Village of Alton – Main Street North & Queen Street West Municipal Class Environmental Assessment

Environmental Study Report

Final

February 17, 2022

Prepared for:

TOWN OF CALEDON

R.V. Anderson Associates Limited
43 Church Street Suite 104
St. Catharines Ontario L2R 7E1 Canada
Tel 905 685 5049 Fax 855 833 4022
www.rvanderson.com

February 17, 2022 RVA 184339

Town of Caledon
6311 Old Church Road
Caledon, ON, L7C 1J6

Attention: Shun Cheung, P.Eng., PMP

Dear Ian:

Re: Village of Alton - Main Street North & Queen Street West Municipal Class Environmental Assessment
Environmental Study Report – Final

Please find enclosed the Final Environmental Study Report (ESR) for the Village of Alton - Main Street North & Queen Street West Municipal Class Environmental Assessment (Schedule C), completed by R.V. Anderson Associates Limited.

This Class Environmental Assessment was conducted in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA) – Schedule 'C'. As such, we will prepare a Notice of Completion, for distribution to stakeholders and general advertisement inviting the public to review this Environmental Study Report. The public will be invited to provide comments or concerns with this study. If no requests have been received by the Minister of Environment, Conservation and Parks within 60 calendar days of filing of the Notice of Study Completion, the Town may implement the study recommendations, complete the design and proceed to construction.

We appreciate the input received from the Town and collaboration throughout the study. If you have any questions, please do not hesitate to contact the undersigned by email or at 416-497-8600.

Yours very truly,

R.V. ANDERSON ASSOCIATES LIMITED

David O'Sullivan, P.Eng., PMP
Senior Associate, Project Manager

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Town of Caledon

In Association With:

RVA 184339

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Village of Alton - Main Street North & Queen Street West MCEA Environmental Study Report

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EXECUTIVE SUMMARY

The Town of Caledon is planning for urban and rural improvements to 3.2 kilometers of road on Queen Street West and Main Street North in Alton Village in the Town of Caledon, including consideration for additional pedestrian facilities, rehabilitation to the Main Street bridge, improvements to stormwater management and enhancing the streetscape throughout the village.

This project followed a Schedule 'C' process of the Municipal Engineers Association Municipal Class Environmental Assessment (October 2000, amended in 2007, 2011 & 2015). Public and technical agency consultation played a key role in the study, with key stakeholders including members of the local public and business community, special interest groups (e.g. Seaton Group, Alton Millpond Association, and Alton Village Association) and technical agencies (e.g. Ontario Provincial Police; Credit Valley Conservation Authority; Ministry of Natural Resources and Forestry, Ministry of Heritage, Sport, Tourism and Culture Industries, etc.). Stakeholders were notified and requested to provide input at study onset, prior to, and at each of the two public information centres (PICs) and at study completion.

Various technical studies were completed to assess the existing conditions and potential impacts of the alternatives being considered. Studies included: Transportation Study Report, Spot Speed Study Data Review, Stormwater Management Design Brief, Natural Heritage Existing Conditions and Preliminary Impact Assessment Report, Cultural Heritage Resource Assessment and Preliminary Impact Assessment Report, Stage 1 Archaeological Assessment, Subsurface Utility Report, Topographic Survey and Bridge Deck Condition Survey. The findings of these studies were incorporated into the evaluation of alternative solutions.

The report summarizes the Class EA that was conducted to select the preferred design concepts for the improvements to Queen Street West and Main Street in Alton Village.

The Study Area is outlined in Figure E1.

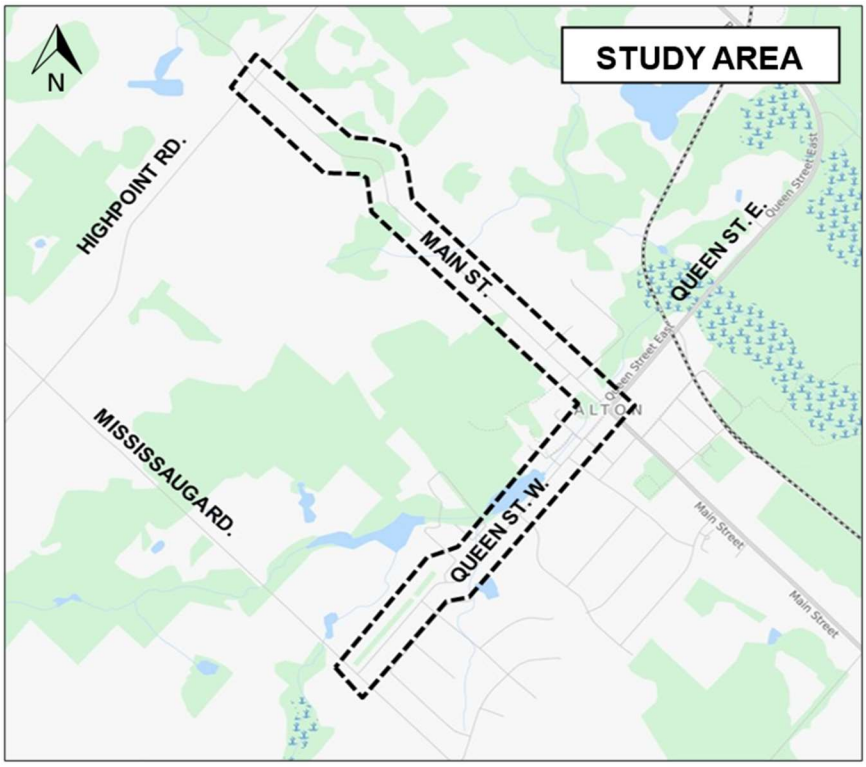

Figure E1 – Study Area

EA Phase 1 ~ Problem & Opportunity Statement

Per Phase 1 requirements of the Municipal Class Environmental Assessment process for a Schedule 'C' project, a "Problem and Opportunity Statement" was prepared following the assessment of the existing conditions within the study area to identify the various problems and opportunities to be addressed throughout the study.

The study problem & opportunity statement for this study has been defined by the following key elements:

- Improve the physical design of the road to enhance traffic operations and safety for all users
- Improve the roadway geometrics to provide a more connected and accessible active transportation network, along with improving traffic operations and safety
- Assess the condition of the existing bridge structure over Shaws Creek and review alternative solutions
- Improve existing active transportation facilities and introduce new facilities
- Introduce pedestrian amenities at the Alton Mill Pond
- Identify flooding issues within the study area
- Consider streetscape improvements to enhance the unique cultural heritage of Alton Village

In addition to addressing the noted issues above, the Class EA study considered opportunities to:

- Incorporate aesthetic design components that reflect the area's cultural heritage
- Improve safety and existing traffic operations for the village
- Improve drainage and stormwater management
- Add active transportation facilities

EA Phase 2 ~ Alternative Solutions

The evaluation of alternatives was completed in two steps, or Phases in accordance with Schedule 'C' Class EA requirements. Under the initial step (EA Phase 2) alternative solutions were reviewed for the study area, as follows:

1. Do Nothing **(Maintain Existing Roadways as Is)**
2. Corridor Infrastructure Improvements with **Six Villages Plan, Caledon Transportation Master Plan and Official Plan**
3. **Hybrid Approach** to Corridor Improvements with **existing constraints** and with **Six Villages Plan, Caledon Transportation Master Plan and Official Plan**
4. **Existing Infrastructure** Improvements Only

Based on the comparative evaluation that was undertaken using criteria representing the broad definition of the environment as described in the EA Act and incorporating feedback from the public and agencies, the preferred solutions are identified as follows:

- Alternative 3: Hybrid Approach to Corridor Improvements: Municipal infrastructure and design recommendations for the study corridors would be determined in consideration of the **Six Villages Plan, Caledon Transportation Master Plan, Official Plan** and **existing constraints within the Corridor**

EA Phase 3 ~ Design Concepts

Following the section of the preferred solutions in Phase 2, various design concepts were developed to implement those solutions. Alternative design concepts were developed in consideration of the following:

1. Pedestrian Accommodation
2. Cyclist Accommodation
3. Parking Requirements
4. Roadway Drainage Improvements
5. Traffic Calming Measures

Based on the comparative evaluation that was undertaken (similar to Phase 2) and input received from stakeholders, the following design concepts are recommended:

Pedestrian Accommodation: Construct continuous 1.5 m wide sidewalks along the south side of Queen Street and east side of Main Street. This will improve pedestrian safety and avoid significant impacts to adjacent properties. Construct a 1.5 m paved shoulder along the northern rural section of Main Street, in accordance with the Town's Transportation Master Plan

Cyclist Accommodation: Due to property and narrow right-of-way constraints, cyclists will be required to share the road with vehicles within portions of the Queen and Main Street corridors. Construct a 1.5 m paved shoulder for cyclists at the northern rural section of Main Street, in accordance with the Town's Transportation Master Plan.

Parking Requirements: Provide additional layby parking on east side of Main Street between Queen Street and 40 meters north of Mary Street.

Roadway Drainage Improvements: Identified drainage deficiencies and flooding to adjacent properties will be addressed via upgrades to the storm sewer system (curb/gutter/catchbasins) throughout Queen Street and Main Street, south of Mary Street. Enhanced grass swales will capture runoff north of Mary Street.

Traffic Calming Measures: Design to incorporate additional traffic calming measures, in addition to those already in place. These traffic calming measures are to include median/splitter islands at Main Street, north of Mary Street and additional warning signage. The use of additional streetscaping features and materials and providing an urbanized cross section with curb and gutter, etc. further north on Main street.

Impacts, Mitigation & Monitoring

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

Construction Staging and Cost Estimates

The anticipated timeline and preliminary cost estimates for the proposed works are outlined in the table below.

Table ES 1 – Preliminary Cost Estimate and Timing Summary

ACTIVITY	TIMING	PRELIMINARY COST ESTIMATE
Detailed Design	2021 and 2022	$878,000
Utility Relocations	2023	$460,000
Main Street Bridge Repairs	2024	$1,250,000
Road Reconstruction	2024	$7,960,000

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

The Town of Caledon has retained R.V. Anderson Associates Limited (RVA) to conduct a Municipal Class Environmental Assessment (EA) for improvements to Queen Street West and Main Street North and other related works (the 'Project'), including consideration for additional active transportation (pedestrian and cyclist) facilities, rehabilitation of the Main Street Bridge, improvements to drainage and stormwater management and enhancing the streetscape throughout the village.

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

1.2 Study Area

Queen Street West and Main Street North are two-lane (single lane per direction), rural collector roadways in the north-western quadrant of Caledon in the Village of Alton. Queen Street west and Main Street have a prescribed 20 metre right of way connecting to the adjacent collector roads.

At the centre of the study area, the Queen Street East and Main Street South intersection has recently undergone improvements as part of the Region of Peel's Phase Two - Alton Village Streetscaping project.

The study area includes 12 intersections: Mississauga Road, Meek Avenue, John Street, James Street North, Emeline Street, Agnes Street, Amelia Street, Victoria Street, Margaret Street, Nicholas Street, Mary Street and Highpoint Side Road.

Adjacent land uses in the area are mostly residential with some commercial properties along Queen Street West near Main Street. The land falls within the regulation limits of the Credit Valley Conservation Authority (CVC), with Shaws Creek running parallel and in close proximity to the north side of Queen Street, crossing at the northern leg of the Main Street and Queen Street intersection. The study area features the Alton Mill and Millcroft Inn ponds and dams which are privately owned.

The study area is outlined in Figure 1.1.

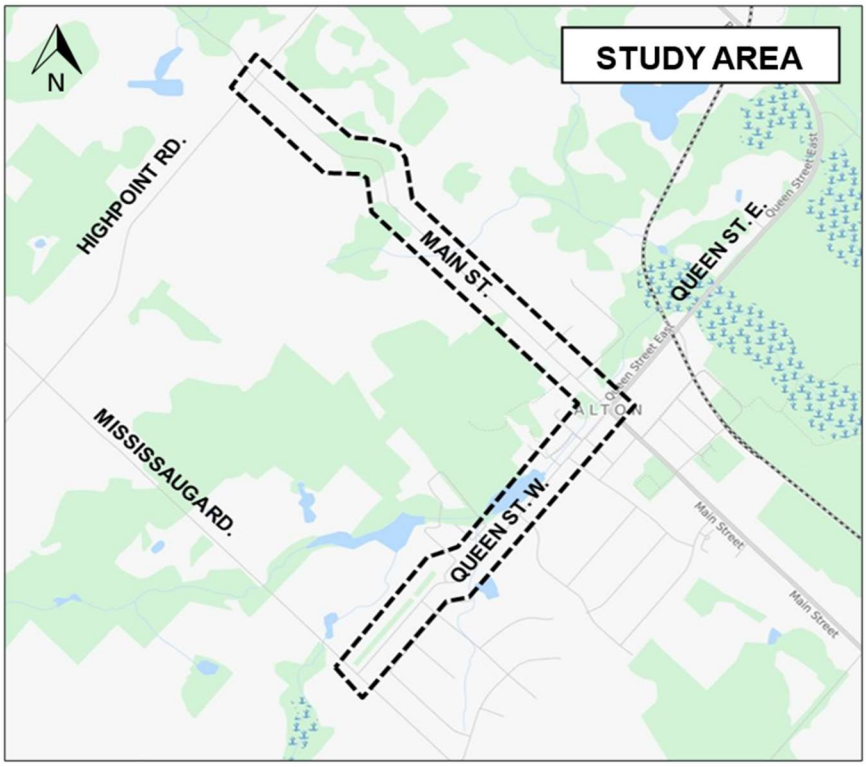

Figure 1.1 – Study Area

1.3 Background

In recent years, several studies have been completed to guide the redevelopment and reconstruction of the Village of Alton, including the *2017 Town of Caledon Transportation Master Plan, 2014 Development Charges Background Study, 2017 Alton Village Study Memo, 2019 Alton Village Drainage Study Report Phase 1 – Part 1 and 2, 2016 Six Villages Community Improvement Plan, 2014 Alton Stormwater Management Brief,* and *2002 Credit River Fisheries Management Plan*.

Additionally, the Region of Peel recently completed the reconstruction of Queen Street East and Main Street South through Phase One, and Phase Two of the Alton Village Streetscaping Improvements project, including the reconstruction of the Queen Street East and Main Street South intersection. The roadway reconstruction included drainage improvements, urbanization, and street beautification leading into the Village of Alton core. Queen Street West and Main Street North, within the study area, is the outstanding segment of the roadway requiring reconstruction in the Alton Village core.

In consideration of the background studies and the recent Alton Village Streetscaping Improvements construction, the Town of Caledon carried out this Class EA to develop a recommended road design that enhances connectivity and visitor accessibility throughout the Alton Village core.

1.4 Municipal Class Environmental Assessment Process

This study is being conducted in accordance with the requirements of the Municipal Class Environmental Assessment (MCEA) – Schedule 'C' which is an approved process under the Environmental Assessment Act. **Figure 1.1** illustrates the framework for the Class EA process which is a legislated planning process comprising of up to five phases with mandatory points of public contact. The focus of the framework is a comprehensive and transparent decision-making process.

The Class EA is broken down into phases, as follows:

- Phase 1 – Identify problem or opportunity;
- Phase 2 – Identify alternative solutions, evaluate and select the preferred solution;
- Phase 3 – Identify alternative design concepts, evaluate and select the preferred design concepts;
- Phase 4 – Complete the Environmental Study Report (ESR) and place it on the public record; and,
- Phase 5 – Project implementation, which is to undertake the contract drawings and tender documents for the project and proceed to construction and operation of the project.

This Schedule 'C' study will involve the completion of phases 1-4 of the Municipal Class Environmental Assessment planning and design process, with the final deliverable comprising the documentation of the planning process as provided in this Environmental Study Report. The Project will then proceed to Phase 5.

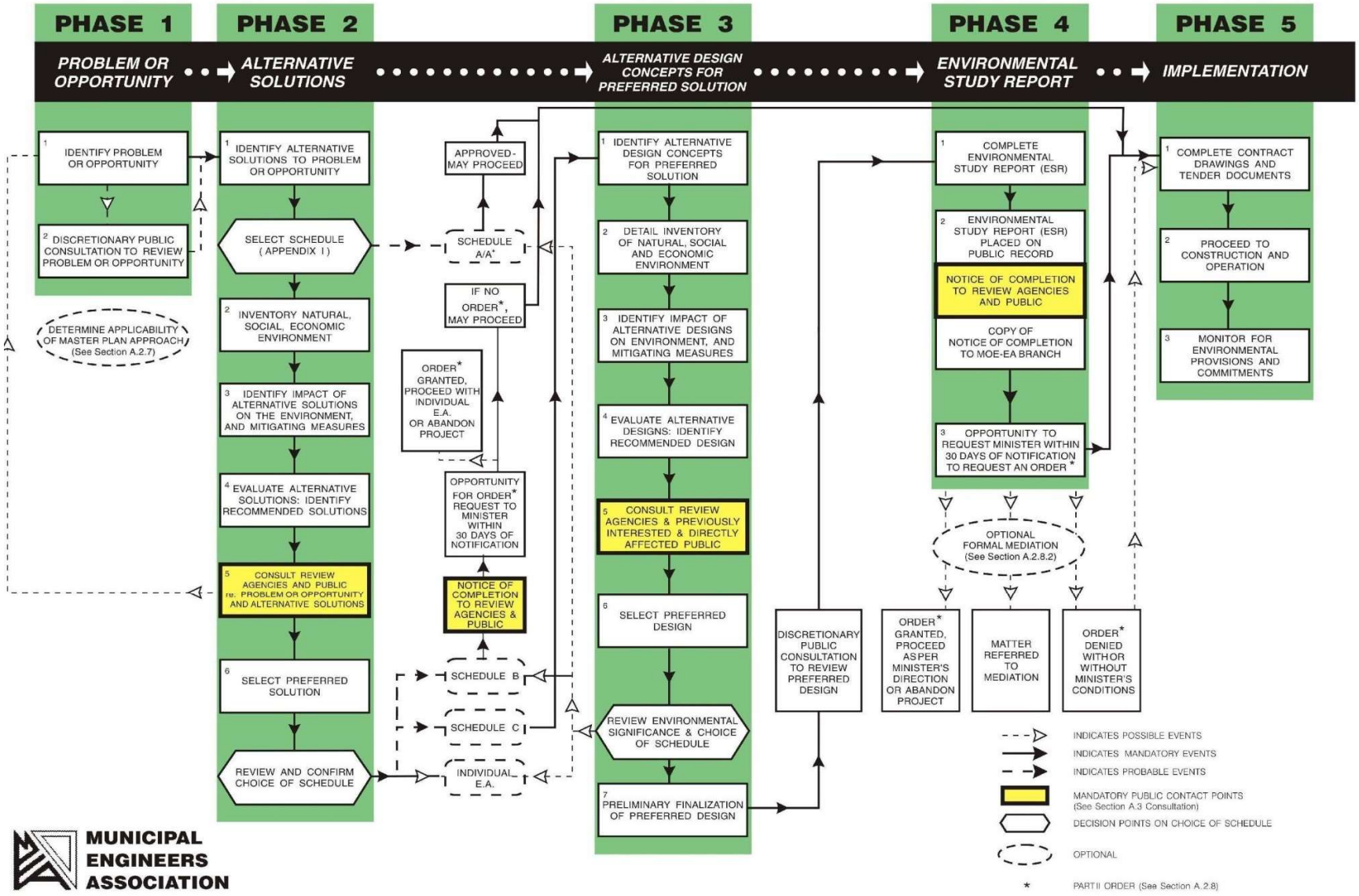

Figure 1.2 – Municipal Class Environmental Assessment Process (Municipal Engineers Association (2015)

1.4.1 Part II Order Requests

Anyone with concerns related to any aspect of the study may express such concerns in writing to the Project Manager at the Town of Caledon within the 30-calendar day review period following the Notice of Study Completion. All comments and concerns should be sent directly to Project Manager at the Town of Caledon.

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

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

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

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

and

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

Requests should also be sent to the Town of Caledon by mail or by e-mail.

1.5 Study Organization

The Class Environmental Assessment Study was carried out by a consulting team lead by R.V. Anderson Associates Limited (RVA) on behalf of the Town of Caledon. The RVA team consists of several multi-disciplinary specialists. The study team is outlines below:

Town of Caledon

- Shun Cheung, P.Eng., PMP – Project Manager

Consulting Team:

- R.V. Anderson Associates Limited – Lead Consultant, Planning and Engineering
- Thurber Engineering Ltd. – Geotechnical and Hydrogeology
- McWilliam & Associates – Streetscaping
- LGL Limited – Natural Environment
- ASI – Archaeology & Cultural Heritage
- T2UE – Subsurface Utility Engineering
- Tham Surveying Ltd. – Topographic Survey
- Bridge Check Canada Ltd. – Deck Condition Survey

1.6 Study Schedule

The EA study was initiated in March 2019. Key dates throughout the study were as follows:

Table 1.1 – Study Schedule

EA Stage	Date
Notice of Study Commencement	April 25, 2019
Notice of PIC #1	July 25, 2019
Public Information Centre #1	August 8, 2019
Notice of PIC #2	August 27, 2020
Public Information Centre #2	August 27, 2020 – October 19, 2020
Notice of Study Completion	February 17, 2022

1.7 Consultation Requirements

Public Consultation is a key feature of environment assessment planning projects. Input received from the public and various stakeholder groups, potentially affected indigenous communities, as well as from provincial ministries, agencies, and authorities can generate

meaningful dialogue between the project planners and the public. This consultation allows for the exchange of ideas and the broadening of the information base, leading to better decision-making during the study.

Various indigenous communities, government agencies, authorities and interest groups were informed of the Class EA Study commencement, as well as the public consultation centres and notice of study completion, through local newspaper notices, direct mailings (paper & electronic) to stakeholders and agencies and notices distributed to property owners in the study area.

A complete list of technical agencies, special interest groups and indigenous communities that were contacted as part of the study is provided in **Appendix 1** of this report.

1.7.1 Contact with Stakeholders

As per the MCEA, notification to the public and stakeholders of the Study Commencement, Public Information Centres (PIC) and Study Completion is required. Notification of Study Commencement, Public Information Centres (2) and Notice of Study Completion was provided through various methods and media, as outlined below.

- **General Public:**
  - All Notices were published in the *Caledon Citizen* (local newspaper)
  - All notices were posted on the Town's municipal website
  - Social media posts (Facebook and Twitter)

- **Residents & Businesses with Study Area:**
  - All Notices were mailed to all property owners within the study area

- **Technical Agencies, Local Interest Groups and First Nations Communities:**
  - Notices sent by email two (2) weeks in advance of each PIC or by mail if no email was on file for the contact
  - Meetings scheduled with especially interested local interest groups and stakeholders
  - Notice of Completion sent by email or mail

- **Project Mailing List (stakeholders who submitted comments during the study or indicated interest in the project):**
  - Notices sent by email two (2) weeks in advance of each PIC
  - Notice of Completion sent by email

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

A summary of consultation and comments is provided in Section 9.0.

2.0 EXISTING CONDITIONS

2.1 Transportation Network

Queen Street West and Main Street North provides access from surrounding agricultural and rural communities to the historic Village of Alton. The Village includes several commercial and historic establishments near the intersection of Queen Street West and Main Street North.

A *Transportation Study Report* was completed in June 2019 to provide an existing condition review of the study area from a transportation perspective. A full copy of this report is located in **Appendix 2**.

2.1.1 Roadway Geometrics & Safety

Queen Street West is an east-west collector road with a two-lane rural cross-section (gravel shoulders) from Mississauga Road to approximately 350 metres to the east, where it transitions to a two-lane urban cross-section (curb and gutter) to the eastern limit of the study area at Main Street North.

Heavy trucks are not permitted on Main Street North or on Queen Street West through the study area as evidenced by the existing truck restriction signage. Both roads are under the jurisdiction of the Town of Caledon.

There is an S-curve in Queen Street West's horizontal alignment at approximately 400 metres east of Mississauga Road, for a travel length of approximately 150 metres. There are no significant vertical changes in road grade that are expected to result in safety or operational concerns.

Main Street North is a north-south collector road with a rural cross section (gravel shoulders) from the northern limit of the study area at Highpoint Side Road to about 45 meters north of the Queen Street West intersection, where it transitions to a two-lane urban cross-section (curb and gutter to the southern limit of the study area at Queen Street West.

There is a noticeable S-curve in the Main Street North's horizontal alignment at approximately 400 metres south of Highpoint Side Road, with a posted advisory speed of 30 km/h through the curve.

There is a noticeable crest in Main Street North's vertical alignment just south of Highpoint Sideroad, with the road's vertical alignment having a generally downward gradient from the noted crest in the southerly direction to Queen Street.

Main Street South and Queen Street East / Regional Road 136, immediately adjacent to the study area are owned and operated by the Region of Peel and were recently reconstructed as part of the Region of Peel Alton Village Streetscaping Project. The project included road reconstruction, drainage and boulevard improvements, providing on-street parking, decorative street lighting, streetscaping enhancements and landscaping on Main Street South and Queen Street East, up to and including the intersection of Queen Street West and Main Street North. Construction was completed in Summer 2020.

2.1.2 Transit

There are no transit services offered on Main Street North or Queen Street West in the study area.

2.1.3 On-Street Parking

The Village includes several commercial and historical establishments near the intersection of Queen Street and Main Street North that generate a parking demand. This parking demand increases noticeably during summer months, and especially during weekends.

Access to a public parking lot exists on the south side of Queen Street West approximately 40 metres west of Main Street North, however this lot is not located within the study area.

There are no designated on-street parking facilities available within the study area. However, as there are no on-street parking restrictions, the roadside shoulder is currently being utilized informally as on-street parking near the Village core. The current arrangement has parked vehicles encroaching into the travel lanes, causing safety concerns, and do not meet geometric design requirements for on-street parking.

The *2016 Six Villages Community Improvement Plan* identifies a need to improve parking in the Village in order to accommodate potential future demand for tourism.

The recently completed reconstruction of Main Street South and Queen Street East by the Region of Peel included formalized lay-by parking spaces as well as improvements to Caledon Fire Station 301 parking lot.

The provision of additional parking within the study limits was identified as a potential improvement option to be evaluated as part of the EA study.

2.1.4 Traffic Calming Measures

The urban portions of Queen Street West, from John Street to Main Street Queen is equipped with the following traffic calming measures:

- A reduced posted regulatory maximum speed limit of 40 km/h;
- Radar speed signs; and
- “SLOW” pavement marking messaging.

The urban portion of Main Street, between the S-curve to the west and the intersection at Main Street North to the east is equipped with the following traffic calming measures:

- A reduced posted regulatory maximum speed limit of 40 km/h;
- On-street parking in the Village core; and
- “SLOW” pavement marking messaging.

These traffic calming measures are considered appropriate from a traffic operations and road safety perspective, for the urbanized portions of the roadways.

There are no existing traffic calming measures within the rural portions of Queen Street West or Main Street within the study area. Based on consultation with key stakeholders, the potential for additional enhancements to traffic calming within the study area was assessed.

2.1.5 Active Transportation

The *Transportation Study Report* reviewed the study area from an active transportation perspective, evaluating the existing pedestrian network (sidewalks), pedestrian crossings, and bicycle facilities.

The *2016 Six Villages Community Improvement Plan* identifies a strong need to improve the pedestrian connections across the Village, and especially between key attractions within the Village core.

2.1.5.1 Pedestrian Network

The existing pedestrian network within the study area is limited. Noted limitations and/or deficiencies in the pedestrian network include: sidewalk on one side of the road only; utility encroachment onto the sidewalk; grade differentiation adjacent to the sidewalk; an abrupt alignment change in sidewalk alignment; an untypical sidewalk termination; and a lack of connectivity to key areas such as the Alton Millpond.

Pedestrian sidewalks within the study area currently exist on the south side of Queen Street West, from approximately 350 metres east of Mississauga Road to Main Street North and on the east side of Main Street North extending north from Queen Street and terminating approximately 50 metres north of Margaret Street.

Within the village core near the intersection of Queen Street West at Main Street North, there are several instances of wooden hydro poles, fire hydrants and traffic signage encroaching into sidewalks along Queen Street West posing accessibility and pedestrian safety concerns.

Due to significant grade differentiation between the sidewalk and adjacent properties along several sections of Queen Street West, runoff has resulted in mud, natural debris and fine gravel to be deposited along several sections of the sidewalk causing undesirable sidewalk conditions.

The abrupt change in the sidewalk alignment on Queen Street West approximately 80 metres east of James Street North is not ideal for pedestrian flow and given the lack of on-street bicycle facilities, could pose a safety concern for recreational cyclists utilizing the sidewalk travelling eastbound.

There is currently no pedestrian access to Alton Millpond, located on the North side of Queen Street West from the existing sidewalk on the south side of the road.

Based on the analysis of the existing pedestrian network within the study are, several opportunities for improvement were identified including:

- Relocating hydro poles so they do not encroach into adjacent sidewalks;
- Reducing the grade differentiations adjacent to the sidewalk where possible;
- Re-configuring the abrupt sidewalk alignment change on Queen Street West;
- Improve the pedestrian realm overall through an improved cross-section; and
- Extend the sidewalk on the east side of Main Street North to the next intersection.

2.1.5.2 Pedestrian Crossing Facilities

Generally, designated pedestrian crossing facilities are limited to the intersection of Main Street North at Queen Street West. The intersection has recently undergone improvements as part of the Region of Peel Alton Village Streetscaping Improvements Project, including enhanced pedestrian crosswalks and tactile walking surface indicators at the crosswalk letdowns per *Accessibility for Ontarians with Disability Act* (AODA) standards. These indicators are used to alert people with visual impairments of potential

hazards, such as vehicular traffic. The application of tactile plates should be used consistently at all crossing locations to provide consistency for people with visual impairments utilizing the crossing facilities.

Several opportunities to improve the existing pedestrian crossing facilities within the study area were identified including:

- Ensuring all designated crossing locations have pedestrian ramping per AODA;
- Improve the frequency and consistency in the application of tactile walking surface indicators; and
- Improve the network's overall pedestrian connectivity and accessibility to key locations.

2.1.5.3 Bicycle Facilities

The study area currently has no on- or off-street bicycle facilities such as signage, pavement marking, or bike racks. Cyclists are required to utilize the existing general-purpose travel lanes while there are no traffic control measures (i.e. signage and/or pavement markings) indicating to road users that the roadway is a shared facility.

Given the desired recreational, community, and visitor-friendly character of the Village, there is expected to be demand for cycling as a mode of local transportation, especially during weekends and the summer season in key locations such as the Acton Millpond and/or Village core.

Given the lack of on-street bicycle facilities, the abrupt change in sidewalk alignment on the south side of Queen Street West approximately 80 metres east of James Street North could pose a safety concern for cyclists utilizing the sidewalk travelling eastbound on the downward gradient.

Opportunities to improve the existing bicycle facilities within the study area were identified including introducing on- and/or off-street bicycle facilities.

2.1.6 Vehicle Speeds Analysis

After concerns regarding vehicle speeding within the study area were communicated at the first PIC, a Spot Speed Study was subsequently completed to determine current vehicle speeds within the study area. A full copy of this report is located in Appendix 3**.**

The Spot Speed Study determined that while operating speeds on the urbanized portions of Queen Street and Main Street are acceptable, there is low compliance with speed limits

along the rural portions of Queen Street (west of John Street) and Main Street. The existing rural designs of these roadways are likely the primary contributing factors to the low compliance with speed limits within the rural portions of the study area.

Queen Street West has a posted maximum speed limit of 40 km/h along the urbanized portion of the road, and a posted maximum speed limit of 60 km/h on the rural portion of the road, from Mississauga Road to John Street.

The results of the spot speed study indicate a speeding issue likely does not exist along the urbanized portion of Queen Street, as an average variance of only 7-12 km/h between the posted speed limit and operating speeds were observed. A larger variance of 16-17 km/h between the posted speed limit and operating speeds on the rural portion of Queen Street West was observed, representing low compliance.

Main Street North has a posted maximum speed limit of 40 km/h along the urbanized portion of the road, at which point it transitions a 60 km/h posted speed limit. A notable variance of 17 km/h between the speed limit and operating speeds observed, representing low compliance to the speed limit.

An expansion of the boundaries of the urbanized Village of Alton is expected to have a traffic calming effect on the overall study area road network, with the anticipation that compliance to the posted speed limits should improve.

2.2 Streetscaping

The Region of Peel completed streetscaping improvements in the southeast corner of the Main Street and Queen Street intersection as well as other areas within Alton as part of the Alton Village Phase 2 project. As the project study area currently has limited streetscaping, it is recommended that the Town consider Peel Region's Alton Village Phase 2 streetscaping measures within this project's study area, providing continuity throughout the main streets of Alton.

The *2016 Six Villages Community Improvement Plan* identifies Alton as a tourism hub in the Town of Caledon. To sustain this, streetscape improvements are an important aesthetic feature and appeals to residents and business owners. It is recommended that streetscape improvements that enhance the unique cultural heritage character of Alton Village will be developed to provide a seamless extension to the Region's recent streetscape improvements along Queen Street East and Main Street South. Streetscaping improvement opportunities to be considered include:

- Creating an inviting public realm through improved pedestrian accommodations and accessibility
- Increasing pedestrian access near Alton Millpond
- Providing a viewing area and/or active transportation amenities such as benches and/or bike racks at Alton Millpond
- Enhancing street frontage at Carriage Square Park
- Adding bridge design features that support local heritage
- Improving parking to accommodate visitors
- Adding attractive wayfinding signage.

These streetscape improvements are to be evaluated in consideration of the challenges and constraints of the study area including:

- Maintaining heritage character of the Village
- Coordination with Peel Region's Alton Village Phase 2 construction
- Streetscape features suitable for a narrow road allowance
- Capital cost restrictions.

2.3 Structural

2.3.1 Main Street Bridge (Shaws Creek)

A Detailed Bridge Condition Survey of the Main Street bridge was conducted in April 2019, in accordance with Part 1 of the *Ministry of Transportation (MTO) Structure Rehabilitation Manual (2007)*. A full copy of this report is provided in **Appendix 4.**

The Main Street bridge, constructed in 1969, is a single span rigid frame reinforced cast-in-place concrete slab with vertical legs, overlain with an asphalt wearing surface and carries one traffic lane per direction of Main Street. The structure has a north-to-south orientation. The outer limits of the structure contain concrete parapet wall and curb on the west side and concrete parapet wall and sidewalk on the east side. The rehabilitation history of the bridge was not available.

Based on the Detailed Bridge Condition Survey, the structure requires rehabilitation to the deck, sidewalk and parapet walls. The bridge water opening (hydraulic) requirements are met with the current configuration, and no additional hydraulic capacity is required.

2.4 Municipal Services, Drainage & Utilities

2.4.1 Water and Sanitary Services

There is a municipal watermain that runs along Main Street North from the intersection with Queen Street up to 700m north of Mary Street. It is assumed that most, if not all houses along this stretch of road are serviced with individual service connections from this watermain. All houses from 700 meters north of Mary Street to Highpoint Sideroad are assumed to have private wells for water supply.

There is a municipal watermain that runs along Queen Street from the intersection with Main Street to the future Osprey Mills on Queen Street West. It is assumed that most, if not all houses along this stretch of road are serviced with individual service connections from this watermain. There is one rural residential property opposite future Osprey Mills Drive which is assumed to be serviced by a private well or private surface water intake.

Throughout the project area, there are no municipal sanitary sewers. It is assumed that all properties have individual private septic systems.

2.4.2 Drainage & Stormwater Management

A Storm Drainage Design Brief was completed as part of the EA study to summarize the existing conditions of the drainage and stormwater management infrastructure in the study area and outline the proposed improvements to the storm drainage system. A full copy of this report is located in **Appendix 5.**

Under existing conditions, roadside ditches and culverts are the primary controls used to convey drainage from the roadway and adjacent lands along Main Street within the study area. Along the west end of Queen Street, runoff is conveyed in roadside ditches (Mississauga Road to Osprey Mills Drive), while runoff east of Osprey Mills Drive to Main Street is conveyed via the existing semi-mountable curb and gutter and storm sewers systems which outlet to Alton Mill Pond and Shaw's Creek.

The overall drainage direction is from southwest to northeast along Queen Street and across Main Street, with all runoff directed toward the Alton Mill Pond and Shaw's Creek.

The previous *Alton Village Drainage Study Report Phase 1 – Part 1 and 2 (R.J. Burnside, 2014)* identified the low points and flood concerns along Queen Street and Main Street and suggested potential solutions. Pooling water and flooding issues have also been noted by residents along the study area.

Other drainage issues such as unidentified culverts, poorly defined swales and reduced water quality in the Alton Mill pond as a result of drainage from the Alton Estates and the new subdivision were identified and considered in the stormwater designs for Main Street North and Queen Street West.

2.4.3 Other Utilities

Hydro service is provided by overhead cables on Hydro One owned poles. The poles also carry Bell and Roger telecommunications plant through most of the project area. These poles are located on the south side of Queen Street from the Main Street intersection to approximately 300 meters west Main Street, where they cross over to the north side of Queen Street.

Along Main Street North, all poles carrying Bell, Rogers and Hydro One plant are located primarily on the east side of the road. Rogers and Hydro One plant is carried on poles along the entire length of Main Street from the Queen Street intersection to Highpoint Sideroad. Bell plant crosses over Main Street approximately 600 meters north of Mary Street and then continues underground on the west side to Highpoint Sideroad. Along Queen Street West, there is additional buried Bell plant on the north side.

An Enbridge natural gas main runs along Queen Street West underground on the south side from the Main Street intersection until Victoria Street. West of Victoria Street, the underground Enbridge gas main runs along the north side, where it eventually terminates at future Osprey Mills Drive. Along Main Street north, the Enbridge gas main runs on the west side. It is mounted onto the west side of the Shaw's Creek Bridge where it crosses the watercourse. It continues on the west side to approximately 700 meters north of Mary Street.

2.5 Natural Environment

A Natural Heritage Report, documenting the existing environmental conditions within the study area and identify natural heritage areas and/or features of environmental sensitivity and/or significance was prepared by LGL Limited in January 2020. A full copy of this report is located in **Appendix 6.**

2.5.1 Aquatic Habitats and Communities

The study area is located within the Shaw's Creek subwatershed with one watercourse, Shaw's Creek, located within the study area. Shaw's Creek is a permanent watercourse classified as a coldwater stream with Alton Mill Pond directly upstream. Shaw's Creek supports direct fish habitat, containing a coldwater aquatic community that supports Brook

Trout (Salvelinus fontinalis), a sensitive sport fish. This watercourse is under the jurisdiction of Credit Valley Conservation Authority (CVC) and the Ministry of Natural Resources and Forestry (MNRF) Aurora District.

The Alton Mill Pond, formed by the damming of Shaw's Creek, is located within the study area. Along the pond's south bank adjacent to Queen Street West, riparian areas consist of manicured and semi-natural vegetation (planted trees). The northern shoreline is dominated by cedars lining the shoreline in front of a pine plantation along the upstream portion of the pond, with manicured grass and deciduous trees and shrubs present along the downstream end of pond. Many adult Common Carp (Cyprinus carpio) and one adult Rock Bass (Ambloplites rupestris) were observed in the pond during the site visit. Because there is very little shading of the pond provided by riparian vegetation, and it has a considerable open water component, it is likely that the surface water is heated during the warmer months of the year which could have a negative thermal impact on coldwater habitat downstream. Although the pond supports direct fish habitat, the dam acts as a barrier to fish passage as it prevents fish from travelling upstream of the dam.

The Shaw's Creek watercourse continues through the study area from at the upstream end of the dammed Alton Mill Pond. The watercourse runs from west to east parallel to Queen Street through the residential area and enters the Credit River at Alton Wetland Complex (Provincially Significant Wetland) before continuing south under the Queen Street East crossing, and out of the study area.

One watercourse crossing is present within the study area, Shaw's Creek crossing of Main Street approximately 25 m north of the Queen Street intersection (Main Street Bridge). The crossing is through a concrete bridge structure that mostly spans the wetted width of the watercourse (the south abutment is in the water). No fish were observed at the Shaw's Creek crossing.

Between the pond and crossing, the channel morphology is dominated by riffles with a few runs. The channel is approximately 7 m in width depths ranging from 10 cm to 40 cm. The downstream right bank has been reinforced with various materials (armourstone, concrete, wood and stone) as the channel runs adjacent to the rear yards of several homes along Queen Street West. The downstream left bank is more natural and is well vegetated with Eastern White Cedars (Thuja occidentalis) and deciduous trees. The channel appears to be stable. Along the channel between the dam and the Main Street crossing are two single-span bridges with concrete and/or armourstone abutments.

Downstream of the crossing, the channel narrows to an average of 5 m in width and 15 cm in depth, and riffles are the dominant morphology type. The downstream left and right

banks have been armoured with gabion baskets and stone (downstream left bank only) with minor erosion observed (undercut banks). The downstream left bank consists of a manicured yard downstream of Main Street and the manicured area reaches the bank here, although trees are still present. Further downstream beyond the manicured yards (>200 m), eastern white cedars become the dominant riparian vegetation species. Riparian cover is fairly robust and is provided by small deciduous trees. Groundcover is almost absent.

Based on a review of the MNRF Natural Heritage Information Centre database, DFO Species at Risk mapping, and correspondence with CVC, no aquatic Species at Risk occur within the study limits. Ministry of Natural Resources and Forestry (MNRF) has indicated that no in-water works are permitted from March 15 to June 30.

Figure 2.5 – Existing Watercourse and Land use

2.5.2 Wildlife & Wildlife Habitat

Wildlife and wildlife habitat were found across the entire study area. Although the study area has been disturbed/altered from its natural state, there is generally opportunity for wildlife to move across the local landscape throughout the study area, especially along Main Street and at the west end of Queen Street West. The large number of natural areas (e.g., Credit River at Alton, Alton-Hillsburgh and Caledon Lake Wetland Complexes, the Alton Branch Swamp and Caledon Lake Forest ANSIs, the Orangeville Moraine and Caledon Lakes Candidate ANSI and various forests and unevaluated wetlands) which surround the study area contain relatively high-quality wildlife habitat, and likely influence the wildlife assemblage found in the study area. The agricultural lands bordering the west end of the study area provide open country habitat, in particular for bird species.

Based on field observations, 53 species of wildlife (43 birds, 4 herpetofauna, and 6 mammals) could be verified as occurring in the study area. The wildlife species identified within the study area are largely species common within rural areas of Southern Ontario.

A total of 43 species of birds were observed in the study area during field investigations. Two additional bird species have been identified as previously recorded in the study area based on secondary sources. Bird species were recorded across the study area; however, higher species diversity was noted within more extensive natural heritage features in the northern portion of the study area. The study area contained a relatively large number of breeding bird species. Several bird species identified within the study area are protected under the Migratory Birds Convention Act (MBCA) and/or the Fish and Wildlife Conservation Act (FWCA). No nests were identified on bridge/culvert structures within the study area.

Six mammal species were identified during field investigations within the study area. Coyote (Canis latrans), White-tailed Deer (Odocoileus virginianus) and Eastern Cottontail (Sylvilagus floridanus) were observed within the well vegetated areas along Main Street. White-tailed Deer tracks were also identified along roadside ditches, mainly at the edge of vegetation communities. Eastern Gray Squirrel (Sciurus carolinensis), Red Squirrel (S. vulgaris) and Eastern Chipmunk (Tamias striatus) were identified across much of the study area, including within and around roadside trees in more disturbed areas. Generally, the mammal species identified within the study area represent an assemblage that readily utilizes human influenced landscapes. All mammal species identified within the study area are regulated under the Fish and Wildlife Conservation act (FWCA).

Four species of herpetofauna (reptile or amphibian) were observed in the study area during field investigations. Overall, given the residential and disturbed nature of the study area, anuran use of the area is expected to be limited, but most prevalent within aquatic and riparian habitat. Breeding evidence was documented for 3 anuran (tailless amphibian i.e. frogs or toad) species were noted within the study area or in the immediate vicinity including vocalizing male American Toad (Anaxyrus americanus), Spring Peeper (Pseudacris crucifer) and Green Frog (Lithobates clamitans). One additional herpetofauna species, Gray Treefrog (Hyla versicolor), protected under the FWCA was observed.

Based on the aquatic habitat and adjacent open country and forested habitat types present within the study area, other reptile and amphibian species are expected to be found within the study area; however, an assemblage that is generally considered tolerant of anthropogenic influences is expected to be present.

2.5.2.1 Wildlife Species at Risk

Of the 53 wildlife species recorded within the study area, two species of birds are regulated under the Ontario Endangered Species Act, 2007 (ESA) and the Canada Species at Risk Act (SARA) including Bobolink (Dolichonyx oryzivorus) and Eastern Meadowlark (Sturnella magna). Each of these species are regulated as 'Threatened' under both the ESA and SARA.

Several Bobolink and Eastern Meadowlark were observed at the west end of the study area, specifically in the unfinished subdivision that has grown into a grassland on the south side of Queen Street West, east of Mississauga Road. A few Bobolink were also observed to the north of the trees in the agricultural field, north of Queen Street West and east of Mississauga Road.

Two additional wildlife species at risk that were not observed have been identified as historically present within the vicinity of the study area, based on records from the Natural Heritage Information Centre (NHIC) Biodiversity Explorer database (MNR 2019). These two species include Eastern Wood Pewee (Contopus virens) and Wood Thrush (Hylocichla mustelina). Eastern Wood Pewee and the Wood Thrush are each listed provincially (ESA) as 'Special Concern' but have no status federally (SARA). Forest habitat suitable to support Eastern Wood Pewee and Wood Thrush exist outside of the study are in the natural areas backing on to the properties fronting Main Street. The provincial Special Concern listing affords no formal regulation for the species or their habitat.

2.5.3 Vegetation and Trees

The majority of the study area is comprised of manicured areas associated with residential properties. Closer to Highpoint Sideroad vegetation becomes more naturalized and is comprised of a variety of Ecological Land Classification (ELC) vegetation communities.

Six ELC communities were identified within the study area including: Cattail Mineral Shallow Marsh (MAS2-1), Forb Mineral Meadow Marsh (MAM2-10), Dry-Moist Old Field Meadow (CUM1-1), Mineral Cultural Woodland (CUW1), Mineral Cultural Thicket (CUT1), and Coniferous Plantation (CUP3). Each of these vegetation communities are considered widespread and common in Ontario and are secure globally.

A total of 90 plant species have been recorded within the study area. Two of these plants could only be identified to genus and are not included in the following calculations. Of the

88 plants identified to species, 45 (51%) plant species identified are native to Ontario and 43 (49%) plant species are considered introduced and non-native to Ontario.

Two plant species identified within the study area are considered regionally rare including eastern red cedar (Juniperus virginiana) and Indian grass (Sorghastrum nutans). The eastern red cedar was planted as an amenity feature on a residential property. The Indian grass was associated with subdivision development at the corner of Queen Street and Mississauga road and as such, is not likely not naturally occurring. Given these two species are not naturally occurring they should not be considered significant within the study area.

No plant species that are regulated under the Ontario Endangered Species Act (ESA) or the Canada Species at Risk Act (SARA) (i.e., those plant species regulated as Endangered, Threatened, or Special Concern) were encountered within the subject area and there are no historic records of plant species at risk within the study area.

2.5.4 Designated Natural Areas

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

There are three Provincially Significant Wetlands (PSW), two other evaluated wetlands, two Areas of Natural and Scientific Interest (ANSI), one candidate ANSI and one Environmental Significant/Sensitive ARE (ESA) identified within the greater landscape of the study area. These designated natural areas surrounding the study area provide a mosaic for wildlife habitat and movement from one natural area to another.

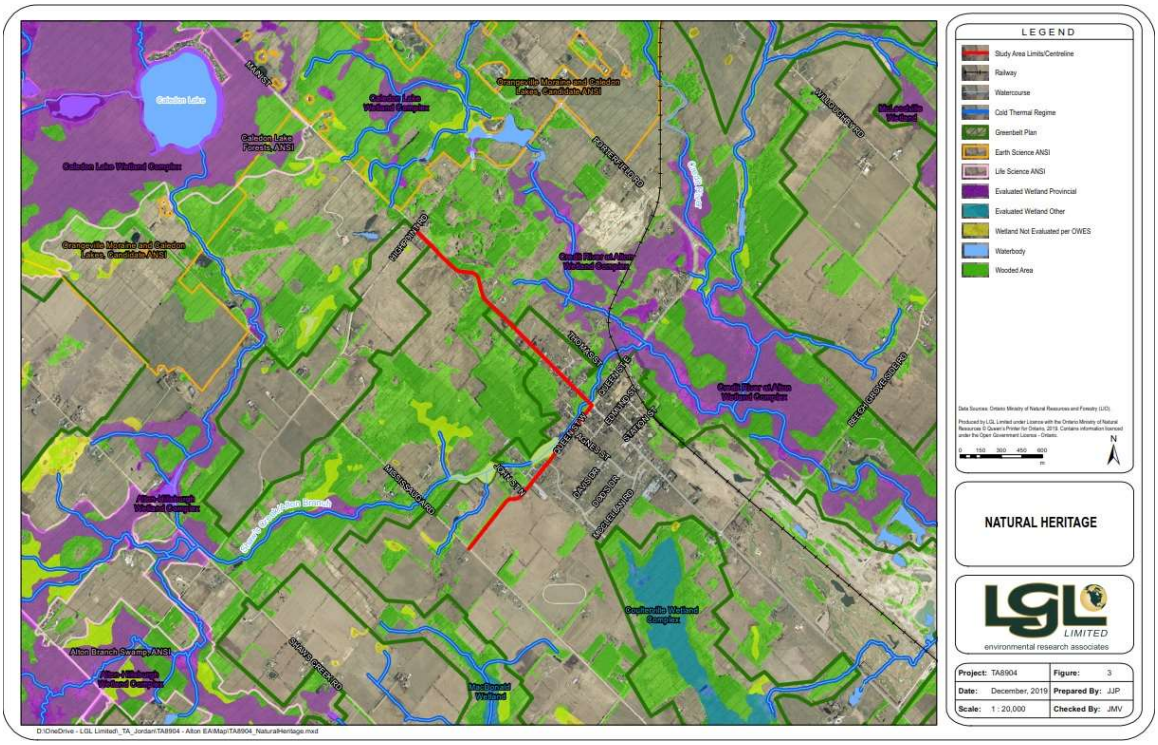

Figure 2.6 – Designated Natural Areas

2.5.5 Provincial Policy Statement

The Provincial Policy Statement (PPS, Ministry of Municipal Affairs and Housing (MMAH), 2020) sets the policy direction for regulating development and land use planning in the province. Both provincial and local land-use planning decisions build on the PPS and its relevant policies. This report deals specifically with the policies contained in Part V, Section 2.1 (Natural Heritage) of the PPS which is directed at protection and management of natural heritage systems and features. A natural heritage system is defined by the Province of Ontario as:

"A system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions and working landscapes that enable ecological functions to continue." (MMAH, 2020).

The Natural Heritage Resource Manual (MNR, 2010) describes natural heritage features of significance, and areas where development and site alteration is not permitted.

2.5.6 Greenbelt Plan Area

The entire study area is identified as “Protected Countryside” within the Greenbelt Plan Area, under the designation of “Towns/Villages”. The policies for these settlement areas support the achievement of complete communities that are healthier, safer, more equitable and more resilient to the impacts of climate change.

The Greenbelt Plan identifies the following policies as they pertain to the Town’s role in undertaking improvements to the study area:

- Towns/Villages are not permitted to expand into specialty crop areas.
- Towns/Villages are not permitted to expand into the Natural Heritage System

The recommended alternatives and designs are to be developed in accordance with the Greenbelt Plan Area.

2.5.7 Peel Region Official Plan

The lands within the study area are not designated as any special area under the Peel Regional Official plan. However, the river corridor and wetlands located to the east of the study area are identified as “Core Area of the Greenlands System in the Region of Peel Official Plan”.

Core Areas of the Greenlands System in Peel are areas that have been identified as providing “ideal conditions for uninterrupted natural systems and provide habitat for many different kinds of wildlife”. These areas are afforded protection to ensure that Peel’s natural features and their functions will be preserved over time.

The recommended alternatives and designs were developed in accordance with the Peel Region Official Plan.

2.6 Socio-Economic Environment

2.6.1 Residential Properties & Development

The majority of the study area is lined with single dwelling residential homes. Several of these existing residential properties are historic residences designated under the *Ontario Heritage Act*. The recommended improvements are to consider the existing residents as well as ongoing and future developments.

2.6.2 Local Businesses

There are a variety of local businesses along Queen and Main Street in the study area that rely on access via Queen Street West and Main Street. The recommended improvements must minimize disruption to the existing businesses and incorporate aesthetic features that appeal to both residents and local business owners.

2.6.3 Tourism

The *2016 Six Villages Community Improvement Plan* identifies Alton as being a tourism hub in the Town of Caledon. The section of Queen Street West from Main Street to Emeline Street is a key tourism feature in the Village of Alton, providing access to several of the Village's key tourist locations and heritage features.

To sustain and support this status, the Town requires a design that enables increasing connectivity and accessibility of visitors to Alton's historic features.

2.7 Built Heritage Resources and Cultural Heritage Landscapes

Alton Village's historic crossroads is at Main Street and Queen Street, with several properties of cultural heritage value in the study area contributing to the unique cultural heritage character of Alton Village.

A Preliminary Cultural Heritage Resource Assessment of the study area was undertaken to evaluate the cultural heritage significance of the study area and assess impacts of the proposed undertaking in consideration of its determined cultural heritage value. Findings of their report are summarized below. The complete Preliminary Cultural Heritage Resource Assessment report is provided in **Appendix 7.**

The results of background historical research, field review and a review of secondary source material, including historical mapping of the entire study area, revealed a study area dating back to the early nineteenth century associated with the community of the Village of Alton. Through this background research, it was determined that 53 previously identified features of cultural heritage value within or adjacent to the study area. There are 51 built heritage resources and two cultural heritage landscapes within or adjacent to the study area; six are designated under Part IV of the Ontario Heritage Act; 42 are listed on the Heritage Register; and five are identified by the Heritage Caledon walking Tour.

The identified cultural heritage resources associated with nineteenth-century properties associated with the historic Village of Alton and include: three commercial/residential building and former mixed commercial/residential; three commercial and former

commercial building, 38 residences; two barns and barn remnants; two former institutional' one foundation ruin, one bridge, one Legion building; one former carriage works; and one former mill.

Below is a complete list of the nineteenth-century properties on the Heritage Register within the Study Area:

Listed on the Ontario Heritage Register:

- 19798 Main Street circa 1890 the Palmer House Hotel
- 19842 Main Street circa 1886 house
- 19852 Main Street circa 1856 house
- 19858 Main Street circa 1856 house
- 19861 Main Street circa 1854 house
- 19876 Main Street circa 1843 house
- 19877 Main Street circa 1865 house
- 19883 Main Street circa 1897 house
- 19904 Main Street circa 1875-1899 barns
- 19980 Main Street circa 1875-1899 house
- 20000 Main Street circa 1875-1899 house
- 20088 Main Street circa 1875-1899 house
- 1301 Queen Street West circa 1885 house
- 1309 Queen Street West circa mid- 1880s
- 1310 Queen Street West pre-1873 worker's cottage for Dixie Hotel staff
- 1315 Queen Street West pre-1857 blacksmith's house
- 1341 Queen Street West circa 1887 house
- 1349 Queen Street West circa late 1890s house
- 1365 Queen Street West circa 1883 double residence for mill workers
- 1375 Queen Street West circa 1870's house
- 1379 Queen Street West circa 1900 house
- 1387 Queen Street West pre-1857 house
- 1398 Queen Street West circa 1885 Science Hall
- 1401 Queen Street West circa 1899 house
- 1409 Queen Street West pre-1857 worker's cottage
- 1414 Queen Street West circa 1899 house
- 1429 Queen Street West pre-1857 original house and circa 1874 addition
- 1437 Queen Street West circa 1870s house and bakery

- 1465 Queen Street West circa 1870s house
- 1469 Queen Street West circa 1899 general store
- 1470 Queen Street West circa 1880s barn remains, former chopping mill property

Designated under the *Ontario Heritage Act*

- 1334 Queen Street West pre-1869 worker's cottage
- 1422 Queen street West circa 1876 house
- 1459 Queen Street West circa 1887 general store
- 1456 Queen Street West circa 1882 Alton's Mechanics' Institute & Library
- 1460 Queen Street West circa 1882 house/commercial
- 1402 Queen Street West 1881 Beaver Knitting Mill

2.8 Archaeological Potential

A Stage 1 Archaeological Assessment of the study area was completed as part of the EA to determine the archaeological potential of the study area. Findings of the assessment are summarized below. The complete Stage 1 Archaeological Assessment report is provided in Appendix 8.

Through the assessment, it was determined that a significant portion of the Study Area exhibits archaeological potential and will require Stage 2 assessment prior to any construction activities. The Town of Caledon Archaeological Master Plan also illustrates that the Study Area exhibits archaeological potential. Two previously registered archaeological sites are also located within one kilometre of the Study Area.

Areas that exhibit archaeological potential and are recommended for Stage 2 assessment if they may be impacted are identified in the full report in **Appendix 8**. This includes the following areas:

- Area south of Mississauga Road, beyond the disturbed road area;
- Areas east of Queen Street West, beyond the disturbed road area, along the majority of the study area; and
- Flat area adjacent to Main Street, beyond the disturbed road area, on both sides of the road.

The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, slopes in excess of 20 degrees, or having been previously assessed. These lands do not require further archaeological assessment.

2.9 Roadway Condition

A pavement design report was completed to evaluate the pavement condition of the roadway and provide pavement design recommendations for the reconstruction of Queen Street West and Main Street North. A discussion on the findings of the report is given below. A full copy of this report is located in **Appendix 9.**

2.9.1 Queen Street West Pavement Condition

A total of 7 boreholes were advanced into the roadway Queen Street West within the study area as part of a detailed pavement surface condition survey completed to assess the condition of the existing pavement surface and to identify type and severity of specific pavement distress present.

This survey determined that the existing pavement condition of Queen Street West from Mississauga Road to Osprey Mills Drive (approximately 350 m east of Mississauga Road) is in Poor-to-very Poor condition, while the existing pavement condition of Queen Street West from Osprey Mills Drive to James Street is in Excellent condition, since this section was recently paved. Extensive, severe, wheel-path rutting was also observed along both roadways.

A general description of the pavement and granular base conditions along Queen Street West is presented as follows:

- The asphalt thickness on Queen Street from Mississauga Road to Osprey Mills Drive in both directions varied from 45 to 60 mm, with an average thickness of 55 mm
- The asphalt thickness in the new pavement section from Osprey Mills Drive to James Street ranged between 80 and 90 mm, which appears to be paved in a single lift
- The asphalt layers were supported by granular base/subbase layers that extended to depths typically beyond 650 mm, with an average granular thickness of 800 mm
- The granular base and subbase layers were observed to be consistent in composition and consisted of sandy crushed gravel trace silt to sandy gravel some silt
- Both granular base and subbase layers were observed to meet OPSS Granular A gradation requirements

- Any rehabilitation treatments considered for these roadways will need to improve the overall rideability of the existing pavement
- Based on the current condition and thickness, the existing asphalt is considered inadequate for the anticipated design life.

Based on the AASHTO pavement design analysis, and the completed pavement evaluation of the in-situ pavement structure, the existing pavement is generally considered structurally and functionally deficient to support anticipated traffic levels for the next 20 years; therefore, pavement rehabilitation will be required.

2.9.2 Main Street North Pavement Condition

A total of 20 boreholes were advanced in both travel lanes on Main Street North within the study area as part of a detailed pavement surface condition survey completed to assess the condition of the existing pavement surface and to identify type and severity of specific pavement distress present.

The existing pavement condition survey evaluated the overall pavement in Main Street North is in Poor-to-Fair condition. Predominant pavement distress in the Poor pavement areas were observed to include: extensive, severe, (alligatored) pavement edge, wheel-path, longitudinal and transverse cracking. Extensive, severe, wheel-path rutting was also observed along both roadways.

A general description of the pavement and granular base conditions along Main Street North is presented as follows:

- The asphalt thickness on Main Street in both directions varied from 30 to 70 mm, with an average thickness of 45 mm
- From visual inspection of the pavement cores located on cracks, it was observed that the cracks extended the full depth of the asphalt
- The asphalt layers were supported by granular base/subbase layers that generally extended to depths beyond 550 mm, with an average granular thickness of 800 mm
- Any rehabilitation treatments considered for these roadways will need to improve the overall rideability of the existing pavement
- Based on the current condition and thickness, the existing asphalt is considered inadequate for the anticipated design life.

Based on the AASHTO pavement design analysis, and the completed pavement evaluation of the in-situ pavement structure, the existing pavement is generally considered structurally and functionally deficient to support anticipated traffic levels for the next 20 years; therefore, pavement rehabilitation will be required.

2.9.3 Subgrade Chemical Analytical Results

A limited analytical program was also completed along the Main Street and Queen Street project segments to document the chemical quality and present potential options for reuse of the granular base, subbase, and subgrade materials which may be excavated during the proposed rehabilitation works.

Based on the results of analysis, the concentrations of the tested parameters exceeded various MECP Table 1 Standards and MECP Table 2 RPI Standards. Asbestos fibres were not observed in the asphalt samples tested.

3.0 PROBLEM AND OPPORTUNITY STATEMENT

Per Phase 1 requirements of the Municipal Class Environmental Assessment process for a schedule 'C' project, a "Problem and Opportunity Statement" was prepared to identify in detail the various problems and opportunities to be addressed by the study. In essence, the Problem Statement outlines the need and justification for the overall project and establishes the general parameters, or scope, of the study.

The Problem Statement was developed following the assessment of the existing conditions within the study area, as described in Section 2.0 and was significantly informed by the findings and recommendations of the previous assessments and stormwater management and transportation reports; discussion with the Town staff regarding municipal servicing and transportation infrastructure needs; and through consultation with the public and technical agencies undertaken throughout the study.

The Study Problem & Opportunity Statement developed for the project is comprised of the following key elements:

- Improve the roadway pavement structure and physical design of the road to enhance traffic operations and safety for all users
- Improve the roadway geometrics to provide a more connected and accessible active transportation network, along with improving traffic operations and safety
- Assess the condition of the existing bridge structure over Shaws Creek and address identified deficiencies
- Introduce pedestrian amenities at the Alton Mill Pond
- Address road drainage issues within the study area
- Undertake streetscape improvements to enhance the unique cultural heritage of Alton Village

4.0 ALTERNATIVE SOLUTIONS

Under Phase 2 of the Class EA process, all reasonable solutions to the problem are identified and described, including the "Do Nothing" alternative. After general inventories of the technical, natural, social, cultural and economic environments are prepared and potential environmental impacts are determined for each alternative, the net positive and negative effects are identified, and the alternatives are evaluated resulting in a recommended solution. The recommended solution is then presented to the public, stakeholders and agencies to solicit input into the selection of the "preferred solution".

4.1 Assessment Criteria and Evaluation Methodology

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

Table 4.1 – Evaluation Criteria

CRITERIA	DESCRIPTION
Technical	Does the alternative adequately address the technical requirement of the project (e.g. geometric and operational improvement, improved quality and safety)?
Socio-Economic Environment	What impacts will the alternative have on the local community (e.g. compatibility with area land use, impacts on local businesses, property requirements, access restrictions, etc.)?
Natural Environment	How does the alternative affect existing vegetation, water quality, fisheries/wildlife and habitat? Does the alternative address climate change?
Cultural Heritage / Archaeological	Will the alternative affect archaeological, cultural heritage resources or Indigenous communities or Indigenous Treaty Rights?
Costs	What is the capital cost of the alternative? What is the cost for utility relocations and property acquisitions? What are the operation and maintenance costs?

4.2 Evaluation Methodology and Ranking System

The project team comparatively ranked each alternative solution from least preferred to most preferred, for each of the criteria described in Section 4.1, to determine the preferred

Solution (s). Figure 4.1 demonstrates the rating scale used in the evaluation of alternative solutions described in this Section.

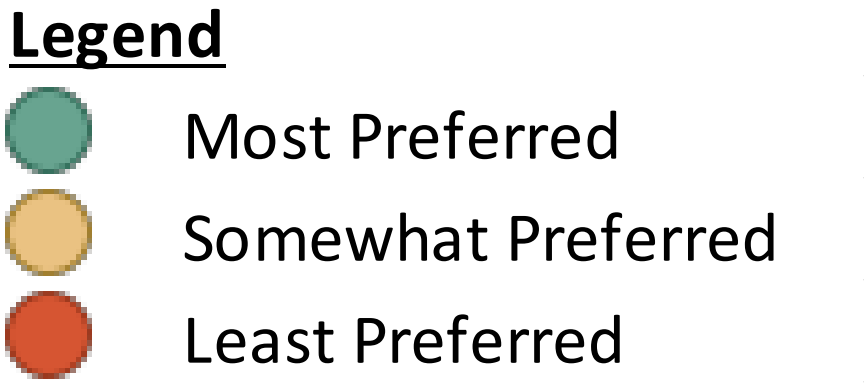

Figure 4.1 - Alternative Solutions Ranking System

4.3 Description of Alternative Solutions

The alternative solutions considered to address the identified deficiencies within the study area are described below.

1. **Do Nothing:** The study corridors would remain as is, with no improvements undertaken. This alternative does not address the problem statement. This alternative is required to be considered under the Municipal Class EA planning process as a baseline for the comparison of alternative solutions.

2. **Corridor Infrastructure Improvements with Six Villages Plan, Transportation Master Plan (TMP) and Official Plan (OP):** Undertake improvements to existing road, bridge and drainage infrastructure, *incorporating the full recommendations* of the Six Villages Plan, Caledon Transportation Master Plan, and Official Plan.

3. **Hybrid Approach to Corridor Improvements:** Municipal infrastructure and design recommendations for the study corridors would be *determined in consideration of* the Six Villages Plan, Caledon Transportation Master Plan, Official Plan and existing constraints within the Corridor.

4. **Infrastructure Improvements Only:** Only improvements that address existing road, bridge and drainage infrastructure requirements would be undertaken, with no significant enhancements to the existing streetscape, pedestrian or cyclist environments.

A comparative evaluation of all alternatives is presented below.

4.4 Evaluation of Alternative Solutions

The table below summarizes the evaluation of alternative solutions based on the criteria presented in Section 4.1.

Table 4.2 - Evaluation of Alternative Solutions

EVALUATION CRITERIA	1. DO NOTHING		2. INFRASTRUCTURE IMPROVEMENTS SIX VILLAGES PLAN & TMP		3. HYBRID APPROACH TO IMPROVEMENTS		4. INFRASTRUCTURE IMPROVEMENTS ONLY	
TECHNICAL		No improvements to roadway safety, accessibility, active transportation or drainage		Addresses existing road, bridge and drainage infrastructure needs and fully incorporates streetscape enhancements, and pedestrian and cyclist connectivity requirements		Addresses existing road, bridge and drainage infrastructure needs and modestly incorporates streetscape enhancements, and pedestrian and cyclist connectivity requirements		Improvements to existing road, bridge and drainage infrastructure only. Streetscape enh and cyclist connectivity not addressed
SOCIO-ECONOMIC		No improvements recommended in Six Villages Plan provided		All elements of Six Villages Plan intended to provide improvements to Socio-Economic conditions would be provided. Potential property required to implement		Most elements of Six Villages Plan intended to provide improvements to Socio-Economic conditions would be provided. Negligable property requirements anticipated		Elements of Six Villages Plan intended to provide improvements to Socio-Economic conditions not provided.
NATURAL ENVIRONMENT		No negative or positive impacts on natural environment (e.g. water quality in Alton Mill Pond).		Increased potential for impacts to natural environment from additional trails and streetscape element. Positive impacts to natural environment from drainage improvements		Reduced impacts to natural environment from additional trails and streetscape element. Positive impacts to natural environment from drainage improvements		No negative impacts on natural environment. Positive impacts to natural environment from drainage improvements.
CULTURAL HERITAGE / ARCHAEOLOGICAL IMPACTS		No impact to archaeological or built heritage within of the Village.		Built heritage of the Village would be respected to the extent possible. Greater potential for archaeological impacts		Built heritage of the Village would be respected. Minimal potential for archaeological impacts		No impact to archaeological, built heritage or character of the Village.
COST		No capital cost but ongoing costs to maintain infrastructure		Highest cost, exceeds budget currently allocated by Town		Moderate cost, in line with budget currently allocated by Town		Lower cost as only infrastructure requirements are addressed
EVALUATION SUMMARY	**Not Recommended ~ Least Preferred (4) ~**		**Not Recommended ~ Somewhat Preferred (5) ~**		**Recommended ~ Most Preferred (8) ~**			

4.4.1 Preferred Alternative(s)

The preferred solution is to take a hybrid approach to improvements, where Municipal infrastructure and design recommendations for the study corridors are determined in consideration of the Six Villages Plan, Caledon Transportation Master Plan, Official Plan and existing constraints within the Corridor (Alternative 3). This solution addresses the Town's objectives with minimal impacts on the surrounding environment.

5.0 ALTERNATIVE DESIGN CONCEPTS FOR THE PREFERRED SOLUTION

Under Phase 3 of the Class EA, a range of design concepts to implement the preferred solution (as identified in Phase 2) are identified and evaluated based on functionality and impacts to the surrounding environment.

Per the MCEA, the potential impact of each alternative design concept identified was assessed in consideration of the detailed inventory of the environment described above, and comparatively evaluated based on these potential impacts in order to identify the recommended design concepts.

The recommended design concepts are then presented to the public, stakeholders and agencies to solicit input into the selection of the "preferred design". Similar to the process followed during Phase 2 of the study, the EA Act requires that all reasonable design concepts, including the "Do Nothing" alternative, be considered during the decision-making process.

For this study, the design concepts that were considered focused on the (1) pedestrian accommodation requirements; (2) cyclist accommodations; (3) parking requirements; (4) roadway drainage improvements and (5) traffic calming measure(s).

5.1 Pedestrian Accommodation Requirements

5.1.1 Description of Alternative Design Concepts

Option 1: Do Nothing / Leave Sidewalk as Is

This option would maintain the existing pedestrian facilities as is, with no improvements undertaken. This option does not adequately address the identified deficiencies with the pedestrian network, leaving the sidewalk in deteriorating condition, deficient with AODA, and not in accordance with the Town of Caledon's Transportation Master Plan.

Option 2: AODA-Compliant Sidewalk on One Side of the Street

This option involves installing continuous 1.5-meter-wide sidewalks, along the south side of Queen Street and east side of Main Street. This width is the minimum width of sidewalks required to be compliant with the Accessibility for Ontarians with Disabilities Act (AODA), as it allows room for mobility devices or service animals going both ways along the sidewalk.

This option will incorporate several elements of the Six Villages Community Plan, connecting the Village's attractions for pedestrians, allowing visitors to park their cars and

explore the Village, and visit the unique shops, cafés, and landmarks safely on foot, while not compromising the rural character of the Village.

This option successfully accommodates the constraints imposed by the narrow road allowance and location of existing built heritage resources, while allowing for accessible, safe pedestrian access throughout the Village core.

Option 3: AODA-Compliant Sidewalks on Both Sides of the Street

This option involves installing continuous AODA compliant 1.5-meter-wide sidewalks, on both sides of the road, along Queen Street and Main Street within the study area.

While this option allows for accessible, safe pedestrian access into and throughout the Village core, it does not successfully accommodate the constraints imposed by the narrow road allowance and location of existing built heritage resources.

Option 4: Paved Shoulder

This option involves installing a 1.5-meter paved shoulder to be utilized for pedestrians and cyclists as a roadside trail, along the northern rural portion of Main Street, north of Mary Street. This width is the minimum width of pathways required to be compliant with the Accessibility for Ontarians with Disabilities Act (AODA), as it allows room for mobility devices or service animals travelling both directions along the sidewalk.

This option successfully accommodates the rural character of the adjacent land use north of Mary Street, while allowing for accessible, safe pedestrian access into the Village core, and is in accordance with the Town of Caledon's Transportation Master Plan.

5.1.2 Evaluation of Alternative Design Concepts

The table below summarizes the evaluation of design options for pedestrian accommodation requirements based on the criteria presented in Section 4.1, and the Ranking System described in Section 4.2.

Table 5.1 - Evaluation of Alternative Design Concepts (Pedestrian Accommodation)

EVALUATION CRITERIA	1. Do Nothing	2. AODA Compliant Sidewalk on One Side of the Street	3. AODA Compliant Sidewalks on Both Sides of the Street	4. 1.5 Meter Paved Shoulder
TECHNICAL	Does not address the identified deficiencies in the pedestrian network.	Addresses the identified deficiencies in the pedestrian network, given adequate pedestrian crossing facilities are incorporated into the design.	Fully addresses the identified deficiencies in the pedestrian network.	Improves safety of pedestrians on Main Street North, not adequate for pedestrians within the Village Core.
SOCIO ECONOMIC	Does not Incorporate recommendations of the Six Villages Plan or TMP.	Incorporates several elements of the Six Villages Community Plan, allowing visitors to park their cars and explore the Village safely on foot while limiting property requirements.	Exceeds recommendations of the TMP & Six Villages Plan, however significant property requirements anticipated.	Aligns with TMP (north of Mary Street), does not incorporate recommendations of the Six Villages Plan within the Village Core.
NATURAL ENVIRONMENT	No negative or positive impacts on natural environment (e.g. water quality in Alton Mill Pond).	Limited impacts to natural environment. Environmental impacts largely limited to the existing ROW.	Increased potential for impacts to natural environment from additional impermeable surface.	Limited impacts to natural environment. Environmental im largely limited to the existing ROW.
CULTURAL HERITAGE / ARCHAEOLOGICAL IMPACTS	No impact to archaeological or built heritage within of the Village.	Does not compromise the rural character of the Village.	Would have significant impacts due to encroachment on heritage properties.	No impact to archaeological, built heritage or character of the Village through Main Street. Significant impacts due to encroachment on heritage properties along Queen Street.
COST	No capital cost but ongoing costs to maintain infrastructure.	Moderate cost, in line with budget currently allocated by Town.	Highest cost, exceeds budget currently allocated by Town.	Lowest cost, below budget currently allocated by Town.
EVALUATION SUMMARY	**Not Recommended**	**Recommended**	**Not Recommended**	**Recommended on Main Street north of Mary Street**

5.1.3 Pedestrian Accommodation Requirements Preferred Design Concepts

The preferred design concept is to construct AODA-compliant sidewalk on one side of the street only (Option 1); along the south side of Queen Street and East side of Main Street, and construct a 1.5 meter paved shoulder (Option 3) in the northern rural section of Main Street, north of Mary Street. Further details regarding the preferred design concepts are discussed in Section 6.0 Description of the Preferred Design

5.2 Cyclist Accommodation Requirements

5.2.1 Description of Alternative Design Concepts

Option 1: Do Nothing / Leave as Is (No Cycling Infrastructure)

This option would maintain the existing cyclist facilities as is, with no improvements undertaken. This option does not adequately address the identified deficiencies with the cyclist network and is not in accordance with the Town of Caledon's Transportation Master Plan.

Option 2: Paved Shoulder

This option involves installing a 1.5-meter paved shoulder adjacent to the general traffic lanes, to be utilized for pedestrians and cyclists as a roadside trail, where feasible. This width is the minimum width of pathways required to be compliant with the Accessibility for Ontarians with Disabilities Act (AODA), as it allows room for mobility devices or service animals going both ways along the sidewalk.

This option successfully accommodates the rural character of this adjacent land use north of Mary Street, while allowing for accessible, safe cyclist access into the Village core, and is in accordance with the Town of Caledon's Transportation Master Plan.

Option 3: Shared-Use Lanes

Under this alternative, cyclists would share the general use traffic lanes with vehicles, and signage for vehicles and cyclists to share the road would be installed. This option would improve upon the existing conditions; however cyclists would still be required to utilize the general purpose traffic lanes.

5.2.2 Evaluation of Alternative Design Concepts

The table below summarizes the evaluation of design options for cyclist accommodation requirements based on the criteria presented in Section 4.1 and the Ranking System described in Section 4.2.

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Table 5.2 - Evaluation of Alternative Design Concepts (Cyclist Accommodation)

EVALUATION CRITERIA	1. Do Nothing		2. 1.5 Meter Paved Shoulder		3. Shared-Use Lanes	
TECHNICAL		Does not address the identified deficiencies in the cyclist network.		Addresses the identified deficiencies in the cyclist network. Designated space for cyclists improves safety and accessibility.		Partially addresses the identified deficiencies in the cyclist network. Cyclists required to share the road with vehicles.
SOCIO-ECONOMIC		No improvements recommended in Six Villages Plan provided. Does not align with TMP.		Aligns with TMP recommendations along Main Street. No significant encroachment toward properties on Main Street. Would require significant property to implement on Queen Street		Aligns with TMP (north of Mary Street), does not incorporate recommendations of the Six Villages Plan within the Village Core. No significant encroachment toward properties.
NATURAL ENVIRONMENT		No negative impacts on natural environment.		Environmental impacts largely limited to the existing ROW.		No negative impacts on natural environment.
CULTURAL HERITAGE / ARCHAEOLOGICAL IMPACTS		No impact to archaeological or built heritage within of the Village.		Significant impacts due to encroachment on heritage properties along Queen Street.		Does not compromise the rural character of the Village.
COST		No capital cost.		Significant cost due to property impacts on Queen Street.		Moderate cost, in line with budget currently allocated by Town.
EVALUATION SUMMARY	**Not Recommended**		**Recommended On Portions of Main Street Only**		**Recommended on Queen Street where Property Constraints Don't Allow Paved Shoulders**	

5.2.3 Cyclist Accommodation Requirements Preferred Design Concepts

The preferred design concept is to construct a 1.5-meter paved shoulder for cyclists at the northern rural section of Main Street (Option 2). Within the remaining portion of the study area, cyclists will be required to share the road with vehicles (Option 3). Further details regarding the preferred design concepts are discussed in Section 6.0 Description of the Preferred Design

5.3 Parking Requirements

5.3.1 Description of Alternative Design Concepts

Option 1: Do Nothing / No Parking Improvements

This option would not provide any improvements to the existing parking conditions in the study area. There would continue to be no designated on-street parking facilities available within the study area. This option would not contribute to the improved parking requirements identified in the Six Villages Community Improvement Plan necessary to accommodate future potential demand for tourism in the Village.

Option 2: Provide Additional Parking Where Required

This option would provide additional parking throughout the Village core as required. This concept would not give adequate consideration for the cultural heritage of Village, negatively impacting the pedestrian-oriented core and causing significant property impacts.

Option 3: Provide Additional Layby Parking Only Where Feasible Within Existing Right of Way

This option would provide additional layby parking on the east side of Main Street between Queen Street and Mary Street, within the existing roadway right of way, minimizing impacts to adjacent properties while allowing visitors to park and explore the Village.

This option, in accordance with the Six Villages Community Improvement Plan, would provide some additional parking to help support projected parking demands, without detracting from the Village character or imposing significant impacts on the pedestrian-oriented core.

Evaluation of Alternative Design Concepts

The table below summarizes the evaluation of design options for parking requirements based on the criteria presented in Section 4.1, and the Ranking System described in Section 4.2.

Table 5.3 - Evaluation of Alternative Design Concepts (Parking)

EVALUATION CRITERIA	1. Do Nothing		2. Provide Additional Parking Where Required		3. Provide Additional Layby Parking Only Where Feasible	
TECHNICAL		The need to provide additional parking in the Village would remain.		Partially addresses the identified parking deficiencies in the Town, limits the ability to address the identified pedestrian and cyclist deficiencies.		Partially addresses the identified parking deficiencies in the Town, without significant impacts to the pedestrian and cyclist network.
SOCIO-ECONOMIC		No improvements recommended in Six Villages Plan provided.		Increases the number of parking spaces in close proximity to shops, however significant property required to implement.		Allows visitors to park in closer proximity to local businesses while minimizing impacts to adjacent properties.
NATURAL ENVIRONMENT		No negative or positive impacts on natural environment.		Increased impacts to natural environment from additional impermeable surface and impacts outside existing ROW.		Reduced impacts to natural environment from smaller increase in impermeable surface to be mitigated by SWM upgrades. Environmental impacts largely limited to the existing ROW.
CULTURAL HERITAGE / ARCHAEOLOGICAL IMPACTS		No impact to archaeological or built heritage within of the Village.		Significant encroachment toward cultural heritage budlings.		No impact to archaeological or built heritage within of the Village.
COST		No capital cost but additional costs in future to provide additional parking.		Highest cost, requires purchasing of property, increased maintenance costs.		Moderate cost, in line with budget currently allocated by Town.
EVALUATION SUMMARY	**Not Recommended**		**Not Recommended**		**Recommended**	

5.3.2 Parking Requirements Preferred Design Concepts

The preferred design concept is to construct additional layby parking only where feasible within existing right of way (Option 2). Additional on-street parking within the narrow roadway would require significant property. Further details regarding the preferred design concepts are discussed in Section 6.0.Description of the Preferred Design

5.4 Roadway Drainage Improvements

5.4.1 Description of Alternative Design Concepts

Option 1: Do Nothing / No Drainage Improvements

This option would not address the identified drainage deficiencies in the area. As development in the Village continues and drought and flooding events increase in severity and frequency, identified drainage issues within the study area would continue and potentially worsen.

Option 2: Rural Drainage Swale

This option involves constructing enhanced grass swales to capture runoff along the roadway on Main Street, north of Mary Street. Enhanced grass swales are vegetated open channels designed to convey, treat and attenuate stormwater runoff, incorporating modified geometry and check dams along steeper sections of the swale, improving upon simple roadside ditch designs. Enhanced grass swales capture and convey road runoff while providing the opportunity for infiltration and filtration/treatment prior to discharging at low points.

This option would successfully capture stormwater runoff north of Mary Street, reduce impervious surface cover, retain the adjacent rural character, and provide aesthetic benefits in comparison with curb and gutter.

Option 3: Modified curb / gutters / swale

This option includes providing a barrier curb which allows water to collect in gutters at a formed concrete curb, and then spill out at defined spillways into a ditch or swale beyond. This option is simpler that a complete urban sewer system, while also providing the traffic control and some of the space-saving benefits of curbs, although it does allow for sidewalks without occupying more area than an urban curb / gutter / storm sewer arrangement.

This arrangement is somewhat more costly that rural drainage, but has construction costs that are significantly less than urban curb / gutter / storm sewers.

Option 4: Urban curb / gutter / storm sewer

This option includes providing a barrier curb which allows water to collect in gutters at a formed concrete curb, and then drain into storm sewers through catch basins. This option allows for the most effective use of space where there are existing property constraints.

In areas where sidewalks are required, they can be provided in areas that would be occupied by ditches in Option #1 and Option #2.

Urban curb / gutter / storm sewer arrangement has the highest construction costs.

5.4.2 Evaluation of Alternative Design Concepts

The table below summarizes the evaluation of design options for roadway drainage improvements based on the criteria presented in Section 4.1, and the Ranking System described in Section 4.2.

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Table 5.4 - Evaluation of Alternative Design Concepts (Roadway Drainage)

EVALUATION CRITERIA	1. DO NOTHING		2. Rural Drainage Swale		3. Modified curb/gutters/swale		4. Urban curb/gutter/storm sewer	
TECHNICAL		Ongoing drainage issues in Village are not addressed.		Addresses drainage in rural areas north of Mary Street, not adequate for Village Core.		Addresses drainage in rural areas north of Mary Street, not adequate for Village Core.		Addresses ongoing drainage issues in Village Core.
SOCIO-ECONOMIC		No improvements recommended in Six Villages Plan provided.		Compatible with adjacent rural land use on Main Street north of Mary Street. Not compatible in Village core.		Not compatible with adjacent rural land use on Main Street north of Mary Street or in Village core.		Compatible with adjacent land use in Village Core. Not compatible with rural land use on Main Street north of Mary Street.
NATURAL ENVIRONMENT		No negative or positive impacts on natural environment .		No anticipated impacts on the terrestrial environment. Improves water quality by removing oils and hydrocarbons from runoff.		Improved water quantity and quality to Alton Mill Pond and Shaws Creek, encroachment into undisturbed areas required.		No anticipated impacts on the terrestrial environment. Improves water quality by removing oils and hydrocarbons from runoff.
CULTURAL HERITAGE / ARCHAEOLOGICAL IMPACTS		No impact to archaeological or built heritage within of the Village.		No impacts to archaeological or cultural heritage resources. Will be located in previously disturbed ground.		Significant encroachment toward cultural heritage budlings in Village core.		No impact to archaeological, built heritage or character of the Village.
COST		No capital cost but ongoing costs to maintain infrastructure associated with drainage issues.		Very low construction costs, and low maintenance costs.		Highest cost, requires purchasing of property, increased maintenance costs.		Moderate cost, in line with budget currently allocated by Town.
EVALUATION SUMMARY	**Not Recommended**		**Recommended on Main Street north of Mary Street**		**Not Recommended**		**Recommended For Queen Street and Main Street Up To Mary Street**	

5.4.3 Roadway Drainage Improvements Preferred Design Concepts

The preferred design concept is to address roadway drainage via upgrades to the storm sewer system (curb/gutter/catch basins) throughout Queen Street and on Main Street south of Mary Street (Option 3), and through enhanced grass swales on Main Street north of Mary Street (Option 2). Further details regarding the preferred design concepts are discussed in Section 6.0 Description of the Preferred Design

5.5 Traffic Calming Measures

5.5.1 Description of Alternative Design Concepts

Several design concepts to address vehicle speeds in the study area were considered including:

Option 1: Do Nothing / No Additional Traffic Calming Measures

Under this option, no additional traffic calming measures would be incorporated into the design of the reconstructed roadway. Identified low compliance with posted speed limits would likely continue, posing safety concerns to vehicles, pedestrians, and cyclists.

Option 2: Additional Speed bumps / humps / tables / cushions

This option would involve the installation of vertically raised elements into the roadway to reduce vehicle speeds.

Option 3: Lane narrowing

This option involves reducing the lane widths using pavement markings or other features such as curb and gutter, with the intention for drivers to perceive the roadway to be less comfortable at higher speeds.

Option 4: Gateway treatments

This option would involve the installation of a visibly striking entrance feature, defining the community boundaries, and signalling a change in land use from rural to urban/Village, helping to reduce speeds.

Option 5: Splitter islands

This option would involve splitter islands to separate traffic with a physical barrier located in the centre median of a two-way roadway to reduce the overall width of the adjacent travel lanes. These islands can be landscaped with decorative plants in addition to their traffic calming and safety benefits.

Option 6: Additional warning signage

This option would involve the installation of additional warning signage, alerting traffic to reduce their speed while moving through the Village. Signage may include posted speed limit signage, “Traffic Calming Zone” signage, laneway signage, and signage alerting vehicles to upcoming traffic calming measures (speed hump ahead). This option is proven to be ineffective when implemented without additional physical measures of traffic calming.

Option 7: Visual elements close to roadway corridor

Incorporating streetscaping features into the road design such as park benches, sidewalks, and public art, create a visual contrast from surrounding, signaling a change in land-use from the rural surrounding areas to the Village core, contributing to reducing speeds.

Option 8: Pavement materials and appearance

Textured pavement materials and appearance would involve roadway pavement that incorporates a textured, colored, and/or patterned surface which contrasts other adjacent roadways in the surrounding area. These contrasts signal a change in land-use from the rural surrounding areas to the Village core.

5.5.2 Evaluation of Alternative Design Concepts

The table below summarizes the evaluation of design options for traffic calming measure(s) based on the criteria presented in Section 4.1, and the Ranking System described in Section 4.2.

Table 5.5 - Evaluation of Alternative Design Concepts (Traffic Calming)

EVALUATION CRITERIA	1. DO NOTHING		2. Speed bumps / humps / tables / cushions		3. Lane narrowing		4. Gateway treatments	
TECHNICAL		No improvements to roadway safety, ongoing speeding issues are not addressed.		Effective in reducing vehicle speeds however reduces emergency repsonse times.		Effective in reducing vehicle speeds however reduces the ability to accommodate pedestrians and cyclists.		Not a significant traffic calming measure.
SOCIO ECONOMIC		No negative or positive impacts on socio-economic environment.		No negative or positive impacts on socio-economic environment.		No negative or positive impacts on socio-economic environment.		Gateway feature recently installed on Queen Street East.
NATURAL ENVIRONMENT		No negative or positive impacts on natural environment.		No negative or positive impacts on natural environment.		No negative or positive impacts on natural environment.		No negative or positive impacts on natural environment.
CULTURAL HERITAGE / ARCHAEOLOGICAL IMPACTS		No impact to archaeological or built heritage within of the Village.		No impact to archaeological or built heritage within of the Village.		No impact to archaeological or built heritage within of the Village.		No impact to archaeological, built heritage or character of the Village.
COST		No capital cost but ongoing costs to enforce speeding.		Moderate cost, in line with budget currently allocated by Town.		Moderate cost, in line with budget currently allocated by Town.		Highest cost, exceeds budget currently allocated by Town.
EVALUATION SUMMARY	**Not Recommended ~ Least Preferred (4) ~**		**Not Recommended ~ Somewhat Preferred (6) ~**		**Not Recommended ~ Somewhat Preferred (5) ~**		**Not Recommended ~ Somewhat Preferred (4) ~**	

Table 5.6 - Evaluation of Alternative Design Concepts (Traffic Calming Continued)

EVALUATION CRITERIA	5. Splitter islands		6. Additional warning signage		7. Visual elements close to roadway corridor		8. Pavement materials and appearance	
TECHNICAL		Contributes to the traffic calming of vehicles without compromising pedestrian and cyclist network.		Contributes to the traffic calming of vehicles without compromising pedestrian and cyclist network.		Contributes to the traffic calming of vehicles without compromising pedestrian and cyclist network.		Contributes to the traffic calming of vehicles without compromising pedestrian and cyclist network.
SOCIO-ECONOMIC		Compatible with streetscaping vision of Six Villages Plan, no additional property required.		No negative or positive impacts on socio-economic environment.		Compatible with streetscaping vision of Six Villages Plan, no additional property required.		Compatible with Six Villages Plan required.
NATURAL ENVIRONMENT		No negative or positive impacts on natural environment.		No negative or positive impacts on natural environment.		No negative or positive impacts on natural environment.		No negative or positive impacts on natural environment
CULTURAL HERITAGE / ARCHAEOLOGICAL IMPACTS		No impact to archaeological, built heritage or character of the Village.		No impact to archaeological, built heritage or character of the Village.		No impact to archaeological, built heritage or character of the Village.		No impact to archaeological, built heritage or character of the Village.
COST		Moderate cost, in line with budget currently allocated by Town.		Very low construction costs, and low maintenance costs.		Moderate cost, in line with budget currently allocated by Town.		Moderate cost, in line with budget currently allocated by Town
EVALUATION SUMMARY	**Recommended ~ Preferred (8) ~**		**Recommended ~ Preferred (8) ~**		**Recommended ~ Preferred (8) ~**		**Recommended ~ Preferred (8) ~**	

5.5.3 Traffic Calming Measures Preferred Design Concepts

The preferred design concept is to incorporate additional traffic calming measures into the road design including median/splitter islands at Main Street, north of Mary Street (Option 5) and additional warning signage (Option 6). Streetscaping features and an urbanized cross section with curb and gutter (Options 7 & 8) are also anticipated to reduce vehicle travel speeds in the Study Area.

6.0 DESCRIPTION OF THE PREFERRED DESIGN

The preliminary preferred design concepts described above were presented to review agencies and the public at Public Information Centre # 2 in order to obtain further comment and input prior to confirmation and/or revision of the preferred design. Further details of the consultation completed regarding the preliminary preferred design, and revisions to the preliminary preferred design based on these consultations, are described in Section 9.0 Consultation Summary.

The finalized recommended design roll plans and profiles are provided in **Appendix 10**. Key elements of the preferred design are described below.

6.1 Design Criteria

In developing the recommended design concepts for the study area, various design criteria were developed to ensure consistent design standards were incorporated into the recommended design. The design criteria were developed based on the Town of Caledon's current policies, plans and design standards; Transportation Association of Canada (TAC), Ontario Traffic Manual (OTM) and MTO's Geometric Design Standards for Ontario Highways and Roadside Safety Manual; and developed further through consultation with the Town and project team. Design criteria were developed for both the road alignment and widening requirements as well as drainage and stormwater management requirements. In developing the design criteria, items that were considered included, but were not limited to; design and posted speeds, horizontal and vertical alignments, cross section and ROW widths, pedestrian and cyclist accommodation and roadway drainage. A complete list of the design criteria developed to accommodate the study recommendations is provided in **Appendix 11**.

In keeping with the above, *the Town of Caledon Official Plan* identifies Main Street North as a Residential Collector, which is comparable to a Rural Collector Undivided as per Transportation Association of Canada (TAC). The *Town of Caledon Official Plan* identifies Queen Street West as a Residential / Neighbourhood Collector, which is comparable to a Minor Collector as per Transportation Association of Canada (TAC).

6.1.1 Agreed Deviations from Design Criteria

The design criteria summary tables provided in **Appendix 11** also contain notes on agreed-upon deviations from the design criteria. In general, most of these deviations arose from concerns regarding property impacts and/or unreasonable costs results arising from fulfilling the desired criteria. These proposed deviations include the following:

- The design speed at the curve on Main Street south of Highpoint Sideroad was reduced to 40 km/h to avoid full buy-out of a private residential property, and also to avoid the major costs and environmental impacts arising from cutting through the existing hill that would be required to straighten the alignment. A posted speed of 30 km/h would be provided through this curve.
- The design speed at the horizontal S-curve at Queen Street west of James Street was reduced to 45 km/h to avoid property acquisition, undesirable impacts to frontage of private residences, and to avoid costs that would not be justifiable with the incremental increase to traffic speed. The posted speed in this area would be 40 km/h which is lower than the design speed.
- Paved shoulders have been included on Main Street through the rural section north of Mary Street, and through the S-curve and sag Curve.
- The vertical profile at the following locations exceeds the maximum TAC standard, and also the Town of Caledon Standards. In these locations, achieving the standard values specified in the Design Criteria would result in extensive property acquisition, tree clearing, and retaining walls.
    - STA 8+340 – STA 8+420 – Main Street south of Highpoint Sideroad.
    - STAM 8+865 – STA 8+910 – Main Street north of Mary Street
- The proposed vertical crest curve south of Highpoint Sideroad, STA 8+272 – STA 8+357 does not meet TAC minimum K-value, though the proposed vertical curve is an improvement over existing conditions. Achieving TAC minimum standards would require significant property impacts, and tree clearing. Urbanization is proposed for this section to reduce impacts from the proposed vertical curve improvement.
- Proposed Sag curves on Main Street, south of Highpoint Road do not meet minimum TAC standard K-value for headlight control. Streetlight is proposed, and the proposed vertical curves meet the minimum TAC standards for comfort control.
- Proposed curve radius at S-curve location on Main Street is 55m, which is below the TAC minimum of 60m. Increasing the radius to 60m would require significant additional property due to steep grades, and would require significantly increased retaining wall height.

6.2 Transportation Network

6.2.1 Main Street (Urban Section) Reconstruction

The preferred design concept for the reconstruction of the urban portion of Main Street (between Queen Street West and Mary Street) is to install continuous AODA-compliant sidewalk on the east side of the street and accommodate cyclists within the shared-use lanes. The typical cross-section for the urban portion of Main Street preferred design concept is shown in Figure 6.1.

The cross section of the new roadway will be comprised of two 3.5 meter wide shared-use lanes, 0.75-meter-wide grassed boulevards, and a continuous 1.5-meter-wide concrete sidewalk on the east side of the road. Attractive historical streetlighting is proposed to be installed along the east side of the road, providing sufficient illumination for the improved sidewalk. A barrier curb with narrow gutter is proposed to be installed on both sides of the road. The pavement width through this area is typically 7.0 meters, with a total Right-of-Way width of 20.0 meters.

This cross-section provides sufficient lane width to accommodate cyclists and vehicles on the roadway and creates separation between the improved pedestrian facilities and the roadway, while respecting the existing property lines and unique cultural heritage of the Village core.

6.2.2 Main Street (Rural Section) Reconstruction

The preferred design concept for the reconstruction of the rural portion of Main Street (north of Mary Street) is to construct two vehicle lanes and accommodate cyclists and pedestrians via paved shoulders on both side of the road. The typical cross-section for the rural portion of Main Street preferred design concept is shown in Figure 6.2.

The cross section of the new roadway will be comprised of two 3.3-meter-wide vehicle lanes, 0.75-meter-wide grassed boulevards, and a continuous 1.5-meter-wide paved shoulder on both sides of the road. No additional streetlighting is proposed to be installed within the rural portion of Main Street North within the study area. The pavement width through this area is typically 10.0 meters, with a total Right-of-Way width of 20.0 meters.

North of the S-curve, and south of the intersection of Main Street at Highpoint Sideroad, the roadway cross-section is recommended to transition to 3.5-meter-wide lanes.

This cross-section provides sufficient vehicle lane width to accommodate vehicles on the roadway and accommodates the pedestrians and cyclists while respecting the existing property lines and rural cultural heritage of the Village.

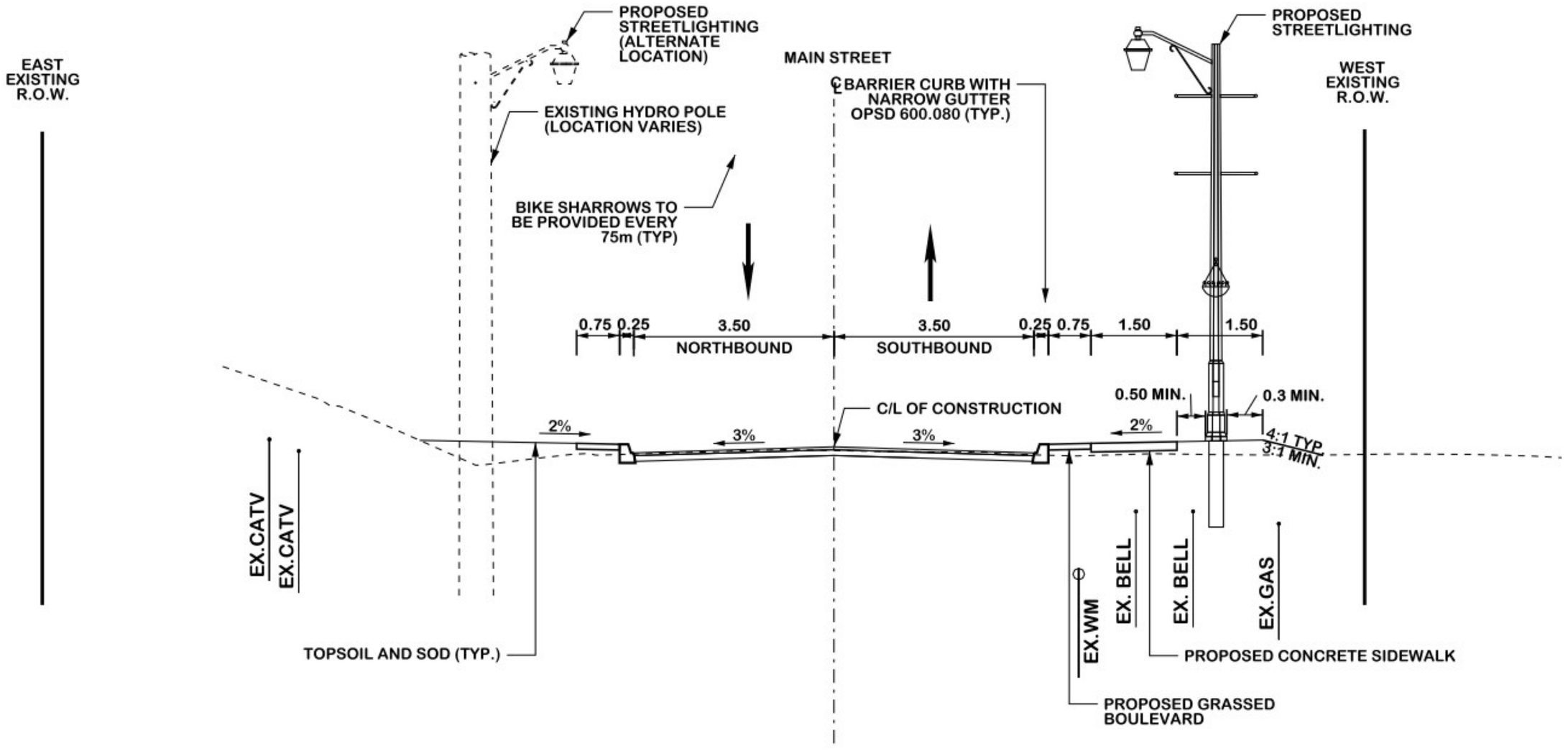

Figure 6.1 - Typical Section (Main Street Urban Section Preferred Design Concept)

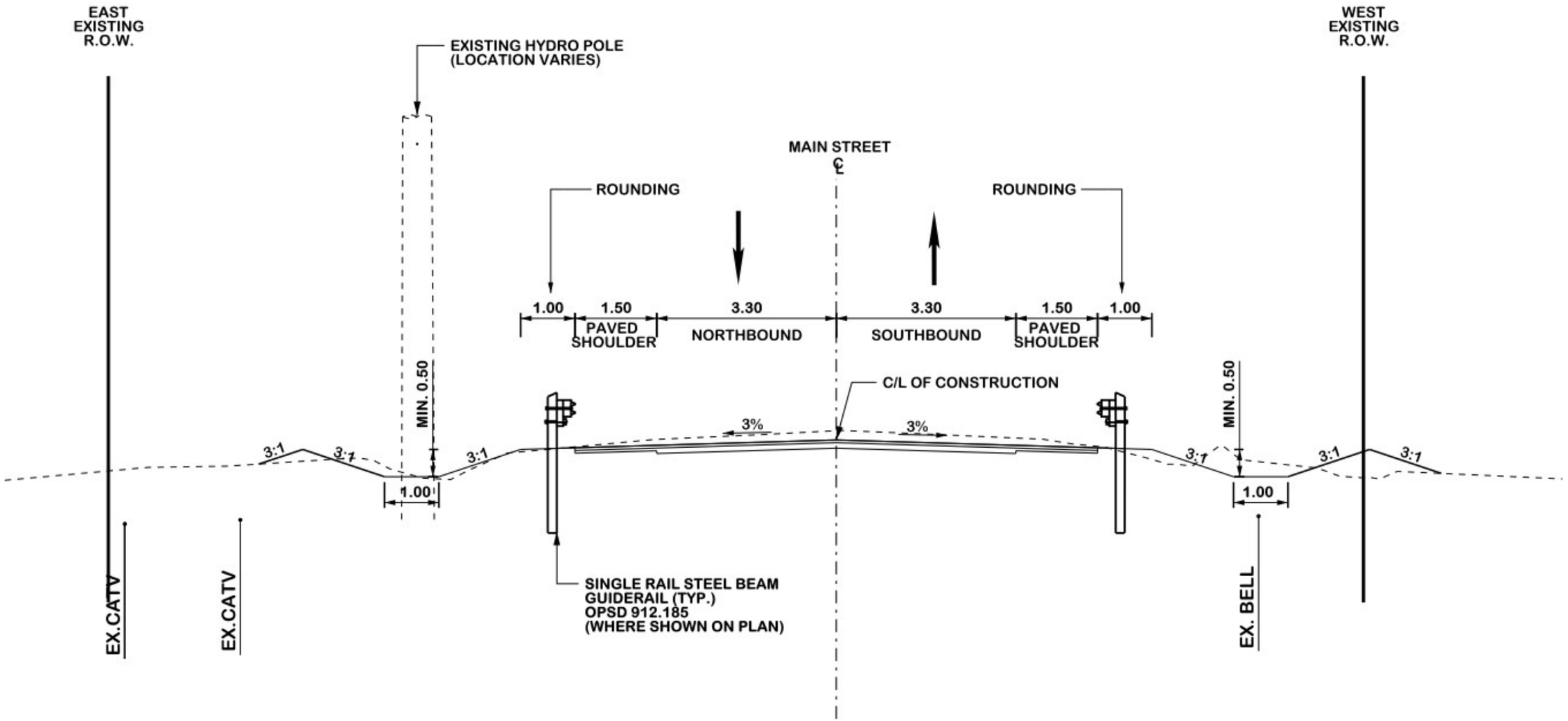

Figure 6.2 – Typical Section (Main Street Rural Section Preferred Design Concept)

6.2.3 Queen Street Reconstruction

The preferred design concept for the reconstruction of Queen Street West is to install continuous AODA-compliant sidewalk on the south side of the street and accommodate cyclists within the shared-use lanes. The typical cross-section for the Queen Street preferred design concept is shown in Figure 6.3.

The cross section of the new roadway will be comprised of two 3.5 meter wide shared-use lanes and a continuous 1.5-meter-wide concrete sidewalk on the south side of the road. Attractive historical streetlighting is proposed to be installed along the south side of the road, providing sufficient illumination for the improved sidewalk. 0.25-meter-wide barrier curb with narrow gutter is proposed to be installed on both sides of the road. The pavement width through this area is typically 7.0 meters, with a total Right-of-Way width of 15.0 meters.

This cross-section creates separation between the improved pedestrian facilities and the roadway, while respecting the existing property lines and unique cultural heritage of the Village core.

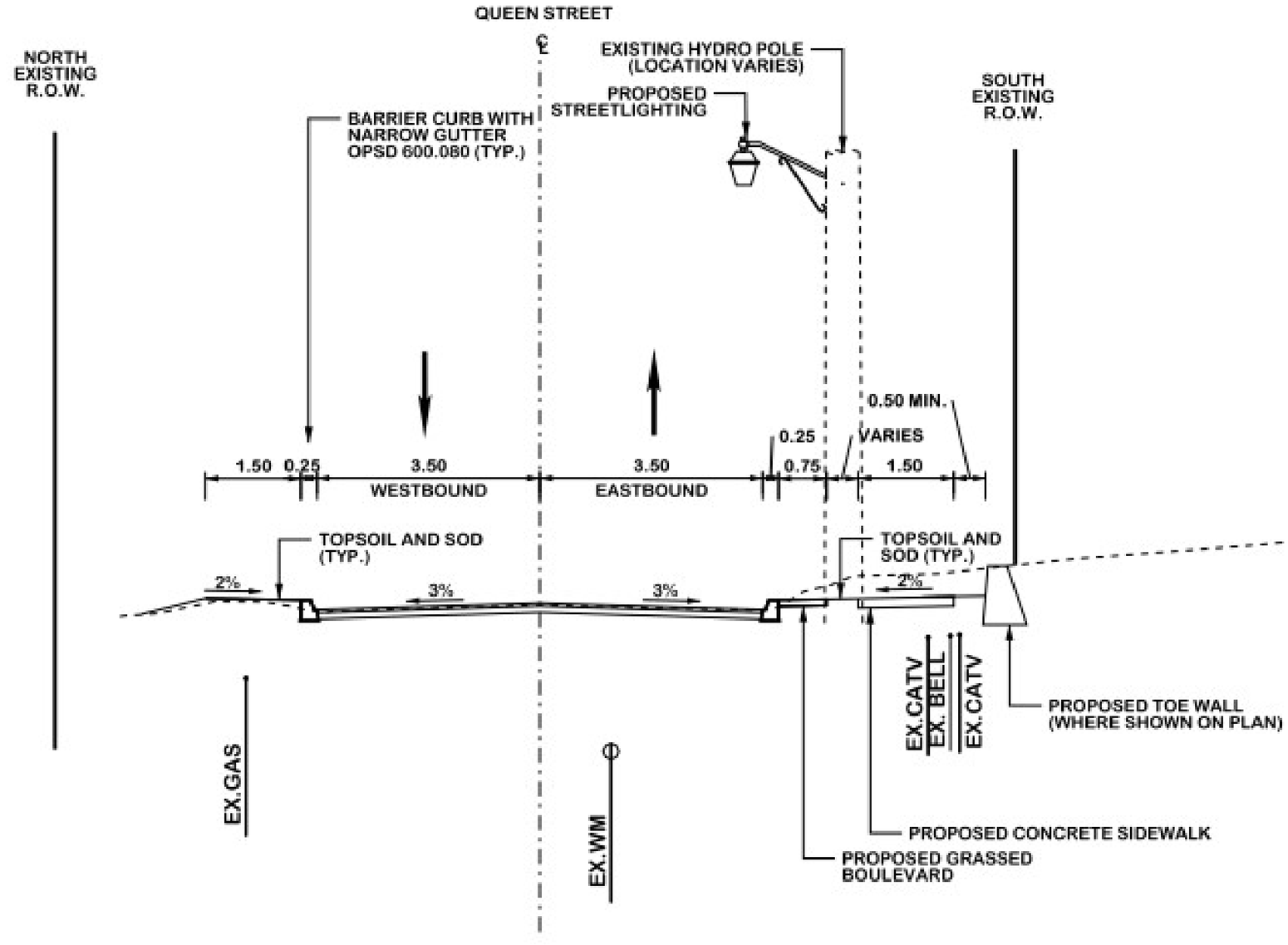

Figure 6.3 - Typical Section (Queen Street Preferred Design Concept)

6.2.4 Traffic Calming Measures

The preferred design concept includes the introduction of several traffic calming measures within the roadway, in addition to maintaining the existing traffic calming measures described in Section 2.1.4.

The preferred design concept will incorporate additional traffic calming measures into the road design including median/splitter islands at Main Street, north of Mary Street and additional warning signage. Introduction of traffic calming initiatives are also recommended to include:

- Extension of urban cross section (curb/gutter) to Mary Street
- Introduction of Splitter island on Main Street north of Mary Street
- Additional warning signage
- Visual elements close to roadway (street lights, plantings, street furniture)
- Pavement materials and appearance (coloured impressed concrete, stamped asphalt)

Streetscaping features and an urbanized cross section with curb and gutter are also anticipated to reduce vehicle travel speeds in the Study Area.

Following the implementation of the preferred design, the Town will continue to monitor vehicle speeds and the effectiveness of the identified traffic calming measures.

6.2.5 Parking

The recommended design provides additional layby parking on the east side of Main Street, from Queen Street to north of Mary Street. Three additional formalized layby parking spaces are recommended to be provided on the east side of Main Street, north of Shaw's Creek Bridge, in addition to five additional layby parking spaces on the east side of Main Street, north of Mary Street.

The recommended parking spaces will provide some additional parking to help support projected parking demands, without detracting from the Village character or while minimizing impacts to adjacent properties.

The current informal parking occurring on the gravel shoulder of Queen Street West will be eliminated, addressing the safety concerns associated with parked vehicles encroaching into travel lanes. This space will be utilized to implement the preferred active transportation improvements including an accessible sidewalk to create a pedestrian-oriented core, as suggested by the Six Villages Community Improvement Plan.

6.2.6 Active Transportation

Several improvements to the existing active transportation facilities are recommended for the reconstruction of the roadway in order to enhance the safety and connectivity of the village for cyclists and pedestrians. These improvements will incorporate several elements of the Six Villages Community Plan, while respecting the narrow right-of-way and cultural heritage of the Village.

Improved active transportation accommodations along Queen Street are recommended to include:

- Extension of 1.5m AODA-compliant sidewalk to Mississauga Road from Osprey Mills Drive (south side only);
- Replacement and/or maintain existing 1.5m sidewalk to James Street (south side only);
- Introduction of rest areas with bike racks and benches at the Alton Mill Pond, Carriage Square, and throughout the roadway; and
- “Shared-use” lanes to accommodate cyclists, with additional signage requesting users to share the road.

Improved active transportation accommodations along Main Street are recommended to include:

- Extension of 1.5m AODA-compliant sidewalk to approximately 90 meters north of Mary Street (east side only);
- “Shared-use” lanes to accommodate cyclists through the village core (south of Mary Street), with additional signage requesting users to share the road;
- 1.5m paved shoulders to accommodate pedestrians & cyclists north of Mary Street;
- Rest areas with bike racks and benches throughout the roadway; and
- 1.5m AODA-compliant sidewalk over Shaw’s Creek bridge on the east side.

Together, these active transportation enhancements will significantly improve the connectivity of Alton Village for pedestrians. Visitors will be encouraged to park their cars or bicycles, and explore the Village safely on foot, visiting the unique shops, cafés, and landmarks Alton has to offer.

A conceptual rendering of the proposed active transportation enhancements for the Village core is presented in **Figure 6.4**.

6.2.7 Streetscape Enhancements

Context sensitive streetscaping enhancements will be incorporated into the roadway and will consist of non-intrusive design elements in consideration of the narrow road allowance and the cultural heritage character of the Village. Streetscaping enhancements are recommended to include:

- Grassed boulevard to replace existing deteriorated asphalt splashpad;
- Attractive historical streetlighting features with hanging flower pots on one side of the road only;
- Rest areas with bike racks and benches;
- Enhanced street frontage at Carriage Square Park including rest areas with bike racks and benches; and
- Attractive Main Street bridge design features.

These enhancements are anticipated to contribute to a more inviting public realm to get people out of their cars to interact with the Village's environment in accordance with the Six Villages Community Improvement Plan. Streetscaping enhancements are to be cost effective and compliment the Region's design features along Queen Street East and Main Street South.

A conceptual rendering of the proposed streetscaping enhancements is presented in **Figure 6.5**.

Figure 6.4 - Active Transportation Preferred Design Conceptual Rendering (Village Core)

Figure 6.5 - Streetscaping Preferred Design Conceptual Rendering

6.3 Main Street Bridge

Based on the findings of the Bridge Condition Survey described in Section 2.3.1, the Main Street Bridge is recommended to be rehabilitated as part of the Main Street road reconstruction. The concrete deck and sidewalk of the Main Street bridge will be rehabilitated, and pedestrians will be accommodated on the rehabilitated and widened sidewalk on the east side of the bridge. The sidewalk will be widened to 1.5 meters to meet *Accessibility for Ontarians with Disabilities Act (AODA)* requirements

Both the east and west concrete parapet walls will be rehabilitated and architectural features such as impressed concrete formliners to support local heritage surroundings will be installed. Figure 6.6 demonstrates a bridge recently rehabilitated by the Town of Caledon and provides an example of the bridge barrier style recommended to be utilized.

New bicycle-height handrails (1.39 meters) will be installed during the rehabilitation to protect pedestrians, cyclists, or wheelchair users who have strayed from their path of travel. These railings are to include decorative architectural features that support the local heritage surroundings.

Figure 6.6 - Example Bridge Barrier Style (Main Street Bridge Preferred Design Concept)

6.4 Pavement Rehabilitation Recommendations

As the existing granular base/subbase thickness was found to be suitable on both roadways, and the quality of this material generally met OPSS Gradation requirements for Granular A, removal of the existing granular material, below the deteriorated asphalt is not required. Therefore, rehabilitation treatments should be limited to the asphalt surface.

To achieve the highly level of performance and longest service life, it is recommended that the rehabilitation of each roadway consist of removal and replacement of the asphalt pavement. Under this strategy, the existing asphalt would be removed full asphalt depth, with the underlying granular graded to accommodate the placement of a new asphalt surface. In areas where the road profile is lower than existing, excavation and reinstatement of granular is required.

A lower-cost alternative to removal and replacement of asphalt pavement is to carry our Full Depth Reclamation (FDR) with Expanded Asphalt Stabilization, followed by the placement of an asphalt overlay. The existing asphalt should be pulverized with the Granular road base material to a depth of 150 mm and stabilized with an expanded asphalt emulsion. Prior to stabilizing, the pulverized material should be graded to correct roadway profile, crossfall, and grades.

This rehabilitation alternative is considered viable for the rehabilitation of Main Street and Queen Street. Incorporating the FDR with asphalt stabilization process into the pavement design/ rehabilitation strategy has several advantages including: the reuse of in-place materials; minimal grade raise; and easier construction staging around work area, as traffic can operate on the stabilized base shortly after processing. Furthermore, it is expected that this strategy will provide the most cost-effective solution for this project.

It is important to note that this rehabilitation strategy is an acceptable alternative for both roadways; however, along Queen Street, this strategy should only be applied to the rural pavement area considered in poor condition (Mississauga Road to Osprey Mills Drive), as the section of Queen Street between Osprey Mills Road and James Street does not require rehabilitation at this time.

6.5 Municipal Services, Drainage & Utilities

6.5.1 Water Servicing

No changes to the existing water servicing configuration are recommended, unless a utility or other conflict is identified in detailed design which would warrant relocation. Water service is to be maintained at all times during construction.

6.5.2 Drainage and Stormwater Management

A stormwater management plan was prepared to support the proposed road reconstruction. The plan assessed the potential impacts of the recommended improvements on stormwater quantity, quality and erosion control measures and presents a stormwater management plan to mitigate these impacts in accordance with the regulatory requirements.

The recommended design concept includes the following stormwater management components:

- New storm sewers along Main Street from STA 9+625 to a new outfall near the Shaw's Creek Bridge. This will improve conveyance and divert road runoff from areas of recent flooding.
- An infiltration trench is along Main Street North with 35 m^3 of capacity to provide capture for 5mm runoff and reduce erosion in Shaw's Creek.
- An oil grit separator (Stormceptor Model STC-2000 or approved equivalent) for the new Main Street outfall at the Shaw's Creek Bridge. This will provide water quality control through Total Suspended Solids (TSS) removal.
- Enhanced grass swales will provide runoff quality control for the rural sections of Main Street that will not be serviced by storm sewers. The swales will serve as conveyance, while providing runoff filtration and promoting infiltration.
  Larger culverts will be installed to replace the undersized culverts on Main Street at STA 8+500 and 9+200.
- The existing storm sewer on Queen Street will be extended from Osprey Mills Drive to Mississauga Road with catch basin shield to be installed in the new inlets.
- A new storm sewer will be installed on Queen Street W. south of James Street to the existing outfall across from Agnes Street. This sewer will bypass the Emeline Street outfall, which has had previous flooding concerns.
- An oil grit separator (Stormceptor Model STC-750 or approved equivalent) will be installed on the new storm sewer upstream of the Agnes Street outfall. This will provide water quality control through Total Suspended Solids (TSS) removal.
- Short storm sewer extensions near Amelia Street and Main Street will be installed to improve local drainage by reducing overland flow paths.
- New storm sewers will be designed with sufficient hydraulic capacity (up to 10-year return period storm) to avoid ponding at low lying points.
- A minimum of 70% TSS removal efficiency for an enhanced level of control will be provided at all new outfalls through a treatment train approach consisting of CB shields and OGS units.

The implementation of the proposed storm drainage systems will control the site's runoff in accordance with the Region of Peel, CVC, and Town of Caledon's stormwater management requirements.

The Storm Drainage Design Brief provided in **Appendix 5** presents additional details regarding the stormwater management design recommendations.

6.5.3 Utilities

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

At this stage of the study, it is anticipated that the proposed reconstruction of Main Street and Queen Street and related improvements to the Main Street Bridge will impact the following:

- Several hydro poles on Main Street North from Mary Street to Highpoint Sideroad are in proposed cut and fill locations. These poles would need to be relocated or reinstalled to accommodate the proposed grade changes.
- Minor conflicts with poles, guardrails and storm sewers; and required ground cover may impact the existing watermains on Queen Street and Bridge Street
- Minor conflicts with poles and storm sewers; and required ground cover may impact the existing buried Bell infrastructure
- Minor conflicts with poles and storm sewers; and required ground cover may impact the existing buried Rogers infrastructure
- Enbridge gas main relocation may be required at the crossing of Shaw's Creek due to the required bridge modifications
- Minor conflicts with poles and storm sewers; and required ground cover may impact the existing buried Enbridge infrastructure

6.6 Streetlighting

Attractive historical streetlighting is proposed to be installed along one side of the road in the urban portions of the roadway, where sidewalk is recommended. No additional streetlighting is proposed to be installed within the rural portion of Main Street North within the study area.

Throughout the study, members of the public have voiced concerns related to the streetlighting for the village core in comparison to the recently installed streetlighting on

Main Street South and Queen Street East. The project team has committed to incorporating lower light levels (at least 33% lower) into the detailed design of Queen Street West and Main Street North in comparison to Queen Street East, since Queen Street West is a collector road, requiring lower levels than the arterial road of Queen Street East.

Light levels hue and pole locations, as well as mitigation measures are to be determined during detailed design through additional consultation, as well as a photometric analysis.

6.7 Preliminary Cost Estimate & Timeline

The estimated preliminary costs to complete the works is provided in **Table 6.1** and further broken down in **Appendix 12**. The full extent of utility relocations is not currently known, and a cost estimate for utility work can not reasonably be determined until Detailed Design.

At this time, construction is expected to commence in 2023, subject to budget, utility relocations, and agency approvals. This cost estimate summary is based on full depth reconstruction of the asphalt pavement.

Table 6.1 – Cost Estimate Summary

ACTIVITY	TIMING	PRELIMINARY COST ESTIMATE
Detailed Design	2021 and 2022	$878,000
Utility Relocations	2023	$460,000
Main Street Bridge Repairs	2024	$1,250,000
Road Reconstruction	2024	$7,960,000

7.0 IMPACTS, MITIGATION AND MONITORING

7.1 Natural Environment

Following the confirmation of the preferred design concept, the Natural Heritage Existing Conditions Report described in Section 2.5 was updated to identify the potential effects on the existing environmental features and outline the environmental protection/mitigation measures required to manage any adverse effects to the natural environment associated with the study recommendations. A full copy of the Natural Heritage Report is provided in **Appendix 6**.

7.1.1 Soil Disturbance and Potential for Erosion

Soil disturbance within the study area will be limited mainly due to the mainly urban nature of the area, with some exceptions, where grading will be required in semi-natural areas. Impacts resulting from any excavating or cut and fill operations will be temporary in nature. Erosion and sedimentation mitigation measures will be implemented prior to and during the construction phase.

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

- limiting the geographical extent and duration that soils are exposed to the elements;
- implementing standard erosion and sedimentation control measures in accordance with Ontario Provincial Standard Specification (OPSS) 805 Construction Specification for Temporary Erosion and Sediment Control Measures. These standard measures include: silt fence placed along the margins of areas of soil disturbance; applying conventional seed and mulch and/or erosion control blanket in areas of soil disturbance to provide adequate slope protection and long term slope stabilization; and,
- managing surface water outside of work areas to prevent water from coming in contact with exposed soils.

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

7.1.2 Aquatic Habitats and Communities

The only watercourse within the study limits, Shaw's Creek, supports direct fish habitat. It is connected to two online ponds, Alton Mill Pond and Millcroft Pond, both of which support direct fish habitat. Although there are no direct impacts anticipated to the crossing of

Shaw's Creek from the proposed works, potential indirect impacts resulting from the grading near Alton Mill Pond and the exposure of soils upslope of the watercourse have the potential to result in serious harm to fish habitat due to the following effects:

- temporary disruption of site-specific habitat;
- changes to water quality and quantity;
- changes in water temperature;
- changes to floodplain and riparian vegetation; and,
- barriers to fish passage.

As no works within or around the watercourse are proposed, it is likely that no harm to fish or fish habitat will ensue, therefore, consultations and permitting from the DFO are not required.

Shaw's Creek and the Alton Mill Pond located within the study area are subject to *Ontario Regulation 160/06: CVC Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. A permit from the CVC, pursuant to O. Reg. 160/06, will be required for work within these areas and will be secured during detail design.

Temporary and/or Permanent Disruption of Site-specific, Direct Habitat

The proposed works will not result in the permanent loss of fish habitat as there is no in-water or stream bank work proposed. However, in order to minimize the potential for adverse effects, particularly to the Alton Mill Pond, the grading limit should be as tight to the ROW as possible to avoid encroachment into the riparian area. Any impacts will be mitigated by the measures listed below.

General Aquatic Habitat Protection Measures

To reduce the potential for adverse effects to fish habitat, the following environmental protection measures will be implemented:

- an in-water work/work within riparian habitat construction timing restriction should be implemented to protect spawning fish, incubating eggs and fry emergence: due to the coldwater habitat designation, in-water work/works within riparian habitat should permitted from July 1 to September 15 at the crossing (to be confirmed with MNRF and CVC);
- the reduction of the amount of space between the sidewalk and the curb to minimize slope encroachment into riparian habitat;
- work areas will be delineated with construction fencing to minimize the area of disturbance;

- appropriate sediment control structures will be installed prior to and maintained during construction to prevent entry of sediments into the watercourse;
- good housekeeping practices related to materials storage/stockpiling, equipment fuelling/maintenance, etc. will be implemented during construction; and
- disturbed riparian areas will be vegetated and/or covered with an erosion control blanket as quickly as possible to stabilize the banks and minimize the potential for erosion and sedimentation.

These environmental protection measures will greatly reduce the potential adverse effects to fish and fish habitat resulting from construction activities.

Changes in Water Quality

The construction associated with the proposed works has the potential to alter water quality through on-site erosion of exposed materials and the subsequent impairment of downstream water quality with sediments and other contaminants. To improve storm water quality, roadway runoff should be directed to existing storm water management facilities where technically feasible and sufficient permanent pool volume is available within the SWM facility. In addition, all exposed areas should be vegetated as quickly as possible once work is completed. A description of preferred water quality approaches for stormwater is described in **Section 5.4**.

The implementation of some of these mitigation measures and BMPs should eliminate potential changes to water quality in the receiving watercourse.

Changes in Water Temperature

The thermal regime of a receiving watercourse may be altered by storm water runoff or removal of riparian vegetation that shades the watercourse. In the summer, runoff can become superheated through contact with paved surfaces, which, when discharged to a receiving watercourse can result in thermal shock, thereby injuring or killing aquatic organisms. Coldwater or cool water streams are usually considered more sensitive to changes in water temperature than warmwater streams.

It is expected that there will be no significant increase in temperature as a result of the proposed works as long as appropriate storm water management strategies are implemented.

Restoration/Enhancement/Compensation

The riparian areas at the Shaw's Creek crossing and Alton Mill Pond may be affected by the proposed road improvements.

The following should be employed as restoration/enhancement during the detail design phase of the project where riparian works are proposed. Riparian areas should be planted with native grasses, trees and shrubs to provide increased shading and allochthonous inputs to the watercourse. Where restoration and enhancement will not suffice to offset/mitigate impacts, compensation should be employed. Compensation plans, if necessary, will be completed during detail design in consultation with regulatory agencies.

7.1.3 Wildlife and Wildlife Habitat

The construction and operation of the upgraded roadway proposed along Queen Street West and Main Street have the potential to result in the displacement of and disturbance to wildlife and wildlife habitat. Effects on wildlife related to these modifications may include:

- displacement of wildlife and wildlife habitat;
- barrier effects on wildlife passage;
- wildlife/vehicle conflicts;
- disturbance to wildlife from noise, light and visual intrusion;
- potential impacts to migratory birds; and,
- displacement of rare, threatened or endangered wildlife and significant wildlife habitat.

Displacement of Wildlife and Wildlife Habitat

Modification of the existing road network will occur in areas that have been previously disturbed by human activity (mainly urbanization and agricultural practices), and consist of low-quality wildlife habitat. However, higher quality habitats exist within valleylands associated with watercourses and in wetlands and forested areas adjacent to and outside of the study area, also acting as corridors. These valleylands, wetlands and forested areas support natural or semi-natural vegetation communities and contribute to the wildlife assemblage identified within the lands examined.

Only minimal infringement to the edge of the above-mentioned natural heritage features will occur as a result of road modification to the existing road network along Main Street and Queen Street West. Improvements within and beyond the right-of-way are not expected to have a significant impact on wildlife and/or wildlife habitat throughout the majority of the study area. There is the potential for displacement of species at risk habitat; however, these impacts are expected to be minor.

Any vegetation clearing should occur outside of the breeding bird window to minimize disturbance to birds and other wildlife species utilizing habitats within the study area.

Barrier Effects on Wildlife Passage

No new permanent migratory barriers to wildlife will be created in the study area as a result from the proposed works. The existing potential barrier posed by the steep slope of the "S" bend along Main Street will be similar due to the proposed works. However, wildlife likely use the lands north and south of the slope for movement throughout the study area.

Wildlife/Vehicle Conflicts

The proposed road modifications will not significantly increase the width of the travelled surface that could potentially result in an increased risk of mortality for wildlife crossing the road. The proposed road improvements along Main Street and Queen Street West incorporate a moderate speed limit and the use of speed control measures (e.g., speed bumps), which will limit the risk of wildlife to vehicular conflicts. Additionally, the potential increase in wildlife mortality above existing conditions is considered very minor due to the proposed construction of retaining walls and guiderails throughout the study area.

Disturbance to Wildlife from Noise, Light and Visual Intrusion

Noise, light and visual intrusion may alter wildlife activities and patterns. In human-influenced settings, such as the study area, wildlife has become acclimatized to anthropogenic conditions and only those fauna that are tolerant of human activities remain. Minor edge effect to natural areas may occur as improvements may result in an increase in noise, light, and visual intrusion. Given that wildlife found within the study area are acclimatized to the presence of the existing infrastructure, disturbance to wildlife from any increase in noise, light and visual intrusion potentially caused by the operation of the proposed roadways are not expected to have any significant adverse effects. Potential disturbance caused by light pollution from the roadways can be mitigated by using reflectors to focus light beams onto the facilities and away from natural heritage features adjacent to them.

Potential Impacts to Migratory Birds

As identified in Section 2.5.2 numerous bird species listed under the Migratory Birds Convention Act (MBCA) were identified within the study area. The MBCA prohibits the killing, capturing, injuring, taking or disturbing of migratory birds (including eggs) or the damaging, destroying, removing or disturbing of nests. While migratory insectivorous and non-game birds are protected year-round, migratory game birds are only protected from March 10 to September 1.

The study area lands fall within Environment Canada's Nesting Zone C2 (Nesting Period: end of March – end of August). Consequently, to comply with the requirements of the MBCA, it is recommended that disturbance, clearing or disruption of vegetation where birds may be nesting should be completed outside the window of April 1 to August 31 to avoid the breeding bird season for the majority of the bird species protected under the Act.

In the event that these activities must be undertaken from April 1 to August 31, a nest screening survey will be conducted by a qualified avian biologist. If an active nest is located, a mitigation plan shall be developed and provided to Environment Canada – Ontario Region for review prior to implementation.

Displacement of Rare, Threatened or Endangered Wildlife or Significant Wildlife Habitat

Section 2.5.2.1 discusses the four species at risk regulated under the Ontario Endangered Species Act, 2007 (ESA) that have been identified, or previously identified, as present within the study area.

The likelihood of the project having a negative effect on species at risk is low as encroachment into suitable habitats will be minimal, with potential effects only along edges. These bird species tend to avoid edges and, with the presence of the existing roadways in the study area, likely will only be found far from the potential work areas of the proposed roadway widenings and road construction.

Because of the unlikelihood of adverse effects on species at risk, no permitting requirement under the ESA is anticipated; however, consultation with the MECP during the detail design phase is warranted. Follow-up field surveys may be required during detailed design to further assess presence/absence and potential habitat function of lands within the study area.

7.1.4 Vegetation and Vegetation Communities

The proposed improvements to Main Street and Queen Street West will result in the displacement of and disturbance to vegetation and vegetation communities. Effects on vegetation and vegetation communities may include:

- Displacement of/disturbance to vegetation and vegetation communities; and,
- Displacement of/disturbance to rare, threatened or endangered vegetation and vegetation communities.

Displacement of Wildlife and Wildlife Habitat

Clearing of vegetation will be required to accommodate the proposed improvements to Main Street between Highpoint Sideroad and Queen Street, and Queen Street West from Main Street to Mississauga Road. The improvements will result in the removal of approximately 2.48 ha of naturalized and/or planted areas. The largest area of impact will be to lands that have been anthropogenically influenced, including cultural vegetation communities, hedgerows and manicured areas. A total of 2.44 ha of anthropogenically influenced lands and cultural vegetation communities will be removed as a result of the

proposed improvements. In addition, a total of 0.04 ha of wetland communities will be removed.

At a minimum, the following protection/mitigation measures will be implemented during construction to ensure the protection of vegetation and vegetation communities to the extent possible:

- During detail design, efforts will be made to minimize the removal of vegetation/vegetation communities, to the extent possible;
- The contractor shall ensure that soil migration from the construction area is prevented, and that exposed soils are stabilized as soon as is possible;
- Native and non-invasive vegetation cover will be used to protect any exposed surfaces;
- Old field seed mix and mulching or erosion control blanket will be placed in areas of soil disturbance to provide adequate slope protection and long-term slope stabilization in areas where sensitive features and watercourses are to be protected;
- Appropriate tree protection will be installed to protect trees and natural areas to be retained, including safeguarding trees and natural areas from construction operations, equipment and vehicles. Prior to construction, trees and natural areas to be protected will be clearly identified in the field by the Contract Administrator and a protective barrier will be installed. Repairing or replacing trees/shrubs identified to remain outside of grading limits, which become damaged by construction activities, should be undertaken; and, restoration of disturbed natural areas should use a native species seed mix and woody species plantings similar to the character of the surrounding area, or similar native woody species; and,
- Landscape planning and planting will be undertaken and implemented to mitigate removals within landscaped/manicured areas, to beautify areas within the new right-of-way, provide shading, provide wildlife habitat for local, urban species, and to promote carbon capture. Landscaping planning and implementation shall be undertaken by experienced, qualified professionals. Maintenance and warranty for Landscaping should be in place for landscaping works undertaken.

All of the vegetation communities identified within the study area are considered to be widespread and common in Ontario and secure globally. As a result, there will be no impacts to rare, threatened, or endangered vegetation communities. no plant species that are regulated under the Ontario Endangered Species Act, or the Canada Species at Risk Act were encountered during LGL's botanical investigation with the study area (those plant species regulated as Endangered, Threatened or Special Concern). Two plant species considered rare by CVC were identified within the study area including white spruce and

Indian grass. These two species were planted and are not naturally occurring as a result, they should not be considered significant within the study area.

7.1.5 Source Water Protection

The project study area is situated in the Credit Valley Source Protection Area within the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Region and is therefore subject to the CTC Source Protection Plan. The study area also transects other vulnerable areas defined under the Clean Water Act, 2006 designated as highly vulnerable aquifers and significant groundwater recharge areas. Road construction is not considered a prescribed drinking water threat under O. Reg. 287/07 under the Clean Water Act, 2006, however construction activities should be assessed for potential adverse impacts/drinking water threats and policy applicability. During construction, the contractor will be required to apply appropriate mitigation in accordance with policies SAL 10-12, DNAP-3 and OS-3 as outlined in the CTC Source Protection Plan, which address road salt, dense non-aqueous phase liquids and organic solvents that are moderate and low threats to drinking water sources. Best management practices for handling, storage and application shall be followed.

The project intersects Wellhead Protection Areas (WHPAs) B, C, D and E but the project is considered a low impact project for groundwater, therefore the following will be required during detailed design, prior to construction:

- A hydrogeological investigation with analysis of the dewatering required for the entire project (if necessary) and the potential implications to the aquifer's sustainability.
- A water well survey to obtain background information to any private wells via a within a 500 meter area to assist the Region in case of any well complaint during construction.
- A monitoring and contingency plan for any well complaint.
- Confirm and advise the Region if the project requires the removal of any existing groundwater monitoring locations. Coordinate an action plan with the Region, if required.

7.1.6 Climate Change Impacts

Project impacts and resiliency to climate change were taken into consideration during the study. Considering how a project contributes to climate change, through its greenhouse gas emissions or its effects on the natural environment, is important to the planning process as it allows proponents to consider climate mitigation measures to avoid, minimize, or offset such effects. As well, considering how climate change may affect a project, such as through increased flooding or drought, is also critical to the planning

process through enabling proponents to make informed decisions around how to design a project to withstand such environmental conditions.

Approaches for considering and addressing climate change in project planning are through 1). Reducing a project's effect on climate change; and 2) Increasing the project's resilience to climate change.

For this Class EA study, key elements that were factored into the reconstruction of Main Street and Queen Street and related infrastructure improvements that could serve to reduce the overall effect on climate change include the provision of active transportation features in the recommendation. Encouraging active transportation through increased pedestrian and cyclist facilities supports the reduced use of vehicular traffic and GHG emissions.

For this Class EA study, key elements that were factored into the reconstruction of Main Street and Queen Street and related infrastructure improvements that could increase the project's resilience to climate change include:

- Grass boulevards reducing increased impermeable pavement area;
- Improved stormwater management and LID features to reduce flooding risks associated with more frequent and severe storm events; and
- Tree replanting to provide shaded areas.

7.2 Cultural Heritage Resources

7.2.1 Impacts to Archaeological Resources

Based on the Stage 1 archaeological assessment, implementation of the preferred design components could impact several areas that may have archaeological potential. These areas are:

- Area south of Mississauga Road, beyond the disturbed road area;
- Areas east of Queen Street West, beyond the disturbed road area, along the majority of the study area; and
- Flat area adjacent to Main Street, beyond the disturbed road area, on both sides of the road.

The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, slopes in excess of 20 degrees, or having been previously assessed. These lands do not require further archaeological assessment.

Prior to construction, areas identified as having archaeological potential will require a Stage 2 archaeological assessment. This assessment is required to determine if those areas exhibit archeological resources and warrant further assessment, or if they can be considered clear of archaeological potential. The Stage 2 archaeological assessment, and any further stages of archaeological assessment recommended through the Stage 2 report should be completed as early as possible in the detail design process.

Mississaugas of the Credit First Nation (MCFN), and Conseil de la Nation Huronne-Wendat (CNHW) Field Liaison Representatives (FLR) is to be on site and participate in any Stage 2 archaeological fieldwork.

During construction, in the event that archaeological resources or remains are found, alteration of the site must cease immediately, and the Archaeology Programs Unit of the Ministry of Heritage, Sport, Tourism, and Culture Industries (MHSTCI) and the consultant archaeologist must be notified. The contract for this work should include a provisional item for Archaeological findings and the Contractor must be aware of the protocol to be followed should resources be encountered.

More information is provided in the complete Stage 1 Archaeological Assessment report in **Appendix 7**.

7.2.2 Built Heritage Resources and Cultural Heritage Landscapes

As several residents and stakeholders expressed the desire that any improvements to the study area retain and compliment the Village's cultural heritage, impacts to the Built Heritage & Cultural Resources were a key criterion in the assessment of alternatives and preferred design throughout the EA process.

Following the selection of the preliminary preferred design, a preliminary impact assessment was undertaken to identify potential impacts to the identified cultural heritage resources described in Section 2.7. Appropriate mitigation measures were developed to ensure the improvements within the study area retain and compliment the unique cultural heritage of the Village of Alton.

The recommended design is anticipated to result in direct impacts to 23 identified cultural heritage resources, indirect impacts due to construction immediately adjacent to 26 cultural heritage resources, and no impacts to 4 of the identified cultural heritage resources in the study area.

Direct impacts are anticipated to be limited to within or directly adjacent to the existing ROW and are anticipated to include grading, concrete sidewalk, and topsoil and sod boulevard adjacent to the subject properties. No impacts to any structures or landscape features of potential cultural heritage value are anticipated.

Indirect impacts associated with construction disturbance are anticipated to 23 cultural heritage resources within the study area. Potential indirect impacts include temporary staging and construction activities. All indirect impacts are anticipated to be temporary, with no permanent or significant impacts anticipated to any structures or landscape features of potential cultural heritage value within and / or adjacent to the study area.

Specific mitigation measures were developed for each potentially impacted cultural heritage resource including the following recommendations:

1. Construction activities and staging should be suitably planned and undertaken to avoid impacts to identified cultural heritage resources.
2. Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage resource should be considered to mitigate any unintended impacts to all cultural heritage resources.
3. Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts.
4. To ensure the identified cultural heritage resources adjacent to the ROW are not adversely impacted during construction, a qualified engineer should undertake a condition assessment of the structures within the vibration zone of influence. Further, the proponent must make a commitment to repair any damages caused by vibrations.
5. Where indirect impacts are anticipated as a result of road improvements adjacent to identified cultural heritage resources that are listed in the Town of Caledon's Heritage Register or included in the Heritage Caledon Walking Tour, suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage resources should be considered to mitigate any unintended impacts to these adjacent cultural heritage resource.
6. The Town of Caledon should consider the requirement of a documentation report to document the Queen Street West and Main Street North streetscapes of this historic settlement prior to alteration.
7. At the time of report revision (December 2020) MHBC Planning, Urban Design, and Landscape Architecture had been retained by the Town of Caledon to assess and describe the streetscape attributes and character of Queen Street West and Main Street, Village of Alton, as part of the MCEA process (MHBC 2020). The preliminary principles of the MHBC memorandum to the Town of Caledon (17

September 2020), as outlined in Section 2.1.4 of this report, should be considered and implemented, where appropriate.

8. Should future work require an expansion of the study area, a qualified heritage consultant should be contacted to confirm the impacts of the proposed work on potential heritage resources.

The mitigation measures above were considered in the preliminary design of the roadway and will be given further consideration during the subsequent detailed design phase, and during construction.

The full Cultural Heritage Evaluation and Heritage Impact Assessment Report is included in **Appendix 8**. Copies of the reports have been provided to the MHTSCI.

Additional Works

Where direct impacts to cultural heritage resources that are designated, Part IV of the OHA (CHL 2) or are listed in the Town of Caledon's *Heritage Register* are anticipated a resource-specific Cultural Heritage Impact Study (CHIS) may be required as *per Town of Caledon Official Plan* clause 3.3.3.1.5 (ii). However, given that the study recommendations will only result in minor encroachment and grading and is not anticipated to result in permanent negative impacts to any structures or apparent landscape features of significant cultural heritage value, it is recommended that the Town of Caledon consider waiving the requirement for a CHIS in these cases.

7.3 Socio-Economic Environment

7.3.1 Property Requirements

The reduction of property requirements was a key criterion in the identification and evaluation of the alternative solutions & designs developed by the project team. Nevertheless, implementation of the preferred design concept will require some property. Specifically, implementation of the preferred design concepts will require approximately 400m^2 of property from 20334 Main Street North. This property is required to accommodate the proposed retaining wall required to stabilize the slope along the south side of the S-bend in this area.

For any property to be acquired, the owner would be reimbursed by the Town for the required land at fair market value. An independent appraisal would be completed for the land to determine fair market value. Any lands disturbed as a result of construction would be restored to their current state. Negotiations with the impacted property owner to secure lands required to implement the preferred design will be initiated during the detailed design phase of the study.

Anticipated preliminary property requirements to implement the study recommendations are summarized in the table below.

Table 7.7.1 – Property Impact Summary

PROPERTY ADDRESS	ESTIMATED PROPERTY REQUIRED (m^2)	DESCRIPTION
20334 Main Street North	400	Property required to accommodate retaining wall required on south side of S-bend on Main Street North.
TOTAL	**400**	

Although anticipated preliminary property requirements to implement the study recommendations have been identified, actual requirements are to be confirmed during detailed design, following the completion of a legal survey by an Ontario Land Surveyor and confirmation of existing and proposed property boundaries.

7.3.2 Temporary Reduced Access to Local Businesses

The recommended works and necessary road closures has the potential to impact local area businesses negatively, if not properly mitigated.

Local businesses are to be notified well in advance of the start of construction to minimize impacts to adjacent businesses along the corridor. To this end, every effort will be made to keep business entrances open for as long as possible during construction. The Town /contractor will work with the owner to ensure construction activities and schedules are intimated well in advance of any disruption so that this information can be passed on to their clients. During the detail design phase of the study, the project team will meet with specific property owners to further discuss their concerns.

Temporary directional signage directing vehicles to businesses in the study area will be added at specific locations along the detour routes.

7.3.3 Noise and Air Quality Impacts During Construction

Although no long-term air quality impacts from the proposed works are anticipated, dust and/or emissions during construction have the potential to degrade air quality in the short term. Measures to minimize these impacts should include dust/debris control measures such as the application of water or non-chloride based compounds; covering of soil and other material storage piles to prevent wind erosion; and, covering of fine particulate materials during transportation to and from site. The contractor should use new or well-

maintained equipment and machinery, preferably ones fitted with fully functional emission control systems, mufflers, exhaust system baffles and/or engine covers.

Construction may also result in temporary noise impacts. Measures to minimize noise-related impacts during construction include:

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

7.4 Pavement Design / Geotechnical / Soils

The scope of the analytical testing described in Section 2.9 and provided in Appendix 9 was limited to granular and asphalt materials at select borehole locations. The potential for environmental issues elsewhere along the project alignments was not assessed and the inspection and testing of materials in the project area other than samples of granular and asphalt materials discussed in the report was not completed. It should be noted that the environmental testing completed for this project does not constitute a Phase One or Phase Two Environmental Site Assessment (ESA) under O. Reg. 153/04 or O. Reg.406/19.

Due to the inherent variability of subsurface conditions, inspection will be required during construction in order to confirm that the quality of excess excavated granular materials (if any) are consistent with the conditions documented during this investigation. Additional analytical testing of excavated granular materials should be expected during construction to meet the requirements of re-use on-site and/or receivers of excess materials off-site (as applicable).

Where excavation of existing pavement structure is required, asphalt should be removed separately from granular materials and recycled at an approved recycling facility or disposed of appropriately off-site. Asphalt should not be mixed with excess excavated granular or other materials; fill receivers may not accept excess excavated materials if it

contains asphalt.

Any materials encountered during excavation that exhibit visual or olfactory evidence of environmental impact (i.e. staining or odours) will need to be segregated under the direction of an O. Reg. 153/04 Qualified Person (QP) into separate stockpiles to determine appropriate handling options. Impacted materials will need to be tested by the Contractor and reassessed at that time to determine if the stockpiled materials can be reused or will need to be handled as waste and disposed of at a licensed facility.

7.5 Municipal Infrastructure and Utilities

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

7.6 Monitoring During Construction

The mitigation measures identified in this report shall be written into the contract specifications. During construction, the contract administrator will ensure that full-time monitoring/inspection of the project works is undertaken to ensure that all environmental commitments identified in the Environmental Study Report are adhered to by the contract team. Following completion of construction (i.e. post construction), an inspection should be undertaken to ensure the effectiveness of the identified mitigation measures.

8.0 FUTURE WORK AND APPROVALS

8.1 Permits & Approvals

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

- A permit under *Ontario Regulation 160/06:* CVC Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses will be required for work within CVC Regulated areas and will be secured during detail design for all work within CVC regulated areas.
- A Permit to Take Water will be required from the MECP for sewer construction if dewatering exceeds 400,000 litres per day. An Environmental Activity and Sector Registry posting will be required if dewatering between 50,000 and 400,000 litres per day is required.
- Approval from Region of Peel for proposed impacts to groundwater and municipal water supply intake within the Wellhead Protection Zone will be required.

- Prior to construction, a letter from MHSTCI will be required clearing the impacted areas from archaeological potential.
- An Environmental Compliance Approval (ECA) would be required prior to construction to ensure that the proposed works comply with MECP guidelines for the design of sanitary sewage systems, storm sewer systems and/or water systems. It should be noted that the ECA permitting process was under review by MECP at the time of study completion and is subject to significant change.

8.2 Detailed Design Commitments

In addition to the mitigation measures described in Section 8.0, additional work is required to be completed following the Class EA. During detailed design the following work is needed to confirm findings from the Class EA phase and to further refine the design:

- Consultation on proposed decorative lighting to be used, including pedestrian lighting, flower baskets, banner arms, receptacles for seasonal lighting, and other decorative lighting elements. Lighting will require a complete photometric analysis and meet RP-8 design requirements.
- Consideration for the proposed development at the Alton Millpond, pending approval status at the time of detailed design. Elements including additional layby parking and additional pedestrian crossovers have been requested in this area.
- Consideration of stormwater flows, and any other site servicing requirements for other developments
- Consultation on landscaping design for Town owned lands at the Alton Village Square.
- Consideration for connectivity with other landscaping improvements on private lands and other areas where the Alton Six Villages plan has been implemented.
- Consideration of Town standards for road design elements, including bridge parapet walls, lighting standards, signage, and all other standards.
- Town to monitor vehicle speeds within the study area following implementation of the proposed improvements.
- Consider opportunities for additional parking on private lands, and Town-owned lands near to the project area.
- Select street furniture including benches, waste receptacles, and bike racks in consultation with community stakeholders.

- A hydrogeological investigation with analysis of the dewatering required for the entire project (if necessary) and the potential implications to the aquifer's sustainability.
- Confirmation by a geotechnical engineer that the soil type is adequate to accommodate potential water main breaks and that required infrastructure setbacks are implemented into the design as requested by Region of Peel.
- A water well survey to obtain background information to any private wells via a within a 500 meter area to assist the Region in case of any well complaint during construction.
- A monitoring and contingency plan for any well complaint.
- Additional consultation regarding key aspects of the detailed design including:
    - The project team will work with stakeholders and a landscape architect in developing plantings during detailed design;
    - Photometric analysis, Lighting level, hue, location and mitigation measures;
- During detailed design grading limits should be reduced adjacent to natural features wherever feasible.
- Develop a satisfactory restoration and compensation plan that demonstrates an ecological gain during detailed design.
- Condition surveys and vibration monitoring of heritage structures as identified in the Cultural Heritage Resources Assessment.

8.3 Implementation and Construction Staging

Construction staging would have to be developed to minimize impacts to local residents, and emergency services. It is understood that due to the narrow right of way, and the extensive requirements for infrastructure rehabilitation and replacement that some road closures will be required. The construction of new sewers on Queen Street West between Main Street and James Street; and the stretch of Main Street between Queen Street and 100 meters north of Mary Street will pose the most significant impacts to vehicular traffic. The use of alternating traffic signals may be required to maintain traffic flows during construction in these areas.

The required bridge rehabilitation works will not require long-duration bridge closures. Most of the required work can be carried out while maintaining a single alternating traffic lane through the bridge.

There exists stretch of Town-owned lands between the end of Nicholas Street and Amelia Street that could potentially be used to detour flows during bridge rehabilitation and road reconstruction work in this area.

9.0 CONSULTATION SUMMARY

Schedule 'C' EA projects are subject to the full five phase planning progress, in accordance with the Municipal Class Environmental Assessment (October 2000, amended in 2007, 2011, 2015). As such, extensive public and technical agency consultation plays a key role in developing the study recommendations.

Per the MCEA, notifications to the Public and stakeholders was provided in advance of key consultation opportunities.

9.1 First Nations & Technical Agencies

Various First Nations communities, government agencies, and authorities were informed of the EA study, as well as the Public Information Centres via direct electronic mailings or regular mailing. A complete list of stakeholders who were contacted is provided in **Appendix 1**.

During the course of the EA study, correspondence was received from various technical agencies and implemented into the study and recommendations, as outlined in Table 9.1 and included in **Appendix 1**. Comments from technical agencies and interest groups received at the public information centres are discussed in Section 9.3.

Table 9.1 – Comments Received from Technical Agencies

AGENCY / COMMUNITY	COMMENT SUMMARY	DATE RECEIVED	CONSIDERATION OF COMMENTS IN EA
Bell Canada	99% of Bell's infrastructure is buried along Queen St. and Main St. and looks to be far enough off the road and hopefully will not conflict with the road reconstruction. Bell has no concerns at this point.	April 26, 2019	The project team requested the locations of Bell infrastructure for consideration in the design.
	Bell provided markup drawings and documents for the study.	September 30, 2019	The project team considered the locations of Bell infrastructure during design.
Ontario Ministry of Natural Resources and Forestry (MNRF)	Shaws Creek (tributary of Credit River) a cold-water fish habitat containing Brook Trout and other sensitive species, runs perpendicular and in close proximity to the north side of Queen Street West in this area. There is also an unevaluated wetland in close proximity to the road at this location.	April 29, 2019	The project team incorporated the information provided by MNRF into the natural environment studies and reports for this study.
Transport Canada (TC)	General information provided on TC's involvement in the Class EA process and Acts that may apply.	May 6, 2019	The Study did not occur on federal property and no further consultation required.
Region of Peel	Region of Peel active transportation team provided a summary of existing, ongoing and planned active transportation infrastructure in the area with the expectation the study will consider designs that align with these undergoing and planned projects. Existing active transportation infrastructure includes: - Paved shoulders along Main St. from Charleston Sideroad to Beechgrove Side Road	May 13, 2019	The Project team incorporated ongoing and planned active transportation infrastructure into the design to create a continuous, safe active transportation network throughout the Village.

	Road projects underway or planned which include active transportation infrastructure, including: - Shared route on Main St/Queen St E from Beechgrove to Railroad: under construction - Shared route/paved shoulder on Queen St E from Railroad to 1 km east: under construction - Paved shoulder on Queen St E/Porterfield Rd from 1.4km S. of Highpoint Rd to Orangeville Caledon Townline: planned for 2023-2031 with resurfacing		
	A meeting with Peel Region's Source Water Protection representatives regarding source water protection requirements was held. Peel Region provided preliminary information related to source water protection zone in study area.	November 6, 2019	Hydrogeological assessment to be undertaken during detailed design, and groundwater monitoring to occur during construction to ensure no impacts to the quality of quantity of source water occur within the wellhead protection zone.
	Region of Peel followed up with written direction with regards to source water protection requirements in the study area including: - The project study area is situated in the Credit Valley Source Protection Area within the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Protection Region and is therefore subject to the CTC Source Protection Plan. - The study area also transects other vulnerable areas defined under the *Clean Water Act, 2006* designated as *highly vulnerable aquifers* and *significant groundwater recharge areas*. Within these vulnerable areas, policies that apply are SAL 10-12, DNAP-3 and OS-3. These policies	November 19, 2019	Project Team incorporated the Region of Peel's Source Water Protection as documented under the Source Water Protection Section in the Environmental Study Report. See Section 7.1.5 identifying the project team's consideration of Source Water Protection in the study. The Draft Environmental Study Report was provided to the Region of Peel for their review and

address road salt, dense non-aqueous phase liquids and organic solvents that are moderate and low threats to drinking water sources and encourage best management practices for handling, storage and application. - Proponents undertaking a Municipal Class EA project must identify whether a project is occurring within a source water protection vulnerable area and should document whether any project activities are a prescribed drinking water threat and thus have the potential to adversely affect the quality or quantity of drinking water sources (Ontario Regulation 287/07 under the *Clean Water Act* lists the 'prescribed' drinking water threats). This must be clearly documented in a section on "Source Water Protection" in the project file report or environmental study report. Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. - While road construction is not considered a prescribed drinking water threat under O. Reg. 287/07 under the *Clean Water Act, 2006*; construction activities relevant to completing the proposed project should be assessed for potential adverse impacts/drinking water threats and policy applicability (significant, moderate and low) contained in the CTC Source Protection Plan. The proponent should ensure mitigation measures are put in place to protect the		comment prior to the filing of the final report.

municipal water supply, as appropriate to the scope/stages of the project. Provided an explanation of the Source Protection and Clean Water Act. The project intersects WHPAs B, C, D and E but the project is considered a low impact project for groundwater, therefore the following will be required: - A hydrogeological investigation with the analysis of the dewatering required for the entire project (If necessary) and the potential implications to the aquifer's sustainability. In summary, the Region wants to make sure that water supply is not impacted by the project. - A water well survey has to be made within the 500 meters area for obtaining background information to any private wells. This will assist the Region in case of any well complaint during construction. - A monitoring and contingency plan for any well complaint needs to be provided as well. The Region follows an internal well interference protocol on these cases, so it can be mentioned in the report. Finally, and once the design is completed, we will need to know if the project requires the removal of any existing monitoring location for our groundwater network. If so, we will discuss with the Region's project manager the best action plan to resolve this.		
Roads Design and Construction, and Water and Wastewater Region of Peel staff provided input on the preliminary recommended design presented during PIC #2. Comments received from Region of Peel staff	October 15, 2020	The Project Team scheduled a meeting with Region Water and Wastewater staff to confirm commitments as they relate to

focused on coordination between the ongoing improvements being completed along the Regionally owned portions of Main Street and Queen Street and included: - We would like to request the water main information be added to the plan drawings; - Discuss of the protection and potential relocation of the watermain in some areas; and - Cost sharing for movement mitigation/protection of the water assets within the study area.		Regional infrastructure in the study area as described below.
Region Water and Wastewater staff provided additional comments on the preliminary recommended design concepts presented during PIC #2 including: - For operation and maintenance (as well as future replacement), the Region would need at least a 1m horizontal separation between the closest part of the guardrail (the guardrail not the foundation) and the watermain – which will put some of the proposed sections of guardrail in conflict. - The Region would like the Town to organize sign-off from a Geotechnical Engineer for an acceptable separation distance for the watermain to street lighting foundation. Given the soil composition in the street lighting locations, what distance would ensure that a watermain break will not undermine the lighting foundation and potentially cause the light to fall into the roadway.	November 9, 2020	The Project Team committed to confirmation by a geotechnical engineer that the soil type is adequate to accommodate potential water main breaks and that required infrastructure setbacks are implemented into the design as requested by Region of Peel. The Draft Environmental Study Report was provided to the Region of Peel Staff for their review and comment prior to the filing of the final report.

- The Region would additionally like the Geotech Engineer to verify the soil quality and separation to the watermain is adequate in the vicinity of the storm sewer being constructed near station 9 + 760 (where the storm is approximately 2.5 m lower than the watermain). The Region recognizes that the separation distance is adequate now if the soil is Type 3 or better. If the soil is Type 4, what is the required separation so that the watermain will not be undermined during construction. - The Region would like to confirm the method used to verify the location of the existing watermain. - The Region does not have any of the recently installed plastic pipe watermain scheduled for repair/replacement, and as such assumes the project will cover the costs of watermain relocation. Perhaps we should discuss where it might be possible to move the guardrail and lighting back if that is feasible (without compromising road safety requirements for instance) and cost effective.		
In review of the Draft ESR Region Roads Design and Construction staff CVC provided the following comments / questions: - Region of Peel recommends using the same stone pattern for the Main Street Bridge formliner rehabilitation, as the Region used in their reconstruction of Main Street due to close proximity of the two structures.	May 18, 2021	The need to add a sidewalk on the west side of the bridge is being considered incoordination with the sidewalk layout in the preferred alternative. No sidewalk is currently being recommended north of the Shaw's Creek Bridge on the west side of Main Street.

	- Region of Peel Queen Street reconstruction did not use wood surface benches due to maintenance and potential vandalism. - Provided recommendations regarding sewer configuration. - Inquired about the use of median splitter islands as traffic calming measures. - Have you considered to provide a pedestrian crosswalk at Queen St W and Amelia St: connect the South side sidewalk with N/W corner sidewalk at the bridge? - Requested that 1.8-meter-wide sidewalks are installed where possible. - Recommended additional on-street parking on Queen Street West between Main Street and Amelia Street.		Median splitter islands were not recommended as traffic calming measures, as additional property from private landowners would be required to implement these traffic calming features. Installation of a new pedestrian crosswalk at this location was considered, however there are no plans at this time to include a crosswalk at this location in the preferred alternative. There are no plans at this time to increase the sidewalk width to 1.8 meters due to property impacts that would result from an increased sidewalk width. The recommended 1.5-meter sidewalk width provided meets all applicable standards, including the Access for Ontarians with Disabilities Act. The project team explored providing additional parking along Queen Street between Main Street and Amelia Street, however as there is not enough space within the existing right of way to provide additional parking in this area without the acquisition of land from private land owners, no additional parking in this area was recommended. Further consideration to the detailed suggestions made by Region staff

			including bench materials, bridge formliner materials, and detailed sewer configuration, should be given during Detailed Design, through consultation with the Region of Peel.
Ministry of the Environmental, Conservation and Parks (MECP)	General information provided on the Class EA process, MECP technical review issues and Aboriginal consultation. - Identified the following potentially affected Aboriginal communities to be consulted: o Six Nations of the Grand River; o Mississaugas of the Credit First Nation; o Haudenosaunee Confederacy Chiefs Council; and o Huron-Wendat Nation (if there is potential to impact archaeological resources). - Requested the following information o Draft copy of the Environmental Study Report (ESR) prior to filing of the final report, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments o Notice of Completion o Final ESR	May 15, 2019	The project team incorporated the input into the study as required. The project team initiated consultation with all the Aboriginal communities identified by MECP. Notice of consultations and other materials were provided to MECP throughout the study. Draft ESR sent to the MECP office prior to the filing of the final report as requested.
	MECP requested that the project team add a brief section on applicable policies in the Provincial Policy Statement (2020) and how the project conforms with those policies in the ESR.	May 17, 2021	Project team added a brief section on applicable policies in the Provincial Policy Statement (2020) and how the project conforms with

	MECP stated that they have no technical concerns with the Draft ESR.		those policies in the ESR, as requested. Notice of Completion and final ESR to be forwarded to MECP.
Credit Valley Conservation Authority (CVC)	CVC provided preliminary comments on the EA as described below. Study area is traversed by Shaw's Creek and its valley corridor including its associated flooding and erosion hazards. - Study area is located within a Wetland. - A portion of the subject property is located within the Credit River Watershed Natural Heritage System (CRWNHS). - Portions of the property have been designated by the Town of Caledon as Environmental Policy Area (EPA). - The entire property falls within the Protected Countryside of the Greenbelt Plan Area and is entirely designated as part of its Natural Heritage System. - The subject property may contain or provide habitat for a known Species-at-Risk. - The watercourse that traverses the subject property is a cold—water stream. Due to the nature of the watercourse and its potential importance to fish habitat, CVC may require setbacks from the watercourse for new construction or lot grading. - The subject property may be subject to the Approved Source Protection Plan: CTC Source Protection Region.	May 17, 2019	The project team included the impacts to the natural environmental features identified by the CVC in the assessment of the alternatives, and identified mitigation and monitoring for the construction of the preferred design to reduce impacts to these resources. Scheduled meeting with Peel Region's Source Water Protection representatives regarding source water protection requirements. The project team provided the CVC with the draft Stormwater Management Report and recommended design for review and comment on November 12, 2020, and the draft environmental impact assessment report on December 14, 2020 prior to finalizing each report.

The project team met with CVC to discuss the draft Stormwater Management Report and the preliminary recommended design. Outcomes of this meeting included: - CVC requested that the project team provide a description of any potential impacts to flows into the Wetland on Margaret Street arising from the proposed design for Main Street in the preferred alternative design. - CVC requested to review the draft natural heritage report.	December 11, 2020	RVA provided the CVC with the draft environmental impact assessment report on December 14, 2020 and a technical memorandum that describes the impacts to flows into the Wetland on Margaret Street arising from the proposed design for Main Street in the preferred alternative design on January 18, 2021.
In review of the Draft Natural Heritage Report the CVC provided the following comments: • The natural heritage report should provide a discussion of the impacts this infrastructure will have on Shaw's Creek including impacts to its bed, banks and riparian areas and discuss how impacts will be mitigated. • The report should further investigate the potential impacts the projects will have on Significant Wildlife Habitat features and propose mitigation • During detailed design grading limits should be reduced adjacent to natural features wherever feasible. • Commitments should be made to develop a satisfactory restoration and compensation plan that demonstrates an ecological gain during detailed design. • Due to the presence and potential for Species at Risk to occur within the project area it is	January 19, 2021	The Natural Heritage Report was updated to address the CVC comments, prior to finalizing. Future commitments during detailed design related to limiting grading limits wherever feasible and developing a satisfactory restoration and compensation plan that demonstrates an ecological gain included in detailed design commitments. The Draft Environmental Study Report was provided to the CVC for their review and comment prior to the filing of the final report.

	recommended that the proponent should contact the Ministry of Environment Conservation and Parks (sarontario@ontario.ca) to discuss potential permitting requirements under the Endangered Species Act • The Natural Heritage report indicates no trees were inventoried that have potential to provide suitable habitat for bats. Please provide details on the protocol methodology used to make this determination including the dates of the surveys completed.		
	CVC provided multiple iterations of comments on the draft ESR, and SWM report, and worked with RVA, including at a meeting in July 2021 to address them.	May through July 2021	The Draft Stormwater Management Report was updated to address the staff to address them. June 2021 CVC comments, prior to finalizing.
Conseil de la Nation Huronne-Wendat (CNHW)	Confirmed receipt of the Notice of Commencement and inquired whether any archaeological assessments are anticipated to be completed as part of the study.	May 22, 2019	Informed the community representative that a Stage 1 Archaeological Assessment will be completed as part of the study.
	Requested to receive the Stage 1 Archaeological Assessment report once completed.	June 6, 2019	The project team provided the draft Stage 1 Archaeological Assessment prior to finalizing the report.
	We are comfortable with the report and content. The Huron-Wendat Nation asks to be updated on the Stage 2 results too.	August 28, 2019	CNHW to be provided Stage 2 Archaeological Assessment results as required during the detailed design phase of the study. The Draft Environmental Study Report was provided to the CNHW for their review and comment prior to the filing of the final report.

	Is it possible for us to send a monitor on site for stage 2 archaeology?	April 8, 2021	CHNW to be notified prior to any fieldwork associated with the Stage 2 Archaeological Assessment to be undertaken in the subsequent detailed design phase of the study.
Hydro One Networks Inc.	Hydro One confirms there are no existing Hydro One transmission or distribution assets in the subject area. No further consultation with Hydro One is required.	June 14, 2019	No action required.
Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) *Formerly the MTCS*	MTCS provided a preliminary review of the study are stating that: - To date, no properties have been designated by the Minister. - At this time, there are no provincial heritage properties in the Town of Caledon. MTCS requested any technical cultural heritage studies (e.g. Cultural Heritage Assessment Report, Cultural Heritage Evaluation Report, Heritage Impact Assessment) be sent to the Ministry.	July 8, 2019	The project team reviewed the need for assessments. A Stage 1 Archaeological Assessment and a Cultural Heritage Evaluation were completed as part of the study and the reports were submitted to MTCS for review.
	The Stage 1 Archaeological Assessment Report submitted to this ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18, has been entered into the Ontario Public Register of Archaeological Reports without technical review.	March 5, 2020	Final Stage 1 Archaeological Assessment distributed to the MHSTCI for entry into the Ontario Public Register of Archaeological Reports.
	The MHSTCI provided a letter outlining proponent requirements as they relate to potential impacts on cultural heritage and archaeological resources. MHSTCI requested the project team to advise whether any technical cultural heritage studies will	September 9, 2020	The project team distributed the draft Cultural Heritage Evaluation Report and Impact Assessment to the MHSTCI prior to finalization, in

	be completed for this EA project, and to provide them to MHSTCI before issuing a Notice of Completion or commencing any work on the site.		order to incorporate any comments they may have.
	The MHSTCI provided comments on the draft Cultural Heritage Evaluation Report and Impact Assessment.	November 11, 2020	Comments from MHSTCI were integrated into the finalized Cultural Heritage Evaluation Report and Impact Assessment. The Draft Environmental Study Report was provided to the MHSTCI for their review and comment prior to the filing of the final report.
	The MHSTCI provided their comments on the Draft ESR regarding the terminology used in the draft report with respect to cultural heritage. No additional comments regarding the content included in the cultural heritage or archaeological documentation was received.	April 14, 2021	Comments from MHSTCI were integrated into the finalized ESR.
Enbridge Gas	Enbridge provided markup drawings and documents for the study.	August 26, 2020	The project team considered the locations of Enbridge infrastructure during design.
Mississaugas of the Credit First Nation (MCFN)	MCFN would like to receive copies of all reports completed in association with the Class EA study, including those you have listed. MCFN requested that its Field Liaison Representative (FLR) is on site whenever any environmental or archaeological fieldwork occurs.	September 5, 2019	A FLR from MCFN was present for the vegetation inventory completed as part of the study. The Draft Environmental Study Report was provided to the MCFN for their review and comment prior to the filing of the final report. MCFN to be notified prior to any fieldwork associated with the Stage

			2 Archaeological Assessment to be undertaken in the subsequent detailed design phase of the study.
Rogers Cable	Rogers Cale provided markup drawings and documents for the study including locations of Rogers Communications underground and aerial plant in the project area, including fiber optic cable,	September 9, 2020	The project team considered the locations of Enbridge infrastructure during design.

9.2 Key Stakeholders and Interest Groups

Various interest groups were informed of the EA study, as well as the Public Information Centres via direct electronic mailings or regular mailing. A complete list of stakeholders who were contacted is provided in **Appendix 1**.

During the course of the EA study, individual meetings were held with interest groups and stakeholders during the study, including the Alton Village Association, Alton Millpond Association, Community Stakeholder Group and an individual resident. Table 9.2 summarizes the correspondence and meetings with key stakeholder and interest groups, as well as how this consultation was implemented into the study and recommendations.

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Table 9.2 – Key Stakeholders and Interest Groups Comments

INTEREST GROUP	DECRIPTION OF GROUP / COMMENT SUMMARY	DATE RECEIVED / DATE OF MEETING	CONSIDERATION OF COMMENTS IN EA
Seaton Group	Seaton Group, a local developer and land-owner, including the owners of the Alton Mill Arts Centre, informed the project team of two projects they are involved in in Alton that may affect/be affected by the EA, to allow for project coordination: - Alton Millpond Project, identifying pedestrian connection to/ from Queen Street into the pond area as a key area of coordination between the project. - Seaton Group owns a 10-acre vacant parcel fronting onto Agnes St. just south of Queen St. which may be developed for residential use Further input from Seaton Group was provided through their collaboration with the AMA under the Alton Development Inc. as described below.	August 9, 2019	The project team met with AVA to ensure coordination with the Alton Millpond Rehabilitation Project. Pedestrian crossing to connect with the proposed Alton Millpond trail system was considered as described below, but ultimately not recommended to be included as part of this EA. Drainage improvements were developed in consideration of the future developments on Seaton Group owned lands adjacent to the study area.
Alton Millpond Association (AMA)	In 2016 the Alton Millpond Association was incorporated as an independent non-profit organization governed by a 10-person volunteer board, which has taken over carriage of the Alton Millpond Rehabilitation project. The project team attended a coordination meeting with AMA representatives to allow the AMA to provide input into and request information about the study. Input received from the AMA include: - emphasized importance of providing parking in the Village - requested that Queen Street improvements compliment the AMA plans for the Alton Millpond - requested that streetscape features maintain the character of the village	November 18, 2019	The project team was able to incorporate the comments received from Alton Millpond including: - Ensuring that the recommended improvements to Queen Street West were made in consideration for potential future development of Alton Millpond. - Implementing streetscape features that maintain the cultural heritage of the Village - Providing additional parking in the study area to help accommodate the expected increase of visitors to the Alton Millpond
Alton Development Inc. (ADI)	Consisting of the Seaton Group and the Alton Millpond Association, the Alton Development Inc. (ADI) is a collaboration agreement to facilitate the Alton Millpond rehabilitation project. The ADI provided comments on the preliminary design concepts presented during PIC #2 as they relate to Queen Street West along the frontage of the millpond including requests that the project team amend the recommended design concept to: - Provide layby parking in front of the millpond - Provision of two pedestrian crossings at the points shown on the millpond project plans to connect with a planned sidewalk and/or trail along the north side of the millpond - Amend curb standard to mountable curbs using the narrowest possible gutter standard (eg. OPSD 600.100)	October 02, 2020	The project team met with ADI to further discuss the preliminary recommended design as it relates to the Alton Millpond Rehabilitation Project (details below)
	The project team attended a meeting with ADI representatives to discuss the preliminary recommended design as it relates to the Alton Millpond rehabilitation Project, specifically along Queen Street West in the area fronting the millpond. Inputs from the ADI included: - ADI requested additional layby parking on Queen Street to accommodate - ADI requested Pedestrian Crossings to connect with ADI's proposed pedestrian bridge/trail system - ADI requested the provision of a pedestrian sidewalk or trail along the north side of Queen Street to connect proposed rest area and future trail connection - ADI requested an amendment to the recommended curb standard to mountable curbs Following the meeting, the ADI provided additional engineering design drawings and landscape plans for the Alton Millpond Rehabilitation Project to better allow the project team to coordinate the recommended design with this project.	October 16, 2020	Following the meeting with the ADI, the Project Team incorporated the comments into the updated recommended design as follows: - 3 additional parking spaces were added north of Mary Street - The project team evaluated the inclusion of a pedestrian crossing and sidewalk along the north side of Queen Street to connect to the proposed trail system at the Alton Millpond. At present, there is not enough information to confirm that the ultimate condition of this development would require the requested crosswalks, therefore the noted pedestrian crossings have not been identified in the preliminary design. Following completion of the EA and prior to construction, a request may be made to the Town to amend the design to include the noted infrastructure, following finalization of the bridge/trail

			system and securement of the necessary approvals. - The project team evaluated the feasibility of amending the recommended curb standard to mountable curbs using the narrowest possible gutter standard (eg. OPSD 600.100). it was concluded that the recommended barrier curbs would provide additional safety for pedestrians and will be more effective in discouraging parking in areas where parking isn't available. A letter was issued to the ADI by the Project Team on January 15, 2021, summarizing the responses to the ADI's requests.
Alton Village Association (AVA)	The Alton Village Association is an incorporated body of Alton residents working collectively to protect and enhance the quality of life, the environment. The project team attended a meeting with AVA representatives to discuss the alternative and recommended designs being developed. Inputs from the AVA from this meeting included: - Drainage improvements and impacts of development in the village on drainage primary concern. - Requested Town schedule meeting with individual resident to provide more detail on drainage issues. - AVA expressed concern regarding potential impacts to trees - AVA reviewed that pedestrian and cycling amenities being considered, posing no objections providing they did not significantly impact adjacent properties. - AVA suggested reducing the impacts of additional lighting to residents. - Suggested that the pond is an ideal location to include pedestrian/rest area amenities. - Requested the Town to continue with the Region's impressed concrete, as opposed to asphalt for sidewalks.	January 22, 2020	- Several stormwater management improvements included in design as described in Section 5.4.3 - Meeting scheduled with individual resident as requested by AVA - Natural heritage environmental report was circulated to AVA. Design evaluation included impacts to established trees. A tree replanting plan will be completed during detailed design in accordance with CVC standards. - All pedestrian and cyclist amenities considered in light of property constraints to minimize property impacts - Impressed concrete sidewalks were considered but eventually replaced with grassed boulevards throughout (requested by AVA later in the project).
	The president of the AVA, Mary Cooney, notified the Project Team that after discussions at an AVA meeting, the AVA would like to encourage the planting of trees along Main Street North, and Queen Street West in order to enhance the environment and the character of the Village where possible, identifying the Village Square as a potential area for additional plantings.	September 22, 2020	- The project team notified Mary that the location of tree plantings and other streetscape modifications are generally identified / confirmed during the subsequent detailed design phase of the project, but that the need for additional trees along the corridor in keeping with the character of the area is noted. - The project team offered to meet with AVA to further discuss the preliminary recommended design (details below)
	The Project Team met with members of the AVA/ Community Stakeholder Group to discuss the preliminary recommended design as presented during PIC #2. Inputs from the AVA include: • Pedestrian and cyclist safety along the "S-Curve" on Main Street, south of Highpoint Road is a concern, and AVA would like pedestrian access in this section of road. • Additional parking spaces were requested on Main Street, north of Mary. • Meeting attendees stated their preference for sod boulevards as opposed to the impressed concrete boulevards included in the preliminary study recommendations. • Meeting attendees stated their preference for lower level and softer lighting, compared to the current lighting on Queen Street East.	October 15, 2020	AVA's comments were incorporated into the updated recommended design as follows: - The Project Team evaluated the impacts of accommodating pedestrians through the curve and determined that accommodation was feasible in the form of paved shoulders. Paved shoulders were included in the updated recommended design concept. - The project team reviewed the plans and added 3 additional parking spaces in the area of north of Mary Street - The project team substituted grassed boulevards in place of the previously recommended impressed concrete in the final recommended design concept.

			- Lighting levels could be decreased by approx..33% since Queen West is a collector road requiring lower levels. Further consultation with the AVA to be completed during detailed design regarding details of street and pedestrian lighting details including light locations levels. - The project team will work with stakeholders and a landscape architect in developing plantings during detailed design. A letter was issued to the AVA by the Project Team on January 15, 2021, summarizing the responses to the AVA's requests.
	Email request from AVA for a communication board installed at the village square, within the road allowance, for village updates, event plans etc. Additional request to include Sally Drummond (Heritage Resource Officer).	November 17, 2020	Provision for a communication board and other streetscaping opportunities to improve the public realm of the Village core to be considered during detailed design.
	In response to the letter provided to the Alton stakeholder group following January 15, 2021, the AVA provided the following comments: • Paved Shoulder on S Curve. We support the recommendation to add a 1.5 meter widened paved shoulder to accommodate pedestrian and cyclist traffic around the "S-Curve" located on Main Street North, south of Highpoint Sideroad. • Sod Boulevards. We support the recommendation to have sod boulevards throughout the Village core. • More Parking Spaces. We support the recommendation for three new lay-by parking spaces on Main St. just north of Mary Street. • Lighting is an important outstanding issue. There is a need for a plan to address a number of lighting details, for example - lower light levels, light shields, fewer light fixtures/poles. Arriving at a suitable plan clearly requires more detailed work and communication by the Town with the Village. Would you please send us the locations and the lighting specifications for the "indicative recent street lighting installation" – Cheltenham and Mayfield West (referred to in your documents). We would like to thank you, Ian, and David O'Sullivan at R.V. Anderson Associates, for all your work and strong engagement with the Alton community in this important project.	February 3, 2021	Further consultation with the AVA to be completed during detailed design regarding details of street and pedestrian lighting details including light locations levels.
MHBC Planning Urban Design & Landscape Architecture (on behalf of Town of Caledon Community Services)	MHBC Planning Urban Design & Landscape Architecture, the firm completing the ongoing Alton Heritage Conservation District Study, provided a letter on behalf of the Town of Caledon Community Services to provide input on the study as it relates to cultural heritage resources. The MHBC made the following observations / recommendations: • Streetscaping enhancements along Queen Street East and Main Street South standard design for heritage areas diminishes the unique heritage character of the community. • Consider the use of tailor-made design solutions which are unique to Alton and would not be found anywhere else in the Province. These designs should appreciate the existing scale, character and history of Alton. This includes consideration in the design of bridges, light standards, curbs, etc. The MHBC identified several existing heritage features within the study area along the right-of-way (within close proximity of the road) located on both public and private land which should be retained wherever possible including hedges, fences, retaining walls, trees, stone stairs, and others which are characteristic of their own time (i.e. date of construction) and setting.	September 17, 2020	Cultural Heritage Resource Assessment and Impact Assessment was revised to include recommendations in response to the MHBC memo, including specific streetscape attributes referenced in the memo to be reviewed and incorporated into the recommended design where appropriate. Additional streetscape elements will be confirmed for implementation during the detailed design phase of the study.

9.3 Public Information Centres

Two Public Information Centres were held throughout the EA study, during Phase 2 and 3 of the MCEA process. The format of the first Public Information Centre (PIC) was an informal “Open House” with materials pertaining to the study on display for the public to review, while the second PIC was made available online, with no in-person public gathering held due to COVID-19. Several members of the project team were available to discuss the project with attendees and to answer questions.

All members of the public were encouraged to provide comments and feedback on the material presented and the study in general. Comment forms were provided for attendees to complete. Attendees were also encouraged to submit additional comments by email of mail, in addition to an online survey published for the second PIC. A summary of comments is included in **Appendix 1**. Comments were reviewed by the project team and incorporated in the evaluation of alternative solutions and design concepts.

9.3.1 Public Information Centre #1

The first Public Information Centre (PIC) was held on August 8, 2019 at the Caledon Public Library, Alton Branch from 6:00pm to 8:00pm. The purpose of the first PIC was to present preliminary information on the project and to receive input from the public on the key issues and constraints within the study area. The display boards prepared for PIC #1 are included in **Appendix 1**.

Based on the sign-in sheet, there were 72 attendees. Comments on various topics were provided and the following trends were found among the comments received:

1. Any recommendation or alternatives need to retain the existing country character and protect properties with heritage significance.
2. Excessive vehicle speeding is a safety issue that needs to be addressed.
3. Little support for additional parking within the village.
4. Sidewalks on one side of the road is adequate, additional sidewalks are not needed in the village.
5. Cycling amenities are desirable for safety reasons, but only if they will not impact properties or encourage speeding.
6. Excessive ponding and running water during spring melt and wet weather throughout the area.
7. Concern over the potential removal of tress from the Pinnacle area and its affect on drainage.

8. Need for increased coordination studies.
9. Preference for a larger venue (the school) and a formal presentation for the second PIC.

A detailed summary of comments received regarding the material presented in PIC #1, and how these comments were incorporated into the study is presented in the table below.

Table 9.3 - PIC #1 Comments

TOPIC OF COMMENT RECEIVED	COMMENT SUMMARY	CONSIDERATION OF COMMENTS IN CLASS EA
Retaining the Cultural Heritage of the Town	- Residents made clear that any recommended improvements to the roadway should retain and compliment the existing rural heritage of the Village.	Non-intrusive streetscaping enhancements were incorporated into the recommended design to ensure that the cultural heritage of the Village is retained and complimented by study recommendations.
Reducing Speeding along the corridor	- Several residents stated significant concerns related to speeding within the study area, including concerns for safety of all road users. - Residents stated that the existing speed humps in the core are effective in those areas only, and that the speed of vehicles rapidly increases after these humps. - Request made that a comprehensive traffic study be undertaken to address speeding.	Following the first PIC, a spot speed study was undertaken to confirm the resident's concerns related to speeding vehicles within the study area. The spot speed study confirmed low compliance with the posted speed limits within the rural portions of the study area. Several additional traffic calming measures were incorporated into the recommended design to address residents concerns with vehicle speeding including: • Median/splitter islands at Main Street north of Mary Street • Additional warning signage • Urbanized cross section along the rural portion of Main Street These additional traffic calming measures are anticipated to reduce vehicle travel speeds closer to the Village area.
Sidewalks	- Many residents stated a strong preference for	The recommended design retains sidewalk on only one side of the

TOPIC OF COMMENT RECEIVED	COMMENT SUMMARY	CONSIDERATION OF COMMENTS IN CLASS EA
	sidewalks remaining on one side of the street only, in order to reduce property requirements. - A need for improved accessibility and repair of existing sidewalks was identified by residents.	road but makes significant improvements to the existing sidewalks. While sidewalks will remain on one side of the road, the improvements to the sidewalk will provide increased accessibility and pedestrian connectivity throughout the village.
Cyclist Amenities	- Residents expressed that while there is a desire to improve the safety of cyclists throughout the Village core, limiting property impacts were a higher priority.	The recommended design took into account the protection of cyclists and limiting property impacts. A 1.5-meter paved shoulder where property constraints allow (Main Street north of Mary and through the s-bend will help to improve cycling amenities in the study area while minimizing property impacts.
Roadway Drainage and Stormwater Management	- Roadway drainage and stormwater management improvements were identified as the top priority for residents in attendance of PIC 1. - Strong support for improved stormwater management facilities were expressed. - Several comments were received expressing concern over current stormwater management, and a need for improvement. - Residents stated continual issues of ponding water and flooding on their properties throughout the study area. - Concern related to quality of water draining into Shaws Creek, and the	A review of the existing stormwater management (SWM) was undertaken, and several improvements to stormwater management were incorporated into the design including: • New storm sewers along Main Street to divert road runoff from areas of recent flooding • Larger culverts to replace undersized culverts on Main Street • Extension of existing storm sewer on Queen Street Low Impact Development (LID) Features were also incorporated into the recommended design to supplement the improved SWM infrastructure including: • Oil Grit Separators (OGS) provided to treat road runoff • Enhance Grass Swales to provide runoff quality control

TOPIC OF COMMENT RECEIVED	COMMENT SUMMARY	CONSIDERATION OF COMMENTS IN CLASS EA
	impacts of climate change.	for the rural sections of Main Street • Catch Basin Shields installed in each catch basin and ditch inlet These improvements are anticipated to reduce the ponding of rain and meltwater at low points referenced by residents.
Natural Environment	- Desire to retain the natural areas adjacent to the study area. - Protection of wildlife, including the aquatic habitat of Shaws Creek should be incorporated into the study	Detailed inventory of the natural environment were undertaken. Impacts to the natural environment were considered in the evaluation of alternatives and alternative designs. Specific mitigation measures to reduce any temporary impacts of construction were developed
Parking	- Residents expressed that additional roadside parking within the Village core in proximity to the Queen Street and Main Street intersection and local business was not desired. - Requests to limit on-street parking to one side of the road, as well as to limit the timing of any additional parking.	The recommended design provides additional layby parking only on the east side of Main Street between Queen Street and Mary Street. This will not allow additional vehicles to park on the road around the Main Street and Queen Street intersections, but still allow for limited short-term parking in the vicinity of the core to allow improved access to local businesses
Format of PIC	- Residents expressed the desire for a larger venue for PIC 2. - Desire for a presentation of materials in addition to the open house format for PIC 2.	The second PIC was scheduled to be moved to a larger venue, prior to the Covd-19 outbreak which restricted in-person consultation.

9.3.2 Public Information Centre #2

Given the COVID-19 pandemic, associated restrictions on public gatherings, and in the interest of public health, all display materials for PIC #2 were available online, with no in-person public gathering held. Hard copies of all display material were provided to residents by request.

The second Public Information Centre (PIC) was held on the Town of Caledon's website between August 27, 2020 and October 16, 2020. The purpose of the second PIC was to share and receive input from the public and key technical agencies on the preliminary recommended design concepts developed to implement the preferred alternative solution. Materials made available for review and comment included PIC 2 Display Boards, a Frequently Asked Questions informational sheet, and an Online Survey/Comment Form. Additional information including preliminary roll plans, profiles, and typical cross sections for the study area were also available upon request. All materials made available for comment during PIC #2 are included in **Appendix 1**.

A total of 20 comments were received from the public. 6 residents submitted their comments to the project team via email, 8 responses to the online survey were received, 8 written comments received via mail, and one comment was received by phone.

Figure 9.1 Support for Recommended Design ConceptsFigure 9.1 summarizes the responses to Question 2, which asked participants whether they support the recommended design developed for the corridor.

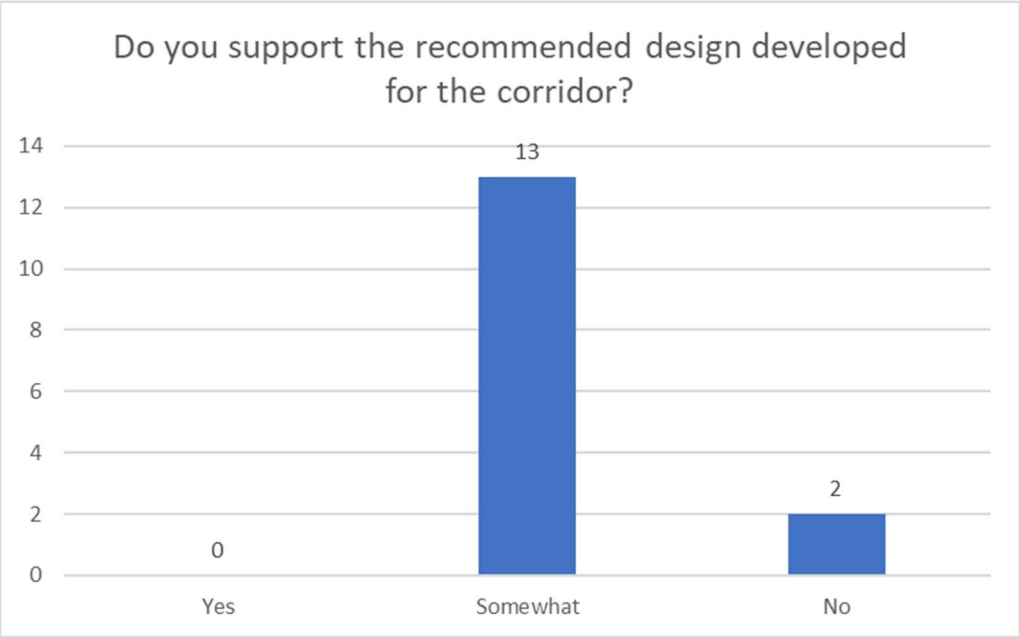

Figure 9.1 Support for Recommended Design Concepts

Responses to this question demonstrate that while residents generally support the recommended improvements, there are aspects of the recommended design concepts that they do not fully support, as described below. The comments received during the PIC are summarized in Table 9.4. Comments are organized by 5 key features of the preliminary recommended design concepts presented in PIC #2, in no particular order, including: Traffic Operation & Safety, Active Transportation (Pedestrian and Cycling), Main Street Bridge Rehabilitation, Streetscape Enhancements, and Roadway Drainage and Stormwater Management.

Table 9.4 – PIC #2 Comments

TOPIC OF COMMENT RECEIVED	COMMENT SUMMARY	CONSIDERATION OF COMMENTS IN CLASS EA
Traffic Operations, Parking & Safety	- There are considerable differences in opinion related to the need and level of parking required within the Village. - Multiple residents of Main Street North stated they are opposed to additional layby parking along Main Street North, stating that homes in this area have large driveways. - Residents remain concerned about vehicle speeding in the area and support additional traffic calming features including speed bumps.	The provision of additional parking along the corridor was a consideration in developing the preliminary design for the corridor. Existing property and other constraints do not allow for significantly more on-street parking spaces within the core village area, without significantly impacting adjacent properties. Details on the recommended traffic calming measures are provided in Section 6.1.4. Following the implementation of the preferred design, the Town will continue to monitor vehicle speeds and the effectiveness of the identified traffic calming measures.
Active Transportation (Pedestrian & Cycling)	- Wide support for improving pedestrian & cycling facilities in the study area - Support for recommendation of accessible sidewalk on one side of road only	Comments noted. See Section 6.2.6 for details on the recommended Active Transportation amenities.
Main Street Bridge Rehabilitation	- Support for required rehabilitation and addition of sidewalk on bridge.	Comments noted. See Section 6.3 for details on the bridge rehabilitation requirements.
Streetscape Enhancements	- Several residents expressed concern that the Regional streetscaping enhancements completed to date are largely	Project team incorporated sod boulevards as a replacement for the impressed concrete splashpads as requested.

TOPIC OF COMMENT RECEIVED	COMMENT SUMMARY	CONSIDERATION OF COMMENTS IN CLASS EA
	too urbanized, and do not reflect the cultural heritage of the Village. - Many residents stated their opposition to a large increase in streetlights, stating concerns over the number and intensity of streetlights on Main Street South / Queen Street East. - Residents of Main Street North are in opposition to benches, garbage cans etc. along Main Street.	Project team has committed to incorporating lower light levels (at least 33% lower) into the detailed design of Queen Street West, since Queen West is a collector road, requiring lower levels than the arterial road of Queen Street East. Light levels hue and pole locations, as well as mitigation measures to be determined during detailed design.
Roadway Drainage and Stormwater Management	- Wide support for drainage improvements in the study area	Comments noted. See Section 6.5.2 for details on roadway drainage and stormwater management recommendations

A summary of the comments received from Technical Agencies, Key Stakeholders and Interest Groups on the PIC #2 display materials are summarized in Sections 9.1 and 9.2.