Sent notice of PIC#2 and Stage 1 Archaeological Assessment Report for review and comment via email
Six Nations of the Grand River	January 31, 2024	Sent notice of PIC#2 and Stage 1 Archaeological Assessment Report for review and comment via email
Haudenosaunee Confederacy Chiefs Council	January 31, 2024	Sent notice of PIC#2 and Stage 1 Archaeological Assessment Report for review and comment via email



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
6 Consultation
December 2025**

Indigenous Communities, First Nations and Métis Community	Date	Notification Details
Wendat Nation	January 31, 2024	Sent notice of PIC#2 and Stage 1 Archaeological Assessment Report for review and comment via email
Mississaugas of the Credit First Nation	December 15, 2025	Sent notice of Study Completion via email
Six Nations of the Grand River	December 15, 2025	Sent notice of Study Completion via email
Haudenosaunee Confederacy Chiefs Council	December 15, 2025	Sent notice of Study Completion via email
Wendat Nation	December 15, 2025	Sent notice of Study Completion via email

Indigenous Communities, First Nations and Métis Communities were notified of this study at study commencement and were notified and invited to attend all PICs. The following Indigenous Communities, First Nations and Métis Communities were engaged as part of this study:

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



7 Project Description

Following the selection of the Recommended Design Alternative, the preliminary design was further developed. This section describes the project recommendations for major elements of the preliminary design. The preliminary plan and profile are included in **Appendix J** and potential impacts, mitigation measures, and commitments to future work are included in Sections 8, 9, and 10.

The major features of the preferred design are described in the sections below. This information should be reviewed in combination with **Section 5** of the ESR, which describes alternative design concepts and the Recommended Design Alternative. During detail design, some refinements to the design features recommended in the ESR may be necessary but should not alter the intent of the recommended undertaking or its components. During detail design, there will be further consultation with technical agencies and stakeholders, such as CVC, MTO, MNR, MECP, the Town of Halton Hills, the Region of Peel, utilities, Indigenous Communities, First Nations and Métis Communities, and affected property owners.

7.1 Major Features

The preliminary design of the arterial road was completed assuming a maximum posted speed of 60 km/h. The recommended road design major features are as follows:

- New three-leg single-lane roundabout at Highway 7 and Norval West Bypass
- New 4-lane divided arterial road extending from Highway 7 to 10 Side Road within multi-use paths
- New 2-lane roundabout at Norval West Bypass and 10 Side Road
- Realignment of 10 Side Road with active transportation

The preliminary design drawings of the proposed improvements are included in **Appendix J**. The drawings are at a preliminary design level of detail and will be further refined in detail design.

7.2 Road Design Elements

A summary of the improvements is provided in the subsequent sections.



7.2.1 Horizontal Alignment

7.2.1.1 Norval West Bypass

The preliminary preferred horizontal alignment for the Norval West Bypass was developed for a posted speed of 60 km/h (design speed of 70 km/h). The spiral and curve geometry of the recommended Norval West Bypass alignment is summarized in **Table 22**, below. Station 0+000 is oriented at the center of the proposed Highway 7 roundabout.

Table 22: Summary of Norval West Bypass Proposed Horizontal Curves

Curve #	Start Station	End Station	Radius (m)	Spiral Parameter (A) (m)	Design Standard*	Meet Standard
1	0+000	0+062	250	-	190	Yes
2	0+078	0+173	190	-	190	Yes
3	0+173	0+237	-	110	110	Yes
4	0+720	0+765	-	135	110	Yes
5	0+765	0+819	400	-	190	Yes

*From TAC Geometric Design Guide for Canadian Roads (2017)

The recommended alignment has been developed to minimize impacts to existing community and natural areas, while still aligning with the proposed development plans for the surrounding areas and the Town of Halton Hills Southeast Georgetown Secondary Plan. As presented in **Table 22**, all curves and spirals meet the design standards outlined in TAC Table 3.2.6 for a 70 km/h design speed.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
7 Project Description
December 2025

7.2.1.2 10 Side Road

The preliminary preferred horizontal alignment for 10 Side Road was developed for a posted speed of 50 km/h (design speed of 60 km/h) due to the future intersections being proposed. The spiral and curve geometry of the recommended 10 Side Road alignment is summarized in **Table 23**, below. Station 0+000 is located approximately 23 m east of the 10th Line alignment.

Table 23: Summary of 10 Side Road Proposed Horizontal Curves

Curve #	Start Station	End Station	Radius (m)	Spiral Parameter (A) (m)	Design Standard*	Meet Standard
1	0+000	0+070	800	-	130	Yes
2	0+070	0+206	450	-	130	Yes

*From TAC Geometric Design Guide for Canadian Roads (2017)

The recommended alignment has been developed to provide acceptable roundabout geometry on the entry and exit approaches. The proposed alignment matches into the existing alignment to the east of the existing 10th Line roundabout, which minimizes impacts to the existing road configuration. As presented in **Table 23**, all curves and spirals meet the design standards outlined in TAC Table 3.2.6 for a 60 km/h design speed.

7.2.2 Profile

7.2.2.1 Norval West Bypass

The profile of the Norval West Bypass was set to transition through the 15m grade difference between Highway 7 and the adjacent topography. Slopes were set to accommodate active transportation users and truck traffic.

The vertical alignment for the Norval West Bypass was developed for a maximum posted speed of 60 km/h (design speed of 70 km/h). The vertical curve geometry of the recommended Norval West Bypass alignment has been summarized in **Table 24**. Station 0+000 is oriented at the center of the proposed Highway 7 roundabout.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
7 Project Description
December 2025

Table 24: Summary of Norval West Bypass Proposed Vertical Curves

Curve No.	PVI Station	Crest/Sag	K Value	Design Standard for 70 km/h*	Meet Standard	Accepted (Yes/No)
1	0+072	Sag	12.173	23	48 km/h*	Yes**
2	0+418	Crest	37.195	17	70 km/h	Yes
3	0+738	Sag	34.625	23	70 km/h	Yes

*From TAC Geometric Design Guide for Canadian Roads (2017)

The proposed profile has grades ranging from 0.54% - 4.63%. The grades throughout the proposed road profile meet the minimum and maximum allowable grades of 0.5% and 4%-5%, respectively (TAC Section 3.3.2.2).

**With respect to Curve No. 1, the Highway 7 roundabout has associated entry and exit speeds of 35-39km/h and 42-50 km/h, respectively. In this location, vehicles will be exiting and entering the roundabout, and as such, will not be operating at the full design speed specified for the roadway. This provides the opportunity to make Curve No. 1 slightly steeper, improving the overall design such that it would minimize the grading impact throughout the corridor, minimizing the impacts to property and the natural environment, similar to situations such as underpasses where the road grade is required to deviate over as short a distance as practical. The sag value of Curve No. 1 has an associated design speed of 48 km/h (TAC Table 3.3.4), will be in a fully illuminated roadway, and is thus deemed sufficient for its proposed location. The comfort control for a sag curve at a design speed of 70 km/h is 10-12, which is met by Curve 1. Traffic signage will be considered and reviewed further in detail design.

Additional consideration has been given to pedestrians and cyclists. The maximum grades as specified in OTM Book 18 (2021) is 7.5% for cyclists to be able to ascend a grade over a short distance. The maximum grade for pedestrians in an accessible environment is 5% (slope of 1:20 as outlined in O. Reg. 191/11: Integrated Accessibility Standards). In order to accommodate the significant elevation change present in the proposed bypass area, a 4.63% grade was applied over a section of approximately 208m to approach the existing grade as quickly as possible to minimize land impacts, while meeting the applicable standards.



7.2.2.2 10 Side Road

The preliminary preferred vertical alignment for 10 Side Road was developed for a maximum posted speed of 50 km/h (design speed of 60 km/h). The vertical curve geometry of the recommended 10 Side Road alignment has been summarized in **Table 25**, below. Station 0+000 is located approximately 23 m east of the 10th Line alignment.

Table 25: Summary of 10 Side Road Proposed Vertical Curves

Curve No.	PVI Station	Crest/Sag	K Value	Design Standard for 60 km/h*	Meet Standard
1	0+120	Crest	50	11	60 km/h
2	0+424	Sag	18	18	60 km/h

*From TAC Geometric Design Guide for Canadian Roads (2017)

The proposed profile is considered to be relatively flat, ranging from 0.09% - 2.00%. Generally, the grades throughout the proposed road profile meet the minimum and maximum allowable grades of 0.5% and 4%-5%, respectively (TAC Section 3.3.2.2).

7.2.3 Typical Cross Sections

The proposed cross-section for the Norval West Bypass is a 42 m right-of-way. Four driving lanes are proposed (two in the northbound direction and two in the southbound direction) with curb and gutter on either side. A multi-use path will be salvage with a boulevard on the east and west sides along the entire bypass. Through both consultation and in order to better suit the needs of the active transportation users along the corridor, the on-road bike lanes are no longer recommended, and a wider multi-use pathway is proposed. The boulevard will be able to accommodate landscaping, lighting, and utility poles, and a raised median can accommodate turning lanes. The placement for the illumination (boulevard or within the median island) will be reviewed and confirmed during detail design.

The proposed cross-section for the Norval West Bypass is generally represented by **Figure 27**. A summary of cross section details is included below:

- Northbound Lane Width (2 Lanes): 3.50 m
- Southbound Lane Width (2 Lanes): 3.50 m
- Raised Concrete Median Width: 5.00 m
- Boulevard and Curb Width: 3.00 m



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

7 Project Description

December 2025

- Multi-Use Path Width: 3.50 m

The proposed cross-section for the realignment and widening of 10 Side Road is also represented by **Figure 27**. A summary of cross section details is included below:

- Eastbound Lane Width (2 Lanes): 3.75 m
- Westbound Lane Width (2 Lanes): 3.75 m
- Median Width: 3.4 - 8.4 m

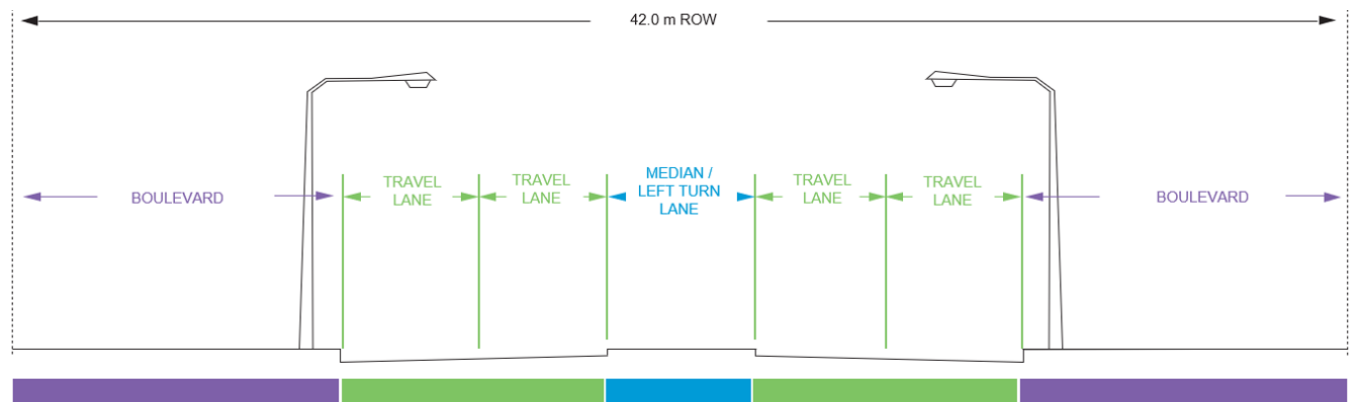


Figure 27: Proposed Cross-Section

7.2.3.1 Cross-Fall

In accordance with Section 4.8.4 of the *Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads* (TAC, 2017), the roadway shall be designed to a 2.0% cross-fall where feasible to provide positive drainage to the curbs. In intersection areas, the normal cross-fall of the intersecting roadways may be reduced to avoid abrupt grade changes for through traffic, however, a minimum cross-fall of 1.0% is desirable to maintain good surface drainage.

7.2.3.2 Superelevation

In accordance with Section 3.2.2 of the *Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads* (TAC, 2017), superelevation should be applied on horizontal curves where applicable. The proposed maximum superelevation is 6.0%.



7.3 Intersections and Access

There are two proposed intersections associated with the proposed Norval West Bypass. One intersection is located 550 m west of Adamson Street along Highway 7. The Highway 7/Norval West Bypass intersection is proposed to be a three-leg single lane roundabout. The second intersection is location 160 m west of Winston Churchill Boulevard along the realigned 10 Side Road. The 10 Side Road/ Norval West Bypass intersection is proposed to be a 5-leg two lane roundabout, which could accommodate a future potential Winston Churchill Bypass on the south leg which would be subject to a future MCEA Study.

Existing entrances in proximity of the Highway 7/Norval West Bypass intersection have been reviewed and potential configurations developed. These access details will be further reviewed and refined during the detail design. In addition, direct access to the adjacent lands proposed for development in the Southeast Georgetown Secondary Plan area will be provided, and the exact locations and details will be determined through the development process.

7.4 Active Transportation

As previously mentioned, the active transportation facilities recommended along the proposed Norval West Bypass includes a 3.5m multi-use path along both the east and west sides of the corridor. The proposed active transportation facilities accommodate a wide variety of users, which contributes to a safe and multi-modal road corridor. Future connection across the bypass will be informed by the Region's ongoing Grade Separated Active Transportation Study, as identified through the Southeast Georgetown Secondary Plan process.

7.5 Stormwater Management

It should be noted that the Southeast Georgetown Secondary Plan Study has been completed by the Town of Halton Hills in parallel to this MCEA Study. The southern portions of the proposed Norval West Bypass and 10 Side Road are generally surrounded by the Southeast Georgetown Secondary Plan area, which has informed this proposed stormwater management strategy. The strategy developed for the Norval West Bypass MCEA study is for the road only and does not include the development of the Southeast Georgetown Secondary Plan lands as that is being considered through a separate process. However, recognizing that development is proceeding, this strategy is in alignment with the strategy for the Southeast Georgetown Secondary Plan area. It is anticipated that the SWM plan will continue to be refined through detailed design to coordinate and align with development in the Southeast Georgetown Secondary Plan area.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

7 Project Description

December 2025

The proposed Norval West Bypass will increase the net impervious area from the existing conditions, resulting in increased flow and pollutant runoff. Water quality, quantity, and erosion controls are required for the proposed road improvements. A range of stormwater management (SWM) controls are available which work with the topography, soils, bedrock elevation, groundwater elevation, and drainage area.

The portion of the proposed Norval West Bypass draining northwest to Silver Creek will be relatively steep (less than 5% slope) with minimum space in the urban cross-section to accommodate stormwater storage. As such, a SWM pond is considered the most feasible water quantity, quality, and erosion control/extended detention measure for the north outlet of the Bypass. Water quality, quantity, and water balance may be supported through the implementation of enhanced grass swales and check dams. Oil-grit separators should be applied as pre-treatment for storm sewer outlets. For both the northwest and southeast Bypass segments outside of the sloped area, additional low-impact development (LID) measures may be applied. The feasibility of each recommended LID feature will be explored during detail design.

The southern portion of the proposed Norval West Bypass and 10 Side Road is generally surrounded by the Southeast Georgetown Secondary Plan area. An interim design has been proposed until the area is developed. Two interim SWM ponds are recommended to control storm events; one for the Bypass and future development area drainage, which is subject to change based on the contributing area from the approved development plans; and one for the proposed five-leg roundabout, new 10 Side Road alignment, and Adamson St. S and Winston Churchill Blvd extensions. Water quality, quantity, and water balance may be supported through the implementation of enhanced grass swales. There is also an opportunity to implement linear underground retention to collect a portion of the storm sewer runoff to satisfy the erosion control retention criteria and reduce storage requirements for Levi's Creek Outlet. Oil-grit separators should be applied as pre-treatment for storm sewer outlets.

Following the development of the future residential area, the interim SWM controls can be integrated into the future development area SWM plan. The Region will continue to coordinate stormwater management infrastructure and road grading with the Southeast Georgetown Secondary Plan area related development/plan of subdivision.

Conveyance systems for the proposed Norval West Bypass and improvements to 10 Side Road from 10th Line to Winston Churchill Boulevard are required to route runoff to the respective outlets. **Table 26** summarizes the proposed minor and major system conveyance systems for the proposed roadway's corridors.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
7 Project Description
December 2025

Table 26: Norval West Bypass Proposed Conveyance Systems

Location	Minor System	Major System
North Segment of Norval West Bypass and Highway 7 Roundabout	• Minor flows are conveyed via urban curb and gutter, catchbasin and storm sewers. • Storm sewers will discharge into the proposed SWM pond.	• Major flows are directed to the roadside ditches (enhanced grass swales). • Flows subsequently discharge overland to the proposed SWM pond or via ditch inlet catchbasins and storm sewers under the road.
South Segment of Norval West Bypass	• Minor flows are conveyed via urban curb and gutter, catchbasin and storm sewers. • Storm sewers will discharge into the proposed SWM pond.	• Under future conditions with Southeast Georgetown Secondary Plan development, major flows would be conveyed through the right-of-way and storm sewers to SWM Pond 1 would need to be sized for major flows.
Proposed Roundabout, new 10 Side Road Alignment and Adamson St S. and Winston Churchill Blvd. Extensions	• Minor flows are conveyed via urban curb and gutter, catchbasin and storm sewers. • Storm sewers will discharge into the proposed SWM pond.	• Major flows are directed to the roadside ditches (enhanced grass swales). • Flows subsequently discharge overland to the proposed SWM pond.

The potential for SWM ponds to provide end-of-pipe control is proposed for the preferred design. From an initial prospect of potentially available lands, the locations east and west of the Bypass, between the Highway 7 and 10 Side Road intersections were assessed. The location of the SWM pond for the new 10 Side Road alignment, 10 Side Road roundabout, and Adamson St S. and Winston Churchill Blvd. extensions drainage was recommended based on the available space and proximity to the outlet.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
7 Project Description
December 2025

The Norval West Bypass, Highway 7 roundabout, 10 Side Road alignment, 10 Side Road roundabout, and Adamson St S. and Winston Churchill Blvd. extensions could increase the flows to Silver Creek and Levi's Creek outlets. To satisfy the water quantity objectives for the downstream outlets, stormwater storage is requisite. The water quantity criteria for Silver Creek were to control post-development flow rates to pre-development levels for storm events up to and including the 100-year event. The water quantity criteria for Levi's Creek were to control post-development flow rates to pre-development levels for all storm events including the regional storm.

The storage required and consequently the footprint required for SWM pond 1 is significantly larger than SWM pond 2 to account for a portion of the Southeast Georgetown Secondary Plan area draining to SWM pond 1. However, SWM pond 1 storage requirements and footprint are subject to change based on the prospective development SWM studies, such as the Southeast Georgetown Secondary Plan.

7.5.1 Storm Sewers

The minor system storm event for the proposed Norval West Bypass will be conveyed via storm sewers. The configuration of the urban cross-section stipulates storm sewer inlets on both north-bound and south-bound lanes, abutting the outside curbs that oppose the center median. Existing storm sewers are located along Guelph Street, in the Village of Norval. No storm sewers currently exist along 10 Side Road at the Norval West Bypass intersection. Storm sewers are proposed with the new 10 Side Road improvements. The Norval West Bypass sewers are not expected connect to the storm sewer networks at the intersections of Highway 7 or 10 Side Road.

Based on the proposed Norval West Bypass profile, two branches of storm sewers are recommended to divide the minor system runoff to the north and south segments at the highpoint in the roadway. Both north and south storm sewer branches will outlet to the proposed SWM pond inlets. The configuration of the proposed storm sewer system will be confirmed during detail design.

7.5.2 Roadside Ditching

Roadside ditching will be implemented into the proposed Norval West Bypass cross-section to accommodate the flows from major storm events, where required. For example, at the north end, ditching will be provided along the cut area and would be retained either at the toe of the slope or at the base of any future retaining walls.

Where ditching is practical and feasible, the proposed cross-section will include ditching adjacent to the multi-use pathway on both northbound and southbound lanes. It is anticipated that the SWM plan will continue to be refined through detailed design in coordination with development in the Southeast Georgetown Secondary Plan area.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
7 Project Description
December 2025

The criteria for the roadside ditch design is based on the Highway Drainage Design Standards (MTO, 2008). A V-ditch design is proposed due to special constraints anticipated under ultimate conditions. The roadside ditching design criteria is provided in **Table 27**.

Table 27: Roadside Ditching Design Parameters (for analysis purposes only)

Parameter	Minor System	Major System
Maximum Velocity	1.5 m/s for grass-lined ditching	
Flow Depth	1.0m	Must be contained within ditching
Minimum Freeboard	0.3m to Subgrade	N/A
Minimum Depth	0.5m 0.3m to road Subgrade	
Maximum Side Slopes	2:1	

7.5.3 Culverts

7.5.3.1 Existing Culverts

The Drainage and Stormwater Management report (Clarke, 2004), completed for the Region's Winston Churchill Boulevard MCEA Study indicated that the culverts between 10th Side Road and Levi Creek will be abandoned when new storm sewers and ditch inlets are installed. The existing 10 Side Road culvert is a 300mm diameter CSP. The hydraulic capacity and condition of the 10 Side Road culvert should be confirmed during detail design. Should the existing 10 Side Road alignment be retained, it is proposed that the 10 Side Road culvert be replaced and relocated to accommodate the Norval West Bypass alignment and convey drainage from the adjacent development lands.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
7 Project Description
December 2025

7.5.3.2 Proposed Culverts

In order to identify the suitable locations for proposed culverts crossings along the proposed Norval West Bypass, Highway 7 roundabout, new 10 Side Road alignment, 10 Side Road roundabout and Adamson St S. and Winston Churchill Blvd. extensions, consideration of the future development SWM plans will be required. For the purposes of this MCEA, a preliminary culvert placement analysis was completed to determine suitable locations based on the following factors:

- Proposed road and ditching profile (low points).
- Proposed conveyance pathways.
- Natural drainage pattern connectivity.

Under interim conditions, prior to development of surrounding lands, six (6) new culverts are requisite with the implementation Norval West Bypass and adjoining roadways.

Table 28 summarizes the recommended culvert locations. **Figure 28** illustrates the proposed culvert locations.

Table 28: Proposed Culvert Details

Culvert ID	Roadway	Ditching / Watercourse	Downstream Outlet	Flow Direction
CLVT_1	Norval West Bypass	Tributary to Silver Creek	Silver Creek	West
CLVT_2	Norval West Bypass	Levi's Creek Headwater Feature	Levi's Creek	Northeast
CLVT_3	Existing 10 Side Road	SWM Pond (Reservoir 1) Outlet	Levi's Creek	Southeast
CLVT_4	Norval West Bypass	10 Side Road Ditching	Levi's Creek	Northeast
CLVT_5	Adamson St. S. Extension	Adamson St. S. Ditching	Levi's Creek	Southeast
CLVT_6	Winston Churchill Blvd. Extension	Reservoir 2 Outlet	Levi's Creek	Southeast



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
7 Project Description
December 2025

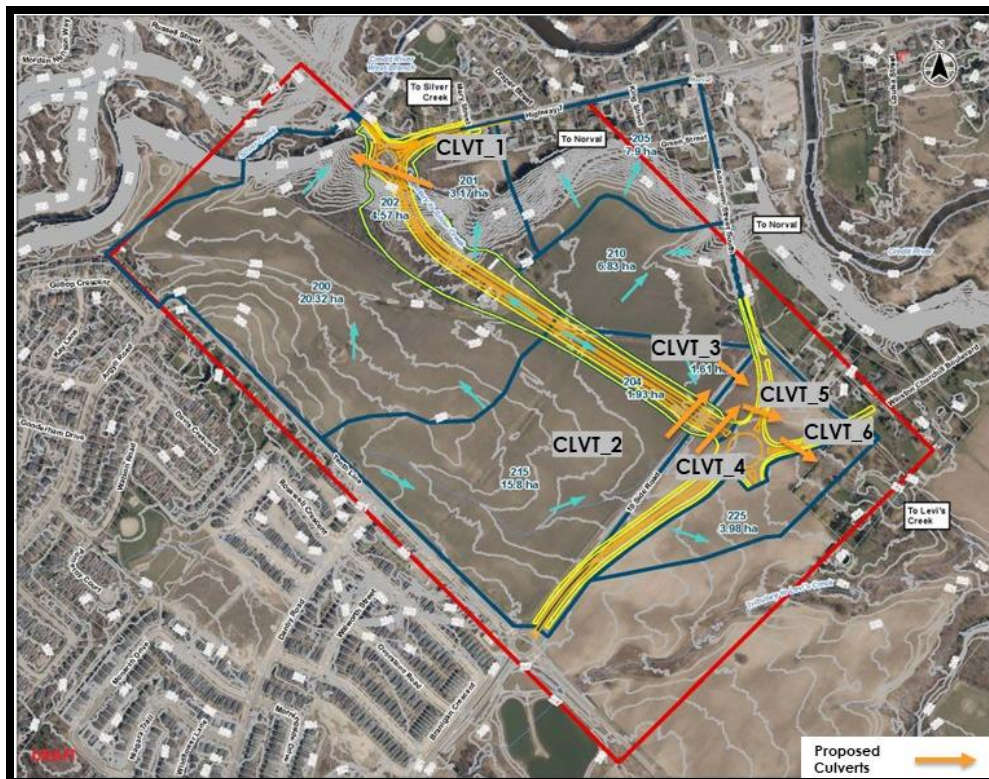


Figure 28: Proposed Culvert Locations

The hydraulic openings of the proposed culverts will be designed in accordance with the Highway Drainage Design Standards (MTO, 2024). Following confirmation of the proposed road profiles, a detailed investigation of the new culverts should be completed to determine hydraulic capacity and structural requirements.

7.5.4 Conclusions and Recommendations

The preceding section, along with the 2024 Stormwater Management report in **Appendix H**, summarizes the Drainage and Stormwater Management objectives for the Norval West Bypass Municipal Class Environmental Assessment (MCEA) Study. The following is concluded/recommended based on the proposed drainage analysis for the study corridor:

- Norval West Bypass will bisect the study area and increase the drainage areas to Levi's Creek and Silver Creek watersheds by 21.7% and 19.6%, respectively.
- The urban cross-section proposed for the Norval West Bypass will result in increased flows and pollutant runoff from the roadway.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

7 Project Description

December 2025

- Contributing drainage area to the Silver Creek outlet requires 3659 m³ of active storage volume to control the 24-hour, SCS Type II, 100-year storm event.
- Contributing drainage area (excluding the proposed 10 Side Road roundabout, new 10 Side Road alignment, and Adamson St S. and Winston Churchill Blvd. extensions) to the Levi's Creek outlet requires 11938 m³ of active storage volume to control the two-year up to and including the 48-hour regional storm event.
 - Including the proposed 10 Side Road roundabout, new 10 Side Road alignment, and Adamson St S. and Winston Churchill Blvd extensions, the Levi's Creek outlet requires an additional 1377 m³ of active storage volume to control the two-year up to and including the 48-hour regional storm event.
- Water Quality, Quantity, and Erosion control can be achieved through three SWM Ponds:
 - Estimated land area required for the SWM Pond 1 is 0.90 ha.
 - Estimated land area required for the SWM Pond 2 is 0.24 ha.
 - Estimated land area required for SWM Pond 3 is 0.40 ha.
- Additional LIDs and MTBs recommended to enhance water quality and erosion control objectives include Oil Grit Separators, enhanced grass swales, permanent rock check dams, catchbasin inserts, or porous pavement.
- Online underground storage / infiltration facilities for the portion of the Norval West Bypass and the proposed 10 Side Road roundabout, new 10 Side Road alignment and Adamson St S. and Winston Churchill Blvd extensions draining to Levi's Creek are recommended to be investigated during detail design:
 - Potential to satisfy the erosion control criteria and reduce the storage volume required for the SWM ponds.
- Minor storm events will be conveyed via curb and gutter system and storm sewers.
- Beyond the Southeast Georgetown Secondary Plan area, major storm events will be conveyed via roadside ditches with, with 2:1 side slopes and minimum 0.5 m depth:
 - Ditch inlets should be installed where required.
- Six new culverts are recommended with the implementation of the Norval West Bypass, Highway 7 roundabout, new 10 Side Road alignment, 10 Side Road roundabout and Adamson St S. and Winston Churchill Blvd. extensions.



- The stormwater management plan for the Norval West Bypass improvements will continue to be refined through detailed design to coordinate and align with development in the Southeast Georgetown Secondary Plan area

7.6 Geotechnical Investigation

A Geotechnical and Hydrogeological Desktop Review was prepared by GeoPro Consulting Limited for Stantec Consulting Limited in 2021. The report reviews the conditions of the project area, as well as potential constraints to the work from a geotechnical and hydrogeological perspective. Thus, additional investigations will be required to determine the extents of the retaining walls.

7.6.1 Anticipated Subsurface Conditions

Based on the assessment of the available hydrogeological and geotechnical information, the local surficial geology information and the site reconnaissance, the subsurface soil and bedrock conditions at the site are anticipated to consist of shallow shale bedrock, older and modern alluvial deposits, fine to coarse textured glaciolacustrine of silty/sandy/gravelly soils and clay to silt textured till.

7.6.2 Preliminary Geotechnical and Hydrogeological Input

Based on a preliminary review of the site, it is recommended that drainage improvements are made to control the surface water, including the use of subdrains and ditches. In consideration of the silty/sandy/granular deposits and anticipated groundwater tables, groundwater seepage may be expected. Shale bedrock is anticipated in the area and should be considered when installing subsurface infrastructure.

Based on the local geological information, cobbles and boulders are anticipated and the amount of the cobbles and boulder could potentially be significant. The presence of cobbles and boulders should be considered during detail design when considering excavations and any trenchless applications.

Subject to the extent and thickness of the shallow cohesionless silty/sandy deposits and the groundwater tables, the groundwater control may be handled by conventional sump pumping. For the clayey deposits and glacial tills, the groundwater control should be able to be handled by conventional sump pumping. However, should extensive thick cohesionless silty/sandy deposits be present below groundwater, a positive groundwater control measures, such as deep wells and well points may be required. Significant groundwater seepage may be expected at the interface of overburden and shale bedrock.



A detailed geotechnical investigation will be undertaken during Detail Design.

7.7 Municipal Infrastructure and Utilities

Impacts to existing utilities were considered throughout the development of design alternatives.

In general, the existing utilities along the corridors will be maintained, with some relocations required where the proposed Norval West Bypass crosses the existing 10 Side Road. Aboveground services and pedestals will require relocation/elevation adjustment to accommodate the proposed intersections, and the underground utilities will be confirmed during detail design to identify any conflicts and relocations needed prior to construction.

7.7.1 Existing Watermains

Existing watermain runs along the north side of Highway 7. As part of the proposed improvements, water valves may require adjustment to suit the new boulevard grades and location. Relocation of the existing watermains is not anticipated. At the time of implementation of the recommended plan, the remaining lifecycle of the watermains should be considered and if required, replace as part of the overall works to recognize efficiencies in construction.

7.7.2 Existing Storm Sewers

Existing storm sewers are located along the north side of Highway 7 west of the proposed Norval West Bypass, capturing water runoff within the ROW. Adjustment to the catchbasins will be required to accommodate the new curb alignment and elevation. The proposed intersection works will be drained independently to the existing storm sewer.

The Norval West Bypass and 10 Side Road are proposed to drain utilizing localized storm sewers and ditching as part of the overall stormwater management strategy outlined in more detail in **Section 7.2**.

7.7.3 Existing Sanitary Sewers

Existing sanitary sewers are not present within the study area.



7.7.4 Existing Gas

Existing distribution gas lines run along the south boulevard of Highway 7 and along the east boulevard within the 10 Side Road corridor. The Enbridge infrastructure is to remain in the boulevard, though will need to be lowered / protected in order to accommodate the proposed construction. Potential conflicts with the future street illumination and underground gas line relocation to be confirmed during detail design. To accommodate the recommended improvements, the Enbridge station in the southwest quadrant of the Winston Churchill Boulevard and 10 Side Road intersection will require relocation to the proposed areas between the 10th Line intersection and the proposed Norval West Bypass and 10th Side Road intersection or along the existing 10th Side Road corridor which will no longer be required.

7.7.5 Existing Communications

Correspondence was sent to Zayo, Rogers and Bell through this study. It was confirmed that Zayo does not have any existing service in the area. No response was received from Rogers or Bell. All existing telecommunication lines existing on the Highway 7 and on the 10 Side Road utility poles will be maintained, though will be required to shift to the new pole locations when mounted on Halton Hills Hydro poles. These poles will be relocated as required to not interfere with the proposed Norval West Bypass.

7.7.6 Existing Halton Hills Hydro

Existing overhead hydro run along the north boulevard of Highway 7 and along the west boulevard within the 10 Side Road corridor. The overhead hydro lines along Highway 7 will be maintained, with some adjustment to the guy poles and anchors required to accommodate the roundabout. Communication cables are present on the hydro poles. Any relocated hydro pole will require relocation of the secondary tenant on the line to the new pole location.

The hydro pole alignment along 10 Side Road will be maintained, though the pole spacing at the proposed Norval West Bypass crossing location will need to be adjusted using new and taller poles.

7.8 Construction Phasing

The following outlines a potential staging strategy for the proposed improvements. This does not include the relocation of existing utilities required to accommodate the work and it is assumed that any required utility relocations will be completed in advance of roadway construction. Further, opportunities to coordinate and align with the



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
7 Project Description
December 2025**

development of the Southeast Georgetown Secondary plan area will also be considered. Considerations for a potential staging strategy include, for example:

- Off road construction could be completed first, including the Norval West Bypass between Highway 7 and 10 Side Road, as well as the proposed extensions of 10 Side Road and Winston Churchill Boulevard outside of the existing ROW. The Norval West Bypass roundabouts at Highway 7 and 10 Side Road could also be constructed without yet connecting to the existing road network.
- In order to finish constructing the roundabout lanes at the Highway 7/ Norval West Bypass roundabout, single lane staging could be considered on the existing Highway 7 road platform. Traffic would be diverted through the roundabout as needed to accommodate construction of the roadworks, grading, lighting and landscaping.
- Though avoided whenever possible, partial road closures may be required at various stages of the work.

Stakeholders such as local property owners, hospitals, public, and agencies shall be notified of the construction schedule prior to the commencement of construction activities. Potential closure events and restricted access shall be minimised to the greatest extent possible to facilitate vehicle, pedestrian, and cyclist movement during construction.

7.9 Streetscaping and Landscaping

Norval West Bypass and 10 Side Road will be four-lane urban roadways functioning as major arterial roads, supporting the movement of both people and goods. The roadway is characterized by majority residential, and commercial properties. The existing 10 Side Road corridor has minimal landscaping.

Streetscaping opportunities consistent with the Norval Secondary Plan and the Southeast Georgetown Secondary Plan within the Norval West Bypass right-of-way (for example: pedestrian-scaled lighting, tree plantings and landscaping) will be included through the detail design stage of the study

A landscape plan will be developed during detail design, which will also consider the Region's Landscaping Guidelines and Specifications (2018).



7.10 Property Requirements and Access

Property requirements are approximately 6 ha based on the preliminary design. Property requirements are preliminary only and subject to further review and refinement during detail design. Consultation with property owners will continue during the detail design phase.

Based on the preliminary preferred design for the roundabout, property is not required from 473 and 475 Guelph Street. A temporary easement or Permission to Enter agreement may be required during construction for grading of the new driveway. The lilac bushes along the property line at 475 Guelph Street will be maintained and protected during construction. The design of the proposed driveway at 473/475 Guelph Street should be reviewed to promote overland drainage from the right-of-way to flow away from the properties. The final driveway configuration is to be reviewed with the property owners during detail design.

The roundabouts will require illumination at all approaches. The lighting will be downcast inward towards the roadway, though light spillage from the road is required to accommodate safe levels for pedestrians. The orientation of the luminaires should be placed to reduce excess lighting levels outside of the right-of-way. The use of shields should be considered during the detail design of the lighting to further reduce any light pollution.

Further, direct access to the adjacent land proposed for development in the Southeast Georgetown Secondary Plan area will be provided, and the exact location and details will be determined through the development process.

7.11 Illumination

It is proposed that Norval West Bypass be fully illuminated per Halton Region standards for arterial roadways. The location of the luminaires along the Norval West Bypass (boulevard vs median) will be determined during detail design.

The roundabouts will require illumination at all approaches. The lighting will be downcast inward towards the roadway, though light spillage from the road is required to accommodate safe levels for pedestrians. The orientation of the luminaires should be placed to reduce excess lighting levels outside of the right-of-way. The use of shields should be considered during the detail design of the lighting to further reduce any light pollution.



7.12 Preliminary Cost Estimate

Based on the best available information at the time of the MCEA study, the total cost for the recommended design is estimated to be approximately \$37.5 million, excluding HST. The preliminary cost does not include any property or environmental mitigation costs. A summary of the item costs is provided in **Table 29**.

Table 29: Preliminary Cost Estimate

Capital Cost	Estimated \$
Roadworks (Roadwork, Illumination, Traffic Signals, Streetscaping/ Landscaping & Restoration)	\$31,910,000
Utilities	\$1,330,000
Engineering	\$4,210,000
Total Estimated Cost	\$37,450,000



8 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work

This section outlines the potential environmental impacts, including the natural environment, socio-economic environment, cultural environment, and transportation. Potential direct and indirect impacts are described, including mitigation measures and commitments to future work during the detail design and construction phases.

8.1 Natural Environment

The improvements for the Norval West Bypass and 10 Side Road (Regional Road 10) corridors involve constructing a new three-leg single-lane roundabout at Highway 7 and the Norval West Bypass, a new two-lane arterial road extending from Highway 7 to 10 Side Road with multi-use paths, a new two-lane roundabout at the Norval West Bypass and 10 Side Road, and the realignment of 10 Side Road with active transportation. The preferred alignment crosses or impacts ten natural heritage features that were identified within the study area including:

- Significant Wetlands
 - Provincially Significant wetlands
 - Unevaluated wetlands
- Significant Woodlands
- Significant Valleys
- Significant Wildlife Habitat
 - Seasonal concentration areas
 - Rare vegetation communities or specialized habitats
 - Habitats of species of conservation concern
 - Animal movement corridors
- Habitat of Endangered and Threatened Species
 - SAR Bats – confirmed present at all Bat Monitoring Stations
 - Butternut – all six butternuts assessed as non-retainable



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work
December 2025**

- American Eel – previously recorded north of the Study Area in Silver Creek; however, no impacts anticipated
 - Redside Dace – contributing habitat to Redside Dace in the Tributary to Levi's Creek
- Aquatic Features
 - Headwater Drainage Feature (HDF-1)
 - Fish habitat in Silver Creek and the tributary to Levi's Creek
- Halton Region Official Plan
 - Greenbelt and Regional Natural Heritage Systems
 - Enhancement Areas, Linkages and Buffers
- Town of Halton Hills Official Plan
 - Greenlands
- Growth Plan for the Greater Golden Horseshoe
 - Greenbelt Area
- Greenbelt Plan
 - Protected Countryside

The impacts of the preferred design and the recommended mitigation measures to address those impacts are outlined in this section. This preliminary impact assessment and recommended mitigation measures will be refined during the detail design stage, at which point the mitigation measures will be incorporated into the contract documents.

8.1.1 Designated Areas

Natural heritage mapping on the MNRF's Land Information Ontario Website (MNRF 2022a) identifies the following areas as Natural and Scientific Interest (ANSI) designated areas within the study area:

- Hungry Hollow PSW
- Georgetown Credit Valley Life Science Area
- Churchville-Norval Provincially Significant Wetland (PSW)



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

8 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work

December 2025

- Levi's Creek PSW Complex
- CVC regulated features (Ontario Regulation 160/06), including floodplain associated with Silver Creek, the Credit River, and a tributary to Levi's Creek
- Key features within the Greenbelt and Regional Natural Heritage Systems include:
 - Silver Creek Corridor
 - Levi Creek Corridor
 - Woodlands on the north and east sections
- Greenbelt Area identified areas:
 - Woodlands on the northern border
 - Silver Creek Corridor
- High Functioning Significant Valleylands along the Silver Creek Corridor and from the top of slope at the edge of the agricultural field to the north side of the Credit River
- Russell's Hill of Pines as a Cultural Heritage Feature

8.1.2 Vegetation Communities and Vascular Plants

The preferred alignment crosses primarily through agricultural lands, with an area of forest and woodland in the northern section of the study area along the Silver Creek Valley and on a valley slope located south of Highway 7. There were three wetlands identified in the agricultural lands north of 10 Side Road, and a linear wetland (part of the Levi's Creek PSW Complex) was identified south of 10 Side Road along the tributary to Levi's Creek. There was a deciduous swamp identified along Silver Creek that is part of the Hungry Hollow PSW. A naturalized hedgerow lined the edge of the agricultural lands along Tenth Line north of 10 Side Road and disturbed fencerows with discarded organic material occurred throughout the agricultural field north of 10 Side Road.

A total of 138 vascular plants were record, and one vegetation Species at Risk (SAR) was identified in the study area (Butternut). These trees were classified as non-retainable trees as they were affected by Butternut Canker and therefore will not affect development.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work
December 2025

8.1.2.1 Potential Direct Impacts:

A total of 3.18 ha of natural / semi-natural vegetation will be removed for the construction of the proposed Norval West Bypass. Direct impacts will be re-examined during the detail design phase once the limits of the grading have been established, and mitigation measures will be considered to reduce the risk of impacts to natural heritage features.

The preferred design overlaps with Ecological Land Classification (ELC) vegetation communities listed in **Table 30**.

Table 30: Impacted ELC Communities

ELC Community Code	ELC Community Description	Sum of Area of Overlap with the Preferred Alignment (ha)
FODM7-4	Fresh – Moist Black Walnut Lowland Deciduous Forest Ecosite	1.46
FOMM3-3	Dry – Fresh Hemlock – White Pine Mixed Forest Type	0.01
WODM4-4a	Dry – Fresh Black Walnut Deciduous Woodland Type	1.69
SWDM4-1	Willow Mineral Deciduous Swamp Type	0.02
FODM11	Naturalized Deciduous Hedgerow	0.01
TAGM5	Fencerow	0.04
OAGM1	Annual Row Crops	4.18
CVR_3	Single Family Residential	0.92
CVR_3/CVC_1	Single Family Residential/Business Sector	0.01
Grand Total		8.33



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
**8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work**
December 2025

The preferred design overlaps woodland habitat (FODM7-4, FOMM3, WODM4-4, and SWDM4-1) that includes Significant Woodlands, Significant Valleylands, Significant Wildlife Habitat, the Georgetown Credit Valley Life Science ANSI, and potential habitat for SAR Bats. It also overlaps two Headwater Drainage Features (HDF-1 and HDF-2), the Credit River Watershed Natural Heritage System, the Regional Natural Heritage System, and the CVC Regulation Limit.

The preferred design will fragment woodland habitat (FODM7-4 and WODM4-4), which will create new woodland edges, and barriers to wildlife movement. Newly created edges will expose the woodlands to sun, light, wind, and possibly road salt, and create new pathways for invasive species. These changes will alter the microclimate, vegetation composition, and structure of woodland features, particularly in areas closest to the new roadway. These changes may also affect wildlife use by reducing available habitat for forest associated species and encouraging species that prefer edge habitat. A woodland edge management strategy to mitigate edge affects is discussed in

Section 8.1.6.

There were differences in the delineation of wetlands and classification of HDFs in this report compared to the results of the Phase 2/3: Impact Assessment and Management Strategy (Draft) for the Southeast Georgetown Scoped Subwatershed Study (Wood 2022). Therefore, additional field investigations will be required during detail design to reassess wetland boundaries and HDF classifications so that proper mitigation measures are implemented for the project.

8.1.3 Wildlife and Habitat

The new Norval West Bypass increases the risk of road mortality to wildlife, particularly where fragmentation of woodland habitat is proposed. Although significant amphibian movement corridors were not identified in the study area, other common ground dwelling animals may be affected, including small mammals (e.g. Raccoon, Eastern Chipmunk, *Peromyscus* mice) and snakes (e.g., Eastern Gartersnake). There is also potential for Midland Painted Turtle and Snapping Turtle in the surrounding landscape (e.g., Silver Creek, the Tributary to Levi's Creek, and stormwater management ponds), and they may move to roadways for nesting or migration. Design strategies to reduce the potential for road mortality and facilitate wildlife movement across the new road are discussed in **Section 8.1.4.2.**

8.1.4 Mitigation Measures

During the design phase(s) of the project, the following mitigation measures should be considered to reduce the risk of impacts to natural heritage features.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work
December 2025**

8.1.4.1 Wildlife and Terrestrial Habitat

Design mitigation measures to address potential impacts to wildlife and terrestrial habitat include:

- Maintain terrestrial habitat connectivity to the extent possible
- Decrease width of RoW and limit infrastructure impact to the extent possible
- Protect significant features (i.e., significant woodland) to the extent possible
- Limit overlap of infrastructure with woodland and wetland features, to the extent possible
- Design a rehabilitation/re-vegetation plan with native species for long-term stability of areas disturbed during construction
- Implement measures to promote safe crossing and/or deter wildlife from crossing new roads, including wildlife crossing structures outlined in **Section 8.1.4.2**

8.1.4.2 Wildlife Crossing Structures

A wildlife crossing structure may be installed to reduce potential wildlife road mortality at the new roadway crossing of the FODM7-4 and WODM4-4 woodland, should grading permit. The crossing structure may be a dedicated dry structure beneath the new roadway or combined with a drainage culvert. The structure should be of sufficient size to allow passage of small mammals, reptiles, and amphibians. If combined with a drainage culvert, the structure should include dry benches for use by wildlife. Permanent wildlife exclusion fencing may also be installed to restrict wildlife access to the roadway and direct wildlife to the crossing structure. Design of the crossing structure would follow the CVC Fish and Wildlife Crossing Guidelines (CVC 2017) in consultation with CVC.

8.1.4.3 Fish and Fish Habitat

Design mitigation measures for fish and fish habitat include avoiding direct impacts to fish and fish habitat in Silver Creek and the tributary to Levi's Creek, to the extent possible.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work
December 2025**

8.1.4.4 Headwater Drainage Features

The project will affect HDF-1 and HDF-2. As per the HDF Guidelines, no mitigation is required for HDF-2; however, road design will incorporate culverts and sewers to replicate downstream flow to the extent possible. Design mitigation measures for HDF-1 and HDF-2 include:

- Maintain flow in HDF-1 and HDF-2, to the extent possible
- Design culvert(s) to maintain downstream flow in HDF-1 and HDF-2
- Maintain, relocate, and/or enhance HDF-1 and its riparian zone corridor
- Maintain or replace flow HDF-1 using mitigation measures and/or wetland creation, if necessary
- Design drainage culvert(s) on HDF-1 as a wildlife crossing structure(s) for small mammals, reptiles, and amphibians, as discussed in Section 8.1.4.2

A meeting was held on November 28, 2023, with Halton Region, CVC, and Stantec to discuss the Natural Environment Report and next steps. During the meeting, CVC staff confirmed that HDF-1 is considered regulated under the *Conservation Authorities Act* and that changes to this feature will require a permit during detail design (CVC 2023).

Detail design should consider CVC Scour Assessment Requirements (CVC 2020) for any proposed crossings of headwater drainage features and watercourse crossings.

8.1.5 Construction Mitigation Measures

This section provides standard mitigation strategies for the preferred design alternative. Standard mitigation measures are typically required for all construction projects such as erosion and sediment control and avoidance of wildlife. These standard mitigation strategies are preliminary recommendations and may require updates during the design phases of the project.

8.1.5.1 Protection of Natural Features

Potential indirect effects to natural features (including retained woodlands, the MAMM1-2c unevaluated wetland and headwater drainage features) include construction phase activities such as inadvertent encroachment of heavy equipment, siltation and/or spills of deleterious substances, noise, and dust migration into natural features. These impacts may alter species composition by compacting and smothering vegetation and introducing substances that could be harmful to vegetation and wildlife, such as fuel used by construction vehicles.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work
December 2025**

Additional disturbance may be required to facilitate spill clean-up activities. Where they occur, these impacts are expected to be localized to the construction area and adjacent areas.

These potential indirect effects are common to various types of construction and can be controlled using standard mitigation measures for erosion and sediment control. The primary principles associated with sedimentation and erosion protection measures are to:

- Reduce the duration of soil exposure
- Retain existing vegetation, where feasible
- Rehabilitate temporary disturbance areas with native vegetation suitable for the site conditions
- Divert runoff away from exposed soils
- Keep runoff velocities low
- Trap sediment as close to the source as possible

To address these principles, the following mitigation measures will be implemented during construction:

- Consult with Halton Region's Environmental Services to establish tree protection measures during construction to protect stems and critical root zones.
- Silt fencing will be used along all construction areas adjacent to natural features and within 30 m of fish habitat. No equipment will be permitted to enter natural features beyond the fencing.
- Natural features inadvertently disturbed during construction will be stabilized and re-vegetated, through the placement of seed and mulching or seed and an erosion control blanket, promptly upon completion of construction activities.
- Equipment will be re-fueled >30 m away from natural features and fish habitat to reduce the risk of impacts, if an accidental spill occurs.
- In addition to specified requirements, additional silt fence will be available on site, prior to grading operations, to provide a contingency supply, if required.
- Sediment and erosion controls will be monitored regularly and properly maintained, as required. Controls will be removed only after the construction area has been stabilized.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work
December 2025

- Proper muffling of machinery and equipment will be maintained to mitigate noise during construction.

8.1.5.2 Protection of Migratory Birds

To avoid damaging or disturbing bird nests and contravening the MBCA, the timing of vegetation clearing should occur outside of the primary nesting period (i.e., the period when the percent of total nesting species is greater than 10% based on Environment and Climate Change Canada's Nesting Calendars [ECCC 2014] and the period for which due diligence mitigation measures are generally recommended). The primary nesting period identified for the Study Area is generally April 1 – August 15. However, birds may also nest outside this period and nests should be avoided until no longer active.

8.1.5.3 Protection of Bats

To reduce the likelihood of harm to bats, it is recommended that trees > 10 cm diameter at breast height (DBH) and suitable roost structures such as the barn are removed outside the bat maternity roost season. Bats generally use maternity and other roosts between April 1 and September 30, and removal of suitable bat maternity roost trees and structures (i.e., trees $\geq$ 10 cm dbh) should occur outside this period. If tree or structure removal is required within this window, maternity exit surveys may be conducted prior to the tree removals to determine if bats are using the trees. Maternity exit surveys are conducted during the evening and include visual and acoustic surveys using accepted protocols. Bat boxes may also be installed to provide compensation bat roosting habitat.

8.1.5.4 Protection of Reptiles

Installation of sediment fencing along the construction areas that are adjacent to watercourses and wetlands will serve to reduce access of turtles, snakes, amphibians, and other ground-dwelling wildlife into the work area. Sediment fencing should be installed prior to May 1 or after September 30 to avoid the peak active season, including reptile nesting season, if possible. Geotextile fencing (such as silt fencing) is suitable as a temporary exclusion material for reptiles and other wildlife and should be used in proximity to watercourse and wetlands. The exclusion fencing should be 60 cm above grade and buried to a minimum depth of 10-20 cm as described by the Best Practices Technical Note – Reptile and Amphibian Exclusion Fencing (MNR 2013). The exclusion fencing is to be maintained around the work area for the duration of construction.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work
December 2025**

If wildlife is encountered at any time during construction, work will immediately stop, and it shall be allowed reasonable time to move out of the work area on its own. If a reptile nest or egg(s) is encountered, a qualified biologist will visually inspect the site and direct measures to protect the nest or egg(s) as appropriate. If possible, work will be delayed until it is determined that the nest no longer includes viable eggs (young have fledged, or eggs were predated). Injured wildlife should be moved to an authorized wildlife rehabilitator (<https://www.ontario.ca/page/find-wildlife-rehabilitator>) under the direction of a qualified professional.

Building foundations should not be removed during the snake hibernation period (October 1 to April 30) if possible. If building foundations must be removed during this period, pre-construction surveys may be conducted during the spring or fall to determine if overwintering snakes may be present. If snakes are thought to be overwintering in the foundation, it should not be disturbed until the active season (May 1 to September 30). If snakes are found during the hibernation period during excavation of a foundation, they need to be moved to an authorized wildlife rehabilitator (<https://www.ontario.ca/page/find-wildlife-rehabilitator>) under the direction of a qualified professional.

8.1.6 Ecosystem Offsetting

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 detail 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 detail 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.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

8 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work

December 2025

- 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 First Nations and Indigenous Communities, as projects advance through design and construction.

Ecosystem offsetting for permanent loss of terrestrial natural heritage features will be implemented for the project. Offsetting, as per CVC's Ecosystem Offsetting Guidelines (CVC 2020), will be required for the loss of natural hazard and/or wetland to demonstrate appropriate mitigative measures for the maintenance of natural hazard system resilience. This will apply to removals associated with removals along the valley slope, any wetlands, and along the top of bank as well as the toe of slope). The Region will coordinate with the Town of Halton Hills and landowner to identify locations that may accommodate offsetting. If onsite locations cannot be achieved, an alternative solution will be developed.

8.1.7 Woodland Edge Management

A native species planting plan is recommended for new edges that are created in the FODM7-4 and WODM4-4 woodland. Plantings should include large woody material (trees and shrubs) to quickly shelter the interior parts of the woodland from edge effects, such as light and wind encroachment, and native herbaceous material to stabilize exposed soils and prevent invasive species from establishing. Plant material will include only native species to the region and appropriate for the site conditions. A diversity of species that are beneficial to wildlife will be used such as nectar, berry and nut producing species. Plant material should be sourced from southern Ontario, if possible.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work
December 2025**

Planting plans will be prepared by qualified professionals that include proper material, planting, and soil amendment specifications.

8.2 Tree Removal and Preservation of Residual Plant Communities

8.2.1 Trees Recommended for Preservation and Protection

Based on the preliminary design, there are approximately 151 trees from the detailed tree inventory (DTI) and 162 stems from the general tree inventory (GTI) that are recommended to be retained and protected during the construction of the Norval West Bypass. This will be refined through detail design as the impacts of grading will be refined and minimized.

- **Protect - Hoarding:** 298 trees will be preserved, and hoarding will be installed at the limits of construction, or the Tree Protection Zone (TPZ) with a Tree Protection Fence (TPF). A total of 139 trees from the DTI and 159 stems within the GTI (vegetation units 2, 4, 6, 7 and portions of vegetation units 1, 5, 8) are within this preservation category.
- **Protect - Reduced TPZ:** 12 trees (#2844, #2845, #2935, #2988, #3063, #3142, #3207, #3208, #3294, #3304, #3325, #3383) from the DTI will be preserved but protection hoarding will be installed on one side that is reduced from the minimum standard.
- **Protect – No TPZ:** Three stems from the GTI (vegetation unit 2) are located outside the proposed construction limits and no hoarding is required.

8.2.2 Trees for Removal

Based on the preliminary design, approximately 450 trees within the DTI and 20 stems within the GTI (portions of vegetation units 1, 3, 5 and 8) could be impacted by the proposed construction of the Norval West Bypass. There are 9 trees (#2918, #2920, #2923, #3221, #3230, #3376, #3398, #3403, #3404) within the site that are dead and would require removal. Further mitigation of grading limits, including tree removal will be identified through detail design and achieved by grading and retaining walls (size of walls are subject to future geotechnical investigations). This strategy will overall reduce the number of trees impacted. For further details on tree replacement

As outlined in **Section 8.1.6**, a Tree Protection and Preservation Plan will be prepared by a certified arborist or qualified professional during the detail design and implementation phases.



8.3 Socio-Economic Environment

8.3.1 Land Use

The preferred design falls within the hamlet of Norval, which is primarily agricultural, with some existing residential, commercial, and institutional uses along the developed areas of Highway 7 and Adamson Street. While it is expected that two properties in four separate areas could be impacted, there is a high potential to improve property access through realignments of through-traffic. The preferred design is expected to improve traffic flow and demands by diverting traffic from the hamlet to the bypass. The new bypass will improve active transportation facilities with the planned multi-use trails.

Noise

A noise assessment was undertaken to assess the future project noise impacts at nearby noise sensitive areas (NSAs) and investigate noise mitigation where needed as per the applicable guidelines. The noise assessment considered 34 receptors representing NSAs identified, including existing dwellings, daycares and places of worship. The receptors were identified from a review of aerial imagery.

The Region of Halton Noise Abatement Guidelines and Ontario Ministry of the Environment, Conservation and Parks (MECP), formerly known as Ministry of Energy and Environment (MOEE), / Ministry of Transportation (MTO) “Joint Protocol”, A Protocol for Dealing with Noise Concerns During the Preparation, Review and Evaluation of Provincial Highway/s Environmental Assessments are considered for this assessment. Although not specifically intended for this purpose, the Joint Protocol is typically adopted within Ontario to assess regional and municipal road improvement projects. The Region of Halton Noise Abatement Guidelines require an increase of more than 5 dB at the assessed NSA based on future noise from traffic to investigate noise control measures within the right-of-way. The Project is assessed for daytime (07:00-23:00) noise levels as required by the guidelines.

To determine the noise impact at the receptors, a comparison was made between the predicted future daytime noise levels for the horizon year of 2041 with the project (Future Build plus 10 years) and without the project (Future No-build). Where predicted Future Build noise levels increase more than 5 dB over Future No-build and Future Build noise levels exceed 55 dBA, mitigation was investigated. For the mitigation to be implemented, it must be technically, economically, and administratively feasible.



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

8 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work

December 2025

The project is in the Town of Georgetown and Halton Hills within the Region of Halton. The Towns of Georgetown and Halton Hills do not have any noise limits applicable for road projects. The applicable noise by-laws (Georgetown Noise By-Law Number 2004-03 and Halton Hills Noise By-Law Number 2010-0030) limit the operation of construction equipment and are considered in this assessment.

The United States Federal Highway Administration (FHWA) Traffic Noise Model (TNM v3.1) as approved by MTO was used for this road noise impact assessment.

The predicted daytime noise levels indicate that the increase in Future Build noise level over Future No-build noise level at all modelled receptors is under 5 dB. Therefore, noise mitigation was not investigated for the project.

8.3.1.1 Construction Noise

Construction noise for the Project was assessed in accordance with the applicable MECP Publication NPC-115 (MECP, 1977) and NPC-118 (MECP, 1982). It is expected that most of the planned construction equipment for the Project can be operated in compliance with the MECP limits. However, there is potential for sound levels over the stated limits for some equipment (e.g., paving machines). Once the equipment inventory and construction schedules are finalized, construction equipment sound levels should be reviewed to confirm that noise emissions are within permissible limits. If they exceed the limits, noise control options should be explored. Methods to reduce construction noise impacts follow the Construction Code of Practice:

- All construction equipment should be properly maintained to limit noise emissions. As such, all construction equipment should be operated with effective muffling devices that are in good working order.
- There should be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and local noise by-laws. Enforcement of noise control by-laws is the responsibility of the Municipality for all work done by Contractors.
- The Contract documents should contain a provision that any initial noise complaint will trigger verification of construction noise and typical noise control measures.
- In the presence of persistent noise complaints, all construction equipment should be verified to comply with MECP NPC-115 and NPC-118 guidelines.
- In the presence of persistent complaints and subject to the results of a field investigation, alternative noise control measures may be required, where reasonably available. In selecting appropriate noise control and mitigation



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
**8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work**
December 2025

measures, consideration should be given to the technical, administrative, and economic feasibility of the various alternatives.

8.3.2 Air Quality

An Air Quality Impact Assessment was undertaken to characterize baseline (2016) air pollutant emissions and predict air quality effects within the study area after implementation of the project in the Future Build (2031) scenario using background air quality and traffic data. The 2031-time horizon has been selected only for analysis purposes and does not represent actual timing of project implementation. Predicted future emissions and effects with project implementation (Future Build) are compared to baseline emissions and effects (Baseline), and to predicted future emissions and effects without implementation of the project (Future No Build) for a total of 3 assessment scenarios. Changes in greenhouse gas (GHG) emissions are also assessed in this study. Additionally, potential air quality impacts during project construction are assessed qualitatively. This study has been conducted following guidance from the Ontario Ministry of Transportation's (MTO's) "Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects" (MTO Guide).

The air contaminants of potential concern (CoPC) selected for this study are based on the most relevant transportation-related contaminants listed in the MTO Guide and include nitrogen dioxide (NO₂), carbon monoxide (CO), particulate matter with diameter less than 10 micrometres (PM₁₀), particulate matter with diameter less than 2.5 micrometres (PM_{2.5}), acrolein, benzene, 1,3-butadiene, benzo(a)pyrene (B(a)P), acetaldehyde and formaldehyde. Greenhouse gas (GHG) emissions in the form of carbon dioxide equivalent (CO_{2e}) were also quantified.

Baseline ambient air quality conditions were characterized from historical data obtained from Environment and Climate Change Canada's (ECCC's) National Air Pollution Surveillance (NAPS) Network and the Ontario Ministry of the Environment, Conservation and Parks (MECP) for stations located near the study area.

The United States Environmental Protection Agency's (US EPA's) Motor Vehicle Emission Simulator (MOVES) model version 3 (MOVES3) was used to estimate baseline and future emission rates from motor vehicles. The US EPA dispersion model, AERMOD was used to predict the maximum 1-hour, 8-hour, 24-hour, and annual average ground level concentrations (GLCs) at special receptors for the following three scenarios:

- 2016 – Baseline (existing conditions)
- 2031 – Future No Build (future conditions without the Project)



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment**
**8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work**
December 2025

- 2031 – Future Build (future conditions with the Project)

The predicted ambient air quality results for each scenario were compared against relevant provincial Ambient Air Quality Criteria (AAQC) and Canadian Ambient Air Quality Standards (CAAQS) while GHG emissions were compared to National and Provincial totals for 2021 and 2030 emissions targets.

The following conclusions were made from the air quality and greenhouse gas impact assessment

Operation Phase – Project Alone

- For the Baseline scenario, maximum predicted Project Alone GLCs of all CoPC are below their applicable criteria other than the hourly average NO₂ CAAQS and 24-hour and annual average B(a)P AAQC.
- The maximum predicted Project Alone GLCs of all CoPC are below their relevant AAQC and/or CAAQS at all special receptors for the Future Build and Future No Build scenarios.

Operation Phase – Cumulative (Project Plus Background Levels)

- Maximum predicted cumulative GLCs of CoPC other than NO₂, benzene and B(a)P are below their relevant AAQC and/or CAAQS at all special receptors for all scenarios.
- Predicted cumulative 98th percentile daily 1-hour maximum concentrations of NO₂ exceed the 2025 1-hour CAAQS by 24% at one sensitive receptor in the Future No Build scenario. There are no cumulative exceedances of the NO₂ CAAQS in the Future Build scenario. Maximum predicted 1-hour and 24-hour average cumulative NO₂ concentrations are well below the provincial AAQC for all scenarios.
- The maximum predicted cumulative annual average benzene concentration is above the AAQC by 4% for the Baseline scenario. The maximum predicted cumulative 24-hour and annual average concentrations of benzene are below the AAQC for the Future No Build and Future Build scenarios and are lower than the Baseline scenario.
- Maximum predicted cumulative concentrations of B(a)P exceed the 24-hour and annual average AAQCs at all special receptor locations for all scenarios, with the background concentrations alone exceeding the 24-hour and annual average AAQCs by 2,529% and 2,347% respectively. The maximum predicted 24-hour and annual average cumulative B(a)P concentrations for the Future Build scenario are 1% lower than the Future No Build scenario. The maximum cumulative B(a)P concentrations are predicted to decrease in



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work
December 2025

the Future Build and Future No Build scenarios relative to the Baseline scenario due to expected future reductions in vehicle emissions.

- Releases of GHGs from the project are expected to be insignificant (less than 0.1%) in comparison to the 2021 Canada and Ontario totals and the 2030 emissions targets. Implementation of the project is predicted to result in a decrease in GHG emissions of 1.4 kt CO₂e per year relative to the current road configuration.

8.3.2.1 Potential Impacts and Mitigation During Construction

During project construction, industry best management practices should be followed to minimize emissions.

During construction of the project, dust will be the primary CoPC. Other CoPC such as NO₂ and VOCs will also be emitted from equipment used during construction. As the construction activities will be short-term and intermittent, emissions are expected to be minor provided adequate mitigation measures are implemented. The ECCC guideline “Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities” provides recommendations for mitigation measures to reduce construction emissions. These measures include 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.

8.3.2.2 Potential Impacts and Mitigation During Operation

The air quality assessment has identified that exceedances of the 24-hour and annual average AAQC for B(a)P are predicted to occur for both the Future No-Build scenario as well as the Future Build scenario, with background levels being the major contributor to the cumulative exceedances.

While the project contributions to exceedances are expected to be small, it is expected that with ongoing advancements of on-road vehicles to newer, lower emission or electric vehicles, the quantities of air contaminants released to the atmosphere from transportation sources will be lower in the future.

Implementation of the project will improve the future traffic flow and reduce congestion in the local road network, and thereby reduce impacts on air quality. Other measures to minimize impacts of particulate and NO_x emissions that could be considered include incorporating vegetative barriers in the landscaping design. The effectiveness of trees and plants as physical barriers for particulate or gaseous contaminant control depends on the density and height of the vegetation. In general, a vegetation barrier should be thick (approximately 6-metres or more) and have full leaf and branch coverage from the



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work
December 2025**

ground to the top of the canopy with no gaps in-between or underneath the vegetation. Typically, evergreen species are more effective than deciduous for this objective and the barrier should be located close to the emissions sources.

8.4 Cultural Environment

8.4.1 Archaeological Resources

Approximately 30.1% of the study area retains potential for the identification and documentation of archaeological resources. In accordance with Section 1.3.1 and Section 7.7.4 of the MCM's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), Stage 2 Archaeological Assessment is required for any portion of the project's anticipated construction which impacts an area of archaeological potential. 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.

In addition to the above, registered archaeological sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 are located within the study area, and were subject to previous Stage 1-2 (TLA 2016a), and Stage 3 assessments (TLA2016b). Supplementary documentation on file with the Region of Halton provides mapping to illustrate the location of these sites.

Stage 3 Archaeological Assessment of these sites determined that they each retain further cultural heritage value or interest, and Stage 4 mitigation of development impacts is required. It was noted by TLA that avoidance and protection of the sites was not a viable option. As such, Stage 4 mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 will proceed by excavation should this study impact these areas. Site-specific Stage 4 recommendations for each site are provided in the Stage 3 Archaeological Assessment completed by TLA.

If archaeological resources are encountered during construction in spite of the completion of archaeological assessments, work impacting the resources will cease, MCM will be notified, and an archaeologist licensed under the Ontario Heritage Act will be engaged to assess the site. If the find includes human remains, the police and coroner should also be notified.

8.4.2 Heritage Impact Assessment

The Cultural Heritage Report identified potential direct impacts to the known and previously evaluated cultural heritage landscape at 16469 10 Side Road and recommended an HIA be completed. In addition, 16469 10 Side Road was previously



Norval West Bypass Transportation Corridor Improvements - Municipal Class Environmental Assessment

8 Potential Environmental Impacts, Mitigation Measures and Commitments to Future Work

December 2025

evaluated for cultural heritage value or interest (CHVI) as part of a *Cultural Heritage Resource Assessment for the Southeast Georgetown Secondary Plan* completed by Wood in 2021 that is running concurrently with this study (Wood 2021). The Wood report determined that the property met five criteria of *Ontario Regulation (O. Reg.) 9/06*. The purpose of this HIA is to fulfill the recommendations of the Cultural Heritage Report and respond to policy requirements regarding the conservation of cultural heritage resources during the MCEA process. For the purpose of this report, the statement of cultural heritage value or interest (CHVI) and heritage attributes prepared by Wood in 2021 were adopted and the property was not re-evaluated.

An assessment of impacts from the proposed undertaking on 16469 10 Side Road identified the following direct impacts to the property:

- historical railway alignment
- barn
- outbuildings one and two
- silo
- horse trough
- scattered remnants of farm equipment

It should be noted that the HIA reflects the impacts of the Norval West Bypass project, which will be addressed during detail design and in consultation with the Town of Halton Hills. The attributes that may be impacted by demolition or relocated (e.g., horse trough) will be further investigated, and mitigation measures further refined through detail design and in consultation with the Town of Halton Hills. Indirect impacts through land disturbance as a result of vibration damage from construction activity were identified for the residence, which is located within 20 metres of the proposed construction activity. Views were not identified as a heritage attribute, and direct impacts were not identified for the residence.

In addition, as the design progressed, potential frontage-only impacts were identified for 9948 Winston Churchill Boulevard, a known cultural heritage landscape that has not been previously evaluated for CHVI. Following an evaluation of 9948 Winston Churchill Boulevard according to O. Reg. 9/06 the property was tentatively found to contain a representative Gothic Revival residence. Site access is required to confirm this determination of CHVI.

8.4.2.1 Mitigation Measures

Based on the impacts identified, the following mitigation measures are recommended:



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
8 Potential Environmental Impacts, Mitigation Measures and Commitments to
Future Work
December 2025**

16469 10 Side Road

Mitigation measures for heritage impacts to 16469 10 Side Road will be further refined through detail design in coordination with the Town of Halton Hills.

Site plan controls were determined to be an appropriate mitigation measure for indirect impacts to the residence from possible land disturbance. A qualified person(s) should be retained to complete a pre-construction vibration assessment to determine acceptable levels of vibration given the site-specific conditions (including soil conditions, equipment proposed to be used, and building characteristics). Should the residence be determined to be within the zone of influence, additional steps should be taken to secure the building or structure from experiencing negative vibration effects (i.e., adjustment of machinery or establishment of buffer zones).

Relocation was determined to be an appropriate mitigation measure for the horse trough and any farm equipment that may be found within the construction or grading limits of the proposed undertaking. The horse trough and farm equipment, if applicable, could be relocated to a part of the property that is not within the vicinity of construction activity or could potentially be donated to a historical society or museum.

To mitigate impacts to the barn, two outbuildings, silo, and former railway corridor, it is recommended that a *Documentation and Salvage Report* be completed. This report is to be undertaken prior to changes made to the property. Documentation creates a public record of the structure and provides researchers and the general public with a historical context, construction details, and a photographic record of the resource. Through the select salvage of heritage attributes identified in the report, the CHVI of the structures and landscape can be partially retained, albeit in a different context.

Continued avoidance is recommended for attributes that are not directly or indirectly impacted, including the Russell's Hill of Pines, historical alignment of Green Street, sumac-lined driveway, tree line near main residence, property name as "Russell Hill Farm", trees and topography related to the Russell's Hill of Pines, views to Russell's Hill of Pines from the historic Norval Community.

9948 Winston Churchill Boulevard

Negatively impacting the heritage attributes of the property should continue to be avoided.



8.5 Climate Change

The MECP's guide, *Consideration of Climate Change in the Environmental Assessment Process*, outlines two approaches for consideration and addressing climate change in project planning including:

- Reducing a projects impact on climate change (climate change mitigation).
- Increasing the projects and local ecosystems resilience to climate change (climate change adaptation).

The objectives of the climate change document have been considered in the generation and evaluation of alternatives, recommended design, and mitigation approaches.

The proposed improvements provide the opportunity to reduce the project's impact on climate change through the identification of an efficient transportation network and through the provision of facilities that encourage active forms of transportation (e.g., multi-use path, sidewalks). In addition, the design of municipal infrastructure, and stormwater management measures throughout the corridor will have regard for conveyance of major event flow routes.

The MECP's guide will also be considered during subsequent stages of the EA process, detail design.

8.6 Transportation

All modes of transportation will be accommodated on the Norval West Bypass and 10 Side Road. The preferred design supports Halton Region's Transportation Master Plan and Active Transportation Master Plan.

During detail design, the design of the roadway and intersections will be refined. The design at Highway 7 will be refined through consultation with the Ministry of Transportation. The design will also be consistent with the Ontario Traffic Manual – Book 18 – Cycling Facilities guidelines. Commitments during detail design are provided in **Section 10**.

The impacts due to the grading to accommodate the road profile will be mitigated through a combination of side slopes and retaining walls. A geotechnical investigation will be undertaken in detail design to determine the extents of the proposed walls.



8.6.1 Source Water Protection and Hydrogeology

A desktop hydrogeological study was undertaken as part of the EA process. Based on the Ontario Source Protection Information Atlas, the site is located in an area with a Highly Vulnerable Aquifer, consisting of granular aquifer material or fractured rock.

In conjunction with the geotechnical investigation during detail design, a Source Water Protection and Hydrogeological investigation will be undertaken once the extents of the grading limits and impacts are confirmed, and a mitigation strategy will be enacted.

Regulations governing dewatering activities outlined in Ontario Regulation 63/16: Registrations Under Part II.2 of the Act – Water Taking also place restrictions on where dewatering effluent may be discharged within Wellhead Protection Areas (WHPAs). Although a WHPA was not identified, the requirements of this regulation shall be considered during the dewatering planning and execution stages.



9 Permits and Approvals

The following sections identify legislation that have been identified as potentially applicable to the preferred alternative based on the current field assessment and evaluation of significance.

9.1 Endangered Species Act

The *Endangered Species Act, 2007* (ESA), as amended in June 2025 under Bill 5 (Protect Ontario by Unleashing our Economy Act, 2025) prohibits actions such as killing, harming, capturing, or taking a living member of a species listed as Threatened, Endangered, or Extirpated by the Species at Risk Ontario (SARO) list (Section 9). It also prohibits damage to the habitat of similarly designated species (Section 10). The ESA remains in force until the *Species Conservation Act* (SCA) is proclaimed, anticipated in early 2026. Under the amended ESA, the SARO List (O. Reg. 230/08) is still in place, and conditional exemptions (O. Reg. 242/08) continue to apply, and their applicability of project activities should be reviewed on a case-by-case basis. As project activities have not commenced, the amended ESA currently applies. Note: Under the SCA, aquatic species and migratory birds listed under the federal Species at Risk Act (SARA) will not be included in Ontario's list to reduce duplication.

The SCA will introduce a registration-first approach, with most activities covered by registration and permits are required only in specific circumstances. Regulations to support this approach are under development and may significantly change permitting requirements.

Authorization and mitigation requirements under the ESA are currently determined by preparing and submitting an Information Gathering Form (IGF) to the MECP for their review and comment. The procedures for SAR permitting at a provincial level are anticipated to change soon (repeal of the ESA and replacement with the SCA), therefore, when the project is ready to be reviewed by the MECP under the ESA/SCA, a qualified professional should be retained to determine the proper procedures for SAR management/permitting at that time.

9.1.1 Butternut

Six butternut trees were identified study area, and all were determined to be Category 1 (non-retainable). Prior to removing the Category 1 butternut trees, a butternut health assessors report must be sent to the MECP District Manager and allow 30 days for MECP to assess the trees in the field. Once the 30-day period has passed, the trees may be removed for construction of the Project. This 30-day period was in place at the



time of writing but may not be required prior to tree removal upon report submission due to a pending amendment to O. Reg. 830/21 to remove the 30-day waiting period.

9.1.2 Endangered Bats

Suitable bat maternity roost trees and structures (the barn in the center of the study area), and endangered bats were documented in the study area. To determine authorization and mitigation requirements, the proponent should prepare and submit an Information Gathering Form (IGF) to the MECP. A permit may be required under ESA Section 17.2.c. which requires the activity and associated mitigation to achieve an overall benefit to the species. The permit can take several months and possibly over a year to obtain from the time the IGF is submitted.

9.2 Conservation Authorities Act

Prior to any new development, including the placement or removal of fill material, grading activities, and construction within the CVC's regulated area (O. Reg. 41/24), and/or the alteration of flood and natural hazard features (i.e., watercourses, flood prone areas, steep slopes, PSWs and unevaluated wetlands), the proponent will require written approval (i.e., a Permit or a Letter of Permission) from CVC. CVC's Ecosystem Offsetting Guidelines (CVC 2020) and Fish and Wildlife Crossing Guidelines (CVC 2017) will be considered during detail design of the Project, in consultation with CVC. Pre-submission consultation with CVC is recommended to confirm permitting requirements, technical study requirements and timelines.

9.3 Fish and Wildlife Conservation Act

The FWCA provides protection for birds, mammals, reptiles, amphibians, and specially protected invertebrates, nests and eggs of protected species including birds and turtles, and for habitat features such as mammal dens. The contractor and environmental inspector should understand requirements under the FWCA so that wildlife interactions can be appropriately managed during construction. For example, turtles may opportunistically nest in disturbed soil created by construction activity, and they should be managed in compliance with the FWCA (refer to protection measures for reptiles in **Section 8.1.5.4**).

9.4 Summary of Mitigation Measures

Table 31 summarizes the mitigation measures to be implemented during detail design and construction.



Table 31: Summary of Mitigation Measures

Category	ID #	Environmental Concern	Proposed Mitigation Measures
Natural Environment	1.0	Design-related Mitigation Measures	• Maintain terrestrial habitat connectivity to the extent possible • Decrease width of RoW and limit infrastructure impact to the extent possible • Protect significant features (i.e., significant woodland) to the extent possible • Limit overlap of infrastructure with woodland and wetland features, to the extent possible. • Design a rehabilitation/re-vegetation plan with native species for long-term stability of areas disturbed during construction. • Implement measures to promote safe crossing and/or deter wildlife from crossing new roads, including wildlife crossing structures.
	2.0	Wildlife Crossing Structures	• A wildlife crossing structure may be installed to reduce potential wildlife mortality at FODM7-4 and WODM4-4. The structure may be a dedicated dry structure beneath the new roadway or designed with a drainage culvert. • Design of the crossing structure should follow the CVC Fish and Wildlife Crossing Guidelines (CVC 2017) in consultation with CVC.
	3.0	Fish and Fish Habitat	• Design mitigation measures for fish and fish habitat include avoiding direct impacts to fish and fish habitat in Silver Creek and the tributary to Levi's Creek, to the extent possible.
	4.0	Headwater Drainage Features	• Maintain flow in HDF-1 and HDF-2, to the extent possible. • Design culvert(s) to maintain downstream flow in HDF-1 and HDF-2. • Maintain, relocate, and/or enhance HDF-1 and its riparian zone corridor. • Maintain or replace flow HDF-1 using mitigation measures and/or wetland creation, if necessary. • Design drainage culvert(s) on HDF-1 as a wildlife crossing structure(s) for small mammals, reptiles, and amphibians.
	5.0	Protection of Natural Features (Erosion and Sediment Control)	• Use standard mitigation measures for erosion and sediment control. The primary principles associated with sedimentation and erosion protection measures are to: – Reduce the duration of soil exposure • Retain existing vegetation, where feasible – Rehabilitate temporary disturbance areas with native vegetation suitable for the site conditions – Divert runoff away from exposed soils – Keep runoff velocities low – Trap sediment as close to the source as possible • Consult with Halton Region's Environmental Services to establish tree protection measures during construction to protect stems and critical root zones. • Silt fencing will be used along all construction areas adjacent to natural features and within 30 m of fish habitat. No equipment will be permitted to enter natural features beyond the fencing. • Natural features inadvertently disturbed during construction will be stabilized and re-vegetated, through the placement of seed and mulching or seed and an erosion control blanket, promptly upon completion of construction activities.



Category	ID #	Environmental Concern	Proposed Mitigation Measures
			- Equipment will be re-fueled >30 m away from natural features and fish habitat to reduce the risk of impacts, if an accidental spill occurs. - In addition to specified requirements, additional silt fence will be available on site, prior to grading operations, to provide a contingency supply, if required. - Sediment and erosion controls will be monitored regularly and properly maintained, as required. Controls will be removed only after the construction area has been stabilized. - Proper muffling of machinery and equipment will be maintained to mitigate noise during construction.
			- Construction monitoring should be undertaken to track implementation of the planned mitigation measures, including compliance with the final grading, and erosion and sediment control plans. - Compliance monitoring reports should be prepared and submitted to the municipality and CVC twice annually (or other agreed to frequency) while construction is active. The reports should include a log of dates when inspections occurred, the condition of the facilities at the time and any recommended remedial actions, if any, that were implemented. This monitoring should continue until substantial completion of the grading and construction. Inspection activities will include: - Inspection of erosion and control measures after each significant rainfall event (e.g., greater than 12 mm) or every other week, whichever is shorter - Inspections should include all silt fence installations - All noticeable erosion shall be repaired immediately, with investigation into the cause so implementation of mitigation measures to prevent recurrence will be more successful - Encroachment beyond work zones should be noted.
	6.0	Protection of Migratory Birds	To avoid damaging or disturbing bird nests and contravening the MBCA, the timing of vegetation clearing should occur outside of the primary nesting period (April 1 – August 15). Birds may also nest outside this period and nests should be avoided until no longer active.
	7.0	Protection of Bats	- Trees > 10 cm diameter at breast height (DBH) and suitable roost structures such as the barn at SM4-C should be removed outside the bat maternity roost season (April 1 – September 30). - If tree or structure removal is required within this window, maternity exit surveys may be conducted prior to the tree removals to determine if bats are using the trees.
	8.0	Protection of Reptiles	- Installation of sediment fencing along the construction areas that are adjacent to watercourses and wetlands will serve to reduce access of turtles, snakes, amphibians, and other ground-dwelling wildlife into the work area. - Sediment fencing should be installed prior to May 1 or after September 30 to avoid the peak active season, including reptile nesting season. Geotextile fencing (such as silt fencing) is suitable as a temporary exclusion material for reptiles and other wildlife and should be used in proximity to watercourse and wetlands. The exclusion fencing should be 60 cm above grade and buried to a minimum depth of 10-20 cm as described by the Best Practices Technical Note – Reptile and Amphibian Exclusion Fencing (MNR 2013). The exclusion fencing is to be maintained around the work area for the duration of construction. - If wildlife is encountered at any time during construction, work will immediately stop, and it shall be allowed reasonable time to move out of the work area on its own.



Category	ID #	Environmental Concern	Proposed Mitigation Measures
			• If a reptile nest or egg(s) is encountered, a qualified biologist will visually inspect the site and direct measures to protect the nest or egg(s). If possible, work will be delayed until it is determined that the nest no longer includes viable eggs (young have fledged, or eggs were predated). • Injured wildlife should be moved to an authorized wildlife rehabilitator (https://www.ontario.ca/page/find-wildlife-rehabilitator) under the direction of a qualified professional. • Building foundations should not be removed during the snake hibernation period (October 1 to April 30). If building foundations must be removed during this period, pre-construction surveys may be conducted during the spring or fall to determine if overwintering snakes may be present. If snakes are thought to be overwintering in the foundation, it should not be disturbed until the active season (May 1 to September 30). If snakes are found during the hibernation period during excavation of a foundation, they need to be moved to an authorized wildlife rehabilitator (https://www.ontario.ca/page/find-wildlife-rehabilitator) under the direction of a qualified professional.
	9.0	Ecosystem Offsetting	• 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 detail 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 detail design and implementation phases. – 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 First Nations and Indigenous Communities, as projects advance through design and construction. • Ecosystem offsetting for permanent loss of terrestrial natural heritage features will be implemented for the project. Offsetting, as per CVC’s Ecosystem Offsetting Guidelines (CVC 2020), will be required for the loss of natural hazard and/or wetland to demonstrate appropriate mitigative measures for the maintenance of natural hazard system resilience. This will apply to removals associated with removals along the valley slope, any wetlands, and along the top of bank as well as the toe of slope). The Region will coordinate with the Town of Halton Hills and landowner to identify locations that may accommodate offsetting. If onsite locations cannot be achieved, an alternative solution will be developed.
	10.0	Woodland Edge Management	• A native species planting plan is recommended for new edges that are created in the FODM7-4 and WODM4-4 woodland. • Plantings should include large woody material (trees and shrubs) to quickly shelter the interior parts of the woodland from edge effects, such as light and wind encroachment, and native herbaceous material to stabilize exposed soils and prevent invasive species from establishing. • Plant material should be sourced from southern Ontario.



Category	ID #	Environmental Concern	Proposed Mitigation Measures
Cultural Environment			Planting plans will be prepared by qualified professionals that include proper material, planting, and soil amendment specifications.
	11.0	Invasive Species Management	Monitoring should occur to identify new occurrences of invasive species such as European reed (<i>Phragmites australis</i> ssp. <i>australis</i>) during construction. If identified, an action plan should be designed and implemented as soon as reasonably possible to eradicate this species before it becomes established.
	12.0	Archaeological Assessment	- Stage 2 Archaeological Assessment is required for any portion of the project's anticipate construction which impacts an area of archaeological potential. Approximately 30.1% of the study area retains potential for the identification and documentation or archaeological resources. Areas required for easements (i.e., construction) may be refined during detail design. - The Stage 2 Archaeological Assessment will be completed in accordance with the Ontario Heritage Act. Indigenous Communities, First Nations and Métis Communities will be advised and afforded the opportunity to have field liaison representative participation. - 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. - Stage 4 mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 will proceed by excavation should this study impact these areas. Site-specific Stage 4 recommendations for each site are provided in the Stage 3 Archaeological Assessment completed by TLA.
	13.0	Discovery of Archaeological Resources during Construction	If archaeological resources are encountered during construction in spite of the completion of archaeological assessment, work impacting the resources will cease, MCM will be notified, and an archaeologist licensed under the Ontario Heritage Act will be engaged to assess the site. If the find includes human remains, the police and coroner should also be notified.
	14.0	Built Heritage Resources and Cultural Heritage Landscapes	<u>16469 10 Side Road</u> - Site plan controls were determined to be an appropriate mitigation measure for indirect impacts to the residence from possible land disturbance. - Qualified person(s) should be retained to complete a pre-construction vibration assessment to determine acceptable levels of vibration given the site-specific conditions (including soil conditions, equipment proposed to be used, and building characteristics). Should the residence be determined to be within the zone of influence, additional steps should be taken to secure the building or structure from experiencing negative vibration effects (i.e., adjustment of machinery or establishment of buffer zones). - Relocation was determined to be an appropriate mitigation measure for the horse trough and any farm equipment that may be found within the construction or grading limits of the proposed undertaking. The horse trough and farm equipment, if applicable, could be relocated to a part of the property that is not within the vicinity of construction activity or could potentially be donated to a historical society or museum. - It is recommended that a Documentation and Salvage Report be completed. <u>9948 Winston Churchill Boulevard</u> - Negatively impacting the heritage attributes of the property should continue to be avoided.



Category	ID #	Environmental Concern	Proposed Mitigation Measures
			<u>473 and 475 Guelph Street</u> • Temporary easement or Permission to Enter agreement will be required during construction for grading of the new driveway. • The lilac bushes along the property line at 475 Guelph Street will be maintained and protected during construction. • The design of the proposed driveway at 473/475 Guelph Street should be reviewed to promote overland drainage from the right-of-way to flow away from the properties. • The final driveway configuration is to be reviewed with the property owners during detail design.
Stormwater and Drainage	15.0	Source Water Protection	• Further investigation is needed for specific types of mitigation, including work near environmentally sensitive areas, erosion and sediment control, and potential environmental contamination. A detailed geotechnical investigation and hydrogeological investigation will be undertaken during detail design.
	16.0	Proposed Culverts	• Dimensions of proposed culverts are to be confirmed during detail design.
Transportation	17.0	Grading	• Mitigation of the grading limits will be achieved through grading and retaining walls. The size of walls is subject to geotechnical analysis in detail design. • A fill management plan will be completed during detail design, as required.
Construction	18.0	Utility Impacts and Relocation	• The ownerships, the existing utility locations and municipal services and associated impacts are to be confirmed in detail design.
	19.0	Property Impacts and Acquisitions	• Affected property owners will be contacted during detail design to further address mitigation measures, property negotiation and to discuss project details and timing.
	20.0	Mud and Dust Control	• The Contractor shall take such steps required to prevent dust nuisance resulting from their operations. • The Contractor shall be responsible for all direct and mud that is tracked onto the roadways from vehicles entering or leaving the job site. The Contractor shall, upon request from the CA, immediately proceed with cleanup operations, or in the opinion of the CA, the Contractor has not or cannot sufficiently remove the mud from the road, the CA will proceed with the necessary clean up. • Non-chloride dust suppressants are recommended for dust mitigation during construction.
Excess Materials	21.0	Disposal of Excess Materials for Soils Managed Off-Site	Stockpiling and transport of excavated soil during construction will be done in accordance with the requirements specified in O.Reg 406/19. Should suspected contaminated soil be encountered during future construction activities (i.e., staining, odours, debris/waste, petroleum hydrocarbon sheen), a qualified person should be retained to identify and collect representative soil samples for chemical analysis to determine management options and appropriate handling in accordance with O.Reg 406/19.
Monitoring	22.0	Post-Construction	• Post-construction monitoring is recommended to track compliance with the approved construction and landscape / restoration plans. – Removal of construction material such as sediment and erosion controls and stockpiles



Category	ID #	Environmental Concern	Proposed Mitigation Measures
			– Function of stormwater management infrastructure, including water quality and quantity control, and use of bioswales – Installation and survivorship of planting material (e.g., correct species and quantities were planted); includes ecosystem offsetting plantings – Effectiveness of invasive species management – Installation and use of compensation habitat features (e.g., bat boxes) – Effectiveness of measures implemented to reduce wildlife road mortality at the new roadway • Vegetation monitoring should include adaptive management strategies to correct deficiencies that are noted. • A wildlife road mortality monitoring plan should be developed once the mitigation strategies to reduce road mortality are determined, i.e. during detail design. The monitoring plan should document wildlife use of the new roadway, including the use of crossing structures (if incorporated) using wildlife cameras, and road mortality occurrences, and evaluate the effectiveness of exclusion fencing.



10 Detail Design Commitments

Environmental concerns, anticipated impacts, and proposed mitigation measures as they relate to the project, have been described in Section 8. Many of the environmental concerns have been mitigated through the process by which the recommended design was selected, as described in the ESR. This section provides an additional list of standard commitments to be carried forward into Phase 5 of the MCEA process – Implementation Phase. These commitments have been developed through consultation with various agencies throughout the study process. A key component of detail design is refining and detailing the impact assessment and mitigation measures as the design is developed and refined, in consultation with the agency staff.

Specific mitigation measures have been selected and committed to by Halton Region to address potential impacts as discussed throughout **Section 8** and found in **Table 31**. It is recommended that these commitments become part of the contract package, so Contractors are aware of the requirements prior to tendering. Construction activities must be monitored to ensure that all environmental standards and commitments for construction are met. Halton Region will work with stakeholders during detail design and prior to the start of construction to ensure that the proposed works are acceptable, and to obtain required permits.

Specific commitments are listed below.

10.1 Natural Environment

- Ongoing consultation with CVC and the relevant technical agencies (i.e., DFO and MECP) to address any respective surveys, permitting or clearance requirements
- During detailed design, terrestrial and aquatic features shall be reviewed in the context of the preferred alignment to confirm that the preliminary design measures remain appropriate. If significant changes are identified (i.e., updates to legislation, new records of species at risk, or substantial alterations to site conditions) additional field investigations or targeted surveys will be undertaken as warranted. Environmental mitigation measures will be integrated into the construction documents. SAR and SAR potential will be reviewed during detail design to address any species that may have been uplisted since completion of the ESR.
- The preferred alignment should be reviewed during detail design to confirm that the SAR and provincially rare species identified are not present.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
10 Detail Design Commitments
December 2025**

- Tree inventory and tree removals will be refined during the detail design stage. A copy of the Tree Inventory is provided in **Appendix I**. For mitigation, please refer to **Section 8.1.4**.
- Develop detailed landscape plans for tree and shrub plantings and include edge management measures (i.e., planting to seal a forest edge). Planting plans at detail design will include native species suitable to the site conditions. All exposed surfaces will be stabilized and re-vegetated where appropriate following construction.
- Opportunities for restoration and enhancement of natural features and functions within the study area will be reviewed during detail design once impact areas are finalized.
- Vegetation compensation will be assessed and determined during detail design. For mitigation, please refer to **Section 8.1.4**.
- A post construction monitoring program will be developed during detail design. The monitoring program will include areas of restoration (i.e., vegetation compensation and survival), and areas where erosion and sediment control measures were applied during the construction period will also be assessed.
- Future work with channel reassessment utilizing natural channel design techniques will be developed during detail design, and may include enhanced grass swales and the installation and use of compensation habitat features such as bat boxes.
- Environmental monitoring will be combined with construction supervision to include periodic site visits and inspections throughout the course of the work.

10.2 Engineering / Design / Property

- A detailed geotechnical investigation and hydrogeological investigation will be undertaken during detail design to determine soil conditions, groundwater conditions and slope stability.
- An updated drainage and stormwater management report will be developed through detail design.
- Should an alternative pavement type be identified, the noise assessment will be reviewed and updated as required.
- A draft design criteria document for the improvements at Highway 7 will be prepared and submitted for MTO review during the detail design phase.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
10 Detail Design Commitments
December 2025**

- Ongoing consultation with MTO will be required to refine the design of the Highway 7 and Norval West Bypass roundabout and associated features (i.e., pedestrian crossings, approaches, channelized turning lanes, etc.). The roundabout design at Highway 7 should meet current MTO design standards. This includes adherence to the current TAC Manual, accompanying MTO TAC Design Supplement, and OTM books.
- Utility relocations and any new utility/infrastructure installation will be coordinated with MTO and best/reasonable efforts will be made to accommodate the requested 14 m setback from the MTO ROW limits.
- The Region will continue to work through detail design to coordinate and align with the implementation of the Southeast Georgetown Secondary Plan development.
- The Region will continue to coordinate stormwater management infrastructure and road grading with the Southeast Georgetown Secondary Plan area related development/plan of subdivision.
- Streetscaping opportunities consistent with the Norval Secondary Plan and the Southeast Georgetown Secondary Plan within the Norval West Bypass right-of-way (for example: pedestrian-scaled lighting, tree plantings and landscaping) will be included through the detail design stage of the study.
- Property requirements are preliminary only and subject to further review and refinement during detail design. See **Section 7.10** for additional information. Consultation with property owners will continue during the detail design phase.
- Direct access to the adjacent land proposed for development in the Southeast Georgetown Secondary Plan area will be provided, and the exact location and details will be determined through the development process.
- Future connection across the bypass will be informed by the Region's ongoing Grade Separated Active Transportation Study, as identified through the Southeast Georgetown Secondary Plan process.
- The design of the proposed driveway at 473/475 Guelph Street should be reviewed to promote overland drainage from the right-of-way to flow away from the properties. The final driveway configuration is to be reviewed with the property owners during detail design.
- Based on the preliminary preferred design for the roundabout, property is not required from 473 and 475 Guelph Street. A temporary easement or Permission to Enter agreement may be required during construction for grading of the new driveway. As per the property owner's request at 475



Guelph Street, the lilac bushes along the property line will be protected during construction.

- The roundabouts will require illumination at all approaches. The lighting will be downcast inward towards the roadway, though light spillage from the road is required to accommodate safe levels for pedestrians. The orientation of the luminaires should be placed to reduce excess lighting levels outside of the right-of-way. The use of shields should be considered during the detail design of the lighting to further reduce any light pollution.
- The thermal regime of the receiving water shall be considered and measures to address potential thermal impacts associated with wet ponds during detail design stage shall be incorporated, especially when the receiving water course is of cold/cool regime and supports sensitive fish habitat.
- During the detail design stage and prior to construction, the Region will be responsible for obtaining approvals and permits as required.
- Review of the adjacent structures and determination of the requirements for vibration monitoring are to be undertaken in advance of construction. The Contractor will be responsible to ensure all their personnel are sufficiently instructed so that the work is carried out in a manner consistent with minimizing environmental impact. The Region will assign a qualified environmental inspector whose responsibility will be to ensure compliance with the environmental objectives.
- Stakeholders such as local property owners, hospitals, public, and agencies who may be directly or indirectly impacted will be notified of the construction schedule prior to the commencement of construction activities.
- Potential closure events and restricted access shall be minimized to the greatest extent possible.

10.3 Monitoring and Maintenance

10.3.1 Environmental Monitoring

10.3.1.1 Construction Phase

Construction monitoring should be undertaken to track implementation of the planned mitigation measures, including compliance with the final grading, and erosion and sediment control plans. This includes proper functioning of ESC control measures throughout construction, and proper containment of work in designated work areas.



**Norval West Bypass Transportation Corridor Improvements - Municipal Class
Environmental Assessment
10 Detail Design Commitments
December 2025**

Remedial action should be undertaken as soon as possible wherever discrepancies are identified.

Monitoring should also occur to identify new occurrences of invasive species such as European reed (*Phragmites australis* ssp. *australis*) during construction. If identified, an action plan should be designed and implemented as soon as reasonably possible to eradicate this species before it becomes established.

Compliance monitoring reports should be prepared and submitted to the municipality and CVC twice annually (or other agreed to frequency) while construction is active. The reports should include a log of dates when inspections occurred, the condition of the facilities at the time and any recommended remedial actions, if any, that were implemented. This monitoring should continue until substantial completion of the grading and construction. Inspection activities will include:

- Inspection of erosion and control measures after each significant rainfall event (e.g., greater than 12 mm) or every other week, whichever is shorter
- Inspections should include all silt fence installations
- All noticeable erosion shall be repaired immediately, with investigation into the cause so implementation of mitigation measures to prevent recurrence will be more successful
- Encroachment beyond work zones should be noted.

10.3.1.2 Post-Construction

Post-construction monitoring is recommended to track compliance with the approved construction and landscape / restoration plans. Monitoring plans should be designed to track and recommend remedial action, for example. vegetation monitoring should include adaptive management strategies to correct deficiencies that are noted. Adaptive management may be triggered by poor survival of planted material, insufficient vegetation cover, and presence of invasive species in planted areas. Adaptive strategies may include supplemental plantings and/or control of unacceptable species.

The monitoring programs should follow most current requirements and policies/guidelines of relevant agencies.

