# Chinguacousy Road Improvements Schedule 'C' Municipal Class Environmental Assessment

Environmental Study Report (ESR)



Prepared For:

NOVEMBER 2024

# Town of Caledon



CREATING QUALITY SOLUTIONS TOGETHER

# CHINGUACOUSY ROAD IMPROVEMENTS SCHEDULE 'C' MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

ENIVRONMENTAL STUDY REPORT (ESR)

NOVEMBER 2024

PROJECT NO. 120065

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# **Executive Summary**

# **Project Description**

The Town of Caledon retained Ainley Group to undertake a Municipal Class Environmental Assessment (Class EA) to identify and evaluate options for improvements to a 3 km segment of Chinguacousy Road from Mayfield Road to Old School Road. The study has been conducted in accordance with the planning and design process for a Schedule 'C' project as outlined in the MEA's "Municipal Class Environmental Assessment" (October 2000, as amended 2007, 2011 and 2015) as approved under the Ontario Environmental Assessment Act (OEAA).

# Consultation

Public consultation is a key component of the Class EA planning process. 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 and important dialogue. This consultation allows for the exchange of ideas and suggestions and the broadening of the information base, leading to better decision-making during the completion of the study. The Chinguacousy Road EA Municipal Class EA fulfilled the consultation objectives of the Municipal Class EA process through the completion of the following consultation activities:

- Online posting of information on the Town's website (Project website)
- Advertisement placement in the newspaper as postings for Issue of Notice of Study Commencement and Study Completion
- Direct mailings through registered mail where required
- Hardcopy letters to all landowners adjacent to project limits
- Email correspondence to all applicable stakeholders as per stakeholders' contact list
- Correspondence and consultation with Toronto & Region Conservation Authority (TRCA), Credit Valley Conservation (CVC), Region of Peel, City of Brampton, Ministry of the Environment, Conservation and Parks (MECP), Ministry of Tourism, Culture and Sport (MTCS)
- Correspondence with Indigenous communities via email and registered mail where required
- Facilitation of Technical Advisory Committee meetings (Total 2)
- Facilitation of Public Information Centres (Total 2)
- Additional stakeholders' meetings with the Region of Peel, Developers and the Town's internal stakeholders
- Placement of the Chinguacousy Road EA Municipal Class EA Environmental Study Report (ESR) on the public record;

# **Existing Conditions**

A number of background studies were completed for the study area to determine existing conditions and impacts and include the following;

- Review of Plans and Policies
- Review of completed Municipal Class Environmental Assessment studies within the vicinity of Chinguacousy Road EA project limits by others;
- Review of background studies such as Mayfield West Phase 2, Region of Peel Settlement Area Boundary Expansion (SABE), Town of Caledon Multi-Modal Transportation Master Plan, Town of Caledon Development Charges Background Study and Transportation Plan for Greater Golden Horseshoe
- Detailed Traffic Assessment
- Preliminary Geotechnical Investigation
- Natural Environmental Investigation
- Fluvial Geomorphological Investigation
- Preliminary Hydrogeological Investigation
- Stage 1 Archaeological Assessment
- Cultural & Built Heritage Investigation
- Air Quality Impact Assessment
- Drainage & Stormwater Assessment

# **Problem and Opportunity Statement**

Based on a review of the planning context and policy framework, existing conditions and corridor deficiencies, as well as planned development and associated impacts, the following Problem and Opportunity Statement was developed for this Study:

"Through the 2051 planning horizon, the Town of Caledon is forecasted to grow from a population of approximately 77,000 residents to approximately 300,000, with comparable growth in employment to 125,000 jobs. Much of this growth will be focused in the Settlement Area Boundary Expansion (SABE) in south Caledon. The Town of Caledon Multi-Modal Transportation Master Plan (MMTMP) further defines the transportation vision for the Town that by 2051, the Town will have a transportation system that provides accessible, affordable, safe, and sustainable travel choices for all, and is well-integrated, effective to use, promotes healthy lifestyles, and supports economic prosperity, livable communities and climate commitments. The MMTMP has identified the corridor of Chinguacousy Road from Mayfield Road to its northern limits as an area needing road network improvements. This corridor is part of SABE.

The existing transportation corridor does not support active transportation or provide multimodal transportation, limiting the ability of residents to connect to adjacent



neighborhoods or hubs. The improvements will provide an opportunity to increase road capacity and provide an efficient travel corridor that corresponds with forecasted growth and traffic demands. Creating multimodal transportation options as well as transit-oriented opportunities will support active transportation and the creation of complete communities."

#### **Alternative Solutions**

Various alternative solutions were considered, identified and assessed in order to accommodate the identified problems, opportunities and site constraints. These alternative solutions are high-level, planning options to address the problem/opportunity statement, and they include a "Do Nothing" scenario for comparison. The following alternative solutions were identified and considered as part of the Study:

Alt	ernative Solution	Description		
1	Do Nothing	The "Do-Nothing" alternative considers no improvements and/or modifications to the road corridor. This alternative does not address the problem/opportunity statement and is provided as a benchmark to gauge the potential impacts of the other options being considered.		
2	Limit Development	Limit the development of surrounding lands to only what has been approved or is in the approval process. This limitation would deny any future development of adjacent land along Chinguacousy Road.		
3	Improve Alternative Routes	Undertake improvements, including capacity addition to other corridors near Chinguacousy Road, to provide desirable alternative routes.		
4	Local Roadway/Intersection Improvements	Modify existing roadways and intersections locally to improve operations. Modifications may include adding traffic signals and timing optimization, adding through and turn lanes, resurfacing, and paving roadway shoulders.		
5	Capacity Enhancements	Increase capacity on Chinguacousy Road with the addition of vehicle lanes. This alternative would require widening of the current road right of way.		
6	Integrate Facilities for Alternate Travel Modes	Improve facilities for other modes of travel, such as walking, cycling, and transit, without adding traffic lanes.		

Based on the evaluation, stakeholders and public consultation, a combination of Alternatives 4, 5 and 6 was selected as the Preferred Solution. This includes making localized intersection improvements to optimize operations, increasing capacity on Chinguacousy Road with the addition of vehicular lanes, and improving facilities for other modes of travel such as walking, cycling, and transit. The preferred solution contains the following key elements:

- Adheres to planning policies and principles
- Meets future traffic growth and planned developments in the area;
- Provides safe multi-modal transportation options for all users; and



• Provides a balance between accommodating growth and impacts to the environment.

## **Alternative Design Concepts**

Phase 3 of the MCEA process includes the identification of alternative design concepts or ways in which to implement the Preferred Solution as selected at the close of Phase 2. The evaluation of the alternative design concepts is again completed based on how well they address the problem as well as their impact on the various environments. Three alternative design concepts were developed for the widening of Chinguacousy Road corridor, as described below.

**Widening Alternative Design Concept #1** - The first widening alternative design concept consists of the following cross-section elements, as depicted in Figure E1.

- 4 3.5 m travel lanes; two in each direction;
- A 5 m wide center median;
- 3.5 m wide boulevards on both sides of the road; and
- A 3.5 m multi-use path (MUP) on both sides of the road.

#### Figure E1 - Typical Cross-Section for Widening Alternative Design Concept #1



**Widening Alternative Design Concept #2 -** The second widening alternative design concept is similar to the first, with the exception of the active transportation facilities. Rather than a MUP, this option includes a separate sidewalk and cycle track facility, as shown in Figure E2.







**Widening Alternative Design Concept #3** - The third widening alternative design concept is again similar to the first, with the exception of the center median. In lieu of a center median, the boulevards have been widened, as shown in Figure E3.





As demonstrated in the Traffic Study Report, the needs of the corridor are directly impacted by the timing of the planned growth in the surrounding area. As a result, in developing alternative design concepts, consideration was given to dividing the Study Area into two sections:

 The southern section extends from Mayfield Road to the northern boundary of the Mayfield West Phase 2 (MW2) lands (i.e., north of Tim Manley Avenue).



• The northern section extends from the northern boundary of the MW2 lands to Old School Road, which is within the Highway 413 Focused Analysis Area (FAA).

Ultimately, both sections will be constructed using the Preferred Design cross-section. However, the southern section is anticipated to experience higher demand in a shorter time, and the Preferred Design is required by 2031. It is worth noting that widening and urbanization were warranted up to the limit of MW2, and given the limit of Highway 413 FAA and the interchange, MTO and the Town should coordinate and re-evaluate the need for any future improvement on the northern section as part of Highway 413 Detailed Design Stage. Therefore, the need for further improvement on the northern section is anticipated to lag behind and may not be required until 2041, depending on the timing of Highway 413 Detailed Design and construction process. As such, an interim solution could be implemented in the meantime. On this basis, two additional alternative design alternatives were developed:

**Rehabilitation Alternative Design Concept A** - Rehabilitation Alternative Design Concept A would maintain the existing two-lane corridor cross-section and would not incorporate any improvements for active transportation. Road resurfacing and minor ditch regrading/drainage improvements would be the key components of this alternative, as shown in Figure E4.



Figure E4 - Typical Cross-Section for Rehabilitation Alternative Design Concept A

**Rehabilitation Alternative Design Concept B** - Rehabilitation Alternative Design Concept B would include cross-section modifications to meet the Town's Development Charge Background Study recommendations for rural road improvement works. This alternative would include reconstruction of the road base to address pavement structure issues, correction of any crossfall issues, and a minor road widening to achieve a 1.5 m paved shoulder on both sides of the road. The addition of paved shoulders would improve roadside safety and could also be used by cyclists. Drainage improvements would also be incorporated. This alternative is illustrated in Figure E5.







## **Preferred Design**

The preferred design for Chinguacousy Road was chosen after consideration of transportation service for all road users (motorists, pedestrians, cyclists, and transit users) and impacts to the environment (built, natural, cultural, socio-economic, and cost). Based on the evaluation, stakeholder and public consultation, the following alternative design concept was selected:

- Widening Alternative Design Concept #1:
  - By 2031, for the southern section of Chinguacousy Road (from Mayfield Road to the northern boundary of the MW2 lands); and
  - By 2041 (or sooner, depending on the timing of Highway 413 Detailed Design and Construction Process) for the northern section of Chinguacousy Road (from the northern boundary of the MW2 lands to Old School Road). Given that the northern section is located within the Highway 413 FAA and the interchange, any further improvements should be reevaluated and coordinated with MTO as part of the Highway 413 Detailed Design stage.
- Rehabilitation Alternative Design Concept B:
  - As an interim solution for the northern section of Chinguacousy Road (from the northern boundary of the MW2 lands to Old School Road) until the widening is completed.

#### **Impacts & Mitigation**

Anticipated impacts to the natural, socio-economic, and cultural environments together with proposed mitigation measures were identified to address the implementation of the preferred design. Socio-economic analysis considers property impacts, development impacts and air quality. Natural environment impacts consider aquatic habitat and fisheries, vegetation and vegetation communities, wildlife and wildlife habitat, and contamination. Cultural impacts consider built heritage and cultural heritage landscape features, and archaeology. In general,



impacts associated with the proposed Chinguacousy Road improvements are minor in nature and can be mitigated.

#### **Implementation & Next Steps**

At this time, it is anticipated that detailed design will commence in 2025. Construction is anticipated to start after the detailed design is completed, pending funding and approval by the Council. The ESR identifies specific items to be reviewed and confirmed during detailed design which are described in detail in Section 11.0. Permits & Approvals must be obtained as part of future detail design work prior to project implementation and construction.



# 1 Introduction

# 1.1 Study Purpose

The Town of Caledon (the Town) retained Ainley Group to undertake a Municipal Class Environmental Assessment (MCEA) to identify and evaluate options for improvements to a 3 km segment of Chinguacousy Road from Mayfield Road to Old School Road, as illustrated in Figure 1-1 below.



## Figure 1-1: Project Study Area

#### 1.2 Municipal Class Environmental Assessment Process

All municipal infrastructure projects are subject to the Ontario Environmental Assessment Act (OEAA). The purpose of the OEAA is to provide for "...the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment." The environment is broadly defined and includes the built, natural, socio-economic, and cultural environments.

The MCEA document (October 2000, as amended in 2007, 2011 & 2015), published by the Municipal Engineers Association, outlines infrastructure projects' planning process in accordance with the OEAA. Projects are categorized into schedules, based upon their potential for impacts to the environment.



Due to its complexity and the potential for significant impacts, this study was conducted in accordance with the process identified for 'Schedule C' projects outlined in the MCEA document.

A Schedule 'C' project involves the completion of five phases as illustrated in Figure 1-2. The first four phases are completed through this study and are summarized below.

- Phase 1 Problem/Opportunity Definition;
- Phase 2 Identification and evaluation of alternative solutions to address the problem/ opportunity, with consideration of input and feedback received through public and stakeholder consultation. Phase 2 concludes with the selection of a Preferred Solution;
- Phase 3 Identification and evaluation of alternative design concepts/options to implement the Preferred Solution as selected at the close of Phase 2. Once again, consideration is given to input and feedback received through public and stakeholder consultation to arrive at a Preferred Design;
- Phase 4 Documentation of the MCEA process in the form of an Environmental Study Report (ESR) that is then made available for public and stakeholder review.

The last phase, Phase 5, is initiated following completion of the study. It involves proceeding with design and construction and includes monitoring for environmental impacts and mitigating measures.

## 1.3 Objective of this Environmental Study Report

The objective of this study is to document the Schedule 'C' MCEA planning process that has been completed. This report identifies the deficiencies affecting the subject study area; the problem/opportunity statement to be addressed; the alternative solutions considered; the evaluation of those alternative solutions to demonstrate the decision-making process leading to the selection of the preferred solution; and subsequently the preferred design. This report also describes the existing project environment, the potential for environmental impacts, and the mitigation strategy proposed. The consultation completed throughout this process is also included.



#### Figure 1-2: Municipal MCEA Planning and Design Process

MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA





### 1.4 Study Team

The project team involved in the completion of this study included the following:

#### Town of Caledon

- Arash Olia, Ph.D., P.Eng. Manager, Transportation Engineering
- Imran Salam, P.Eng., PTOE, PMP Project Manager

#### Ainley Group – Lead Consultant

- Nimit Mittal, M.Eng., P.Eng. Project Manager & Design Lead
- Steve Fournier, P.Eng. Senior Engineer & EA Lead
- Tammy Kalimootoo, P.Eng., PMP Quality Control Review

#### **Additional Consultants**

- Thurber Engineering Ltd. Geotechnical & Hydrogeological Investigation
- Tham Surveying Topographical Survey
- ASI Archaeological & Built Heritage
- Palmer Natural Environmental & Fluvial Geomorphological Investigation
- Urban X Level B SUE Investigation
- RWDI Air Quality Investigation
- RJ Burnside Transportation Assessment



# 2 Planning Policy and this MCEA

There are various land use planning policies, principles, and other guiding documents that provided input and context to this MCEA process. This section provides a brief description of these and demonstrates the consistency of this study in relation to provincial, regional, and municipal planning goals and objectives.

# 2.1 Provincial Framework

#### 2.1.1 Provincial Policy Statement (2020)

The *Provincial Policy Statement (2020)* provides policy direction relating to land use planning and development in Ontario. Section 3 of the *Planning Act* stipulates that all decisions affecting planning matters are to be consistent with the *Provincial Policy Statement (PPS)*. Policies applicable to this project include the following:

- Section 1.1.1e) "Healthy, liveable and safe communities are sustained by promoting the integration of land use planning, growth management, transit-supportive development, intensification and infrastructure planning to achieve cost-effective development patterns, optimization of transit investments, and standards to minimize land consumption and servicing costs."
- Section 1.1.3.1 "Settlement areas shall be the focus of growth and development."
- Section 1.2.1d) "A coordinated, integrated and comprehensive approach should be used when dealing with planning matters within municipalities, across lower, single and/or upper-tier municipal boundaries, and with other orders of government, agencies and boards including infrastructure, multimodal transportation systems, public service facilities and waste management systems."
- Section 1.5.1.a) "Healthy, active communities should be promoted by planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, foster social interaction and facilitate active transportation and community connectivity."
- Section 1.6.7.3 "As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries."
- Section 2.1.1 "Natural features and areas shall be protected for the long term."
- Section 2.1.6 "Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."
- Section 2.6.1 "Significant built heritage resource and significant cultural heritage landscapes shall be conserved."

As part of this MCEA process, consideration was given to the potential impacts to the built, natural, socio-economic, and cultural environments to select a preferred design. Various studies have been completed to obtain a better understanding of the existing conditions of the study area so that impacts could be properly assessed, and appropriate mitigation developed.



#### 2.1.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (GGH) builds on the PPS and plans for growth and development in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life. The Places to Grow Act, 2005 enables the development of regional growth plans that guide government investments and land use planning policies.

The Growth Plan guides decisions on transportation, infrastructure planning, land use planning, urban form, housing, natural heritage and resource protection in the interest of promoting economic prosperity.

Policies within the Growth Plan applicable to this project include the following:

Section 3.2.2 (2) "The transportation system within the GGH will be planned and managed to:

 a) provide connectivity among transportation modes for moving people and for moving goods;
 b) offer a balance of transportation choices that reduces reliance upon the automobile and promotes transit and active transportation;

*c)* be sustainable and reduce greenhouse gas emissions by encouraging the most financially and environmentally appropriate mode for trip making and supporting the use of zero- and low-emission vehicles;

d) offer multimodal access to jobs, housing, schools, cultural, and recreational opportunities, and goods and services;

e) accommodate agricultural vehicles and equipment, as appropriate; and f) provide for the safety of system users."

- Section 3.2.2 (3) "In the design, refurbishment, or reconstruction of the existing and planned street network, a complete streets approach will be adopted that ensures the needs and safety of all road users are considered and appropriately accommodated."
- Section 3.2.3 (4) "Municipalities will ensure that active transportation networks are comprehensive and integrated into transportation planning to provide:
   a) safe, comfortable travel for pedestrians, bicyclists, and other users of active transportation; and

*b)* continuous linkages between strategic growth areas, adjacent neighbourhoods, major trip generators, and transit stations, including dedicated lane space for bicyclists on the major street network, or other safe and convenient alternatives."

Municipal Class EA planning for improvements to the Chinguacousy Road corridor is consistent with the policy direction of the Growth Plan as it will support growth within the community, create efficient linkages, offer improved multi-modal transportation choices, including transit as well as active transportation (pedestrians and cyclists), and increase safety for users.

#### 2.1.3 The Greenbelt Act (2005) & The Greenbelt Plan (2017)

The Growth Plan provides the framework for where and how growth should occur in the Greater Golden Horseshoe. The Greenbelt Plan provides a parallel framework and identifies where growth should not occur for environmental management and to provide permanent protection to the agricultural land base and the ecological features and functions occurring on the landscape.



The Greenbelt Plan includes lands within, and builds upon, the ecological protections provided by the Niagara Escarpment Plan Area (NEP) and the Oak Ridges Moraine Conservation Plan (ORMCP).

Figure 2-1 shows the project study area in relation to the lands designated in the Greenbelt Plan. As can be seen, there is a small segment within the project study area that is designated as Protected Countryside.

While the lands are designated, it is noted that as per Policy 4.2.1.1 of the Greenbelt Plan:

"All existing, expanded or new infrastructure subject to and approved under...the Environmental Assessment Act...is permitted within the Protected Countryside, subject to the policies of this section and provided it meets one of the following two objectives:

a) It supports agriculture, recreation and tourism, Towns/Villages and Hamlets, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or

*b)* It serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the General Policies for the appropriate infrastructure connections among urban centres and between these centres and Ontario's borders."

Through the completion of this MCEA, the project satisfies Policy 4.2.1.1 (b). The potential impacts to the designated lands and mitigation measures were considered.



## Figure 2-1: Greenbelt Plan – Designated Protected Countryside Lands

Figure Source: Ontario Geo Hub (https://geohub.lio.gov.on.ca/)





## 2.1.4 Connecting the GGH: A Transportation Plan for Greater Golden Horseshoe (2022)

The Transportation Plan for the Greater Golden Horseshoe outlines the Ontario Government's vision to provide enhanced mobility within and across the region over the next 30 years. The Plan includes building new and faster route alternatives such as Highway 413, which is proposed to extend from Highway 400, between King Road and Kirby Road, to the 401/407 ETR interchange near Mississauga, Milton and Halton Hills. The alignment shown in Figure 2-2 is conceptual only; however, an interchange is planned at Chinguacousy Road south of Old School Road. The existing Chinguacousy Road alignment is shown in green colour.

## Figure 2-2: Preliminary Highway 413 Corridor

King Rd Vaughan Albior. eston Ro KirbyiR Bolton Weston Rd 0 Vaughan km Caledon Rutherford Rd 400 Ine Gore Ad 10 HWY 27 2 Steeles Ave HWYT (407) Jane St Mississauga Ro Ditie Ro -Islington Ave Sheppard Ave Brampton Wellington Rd 410 ontario St 409 Weston-Rd Ditie Ro ORONT 427 7 Georgetown QEW, 403 401 Lake Ontario SON CHURCHIII BING Highway 413 Project Route Planning Study Area HALT 407) Preferred Route

Figure Source: Highway 413 Project Page (https://www.highway413.ca/)

## 2.1.5 Considering Climate Change in the Environmental Assessment Process (2017)

The Ministry of Environment, Conservation, and Parks (MECP) document entitled "Considering Climate Change in the Environmental Assessment Process" (2017) provides guidance relating to the Ministry's expectations for considering climate change during the environmental assessment process. The document is now part of the Environmental Assessment Program's Guides and Codes of Practice. Each environmental assessment must consider how a project may impact climate change and how climate change may impact a project.

## 2.2 Regional Framework

#### 2.2.1 Region of Peel Official Plan (2022)

The Region of Peel Official Plan (OP) 2022 is a long-range policy and planning document that identifies objectives, strategies, and guidelines to ensure the growth management and sustainability objectives for complete communities are achieved. The OP focusses on providing a transportation network balancing the needs of all road users by shifting away from traditional car-oriented mobility and targeting to achieve 50 percent sustainable mode share by 2041, including walking, cycling, transit and carpooling.

Based on the Settlement Area Boundary Expansion (SABE) study conducted by the Region, the OP identifies locations of the "2051 New Urban Area" within the Town to accommodate future employment and community growth. Figure 2-3 shows the project study area in relation to the proposed SABE areas within the Town. The Transportation Assessment completed for the SABE study recommended the widening of Chinguacousy Road from Mayfield Road to Old School Road from two lanes to four lanes to support these growth areas.





*Figure Source - Region of Peel (https://www.peelregion.ca/officialplan/review/pdf/settlement-area-boundary-expansion/2022-march-draft-sabe-map.pdf)* 



# 2.3 Town Planning Framework

#### 2.3.1 Town of Caledon Official Plan (2018) - Update in Progress

At the municipal level, the Town's Official Plan provides the vehicle for implementing the policies of the Province and the Region. The Official Plan provides a more detailed, local basis upon which the decisions regarding land use and the provision of services are to be made. The current plan supports a transportation system that balances demand with capacity and protects sensitive human environments.

The on-going Future Caledon OP update's goal for 2051 is to develop a transportation infrastructure offering active, healthy, and sustainable mobility options connecting all parts of Caledon and to the Region and beyond. The plan aims to provides sustainable mobility options including walking, cycling and transit so Caledon residents are not car dependent. Complete streets with highly desirable environments for walking, cycling and transit are one of the foundational pillars of the Future Caledon OP update. Through this update, the classification of the Chinguacousy Road section within study area will be upgraded to an arterial road in a 36 m right-of-way.

#### 2.3.2 Caledon Transportation Master Plan (2017) – Update in Progress

The Town's Transportation Master Plan (TMP) is a strategic planning document designed to identify and address the transportation needs of the Town to the year 2031 (and beyond). It

builds upon the policies in the Town's OP and establishes the goals, strategies, and initiatives necessary to achieve the transportation objectives required to align with the vision of the OP.

The TMP recommended widening of Chinguacousy Road from Mayfield Road to Tim Manley Avenue by 2031. No improvements were identified in the current TMP for the section of Chinguacousy Road between Tim Manley Avenue and Old School Road. Also, there were no active transportation recommendations for Chinguacousy Road.

In 2022, the Town initiated a Multi-Modal Transportation Master Plan (MMTMP) in conjunction with the update of the Official Plan. The MMTMP considers the Town's transportation infrastructure needs to support growth and the changing needs of travellers over the next 30 years. When completed, the MMTMP will provide a practical, long-term plan for the Town's transportation system to develop complete streets incorporating a multimodal approach to mobility, livability and sustainability. The draft MMTMP builds upon the recommendations of the 2017 TMP and identifies widening of Chinguacousy Road from two lanes to four lanes from Mayfield Road to Old School Road incorporating the facilities for pedestrians, bicyclists, and transit.



# **3 Existing Conditions**

This section describes the characteristics of the study area to provide a baseline and context for the development and evaluation of alternative solutions and their potential impacts.

# 3.1 Socio Economic Environment

The following sections provide baseline information on the socio-economic conditions of the Study Area.

#### 3.1.1 Existing Land Use

As per the Town's 2018 Official Plan, the existing land use along the Chinguacousy Road corridor between Mayfield Road and Old School Road is mostly Prime Agricultural Area. The Chinguacousy Road corridor forms the west boundary of the Mayfield West Phase 2 Secondary Plan (MW2) Area. The Secondary Plan governs the development and redevelopment of land in the MW2 Plan Area as shown in Figure 3-1.

#### 3.1.2 Future Land Use

As previously noted in Section 2.2.1, the lands surrounding the Study Area are designated for growth. Through the Region of Peel's recent Official Plan and Settlement Area Boundary Expansion (SABE) process completed in 2022, the lands on either side of the corridor have been designated as community (i.e. residential) area. This is also being reflected in the Town's Official Plan update that is currently in progress.

#### 3.1.3 Air Quality

Due to existing Mayfield West Development, air quality impacts from construction are anticipated, but will be limited in duration. With the project located within a rural and countryside area the sources of air quality impacts are limited too. There are receptors such as existing residential dwellings along the corridor and no major critical receptor. With the land use of the areas remaining unchanged along the corridor except for Mayfield West Phase 2 development, there are no lasting impacts.



#### Figure 3-1: Schedule B2 – Mayfield West Phase 2 (Land Use Plan)





## 3.2 Built Environment

With regards to the built environment, the following existing conditions were assessed:

- Road Features and Condition
- Transportation Assessment
- Drainage and Culverts
- Utilities

#### 3.2.1 Road Features and Condition

The segment of Chinguacousy Road from Mayfield Road to Old School Road is a two-lane rural road with a north-south orientation located within an existing right-of-way width of approximately 20–22 m. The posted speed is 80 km/h. The signalized intersection of Chinguacousy Road at Mayfield Road is under Region of Peel's jurisdiction. The intersection at Old School Road operates under four-way stop control and is under Town's jurisdiction.

The cross-section consists of an approximately 8 m wide asphalt driving surface, with gravel shoulders of varying width. There are no sidewalks, pathways, cycle lanes, or transit stops along the corridor.

The existing horizontal alignment is generally straight. The existing vertical alignment undulates with low points at the various watercourse crossings. There are no major sight distance issues or side slopes issues for the current road classification; however, improvements will be required to meet the design criteria for an arterial road classification.

A pavement investigation consisting of a visual pavement surface condition survey, asphalt coring and drilling of boreholes, as well as Falling Weight Deflectometer (FWD) testing was completed. A copy of the Pavement Investigation Report is attached as **Appendix A**.

From the visual survey, it was determined that approximately 1.9 km of existing pavement on Chinguacousy Road is in very good condition (recently paved section), with minimal/no pavement distresses observed. The approximate limits are shown in Figure 3-2. The remaining 1.1 km of existing pavement is in fair condition (old pavement section) with frequent moderate severity wheel track rutting, potholes, pavement edge cracking and breaks.



#### Figure 3-2: Pavement Conditions



As part of the investigation, a total of 16 boreholes were advanced, with 11 boreholes in the travel lanes and 5 boreholes in the narrow gravel outside shoulder. An additional 7 pavement cores were extracted in the travel lanes, prior to drilling. Testing was completed on four asphalt core samples and no asbestos fibres were detected.

In the newly paved section, the total (surface and base) asphalt thickness varied from 90 mm to 110 mm. In the older pavement section, the total asphalt layer thickness varied from 25 to 35 mm. The asphalt layer was found to be supported by a granular base/subbase with an average thickness of 450 mm, and depths ranging from 370 to 800 mm below the asphalt surface. An organic layer of peat was found in four locations beneath the subbase layer.

The granular base/subbase consisted of predominantly sand with silt/clay, some trace of gravel. This pavement structure generally does not meet the Town's standard for a local road and would need to be increased to meet the standards for an arterial road classification.

The structural adequacy was further evaluated by Falling Weight Deflectometer (FWD) testing. The analysis concluded that the effective structural number of the existing pavement ranged from 40 mm to 106 mm in the northbound lane and 45 mm to 117 mm in the southbound lane, with averages of 68 mm and 70 mm respectively. The desired structural number is 109 mm for future traffic conditions, which confirms that the existing pavement structure is inadequate and must be rehabilitated or reconstructed to support future conditions.

#### 3.2.2 Transportation Assessment

A detailed Traffic Study was completed assessing existing and future traffic conditions to determine the transportation needs along the corridor. The following provides a summary of the Traffic Study findings, however for the full Traffic Study refer to **Appendix B**.

#### 3.2.2.1 Road Network

• **Chinguacousy Road**: As previously noted, Chinguacousy Road is a two-lane rural road with a north-south orientation and a posted speed of 80km/h. The intersection of Chinguacousy



Road with Mayfield Road operates under traffic signal control whereas the intersection with Old School Road operates under four-way stop control. Heavy trucks are prohibited from utilizing this segment of road.

- Mayfield Road: Within the study area, Mayfield Road is a two-lane rural arterial road with an
  east-west orientation and a posted speed limit of 80 km/h. It operates under the jurisdiction of
  the Region of Peel.
- Old School Road: Old School Road is a two-lane rural collector road with an east-west orientation and a posted speed limit of 70 km/h.

#### 3.2.2.2 Ongoing and Planned Network Improvements

As mentioned in Section 2.2, the Study Area corridor extends through designated SABE community lands. Partial build out of these lands is expected by 2041 with full buildout in 2051. In addition to this, the corridor forms the western boundary of the Mayfield West Phase 2 (MW2) lands. The MW2 Development is a new community being planned with residential and employment lands, parks, schools, public open spaces and recreational facilities. The development is guided by the Mayfield West Secondary Plan and is expected to be complete by 2031.

Within MW2 development, a new east-west collector road known as Tim Manley Avenue is being constructed. Tim Manley Avenue will connect Chinguacousy Road with McLaughlin Road and ultimately Highway 10/410. McLaughlin Road is being widened to 4 lanes within the MW2 boundaries.

As a result of this planned growth, there are several planned network improvements that will impact travel demand along the Study Area corridor, including:

#### Improvements by 2031:

- 2 to 4 lane widening of Chinguacousy Road between Mayfield Road and Spine Road (Town of Caledon 2017 Transportation Master Plan)
- 2 to 6 lane widening of Mayfield Road between Chinguacousy Road and Hurontario Street (Region of Peel 2019 Long Range Transportation Plan)
- 2 to 4 lane widening of Mayfield Road between Chinguacousy Road and Mississauga Road (Region of Peel 2019 Long Range Transportation Plan)
- Dual westbound left turn lanes at the Chinguacousy Road / Mayfield Road intersection (Mayfield Road 2016 Environmental Assessment)

#### Improvements by 2041:

- 2 to 6 lane widening of Chinguacousy Road between Wanless Drive and Mayfield Road (City of Brampton 2015 Transportation Master Plan)
- 4 to 6 lane widening of Mayfield Road between Chinguacousy Road and Mississauga Road (Region of Peel 2019 Long Range Transportation Plan)



## 3.2.2.3 Existing Intersection Operations Analysis

Existing traffic operations were assessed for the intersection of Chinguacousy Road at Mayfield Road and Old School Road using Synchro 11 software, which employs methodology from the Highway Capacity Manual (HCM). The 2019 pre-Covid traffic volumes were used for the existing conditions analysis.

A summary of the existing intersection traffic operations is provided in Table 3-1. The intersection of Chinguacousy Road and Mayfield Road is operating with an overall poor level-of-service (LOS) F during the PM peak hour. The westbound left-through-right movement is operating with a LOS F during the PM peak hour and traffic volumes exceed capacity during both AM and PM peak hours.

All movements at the Chinguacousy Road / Old School Road intersection are operating within capacity, with an acceptable LOS B or better.

	Weekday AM Peak Hour			Weekday PM Peak Hour				
Movement	v/c	LOS	50 <sup>th</sup> Queue (m)	95 <sup>th</sup> Queue (m)	v/c	LOS	50 <sup>th</sup> Queue (m)	95 <sup>th</sup> Queue (m)
Chinguacous	y Road / M	ayfield Roa	ad (Signaliz	zed)				
Overall	0.94	D	-	-	1.04	F	-	-
EBLTR	0.73	В	86	125	0.67	В	64	100
WBLTR	1.09	Е	144	203	1.30	F	163	230
NBLTR	0.53	D	26	47	0.63	С	39	67
SBLTR	0.55	D	33	53	0.12	В	8	16
Chinguacousy Road / Old School Road (Unsignalized)								
EBLTR	0.24	А	*	1	0.12	А	*	1
WBLTR	0.14	А	*	1	0.34	В	*	1
NBLTR	0.16	В	*	1	0.24	А	*	1
SBLTR	0.24	A	*	1	0.07	А	*	1

#### Table 3-1: Existing Intersection Operation

\* The HCM 6th Edition methodology does not report 50th percentile queues.

#### 3.2.2.4 Roadway Corridor Capacity Analysis

The need for additional capacity improvements was assessed based on forecasted midblock volumes and capacity. To forecast future traffic volumes, growth rates were derived for 2031, 2041 and 2051 horizons using forecasted volume along the study area road network from the Region of Peel EMME model for SABE. Model updates and additional network refinements were made to ensure consistency with future planned improvements. The corridor capacity analysis under future traffic conditions, conducted with and without the proposed Highway 413 scenario, indicated the following:



- The analysis reconfirmed that the 4-lane widening along Chinguacousy Road between Mayfield Road and Tim Manley Avenue is needed by 2031 and that 4 lanes will be sufficient to accommodate forecasted demand. This is consistent with the findings of the Town's 2017 Transportation Master Plan.
- The widening of Chinguacousy Road north of Tim Manley Road is warranted by 2041 as volume to capacity ratios are projected to exceed 0.90.

#### 3.2.2.5 Future Intersection Operations Analysis

Future intersection operations were assessed for the 2031, 2041, and 2051 horizons using the turning movement counts, forecasted based on the growth rates. Similar to corridor capacity analysis, two scenarios with and without Highway 413 were considered. The following are the key findings and recommendations:

- A high-level traffic operations comparison between the scenario with and without Highway 413 does not show significant differences.
- Exclusive southbound left turn lane at Mayfield Road intersection.
- Signalization and exclusive left turn lanes on all approaches at Tim Manley Avenue intersection
- Signalization and exclusive left turn lanes on all approaches at Old School Road intersection

#### 3.2.3 Drainage and Culverts

As the existing road is of a rural cross-section, stormwater runoff from the roadway is directed into roadside swales/ditches that generally follow the profile of the road and outlet at the various water crossings.

There are a total of five water crossings within the Study Area, four being watercourses and one being a headwater drainage feature. The locations of the crossings are depicted in Figure 3-3 and further details of the crossing structures are provided in Table 3-2.

#### 3.2.4 Stormwater Management

Region of Peel is currently undertaking the detail design of Mayfield Road which includes intersection improvements at Mayfield Road and Chinguacousy Road intersection. The north leg of this intersection will be designed for ultimate lane configuration and the lanes will be tapered to match existing Chinguacousy Road Lane configuration. Region of Peel as part of their design is considering an interim drainage condition and has designed for temporary drainage. A clean water pipe including a 1200 mm road crossing culvert is constructed to manage the existing stormwater draining from the open fields west of Chinguacousy Road. Mayfield West Phase 2 as part of their development has considered portion of Chinguacousy Road draining into their proposed Ponds 1 & 5.



## Figure 3-3: Water Crossing Locations



# Table 3-2: Water Crossing Structures

Watercourse/ HDF Crossing	Structure Number	Size	Notes
Crossing 1 (CH1)	#B20028314	6.0 m x 1.5 m concrete box culvert.	Recently constructed by the Town under Contract 2020-03.
Crossing 2 (CH2)	#B20028314a	4.0 m x 1.5 m concrete box culvert.	Recently constructed by the Town under Contract 2020-03.
Crossing 3 (CH3)	#B20028315	Not known	Concrete box culvert. Recently constructed by the Town under Contract 2020-03.



Watercourse/ HDF Crossing	Structure Number	Size	Notes
Crossing 4 (CH4)	N/A	6.0 m x 2.5 m Concrete Box Culvert.	N/A
Crossing 5 (HDF 1)	N/A	600 mm diameter Corrugated Steel Pipe.	N/A

#### 3.2.5 Utilities

Information on existing utilities within the Study Area was obtained through the completion of a Quality Level "B" Subsurface Utility Engineering (SUE) investigation. The following summarizes the utilities present:

- There is an existing watermain that extends from Mayfield Road to Tim Manley Avenue with existing service connections to the east side of Chinguacousy Road, only;
- There is existing buried telecommunications cable that extends on the east side of the corridor from Mayfield Road, approximately 2.6 km north;
- There is existing aerial hydro and telecommunications cable on wooden poles along the west side of Chinguacousy Road from Mayfield Road to approximately 250 m north of Tim Manley Avenue. The aerial plant then crosses over briefly to the east side of the road for approximately 400 m before crossing back to the west side for the remainder of the distance to Old School Road. There are various aerial services and service poles along the length of the corridor; and
- Roadway illumination is not present along the corridor except for at the intersections with Mayfield Road and Tim Manley Avenue.

Detailed findings from the Quality Level "B" SUE investigation are included as Appendix C.

# 3.3 Natural Environment

This section provides a summary of the natural environment baseline conditions, including a summary description of:

- Vegetation and Flora;
- Wildlife;
- Fish and Fish Habitat;
- Species at Risk;
- Hydrogeology and Source Water Protection; and
- Fluvial Geomorphology



#### 3.3.1 Vegetation & Flora

Through field investigations, various common vegetation community types were found within or immediately adjacent to the Project Area as summarized in Table 3-3. A total of 42 species of flora and a total of 338 trees were recorded within the Study Area.

Full details can be found in the Natural Environment Report included as Appendix D.

Vegetation Community	Description			
MAS2-1: Cattail Mineral Shallow Marsh	Identified in areas associated with watercourse crossings. Areas were dominated by cattails, providing 90% cover.			
MAM2-2: Reed Canary Grass Mineral Meadow Marsh	Identified in areas along Chinguacousy Road. Areas were dominated by Reed Canarygrass, providing 90% cover.			
CUM1: Mineral Cultural Meadow	Identified throughout study area. Dominated by common meadow species such as Smooth Brome, goldenrod, fleabane, Oxeye Daisy, Tufted Vetch, and Birds' Foot Trefoil, providing 90% cover.			
CUW1: Mineral Cultural Woodland	Areas dominated by Norway Maple with occasional Black Walnut, with abundant European Buckthorn in the understory.			
CUP3: Coniferous Plantation	Identified on the west side of Chinguacousy Road, approximately 300 m north of Mayfield Road. Classified as a coniferous plantation based on aerial imagery as there was no access to it from the ROW.			
HR: Hedgerow	Large trees in addition to shrubs, including abundant dead ash, Silver Maple, and White Elm. All hedgerows were dominated by European Buckthorn in the understory. Groundcover species included goldenrod, Poison Ivy, and Smooth Brome.			
OAGM1: Annual Row Crops	Identified throughout the Study Area; consisted mostly of grain crops.			
OAGM4: Open Pasture	Identified throughout the Study Area. All pastures were noted to be grazed and did not support any tall grass. Grass species could not be identified from the ROW.			
Mowed Lawn	Maintained grass areas such as mowed lawns were noted throughout the Study Area. These were generally found within the residential areas of the roads.			
European Reed	Small patches were generally found along drainage ditch areas where conditions are wet and suitable for this invasive wetland species to grow.			
CVR: Residential	Found throughout the Study Area and are identified as anthropogenic lands that support single-family dwellings. These areas generally contain mowed lawns and planted trees or hedgerows.			

#### Table 3-3: Existing Vegetation Communities


## 3.3.2 Wildlife

## 3.3.2.1 Amphibian Breeding Surveys

Amphibian breeding surveys were conducted and targeted potentially suitable wetland areas in two locations of the Study Area. There are two wetland communities along the corridor. MAS2-1 (Cattail Mineral Shallow Marsh) & MAM2-2 (Reed Canary Grass Mineral Meadow Marsh) areas. Two species of amphibians, the American Toad and the Spring Peeper, were recorded during the surveys. These species are both considered common, widespread, and abundant in Ontario.

## 3.3.2.2 Reptile Occurrence and Movement

Visual encounters for reptile occurrence and movement were completed during three daytime field surveys. No reptiles were observed in the Study Area during any site visit.

#### 3.3.2.3 Incidental Wildlife Observations

Incidental observations of wildlife were recorded during field investigations, as follows:

- Mammals:
  - Beavers chew marks observed on trees.
  - Red Squirrels observed in various treed locations.
- Birds (without breeding evidence):
  - American Crow
  - American Goldfinch
  - American Robin
  - Chipping Sparrow
  - Black-capped Chickadee
  - Grey Catbird
  - House Sparrow
  - Killdeer
  - Mourning Dove
  - Northern Cardinal
  - Red-winged Blackbird
  - Song Sparrow
  - Blue Jay
  - Brown Thrasher
  - Willow Flycatcher
  - Yellow Warbler
  - Brown-headed Cowbird
  - Mallard
  - Bobolink
  - Hairy Woodpecker

These species are commonly observed in southern Ontario. The Hairy Woodpecker and Bobolink are area-sensitive species, which either require larger patches of habitat in which to



breed or are more productive in larger patches of habitat. Habitat opportunities for both species in the Study Area are limited as most lands are occupied by agricultural fields and anthropogenic lands, which are unsuitable habitat.

Full details regarding the wildlife investigations can be found in the Natural Environment Report included as **Appendix D**.

### 3.3.3 Fish and Fish Habitat

The Study Area includes four watercourse crossings of tributaries to Etobicoke Creek, which holds a cool-warm water thermal regime. Tributaries are generally presumed to include fish habitat. The potential communities of fish species within these tributaries would be considered "common" and classified as "tolerant" based on their ability to adapt to environmental perturbations or anthropogenic stresses.

Of the four watercourse crossings located within the Study Area, three were recently updated and, as such, modifications to these crossings are not anticipated to be required to undertake improvements to Chinguacousy Road. Therefore, only one watercourse (CH1), located 1.65 km south of Old School Road, was surveyed. The watercourse is conveyed under Chinguacousy Road through a 6 m wide concrete box culvert. Historically, the channel had a slightly sinuous planform, but it has since been realigned and straightened with a uniformly trapezoidal cross-section. The channel is also anomalously wide at the culvert inlet and outlet before narrowing and regaining sinuosity about 10 m downstream. The average bank full width of the channel measured upstream of the culvert is 5.73 m whereas the bank full depth measured at the culvert inlet is 0.60 m. The channel bed is unvegetated and the banks are vegetated with Reed Canarygrass. No fish species were observed during the survey.

Full details regarding the fisheries investigations can be found in the Natural Environment Report included as **Appendix D**.

#### 3.3.4 Species at Risk

A Species at Risk (SAR) screening assessment was completed to determine the potential for SAR to occur within the Study Area by comparing habitat preferences of species against the existing site conditions. Table 3-4, below, summarizes the results.

Common Name	Status
Barn Swallow	Threatened
Bobolink	Threatened
Chimney Swift	Threatened
Red-headed Woodpecker	Special Concern
Snapping Turtle	Special Concern
Eastern Small Footed Bat	Endangered
Little Brown Bat	Endangered

#### Table 3-4: Potential SAR Within Study Area



Common Name	Status
Northern Bat	Endangered
Tri-Coloured Bat	Endangered
Monarch Butterfly	Special Concern

Full details of the SAR careening assessment can be found in the Natural Environment Report included as **Appendix D**.

## 3.3.5 Hydrogeological Conditions and Source Water Protection

A preliminary hydrogeological assessment was completed to establish baseline hydrogeological conditions, which may impact or be impacted by the project.

As part of the geotechnical investigation, a total of 15 boreholes were advanced on Chinguacousy Road within the Study Area. Five monitoring wells were installed in selected boreholes during the geotechnical investigation and the wells were used for groundwater level measurements and hydraulic conductivity tests. The groundwater levels were monitored quarterly for one year and were found to range from 0.9 to 2.3 m below ground surface elevation. No groundwater quality samples were collected during the hydrogeological investigation.

The project study area is within the CTC (Credit Valley-Toronto and Region-Central Lake Ontario) Source Protection Region. A review of the MECP Drinking Water Source Protection Atlas indicated that the Study Area is not located within any Wellhead Protection Areas, Intake Protection Zones, or Significant Groundwater Recharge Areas. However, sections of the Study Area are located within a Highly Vulnerable Aquifer Area.

A search of the MECP well record database for wells in the Study Areas was conducted and a total of 109 records were found within a 500 m radius of the Study Area. Of the records found, 42 wells were listed for domestic uses, 3 wells for livestock uses, and 2 wells for livestock and domestic uses. The remaining wells were listed for monitoring, test hole, or unknown uses.

A copy of the Preliminary Hydrogeological Investigation report is included as **Appendix E**.

#### 3.3.6 Fluvial Geomorphology

As previously noted, there are four watercourse crossings within the Study Area. In addition, one headwater drainage feature (HDF) was identified that warranted review from a fluvial geomorphology perspective.

The fluvial geomorphology was assessed through a combination of desktop and field investigations. A comparative review was completed of channel characteristics from 1954 aerial imagery, 2020 aerial imagery, and observed field data.

A summary of the bankfull width and final meander belt width is provided in Table 3-5, below.



		1 07	
Watercourse/HDF	Bankfull Width (m)	Final Meander Belt Width (m)	Fluvial Consideration Required
Crossing 1 (CH1)	4.2	26	Yes
Crossing 2 (CH2)	2.7	16	Yes
Crossing 3 (CH3)	4.0	24	Yes
Crossing 4 (CH4)	5.7	38	Yes
HDF 1	2.0	N/A	No

## Table 3-5: Fluvial Geomorphology Consideration

A copy of the Fluvial Geomorphic Crossing Assessment is included as Appendix F.

#### 3.4 Cultural Environment

The following sections provide baseline information for Archaeological Resources as well as Built and Cultural Heritage Resources within the Study Area.

#### 3.4.1 Archaeological Resources

A Stage 1 Archaeological Assessment was completed for the Study Area. Through this assessment, it was determined that there are 11 previously registered archaeological sites located within one kilometre of the Study Area. The property inspection component of the assessment determined the following:

- Parts of the Study Area exhibit archaeological potential and will require Stage 2 assessment through pedestrian and test pit surveys prior to any proposed construction activities;
- Parts of the Study Area, mainly the existing right-of-way as well as existing driveways/entrances/built areas do not retain any archaeological potential due to previous disturbance; and
- Parts of the Study Area were previously assessed and do not require further assessment.

Detailed findings, including mapping of the above areas is included in the Stage 1 Archaeological Assessment Report attached as **Appendix G**. The Stage 1 report has also been entered into the Ontario Public Register of Archaeological Reports.

#### 3.4.2 Cultural Heritage Resources

A Cultural Heritage Review and Report was completed to present an inventory of known and potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs), identified within the project Study Area.

Both background research and a field investigation were completed and revealed that there are three BHRs and five CHLs within the Study Area, as listed in Table 3-6 below.



No	Address or Location	Potential Impact	
	Built H		
BHR 1	12016 Chinguacousy Road	Known BHR – Included in the Built Heritage Resources Inventory	Potential direct adverse impact
BHR 2	12540 Chinguacousy Road	Known BHR – Listed on Municipal Heritage Register	Minor impact
BHR 3	12669 Chinguacousy Road	Known BHR – Listed on Municipal Heritage Register	Minor impact
	Cultural	Heritage Landscapes:	
CHL 1	12259 Chinguacousy Road	Known CHL – Listed on Municipal Heritage Register	Minor impact
CHL 2	12306 Chinguacousy Road	Known CHL – Listed on Municipal Heritage Register	Potential direct adverse impact
CHL 3	12472 Chinguacousy Road	Known CHL – Listed on Municipal Heritage Register	Potential direct adverse impact
CHL 4	12710 Chinguacousy Road	Known CHL – Listed on Municipal Heritage Register	Minor impact
CHL 5	12846 Chinguacousy Road	Known CHL – Listed on Municipal Heritage Register	Minor impact

#### Table 3-6: Summary of Built Heritage Resources and Cultural Heritage Landscapes

Potential direct adverse impacts have been identified to BHR 1 (12016 Chinguacousy Road), CHL 2 (12306 Chinguacousy Road), and CHL 3 (12472 Chinguacousy Road) in the proposed undertaking. As BHR 1 is Included in the Built Heritage Resource Inventory, and CHL 2 and CHL 3 are listed on the Municipal Heritage Register, it was concluded that a resource-specific HIA should be completed for each of these properties as per clause 3.3.3.1.5 of the Town's Official Plan during detailed design.

Minor direct impacts to BHR 2 (12540 Chinguacousy Road), BHR 3 (12669 Chinguacousy Road), CHL 1 (12259 Chinguacousy Road), CHL 4 (12710 Chinguacousy Road), and CHL 5 (12846 Chinguacousy Road) are anticipated to include property acquisition. These properties are listed on the Municipal Heritage Register as well, and it was concluded that a resource-specific HIA may also be required. However, as the impacts are minor and are not anticipated to



directly impact any potential heritage attribute on the properties, the Town has waived the requirements for HIA's.

Detail findings, including mapping of the above resources are included in the Cultural Heritage Report attached as **Appendix H**.



# 4 Problem/Opportunity Statement

Based on a review of the planning context and policy framework, existing conditions and corridor deficiencies, as well as planned development and associated impacts, the following Problem and Opportunity Statement was developed for this Study:

"Through the 2051 panning horizon, the Town of Caledon is forecasted to grow from a population of approximately 80,000 residents to approximately 300,000. The lands surrounding the Study area are designated for the new urban growth through the Region of Peel Official Plan as well as the Town's on-going Official Plan update. The Town of Caledon Transportation Master Plan (TMP) further defines the transportation vision for the Town, to focus on addressing the Town's mobility needs in an effective, responsible and sustainable manner. The TMP has identified the corridor of Chinguacousy Road from Mayfield Road to its northern limits as an area needing road network improvements.

The existing Chinguacousy Road within the Study Area is a two-lane rural corridor which is not adequate to support the on-going urban growth in the area. Opportunities exist to improve the form and function of the Chinguacousy Road segment within the Study Area, meeting the goals and objectives of the Town's OP and TMP through the following:

- Develop a multi-modal corridor based on the complete street approach supporting creation of complete communities
- Address future travel demand from the urban area expansion through additional capacity
- Improve road safety for all road users



# **5** Alternative Solutions

As mentioned in Section 1.2, Phase 2 of the MCEA process includes the development of alternative solutions to address the needs, problems, and opportunities identified for the Study Area. These alternative solutions are high-level options and include a "Do Nothing" option to provide a basis for comparison. The evaluation of the alternative solutions is completed based on how well they address the problem as well as their impact on the various environments (built, natural, socio-economic, and cultural). This section discusses the alternative solutions considered and summarizes the results of the evaluation of those solutions.

# 5.1 Identification of Alternative Solutions

The following alternative solutions were identified and considered as part of the ESR:

Alt	ernative Solution	Description
1	Do Nothing	The "Do-Nothing" alternative considers no improvements and/or modifications to the road corridor. This alternative does not address the problem/opportunity statement and is provided as a benchmark to gauge the potential impacts of the other options being considered.
2	Limit Development	Limit development of surrounding lands to only what has been approved or is in the approval process. This limitation would deny any future development of adjacent lands along Chinguacousy Road.
3	Improve Alternative Routes	Instead of Chinguacousy Road, undertake improvements including capacity addition to other corridors in proximity to Chinguacousy Road to provide desirable alternative routes.
4	Local Roadway/Intersection Improvements	Improve nodal capacity at intersections locally to improve operations. Modifications may include works such as adding traffic signals and timing optimization, through and turn lanes, resurfacing and paving roadway shoulders.
5	Capacity Enhancements	Increase roadway capacity on Chinguacousy Road with the addition of vehicle lanes. This alternative would require widening of the current road right of way. This alternative does not include transit and active transportation facilities.
6	Integrate Facilities for Alternate Travel Modes without Capacity Addition	Provide facilities for other modes of travel such as walking, cycling, and transit, without adding traffic lanes to increase roadway capacity

#### Table 5-1: Alternative Solutions

# 5.2 Evaluation Criteria

Table 5-2 outlines the criteria that was developed to comparatively evaluate the alternative solutions against the environmental factors relevant to this Study.



Environment Category	Criteria	Description
Built (Technical/ Transportation)	Traffic Demand	Does the alternative address anticipated traffic demand for current and future needs?
	Safety	Will the alternative provide for increased safety of pedestrians, cyclists and vehicle operators?
	Active Transportation	Does the alternative support active transportation along the corridor or provide opportunity to accommodate the active transportation facilities?
	Transit	Does the alternative provide opportunity for future transit?
Natural	Terrestrial Vegetation and Wildlife (Including SAR)	What are the potential impacts to terrestrial vegetation and wildlife? This criterion also includes considerations for Species at Risk (SAR).
	Fish and Fish Habitat	Are any of the watercourses present within the study area classified as fish habitat? What are the potential impacts of the alternative to fish and fish habitat?
	Surface Water and Groundwater	What are the impacts to surface water or groundwater from each alternative? Considers source water protection and stormwater management.
	Wetlands	Are there any provincially significant wetlands present within the study area? Are there any unevaluated wetland habitats present? What are the potential impacts of the alternative to wetland habitat?
Cultural	Archaeological	What potential impacts will the alternative have on archaeological resources?
	Cultural Heritage	What potential impacts will the alternative have on cultural heritage resources? This includes built heritage and cultural landscapes.
Socio-Economic	Air Quality/Climate Change	Are there any sensitive receptors present or directly adjacent to the study area? Will the alternative significantly impact air quality now and in the future? What impacts will the alternative have on climate change? Will the alternative contribute to climate change or provide adaptation? Considerations related to transportation are greenhouse gas emissions and impervious surfaces. Temporary considerations during construction can be considered

#### Table 5-2: Evaluation Criteria for Assessment of Alternative Solutions



Chinguacousy Road Improvements Schedule C MCEA Environmental Study Report

Environment Category	Criteria	Description
	Property Impacts	What impacts will the alternative have on private property owners? Considerations include property access during construction as well as potential property acquisition.
	Supports Local Growth and Development	Does the alternative support the planned growth and development of the area?
Cost	Capital Costs	What are the anticipated capital costs of the alternative?
	Maintenance Costs	What are the anticipated maintenance costs of the alternative?

## 5.3 Evaluation of Alternative Solutions

The evaluation results are presented in an Evaluation Matrix in Table 5-3. The Evaluation Matrix provides a means of comparing the effects that each alternative will generate on the area environment (built/technical, natural, cultural, and socio-economic).

Visual markers were used to represent the potential for impact on each of the evaluation criteria. A full, or black, circle represents the most preferred option, as it will address the key concerns, but create the least amount of environmental impact. An open, or white, circle is indicative of a least preferred option as it has a higher potential to impact the environment. A black 'X' indicates that the impact does not address the minimum criteria. This is illustrated in **Error! Reference source not found.**, below.

#### Figure 5-1: Evaluation Matrix (Legend)





Evaluation Criteria	Α	lt. 1 - Do Nothing	Alt	. 2 - Limit Development	Alt.	3 - Improve Alternative Routes	Ir	Alt. 4 - Local Roadway / ntersection Improvements	Alt.	5 - Capacity Enhancement	Al Mo	t. 6 - Integrate Alternate Travel odes without Capacity Addition
Technical Environm	ent											
Traffic Demand	×	Does not address traffic demand and growth	0	Addresses the demand from adjacent developments but not from the developments in surrounding lands.	•	By improving adjacent corridors, potential to alleviate anticipated traffic demand through study corridor.	•	Addresses some traffic demand primarily at higher functioning intersections.		Addresses traffic demands by increasing road capacity.	•	Provides facilities for alternative travel modes. It may result in some auto mode shift resulting in improved corridor capacity but cannot fully address traffic demands.
Safety	X	Does not provide safe use options for vulnerable road users (VRU) along corridor.	×	Does not provide safe use options for vulnerable road users (VRU) along corridor.	×	Does not provide safe use options for vulnerable road users (VRU) along corridor.	•	Marginal improvements to safety as intersections would offer safer operational design.	•	Capacity addition will facilitate smooth traffic flow thus reducing the chances of collisions present in stop and go traffic. However, this alternative does not address safety of VRUs.		Addresses safety by providing safe transit stops, and designated ROW for cyclist and walking. However, this alternative does not enhance safe car operations.
Active Transportation (AT)	×	Does not support active transportation opportunity.	×	Does not support active transportation opportunity.	×	Does not support active transportation opportunity along study corridor.	•	Marginal improvements at intersections only and does not provide designated ROW (Right of Way) for active transportation modes.	•	Marginal improvements at intersections only and does not provide designated ROW (Right of Way) for active transportation modes.		Improves active transportation along corridor with the integration of designated active transportation ROW (Right of Way).
Transit	×	Does not provide transit opportunity.	×	Does not provide transit opportunity.	×	Does not provide transit opportunity along study corridor.	•	Marginal improvements/opportunity for transit stops at intersections.		Additional lanes provide flexibility to integrate transit facilities at midblock as well at intersections along corridor.	•	Improves connectivity between various modes of transportation. Existing single lane operation with future additional traffic demand will add delays to transit.
SUMMARY	×	Does not address needs of the corridor.	×	Does not address safety or alternative transit needs of the corridor.	×	Does not address safety or alternative transit needs of the corridor.	•	Marginally addresses transportation needs of the corridor, but alone would not address projected increase in traffic.	•	Addresses several transportation needs of the corridor including transit, but does not provide active transportation facilities.	•	Addresses active transportation needs of the corridor including transit, but does not address traffic demand. Also, existing single lane operation with future traffic demand will potentially adversely impact the efficient transit operations.
Natural Environmer	it											
Terrestrial Vegetation and Wildlife (Including SAR)		No impacts.		No impacts.		No impacts within study area.	•	Disturbances limited to within/near the existing footprint have a limited capacity for appreciable impacts to terrestrial features.	•	No SAR trees present. Some tree removal maybe required including sensitive native Honey Locust trees. Tree removal may affect potential SAR bat habitat. Concrete Box Culverts	•	No SAR trees present. Some tree removal maybe required including sensitive native Honey Locust trees. Tree removal may affect potential SAR bat habitat. Concrete Box Culverts potentially provide suitable

# Table 5-3: Evaluation of Alternative Solutions

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Evaluation Criteria	A	t. 1 - Do Nothing	Alt	2 - Limit Development	Alt.	3 - Improve Alternative Routes	Ir	Alt. 4 - Local Roadway / ntersection Improvements	Alt.	5 - Capacity Enhancement	Al Mo	t. 6 - Integrate Alternate Travel odes without Capacity Addition
										potentially provide suitable nesting habitat for Barn Swallow SAR however no nests were observed within ROW.; Bobolink habitat adjacent to but not within Study Area. Adequate avoidance and/or mitigation can be implemented for the above.		nesting habitat for Barn Swallow SAR however no nests were observed within ROW.; Bobolink habitat adjacent to but not within Study Area. Adequate avoidance and/or mitigation can be implemented for the above.
Fish and Fish Habitat		No impacts.		No impacts.		No impacts within study area.	•	Watercourse crossings are present in Study Area. No anticipated impacts if appropriate ESC and BMP are implemented.	0	Watercourse crossings are present in Study Area. Potential to impact fish and fish habitat at watercourse crossings.		Watercourse crossings are present in Study Area. Potential to impact fish and fish habitat at watercourse crossings.
Surface Water and Groundwater		No impacts.		No impacts.		No impacts within study area.	•	Watercourse crossings are present in Study Area. No anticipated impacts if appropriate ESC and BMP are implemented.	0	Watercourse crossings are present in Study Area. Potential to impact surface water and groundwater at watercourse crossings.	•	Watercourse crossings are present in Study Area. Potential to impact surface water and groundwater at watercourse crossings.
Wetlands		No impacts.		No impacts.		No impacts within study area.	•	Etobicoke Creek Headwater Wetland Complex PSW present. Other wetlands present at watercourse crossings. No anticipated impacts if appropriate ESC and BMP are implemented.	•	Etobicoke Creek Headwater Wetland Complex PSW present. Other wetlands present at watercourse crossings. Potential to impact wetlands at watercourse crossings.	•	Etobicoke Creek Headwater Wetland Complex PSW present. Other wetlands present at watercourse crossings. Potential to impact wetlands at watercourse crossings.
SUMMARY	•	No impacts to the natural environment as no work is being undertaken.		No impacts to the natural environment as no work is being undertaken.		No impacts to the natural environment in this corridor as no work is being undertaken.	•	Potential for some impacts to the adjacent natural environment. Impacts to be addressed by mitigation measures or avoided where possible.	•	Potential for some impacts to the adjacent natural environment. Impacts to be addressed by mitigation measures or avoided where possible.		Potential for some impacts to the adjacent natural environment. Impacts to be addressed by mitigation measures or avoided where possible.
Cultural Environme	nt											
Archaeological		No impacts to archaeological resources.		No impacts to archaeological resources.		No impacts to archaeological resources within the study area.	•	Some parts of the study area have potential for impacts. Stage 2 investigation required to confirm.	•	Some parts of the study area have potential for impacts. Stage 2 investigation required to confirm.	•	Some parts of the study area have potential for impacts. Stage 2 investigation required to confirm.
Cultural Heritage		No impacts to built heritage resources or		No impacts to built heritage resources or cultural landscapes.		No impacts to built heritage resources or		Anticipated impacts to cultural resources present can be mitigated.	0	Anticipated impacts to cultural resources present can be mitigated.		Anticipated impacts to cultural resources present can be mitigated.

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Evaluation Criteria	A	t. 1 - Do Nothing	Alt.	. 2 - Limit Development	Alt.	3 - Improve Alternative Routes	Iı	Alt. 4 - Local Roadway / ntersection Improvements	Alt.	5 - Capacity Enhancement	AI Mo	t. 6 - Integrate Alternate Travel odes without Capacity Addition
		cultural landscapes.				cultural landscapes within the study area.						
SUMMARY		No impacts to the cultural environment as no work is being undertaken.		No impacts to the cultural environment as no work is being undertaken.		No impacts to the cultural environment in this corridor as no work is being undertaken.		Potential for some impacts to the adjacent cultural environment. Impacts to be addressed by mitigation measures or avoided where possible.		Potential for some impacts to the adjacent cultural environment. Impacts to be addressed by mitigation measures or avoided where possible.		Potential for some impacts to the adjacent cultural environment. Impacts to be addressed by mitigation measures or avoided where possible.
Socio – Economic I	Envire	onment										
Climate Change/Air Quality	0	With background and new development traffic still growing, anticipated to have more congestion on this route for this Alternative.	0	With background and new (approved) development traffic still growing, anticipated to have more congestion on this route for this Alternative.	•	Despite traffic diversion to alternative routes, some traffic growth on this corridor is expected due to planned developments. Will potentially cause congestion and adverse climate impacts. Additional traffic on alternate routes will contribute negatively to respective corridors.	•	Nodal improvements at intersections will somewhat facilitate flow of traffic but overall road capacity constraints will still result in congestion and idling thus contributing to adverse climate impacts		Additional capacity adequate to absorb the future traffic demand will facilitate the smooth flow thus avoiding congestion and idling. Less idling time positively contributes to lessen the climate impacts and improving air quality.	•	Alternative modes compared to passenger cars typically produce lesser air pollutants on a per rider basis. However, the positive effect is likely to be offset by the negative impacts due to congestion and increased idling time because of existing single lane operation.
Property Impacts		No impacts as no work is being undertaken.		No impacts as no work is being undertaken.	•	No impacts as no work is being undertaken.	•	Some potential impacts adjacent to areas of improvement.	0	Potential for greater property impacts on both sides of the corridor due to widening.	•	Some potential impacts adjacent to areas of improvement.
Supports Local Growth and Development	×	Does not support local growth and development.	×	Does not support local growth and development.	0	Minimal support for local growth.		Somewhat supports local growth.	•	Supports local growth and development by providing required capacity for traffic, however, does not provide the facilities for AT and Transit demand.		Somewhat supports local growth and development. It provides the facilities for AT and transit demand but does not provide the required capacity for auto, which is the dominant mode of travel.
SUMMARY	×	Minimal impacts but does not support the planning vision in the study area.	×	Does not support the planning vision in the study area.	•	Minimal impacts but does not support the planning vision in the study area.		Somewhat supports the planning vision in the study area, though there may be some impacts to properties. Will result in climate impacts due to congestion and idling.	•	Supports the planning vision for this area, and contributes to lessen the climatic impacts of the future traffic demand, though there will be property impacts.		Supports the planning vision for this area, though there may be some property impacts and impacts associated with climate change.

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Evaluation Criteria	Alt. 1 - Do Nothing Alt. 2 - Limit Development		Alt. 3 - Improve Alternative Routes		Alt. 4 - Local Roadway / Intersection Improvements		Alt. 5 - Capacity Enhancement		Alt. 6 - Integrate Alternate Travel Modes without Capacity Addition			
Cost												
Capital Costs		No capital costs.		No capital costs.		No capital costs on this roadway.	•	Moderate capital costs.	0	Increased capital costs.	•	Moderate capital costs.
Maintenance Costs	0	Aging infrastructure with increased traffic load will contribute to increasing maintenance costs.	0	Maintenance costs will increase due to deteriorating condition of road.	0	Maintenance costs will increase due to deteriorating condition of road.		Additional infrastructure will need additional funds for the maintenance however the increase is likely to be offset by the saving in the maintenance costs needed for aging infrastructure.	•	Additional infrastructure will need additional funds for the maintenance however the increase is likely to be somewhat offset by the saving in the maintenance costs needed for aging infrastructure.	0	Increased maintenance costs due to new infrastructure as well as the funds needed for maintenance of aging existing infrastructure.
SUMMARY	•	No capital cost but increased maintenance costs	•	No capital cost but increased maintenance costs	•	No capital cost but increased maintenance costs	•	Moderate costs	•	Significant capital costs but saving in maintenance costs due to replacement of the aging infrastructure.	•	Significant costs
Recommendation	nmendation hmenda		de de acc a cult are doe the	This alternative is <u>not</u> recommended as traffic demand and growth in the study area is not accommodated. While there are minimal natural and cultural impacts to the study area, improving other roads does not support or address the issues identified in the Problem / Opportunity Statement.		s alternative is <u>recommended</u> conjunction with alternatives 5 6. Localized improvements to dways and intersections alone ald partially address safety and erations but would not be able o fully address the Problem / bortunity Statement on its own.	re V w a St	recommendedin conjunctionwith alternatives 4 and 6.Widening the roadway alonewould address traffic demandand growth but would not beable to fully address theProblem / OpportunityStatement, such as transit andactive transportation.Measures can be applied toappropriately mitigate potentialimpacts to natural and culturalenvironments.				
						Recommended Preferred Solution Combination of Alternatives 4, 5 & 6						

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# 5.4 Preferred Solution

Based on the evaluation, stakeholders' and public consultation, a combination of Alternatives 4, 5 and 6 was selected as the Preferred Solution. This includes increasing capacity on Chinguacousy Road with the addition of vehicle lanes; making intersection improvements to optimize operations; and improving facilities for other modes of travel such as walking, cycling, and transit.

Public and stakeholder comments related to the evaluation are presented in Section 7 of this report.

The preferred solution contains the following key elements:

- Adheres to planning policies and principles, that is to support future growth within the Region and provide a safe & integrated multi-modal transportation network which will minimize the overall impact on natural environment.
- Meets the needs of future traffic growth and planned developments in the area;
- Provides a complete street approach ensuring safe multi-modal transportation options for all users; and
- Provides a balance between accommodating growth and impacts to environment.



# 6 Alternative Design Concepts

As mentioned in Section 1.2, Phase 3 of the MCEA process includes identification of alternative design concepts or ways in which to implement the Preferred Solution selected at the close of Phase 2. The evaluation of the alternative design concepts is again completed based on how well they address the problem and opportunity statement as well as their impact on the various environments. This section discusses the alternative design concepts that were considered and summarizes the results of the evaluation of those solutions.

# 6.1 Identification of Alternative Design Concepts

Three alternative design concepts were developed for implementing the preferred solution which includes widening of Chinguacousy Road corridor in addition to transit and active transportation facilities.

## 6.1.1 Widening Design Concept #1

As depicted in **Error! Reference source not found.**, the design concept consists of four 3.5 m wide traffic lanes and a 5 m wide centre median. The proposed median will be used for adding turn lanes in future to improve access management along the project corridor. The portion of the median where future turn lanes will not be required can be used for additional planting area.

A 3.5 m boulevard and a 3.5 m multi-use path (MUP) will be provided on both sides of the proposed cross-section. A multiuse path provides two-way travel shared path between bikes and pedestrians. Within urban neighborhoods a MUP performs better than dedicated cycling facilities by providing a safe space for cyclists with a wide range of skill levels and abilities including children, novice adults and the elderly. The proposed multiuse path design is also consistent with what Region of Peel and City of Brampton have proposed for the widening of Mayfield Road and Chinguacousy Road respectively. Therefore, a MUP will provide a seamless continuation of active transportation facilities. The proposed boulevard on both sides of the road will be used for tree planting, stormwater management and for accommodating future transit stops including bus shelters.



Figure 6-1: Typical Cross-Section for Widening Alternative Design Concept #1



## 6.1.2 Widening Design Concept #2

The alternative design concept is like the Concept #1, with the exception of the active transportation facilities. Rather than a MUP, this concept includes a separate 1.8 m wide sidewalk and a 1.8 m wide cycle track facility on both sides, as shown in Figure 6-2. Cycle tracks are most suitable for a more frequent and intense use bike network. Therefore, it has been found that children, novice adults and elderly don't feel comfortable using the dedicated bike tracks. Bus shelters will be provided within the boulevards, therefore bikes on cycle track will interact with passenger operations, to be managed through traffic control measures.

Figure 6-2: Typical Cross-Section for Widening Alternative Design Concept #2





## 6.1.3 Widening Alternative Design Concept #3

The third design concept is again similar to the first, with the exception of the center median as shown in Figure 6-3. The option lacks access management flexibility because the vehicle waiting to turn left will impede the flow of through traffic thus compromising the safety and affecting the capacity. Concept 3 includes a wider boulevard on both sides of the corridor for landscaping. The 5.0 m boulevard provides more room for stormwater management, transit stops and shelters.





# 6.2 Evaluation of Alternative Design Concepts

#### 6.2.1 Evaluation Criteria

Table 6-1 outlines the criteria that was developed to comparatively evaluate the alternative design concepts against the five environments (Built, Natural, Cultural, Socio-Economic, and Cost). Some adjustments were made to the criteria from Section 5.2 to reflect the specific alternative design concepts under consideration and comments received from the public and various agencies.

Environment Category	Criteria	Description
Built (Technical/ Transportation)	Future Traffic Capacity	Will the design concept address traffic capacity requirements?
	Safety	Will the design concept address any safety concerns through the corridor?
	Active Transportation	Will the design concept provide opportunity to implement pedestrian and cyclists' infrastructure?

Table 6-1: Evaluation Criteria for Assessment of Alternative Design Concepts



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Environment Category	Criteria	Description		
	Transit	Does the design concept provide opportunity for future transit?		
	Utilities	Will the design concept provide opportunity to accommodate existing and new utilities along the corridor?		
	Consistency	Will the design concept provide consistency with other road projects surrounding the study area?		
Natural	Terrestrial Vegetation and Wildlife (Including SAR)	What are the potential impacts to terrestrial vegetation and wildlife? This criterion also includes considerations for Species at Risk (SAR).		
	Fish and Fish Habitat	What are the potential impacts of the design concept to fish and fish habitat?		
	Surface Water and Groundwater	What are the impacts to surface water or groundwater from each alternative? Considers source water protection and stormwater management.		
	Wetlands	What are the potential impacts of the design concept to wetland habitat?		
Cultural	Archaeological	What potential impacts will the design concept have on archaeological resources?		
	Cultural Heritage	What potential impacts will the design concept have on cultural heritage resources? This includes built heritage and cultural landscapes.		
Socio- Economic	Air Quality/Climate Change	Will the design concept significantly impact air quality now and in the future? How does the design concept impact climate change and how does climate change impact the option?		
	Property Impacts	What impacts will the design concept have on private property owners? Will property acquisition be required?		
	Noise & Vibration	Will the design concept impact noise levels during construction and in the long-term?		
	Aesthetics	Will the design concept impact the area visually?		
Cost	Property Acquisition Costs	Will the design concept require property acquisition?		
	Construction Costs	Will the design concept be expensive to construct?		
	Operating & Maintenance Costs	Will the design concept be expensive to maintain?		



Environment Category	Criteria	Description
	Cost Savings	Will the design concept provide opportunity for future cost savings?

## 6.2.2 Evaluation Summary

Table 6-2 provides the evaluation of the three widening alternative design concepts

No scoring or weighting of the criteria were undertaken. Rather, the differences between the alternatives and the magnitude of the impact or benefit were rationalized. The ability of the alternative design concept to address the requirement or mitigate an impact was reflected with a "P" if positive or preferred and "NP" if not preferred.



## Table 6-2: Evaluation of Widening Alternative Design Concepts

Ne	Evaluation Onitaria	Widening Design Alternatives					
INO		1		2		3	
	·	·	A. Tech	nical Requirements		·	
A1	Future Traffic Capacity – Will the option address capacity requirements?	The option addresses the capacity requirements for Year 2031 & 2041. The proposed centre median provides the flexibility to add a left turn lane or a two- way left turn lane. These turn lanes add residual capacity to through lanes.	Ρ	The option addresses the capacity requirements for Horizon Years 2031 & 2041. The proposed centre median provides the flexibility to add a left turn lane or a two-way left turn lane. These turn lanes add residual capacity to through lanes.	Ρ	The option addresses the capacity requirements for Horizon Years 2031 & 2041. There is no center median proposed for this option. The vehicle waiting to turn left will impede the flow of through traffic thus affecting capacity of through lanes.	NP
A2	Active Transportation – Will the option provide opportunity to implement pedestrian and cyclists' infrastructure?	This option includes multiuse path (MUP) on both sides of the corridor for active transportation. A MUP provides two-way travel shared path for bikes and pedestrians. Within urban neighborhoods, an MUP performs better than dedicated cycling facilities by providing a safe space for cyclists with a wide range of skill levels and abilities including children, novice adults and the elderly. A MUP provides flexibility to bikers in both directions and therefore avoid unnecessary crossing of the street.	Ρ	This option provides a separate 1.8 m wide bicycle path and sidewalk for different users. Both the facilities are separated by a 3.5 m boulevard. The separated bike and pedestrian facilities are the most desirable active transportation facilities for more frequent and intense use bike network. Areas such as Central Business District (CBD) or areas along transit-oriented communities/development.	NP	This option includes multiuse path (MUP) on both sides of the corridor for active transportation. A MUP provides two-way travel shared path between bikes and pedestrians. Within urban neighborhoods, an MUP performs better than dedicated cycling facilities on the roadway by providing a safe space for cyclists with a wide range of skill levels and abilities including children, novice adults and the elderly. A MUP provides flexibility to bikers in both directions and therefore avoid unnecessary crossing of the street.	Ρ
A3	<b>Consistency</b> – Will the option provide consistency with other road projects surrounding the study area?	The proposed Cross Section includes a MUP on both sides of the corridor. This will provide seamless continuation of active transportation facilities being consistent with other widening projects on Mayfield Road (Region of Peel) and Chinguacousy Road (City of Brampton) south of Mayfield Road.	Ρ	The proposed option includes separate bike path and a sidewalk which is an inconsistent cross section with respect to other projects within the vicinity. This option may cause confusion amongst the users.	NP	The proposed Cross Section includes a MUP on both sides of the corridor. This will provide seamless continuation of active transportation facilities being consistent with other widening projects on Mayfield Road (Region of Peel) and Chinguacousy Road (City of Brampton) south of Mayfield Road.	Ρ
A4	<b>Safety</b> – Will the option address safety concerns through the corridor?	Provides a center median separating the opposing traffic lanes. The proposed centre median provides the flexibility to add a left turn lane or a two-way left turn lane when required. The turn lanes provide safer operation by minimizing the rear-end collisions. This option will include multi use paths for vulnerable road users (VRU). However, the multi- use paths will accommodate both pedestrian and cyclist which may pose circumstantial safety concerns, but being a mixed environment, as stated above it	Ρ	Provides a center median separating the traffic lanes. The proposed centre median provides the flexibility to add a left turn lane or a two-way left turn lane when required. The turn lanes provide safer operation by minimizing rear-end collisions. This option will include sidewalk and a designated bike path for vulnerable road users (VRU). No conflicts between the pedestrians and the cyclist are anticipated due to separate facilities, however, being a dedicated bike ROW with high-speed bikes, the separate bike tracks may not be attractive for less- experienced cyclists including children, novice adults and the elderly.	Ρ	This option will not provide a center median and thus increased potential for rear end collisions. The Option will include multi use paths for vulnerable road users (VRU). However, the multi-use paths will accommodate both pedestrian and cyclist which may pose circumstantial safety concerns, but being a mixed environment, as stated above it provides a safe space for cyclists with a wide range of skill levels and abilities.	NP

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Nie	Evoluction Ouitoria	Widening Design Alternatives					
NO	Evaluation Criteria	1	I	2		3	
		provides a safe space for cyclists with a wide range of skill levels and abilities.					
A5	Municipal Services (Storm, Sanitary & Water) – Will the option accommodate future servicing requirements?	This option will include space for conventional municipal utilities such as storm, sanitary sewer and watermain underneath the future road. The option provides an opportunity such as a 3.5 m boulevard space for implementing stormwater management practices such as bioswales and etc. Use of bioswales will increase the amount of water to infiltrate and evaporate and decrease the total amount of runoff into the proposed conventional stormwater drainage system.	NP	This option will provide similar benefits as to Option 1. The option is slightly different than Option 1 in terms of a larger impervious area due to separate sidewalk and cycle path facilities.	NP	This Option is better than Option 1 & 2 due to less impervious areas throughout the corridor. There is no separate sidewalk and cycle path facilities and also there is no median lane which reduces the overall impervious area substantially. Also, it provides a much larger boulevard space (5.0 m) as compared to 3.5 m in Option 1 & 2 for implementing best management practices for Stormwater Management.	Ρ
A6	<b>Transit</b> – Will the option provides an opportunity to implement transit along the corridor?	All three options provide an equal opportunity for implementing transit system. However, a 4 m separation between traffic lanes and MUP provides a better opportunity than the Option 2, to accommodate bus stop pads and shelters. The MUP being at rear of the bus-stop, the boarding and alighting passengers will not interact with bikes and pedestrians. Such interference free operation is more desirable for inline bus stops where bus blocks the traffic lanes.	Ρ	All three options provide an equal opportunity for implementing transit system. This option proposes a 1.8 m wide bike track at 1.0 m away from the curb. As such not enough space available between the bike track and roadway for providing bus pad and shelter. The bikes on bike track will have conflict with passenger operations, which will have to be mitigated through traffic control measures; not a desirable configuration.	NP	All three options provide an equal opportunity for implementing transit system. This option has the same separation between MUP and traffic lane as compared to Option 1. It provides similar opportunities to accommodate passenger pads a nd bus shelters.	Ρ
A7	<b>Utilities</b> – Will the option provide opportunity to include existing and new utilities along the corridor.	All three options provide an equal opportunity to provide sufficient space for future utility relocation work.	Ρ	All three options provide an equal opportunity to provide sufficient space for future utility relocation work.	Ρ	All three options provide an equal opportunity to provide sufficient space for future utility relocation work.	Ρ
	Summary	Selection based on the above categories	Р	Selection based on the above categories	NP	Selection based on the above categories	Р
			B. Nat	tural Environment			
B1	Terrestrial Wildlife and Vegetation (including Species at Risk) – Potential to impact area wildlife and Species at Risk (SAR)	Some tree removal may be required including sensitive native Honey Locust trees. Tree removal may affect potential SAR bat habitat. Adequate avoidance and/or mitigation can be implemented for the above. Center lane median provides potential for additional tree and or shrub plantings and therefore provides an opportunity to recover the tree loss along the corridor for widening and add to natural environment.	P	This Option is similar to Option 1 in potential impacts and benefits.	Ρ	This Option is similar to Option 1 & 2 in terms of potential impacts along the corridor. The Option does not provide any center median for additional tree planting that will contribute to natural environment.	NP

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NLa	Evolution Onitonio	Widening Design Alternatives					
NO	Evaluation Criteria	1		2		3	
B2	<b>Fisheries / Aquatic</b> – Potential to impact fish habitat and aquatic features.	Watercourse crossing are present in the study area. Potential to impact fish and fish habitat at watercourse crossings due to culvert replacements needed to accommodate road widening.	Ρ	This option will have the same impact as compared to Option 1 & 3.	Ρ	This option will have the same impact as compared to Option 1 & 2.	Ρ
B3	<b>Wetlands</b> – Potential to impact existing vegetation.	Etobicoke Creek Headwater Wetland Complex present. Other wetlands present at watercourse crossings. Potential to impact wetlands and watercourse crossings due to culvert replacement needed to accommodate road widening.	Ρ	This option will have the same impact as comparted to Option 1 & 3.	Ρ	This option will have the same impact as comparted to Option 1 & 2.	Ρ
Β4	Surface Water and Groundwater – Potential to impact surface water and groundwater resources?	This Option will improve groundwater. The Option proposes 12.0 m of ROW space (3.5 m Blvd. on west sided + 3.5 m Blvd. on east side and 5.0 m median space) for plantation and implementation of best management practices for stormwater management. The option will improve ground water recharge by infiltration through a bio-swale medium.	Ρ	This Option will be similar to Option 1.	Ρ	This Option will be slightly less favorable than Option 1 & 2 due to reduce number of infiltration points along the corridor.	NP
	Summary	Selection based on the above categories	Р	Selection based on the above categories	Р	Selection based on the above categories	NP
			C. Cul	tural Environment			
C1	<b>Archaeological</b> – Will the option impact area archaeological resources?	Some parts of the study area have potential for impacts. A Stage 2 archaeological investigation will be required to confirm. All options will have same impact.	Ρ	Some parts of the study area have potential for impacts. A Stage 2 archaeological investigation will be required to confirm. All options will have same impact.	Ρ	Some parts of the study area have potential for impacts. A Stage 2 archaeological investigation will be required to confirm. All options will have same impact.	Ρ
C2	<b>Built Heritage &amp; Cultural Heritage</b> – Will the option impact area-built heritage resources?	Anticipated impacts to cultural resources present can be mitigated through various measures. All options will have same impact.	Ρ	Anticipated impacts to cultural resources present can be mitigated through various measures. All options will have same impact.	Ρ	Anticipated impacts to cultural resources present can be mitigated through various measures. All options will have same impact.	Ρ
	Summary	Selection based on the above categories	Р	Selection based on the above categories	Р	Selection based on the above categories	Р
	D. Social Environment						
D1	<b>Property Impacts</b> – Will the option require property acquisition?	Property acquisition will be required on both sides of Chinguacousy Road to obtain a 36.0m right of way. All options will have same impact.	Ρ	Property acquisition will be required on both sides of Chinguacousy Road to obtain a 36.0m right of way. All options will have same impact.	Р	Property acquisition will be required on both sides of Chinguacousy Road to obtain a 36.0m right of way. All options will have same impact.	Ρ
D2	<b>Aesthetics</b> – Will the option impact the area visually?	The option has been designed to include a planting median through sections of the corridor. The median and boulevards will be planted with trees or shrubs to improve aesthetics along the corridor.	Ρ	The option has been designed to include a planting median through sections of the corridor. The median and boulevards will be planted with trees or shrubs to improve aesthetics along the corridor. This Option will be similar to Option 1.	Ρ	The option does not have a planting median which add aesthetics to any corridor.	NP

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No	Evoluction Critoria	Widening Design Alternatives					
NO	Evaluation Criteria	1		2		3	
D3	<b>Access Management</b> – Will the option provide better access to existing and future private properties?	The center median will provide a safe and better access to existing and future properties on both sides of the corridor.	Ρ	The center median will provide a safe and better access to existing and future properties on both sides of the corridor. This Option will be similar to Option 1.	Ρ	This option will require turning vehicles to stop in through lane and wait for their right of way before turning into private property. This option may be very unsafe in many situations.	NP
D4	<b>Noise and Vibration</b> – Will the option impact noise levels during construction and the long term?	This option provides opportunity to plant additional trees in the median which will provide additional resistance to noise and vibration levels.	Ρ	This option provides opportunity to plant additional trees in the median which will provide additional resistance to noise and vibration levels. This Option will be similar to Option 1.	Ρ	This option will create additional noise as compared to other two options.	NP
D5	Climate Change / Qualitative Air Quality Assessment – Will the option impact air quality? How does the option impact climate change and how does climate change impact the option?	The design option is adequate to absorb the future traffic demand and facilitate smooth flow thus avoiding congestion and idling. The proposed bioswales will provide stormwater management in addition to the planting median, which also provides carbon sequestration.	Ρ	The design option is adequate to absorb the future traffic demand and facilitate smooth flow thus avoiding congestion and idling. The proposed bioswales will provide stormwater management in addition to the planting median, which also provides carbon sequestration. This Option will be similar to Option 1.	Ρ	The design option is adequate to absorb the future traffic demand however left turning vehicle will impede the smooth flow of traffic thus causing idling. The proposed bioswales will provide stormwater management in a higher capacity than the other options due to the increase in size, however the design does not provide a planting median.	NP
	Summary	Selection based on the above categories	Р	Selection based on the above categories	Р	Selection based on the above categories	NP
			E. Eco	nomic Environment			
E1	<b>Property Acquisition Costs</b> – Will the option require property acquisition?	A 36.0 m ROW will be required to implement this cross section.	Ρ	A 36.0 m ROW will be required to implement this cross section. This Option will be same as other two.	Ρ	A 36.0 m ROW will be required to implement this cross section. This Option will be same as other two.	Р
E2	<b>Construction Costs</b> – Will the option be expensive to construct?	Due to median construction and additional planting along the median, this option is relatively more expensive than Option 3.	NP	This option will be the most expensive as compared to other two. It has two separate facilities (1.8 m sidewalk + 1.8 m bike path) which will increase the construction cost of the project.	NP	This option will be the least expensive as compared to other two because it has no median and less landscape planting along the median will be required.	Ρ
E3	<b>Operating &amp; Maintenance Costs</b> – Will the option be expensive to maintain?	This option will require higher maintenance cost due to plantation in median and along the boulevards.	NP	This option will have comparatively much higher maintenance cost than Option 1 & 3 and this is due to plantation in median and separate sidewalk and cycle path facilities.	NP	This option will be relative less expensive for maintenance cost as compared to Options 1 & 2.	Ρ
E4	<b>Cost Savings</b> – Will the option provides opportunity for future cost savings?	All three options are prepared based on 36.0 m ultimate ROW. Securing ultimate ROW will provide flexibility in future by acquiring the ROW now and not in future.	Ρ	All three options are prepared based on 36.0 m ultimate ROW. Securing ultimate ROW will provide flexibility in future by acquiring the ROW now and not in future.	Ρ	All three options are prepared based on 36.0 m ultimate ROW. Securing ultimate ROW will provide flexibility in future by acquiring the ROW now and not in future.	Ρ
	Summary	Selection based on the above categories	NP	Selection based on the above categories	NP	Selection based on the above categories	Р
		Preferred typical section	19 P	Not Preferred	14 P	Not Preferred	14 P



## 6.2.3 Preferred Design Concept

The preferred design for Chinguacousy Road was chosen after consideration of transportation service for all road users (motorists, pedestrians, cyclists, and transit users) and impacts to the environment (built, natural, cultural, socio-economic, and cost).

Based on the evaluation, stakeholder and public consultation, the Design Concept # 1 is the preferred design which consists of two traffic lanes per direction with a centre turn median for better access management. A MUP is provided on both sides for pedestrians and cyclists. Transit bust shelters and passenger areas are provided within the boulevards on both sides.

# 6.3 Interim Rehabilitation Design

As demonstrated in the Section 3.1.2, the needs of the corridor are directly impacted by the timing of the planned growth in the surrounding area. The segment of the study area south of Tim Manley Ave is anticipated to experience higher demand in the shorter time and the widening is required by 2031. Depending on the development of the lands surrounding the corridor, the need for widening along the segment north of Tim Manley Ave is anticipated to lag and may not be required until 2041. Therefore, until such time the preferred widening design is implemented to the north of Tim Manley Ave, interim rehabilitation design concepts were considered and evaluated.

## 6.3.1.1 Rehabilitation Alternative Design Concept A

Rehabilitation Design Concept A would maintain the existing two-lane corridor cross-section and would not incorporate any improvements for active transportation. Road resurfacing and minor ditch regrading/drainage improvements would be the key components of this alternative, as shown in Figure 6-4.



#### Figure 6-4: Typical Cross-Section for Rehabilitation Alternative Design Concept A



## 6.3.1.2 Rehabilitation Alternative Design Concept B

Rehabilitation Design Concept B would include cross-section modifications to meet the recommendations of the Town's 2019 Development Charge Background Study for rural road improvement works. This alternative would include reconstruction of the road base to address pavement structure issues, correction of any crossfall issues, and a minor road widening to achieve a 1.5 m paved shoulder on both sides of the road. The addition of paved shoulders would improve roadside safety and could also be used by pedestrians and cyclists. Drainage improvements would also be incorporated. This alternative is illustrated in Figure 6-5.



#### Figure 6-5: Typical Cross-Section for Rehabilitation Alternative Design Concept B

# 6.3.2 Evaluation of Rehabilitation Design Concepts

The evaluation results are presented in Table 6-3. The evaluation follows the same criteria and methodology employed for evaluation of the widening design concepts in Section 6.2. The Design Concept B is the preferred rehabilitation design as an interim rehabilitation solution for the Chinguacousy Road segment north of Tim Manley Ave until the preferred widening design as explained in Section 6.2 is implemented.

During the consultation with MW2 Landowners group and the Town's Development Engineering Staff, it was decided that to support the on-going MW2 development, the widening design will be implemented by 2031 in the segment from Mayfield Road up to the north limits of MW2 development instead of up to Tim Manley Ave. The consultation summary is presented in Section 7.



# Table 6-3: Evaluation of Rehabilitation Alternative Design Concepts

NL -		Rehabilitation Cross Section							
NO	Evaluation Criteria	Option 1		Option 2					
	·	A. Technical Requirements							
A1	<b>Future Traffic Capacity</b> Will the option address capacity requirements?	The option provides enough capacity to sustain traffic up to 2031 horizon, however depending upon the growth and increase in traffic demand, upgrades to corridor will be required prior to 2041.	Ρ	The option provides enough capacity to sustain traffic up to 2031 horizon, however depending upon the growth and increase in traffic demand, upgrades to corridor will be required prior to 2041.	Ρ				
A2	Active Transportation Will the option provide opportunity to implement pedestrian and cyclists' infrastructure?	The option does not include any active transportation along the corridor.	NP	The option provides bike accessible shoulders along the corridor.	Р				
A3	<b>Consistency</b> Will the option provide consistency with other development by other municipalities?	This Option provides a consistent cross section with other existing corridors within Town of Caledon.	NP	This option is a consistent cross section with other corridor road reconstruction project completed by Town. The cross section is prepared based on the Town's 2019 Development Charge (DC) Background Study. This is to implement bike accessible shoulders for network connectivity.	Р				
A4	<b>Safety</b> Will the option address safety concerns along the corridor?	The option will not improve safety conditions for motor vehicles or Vulnerable Road Users (VRU). The existing safety condition will remain as is.	NP	The option proposes bike accessible shoulders along the corridor which create a safe option for Vulnerable Road Users (VRU). The 1.5 m shoulders on both sides of the corridor will also offer a buffer space for motorists to maneuver in the case of an emergency or to pull off the road.	Р				
A5	<b>Transit</b> Will the option provide an opportunity to implement transit along the corridor?	The proposed Option does not offer flexibility to integrate transit facilities along corridor.	NP	The widened roadway/accessible shoulder provide some flexibility to integrate transit facilities along corridor.	Р				
A6	<b>Utilities</b> Will the option provide opportunity to include existing and new utilities along the corridor.	Under this option, there is no potential impacts to existing utilities. The grading design to improve the existing drainage along the ditches may have some impacts on existing utilities.	NP	Under this Option, there is a potential to relocate few select existing utilities due to widening to accommodate bicycle accessible shoulders. The drainage improvements may have other impacts too along the corridor.	NP				
	Summary	Selection based on the above categories	NP	Selection based on the above categories	Р				
		B. Natural Environment							
B1	<b>Terrestrial Wildlife and Vegetation (including</b> <b>Species at Risk)</b> Potential to impact area wildlife and Species at Risk (SAR)	No tree removal or impacts to SAR (species at risk) are anticipated as the road will not be widened as part of this rehabilitation option.	Ρ	Under this Option, the existing gravel shoulder in combination with slope tightening can be used to provide the required shoulder space for bike accessible shoulder. This will avoid any impacts to existing trees.	Р				
B2	<b>Fisheries / Aquatic</b> Potential to impact fish habitat and aquatic features.	Watercourse crossings are present within the study area. No anticipated impacts if appropriate erosion and sediment control measures are implemented.	Ρ	Watercourse crossing are present in the study area. Recent improvements have been made at three major crossings where the pavement area is made slightly wider than existing pavement width. The wider pavement area will be used as accessible shoulder width for active transportation purpose.	Ρ				
B3	Wetlands Potential to impact existing vegetation.	Etobicoke Creek Headwater Wetland Complex is present. Other wetlands present at watercourse crossings. No anticipated impacts if appropriate erosion and sediment control measures are provided.	Ρ	Under this Option, there is a potential to impact the existing wetlands and watercourse crossings. This provides an opportunity to improve the fluvial and natural environment along creek crossings. This option also provides	Р				

P – Preferred

NP – Not Preferred

Alternative Design Concepts



No	Evoluation Critoria	Rehabilitation Cross Section			
NO	Evaluation Criteria	Option 1		Option 2	
				an opportunity for additional planting along the creek crossing area and therefore recover or add bird habitat/s.	
B4	Surface Water and Groundwater Potential to impact surface water and groundwater resources?	No anticipated impacts if appropriate erosion and sediment control measures are implemented.	Ρ	No anticipated impacts if appropriate erosion and sediment control measures used in conjunction with using existing gravel shoulder space.	Ρ
	Summary	Selection based on the above categories	Р	Selection based on the above categories	Р
		C. Cultural Environment			
C1	<b>Archaeological</b> Will the option impact area archaeological resources?	Some parts of the study area have potential for impacts. A Stage 2 archaeological investigation will be required to confirm. All options will have same impact.	Ρ	Some parts of the study area have potential for impacts. A Stage 2 archaeological investigation will be required to confirm. All options will have same impact.	Р
C2	<b>Built Heritage &amp; Cultural Heritage</b> Landscapes Will the option impact area-built heritage resources?	Anticipated impacts to cultural resources present can be mitigated through various measures. All options will have same impact.	Ρ	Anticipated impacts to cultural resources present can be mitigated through various measures. All options will have same impact.	Ρ
	Summary	Selection based on the above categories	Р	Selection based on the above categories	Р
		D. Social Environment			
D1	<b>Property Impacts</b> Will the option require property acquisition?	A 36.0 m ROW property will be acquired by the Town for future widening purpose. All work under this option will be within the 36.0 m proposed future ROW.	Ρ	A 36.0 m ROW property will be acquired by the Town for future widening purpose. All work under this option will be within the 36.0 m proposed future ROW.	Ρ
D2	<b>Aesthetics</b> Will the option impact the area visually?	No impacts anticipated.	Р	No impacts anticipated.	Р
D3	Access Management - Will the option impact private property access?	No impacts anticipated.	Р	No impacts anticipated.	Р
D4	<b>Noise and Vibration</b> Will the option impact noise levels during construction and the long term?	No impacts anticipated.	Ρ	No impacts anticipated.	Ρ
D5	Climate Change / Qualitative Air Quality Assessment Will the option impact air quality? How does the option impact climate change and how does climate change impact the option?	No impacts to climate change or air quality or anticipated as the road width is remaining unchanged. Air quality mitigations related to construction will be implemented.	Ρ	An increase to the impervious surface is acknowledged, but marginal in comparison to the existing roadway. No impacts to climate change are anticipated. Air quality mitigations related to construction will be implemented.	Ρ
	Summary	Selection based on the above categories	Р	Selection based on the above categories	Р
		E. Economic Environment			
E1	<b>Property Acquisition Costs</b> Will the option require property acquisition?	A 36.0 m ROW property will be acquired by the Town for future widening purpose. All work under this option will be within the 36.0 m proposed future ROW.	Ρ	A 36.0 m ROW property will be acquired by the Town for future widening purpose. All work under this option will be within the 36.0 m proposed future ROW.	Ρ
E2	<b>Construction Costs</b> Will the option be expensive to construct?	This option does not require any widening and therefore will be much less expensive as compared to Option B.	Ρ	This option will be requiring very minor widening. The required shoulder space will provide additional safety benefit including space for active transportation that will offset the cost.	Ρ
	Summary	Selection based on the above categories	Р	Selection based on the above categories	Р
Ov <u>eral</u>	Summary	Not Preferred	14 P	Preferred typical section	18 P
P – Pref	erred				

NP – Not Preferred

Alternative Design Concepts

**Town of Caledon** Chinguacousy Road Improvements Schedule C MCEA Environmental Study Report



# 7 Public and Stakeholders Consultation

Consultation is a key component of the MCEA planning process. 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 and important dialogue. This consultation allows for the exchange of ideas, suggestions and the broadening of the information base, leading to better decision-making during the completion of the Study.

# 7.1 Key Points of Contact

Local & Regional municipalities, external agencies, utility companies, local residents, business owners, adjacent developers and Indigenous communities were contacted directly at key milestone dates during this Study. The key points of contact are listed in Table 7-1.

During initiation of the Study, a stakeholder list was prepared and this list was updated throughout the Study based on request received. A complete list of stakeholders that were contacted is provided in **Appendix I**.

Members of the public were made aware of the study through notification in the local newspapers and were invited to contact the project team to join the project mailing list. Members of the public requesting to be on the mailing list received direct notification of subsequent study milestones.

A dedicated project webpage was established at the beginning of the study through the Town's website (<u>https://www.caledon.ca/en/government/chinguacousy-road-improvements-class-environmental-assessment.aspx</u>). Study updates were also communicated through this website. Public Information Centre (PIC) materials were made available on the website (e.g., Notices, display material, virtual PIC portal & presentations). All notices and study materials contained the project manager's contact information to facilitate direct contact from interested members of the public.

The Ministry of Environment, Conservation and Parks (MECP) vide correspondence dated April 28, 2021, MCEP identified the following indigenous communities for consulting during the study. Direct outreach with these communities was undertaken throughout the Study.

- Mississaugas of the Credit First Nation;
- Six Nations of the Grand River (Both Six Nations Elected Council and Haudenosaunee Confederacy Chiefs Council); and
- Huron-Wendat Nation



	Table 7-1: Key Points of Cor	ntact
Notice of Study Commencement	Means Notification	Purpose
Notice of Study Commencement	<ul> <li>Notice published through newspaper add (Caledon Citizen newspaper). Notice of Study Commencement is included in <b>Appendix I</b>.</li> <li>April 1, 2021</li> <li>April 8, 2021</li> <li>Letter dated May 3, 2021 were sent to the following Indigenous communities;</li> <li>Haudenosaunee Development Institute</li> <li>Huron-Wendat Nation</li> <li>Mississaugas of the Credit First Nation</li> <li>Six Nations of the Grand River</li> <li>Notification email sent to the following ministries and review agencies.</li> <li>TRCA</li> <li>CVC</li> <li>MTO (Ministry of Transportation)</li> <li>Utility companies</li> <li>Property owners</li> <li>MHSTCI (Ministry of Heritage, Sport, Tourism and Cultural Industries)</li> <li>MECP (Ministry of Environment, Conservation &amp; Parks</li> </ul>	<ul> <li>To introduce Chinguacousy Road EA project and invite participation in the study and request preliminary comments including any guiding information.</li> </ul>
<ul> <li>Public Information Centre #1 (Virtual)</li> <li>July 5, 2022</li> </ul>	<ul> <li>Notice published through newspaper add (Caledon Citizen newspaper). Refer to Appendix I for PIC # 1 notification.</li> <li>June 16, 2022</li> <li>June 30, 2022</li> <li>Hand delivered notification to local residents &amp; property owners.</li> <li>Notification email sent to all external agencies and stakeholders.</li> <li>Notification email sent to Indigenous communities</li> <li>Town of Caledon informed the neighboring developers through</li> </ul>	<ul> <li>To notify and invite interested parties to participate in the first virtual Public Information Centre.</li> <li>The following information was shared with all;</li> <li>Project information, scope and background studies.</li> <li>Shared alternative solutions developed for the project and a summary of the preliminary evaluation.</li> <li>Gather input from the participants.</li> <li>Discuss next steps</li> </ul>

#### **Town of Caledon**



Chinguacousy Road Improvements Schedule 'C' MCEA Environmental Study Report (ESR)

Notice of Study Commencement	Means Notification	Purpose
	<ul><li>their Development Engineering Department.</li><li>Notification through Town's project website.</li></ul>	<ul> <li>The PIC material were posted on the Town's webpage and participants were encouraged to review the material and provide any comments within 30 days.</li> </ul>
<ul> <li>Public Information Centre #2 (Virtual)</li> <li>From November 11, 2022 to November 30, 2022.</li> </ul>	<ul> <li>Notice published through newspaper add (Caledon Citizen newspaper).</li> <li>October 1, 2022</li> <li>October 8, 2022</li> <li>Hand delivered notification to local residents.</li> <li>Notification email sent to all external agencies and stakeholders.</li> <li>Hand delivered notification to local residents &amp; property owners.</li> <li>Notification email sent to Indigenous communities</li> <li>Town of Caledon informed the neighboring developers through their Development Engineering Department.</li> <li>Notification email sent to developers.</li> <li>Notification through Town's project website.</li> </ul>	<ul> <li>The purpose of PIC No. 2 was to present preliminary preferred alternative designs and to gather input. To facilitate the public engagement, this PIC was held using a virtual format from November 11 to November 30 (inclusive). All relevant information including presentation and preliminary drawings were uploaded to Town's project website.</li> <li>Participants were encouraged to submit their questions &amp; suggestion through a "Comment Form" on Town's project website.</li> </ul>
<ul> <li>Notice of Study Completion</li> </ul>	<ul> <li>Notice published through newspaper add (Caledon Citizen newspaper). Notice of Study Completion is included in Appendix I.</li> <li>November 29, 2024</li> </ul>	<ul> <li>To announce completion of the Class EA study and notify interested parties of the 30- calendar day review period of the Environmental Study Report (ESR).</li> </ul>



# 7.2 Public Information Centre # 1 (PIC # 1)

The first Public Information Centre (PIC) was conducted on July 5, 2022 from 6:00 PM to 7:30 PM. The PIC was setup as a live session using Microsoft Teams (Virtual Platform) to maintain staff and public safety under Covid protocols. The virtual session provided an opportunity for anyone to join the event at their convenient and safe location. A Notice of Public Information No 1 was published in the June 16 and 30, 2021 editions of the Caledon Citizen newspaper. Additionally, stakeholders, Indigenous communities, and agencies were notified via electronic mail. A hard copy of the Notice of Public Information Centre No 1 was hand delivered to all residents within the Study area.

The purpose of the PIC was to provide information about the project scope, share alternative solutions developed, summarize the preliminary evaluation and obtain feedback for the project team's consideration. Table 7-2 provides a summary of all public comments received in response to PIC No. 1. A copy of the mailing list, the Notice, all comments received and associated responses are included in **Appendix I**.



## Table 7-2: Public Comments Received for PIC No. 1

Торіс	General Comments	Response
Project Timing and Schedule	When is the expected timing of the completion of the Chinguacousy Road EA?	The completion of the EA is expected by the end of 2022.
	When is the expected timing of the widening of Chinguacousy Road?	Timing for construction has not yet been finalized although construction of the widening of the southern section is needed by 2031.
	When will the next meeting be held?	The next meeting is anticipated in the Fall of 2022.
Property Impacts & Restoration	Who will contact us for property acquisition?	The Town's Land Acquisition department will contact affected property owners.
	Will property owners be compensated for property loss?	Land requirements will be refined during detailed design. Town staff and the Town's Land Acquisition department will engage with affected property owners at a later date.
	Will fences, trees, landscaping, etc be relocated/restored?	Impacts to property fences or landscaping features will be determined during the detailed design stage. Town staff will reach out to all property owners to discuss impacts and restoration needs at that time.
	Can we sell property to the Town now or do we have to wait for the study to be complete?	The Town's Lands Acquisition department will be able to provide more information; however, at this time, final property acquisition has not been determined.
Utilities & Servicing	Does this project help home owners in suppling water\natural gas if needed?	The Region of Peel is planning expansion of the urban area and this will require the installation of all services. Coordination with utilities and any new servicing will be completed during detailed design.
Roundabout Consideration	Roundabouts should be mandated at all study intersections.	Comment noted.
Schools	Do not permit schools to locate on major traffic thoroughfares.	Comment noted.
Future Interchange	Considerations should be made to remove the Chinguacousy Road Interchange and	The highway corridor route has been selected through an ongoing Environmental Assessment study by MTO.

**Town of Caledon** 



Chinguacousy Road Improvements Schedule 'C' MCEA Environmental Study Report (ESR)

Торіс	General Comments	Response
	relocate highway alignment north of Old School Road.	Comments and feedback can be shared with MTO via the Highway 413 website.
Virtual PIC	How many residents/groups are signed on?	Throughout the PIC people have joined and left. There will be a report about the attendance of the PIC at a later date.

# 7.3 Public Information Centre # 2 (PIC # 2)

The second Public Information Centre (PIC) was conducted virtually where all information was posted online between November 11 and 30, 2022. Stakeholders, Indigenous communities and agencies were notified via electronic mail. As before, a Notice of Public Information Centre No. 2 was hand delivered to all residents within the Study area.

The purpose of the PIC was to provide a quick recap of work completed and comments received to date; summarize the Alternative Design Concepts considered; summarize the evaluation and selection of a Preferred Design; provide commitments for detailed design; and obtain feedback for the project team's consideration.

Table 7-3 provides a summary of all public comments received in response to PIC No. 2. A copy of the mailing list, the Notice, all comments received and associated responses are included in **Appendix I**.

Торіс	General Comments	Response
Consideration of Adjacent Developments	The design of Chinguacousy Road must consider the proposed developments (Mayfield Developments Inc and Mayfield Station Developments Inc) east of Chinguacousy Road, north of Mayfield Road. Please provide CAD drawings indicating the proposed vertical alignment of Chinguacousy Road so it can be reviewed relative to the proposed developments.	The design of Chinguacousy Road has considered Mayfield West Phase 2 (MW2) developments on east side of Chinguacousy Road. The Town will consult with Developers and their teams during detailed design. CAD files are provided for reference, but the design remains preliminary in nature and may change during detailed design.
Preferred Design Details	To confirm - the entire road will not be a four-lane road and only from Mayfield to the new housing cluster north of Mayfield on the east side of Chinguacousy which is the new street: Tim Manley	The entire road will be widened to four lanes. In the first phase the widening will be completed from Mayfield Road to the new housing cluster north of Tim Manley. This phase is likely to be completed by year 2031. The remaining road will be widened in the second phase which is likely to be completed by 2041. More certain timelines will be available when the details of the future developments south of Old School Road are available.

## Table 7-3: Public Comments Received for PIC No. 2

# 7.4 External Agencies and Stakeholder Consultation

A list of agencies was assembled based on the Town's past Environmental Assessment projects. The list was reviewed and updated with Town staff at the start of the Study and on a





regular basis. Contact information was reviewed and updated on a regular basis too. The following external agencies and stakeholders were included on the Study mailing list.

- Federal Agencies
  - Fisheries and Oceans Canada (DFO)
- Provincial Agencies
  - Ministry of Environment, Conservation & Parks (MECP)
  - Ministry of Heritage, Sports, Tourism, Culture Industries (MHSTCI)
  - Ministry of Municipal Affairs & Housing
  - Ministry of Agriculture, Food and Rural Affairs
  - Niagara Escarpment Commission
  - Infrastructure Ontario
  - Ministry of Transportation (MTO)
  - Caledon Ontario Provincial Police (OPP)
  - Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF)
  - Credit Valley Conservation Authority (CVC)
  - Toronto and Region Conservation Authority (TRCA)
- Municipal Agencies
  - Region of Peel
  - City of Brampton
  - Peel District School Board
  - Dufferin-Peel Catholic District School Board
- Utility companies
  - Bell Canada
  - Rogers
  - Hydro One
  - TransCanada Pipeline
  - Cogeco Cable Systems
  - Enbridge Gas
  - Alectra
  - Group Telecom
- Other interested stakeholders
  - Local residents
  - Student Transportation of Peel Region
  - Caledon Cycling Club
- Private developers
  - Agro Development Corp.
  - Mayfield West Development


A Technical Advisory Committee (TAC) was established at the beginning of the Study. This is based on list of agencies having a direct interest in the project and the level of interest indicated by agencies in response to the Notice of Study Commencement. The TAC was comprised of representatives of the following agencies and committees and met twice (May 11, 2022 & September 28, 2022) throughout the Study.

- Region of Peel
- City of Brampton
- Credit Valley Conservation Authority (CVC)
- Toronto and Region Conservation Authority (TRCA)
- Town's internal stakeholders

In addition to the Technical Advisory Committee (TAC), the Project Team met and correspond with the following agencies to provide update, coordinate with their ongoing project and seek specific input that may impact the Chinguacousy Road EA Study.

- A combined meeting with Region of Peel & City of Brampton (Meeting # 1 April 14, 2022)
- A combined meeting with CVC and TRCA (Meeting # 2 April 14, 2022)
- Meeting with Region of Peel (Meeting # 3 December 8, 2022)
- Meeting with Mayfield West Phase 2 Development Team (Meeting # 4 February 2, 2023)
- Meeting with Region of Peel (Meeting # 5 February 15, 2023)

The record of correspondence with external agencies and stakeholders is included in **Appendix I**. Key Correspondence is summarized in Table 7-4.

Agency	Key Correspondence
Technical Advisory Committee	
Region of Peel, City of Brampton, Toronto and Region Conservation Authority (TRCA) & Credit Valley Conservation (CVC)	Project Team met with TRCA and CVC on April 14, 2022 to introduce the project, provide background information, discuss proposed alternative solutions and obtain feedback.
	Project Team met with City of Brampton & Region of Peel on April 14, 2022 to introduce the project, provide background information, discuss proposed alternative solutions and obtain feedback.
	Project Team also discussed City of Brampton Chinguacousy Road widening project south of Mayfield Road and how it may impact the EA study. The project team also discussed Region of Peel Mayfield Road widening project and how it may impact the Town of Caledon EA study.

#### Table 7-4: Key Correspondence



Agency	Key Correspondence
	Project Team met with TAC members on May 11, 2022, to introduce the study, provide background information on the project, present alternatives considered with draft evaluation results and provide opportunity for members of TAC to provide their comments, feedback and ask questions.
	Project Team met with TAC members on September 28, 2022, to inform members of TAC on the progress and conclusion of Phase 1 & 2 work, present information on Phase 3 design options and evaluation results and provide opportunity for members of TAC to provide their comments, feedback and ask questions.
	Project Team met with Region of Peel on December 8, 2022 to discuss impacts of EA as a result of Phase 3 work on their proposed work along Mayfield Road.
	Project Team met with Region of Peel for a follow up meeting on February 15, 2023.
Provincial Agencies	
Ministry of Environment, Conservation & Parks (MECP)	Project Team emailed MECP to confirm Indigenous communities with potential interest in study on March 30, 2021.
	MECP provided a letter dated April 28, 2021 via email confirming the following Indigenous communities. MECP provided the "Areas of Interest" document that will provide guidance regarding Ministry's interest with respect to the Class EA project.
	<ul> <li>Mississaugas of the Credit First Nation</li> <li>Six Nations of the Grand River (Both Six Nations Elected Council and Haudenosaunee Confederacy Chiefs Council); and</li> <li>Huron-Wendat Nation (if there is potential for the project to impact archeological resources).</li> </ul>
	Project Team reached out to MECP on June 20, 2022 to confirm scope of Air Quality Assessment work required to support the EA study.
	MECP on June 28, 2022 confirmed that a qualitative Air Quality Assessment would be acceptable given the nature of the Project.



Agency	Key Correspondence
Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)	MHSTCI provided a letter dated April 26, 2021 advising Project Team its mandate of conserving Ontario's Cultural Heritage and recommended identifying Cultural Heritage & Archaeological resources through background studies that may have potential impact. MHSTCI indicated that these technical studies must be submitted to MHSTCI prior to issuing a Notice of Completion.
Toronto and Region Conservation Authority (TRCA)	TRCA provided a letter dated April 28, 2021 indicating areas of interest within the study area.
	TRCA staff attended the TAC Meeting # 1
	TRCA provided comments on the draft Fluvial geomorphic assessment and draft Natural Environmental Study report.
	TRCA staff attended the TAC Meeting # 2
	TRCA provided comments on the information shared after TAC Meeting # 2 and requested Project Team to submit the Draft EA report with Stormwater Management Review (SWM) memo.
Credit Valley Conservation (CVC)	CVC provided a letter dated April 8, 2021 identifying objectives and restoration requirements for this study.
	CVC staff were invited to attend TAC Meetings.
Stakeholders	
Mayfield West Phase 2 Development Team	The Team was invited to attend the PIC Meetings 1 & 2.
	Project Team received comments from the Private Developers regarding road profile and how it may impact their proposed development.
	Project Team met with representatives of the Development Team on February 02, 2023 to discuss comments. These comments were addressed as part of the Functional Design Work.

#### 7.5 Indigenous Community Engagement

The following Indigenous communities were consulted for the Study. In correspondence dated April 28, 2021, the Ministry of Environment, Conservation & Parks (MCEP) identified the following four Indigenous communities.

Mississaugas of the Credit First Nation;



- Six Nations of the Grand River
  - Six Nations Elected Council
  - Haudenosaunee Confederacy Chiefs Council (Haudenosaunee Development Institute (HDI))
- Huron-Wendat Nation

A detailed record of correspondence is included in **Appendix I**. A high-level summary of correspondence with Indigenous communities is provided in Table 7-5 below.



#### Table 7-5: Summary of Indigenous Community Correspondence

Indigenous Community	Key Correspondence Date	Source of Consultation	Key Corr
<ul> <li>Mississaugas of the Credit First Nation (MCFN)</li> </ul>	<ul> <li>May 2021 – May 2022</li> </ul>	<ul> <li>Notice of Study Commencement</li> <li>Agreements of Participation</li> </ul>	<ul> <li>Project team emailed Notice of Stu</li> <li>Project Team reached out on April participating in reviewing archeolog</li> <li>MFCN expressed their interest in participating and Field Liaison Represeduted between Town and MCF</li> </ul>
	<ul> <li>June/July 2022</li> </ul>	<ul> <li>Stage 1 Archaeological Assessment</li> </ul>	<ul> <li>The Town shared the Stage 1 report intimated on July 15, 2022 that the as well as the recommendations m</li> </ul>
	<ul> <li>June/July 2022</li> </ul>	<ul> <li>Notice of PIC # 1.</li> </ul>	<ul> <li>Project team emailed on June 16, 2022.</li> <li>MFCN noted on June 20, 2022 that however would like to be kept information.</li> </ul>
	<ul> <li>November 2022</li> </ul>	<ul> <li>Notice of PIC # 2</li> </ul>	<ul> <li>Project team emailed on November form November 11, 2022 to Nover</li> <li>No comments were received from</li> </ul>
	<ul> <li>November 29, 2024</li> </ul>	<ul> <li>Notice of Completion</li> </ul>	<ul> <li>Project team emailed Notice of Stu</li> </ul>
<ul> <li>Six Nations of the Grand River</li> <li>Six Nations Elected Council (SNGREC)</li> <li>Haudenosaunee Confederacy Chiefs Council (HDI)</li> </ul>	<ul> <li>May 2021 – May 2022</li> </ul>	<ul> <li>Notice of Study Commencement</li> </ul>	<ul> <li>Project team emailed Notice of Stu</li> <li>Project Team reached out on April participating in reviewing archeolog</li> <li>SNGREC expressed their interest</li> <li>No response was received from Hill</li> </ul>
	<ul> <li>June 2022 – November 2022</li> </ul>	<ul> <li>Stage 1 Archaeological Assessment</li> </ul>	<ul> <li>Project team provided a copy of th</li> <li>Project team followed up by email</li> <li>SNGREC intimated on November pertaining to the methodologies properties and the prescribed on their website along with their review and comments.</li> <li>A hard copy of the application was on October 14, 2022.</li> <li>Project Team followed up on Nove</li> <li>No comments were received from</li> </ul>
	<ul> <li>June/July 2022</li> </ul>	<ul> <li>Notice of PIC # 1.</li> </ul>	<ul> <li>Project team emailed on June 16, 2022.</li> <li>No comments were received.</li> </ul>
	<ul> <li>November 2022</li> </ul>	<ul> <li>Notice of PIC # 2</li> </ul>	<ul> <li>Project team emailed on November form November 11, 2022 to Novem</li> <li>No comments were received.</li> </ul>

#### espondence/Activities

udy Commencement on May 3, 2021. il 13, 2022 and May 17, 2022 to confirm interest in ogical studies and field work investigations. participating; DOCA Archaeological Review resentative (FLR) Participation Agreement were FN on May 30, 2022.

ort on June 27, 2023. MECN reviewed and ey had no comments or questions about the report nade for the Stage 2 assessment.

2022 the Notice of PIC #1 scheduled on July 5,

at they had no questions, concerns or comments rmed as the project progressed.

er 2, 2022 the Notice of PIC #2 scheduled online mber 30, 2022. MFCN

udy Completion on November 29, 2024

udy Commencement on May 3, 2021. I 13, 2022 and June 14, 2022 to confirm interest in gical studies and field work investigations. on Jun 15, 2022 in participating. IDI

ne Stage 1 report to SNGREC on June 27, 2022. on November 14, 2022.

14, 2022 that they had no additional comments roposed in the Stage 1 report

nail on October 14, 2022, an application to HDI as with the project information and Stage 1 report for

also submitted via Canada Post registered mail

ember 11, 2022. HDI.

2022 the Notice of PIC #1 scheduled on July 5,

er 2, 2022 the Notice of PIC #2 scheduled online mber 30, 2022.



Indigenous Community	Key Correspondence Date	Source of Consultation	Key Corr
	<ul> <li>November 29, 2024</li> </ul>	<ul> <li>Notice of Completion</li> </ul>	<ul> <li>Project team emailed Notice of Stu</li> </ul>
<ul> <li>Huron-Wendat Nation</li> </ul>	■ May 2021 – May 2022	<ul> <li>Notice of Study Commencement</li> </ul>	<ul> <li>Project team emailed Notice of Stu</li> <li>Project Team reached out on April reviewing archeological studies an</li> <li>Huron-Wendat Nation, on April 21, archeological assessments and pa monitoring as needed. Huron-Wen Stage 1 Archaeological Assessme</li> </ul>
•	■ June/July 2022	<ul> <li>Notice of PIC # 1</li> </ul>	<ul> <li>Project team emailed on June 16, 2022.</li> <li>Huron-Wendat Nation inquired on work would be necessary as part of Project team followed up on Jun 17 is required.</li> </ul>
•	<ul> <li>July/August 2022</li> </ul>	<ul> <li>Stage 1 Archaeological Assessment</li> </ul>	<ul> <li>Project team provided a copy of th</li> <li>Huron-Wendat Nation informed on provide comments however would</li> <li>2 Archaeological Assessment.</li> </ul>
•	<ul> <li>November 2022</li> </ul>	<ul> <li>Notice of PIC # 2</li> </ul>	<ul> <li>Project team emailed on November form November 11, 2022 to Novem</li> <li>Huron-Wendat Nation informed on informed about the project and State</li> </ul>
•	<ul> <li>November 29, 2024</li> </ul>	<ul> <li>Notice of Completion</li> </ul>	<ul> <li>Project team emailed Notice of Stu</li> </ul>

#### **Town of Caledon**

Chinguacousy Road Improvements Schedule 'C' MCEA Environmental Study Report (ESR)

#### espondence/Activities

udy Completion on November 29, 2024

udy Commencement on May 3, 2021.

il 13, 2022 to confirm interest in participating in nd field work investigations.

, 2022 expressed their intent to review articipate in future field work and construction ndat Nation also provided a quote for reviewing the ent Report.

2022 the Notice of PIC #1 scheduled on July 5,

June 16, 2022 if any archeological assessment of this project.

7, 2022 confirming that archeological assessment

ne Stage 1 report on July 19, 2022. In August 29, 2022 that they would not be able to I like to kept informed about the project and Stage

er 2, 2022 the Notice of PIC #2 scheduled online mber 30, 2022.

December 8, 2022 that they would like to kept age 2 Archaeological Assessment.

udy Completion on November 29, 2024

### 8 Description of the Preferred Design

This section describes the key features and design criteria for the Preferred Functional Design. A functional design drawing is included in **Appendix L.** 

As discussed earlier, the widening of road segment north of the on-going MW2 development may not be required until 2041 depending upon the development of the surrounding lands. The development plans and their access requirements are not available at this time, therefore, the functional design provided in **Appendix L** includes the preferred widening cross-section from Mayfield Road to northern limits of the on-going MW2 development and the preferred rehabilitation cross-section for the remaining road segment till Old School Road.

When the development of lands progressed and the detailed design initiated for the road segment beyond northern limits of MW2, the functional components will be designed based on the preferred widening design as discussed in Section 6.2. The environmental impacts and their mitigation resulting from widening of the road segment will also be studied as part of the detailed design.

#### 8.1 Design Criteria

The proposed design criteria for the Chinguacousy Road corridor is provided in Table 8-1.

Design Criteria	Design Requirements
Widening Design	
Posted Speed	50 km/h
Design Speed	70 km/h
ROW Width	36 m
Cross-Section	Urban
Travel Lanes	4 – 3.5 m lanes
Auxiliary Lanes	At intersections
Center Median	5 m
Active Transportation	3.5 m MUP on both sides
Rehabilitation Design	
Posted Speed	60 km/h
Design Speed	70 km/h
ROW Width	36 m
Cross-Section	Rural (with drainage improvements)
Travel Lanes	2 – 3.5 m lanes
Active Transportation	1.5 m bike accessible paved shoulders

#### Table 8-1: Proposed Design Criteria

The typical cross-sections for the above are shown in Figure 8-1 and Figure 8-2.





#### Figure 8-1: Typical Cross-Section – Widening Design

Figure 8-2: Typical Cross-Section – Rehabilitation Design



#### 8.2 Horizontal and Vertical Alignment

The horizontal alignment for the Preferred Design will generally follow the existing road alignment. The vertical alignment will need to be reviewed during the detailed design in conjunction with the adjacent developments and adjusted to best balance the requirements of the development as well as the surrounding existing topography.

#### 8.3 Intersections and Access Management

The following intersection improvements are included in the preferred design.



Intersection	Horizon Year	Proposed Changes
Mayfield Road (North Leg Only)	2031	Lane configurations to match the proposed work completed by the Region. (The improvements to be coordinated with Region of Peel)
Old School Road	2031	Signalization, including exclusive left-turn lanes at all approaches
	2041	Additional one through lane each in northbound and southbound directions
Tim Manley Ave	2031	<ul> <li>New Signalized intersection</li> <li>Additional one through lane each in northbound and southbound directions</li> <li>Exclusive right and left turn lanes in northbound and southbound directions</li> <li>West bound left turn lane and shared through and right turn lane</li> </ul>

#### **Table 8-2: Recommended Intersection Improvements**

The Region is widening Mayfield Road and the intersection with Chinguacousy Road. Chinguacousy Road forms the north leg of the Mayfield Road intersection and therefore its design will need to be coordinated with the Region of Peel's design of Mayfield Road intersection. Similarly, the intersection design for Chinguacousy Road at Tim Manley Avenue will need to be coordinated with the adjacent MW2 Development.

Access to existing and future driveways will be provided using the 5.0 m proposed center left turn lane. All existing access will be maintained. Existing and potential future entrances must be reviewed further during detailed design. Opportunity to limit access along the corridor by combining multiple access points into single access as part of the development shall be considered as part of development application review process.

The existing access opposite to Tim Manley Drive will need to be re-aligned as the fourth leg of the proposed intersection. This will provide a safe entry and exit point to existing landowner. If this property gets developed in future, the new access can then be converted into the fourth leg of the new intersection. Further consultation will be required during detail design with the existing landowner to ensure that the realigned access meets their current requirements.

#### 8.4 Active Transportation and Transit

Active transportation will be accommodated throughout by providing a 3.5 m two-way MUP on both sides of the road within the southern segment. The proposed MUP design is consistent with what the Region of Peel and City of Brampton have proposed for the widening of Mayfield Road and Chinguacousy Road respectively; thereby creating a seamless continuation of active transportation facilities.

As the MUP is to be designed as a shared facility, it is recommended that user guidance measures such as line painting and signage are incorporated.

The MUP must be designed in accordance with OTM Book 18 and AODA requirements.



At the north limit of the MW2 lands, the road cross-section will transition from urban to rural and the MUP will terminate. Active transportation within the northern section will be accommodated by the 1.5 m paved shoulders.

The widening of the southern section provides an opportunity for transit infrastructure utilizing the curb lane and boulevards to accommodate bus shelters and passenger waiting areas. The bus stop locations shown in the functional design are the locations identified by Brampton Transit to service MW2 development. The locations include Mayfield Road, Tweedhill Ave (Collector Road B of MW2) and Tim Manley Ave. The bus stop locations will be confirmed during the detailed design with the needs of MW2 developers and Brampton Transit.

#### 8.5 Drainage & Stormwater Management

#### 8.5.1 Stormwater Management

Implementation of the proposed stormwater management strategy will mitigate the increased impervious area associated with the Preferred Alternative Design Option. The recommended measures to be implemented during detail design phase to achieve the relevant stormwater runoff water quantity, water quality, and water balance for each of the proposed options, are as follows:

- Stormwater quantity controls shall be provided through a combination of the existing facilities within the Mayfield West Development, underground storage for the urbanized segments draining towards Mayfield Road, or directly to Etobicoke Creek, and bioswale retention within the flat-bottomed ditches throughout the rural segment of the proposed works. A conventional stormwater system will be required through for the urbanization of Chinguacousy Road.
- Stormwater quantity control targets will be based on the most restrictive requirements and shall be either based on control of post development peak flow rates to pre-development levels, or on a unit discharge basis established as part of subwatershed studies for Etobicoke and Fletcher's Creeks. Controls are required for the 2 through 100-year storms for all segments and up to the Regional event for segments tributary to Fletcher's Creek.
- Stormwater quality controls shall be provided through a combination of the existing facilities within the Mayfield West Development, underground storage for the urbanized segments draining towards Mayfield Road, or directly to Etobicoke Creek, and bioswale retention within the flat-bottomed ditches throughout the rural segment of the proposed works to achieve Enhanced level controls.
- Erosion control retention shall be implemented through a combination of the existing facilities within the Mayfield West Development, and bioswale retention within the flat-bottomed ditches throughout the rural segment of the proposed works with underground retention for other urban segments. The design retention volumes and associated release rates shall be based on rates established in previous subwatershed studies as follows:
  - Fletcher's Creek, 250 m³/impervious ha, released at 0.00041m³/s/ha
  - Etobicoke Creek, 325 m<sup>3</sup>/impervious ha, released at 0.00031m<sup>3</sup>/s/ha.



- Water balance requirements shall be provided through bioretention via stormwater planters in the boulevards through the urban section of the proposed works, and bioswale retention within the flat-bottomed ditches throughout the rural segment of the proposed works.
- Once the TRCA has completed the Etobicoke Creek Hydrology update, the road profile and proposed crossing sizes should be reviewed to ensure they are capable of conveying the required flows in accordance with the Town of Caledon Development Standards. A preliminary analysis of the available model for Branch 2 of Etobicoke Creek indicate that the existing structure is sufficient to pass 100-year flows with the proposed road profile, based on the current expected flows. However, Regional flow is expected to overtop the road while maintain safe access.
- Throughout detailed design coordination will be required with the Owner of the Mayfield West design to ensure that stormwater contributions from the subject areas discharging into Pond 1 & 5 are consistent with the design of the infrastructure within the development, such that all performance criteria are achieved with safe conveyance through the proposed subdivision development.
- Coordination with TRCA will be required through the detailed design process to ensure that the recommendations from the ongoing update of the Etobicoke Creek update are considered in the ultimate design for any of the required stormwater management controls.

#### 8.5.2 Considerations for Climate Change

The TRCA and the Town are currently updating their standards with regards to climate change. Consideration should be given to the expectation that rainfall intensities may increase by approximately 15%, and that future flows, based on future climate change conditions, be evaluated based on target flows established under existing conditions. TRCA and CVC must be consulted at the start of detail design phase to ensure that latest information is obtained before Stormwater Management Strategy for the corridor is reviewed and prepared.

#### 8.6 Utilities

The following utility providers were consulted during this Study. Further, existing utilities were identified through the completion of a Quality Level B (QL-B) sub-surface utility engineering (SUE) investigation work. The results of which are included on an Exhibit in **Appendix C**.

- Bell
- Rogers
- Hydro One
- Cogeco
- Enbridge Gas
- Alectra
- Group Telecom

Additional consultation with utilities, existing land owners, the Region of Peel, and the MW2 Development will be required during detailed design to ensure relocations and upgrades are



completed, as required. Based on consultation completed with the MW2 team, it is anticipated that watermain and sanitary sewer services will be extended to the proposed residential development abutting Chinguacousy Road south of Etobicoke Creek.

#### 8.7 Illumination

Full roadway and intersection illumination will be required for the southern section, including lighting of the proposed MUP. At a minimum, lighting of the intersection of Chinguacousy Road and Old School Road shall be included for the northern section. All lighting shall be designed in accordance with the latest electrical standards.

#### 8.8 Streetscaping

The preservation of existing trees and other vegetation within the right-of way but outside of the design footprint (travel lanes, pedestrian facilities, cycling facilities) should be maximized.

The boulevards and the center median provide an opportunity to incorporate vegetation and landscaping as well as street furniture and other amenities. A streetscape plan shall be prepared during detailed design that meets the objectives of the Town Wide Design Guidelines for community streetscapes.

#### 8.9 Construction Staging and Traffic Management

A construction staging and traffic management plan will need to be developed during detailed design in consultation with the Region of Peel and the MW2 Development. Typically, traffic would be maintained on existing lanes while new lanes are constructed and then traffic would be switched over to use the new lanes while the existing are reconstructed. Access to existing entrances must be maintained and provisions made for emergency services.

#### 8.10 Estimated High Level Construction Cost

A preliminary high level construction cost estimate was prepared for the proposed improvements to Chinguacousy Road between Mayfield Road and Old School Road, based on the functional preliminary design as shown in **Appendix L**. The preliminary cost is estimated to be \$34.2M as shown in Table 8-3. The following assumptions were made in preparing the cost estimate:

- Unit cost (high level) is based on similar projects completed in the past five years.
- Year 2025 is assumed for the Construction Year.
- Property acquisition and utility relocation costs are not included in this estimate.
- Engineering (Design, Contract Administration & Inspection) costs are not included in this estimate.
- Cost of inflation is not included in this estimate.
- Town of Caledon administration costs are not included in this estimate.



		,			0
No	Item Description	Unit	Quantity	Unit Rate	Estimated Cost
Widening of Southern Section					
1	Excavation	LS	1	\$1,250,000.00	\$1,250,000.00
2	Fill material	LS	1	\$95,000.00	\$95,000.00
3	Granular A	Tonne	18,000	\$40.00	\$720,000.00
4	Granular B	Tonne	40,000	\$35.00	\$1,400,000.00
5	Concrete median	m2	2,600	\$175.00	\$455,000.00
6	Hot mix HL-3	Tonne	4,500	\$145.00	\$652,500.00
7	Hot mix HDBC	Tonne	9,000	\$140.00	\$1,260,000.00
8	Multiuse path	m2	14,000	\$130.00	\$1,820,000.00
9	Concrete curb and gutter	m	4,000	\$75.00	\$300,000.00
10	Clean water pipe connection	LS	1	\$85,000.00	\$85,000.00
11	Culvert crossing 1 (10+190)	LS	1	\$125,000.00	\$125,000.00
12	Culvert crossing 2 (11+500)	LS	1	\$2,500,000.00	\$2,500,000.00
13	Storm sewer - Pipes	m	2,000	\$850.00	\$1,700,000.00
14	Storm sewer - Manholes	Each	20	\$12,500.00	\$250,000.00
15	Sanitary sewer - Pipes	m	2,000	\$400.00	\$800,000.00
16	Sanitary sewer - Manholes	Each	20	\$7,500.00	\$150,000.00
				Sub-total	\$13,562,500.00
Rehabi	ilitation of Northern Sect	ion			
17	Rehabilitation section	LS	1	\$1,900,000.00	\$1,900,000.00
				Sub-total	\$1,900,000.00
Other I	tems				
А	General items	LS (%)		10%	\$1,546,250.00
В	Miscellaneous items	LS (%)		15%	\$2,319,375.00
С	Removal items	LS (%)		10%	\$1,546,250.00
D	Electrical items	LS (%)		15%	\$2,319,375.00
Е	Green infrastructure	LS (%)		10%	\$1,546,250.00
F	Landscaping	LS (%)		10%	\$1,546,250.00
				Sub-Total	\$10,823,750.00
				Sub-Total	\$26,286,250.00
			Со	ntingency (30%)	\$7,885,875.00
			Total	(Excluding HST)	\$34,172,125,00

#### Table 8-3: Preliminary Construction Cost for Preferred Design



It is recommended that the construction cost be updated at the 30%, 60%, 90% and 100% milestone submissions during detailed design.

#### 8.11 Utility Relocation Cost

Based on the functional design, we anticipate the following approximate cost for the utility relocation work.

- Bell Infrastructure \$650.00 per linear meter (Total Approximate Cost \$2,000,000)
- Hydro \$785.00 per linear meter (Total Approximate Cost \$2,400,000)
- Watermain Impacts to the Region's watermain are not anticipated at this time.

#### 8.12 Property Acquisition Cost

Based on the functional design, we anticipate the following approximate cost for the property acquisition work.

- Approximately 11 acres of property acquisition is required along the 3.0 Km corridor.
- The total approximate cost for property acquisition is \$44,000,000 (\$4,000,000 per acre)
- Temporary easement cost if required is not included in the above estimate.
- The actual taking for each property must be confirmed during the detailed design phase.
- It is estimated that a minimum 2 years for property acquisition will be required. The property acquisition time must be incorporated into the schedule when considering the construction date.
- The Town may negotiate the required property with future developments if any and this may reduce the amount of property taking.



### 9 Potential Impacts, Mitigation, and Commitments to Future Work

This section outlines the potential impacts of the Preferred Design; the corresponding mitigation measures that are to be included in the development of the detailed design and implemented during construction; as well as any commitments to future work.

Potential impacts to the built, natural, cultural, and socio-economic environments have been identified in the various reports included in the Appendices, as follows:

Report	Appendix Location
Preliminary Geotechnical Investigation	Appendix A
Traffic Study Report	Appendix B
Natural Environmental Investigation	Appendix D
Preliminary Hydrogeological Investigation	Appendix E
Fluvial Geomorphological Investigation	Appendix F
Stage 1 Archaeological Investigation	Appendix G
Cultural Heritage Investigation	Appendix H
Preliminary Stormwater Management Investigation	Appendix J
Air Quality Assessment	Appendix K

#### Table 9-1: Environmental Impact Reports

#### 9.1 Air Quality

With regards to Air Quality, in discussions with MECP and as per MECP's recommendation, a qualitative assessment was completed for this project for both operational and construction impacts from the project. The approach to assessing air quality impacts associated with the project, after construction is complete, consisted of reviewing projected future traffic volumes for Chinguacousy Road, reviewing the proximity and orientation of the road relative to existing and planned sensitive land uses, reviewing the existing air quality conditions, and reviewing data from previous air quality modelling studies other similar roadways.

The assessment concluded that, vehicle emissions on the proposed roadways are not expected to cause undesirable cumulative air pollutant levels (i.e., levels above the applicable thresholds). As the project provides opportunities for active and public transportation alternatives, this will help to minimize the potential for adverse air quality impacts. Impacts of construction activities on air quality are expected to be temporary in nature and can be mitigated.

#### 9.2 Climate Change

As per the MECP guidance document referenced in Section 2, the project's potential impacts to climate change and how climate change may impact the project was considered. Climate change concerns generally relate to the increased concentration of greenhouse gases in the

atmosphere, which can result in a rise in the global mean surface temperature. Increased temperatures worldwide are creating changes in climate that is resulting in extreme weather events.

The current undertaking is a project involving the reconstruction/widening of an existing corridor to meet future demand and growth. As it is a transportation project, one of the impacts to climate change relate to vehicular greenhouse gas emissions. While the area will generally see an increase in the amount of traffic, the widening includes active transportation opportunities and will also provide a better traffic operations level of service, minimizing delays and idling of vehicles within the area. One tool to assist in reducing greenhouse gas levels is through carbon sequestration. Vegetation can assist in removing carbon dioxide from the atmosphere. Compensation planting will be required by the TRCA for any tree removals required for construction, additional plantings will be considered during detailed design along boulevards and future median.

Climate change has the potential to impact the project through increased intensity of storm events that can lead to flooding. To mitigate this, the existing culverts will be reviewed and assessed and will be replaced if required during detail design to meet 100 Year Storm requirements. Further, Low Impact Development measures for increased infiltration and surface water evaporation will be considered in the detailed design, which will also assist in reducing impacts. This undertaking is expected to make the area less vulnerable to climate change.

#### 9.3 Summary of Potential Impacts and Mitigation Measures

The various potential impacts and areas of concern along with the recommended mitigation strategy and/or commitments to complete future work during the detailed design stage are summarized in Table 9-2 and Section 11. It is noted that both short-term (i.e. temporary) potential impacts related to construction as well as long-term impacts have been considered.



#### Table 9-2: Summary of Mitigation Measures and Commitments to Future Work

Environment	Potential Impact or Concern	Proposed Mitigation or Future Commitment
General	Engagement	<ul> <li>Continue to coordinate and engage with the following during detailed design:</li> <li>Adjacent property owners regarding project schedule, land acquisition, restoration of existing features if impacte</li> <li>Indigenous communities, particularly in conjunction with the completion of any further archaeological assessmen</li> <li>Adjacent development to ensure cohesiveness of designs and timing.</li> <li>Neighbouring municipalities to provide a consistent corridor and implement new services such as transit along the Utility service providers regarding relocation and new services.</li> </ul>
Built	Traffic Management	<ul> <li>Traffic Management Plan must be prepared during the detail design phase. This is to ensure that safe access is p</li> </ul>
	Management of Excess Soils	<ul> <li>Activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the Management and Excess Soil Quality Standards" includes both "Soil Rules" and "Excess Soil Standards" which are regulation and must be read alongside the regulation. All required investigations, analysis, planning, and reporting</li> <li>All waste generated during construction must be disposed of in accordance with Ministry requirements.</li> </ul>
	Vertical Alignment and Overall Grading	<ul> <li>The need for and extent of grading should be minimized during detailed design within and adjacent to watercourse</li> <li>The vertical profile must be coordinated with the adjacent developer to minimize the overall impact due to road with</li> <li>Use of retaining or aesthetic walls must be considered if grading easements cannot be obtained.</li> </ul>
	Drainage and SWM	<ul> <li>Additional study and design, including hydrologic and hydraulic analysis, will be completed to determine and achie TRCA and CVC must be consulted during early phases of detail design. Town of Caledon "Appendix A – Stormwa meet the CLI-ECA criteria.</li> </ul>
Natural	Vegetation and Wildlife	<ul> <li>An Arborist Report and Tree Protection Plan should be developed according to the Town's Standard in consultation trees that can be retained. Tree protection must be included in grading plans.</li> <li>Where feasible and necessary, trees proposed to be retained will be protected by tree protection fencing (TPF), we to minimize encroachment into the root zone and protect the trunk. Fencing provides protection from potential dare of machinery near trees and branches, and stockpiling of materials over the root zone. ESC fencing can be combined and newly constructed surfaces are to be stabilized using appropriate means in accordance with the originads. These surfaces should be fully stabilized and re-vegetated as quickly as possible following the completion of Construction practices to control the spread of invasive species will be implemented.</li> <li>Tree removals should not occur between April 1 to September 30, to avoid the maternity roosting period for Endangered Bats (April 1 to September 30), a qualified ecologist must screen for roosting; further investigation may be required should potential roost trees be identified.</li> <li>Vegetation clearing should occur outside of the breeding bird season (generally late April to late July) to prevent in Convention Act. Winter season, during frozen ground conditions, is the ideal period for tree and vegetation removing occur within the breeding bird window a qualified biologist must screen the area. Clearing in identified nesting area been confirmed that the young have fledged.</li> <li>A screening of existing culverts for Barn Swallow nests should be conducted should work occur between April 1 to July, amphibians are to be protected with ESC fencing.</li> <li>A Streetscaping Plan is to be prepared as part of the detailed design.</li> <li>Salt tolerant species must be considered and implemented along the project corridor.</li> </ul>
	Fish and Fish Habitat	<ul> <li>Where culverts are proposed, open footing designs and larger culverts should be considered to improve fish habit</li> <li>A Project Review by DFO in accordance with the Fisheries Act may be required for the culvert replacements to de Paragraph 35(2)(b) to proceed with the Project. A Request for Project Review will be prepared and submitted to D</li> <li>The construction of any culverts will require activities to ensure the protection of fish and fish habitat. Construction No in-water work will occur between the restriction periods for southern Ontario, being March 15 to July 15, subject Fish removal (salvage) will be required prior to pumping out the watercourse/HDF work areas. Prior to construction</li> </ul>

Town of Caledon Chinguacousy Road Improvements Schedule 'C' MCEA Environmental Study Report (ESR)

ed because of road widening works. ents and field work.

he corridor.

provided during construction.

he MECP's document entitled "Rules for Soil are incorporated by reference into the excess soil g to meet the regulations must be completed.

es, cultural heritage resources. idening works.

eve the required SWM controls and assess outlets. ater Management Criteria" must be followed to

on with TRCA as part of detailed design to protect

which is to be placed at the dripline or in a location mage during construction activities such as the use ined with TPF.

characteristics of the exposed soils and adjacent of the works.

ngered Bats. If tree removals need to occur within r potential snag trees that may be used for

nest destruction to comply with the Migratory Birds val if feasible. In the event that tree removal must eas would be prohibited until such time that it has

o September 30. , areas with standing water that may support

tat and passage opportunities. etermine if an Authorization is required under DFO as part of the detailed design process. In is to respect timing windows for in-water works. ect to confirmation with the DFO and the TRCA. on, a License to Collect Fish for Scientific Purposes



Environment	Potential Impact or Concern	Proposed Mitigation or Future Commitment
		will be required from the MNRF, in order to proceed with the proposed works and fish removal. Fish removal must salvaged must be relocated downstream of the construction area.
	Species at Risk	In the event that SAR are encountered, work will stop and the MECP will be contacted for direction.
	Spills	<ul> <li>All activities, including the maintenance of construction machinery, should be controlled to prevent the entry of pet deleterious substances into the natural environment. Refueling should not occur within 30 m of watercourse and/o</li> </ul>
	Erosion and Sediment Control	<ul> <li>To minimize the potential for erosion and off-site transport of sediment into surface water features and the natural by the contractor should meet guidelines as outlined in the TRCA Erosion and Sediment Control Guide for Urban (Toronto and Region Conservation Authority, 2019).</li> <li>Environmental protection, specifically ESC fencing, should be installed along the limits of the construction area at commencement of construction (includes prior to vegetation removal).</li> </ul>
	Groundwater, Surface Water, and Source Water Protection	<ul> <li>Any dewatering (if required) is to be filtered to remove sediment prior to discharging to a well vegetated area at lease to sediment, sediment-laden water or deleterious substances are to be discharged into watercourses/drainage fe</li> <li>A well survey and the development of a monitoring program should be completed during detailed design to predict and plan for the replacement of such supplies temporarily as needed.</li> </ul>
Cultural	Archaeological Resources	<ul> <li>Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment lintervals prior to any proposed construction activities.</li> <li>Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment sho potential of the surrounding lands.</li> <li>Should previously undocumented archaeological resources be discovered, they may be a new archaeological site Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage also be notified and consulted immediately to ensure respectful treatment of any archeological resources.</li> </ul>
	Built Cultural Resources	<ul> <li>Potential direct adverse impacts have been identified to BHR 1 (12016 Chinguacousy Road), CHL 2 (12306 Ching Road) in the proposed undertaking. As BHR 1 is Included in the Built Heritage Resource Inventory, and CHL 2 and Register, a resource-specific HIA should be completed for each of these properties as per clause 3.3.3.1.5 of the</li> </ul>
Socio-Economic	Climate Change	<ul> <li>Incorporate vegetation to the extent possible to assist with carbon sequestration.</li> <li>Review impact of climate change in SWM design, including reviewing culverts to meet 100 Year Storm conveyance</li> <li>Incorporate Low Impact Development measures to the extent possible.</li> </ul>
	Air Quality During Construction	<ul> <li>Impacts of construction activities on air quality are expected to be temporary in nature and can be mitigated throug</li> <li>Use of reformulated fuels, emulsified fuels, exhaust catalyst and filtration technologies, cleaner engine repowers emissions from construction equipment.</li> <li>Regular cleaning of construction sites and access roads to remove construction-caused debris and dust.</li> <li>Dust suppression on unpaved haul roads and other traffic areas susceptible to dust, subject to the area being free that may be affected by dust suppression chemicals.</li> <li>Covered loads when hauling fine-grained materials.</li> <li>Prompt cleaning of paved streets/roads where tracking of soil, mud or dust has occurred.</li> <li>Tire washes and other methods to prevent trucks and other vehicles from tracking soil, mud or dust onto paved a Covered stockpiles of soil, sand and aggregate as necessary.</li> <li>Compliance with posted speed limits and, as appropriate, further reductions in speeds when travelling sites on unpavel.</li> </ul>
	Noise During Construction	<ul> <li>Construction should be limited to the time periods allowed by the Town's Noise bylaw. If construction activities are must seek permits / exemptions directly from the municipality in advance.</li> <li>All equipment should be properly maintained to limit noise emissions. As such, all construction equipment should lare in good working order.</li> </ul>

be completed by a qualified ecologist, and fish

etroleum products, debris, rubble, concrete or other or wetland communities.

environment, the ESC design and measures used Construction, December 2019 (ESC Guideline)

predetermined sensitive areas prior to the

east 30 m from the watercourses. eatures at any time. ct and/or confirm actual effects during construction

by test pit and pedestrian survey at five metre

ould be conducted to determine the archaeological

e and therefore subject to Section 48(1) of the the site immediately and engage a licensed ge Act. Respective Aboriginal communities will

guacousy Road), and CHL 3 (12472 Chinguacousy nd CHL 3 are listed on the Municipal Heritage Town's Official Plan during detailed design.

ce requirements.

gh best practices including the following: s, and new alternative-fuelled trucks to reduce

ee of sensitive plant, water or other ecosystems

streets or roads.

inpaved surfaces.

e required outside of these hours, the Contractor

be operated with effective muffling devices that



### 10 Permits, Approvals, and Monitoring

#### **10.1 Permits and Approvals**

As part of the detailed design process, prior to construction, it is anticipated that the permits and approvals listed in this section will be required. As these requirements may change throughout the detailed design process, it is recommended that a Permits and Approval tracking list be prepared and regularly updated.

- Toronto and Region Conservation Authority (TRCA) permit will be required in accordance with Ontario Regulation 166/06 – Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Government of Ontario, 1990). Portions of the project study area are within areas regulated by the TRCA and, as such, a permit will be required prior to construction.
- Credit Valley Conservation in accordance with Ontario Regulation 166/06 Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Government of Ontario, 1990). Portions of the project study area are within areas regulated by CVC and, as such, a permit will be required prior to construction.
- DFO screening for culvert replacement work.
- Ministry of Environment, Conservation and Parks: Continued consultation with MECP is required to determine if permitting or authorization will be required under the Endangered Species Act.
- Ministry of Environment, Conservation and Parks: The need for dewatering is to be assessed during detailed design. A Permit to Take Water or Environmental Activity and Sector Registry registration may be required.
- Tree removal permit from the Town
- Road occupancy permit from Town of Caledon and Region of Peel
- PUCC (Utility Clearance) or MC approval for utility relocation work.
- An Environmental Compliance Approval (ECA) from the Ministry will be required for the proposed storm sewer, sanitary sewer and watermain.

#### **10.2 Monitoring**

Information pertaining to required mitigation and monitoring will be incorporated into the construction documents. Monitoring will be conducted by on-site construction staff to make certain that environmental protection measures are being implemented, are effective, and that any repairs to protection measures are made in a timely manner.

Monitoring during construction shall include:

 Monitoring of construction activities in general to ensure conformance with the overall design and tender documents;



- Monitoring of mitigation measures that have been implemented to ensure they are not impacted by the construction activities and/or that impacts are minimized;
- Monitoring of traffic flow and effectiveness of new operational improvements;
- Monitoring of public complaints and follow-up;
- Monitoring of the effectiveness of SWM controls; and
- Monitoring of all restoration works.



### **11** Commitments During Detail Design

#### **11.1 Commitments**

This Study has identified some additional commitments need to be carried out during the detail design phase.

- As per Stage 1, Archaeological Assessment work, part of the Study area shows archaeological potential. These lands will require Stage 2 Archaeological Assessment. A Stage 2 must be completed and the final report shall be submitted to Ministry for review and approval.
- Continue to engage Indigenous communities during Stage 2 Archaeological Assessment work.
- A detailed Heritage Impact Assessment will be required for the following properties.
  - 12016 Chinguacousy Road
  - 12306 Chinguacousy Road
  - 12472 Chinguacousy Road
- A detailed stormwater assessment is required during detail design. A detailed assessment will be required to confirm the new size and length of the culvert for Etobicoke Creek crossing.
- Coordination with CVC & TRCA required to obtain latest hydraulic and hydrology models for a detailed stormwater management analysis work along Chinguacousy Road.
- Coordination with Peel Region required to address drainage & stormwater management requirements for the section north of Mayfield Road.
- Widening and urbanization was warranted up to the limit of MW2 and given the limit of 413
  Focused Analysis Area (FAA), MTO and the Town could discuss and reevaluate the need for
  any future improvement as part 413 Detailed Design Stage.
- Coordination with Mayfield West Phase 2 development required to address drainage & stormwater management requirements for the section of Chinguacousy Road that will drain into their proposed Ponds 1 & 5.
- Coordination with Mayfield West Phase 2 development required for the following items as well.
  - Profile adjustment to minimize grading impact at the proposed 36.0 m ROW
  - Underground municipal utilities extension and service connections for the development adjacent to Chinguacousy Road
  - Access Management
  - Tim Manley & Chinguacousy Road intersection design
- Town to obtain the required property for a 36.0 m corridor.
- Coordination with utility companies to relocate existing impacted utilities.
- Obtain all required permits and approvals prior to construction.



- Town of Caledon to coordinate with existing land owners during detail design for the following items;
  - Inform the property owners about potential impacts
  - Inform the property owners about the project schedule. Engage them during detail design phase.
  - Avoid or propose any mitigation measures for any impacts to existing property due to road widening works.
  - Avoid or propose any mitigation measures to any built heritage features due to road widening works.
  - Restore or rebuild any existing features impacted by the road widening works.
  - Confirm with existing property owners about need for new services such as gas line, sanitary sewer and watermain services that will be installed along Chinguacousy Road.
- Work with City of Brampton to confirm transit services along the Study corridor.
- Complete excess soil investigation work to meet O. Reg. 406/19 requirements.
- Complete detailed hydrogeological investigation work to determine if PTTW is required.
- Review and submit "Request for Project Review Form" to DFO. Recommendations from DFO must be implemented in detail design work.
- Obtain Environmental Compliance Approval for the proposed underground municipal services.
- Complete detailed Natural Environmental investigation and prepare mitigation measures.
- Prepare detailed landscape/streetscape plan including street furniture along the Study corridor.
- Review, research and implement best practices to address climate change.



# Appendix A

Preliminary Geotechnical Investigation





## Appendix B

Traffic Study Report



# Appendix C

**Existing Utilities** 



## **Appendix D** Natural Environmental Investigation





# Appendix E

Preliminary Hydrogeological Investigation



# Appendix F

Fluvial Geomorphological Investigation





# Appendix G

Stage 1 Archaeological Investigation





## **Appendix H** Cultural Heritage Investigation



### **Appendix I** Stakeholders Consultation Records

Stakeholders Consultation Records

Appendix |



## Appendix J

### Preliminary Stormwater Management Investigation



# Appendix K

Air Quality Assessment





### **Appendix L** Functional Design Drawings

Functional Design Drawings

Appendix |